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Guest Editors: **Alkis Thrassou - Marco Frey**

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Aphorisms

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1. *"Experience is the hardest kind of teacher. It gives you the test first, and the lesson afterward"*
   (Oscar Wilde)

2. *"We don't see things as they are, we see them as we are"*
   (Anais Nin)

3. *"But there is not a perpetual dream. Every dream gives way to a new dream, and should not be wanting detain anyone"*
   (Herman Hesse)

4. *"He who really knows how to see will find what he's looking for even with his eyes closed"*
   (Italo Calvino)

5. *"Anyone who stops learning is old, whether at twenty or eighty"*
   (Henry Ford)

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L'insegnamento di Becattini

Riccardo Varaldo - Luca Ferrucci

La scomparsa di Giacomo Becattini costituisce una grave perdita umana e culturale per un vasto insieme di studiosi, *policy makers* e imprenditori. È raro che un accademico, grazie al suo contributo scientifico, possa generare un vuoto nella comunità sociale e accademica che va ben oltre i ristretti confini del suo mondo. Becattini è stato anche questo, ossia un ricercatore capace di ascoltare, dialogare e studiare il mondo economico reale attorno a Lui, nonché astrarre e teorizzare quel modello di industrializzazione leggera che ha costituito, e costituisce ancora oggi, una chiave interpretativa rilevante del Made in Italy, nella sua organizzazione a filiera distrettuale.

Egli ha verificato e sviluppato il suo approccio scientifico di derivazione marshalliana su quei modelli di sviluppo locale che, per taluni studiosi, costituivano pezzi di "archeologia industriale", destinati ad essere "spazzati via" dai processi di modernizzazione delle *big corporation* multinazionali e conglomerate. Ma, parallelamente, ha saputo rileggere anche il ruolo delle piccole imprese manifatturiere, per farle "uscire" dalle teorie economiche dominanti, sino ad allora formulate nel nostro Paese, che le vedevano relegate in un ruolo di marginalità, conseguenza di un ineludibile dualismo nel mercato del lavoro e di una subalternità rispetto alle logiche del decentramento produttivo di capacità, alimentate dalla grande impresa committente. Secondo Becattini, la forza competitiva della piccola impresa distrettuale sta nella sua specializzazione, che deriva dal suo essere all'interno di un contesto locale fortemente radicato e legato a filiere manifatturiere territorializzate, a un mercato del lavoro vitalizzato dalle forze sociali e istituzionali e da altri attori funzionali alla competitività di un sistema produttivo (dalle camere di commercio sino alle piccole banche locali). Il contesto - che trova la sua principale forza concettuale e teorica nell'espressione marshalliana delle economie esterne di agglomerazione - diviene il volano della competitività di queste piccole imprese distrettuali e con loro dell'intero sistema produttivo locale. In questa visione sta la forza espansiva dell'età dell'oro dei distretti, elemento rilevante della competitività del sistema Paese, dando forza sui mercati internazionali alla "fabbrica distrettuale", parcellizzata in mille rivoli, alla ricerca di economie di costo da contrapporre alle economie di scala delle grandi imprese.

Nella concezione che "il bosco conta più dei singoli alberi", sta la peculiarità del suo pensiero e l'origine del confronto, qualche volta dialettico, con gli economisti d'impresa. Un confronto che non è semplicemente espressione di una difesa "corporativa" di radicate tradizioni scientifiche e culturali proprie dell'economia politica (volta ad osservare il sistema) e dell'economia aziendale (mirata a guardare le singole imprese), ma che rappresenta anche, nella diversità dei punti di osservazione, il "momento di partenza" di una rinverdita dialettica culturale fattuale. Le nuove forti sollecitazioni competitive esterne, imponendo fattori di varietà strutturale e strategica

negli assetti d'impresa, coincidenti nello spingere all'insù le dimensioni aziendali, hanno portato ad accentuare le differenze tra l'impostazione macro dei distretti e il livello di analisi micro, quello delle imprese operanti nei distretti. Fenomeni rilevanti, a decorrere dall'inizio degli anni Novanta, come la globalizzazione, la crescente rilevanza dell'innovazione, oppure le trasformazioni terziarie di un certo manifatturiero tradizionale (con la crescente importanza di fattori competitivi immateriali, fondati sul retail, il marketing, il design o la R&S) portano a ridisegnare le catene del valore dei prodotti e la conseguente tradizionale divisione del lavoro intra-distrettuale.

Mentre si attenua la forza competitiva dei distretti come insieme, in uno con il calare della competitività del sistema Paese, non si sviluppa una capacità evolutiva autonoma delle imprese distrettuali più rappresentative nelle forme e nei tempi richiesti. Da qui l'inizio di un processo irriversibile di decadenza della forza espressiva e competitiva dei distretti becattiniani (Varaldo e Ferrucci, 1993).

Nei distretti, a partire dagli anni 1990 servono crescite dimensionali e progettualità strategiche nuove, portate avanti da singole imprese *leader*, con l'innesto di maggiori investimenti nelle innovazioni tecnologiche, di più avanzate competenze manageriali e di fenomeni interni di gerarchizzazione manifatturiera. È su questi fenomeni nuovi che si "gioca" il confronto culturale tra gli economisti à la Becattini e quelli d'impresa à la Varaldo. Non è un dibattito sterile, ma fortemente ancorato alla realtà in forte cambiamento e non scevro di profonde implicazioni sul piano delle policy industriali. Ma è anche un confronto tra un'intellighenzia che sa rispettarsi, che sa ascoltarsi e che sa imparare reciprocamente, come dimostra il Convegno scientifico tenutosi agli inizi degli anni Novanta, nella culla dei distretti industriali italiani, ossia a Prato (Varaldo e Ferrucci, 1997). E che, pur partendo da impostazioni diverse, si ritrova nel riconoscere l'importanza di un territorio da intendersi come sistema dinamico, capace di apprendere dall'esterno ed espressione di un ecosistema sociale e economico, che deve sempre riconfigurarsi per poter dimostrare una propria endogena capacità di innovazione e di competitività sul piano internazionale, a livello delle capacità e realizzazioni imprenditoriali che ne sono parte costituente fondamentale.

Ma il valore culturale del pensiero di Becattini non sta solo nell'oggetto di analisi, ossia i distretti industriali, ma almeno su altri tre ordini di considerazioni.

Innanzitutto, il suo contributo appare di grande significato sul piano quasi epistemologico. L'economia è profondamente radicata nella storia, nella società e nelle istituzioni pubbliche e ogni qualvolta essa recide i legami con le scienze sociali, per essere modellizzata all'interno di uno schema asettico e sterile, perde la sua funzione culturale e la sua capacità esplicativa del reale. Il *mainstream* statunitense, fondato su studi econometrici, analisi dei mercati finanziari e logiche neoliberiste, ha generato e rafforzato questo approccio metodologico e specialistico, perdendo di vista i legami con le scienze sociali e creando una scuola di economisti, talvolta estranei a queste fondamenta culturali dell'economia. Come avvertiva J.M Keynes, già all'epoca (Essays on Biography, Martino

Fine Books, 1933) in relazione alle competenze dell'economista: "He must reach a high standard in several different directions and must combine talents not often found together. He must be mathematician, historician, statesman, philosopher - in some degree. He must understand symbols and speak in words. He must contemplate the particular in terms of the general, and touch abstract and concrete in the same flight of thought. He must study the present in the light of the past for the pourposes of the future. No part of man's nature or his institutions must lie entirely outside his regard. He must be purposeful and disinterested in a simultaneous mood; as aloof and incorruptible as an artist, yet sometimes as near the earth as a politician".

Becattini ha sempre difeso questi legami con le scienze sociali e, infatti, non è casuale che, attorno ai distretti industriali, abbia coagulato una Scuola di pensiero capace di attrarre storici, geografi, sociologi, uomini delle istituzioni e delle imprese e così via. I distretti industriali non sarebbero tali se prevalesse, secondo una visione accademica sterile, una logica di analisi prettamente economicista, fine a sé stessa. La loro configurazione territoriale, sociale, e produttiva, espressione della storia e dell'identità di una comunità locale, modellata dalle istituzioni e dalle forze imprenditoriali, necessita di questa visione ampia e inclusiva da parte di una pluralità di approcci scientifici.

Tra l'altro, il pensiero economico moderno gli sta dando ragione quando, tra i best seller recenti a livello mondiale (Picketty, 2004; Acemoglu e Robinson, 2002) si trovano libri di economisti istituzionalisti del lavoro o della crescita che ripropongono in modo forte questi legami.

In secondo luogo, Becattini è stato anche uno studioso con la capacità di rendere la conoscenza scientifica accessibile a tutti[1].

I libri e gli articoli di Becattini sono tanto profondi nella conoscenza scientifica, quanto accessibili alla lettura ed interpretazione da parte di una molteplicità di interlocutori. Anzi, forse una parte del successo dei distretti industriali nel mondo della cultura lo si deve proprio a questo, ossia alla capacità di analizzare, descrivere e interpretare un modello economico locale, senza mai perdersi in aspetti di "contorno", né rendere così astratto il ragionamento da privarlo della capacità di essere assimilato e compreso, non solo dagli addetti ai lavori del mondo accademico ma anche da imprenditori e policy makers e persino studenti delle scuole medie superiori.

Infine, Becattini - in stretta simbiosi con Giorgio Fuà, il fondatore della Scuola economica anconetana, e convinto sostenitore dell'importanza del fattore organizzativo come leva dello sviluppo delle piccole imprese - si è posto, da economista, il problema della crescita e del benessere economico e sociale di un paese, come l'Italia, che era entrato in "ritardo" nel processo di industrializzazione a livello europeo e che si portava dietro profondi e laceranti differenze socio-economiche tra i diversi territori. La sua visione che parte da un contesto, fatto di una comunità locale, presenta un'originalità di pensiero e di successiva azione. Egli ha intravisto nei distretti industriali una leva per un percorso di industrializzazione - e quindi di sviluppo economico

[1] Come diceva il filosofo Karl Raimund Popper *La società aperta e i suoi nemici,* Armando Editore, 1945, "Chi ha da dire qualcosa di nuovo e di importante ci tiene a farsi capire. Farà perciò tutto il possibile per scrivere in modo semplice e comprensibile. Niente è più facile dello scrivere difficile".

- di comunità originariamente legate al contesto rurale o dei piccoli centri urbani. Ha proposto un'idea di sviluppo e di crescita micro-fondata a partire dal contesto sociale, ambientale e istituzionale locale, quasi, per così dire, in contrapposizione rispetto a teorie economiche dello sviluppo, fondate su approcci macro diretti dallo Stato (alternativamente visto, di volta in volta, come regolatore, imprenditore, investitore keynesiano o gestore di liquidità monetaria) o fondati su forze imprenditoriali esogene, come nei poli regionali di sviluppo à la Perroux, con il ruolo delle grandi imprese motrici. In questa dimensione, egli ha indicato una via per lo sviluppo che non necessita di soggettività estranee alla storia delle comunità locali, ma al contrario parte proprio da esse per "costruire" la propria strada in coerenza con le proprie identità. In tutto questo, c'è evidentemente anche l'idea che l'Accademia debba svolgere una funzione culturale e, diremmo quasi pedagogica, oltre i confini del mondo universitario. Lo studioso non deve mascherarsi in una "sapienza" del linguaggio e trincerarsi dietro un'astrazione fine a sé stessa, senza capacità di dialogo con gli interlocutori della società, ma per poter essere e ambire anche ad un ruolo di "costruttore" della realtà, alla stregua di uno scienziato del mondo della fisica o della chimica, deve poter ipotizzare scenari e indicare strade da percorrere per migliorare l'efficienza, la competitività, l'equità, l'inclusione o la sostenibilità dell'economia o della società che osserva. Solo le teorie sociali ed economiche che non solo descrivono e interpretano ciò che vedono, ma anche che indicano sentieri di cambiamento possibile o auspicabile, riescono ad avere un ruolo nella storia del pensiero umano. Così è stato per tutti i grandi pensatori dell'economia dall'Età della Scuola classica sino ad oggi, passando per Smith, Ricardo, Marx, Keynes, Schumpeter sino, di recente, a Sen e Stiglitz.

Integrazione e dialogo tra i diversi campi delle scienze sociali, confronto e accessibilità del pensiero scientifico e problema dello sviluppo e della crescita di un Paese costituiscono le fondamenta di un Pensiero economico che, ancora oggi, appare di grande "modernità" agli occhi dei giovani studiosi. Ciò ci appare vero soprattutto in un contesto dove l'auspicabile internazionalizzazione della ricerca scientifica, nel campo economico e del management, sembra spesso tenda ad emulare ed ad essere accondiscendente rispetto a *mainstream* apparentemente specialistici, disinteressati alle implicazioni economiche e sociali delle diverse proposizioni teoriche e incapaci di confrontarsi oltre gli stretti confini scientifico-disciplinari, se non addirittura "chiusi" solamente all'interno di mere nicchie di ricerca.

Per gli economisti d'impresa, che hanno cercato di andare oltre il recinto storico delle tradizionali scuole aziendalistiche, Giacomo Becattini è lo studioso innovatore che, insieme a Giorgio Fuà e Sergio Vaccà, è servito da "bussola" essenziale sia scientifica che culturale per un piccolo nucleo di aziendalisti "transfughi" che hanno liberato il pensiero e intrapreso nuovi cammini di analisi e ricerca.

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Antonio Borghesi: il ricordo dei suoi allievi

Ilenia Confente - Barbara Gaudenzi - Ivan Russo - Paola Signori

Il prof. Antonio Borghesi è mancato all'affetto dei suoi parenti, amici e colleghi la sera del 23 febbraio 2017 all'età di 67 anni. Con forza e determinazione ha combattuto, durante gli ultimi tre anni, contro un male che mette a dura prova corpo e spirito, ma che lui ha fronteggiato con grande coraggio. Nell'ultimo anno ha tenacemente continuato i suoi amati studi, sempre in Università, nel vivo confronto con i colleghi e negli impegni istituzionali e accademici. Una vita forte e intensa, guidata da sogni divenuti spesso progetti ambiziosi. Resta ai suoi allievi ora il doloroso privilegio di ricordarlo, per raccontare il Professore di successo e per svelare l'Uomo che non tutti possono dire di aver conosciuto davvero.

È davvero difficile riassumere in poche pagine le gesta di chi, come Antonio Borghesi, ha sempre vissuto intensamente. Il profilo di un uomo come quello del prof. Borghesi si potrebbe rappresentare come "un manager prestato all'università" e allo stesso tempo come "un professore prestato alla politica", con una nota in comune: in tutti i ruoli che ha svolto è stato un leader, sempre pronto a battersi come un guerriero per le cose in cui credeva. Era una persona decisa, una guida con idee chiare e intuizioni originali, spesso di poche parole ma nette, dirette, pungenti fino ad essere abrasive per difendere le sue idee e oneste convinzioni.

Fu un professore poliedrico, sistemico nel suo ragionamento, rigoroso, autorevole e severo con i collaboratori, ma per loro è stato soprattutto un grande Maestro.

Fin dai suoi inizi, l'avventura universitaria di Antonio Borghesi si dimostrò particolare. Dopo la laurea (in Economia e Commercio, conseguita nel 1972 presso l'Università di Padova) il suo pragmatismo lo portò in azienda, dove giovanissimo già ricoprì ruoli di responsabilità. Le sue doti dirigenziali risultarono già evidenti, ma lui, avendo altre ambizioni, dopo pochi anni colse l'opportunità di iniziare a collaborare come Ricercatore e poi Professore incaricato di Economia e Finanza delle Imprese di Assicurazione presso l'Università di Padova, in sede veronese (l'ateneo di Verona diverrà sede autonoma dal 1982). Da qui ebbe avvio la sua vita universitaria, che si delineò poi più orientata alla Tecnica Industriale e Commerciale. Divenne così uno degli allievi del Prof. Panati che lui spesso richiamava come il suo Padre accademico.

Antonio Borghesi amava raccontare la sua storia accademica ad ogni nuovo allievo per ricordare sempre le radici della disciplina da cui proveniamo e per tramandarle nei nostri scritti, con spirito innovativo ma sempre con un profondo rispetto del passato. Quelle che lui considerava le basi della nostra area scientifica e di ricerca erano racchiuse in alcuni tomi scritti da quei maestri che anche lui spesso citava; libri e pubblicazioni che lui conservava nel suo ufficio e poi prestava ai vari allievi che dovevano preparare i loro esami di dottorato.

I suoi studi sul turismo, sui distretti industriali, sui sistemi, sulla logistica, sul rapporto tra logistica e marketing e in generale sui temi del *supply chain management* e del *risk management*, hanno lasciato più di una impronta nei filoni di ricerca dell'Accademia Italiana, anche su questa rivista che ospita il Suo ricordo e con la quale collaborò attivamente.

Tra le sue prime pubblicazioni scientifiche Borghesi scrisse un'interessante e ancora attuale monografia su "L'orario flessibile" (1977), trattando ragioni e cause sociali, ambientali, psicologiche, biologiche e aziendali dell'importanza dell'orario flessibile per i lavoratori, offrendo minuziosamente dettagli operativi sui relativi piani di preparazione e conseguenze dell'introduzione di tali modelli nelle imprese. Nell'introduzione al suo lavoro Antonio scrisse "*La ricerca della libertà da parte dell'uomo non ha mai conosciuto soste nel corso dei secoli. (..) Comprendere la vera essenza dell'orario flessibile nel suo contenuto più estensivo, significherà dare un tangibile contributo alla secolare lotta dell'uomo per recuperare sé stesso e quello che, in termini di autonomia, la storia e lo sviluppo tecnologico gli hanno tolto. Non può essere che questo l'auspicio di chi crede nel progresso civile e sociale dei popoli*" (1977, p. 9). In molti suoi scritti e scelte successive emergerà il desiderio di lasciare un contributo tangibile al fine di creare valore per la società nel suo complesso.

Secondo il suo approccio scientifico (che oggi denomineremmo "*theory building*") Borghesi lamentava una *"frattura tra teoria e prassi"*, criticando il dibattito del tempo *"più incentrato sui modelli organizzativi e meno alla discussione attorno alle teorie ad essi sovrastanti"* (1984, p. 137). Per questo, nel suo lavoro su "Sistemi e organizzazioni economiche" (1984) tentò di delineare una serie di leggi della teoria generale dei sistemi. Oltre a definire alcune caratteristiche identificative del concetto di sistema, Borghesi discute di leggi della teoria generale dei sistemi aperti (*Entropia negativa o Neghentropia; Equifinalità; Differenziazione; Integrazione; Competizione*), con relativi corollari e conseguenze sulle organizzazioni economiche. Riteneva infatti che *"una costruzione logica si qualifichi come teoria non solo quando scopre nuove leggi, ma anche quando trasforma principi (di per sé già esistenti) in leggi"* (1984, p. 138).

Antonio Borghesi divenne Professore Ordinario in Finanza Aziendale nel 1990, a soli 41 anni, vincendo la cattedra all'Università della Calabria. La parentesi calabrese, pur se istituzionalmente breve, rimase poi sempre attiva e spesso richiamata nei suoi racconti come un periodo ricco di opportunità e di relazioni. In quegli anni, anche con i suoi primi allievi Sonia Ferrari e Alfio Cariola, si dedicò al marketing turistico pubblicando una curatela su "Il marketing delle località turistiche: aspetti metodologici e ricerche empiriche" (1994) e appena più tardi il saggio "Dal marketing turistico al marketing territoriale" (1997). Nel sottolineare l'importanza del legame tra territorio e turismo, Borghesi vuole far emergere quanto "*il fenomeno turistico sia forse una delle attività umane che più di ogni altra crea ricadute nei più disparati settori dell'economia*" (1994, p. 24). Nelle sue analisi si delineano integrazioni e disintegrazioni tipiche del settore, le fasi di lavorazione del processo terminale di produzione del servizio turistico (1994, pp. 19-24), aspetti critici, opportunità della filiera del turismo se osservata come sistema integrato.

Nel 1993 tornò ad incardinarsi presso l'Università di Verona, come Professore Ordinario in Tecnica Industriale e Commerciale (oggi Economia e Gestione delle Imprese) e titolare della cattedra di Marketing. Furono anni in cui, grazie ai segnali captati nel suo ricco *network* di imprenditori e manager, si dedicò alla progettazione e attivazione di due corsi di perfezionamento di successo, tuttora tra i Corsi *post-lauream* più longevi dell'Università di Verona: il Corso di Perfezionamento in Risk Management (fondato nel 1994) e il Corso di Perfezionamento in Logistica Distributiva (nato nel 1995). Queste iniziative furono possibili grazie al sostegno e al contributo delle aziende, che fin da subito credettero nei suoi progetti.

Il prof. Borghesi per la sua intraprendenza era molto apprezzato nel mondo industriale e imprenditoriale veneto e fu per questo che gli venne proposto un incarico politico. Entrò così in politica, venendo eletto nel 1995 Presidente della Provincia di Verona. Mantenne comunque attivi tutti i suoi progetti scientifici e quindi anche l'attività di ricerca universitaria, come poi sempre farà durante tutte le sue scelte politiche. Tra i numerosi progetti, in particolare Borghesi era responsabile per l'Università di Verona dell'European Business Programme (EBP), un programma formativo internazionale in cui lo studente frequentava per metà del suo percorso universitario in Italia e l'altra metà in una sede estera del *network*, conseguendo due titoli di laurea equipollenti nelle due sedi di studio: un esempio di internazionalizzazione della didattica che agli inizi degli anni '90 era futuristica. Tra i primi Antonio Borghesi intuì la rilevanza di una apertura internazionale sia nella ricerca scientifica che nelle esperienze formative, spingendo tutti i suoi allievi a misurarsi in contesti internazionali, creando solidi legami con Università straniere.

In quegli anni Borghesi si impegnò anche in numerose ricerche sull'internazionalizzazione delle imprese e dei modelli distrettuali. In particolare si ricordano le sue concettualizzazioni di *"distretto gemmato"* e di *"distretto simbiotico"* (2002); il primo nasce quando alcune imprese distrettuali riproducono nei mercati internazionali modelli speculari a quelli di partenza, replicando modelli e *routine* organizzative sperimentali; il secondo è considerabile come la connessione tra distretto tradizionale e gemmato, quale uno dei possibili modelli di distretto allargato che potranno concretizzarsi ed evolvere nel tempo dato che inizialmente il distretto gemmato non è autonomo e necessita del supporto del distretto di partenza (2002, p. 32).

Aperto a studi e contesti internazionali, nel costante sforzo verso la ricerca dell'originalità e per lasciare un contributo tangibile, già a fine degli anni '90 il prof. Borghesi si intestardì per realizzare un suo sogno: trasformare il corso di Logistica (prima denominato Distributiva, poi Integrata) in un Master Universitario. La progettazione del Master richiese mesi, e con Paola Signori che nel frattempo Antonio aveva appena seguito come relatore nella sua tesi di dottorato sul *supply chain management*, decise di includere nel programma del master non solo competenze di logistica ma anche di *supply chain management,* appunto a quei tempi erano tematiche ancora poco note in Italia, i cui primi segnali d'interesse provenivano da organizzazioni europee e da aziende multinazionali che operavano negli Stati Uniti. Il piano formativo del LogiMaster (Master in Logistica - Supply

Chain Management) era davvero ambizioso e servivano risorse. Invece di affidarsi ad uno sponsor unico, il prof. Borghesi volle raccontare il suo progetto a tante imprese diverse e raccogliere numerosi partner. Decise dunque di organizzare un vero e proprio *road show* e in pochi mesi il progetto venne presentato presso 42 aziende, ottenendo il consenso da ben 18 per il primo anno. Il LogiMaster è sempre stato un suo orgoglio: ora già alla sedicesima edizione (nel 2017), ha diplomato oltre 330 allievi, e risulta il Master più longevo dell'Università di Verona.

Dal 2000 al 2002 Antonio Borghesi fu poi Direttore del Dipartimento di Studi Finanziari Industriali e Tecnologici dell'Università di Verona. Un piccolo aneddoto di quel periodo può far meglio capire come Borghesi amasse il suo lavoro: insediatosi come direttore, volendo portare un'ondata di vero cambiamento e semplificazione delle procedure con una netta riorganizzazione interna, si preoccupò per prima cosa di svolgere numerosi colloqui individuali col personale tecnico-amministrativo, per capire quali fossero i problemi e prospettare la fattibilità di alcune soluzioni. Le sue soluzioni erano fondate dalla condivisione, sempre basate su bisogni reali e discusse insieme a quelli che poi sarebbero stati i principali fautori del cambiamento. Allo stesso modo, con gli allievi, le scelte passavano attraverso accese discussioni ma con un metodo che prevedeva un ragionamento profondo e articolato. Spesso convocava riunioni di confronto scientifico aperto, denominate il "venerdì scientifico". Quando non sapeva "chiedeva" e si metteva in discussione senza ruoli, gerarchie o gerontocrazie affidandosi spesso ai più giovani per affrontare il cambiamento in ambito accademico.

Nacquero in queste sessioni le sue concettualizzazioni sul doppio posizionamento strategico, ben distinto dal posizionamento semplice, e ritenuto "*indispensabile in tutti i casi in cui gli influenzatori siano specificamente individuabili e il loro grado d'influenza sia altresì di alta o altissima intensità*" (2002).

Borghesi andava spesso controcorrente, in molti ricorderanno i suoi accesi dibattiti sull'etica d'azienda, su cui poi apparve un articolo nella rivista Sinergie (2005).

Antonio Borghesi era contemporaneamente un uomo di pensiero e un uomo del fare. Le sue analisi e riflessioni scientifiche nascevano e venivano poi spese in gruppi di lavoro nazionali e internazionali, con il preciso fine di realizzare i progetti di cui lui scriveva.

Tre sono i filoni principali che lo hanno accompagnato in tutta la sua vita accademica: il *risk management*, la logistica e il marketing.

Il *risk management* fu la sua prima area di ricerca, e già nel 1973 pubblicò il suo primo articolo sull'argomento. Successivamente divenne presidente del CESRAS-Centro per gli Studi sul Rischio e l'Assicurazione, membro accademico dell'A.R.I.A. (American Risk and Insurance Association), di RIMS (Risk and Insurance Management Society-USA), unico membro italiano del "Gruppo dei 22" riunitosi per la prima volta a Parigi nel gennaio del 1990 in seno all'attuale FERMA (Federation of Risk Management Associations). Divenne, inoltre, presidente della Commissione Tecnica del Gruppo "Gestione del Rischio" in UNI (Ente Nazionale Italiano di Unificazione) e componente del Working Group on

Risk Management in ambito ISO (International Standard Organisation)/ TMB che ha prodotto le norme ISO 31000 sulla gestione del rischio.

Pioneristica nel 1985 fu la sua prima sistemica pubblicazione sul tema "La gestione dei rischi di azienda. Economia e organizzazione. Teoria e pratica". Dai suoi studi sul risk management, ricavò le tecniche e le radici nella scienza del pericolo, ovvero della Chindinica Aziendale (1999), scrivendo di relativi assiomi, leggi, e deficienze sistemiche.

Fino ai più recenti contributi assieme alla sua allieva Barbara Gaudenzi che più si è dedicata al tema, in particolare nel 2006 con l'articolo "Managing risks in the supply chain using the AHP method" e successivamente con la monografia "Risk management. How to assess, transfer and communicate critical risks" nel 2013.

Dal 2000 fu membro accademico del Council of Supply Chain Management Professionals – USA, e si dedicò con passione ai temi del *supply chain management* e del servizio logistico, fu tra i primi ad intuire la relazione stretta tra il marketing e il servizio logistico pubblicando nel 2006 il libro "Marketing-Logistica" che era stato preceduto anche su questa rivista da altri contributi sul medesimo filone, tra cui la curatela "Logistica Integrata tra Teoria e Pratica: tendenze evolutive" nel 2001. In tale filone di ricerca Antonio Borghesi partì dal presupposto che tradizionalmente le attività di marketing e logistica sono gestite separatamente nella maggior parte delle imprese. Tuttavia, osservò come il servizio al cliente sia anche un comune denominatore delle due funzioni, ciò che risulta ben più evidente quando esse vengono integrate nel processo di gestione della catena di fornitura (Supply Chain Management), comprendendo anche i flussi di ritorno (2008). A tali processi viene assegnato l'obiettivo di "creazione di valore per il cliente" che si sostanzia in due elementi: il servizio di distribuzione fisica e il servizio (di marketing) al cliente. Da questo contributo e dall'evoluzione dei filoni di ricerca collegati in tali ambiti il prof. Borghesi si fece promotore di alcuni corsi incardinati nelle lauree magistrali dell'Università di Verona, unici nel loro genere in Italia all'interno della Facoltà di Economia, come ad esempio Customer Service & Supply Chain Management o International Logistics & Marketing Management ora impartiti dal suo allievo Ivan Russo.

Il Prof. Borghesi è sempre stato aperto ai giovani, affidandosi a loro per affrontare il cambiamento in ambito accademico, ad esempio nella scrittura degli articoli internazionali. Negli ultimi anni, anche insieme all'allieva Ilenia Confente, ha coltivato un dibattito e un aggiornamento scientifico sui temi di marketing e supply chain legati al contesto *online* e all'omni-canalità. Ne è conseguito uno studio (2015) sulla necessità per le imprese di reagire *real-time* ad un mercato che si avvale di più canali, attraverso l'acquisizione di capacità adattive e predittive che consentono alle imprese di raccogliere e analizzare i "*big data*" che provengono sia dal contesto *offline* che *online*.

Infine, tra i suoi ultimi interessi compare la "City Logistics", e le cause di fallimento di alcuni progetti italiani (2017).

Questi temi, così come quelli precedentemente illustrati, sono alcune testimonianze di come Antonio Borghesi abbia sempre condotto numerose ricerche con/per le imprese, caratterizzandosi con pragmatismo e teorizzazione scientifica, dinamismo appassionato e voglia di implementare nuovi modelli e approcci gestionali.

I suoi allievi ricordano le molte visite aziendali, alla ricerca di un confronto continuo con le *best practice*. Borghesi lavorava senza sosta, con grande passione, e con il suo esempio spronava tutti i suoi collaboratori a dare il meglio soprattutto nel confronto scientifico, a viaggiare tra prestigiosi convegni che potessero offrire utili spunti alla crescita, verso un miglioramento continuo che avesse anche un significato. Ai giovani allievi chiedeva dedizione e umiltà, instaurando un rapporto franco e trasparente come quello del giocatore con il suo *coach*, spronandoli ad assumersi responsabilmente ruoli e autonomie, e nel contempo coltivando con ognuno di essi un rapporto unico e speciale, chiedendo a tutti subito di dargli del "tu". Grazie a lui hanno imparato a coltivare una mentalità che ha giovato nella maturazione professionale, e che oggi li accompagna per le sfide future.

Come leader, Antonio Borghesi ha sempre creduto nella squadra, l'ha difesa e coltivata anche grazie a iniziative informali, cariche di grande umanità e affetto. Un esempio è stato il viaggio a Münster del 2005: 1.000 km in auto, tutti insieme, per raggiungere la sede del World Marketing Congress organizzato dall'Academy of Marketing Science, il prestigioso convegno che nel 2007 Borghesi voleva portare a Verona. E così la frequenza a un convegno, motivata da motivi scientifici ed organizzativi, divenne una delle occasioni per vivere e assaporare il senso di una famiglia accademica. Tanti sono gli aneddoti che in vent'anni di lavoro i suoi allievi hanno collezionato, e che mantengono come preziosi ricordi del loro percorso accademico con lui, ma altrettante sono le idee innovative che Antonio ha lasciato in germe e che il suo gruppo sarà chiamato a realizzare in futuro.

Ora Antonio Borghesi lascia un vuoto incolmabile come maestro, come amico, e come uomo; tuttavia contemporaneamente ha lasciato un'eredità unica, quale indelebile impronta e identità forte e strutturata all'interno del gruppo di ricerca da lui creato, in Supply Chain & Marketing e che opera all'interno del Dipartimento di Economia Aziendale dell'Università di Verona.

Grazie Professore!

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CUEIM

Editorial: Business evolution across organisational types and sectors in the Euro-Mediterranean Region

Alkis Thrassou - Marco Frey

About this special issue

Amidst an incessantly changing business environment, characterised by the constant shape-shifting of all macro- and micro-environmental forces, organisations in the Euro-Mediterranean region are struggling to evolve in a manner that befits their individual and collective contextual developments. While this strategic aspiration has traditionally been associated with business, it is now increasingly being adopted across an array of organisational types, including government departments, public utilities and universities. Much like industry practice itself, scholarly research has inescapably turned its attention to both these phenomena and significant works are ceaselessly being published in an effort to descriptively comprehend and/or prescriptively adapt organisations to the new business reality. In this vein, a multi-perspective outlook is called upon to view the matter in terms of varied managerial functions, but also in relation to different organisational types.

This special issue of the Sinergie Italian Journal of Management, entitled '*Business Evolution Across Organisational Types and Sectors in the Euro-Mediterranean Region*' presents six papers collectively providing a comprehensive glimpse into the subject and individually offering valuable scientific insights and managerial implications towards comprehension, further research and practical implementation. The papers have been carefully selected among hundreds of others that were presented at the 8th Annual Conference of the EuroMed Academy of Business on "*Innovation, Entrepreneurship and Sustainable Value Chain in a Dynamic Environment*" (Verona, Italy, September 16th-18th, 2015) and have been included in this special issue following significant development and three rounds of blind reviews. These works constitute a positive mix of business research and geographic area foci and have also been selected to ensure high scholarly standards and represent the spectrum of the schools of thought and institutions devoted to these foci.

A preview to the papers

The first paper, by Karipidis P., Tselempis D., Karypidou I. and Aggelopoulos S., entitled "*Market-Driven or Policy-Directed Quality Certification?*" focuses on the question of balance between the impact of market factors and policy factors that accelerate certification, such that a divergence between the supply and demand of certified food is avoided.

Through the development of a value co-creation framework and a discrete choice model, the acceleration of certification is analysed and the model is empirically investigated with quantitative data collected from 231 Greek certified farm businesses. The findings include the identification of five market and policy factors that accelerate certification; the conclusion is that policy factors outperform market factors without unbalancing the development of the certified food subsector and confirms that the role of private standards is shifting from public to private food-sector governance.

The second paper, by Bresciani S., Del Giudice M. and Papa A. (*"Public Control and Strategic Governance in State-Owned Public Utilities: Empirical Evidence from Italian Listed Firms"*) investigates the governance of public utilities whereby top management engages conflicting pressures between the business model and social functions. Through an empirical evaluation of thirteen public utilities listed on the Italian stock exchange they make interesting predictions based on the level of ownership concentration and dominance exercised by the government within the company and find that corporate governance and board composition may represent proxies of the level of public management discretion in the decision-making process.

The third paper, by Belyaeva Z. and Bentsion V. (*"Business Evolution in the Lens of Universities' Sustainable Impact: Russian Lessons in BRICS"*), analyzes the heterogeneity of the intended social impacts of BRICS universities in terms of regional business evolution in the context of recent business trends in education and their newly evolved roles of sustainable mentoring and bringing socially responsible graduates to the world market. By applying causal and exploratory research to a stratified sample of ten BRICS internationally ranked universities, the paper analyzes textual sources of internal and external communication of university social responsibility (USR) in accordance with a specifically predefined coding system. The study ultimately guides managers towards globalized knowledge management in the context of strategic sustainable development.

Shuv-Ami A. authored the fourth paper (*"A New Scale of Brand Lovemarks"*), which provides a new Lovemarks scale that predicts consumers' behavioral outcomes and bridges over some of the inconsistences of the measurement of "brand love" and "brand respect". The research is based on three studies that respectively apply Exploratory Factor Analysis using Principal Component exploratory factor analysis, second-order confirmatory factor analysis with a maximum likelihood fitting function of the two-component solution, and measurement of the nomological validity of the Lovemarks scale that was assessed by testing its relations with four other relevant scales. The paper establishes the reliability and validity of the scale in four different and diverse product categories and finds the scale to have strong positive correlations with attitude, preference, price premium and recommendation. The findings offer valuable marketing tactical direction to brand management and particularly with regards to marketing communications and pricing.

The fifth paper, authored by Festa G., Rossi M., Cuomo M.T. and Metallo G. (*"Capital Budgeting for ITSM - Modelization, Classification and Disclosure in the Structural Capital Perspective"*) proposes and analyses a

modelization, classification, and disclosure framework for Information Technology Service Management (ITSM) investments intended as components of the structural capital. The paper carries out a conceptual construction that emerges from the traditional taxonomy of capital budgeting, which is oriented to IT investments in general and focused on ITSM investments in particular within the context of structural capital. The findings show that to appreciate ITSM investments value, blended methods (quantitative as well as qualitative) are the most correct option, above all in order to better disclose to stakeholders their real value as fundamental components of the structural capital.

The sixth – and final paper, authored by Gabryelczyk R., Kulesza P. and Rakowska E. ("*Improving Public Sector Performance by Using Business Process Modelling and Measurement: a Case Study Analysis*") demonstrates the use of business process modelling and measurement as basic Business Process Management techniques to improve Enterprise Resource Planning systems and existing processes in public sector institutions. Based on a case study of a Polish public sector institution the process has been modelled in an 'as-is' and 'to-be' state, i.e. before and after the organisational change and implementation of an ERP system. The study found that the measurement of cost, time, quality and throughput capacity of a process demonstrates specific coresponding improvements that effect an increase in the efficiency of public sector institutions. The study also finds that business process modelling and measurement are techniques that are useful specifically in the design and implementation of IT systems, but also in the wider design and improvement of public organisations.

Concluding remarks

The developments in business knowledge and practice that have taken place over the past few years have increasingly expanded the realm of business management to gradually and steadily (albeit not without resistance) engulf an array of organisational types and sectors - including public institutions, educational establishments and, naturally, mainstream businesses. It is our aim and hope that this focused assortment of scientific works on *'Business Evolution Across Organisational Types and Sectors in the Euro-Mediterranean Region*' reflects this evolution in management philosophy, attitude and practice and that it shall indeed provide paradigms for international consideration, development and applicationfor scholars and practitioners alike.

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Special issue papers

Market-driven or policy-directed quality certification?

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Philippos Karipidis - Dimitrios Tselempis - Ioanna Karypidou
Stamatis Aggelopoulos

Abstract

***Purpose of the paper**: This study examines whether there is a balance between the impact of market factors and policy factors that accelerate certification, such that a divergence between the supply and demand of certified food is avoided.*

***Methodology**: A value co-creation framework and a discrete choice model are developed to analyze the acceleration of certification. The model is empirically investigated with quantitative data, collected from 231 Greek certified farm businesses.*

***Findings**: Five market and policy factors accelerate certification. Policy factors outperform market factors, but because the most crucial factor is control exertion by authorities, this is not expected to unbalance the development of the certified food subsector. The role of private standards in shifting from public to private food-sector governance is also confirmed.*

***Research limitations**: The model estimation is based on aggregated data in the sense that five quality schemes are included; thus, some information may have been overlooked.*

***Implications**: The theoretical framework can be used in future empirical analyses, especially when the certification decisions of small and medium-sized enterprises are examined. Public authorities should be cautious about altering the structure of incentives for farm businesses; certifiers should make certification more attractive to farm businesses; marketers should encourage farmers to accelerate certifications; and farm businesses and their organizations should focus on certification efficiency.*

***Originality of the paper**: The paper goes beyond issues considered in previous studies by focusing on the balance between market- and policy-related factors that accelerate certification, and developing a theoretical framework.*

Key words: value co-creation; accelerate certification; food market

1. Introduction

The implementation of quality management systems (QMS) enables suppliers of agricultural and food products (farm businesses, manufacturers, wholesalers, and retailers) to create customer value by enhancing quality; thus, market forces can generate incentives for voluntary provision of higher-quality food products. Research results indicate that many food suppliers, especially farm businesses, do not intend to implement QMS (Handschuch *et al.*, 2013; Segerson, 1999); thus, financial support or subsidies are provided. Such support is unlikely to be politically acceptable in certain

countries in the world market, or may lead in unbalanced development in the certified subsector (Argyropoulos *et al.*, 2013; Hattam *et al.*, 2012; Läpple and Van Rensburg, 2011; Lohra and Salomonsson, 2000). Due to the fact that policy-directed food supply is a valid means by which food quality can be effectively regulated, and as some undesirable effects can result, such as a mismatch between the supply and demand of certified food (Uematsu and Mishra, 2012; Martinez *et al.*, 2007), the following question arises: Can the impact of market- and policy-related factors on food supply lead to an expansion of certification efforts, thereby avoiding unbalanced development of quality certifications and, thus, divergence between supply and demand of certified foods?

Acknowledgement of the fact that quality certification schemes can be expedient choices in food supply explains why much has been written about the implementation of QMS in the last decade. However, as we will discuss in the literature review section, although previous studies examine farmers' certification decisions connected with the factors impacting these decisions, also incorporating certain market or policy factors, to our knowledge no study to date examines the balance between the impact of demand-related vs. that of policy-related factors. This is also highlighted by Tselempis *et al.*, (2015), who suggests that there is a need to examine this balance between the two categories of factors. The main goal of the present study is to examine whether there is a balance between the impact of demand factors and policy factors on certification decisions, such that when this balance is achieved, a divergence between the supply and demand of certified foods is avoided. Since the analysis is based on the acceleration of certification decisions, we build a value co-creation framework that connects the certification decision with the two categories of factors that can impact it, thereby also introducing the time period for which the farm business has been certified into its profit function.

The empirical investigation of a discrete choice model we have built is based on data collected from certified farm businesses located on Central Macedonia (northern Greece). The findings of the study could help public authorities to build a suitable policy mix that will enable market forces to generate incentives for voluntary provision of higher-quality, certified food products, thereby avoiding disturbance of the certified food market due to the introduction of state aid rules or regulations. The findings will also be useful to food producers, their organizations, and marketers in terms of efficiently integrating value creation via certification into their marketing strategies, and for certifiers to better understand the market environment in which they provide certification services. The results are most useful for European/Mediterranean countries, wherein the average farm business size is below the EU-27 average, total liabilities lead farmers to face difficulties in accessing credit markets, and solvency indicating the farm's ability to meet its financial obligations in the long term is also very low (European Commission's Farm Economics Overview, 2012). These farm businesses can be less likely to implement quality standards and require a great deal of encouragement to become certified (Handschuch *et al.*, 2013; Hattam *et al.*, 2012).

The remainder of the paper is structured as follows. Section 2 presents the literature review, followed by the theoretical framework in Section 3. Section 4 presents the hypotheses formation, followed by the depiction of the model and data collection in Section 5. Section 6 presents the model estimation, results, and discussion, while the conclusions, implications, and propositions for future research are offered in Section 7.

2. Literature review

Karipidis and Tselempis (2014) report several quality certification schemes that are suitable for certifications at farm business level, such as Organic Certification, GlobalGAP, Quality and Safety, Tesco Nature's Choice, and national standards (AGRO 2.1/2.2 in Greece). Organic certification differs substantially from other certification schemes in terms of its requirements, organizational structure, implementation and auditing, which are connected with differences in certification costs, customer requirements and preferences, and farm business revenues. Thus, previous studies can be grouped according to two categories of certification schemes: "organic schemes" and "other schemes".

2.1 Organic certification schemes

Soltani *et al.*, (2014) investigate the main factors influencing adoption of organic schemes and report that while there are strong motives for adoption, farmers face challenges in certifying, marketing, and accessing reliable technical information and credit. Khaledi *et al.*, (2010) use a Tobit model to identify the factors that encourage adoption of organic certification and to assess why farmers differ in the share of cultivated crop area they allocate to organic practices. Khaledi *et al.*'s (2010) findings suggest that small farmers are more inclined to be certified and that younger farmers allocate significantly less of their cultivated area to organic practices. Uematsu and Mishra (2012) estimate the average treatment effect of organic certification on various components of farm household income, and Handschuch *et al.*, (2013) use an econometric model based on net benefits representing the farmer's decision to obtain certification. In contrast to Khaledi *et al.*'s (2010) findings, Handschuch *et al.*, (2013) indicate that small-scale farmers are less likely to implement food safety and quality standards. Furthermore, Veldstra *et al.*, (2014) consider the utility maximization behavior of farmers and analyze the percentage of production dedicated to organic practices and the percentage of production that is certified organic, while Läpple (2010) investigates the determinants that affect adoption and abandonment of certified organic farming over time. They highlight that when no attempt is made to account for time effects, important information about certification decisions may not be taken into consideration.

Some authors incorporate policy factors into their studies. For instance, Kuminoff and Wossink (2010) used the net present value approach to assess the compensation required to induce conventional farmers to be certified, incorporating the impact of policy changes on future return

expectations. They suggest that sunk costs associated with conversion to organic, coupled with uncertainty about future returns, explain why there is so little organic farmland in the USA. Läpple and Van Rensburg (2011) find that later adopters, who adopted organic production after common agricultural policy subsidies were introduced, were strongly motivated to do so based on profits, while early adopters were less motivated by profit. Kallas *et al.*, (2010) conducted duration analysis to determine why certified farmers adopt organic farming practices. They include farmers' objectives, risk preferences, and agricultural policies as covariates in their model and find that farmers' objectives influence the decision to convert to organic. Furthermore, Hattam *et al.*, (2012) analyze organic certification decisions using a set of time-to-organic durations collected from small-scale farms. They highlight that some producers require a great deal of encouragement to become certified organic while others do not.

2.2 Several certification schemes

Bravo-Monroy *et al.*, (2016) combine ethnographic techniques and quantitative methods to examine the drivers for adopting organic and conventional quality schemes. They show that not only financial factors but also some social factors drive farmer certification decisions. Aidoo and Fromm (2015) use a binary logistic regression model and suggest that the willingness to adopt cocoa certification is influenced by access to credit, awareness of certifications, the education level of farmers and farmer-based organization membership. Furthermore, Tey *et al.*, (2015), explain the adoption of certification schemes through analysis of the role of personal values in guiding this decision, while Tselempis *et al.*, (2015) adopt a management decision model to examine whether the implementation of a QMS and the choice of quality certification scheme are decided as responses to market conditions. They conclude that the adoption of a private quality management scheme and the acceleration of certification are market-driven choices.

Some studies adopt utility theory and agricultural household modeling to explore certification decisions. Muriithi *et al.*, (2011) find that the high initial cost of compliance with a certification scheme is a major constraint, and that the key factors that enhance compliance include cultivated area, household size, and access to extension services. Kersting and Wollni (2012) analyze small farmers' adoption decisions through the lens of costs and perceived benefits. They suggest that farmers are more likely to adopt certification schemes if they are better educated and more experienced and if they have access to family labor, improved farming technology, and information and extension services. Furthermore, Asfaw *et al.*, (2010a, 2010b) demonstrate that adopters and non-adopters are distinguishable by their asset holdings and household wealth, access to services, labor endowment, and level of education.

As seen from the above, previous studies identify a large number of factors connected with economic and social characteristics of farm businesses, by adopting agricultural modeling, utility function, average treatment effect approach, cost/benefit and duration analysis, ethnographic

techniques, and quantitative methods. Though some studies include factors connected with the market and/or policy, to our knowledge no study to date examines the balance between the impact of demand- vs. policy-related factors on farmers' certification decisions. The main objective of the present study is twofold. First, it aims to examine whether there is a balance between demand factors and policy factors which impact the acceleration of certification decisions, such that a mismatch between the supply and demand of certified foods is avoided. Second, it builds a theoretical framework that goes beyond those adopted previously by enabling the impact of market-related and policy-related factors on certification decisions to be examined.

3. Theoretical framework

3.1 Value co-creation

The farm business is the first actor in a food supply chain, and plays a crucial role in food quality formation. Following the logic that a firm's marketing strategy is designed to optimize customer value by increasing product-, service-, or experience- based quality (Ferrel *et al.*, 1998), we view the farm business as a value-creating organization, which offers certified products that meet or exceed customers' needs or expectations. It also lowers the customers' monetary and non-monetary costs, such as via the reduction of risks for customers who buy and consume certified foods (Christopher and Gaudenzi, 2015; Kersting and Wollni, 2012).

In the value creation view, value is created in the firm and then exchanged with the customer, whereas in value co-creation, value is co-created by multiple stakeholders, such as suppliers, customer communities, and society (Anderson *et al.*, 2004; Prahalad and Ramaswamy, 2004; Sheth and Uslay, 2007; Yi and Gong, 2013). Regarding quality certification, we assume that three stakeholders are involved in value co-creation: owners of the farm businesses offering certified products, the customer community, and public authorities who aim to facilitate the meeting of society's needs and interests.

We assume that farm business owners (farmers) offer certified products by investing in certification-related activities, and thus create value in alignment with customers' needs and public authorities' decisions that reflect society's desires for a higher quality of life and higher competitiveness of agricultural products. As Yi and Gong (2013) highlight, for successful value co-creation customers provide farm businesses with resources such as personal information, interpersonal relationships with potential customers, suggestions and recommendations to others, or tolerance of situations in which the products/services provided fail to meet their expectations. Public authorities create value by providing farm business owners with information and technical support or subsidies for quality-related programs, by conducting controls and exacting penalties, etc.

3.2 Financial value

As the co-creation of value enables financial value to be created (Haksever *et al.*, 2004), we assume that a farm business owner who decides

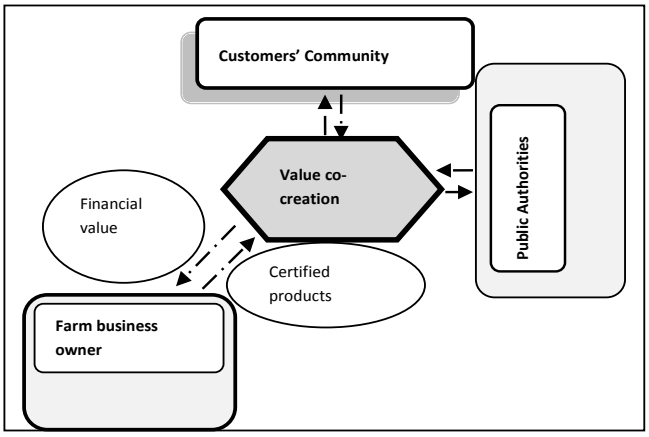
to implement an optional QMS and become certified does so as it allows him/her to create value for customers and society. Thus, financial value is created via the QMS and certification, as measured by accounting-based ratio measures, sales, cost, price, revenues, or profits. Based on the above definitions, Fig. 1 illustrates the theoretical framework we build; this focuses on the farm business' certification decision, which is affected by customers' related (demand) factors and public-policy factors. The farm business, in an attempt to increase the value that is created and, subsequently, to increase financial value, accelerates certification. That is, it provides customers and society with more total value at time *t*, by offering certified quality for a longer time, and thus can maximize its total profits. More specifically, it offers its food product at a quantity of $q=\bar{q}$ (unchanged at the time we study) and at a quality of Q, which depends on the time *t*. It obtains a price, *p*, which depends on the quality, Q. The financial value created can be represented by the profit, defined as follows:

$$\pi(t)= pq - C(q,Q) \text{ so that } p= P(Q) \text{ and } Q= Q(t) \qquad (1)$$

That is, the profit of the farm business at time *t* depends on the quantity produced at time *t* and the price, which depends on the quality (Q) supplied at time *t*, and the cost (C), which depends on the quantity (*q*) produced at time *t*, and the quality (Q) supplied at the same time. The first-order derivative of equation (1) is:

$$\frac{d\pi(t)}{dt}=[\frac{dP[Q(t)]}{d\mathrm{Q}}\bar{q}-\frac{dC}{d\mathrm{Q}}]\frac{dQ(t)}{dt} \qquad (2)$$

Fig. 1: Value co-creation by farm businesses, customers and Authorities (society)



Source: Authors' elaboration

Due to the fact that the longer the period of time the farm business is certified, the greater the quantity of certified product supplied in the market ($\frac{dQ(t)}{dt}\geq 0$), and $\frac{dP[Q(t)]}{d\mathrm{Q}}\bar{q}\geq 0$, while based on the $\frac{dC}{d\mathrm{Q}}\leq 0$ due to

economies of experience in quality management and economies of size in quality certification (Ragasa *et al.*, 2011), we expect that $\frac{d\pi(t)}{dt} \geq 0$.

Thus, it is anticipated that when the time period for which the farm business has been certified increases, its profit increases. Furthermore, when the farm business attempts to implement QMS at an early stage, we expect this to accelerate certification. Equation (2) helps us to connect the value that the farm business creates with both the financial value created and the acceleration of certification. As it would be more precise if we use the net present value of profit instead of *π(t),* more details for this are given in the method section.

4. Research hypotheses

As stated in the introduction, some undesirable effects can result from policy-directed certification. That is, when viewed through the lens of the value co-creation framework presented above, the impact of public authorities' value creation on farm business certification decisions can outperform the impact of customers' value creation. Thus, taking into account the fact that, as reported in the introduction, no study to date has examined this issue, the first hypothesis is as follows:

H1: There is a balance between the impact of demand and public policy factors that accelerate certification, such that policy factors couldn't outperform demand factors in a way that can lead to a divergence between the supply and demand for certified food.

If the hypothesis is not accepted, the state-induced implementation of QMS will dominate the demand-related incentives and the acceleration of certification can be seen as primarily affected by public policy factors, while unbalanced diffusion of certification can be said to occur, which can lead in a mismatch between supply and demand of certified food.

Policy-directed food supply is acknowledged as a valid means through which food quality can be effectively regulated (Martinez *et al.*, 2007), and third-party certification reflects a shift from public to private governance in the food sector (Hatanaka *et al.*, 2005; Henson and Reardon, 2005). The development of public QMS standards or schemes available to farm businesses is a policy measure by which public authorities co-create value at the starting stage of the evolution of certifications, while private standards are developed at a later stage. Thus, it is useful to associate the type of the standard with the farm business certification decision, leading to the formulation of a second hypothesis:

H2: The extent to which the certification is accelerated depends on the type of quality certification scheme the farm business adopts.

If the hypothesis is not accepted, the validity of public policy as a means of effectively expanding certifications at the early stages will not be

ascertained, and neither will the role of private standards in shifting from public to private food-sector governance. This would indicate that public authorities, certifiers, and marketers should revise their certification-related policies.

As stated in the literature review, organic certification differs substantially from other certification schemes. Since the organic scheme requires no synthetic agrochemicals to be used, farm businesses may view such certification as more difficult to achieve compared to other certifications. Thus, it is useful to capture the different impact of organic certification on the acceleration of certifications, compared to other certification schemes. Therefore, a third hypothesis is formulated.

H3: The choice of an organic certification scheme impacts the acceleration of certification negatively.

If the hypothesis is not accepted, it will indicate that organic certification does not differ in its impact compared to other schemes, implying that there is no need for public authorities, marketers, and certifiers to differentiate their certification-related policies.

5. Method

The value co-creation framework presented above enables us to connect the value a farm business co-creates with the value co-created by customers and public authorities. More specifically, the farm business creates value and, subsequently, increases financial value by investing in quality certification in order to offer certified products to customers and society. The farm business owner accelerates certification in an attempt to increase the financial value by offering certified quality for a longer time, and thereby maximizing the total profits.

5.1 The discrete choice model

The discrete choice model has been used to examine how decisions are influenced by the conditions under which they are realized, and to identify the factors affecting farmers' choices regarding the adoption of innovations, new methods, new technologies, and quality standards (Herzfeld *et al.*, 2011; Wheeler, 2008) or the maintenance of certification (Karipidis and Tselempis, 2014). The focus of this study is on the acceleration of certification decisions, which reflects the time (t), that is the period for which the farm business offers certified products. In the discrete choice model, the dependent variable (y) is a rough categorization of a continuous but unobserved variable (y^*). If y^* can be directly observed, then standard regression methods can be used, such as assuming that y^* is a linear function of some independent variables. The acceleration of certification model can take the form:

$$y_i = \mathrm{a}_i \chi_i + u_{ij} \qquad (3)$$

y_i is used as a proxy for y_i^*. According to this model, the farm business chooses alternative i (time t is certified). The explanatory variables reflect the factors connected with customers' value co-creation (demand side) and public authorities' value co-creation (policy measures). The u values are unknown parameters to be estimated with the unknown coefficients of the variables.

The present study uses a three-point scale to measure time: in case the farm business implemented QMS at an early stage, it is considered as having remained under certification for the maximum amount of time, such that t takes the maximum value of 3. Where the farm implemented QMS at the latest stage, it is seen as being certified for the minimum time and t takes the value of 1. The relationship between the three levels of y_i and the values of y^* is presented in Table 1, in correspondence with the net present value of profit instead of $\pi(t)$, as stated above, where the estimated time represents the acceleration of certification and r represents the interest rate.

Tab. 1: Connecting the acceleration of certification with the net present value of the profit

Estimated time	Net present value of the profit
yi =1 if yi*≤ 1 (late) certification)	$\pi(t) = \pi_1$
yi =2 if 1< yi*≤ 2	$\pi(t) = \pi_2 + (1 + r)\pi_1$
yi =3 if 2< yi* (early) certification)	$\pi(t) = \pi_3 + (1 + r)\pi_2 + (1+r)^2 \pi_1$

Source: Authors' elaboration

5.2 Specialization of the model

Drawing on the findings of Tselempis *et al.*, (2015), we introduce 11 demand-related (market) factors and five public policy factors in order to test the first hypothesis. We also add two variables in order to test the second and third hypotheses. The model (3) can take a probit or logit form. It becomes:

$$y_i = \mathbf{a}_k^D X_k^D + \mathbf{a}_j^P X_j^P + \mathbf{b}_1 Z_1 + \mathbf{b}_2 Z_2 + u_{ik} \qquad (4)$$

where X_k^D represents the demand–related factors (k=1, …, 11), and X_j^P represents the public-policy factors (j=1, …, 5) that may have affected the farmer's decision. We introduce the dummy variable Z_1, which represents the type of standard the farmer adopted to examine the second research hypothesis; because 0 represents a public quality scheme and 1 represents a private scheme, it is expected that Z_1 impacts y_i negatively. In an attempt to capture the differences in implementation decisions regarding organic certification and test the third hypothesis, the additional dummy variable (Z_2) is introduced, taking the value of 2 in case the quality certification scheme is organic and *1* for every non-organic quality certification scheme.

5.3 Data collection

A survey, which was developed using the findings of previous studies, and a small-scale pre-test with some in-depth interviews were conducted in November and December of 2011. Modifications were made where necessary to take into account the comments and suggestions received, which primarily concerned difficulties in answering the questionnaire (including its length), and the clarity and order of the questions. The questions were answered in personal interviews conducted with the owners of certified farm businesses dispersed all over the region of Central Macedonia (northern Greece) between April and September of 2012. These farm businesses were randomly selected from a database held by the regional services of the Ministry of Agricultural Development and Food. After discarding a number of problematic questionnaires, we were able to use a total of 231 in our analysis.

6. Empirical investigation, results, and discussion

6.1 Model estimation

Estimations regarding the acceleration of certification model were conducted using the Eviews program, based on the ordered logit form; we used the Huber/White option to compute robust (quasi-maximum likelihood) estimators, in the sense that consistent estimates of parameters are produced even if the distribution is incorrectly specified. The results regarding the impact of demand-related and policy factors are presented in Table 2, including coefficient estimates, Z statistics and p values. This led to the null hypothesis being rejected, while it was found that all independent variables affected the variability of the dependent variable because the log likelihood value of 115.9587 is highly significant (prob. 0.000). The average score for the time period for which the respondents had been certified was 2.42 (>2), meaning that most of the farm businesses in the study had implemented QMS at an early stage. Seeing that the model estimation is based on aggregated data, including the adoption of five quality certification schemes with differences among them, and because it does not include factors pertaining to the internal business environment, we do not expect the interpretation capacity of the model to be high. However, as there are no previous studies similar to the present research, the interpretative ability (pseudo R-squared 0.274416) can be considered adequate compared to the interpretative ability of analogous studies that estimate adoption models in the case of one or two specific certification schemes (Handschuch *et al.*, 2013; Wheeler, 2008).

6.2 Results and discussion

As seen in Table 2, six of the 18 independent variables substantially impacted formation of the dependent variable's variability, at a significance level of 0.05. Therefore, it can be deduced that six of the factors examined

affected the acceleration of certification. Three of the factors pertain to the demand and affected the farm business decision positively. More specifically, the demand for certification by buyers, which will eventually lead to an increase in revenue, renders it more probable that the farm business will accelerate certification. The same applies when farm business owners are advised to become certified by buyers, and when there are local quality-related problems, in which the farm business tries to differentiate its products from local products and make them more attractive to potential customers.

Tab. 2: Estimation results of the model including the factors of outer environment

Group	Factors / independent variables	Coeffic.	Z-stat.	Probab.
DEMAND – factors	1. Customers are interested in certified products	0.385379	1.409865	0.1586
	2. Buyers demand implementation of QMS	0.513653	2.690321	0.0071*
	3. Buyers demand minimum quality requirements	-0.099513	-0.368350	0.7126
	4. Expectations of easier selling	0.327047	0.757536	0.4487
	5. Requirement of the cooperative	-0.387998	-0.683476	0.4943
	6. Expectations of average price increase	0.226610	1.086385	0.2773
	7. Price uncertainty	0.268313	0.778999	0.4360
	8. Advice – buyers' recommendations	0.371723	2.421393	0.0155*
	9. Advice – suppliers' recommendations	-0.202118	-0.817085	0.4139
	10. Local quality defects or problems	1.185842	3.372288	0.0007*
	11. Impelling – Penalization and control exerted on behalf of the buyers	0.343851	0.791612	0.4286
POLICY – measures	1. Participation in an agricultural development programme	0.277864	0.587318	0.5570
	2. Participation in a good practice implementation programme	-0.297948	-0.459707	0.6457
	3. Expectation of subsidizing QMS implementation	0.314295	0.817159	0.4138
	4. Absence of provision of appropriate information / technical support	-0.736947	-2.220721	0.0264*
	5. Penalisation and control exerted by the authorities	1.465187	2.337578	0.0194*
	1. Type of the standard (Public or Private)	-1.351704	-2.118041	0.0342*
	2. Not organic or organic standard	1.094579	1.243432	0.2137
	LR stat: 115.9587, Prob. (LR stat): 0.000000, LR index (Pseudo R-2): 0.274416			

Source: Authors' elaboration

Regarding the two policy factors accelerating certification, one was found to affect the decision negatively, while the other affected it positively. Specifically, failure to supply the appropriate information and technical support to farm business owners was found to negatively affect the acceleration of certification. This can be attributed to the fact that there is an information gap for the farm businesses that makes it difficult for them to assess the benefits of QMS implementation and handle the certification-related activities efficiently. On the other hand, the exertion of control and penalties was found to cause farm businesses to accelerate certification, as was expected.

The findings of the study concerning demand for certified products and the control exerted by authorities ascertain and complement analogous results of previous studies, such as Asfaw *et al.*, (2010b) and Masakure *et al.*, (2011), providing evidence of the role of lower transaction costs in the certified product market and regulatory enforcement within certification decisions in food supply chains. The findings concerning the role of information and the provision of technical assistance to farm businesses in

their certification-related actions confirm and extend the analogous results of Muriithi *et al.*, (2011) and Kersting and Wollni (2012). Furthermore, the findings regarding the behavior of farm businesses when local quality problems exist partially confirm and complement the results of Uematsu and Mishra (2012) concerning the impact of farm business owners' participation in a state branding program and the impact of the "regional factor" on farmers' adoption decisions.

However, the results presented above are not sufficient to answer the question regarding the balance between the impact of demand and policy factors on accelerating certification. Further study/investigation of the impact of the three demand and the two policy factors is possible by estimating the "elasticities" ($e_i = a_i \bar{y}/\bar{X}$). These allow us to rank the factors accelerating certification because they reflect the percentage increase or decrease (%) in the mean probability that farmers accelerate certification if the mean value of a factor increases by 1%.

The elasticities presented in Table 3 indicate that the public-policy factors outperform the demand factors, which could lead *H1* to be rejected. More specifically, it is observed that elasticity in the case of "control exertion by public authorities and penalization" is high (>8.2), indicating that this factor accelerates certification to a degree that outperforms the acceleration caused by all the other factors together. As this factor reflects an encouragement of farm businesses to respond to mandatory quality requirements contributing to consumers' safety and enhancement of quality of life, which are in alignment with customers' interests, a divergence between supply and demand for certified food is not expected. Thus, *H1* is, in fact, accepted. This finding confirms and extends those of Tselempis *et al.*, (2015) that the acceleration of certification is a market-driven choice, and the highlights of Hattam *et al.*, (2012) that some producers require a great deal of encouragement to be certified, making government intervention with different policy measures necessary.

Tab. 3: Order of market & policy factors

	Factor	Elacticities	Sum
Demand	Buyers demand for implementation of QMS	0,4361	
	Advice – buyers' recommendations	0,3487	
	Local quality defects or problems	2,5395	3,3243
Policy	Absence(-)/Presence(+) of appropriate information / technical support	0,6171	
	Penalisation and control exerted by the authorities	8,2456	8,8627

Source: Authors' elaboration

Regarding the choice of a public or private type of quality certification scheme, the results indicate that public standards were mostly chosen by farm businesses that implemented QMS at an early stage, while private standards were mostly adopted by farmers that implemented QMS at a later stage. More specifically, the choice of a public certification scheme was found to be connected with the probability that the farm business accelerated certification, while the decision to adopt a private certification scheme was connected with the probability that the farm business

implemented QMS at a late stage. Thus, *H2* is supported. This result confirms and extends the report of Hatanaka *et al.*, (2005) concerning the crucial role of third-party certifications in shifting from public to private governance in food supply, and the conclusion of Martinez *et al.*, (2007) regarding the effectiveness of public regulation of food supply. Our results also go beyond those of Tselempis *et al.*, (2015) concerning the choice of a private certification scheme by farm businesses.

Regarding *H3*, which stated that organic certification schemes accelerate certification in a different way than do other quality certification schemes (negatively impact), the results do not provide adequate support. This implies that there is no need for public authorities, marketers, and certifiers to substantially differentiate their certification-related policies if their main goal is to accelerate quality certifications.

In conclusion, the findings indicate that the study adds substantially to the repository of literature exploring the impact of market and policy factors on the timing (acceleration) of the certification decision. Thus, we confirm Läpple's (2010) suggestion that when no attempt is made to account for time effects, important information about certification decisions may not be taken into consideration. The findings also indicate the great significance of the institutional environment and, more specifically, the market incentives and policy encouragement/discouragement needed in order for certification to be accelerated.

7. Conclusions and implications

*7.1 Conclusion*s

The main contribution of the study is twofold. First, it examined whether there is a balance between market factors and policy factors that accelerate certification, such that a divergence between supply and demand of certified food is avoided. Second, it developed a methodology to analyze the impact of factors of institutional environment, such as the market and public-policy factors, on farm businesses certification. The methodology combines the value co-creation approach with a profit function and a discrete choice model, assuming that three stakeholders are involved in value co-creation: owners of the farm businesses, the customer community, and public authorities. A first conclusion of the study is that the methodology it follows is highly suitable in comparisons of demand and policy factors in relation to accelerating certification, implying that this approach should be used in a variety of cases pertaining to product markets, especially in countries and sectors characterized by small and medium-sized enterprises, such as those in the European–Mediterranean zone.

The demand factor found to have the strongest impact on the acceleration of certification is the existence of local quality problems, in response to which farm businesses try to differentiate their products from local ones. The policy factor with the strongest positive impact was identified as control exertion by public authorities and imposition of penalties. The results indicate that the public policy factors outperform demand factors,

but because control exertion and penalization reflect the response of food suppliers to mandatory quality requirements, which are in alignment with customers' interests, a divergence between supply and demand is not expected, such as would be the case in the face of subsidy provision.

Regarding the type of quality certification scheme the farm businesses selects, the study findings reveal that: (i) policy-directed certification is a valid means by which to expand certifications effectively at an early stage of certification evolution, (ii) the efforts of market players replace policy-directed certification at a later stage, and (iii) although organic certification schemes differ substantially from other certification schemes, there is no indication that the former accelerates certification in a different way compared to the latter.

7.2 Implications for practitioners and for future research

As some certification-related policy measures can lead to a divergence between supply and demand in certified food markets, public authorities should be cautious not to weaken the market incentives of certification for farm businesses. More specifically, authorities should maintain or intensify quality controls or increase penalties for violations of quality rules, but should be very cautious in setting subsidies for farm businesses. They should encourage or facilitate farm businesses to accelerate QMS implementation by planning and/or supporting the proper provision of information and consultancy to farm businesses, supporting promotion campaigns to inform marketers and consumers and planning or supporting quality-related programs combined with local, regional, or national branding schemes.

Marketers/buyers of agricultural and food products should strengthen certification-related market incentives for farm businesses. More specifically, they should encourage farm businesses to accelerate certification by encouraging a preference for certified products, rewarding these businesses with higher prices, properly advising and informing food suppliers by financing information campaigns to increase consumers' awareness and demand for certified products, or providing financial support and credit to small suppliers. Special challenges arise for marketing cooperatives or groups of farmers, which can attain size economies to minimize certification costs and maximize the benefits for their members, thereby making certification more attractive to farm businesses. Farm business owners and their cooperatives can increase the efficiency of quality certification if they choose it as a response to demand, which will help farm businesses to avoid penalization. However, they need to be cautious with some forms of subsidies that may ultimately prove harmful in the long run.

An important limitation of the present paper is that the empirical investigation is based on somewhat aggregated data in the sense that five quality certification schemes were included in data collection, and thus it explores farm business' decisions to implement QMS independently of the quality certification scheme they adopted. Though our findings do not indicate a clear impact regarding the certification scheme adopted,

future research could address this issue by considering the impact of market and policy factors for each case of the most frequently adopted individual schemes, separately, in order to gather more analytical information, which may have been overlooked in our research due to the aggregation.

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Public control and strategic governance in state-owned public utilities: empirical evidence from Italian listed firms

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Abstract

***Purpose of the paper**: The present research investigates the governance of Italian public utilities whose top management is engaged in balancing the conflicting pressures of the business model and the social functions. In this regard, public control appears to influence only the form of ownership structure. Conversely, the nature of the public management mechanisms does appear to substantially affect the management side of these organisations.*

***Methodology**: The research performed an empirical quantitative evaluation of the 13 public utilities listed on the Italian Stock Exchange. In line with mainstream literature methodology, the ownership and governance structures are provided for each company, in the context of the government's intention to maintain its central role in the management and control of the business activities.*

***Findings**: With reference to and in line with the best practices, as acknowledged by international literature on corporate governance, interesting predictions emerge, in relation to the degree of ownership concentration and dominance exercised by the government within the company. Corporate governance and board composition are further found to represent good proxies of the level of public management discretion in the decision-making process.*

***Research limitations/implications**: The specificity of the research's geographic focus (i.e. Italy) de facto implies that there are some country-specific conditions that affect the industrial behaviour and financial performance of the observed firms in a different way than they would in other countries; thus, prohibiting generalisations in the international context. Additionally, the analysis does not adequately take into account the interference effects between industries (e.g. cross-sectorial learning). Finally, the research is largely interpretative and exploratory. And while this provides a solid scientific foundation for further research it does not, itself, subject any hypothesis to statistical testing and validation.*

***Originality of the paper**: The research sheds light on the subject of managing conflicting demands, top management's autonomy and the preservation of the significant role of the public as well, in relation to public utilities organisations. It is an original study with Italy in its focus, but with international significance, which reframes managerial debates concerning privatization and public utilities functioning.*

Key words: corporate governance; state ownership; italian public utilities; conflicting pressure; social mandate

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1. Introduction

Public utilities generally constitute privatistic organisations which otherwise maintain the infrastructure on behalf of public services and are subject to public control and regulation ranging from local community-based groups to state-wide government monopolies.

The Italian public utilities' sector has undergone significant changes both in regulation policies as well as in terms of managerial practices in the course of the last two decades. Rising pressures to decrease public expenditures have led governments to reduce the resources devoted to public-owned firms. Moreover, the presence of multiple stakeholders made it necessary to find a balance between lowering costs, serving social needs and improving services (Martinez *et al.*, 2013).

At the end of the '90s such process of liberalization was initiated leading to the privatization and, in some cases, to quotation of various municipal enterprises. Another element of change was a deep merger and acquisition process that further effected important strategic transformations (Gilardoni *et al.*, 2009a; 2009b; Cristofoli and Valotti, 2008). The most essential ramification was the modification of the governance structure and operating rules, both at strategic and managerial levels. The incorporation of private capital into public firms further enhanced the need to operate akin to private firms' embracing of profit orientation, value maximisation and acting in a competitive mode within the public and private sector (Calabrò *et al.*, 2013; Cambini and Rondi, 2011; Gilardoni, 2007; Garlatti, 2000, 2001; Elefanti, 2003).

Recently, a new culture of local public services has been evolving in Italy. This novel development entails growing attempts to overtake the utility model as a city service (formerly municipalized) to a different approach stemming from the cooperation between public enterprises (owned by municipalities) and private firms; with the ambition to export locally developed skills into new domestic and non-domestic markets (Menozzi *et al.*, 2014; Ricci and Landi, 2009; Dezi *et al.*, 2005).

In light of these transformations, this research aims to investigate the manner in which upper echelon management deals with the conflicting pressures between the business model and the social functions. The article consists of two parts: the first part presents a conceptual framework based on a literature review. It focuses on the latest national and international research on Italian public utilities governance, particularly the impact of liberalization on ownership structure and corporate governance, and the need to protect the public interest while simultaneously managing private companies. The second part provides an empirical analysis on company structure and corporate governance of Italian public utilities listed on the Milan Stock Exchange. The analysis sheds light on the patterns of handling the conflicting demands; specifically, elucidating models of governance that reconcile the conflicting pressures by retaining top management's autonomy and in parallel preserving the significant role of the public.

2. Literature Review

2.1 The case of Italian public utilities

In many European countries, the state ownership of public utilities is being abandoned in favour of private ownership with public regulation in order to prevent market abuse. The phenomenon has been particularly felt in UK which first of all privatised its major utilities and introduced a form of regulation that, in a short term, has become a model of best practice to succeed in this market (Parker, 2006).

Public utilities in Italy, conversely, have always functioned as companies under public control provided by state-owned organisations. In fact, since 1900 the Italian public utilities have been operating under a rigid public control in the context of monopoly, devoid of competition. In practice, the governments and political agents have had an exclusive authority over the nominations of managers and/or board of directors whom were solely responsible for the management of the service, absolved of competing market forces.

In order to prevent monopoly market-dominance, this situation has been modified in the course of the '90s whereabouts state ownership of public utilities is being switched in favour of private ownership with a state regulation control. Legislative changes have introduced and promoted competition in parts of the utilities industry where it has been feasible. Furthermore, special purpose companies have been created for essential public utilities such as telecommunication, gas, electricity and water and sewerage sectors. At the same time, a structure of independent governance regulators has been created ad-hoc in order to stimulate competition in the market as well as to forestall inefficiencies by mismanagement. Thus, a process of liberalization that led various municipal enterprises to privatization and, in some cases, to quotation, characterized the Italian public utilities sector. Moreover, there was a series of mergers and acquisitions that caused structural strategic changes, such as turnovers and prices policy (Hansen, 2014; Gilardoni *et al.*, 2009a; 2009b; Cristofoli and Valotti, 2008). Consequently, public utilities are nowadays compelled to compete in the new context of market liberalization (Abatecola and Poggesi, 2010). The most important consequence of these transformations, indicated above, was the separation between the public local government and the company, which in turn fostered the ambition, and actual attempts to export locally developed skills into new domestic and non-domestic markets (Ricci and Landi, 2009; Dezi *et al.*, 2005).

At the same time, private investors have been invited to participate financially in public utilities to boost competition and to improve performance. Furthermore, a change in the legal framework of public utility has been introduced. Specifically, new legislation has been issued in order to distinguish the political aspects from the managerial ones. Prior to such reforms, public utilities enjoyed the status of a municipal company, an autonomous organisation created by a governmental decree, while the owner (often the municipality) had the authority to appoint the board of directors.

Differently from the UK, we have also to consider the important role of regulation and country-specific government conditions. These depend, otherwise, on the institutional context of entrepreneurship, which makes the Italian context very singular for the dominance of family and state-controlled businesses. This highlights that one country's corporate governance system cannot be successfully adapted by another country - sic est - without considering a set of very different institutional and economic constraints. In this regard, the Italian financial market presents systemic singularities that make it difficult to produce a benchmark internationally and, reasonably, becomes less replicable from an empirical standpoint.

In particular, the "Italian affair" context has exacerbated the economic and social problems, reflected in conflicting demands posed on the public utilities firms: on the one hand they are charged with providing services to citizens, assuring quality and satisfying public interests (Tardivo and Quaglia, 2014; Bresciani and Ferraris, 2014; Ferraris, 2014; Bresciani *et al.*, 2013; Baccarani, 1995); and on the other hand they have to maximize shareholders value thus acting contrary to social logics and orientation (Calabrò and Torchia, 2011; Elefanti and Cerrato, 2009; Dallocchio *et al.*, 2001). Moreover, Asquer (2011) suggests that the difficulty to implement liberalization and regulatory reforms to the network industries in Italy may be explained by various concurrent mechanisms, which have to do with the rent-seeking behaviour of the actors in the industry's community, the rise of barriers to entry against competitors, and the risk of collusive practices between the regulators and the regulated. At the same time, Mangia *et al.* (2013) contend that organizational change processes in the Italian public utilities are carried out with the purpose of obtaining institutional legitimacy, deploying behavioural control mechanisms, such as incentives and empowerment.

How can the public utilities firms engage such discordant concomitant pressures? In order to explicate this query, we draw on the organizational behaviour literature in the social conflict domain, and specifically the Dual Concern Model originally proposed by Blake and Mouton (1964), later adopted with some modifications by several scholars (Pruitt and Rubin, 1986; Rahim, 1983; Thomas and Schimdt, 1976). The fundamental premise of this conceptual framework maintains the conflict-management strategy adopted by an individual or organizational entity stems from two underlying motives: concern for self or one's organization and concern for the other side.

Furthermore, the model postulates that the level of these two motives depends on the specific contextual features of the conflict, which in turn shape the strategic choice of the parties: (a) Dominating (high concern for self and low concern for the other), manifested in attempts to persuade the other side to accept one's position; (b) Obliging (low concern for self and high concern for the other), reflected in compliance with the other; (c) Avoiding (low concern for self and low concern for the other) that is refraining from confrontation with the conflict issues; (d) Integrating (high concern for self and high concern for the other), that is seeking mutually beneficial alternatives for resolving the conflict; (e) Compromising (moderate concern for self and moderate concern for the other), evident

in actions designed to identify middle-ground agreements (Syna Desivilya *et al.*, 2005).

Extrapolating from this conceptual framework to the current context of the Italian public utility firms, that are conceivably they are facing a strategic choice that depends on the strength of each of the two orientations: economic (free market) and social. Thus, from the strategic management point of view, one option would be to embrace the dominating strategy thereby increasing the autonomy of public utilities managers' autonomy (Kim and Prescott, 2005; Mulazzani, 1999; Ward, 1991). According to some authors, the problem is the influence on administration by public stakeholder, proposing to reduce the shares owned by public shareholders (Barzelay, 2001; Pedersen and Thomsen, 2003). Other studies focus on the typical features of private enterprises as capital structure, market value and investment decision of firms while attempting to maximize their interests (Bortolotti *et al.*, 2011; Cambini and Rondi 2009; 2010; Cafferata, 1993).

At the same time, in order to guarantee the social function of such firms and to preserve public interests, there are some instances of former Italian public owners that have continued to influence the management policies of firms currently privatized, by reinventing - sui generis - on a public management side typical situations of relationship conflicts between principals and agents, typically of the agency theory (Jensen and Meckling, 1976; Fama, 1980; Eisenhardt, 1989).

For these reasons, in order to facilitate public governance management through with check and balance mechanisms (Hongjun and Hui, 2004), good practices and specific management tools should be developed, such as the process of stakeholders' involvement (Gnan *et al.*, 2013), further attempting to enhance and maximize the social orientation of companies of public interest domain (Bresciani and Ferraris, 2012; Elefanti, 2006).

In light of such a complex scenario, it deems interesting to investigate whether it is possible to balance the need for autonomy of the public utilities' management and the need to protect their social function. In other words, drawing on the Dual Concern Model the query examined in this study revolves around the feasibility of embracing the integrating or compromising strategy.

2.2 Italian corporate governance on listed market

It should be assumed therefore that corporate governance system which exists in a country depends by a series of context variables, related to entrepreneurial and socio-political aspects as well (Del Giudice *et al.*, 2010). This assumption states a condition whereby we assume primarily that institutional regulatory system is country specific (Maggioni and Del Giudice, 2011); secondly that the application of a 'good corporate governance system' depends positively on the ability of central governments to remove a very different set of institutional constraints to free market best practices' adaption. In this regard, the Italian financial market since the 90s is marked by huge changes regarding legal and economic framework experienced by some major developments, such as a new Banking Law, the institutional

investors' role, the stock market privatization, minorities' protection law, securities law enactment (Bianchi and Bianco, 2006).

Not least a corporate governance code (i.e. Codice di Autodisciplina delle Società Quotate) was introduced and subsequently twice revised in order to strengthen shareholders' protection while attracting the attention of foreign institutional and private equity investors to Italian stock market. Originally, in the intention of regulators, all these changes had deeply modified the governance's structure of Italian companies. However, the governance structure of Italian stock market nowadays suffers of several concerns about corporate and control structure of societies especially due to the abuse of Control Enhancing Mechanisms (CEMs) by the State and family entrepreneurs in order to guarantee control stability, reducing the transferability of majorities on primary market.

State ownership, pyramidal groups, shareholder agreements, family trusts and bank coalitions are only some of the most known CEMs used in the corporate governance of both large and small enterprises of Italian capitalism. As results, there is no substantial increase in the access to Italian stock market by public investors. Then, the control of companies is still in the hands of a "financial elite" composed by the most important Italian family entrepreneurs, both bankers and industrials.

From one side, these evidences highlight stability in the allocation of corporate control that allows larger Italian companies (e.g. public utilities) to escape from financial speculative games by enabling durable and long-term governance stability. On the other side, nevertheless, the opacity of governance mechanisms may reduce management efficiency, that is the capacity of senior management for reducing the use of resources through return value maximization (Jensen, 2001). The main issue for both state and family controlled companies in the Italian market is linked to the phenomenon of separation between ownership and control that would enable top managers to pursue opportunistic and misleading behaviours. In this regard, to evaluate the efficiency and good practice of top management, corporate governance architecture seems to be a good proxy.

Leaving to future research development on listed family business, this survey aims to offer a critical analysis on state ownership and control structure of public utilities listed firms, by analysing the dominance of state control on public utilities governance structure.

In effect, by analysing ownership and control assets, we emphasize that a fully or majority state ownership control in the public utilities corporations can be effective in ensuring management autonomy, by assuring - at the same time - that critical decisions fall outside from speculative market influence. In this regard, State-centrality in corporate control of listed public utilities seems to be the main tools used for aligning requirements of efficiency-performance behaviours imposed to public management from market competition with special social objectives - borne by the State - to guarantee collective interests in sectors of public general interest.

We conclude that should not be forgotten that the "galassia" of state-owned enterprises meets a political culture that - *de facto* - influences board composition, nominees, committees, roles and management objectives. Without this the function of public managers and public governance would be eroded.

3. Methodology

The methodological approach incorporates the models of Cristofoli and Valotti (2008), Pedersen and Thomsen (2003), Boyd (1994) and Hoskisson *et al.* (1994). The empirical analysis concerns the 13 public utilities listed on the Milan Stock Exchange in September 1, 2011. For each company details about the ownership structure and corporate governance are provided, based on the analysis of the statutes, constitutive acts, financial statements and reports of corporate governance. The goals of the analysis are twofold: 1) to gain an understanding with regard to the level of concentration of ownership, i.e. how much the public ownership is relevant to influence and determine strategic decisions within the company; 2) to explicate the level of management discretion in decision-making.

Thus, following Pedersen and Thomsen (2003), the ownership structure is analysed through three variables: percentage % of capital share owned by public shareholders; the presence of minimum thresholds of number of stocks with voting rights that can be owned by private partners; public property constraints in the statute. According to the authors, the three variables provide clear evidence about the intention to maintain the power to direct and control the business activities. Then, following Boyd (1994) and Hoskisson *et al.* (1994), the corporate governance structure is analysed through four variables: (a) number of executive board members; (b) presence of a Chief Executive Officer; (c) the overlap between the roles of Chairman and Chief Executive Officer; (d) the number of active members within the Board of Directors. According to the authors the number of operative members is a clear sign of important managerial skills.

4. Findings and discussion

The comparison between ownership structure and corporate governance structure indicates the choices made by each firm. Thus, some of them reveal an imbalance toward public control or toward management independency. Other firms exhibit intermediate solutions attempting to balance between public control and managerial autonomy. By revoking Dual Concern Theory, the interconnection within corporate and control assets suggests that the management of public utilities requires balancing between the corporate's own goal, namely the concern of meeting economics and financial objectives turned to stock's value maximisation to the social stakeholder's goal, namely the concern for stakeholders and consumers in maintaining a servicing utility (Jensen, 2001).

The analysis also highlights the following issues: the connection between the results obtained by the companies, their ownership and governance structure; the influence of the public player, and thus of policy, upon firms strategic choices; the presence or absence of internal control mechanisms; and the level of business orientation towards social development policies. In this regard, public utilities governance issues are highly multidimensional for both principals (municipalities and government) and agents (executive directors). In this way, even though the five conflict styles of Dual Concern

View can be subsumed, we assume that it is hard to generalize the on-going approach pursued by the public utilities *galassia* because the specificity of corporate and management structures from any two-dimensional typology of public utilities envisages different covenants and statements, as well. *Dominating*, for sure, is the only leadership style which we can interpret similarly to the management rules of the peer group of utilities. Empirical future researches could be considered in order to provide an analysis on implementation of integrating or compromising strategy by managers.

Ownership structure

The analysis of the ownership structure is based on three variables (see Table 1): (a) percentage % of capital share owned by public shareholders; (b) the presence of a public property constraint in the statute; (c) the presence of minimum thresholds of number of stocks with voting rights that can be owned by private partners. According to the authors, the three variables provide clear evidences about the intention to maintain the power to direct and control the business activities.

Tab. 1: Ownership structure of the Italian listed public utilities

PUBLIC UTILITY	(a)	(b)	(c)
A2A	Municipality of Brescia (27.50%); Municipality of Milano (27.50%)	No reference	Max 5% if different from Municipalities of Brescia and Milano
ACEA	Municipality of Roma (51.00%)	No reference	Max 5% if different from Municipality of Roma
ACEGAS- APS	Aceagas-Aps Holding (62.70%) *	At least 50%+1 share	Max 5%
ACQUE POTABILI	Iren Acqua Gas spa (30.86%); Smat spa (30.86%)	No reference	No reference
ACSM-AGAM	Municipality of Monza (29.12%); Municipality of Como (24.76%); A2A (21.94%)	No reference	Max 4% if different from Municipality of Como
ALERION	No reference	No reference	No reference
ASCOPIAVE	Asco Holding spa (61.56%)	No reference	No reference
EDISON	Transalpina di Energia	No reference	No reference
ENEL	Cassa Depositi e Prestiti (17.40%); Ministry of Economy (13.90%)	No reference	Max 3%
ENEL GREEN POWER	Enel spa (69.17%)	No reference	No reference
HERA	Municipality of Bologna (14.99%); Municipality of Ravenna (7.39%); Municipality of Imola (5.32%); Municipalities of Ferrara, Rimini, Cesena e Forlì (2%-3%)	At least 51%	Max 2%
IREN	Municipality of Reggio Emilia (8.38%); Municipality of Parma (6.60%)	At least 51%	Max 5%
SNAM RETE GAS	Eni spa (52.54%)	No reference	No reference
TERNA	Cassa Depositi e Prestiti (29.85%)	No reference	Max 5%

(*) Aceagas-Aps Holding is a public company (Municipality of Trieste 50.10% and Municipality of Padova 49.90%); Asco Holding spa is a public company (93 Municipalities); Transalpina di Energia is a public company (A2A, Iren, and others)

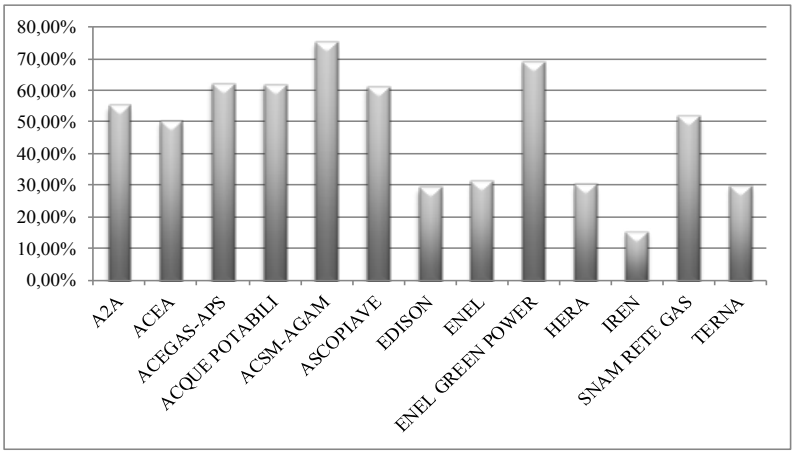
Source: personal elaboration from statutes and reports of corporate governance

In eight (8) out of thirteen (13) cases the public partner has the majority of capital and in the other five (5) cases there is an important public share (i.e. from Iren - 14.98% to Enel - 31.30%) (see Figure 1).

Moreover, in three cases (Acegas-Aps, Hera and Iren) there is a public property constraint in the statute; namely a clear intention of the owner to maintain the public control. Finally, in eight (8) cases there is a presence of minimum thresholds of numbers of stocks with voting rights that cannot be owned by public partners (i.e. from Hera - 2% to A2a, Acea, Iren and Terna - 5%).

The analysis of the three variables clearly shows that the ownership structure is characterized by a significant presence of public ownership and control. Even though there are only three (3) cases of a public property constraint, in fact, in eight (8) cases there is a constraint in the numbers of shares available by no public owner.

Fig. 1: Share of public ownership of the Italian listed public utilities



Source: personal elaboration from statutes and reports of corporate governance

Corporate Governance Architecture

The analysis of the corporate governance structure is based on four variables (see Table 2): (a) number of Board of Directors members; (b) presence of a Chief Executive Officer (CEO); (c) the overlap of Chairman and Chief Executive Officer roles, otherwise namely *CEO duality*; and (d) the number of executive members within the Board of Directors.

The number of Board of Directors members ranges from four (Ascopiave) to eighteen (Hera). A2A is the only company with a unique corporate governance structure, based on two boards: the supervisory board, composed of fifteen members and the board of management, composed of eight members.

As can be seen in Table 2, the number of executive members within the Board of Directors is very low, by and large limited to the President and the CEO. The presence of the CEO, in almost all the listed Italian public companies, provides a clear evidence that the corporate governance structure emphasizes a managerial orientation.

Tab. 2: Corporate governance structure of the Italian listed public utilities

PUBLIC UTILITY	(a)	(b)	(c)	(d)
A2A (*)	15+8	No	No	0
ACEA	9	Yes	No	2/9
ACEGAS- APS	13	Yes	No	2/13
ACQUE POTABILI	9	Yes	No	4/9
ACSM-AGAM	10	Yes	No	2/10
ASCOPIAVE	4	No	No	2/4
EDISON	13	Yes	No	4/13
ENEL	11	Yes	No	4/11
ENEL GREEN POWER	10	Yes	No	2/10
HERA	18	Yes	No	2/18
IREN	13	Yes	No	2/13
SNAM RETE GAS	5	Yes	No	2/5
TERNA	9	Yes	No	2/9

(*) A2A is structured in a Supervisory Board (15 members) plus a Board of Management (8 members)

Source: personal elaboration from statutes and reports of corporate governance

5. Conclusions, limitations and future research perspectives

The research has combined empirical data with an extensive literature review to investigate whether it is possible to balance the necessities of autonomy of the management of public utilities with the need to protect their social function. Inescapably, this primary step to scientifically substantiate a theorem and to give it form and essence has produced results of a strongly conceptual disposition. The concept and model, nonetheless, carry in parallel significant practical value as well.

Firstly, as emerged from the literature review, the relationship between public ownership and management of public utilities figures prominently on the research agenda. The dynamics characterizing the industry of public utilities for nearly a decade emphasize the need for the public owner to rethink its role in relation to companies operating in increasingly liberalized environments. The current study shows that it is possible to concurrently maintain strong public ownership structures and to achieve excellent results from the management point of view. In line with this logic, the findings suggest the opportunity to reframe the managerial debate concerning privatization of public utilities: rather than focusing solely on the need to privatize public utilities to reflect on how to promote the functioning of public utilities (including the ones which are strictly public) in the liberalized market.

Secondly, the analysis of governance systems in the Italian listed public utilities implies the importance of the corporate governance framework as a tool for balancing between the need to protect public interests and the need to secure the autonomy of the enterprise. Specifically, the analysis emphasizes the key significance of corporate governance systems in

contrast with the minor importance of ownership structures. Generally speaking, Italian listed public utilities are characterized by a strong influence of the public actor owner, against systems of governance that recognize a management's autonomy.

The current study provides some preliminary answers in that regard. Corporate governance systems that relay tasks of ordinary and extraordinary management to the top governing boards seem to be able to guarantee the autonomy of enterprises, even within the limitations placed by the public shareholder to protect the collective interests. In fact, they stretch the chain of command by moving away decision making from policy. Along these lines, one of the solutions is the introduction of the two-tier system; namely, splitting the Board of Directors into a Supervisory Board and into a Management Board (i.e. the A2A corporate governance structure), thereby creating a filter between public ownership and the management of the company.

Additional insights emerge from the analysis of the entire system of government, including the incentive mechanisms, monitoring boards and mechanisms of accountability (Valotti, 2006). First, mechanisms that encourage accountability of the management in achieving the goals set by the public shareholder can ensure public control and at the same time largely retain the firm's autonomy. Second, advanced supervisory boards can monitor the progress of management. Finally, reporting systems that make management accountable not only about the financial results but also about social and economic results obtained, may be useful tools for accountability with respect to the protection of public interests. Altogether, applying advanced tools of corporate governance should boost the awareness and more open attitude of local government authorities (including owners) and of citizens (including members and shareholders in some cases towards public utilities.

Finally, we stand just a few words concerning the limitations of the study. The empirical focus on Italy implies that some country-specific institutions affect the industrial behaviour and performance of the observed firms in a more significant way than any of the industry-specific context conditions. Also, the analysis does not take adequately into account interference effects between industries (e.g., cross-sectorial learning), which may be relevant to explain the pattern of interaction and outcome in some industries because of complementarity and substitution effects or because of synergies between firms' business areas. Furthermore, the analysis conducted here is largely interpretative and exploratory, rather than subjecting any hypothesis to statistical test.

While our research is a significant step forward in the path to understanding the Italian public utilities sector, this area of knowledge is still underdeveloped. Our experience on the subject suggests that further research is required to define, refine, validate and interrelate the various elements involved. More specifically, it is suggested that further research should concentrate on other countries as well and compare the results internationally. More importantly, further researches must determine more specifically the generated values of privatizations, both in terms of performance and social utility.

This study may lead the way to a new and interesting line of research in discipline of corporate governance at the international level. In particular, public control often influences the link between the strengthening of the control mechanisms and the inefficiency of the service provided, by assuming a negative role. In contrast, the present study tries to bring out the aspects of exquisitely managerial and typical administration peculiarities, both at a business and organizational level, which can have a state-control conduction, in order to ensure a goal of Pareto optimum allocation of essential public services, thus assuming a positive will. This research effort would help better the understanding of whether countries sharing homogeneous institutional traits exhibit similar problems in implementing liberalization and re-regulation processes.

Unavoidably, this calls for further research on both sides. From the past research's point of view, to test the projections; and from the present research's point of view, to further verify the findings. Regarding the latter, it is recommended that further researches perform similar work (a) in other geographical contexts, possibly also in less-developed countries; (b) which is sector-specific; (c) which is also size-focused.

On a catalectic note, this research calls for a re-evaluation or at least reinterpretation of some commonly held beliefs on public utilities sector, not just in relation to performance, but other aspects as well. They are firms whose performance aspect affects many of its other traits, but most of all those of a social nature. This entails that their differences are not only deep, but also of a less tangible and less visible nature. In other words, managers implement change processes to sustain legitimacy goals, more than looking for technical efficiency or qualitative performances to meet community expectations. Moreover, changes in managerial approach were also in evidence, even if not tangible. For example, the success of organizational change in public utilities is correlated with a participative management style. In other words, we found a possible balance between the two conflicting pressures in the use of compromising or integrating approach like a shift from "management control" to "commitment management" aimed at aligning the interests of employees with those of managers, through the appropriate selection of incentives.

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Business evolution in the lens of universities' sustainable impact: Russian lessons in BRICS

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Abstract

***Purpose of the paper**: Recent trends in education have brought universities to new qualitative levels of communicating education globally. The newly evolved roles of universities include sustainable mentoring and introducing socially responsible graduates to the global job market. University social responsibility is a fast growing theory derived from the general concept of corporate social responsibility, which considers special multistakeholder responsibility within higher education institutions (HEIs). The existent literature still lacks a consistent study of the necessary cultural context for the development of social impact and innovation sources in emerging economies' universities. To fill in the gap this paper aims to analyze the heterogeneity of the intended social impacts of BRICS universities in terms of regional business evolution.*

***Methodology**: The research design employs adjusted explorative methodology to justify USR application and casual methodology to study USR models applied to a stratified sample of 10 internationally ranked BRICS universities. We have analyzed the textual sources of internal and external communication of USR in accordance with a specifically predefined coding system.*

***Findings**: The results of the research have revealed same knowledge drivers of USR in BRICS countries. Nevertheless, the cross-cultural context varies, so while some countries persuade ecological and strategic development by using sustainable management, Russian HEIs put more stress on classical educational roles and promotional activities.*

***Research limits**: The size of the sample entails some limitations.*

***Practical implications**: The authors suggest glocalised knowledge-management for future managers' sustainable strategy choice. Moreover, some results may be applied as a guideline to modify sustainable development.*

***Originality of the paper**: The novel framework of USR in BRICS universities represents a new category for further theoretical and practical implications.*

Key words: university social responsibility; BRICS; non-financial reporting, sustainable impact

1. Introduction

A socially responsible approach has become the inevitable part of sustainable economic and social development. In the global context, the term 'social responsibility' is still often associated with large corporations. In truth though, social responsibility theory evolution has brought a wider understanding of its application.

The socially responsible role of universities has given rise to many discussions in the academic world. Currently, the university's function is not only to train students for various vocations, but also to enhance social relevance, rather than simply issuing diplomas, to encourage students to find their own direction and think beyond individual interests towards societal interest. This means that through socially responsible behavior universities demonstrate that they know and can respond to current social issues both through personal projects related to community development and through educational programs, which educate young people to become socially responsible individuals and equal participants in creating positive social change.

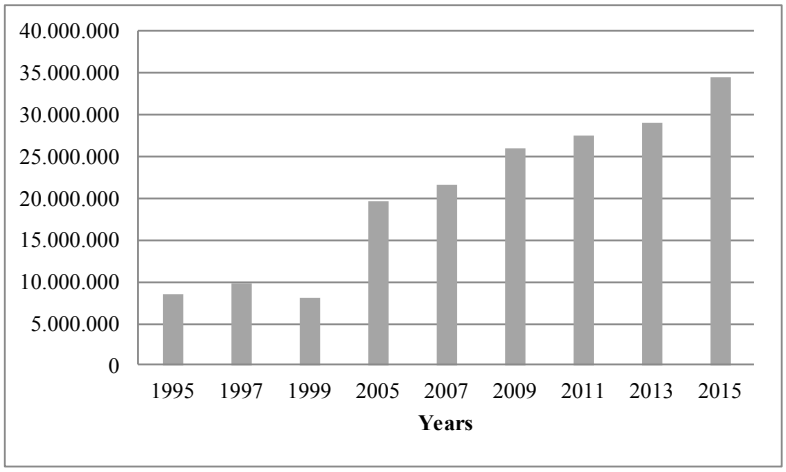
University social responsibility is a new trend of the general theory of organizations' responsibility (Gomez, 2014). The term "social responsibility" is based on the legal and ethical obligations that arise from corporate activities and may affect society, economy and the environment. In considering universities as an organization, we can argue that this category is also responsible for their actions to various stakeholder groups (students, staff, alumni, community, and environment). In addition, universities, through their main function, i.e. training, should be an example of ethical behavior, fair management, transparency and respect for human rights.

Higher education institutions have a unique role in ensuring sustainable development of regions, since the list of their commitments includes the promotion of responsible knowledge and practice. Universities are responsible for helping students in the formation of certain skills involving the understanding of the importance of social responsibility and sustainable development (Matten and Moon, 2004). Thus, we can conclude that higher education institutions have an obligation towards society for the education of future socially responsible leaders, which, in turn, should become the drivers of sustainable regional development.

In addition, universities are becoming increasingly important participants in the creation of sustainable social development because connecting the learning process with economic activities can affect the creation of sustainable dynamics of economic and social development in the community in which the university is active (Etzkowitz, 2012).

The relevance of social responsibility in higher education institutions is backed by several global trends. The first visible trend is the constantly growing number of enrolled students (Vasilescu *et al.*, 2010). This means that more and more people have the opportunity to enter HEIs at different times of their adult life. The trend of the growing number of students is shown in Fig. 1.

Fig. 1: Total number of students in the world successfully completing tertiary education programs (thousands)



Source: UNESCO Institute for Statistics, 2016

According to UNESCO's Global Education Digest (2011), the capacity of the world's education systems has more than doubled in almost 43 years. Comparing absolute numbers in 1995 with those in 2013, it is possible to see that the number of tertiary students greatly increased and that East Asia and the Pacific are the regions that lead the way.

The second trend consists in the globalization and internationalization of universities. There is no questioning the fact that student mobility was not common for most universities in the past. However, in the last 10 years the number of students studying outside of their home countries has increased greatly. Unfortunately, data are difficult to obtain and verify, but UNESCO research shows that in 2007 there were more than 2.8 million international students (compared to 1.8 million in 2000). According to forecasts, by 2025, almost 7.2 million students may be studying internationally (UNESCO's Global Education Digest, 2009). At the university level, globalization can be reflected in the way many universities have stated international missions, aiming to produce "global citizens" with "global competencies".

The third trend is derived from the second - i.e., universities are becoming more active participants in different spheres of activity. Higher education institutions are no longer supposed to operate in isolation; rather, they are now interactive players who work closely not only with the industry, but also with their community and government. They are an inevitable part of national or regional innovation systems (Mowery and Sampat, 2005).

The forth trend concerns knowledge dissemination in different cross-cultural contexts, which requires innovative models of communicating key strategies to the global arena (Del Giudice *et al.*, 2012).

2. The genesis of the USR concept

The concept of university social responsibility has emerged relatively recently. In 2001, several Latin American universities working in partnership with the Inter-American Development Bank developed a project, which was called "Ethics, Social Capital and Development". This initiative helped to raise awareness of the importance of social practices beyond traditional volunteer outreach programs. The concept of university social responsibility arose within this project. Higher educational institutions in Latin America later declared the importance of this theory.

Despite its initial stage of development, the concept of university social responsibility is characterized by a considerable number of definitions. One of the first explanations of USR was developed by a network of universities in Chile from 2001 to 2005. According to this group of higher education institutions, USR represents the ability to create and promote a group of principles and values through the development of management processes, training, research and community outreach (Gomez, 2014). Another definition suggests that social responsibility of higher education institutions is a policy of ethical quality of the performance of the university community (students, faculty and administrative employees) through the responsible management of the educational, cognitive, labour and environmental impacts produced by the university in an interactive dialogue with society to promote sustainable human development (as cited in Vasilescu, *et al.*, 2010).

Moreover, German scientists developed a concept similar to USR, - known as Institutional Social Responsibility (ISR) (Stark *et al.*, 2014). The ISR concept is based on the following new requirements for higher education: social learning; leadership, community and team building skills; civic education; sensibility of challenges in society; awareness of social responsibility.

Besides, the literature overview has revealed another approach to define university social responsibility. It is a philosophy or principle for social movement, which can be perceived as a university's philosophy to use an ethical approach to develop and engage with the local and global community in order to sustain social, ecological, environmental, technical and economic development (Esfijani *et al.*, 2013).

In addition, researchers emphasize the differences between the concept of corporate social responsibility (CSR) and the social responsibility of universities. CSR practices cannot be applied to HEIs. The social responsibility of universities considers other specific impact factors, which corporations are not aware of, such as educational and cognitive ones (as cited in Gomez, 2014). The business concept of corporate social responsibility cannot cover all of social responsibility (Stark *et al.*, 2014).

Other characteristics of sustainable and socially responsible universities include leadership and vision, which promote needed change, accompanied by a proper assignment of responsibility and rewards. This assignment of responsibility is committed to a long-term transformation of the universities which are willing to be responsive to society's changing needs (Lozano, 2006).

The social responsibility of universities refers not only to staff training and socially responsible citizens, but also raises issues of economic, social and cultural development, as well as participation in the promotion of social justice (Berezo *et al.*, 2010). In this sense, the practice of social responsibility of higher education institutions is an interdisciplinary activity involving professors, researchers, deans, students and external universities' stakeholders, based on ethical management, teaching, and training (Vasilescu *et al.*, 2010).

Besides, university social responsibility can be explained as the ability to disseminate and practice a set of pillars and values through four key activities: management, education, research and additional activities (as cited in Lozano, 2006). The author of this definition supposed that universities should found their academic and organizational responsibility on ethical theories that will connect with satisfying the needs of the community in which they operate. According to Jimenez de la Jara, the social responsibility of universities must not represent an additional extracurricular activity. Universities have to be responsible on a daily basis, and social responsibility must be part of their personality, ethos and existence.

Taking into consideration all the definitions mentioned above, we may thus summarize the different approaches of USR: it is a specific management theory that requires universities to think in a socially responsible way beyond basic functions like teaching and researching.

The USR concept could help to define the impacts of universities that are important for its internal and external stakeholders. The relevance and importance of university social responsibility is also supported by its inclusion as an object of study to the agenda of the International Association of Universities, and the existence of organizations in this field like the Bentley Alliance for Ethics and Social Responsibility (BAESR) in Boston, Asia-Pacific University-Community Engagement Network.

In addition, in 2005 the Talloires Declaration was drafted in 1990 at an international conference in Talloires, France: this was the first official statement to be made by university administrators concerning commitment to environmental sustainability in higher education. The Talloires Declaration (TD) is a ten-point action plan for incorporating sustainability and environmental literacy in teaching, research and operations and outreach at colleges and universities. It has been signed by over 350 university presidents and chancellors in over 40 countries. According to this Declaration, socially responsible universities should apply the processes of education and research to respond to, serve and strengthen its communities for local and global citizenship. Universities have the responsibility to participate actively in the democratic process and to empower those who are less privileged.

Despite the clear role of universities in the development of economic and social sustainability, many universities fail to respond to the challenges and demands posed by their environment. Most of them, according to Wesheimer still succumb to pressuring students and their parents in order to prepare them for their professional career, personal growth and economic gain but neglecting the importance of creating active and engaged citizens as well (as cited in Peric, 2012).

In fact, all HEIs inevitably face challenges and problems during their transformation into socially responsible universities. Velazquez *et al.* (2005), in their study of the factors that presented several issues that negatively influence sustainability initiatives, list the following: lack of awareness/ interest/knowledge and involvement of individuals, organizational structure, time and funding constraints, lack of support from top management, lack of suitable communication and information, resistance to change, lack of more rigorous regulations, lack of interdisciplinary research at the university, lack of performance indicators, lack of policies and variety of technical problems. Another group of researchers has revealed one more group of barriers: financial, bureaucratic, cultural, and individual (Nejati *et al.*, 2011).

3. The interaction of universities and regions: methodology overview

There is no questioning the fact that each organization has inevitable impact on its home region. Currently, there are many approaches determining the patterns of interaction of universities and regions, especially concerning the impact of higher education institutions on regional development.

At the most basic level, universities can be the anchor institution within the local economy as a major employer in a wide range of specializations, buyers of local goods and services, and contributors to cultural life and the built environment of cities and towns. Regional investment in university infrastructure in order to support its core business of research and teaching can therefore have a significant impact on regional conditions even if the university is not actively supporting regional development.

Nevertheless, considering universities through the social responsibility prism, there are other possible effects on regions. It should be noted that approaches to the determination of universities' impact on regional development might vary, along with the definition of the USR concept.

Some authors divide the possible effects of higher educational institutions' activities into negative and positive ones (Gomez, 2014). For example, inadequate working conditions, lack of ethics courses, indifference to social problems and outdated educational programs may be considered negative factors. In contrast , positive factors include ethical and transparent management system, interdisciplinary courses, continued dialogue with the various stakeholder groups, etc.

In addition, researchers presented the way of defining universities' impact on regions through the well-known Triple Bottom Line concept. Universities should also operate in accordance with Triple Bottom Line paradigm and assess their own possible impacts on regions through TBL lens. Higher education institutions are expected not only to be oriented towards economic profit, but also to be concerned with environmental sustainability (planet) and the welfare of society (people); universities should also pay more attention to the interaction and impact of its activities on all stakeholders. In some senses, the TBL is a particular manifestation of a balanced scorecard.

Likewise, the academic literature suggests a model entitled Sustainability in Higher Education Institutions (SusHEI) that generally describes and characterizes the functioning of a HEI (Madeira *et al.*, 2011). This model is based on one of the core activities of any university, like education and research, and took HEIs' impacts at economic, environmental and social levels, and the role of its community into account.

Besides, some authors propose quite practical systems combining five areas in which college and university performance can definitely be linked with sustainability: energy use, water use, use of land, purchase of products and their treatment at the end of their useful lives, as well as air, water and land emissions (Graedel, 2002).

In considering national approaches to university social responsibility and its impact on regions, the authors have determined that German universities recommend a specific assessment approach. The questionnaire was developed in order to reveal the perception of different impacts of universities' activity. The authors classified gathered data (possible universities' impacts) into three key groups. The first one is collaboration and personnel exchange, which represents research and collaboration with regional partners, advice and expertise for regional organizations, temporary exchange of personnel between universities and regional partners (interns, professors), and support of final theses developed by students in regional corporations (Koschatzky and Stahlecker, 2010). The second group consists in the supply of resources that reflects permission to use different equipment in universities (laboratories), rooms and other infrastructure provided by universities. In addition, the third group of factors is social engagement, which represents information and further education for different groups and, in addition, contribution to the social life of the region. It's important to mention that universities in Germany have been carrying out socially responsible activities through long term partnerships which are institutionalized in different forms with different external stakeholders.

Moreover, UK universities have developed a five-dimensional system of impacts (University of Essex, 2014). The first function of higher educational institution is developing a flexible and adaptable workforce. In fact, a skilled and flexible workforce is central to economic development. Businesses are increasingly reliant on higher levels of skills to drive innovation, improve management and facilitate investment. The university takes its responsibilities for equipping the workforce of tomorrow to meet the needs of businesses seriously. The second point is supporting regional innovation and competition that requires universities to provide relevant forecasts, up-to-date research and to obtain patents and licenses. The next direction is accelerating economic development. Under this function universities impact upon economic development in a range of ways, from producing highly skilled graduates and research-trained individuals that are important for a well-functioning knowledge-based economy, to producing advanced knowledge that can help solve economic and social challenges. Universities help create the necessary networks of academics and industrialists that aid the flow of knowledge around the innovation system. Moreover, higher education institutions are a stable and progressive employer. Aside from their teaching and research outputs, HEIs are major commercial operations

themselves. According to the authors, universities must stand out from other employers as being highly progressive, with a significantly higher-than-average representation of women at professional and managerial levels, as well as being an ethnically diverse employer with an international perspective. The last function of universities is meeting social responsibilities. Universities contribute to societal development both directly, through active outreach to their local communities, and indirectly through research, teaching and knowledge exchange activities.

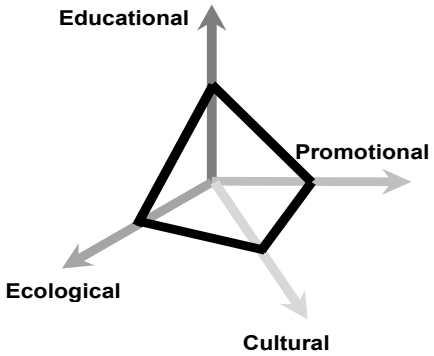
Moreover, OECD classified the possible impacts of HEIs into 4 groups: regional innovation which is closely linked to the research function of universities; human capital development, linked to the teaching function; social and cultural development, associated with the public service role of universities; and the contribution of universities to the institutional capacity of the region through the engagement of its management and members in local civil society. If these four directions shown in the graph are integrated, universities can be seen as occupying a "proactive", and not just a "passive", role in the regional development process.

There is another approach to the classification of the effects of higher education institutions activities on regions. Researchers have proposed to group all the possible consequences of universities' actions into four groups: organizational, cognitive, educational, and social. These groups constitute a model of social responsibility of universities that is also based on the above mentioned 4-way impacts.

Obviously, organizational and social impacts can be reflected in any type of organization because every organization hires people, has environmental impact and, to some extent, interacts with the local community. However, educational and cognitive impacts are specific to the academic system, since universities are directly responsible for the professional education of the population, as well as for the development of the research base.

In addition, we need to consider a modified model of social responsibility of higher education institutions (Belyaeva, 2015). The author of this model proposed to group the university's impacts into 4 key directions: educational (qualificational), promotional, ecological and cultural (Fig. 2). Promoting factors reflect the development of the business environment and brand recognition. Educational factors include the alignment of the labor market, relevant teaching programs and qualified academic staff. Cultural factors summarize the development of intellectual space as well as the dissemination of the cultural, ethical, social and environmental behavior. The environmental part of the model is dedicated to environmentally safe projects and Green Campus technologies.

Fig. 2: Driver-based USR Model



Source: Belyaeva, 2015

Summarizing the above, there are different approaches to combine and assess practices related to university social responsibility and university-region interrelations. The general feature of all these methodologies is the idea of classifying the activities of HEIs into categories and measuring their impact. The categories are similar in some systems. This paper will follow the logic of driver-based USR model (Belyaeva, 2015). This methodology allows the defining of a range of impacts of HEIs on regions and its comparison among countries of research. In addition, cultural aspects are designated separately, which is of particular importance within internationalization education processes. The promotional group of factors must also be examined.

4. The impact of universities on regional development

4.1 The BRICS universities sample

In this paper, we analyze and compare universities' influence on regional development through the review of practices in the selected institutions according to Belyaeva's model. We have used case analysis as the most appropriate method for comparing universities, then applied content analysis to collect the data as described below. The research is limited by its sample size, but that is to create prerequisites for the future expansion of the study's research scope.

The sample consists of ten leading universities in BRICS, confirmed by their presence in internationally approved global education rankings: University of São Paulo, Federal University of Rio de Janeiro (Brazil), Saint-Petersburg State University, Ural Federal University named after B. N. Yeltsin (Russia), Indian Institute of Science Bangalore, Indian Institute of Technology Delhi (India), Tsinghua University, Peking University (China), University of Cape Town, University of Johannesburg (South Africa) (Tab. 1). The sample of universities that was analyzed in this paper was predefined in accordance with specific criteria: The universities' being members of the QS World University Ranking; as geographic criteria, their institutions' home

countries being BRICS members; and the GRI-criteria, which requires universities to provide a social responsibility report or sustainability report based on GRI recommendations (optional).

Tab. 1: Universities' sample

University	Number of students		Number of academic faculty staff		Position in QS World University Rankings
	In total	International	In total	International	
University of São Paulo (Brazil)	74787	2077	5785	269	#121
The Federal University of Rio de Janeiro (Brazil)	54055	1216	4090	226	#311
Saint-Petersburg State University (Russia)	22283	2063	4149	95	#240
The Ural Federal University named after B.N. Yeltsin (Russia)	28090	956	3285	82	#491-500
Indian Institute of Science Bangalore (India)	3512	34	504	-	#190
Indian Institute of Technology Delhi (India)	7399	100	444	6	#172
Tsinghua University (China)	34170	4029	5136	880	#25
Peking University (China)	38759	5823	4810	868	#38
University of Cape Town (South Africa)	19083	3051	1497	369	#191
University of Johannesburg (South Africa)	19200	1479	1449	319	#601-650

Source: QS World University Ranking, 2016

In addition, the authors have conducted a case study analysis in order to consider several examples of USR initiatives of HEIs from the sample. The Federal University of Rio de Janeiro operates in accordance with the university's Development Program of Brazil, which determines the general concept of this institution. The university is guided by the principle of the inseparability of teaching, research and development; the basis for its development is constituted of educational, cultural, scientific and interdisciplinary university activities that promote interaction between universities and other sectors of society.

For initiatives of promotional groups of factors, the university offers international conferences, inviting foreign teachers to cooperate actively and build partnerships with major business players in the country (Petrobras). Cultural initiatives include an active dialogue with the public, aimed to develop relations between the university and social sectors through knowledge exchange . The educational activities of the university, besides training qualified personnel, also involve increasing access to education, which contributes to overcoming inequality and social disproportions and to creating a more ethical society.

The University of São Paulo is one of the most prestigious higher education institutions in Brazil. It also figures among the world's best universities in the QS World University Rankings. Strongly connected

with the local community, the University of São Paulo runs several hospitals and public service centers. Moreover, this institution can boast strong and efficient research and development departments based on several modern laboratories, where tests and research are carried out. The results of local researchers are constantly implemented in health care and manufacturing processes (optimization of air, water and emissions).

Ural Federal University is currently in the early stages of its implementation of the policy of social responsibility. However, due to the orientation of experts in this area, Ural Federal University is actively working on becoming socially responsible. The university is preparing a social report with a list of socially responsible initiatives. UrFU is implementing international standards during the preparation of this report, including the GRI's Sustainability Reporting Standards (GRI). In addition, this university created Innovative-Implementation Center, which operates in partnership with business representatives and research centers. The above initiatives can be attributed to promotional impacts.

Saint-Petersburg State University operates in accordance with the university's 2020 Development Program. The university announced about 5 prioritized directions: nanotechnology and materials; medicine and health; information systems and technologies; ecology and environmental management; social studies and management skills and technology. According to Saint-Petersburg State University, there is an increasing level of applied research in the field of ecology and environmental management in the university's research center. Moreover, 20 ongoing university research projects will lead to the creation and application of new approaches in health care, climate forecasting, ecosystem, mining, environmental management and reduction of technological impacts. In addition, this university has started research on the human potential of the Russian Federation as a factor, thus determining the alignment of social, economic, migration, humanitarian, cultural, educational, environmental and legislative activity in Russian regions.

The Indian Institute of Science was established in 1909 and has grown into a premier research institution since then, with more than 2000 active researchers working in almost all frontier areas of science and technology. This University is an institute of higher learning and is constantly in pursuit of excellence. It is one of the oldest and finest centers of its kind in India and has a very high international standing in the academic world as well. It is remarkable that its department of Biotechnology gives new incentive to the development of the fields of modern biology and biotechnology in India. In the last sixteen years, the department has promoted and accelerated the pace of the development of biotechnology in the country. In addition, safety issues and gender inequality problems are of particular importance in the Indian Institute of Science. For example, the institute is committed to maintaining gender equality on and outside of campus. It ensures that female students and staff have no gender related tensions and feel completely safe to live and work on campus. There are also many cross-cultural and ethical courses in Indian Institute of Science's degree programs.

The goals of the Indian Institute of Technology are to contribute to India and the world's progress through excellence in scientific and technical

education and research; to serve as a valuable resource for industry and society; and remain a source of pride for all Indians. There are many regular workshops and conferences on the cultural and ethical problems of Indian regions that are focused on inequality problems. In addition, they provide a variety of research centers, for example medicine and health care, cyber systems and information, environment protection center. Moreover, the university has been developing education programs for employed engineers and making them available both on campus and by means of distance learning techniques at off-campus locations. The Indian Institute of Technology provides many resources (technological, information and human) to anticipate India's technological needs and therefore plan and prepare to cater to them.

Tsinghua University is constantly first place in the national rankings of Chinese universities. For many years, this university has been paying great attention to international cooperation, the exchange of experience, technology and the promotion of the university's achievements in China and abroad. In addition, Tsinghua is actively working towards the protection of the environment, as may be seen by the Green Campus concept that has been in practice for more than 20 years. The university took part in 280 environmental projects at a national level and 300 patents related to sustainable development are registered by Tsinghua researchers. Moreover, there is Center for Innovation and Social Responsibility, which deals with internal and external social projects and provides new courses for educational programs.

Peking University (PKU) is a comprehensive and national key university. PKU is also a member of "Social Responsibility Network". This league upholds the common educational idea of international universities that students should improve their social responsibility and personal ability through voluntary service. Membership of this league allows universities to facilitate students exchange and get strong financial support. Besides, Peking University's location provides an opportunity to create partnerships with successful companies that are based in this region. PKU seeks to cultivate productive cooperative relationships with local corporations. All the programs and courses provide applied-oriented approaches and technologies.

The University of Cape Town stands out from the sample due to the existence of an annual report issued in accordance with the GRI. In addition, this annual research report, including key research projects and their results, is also available on the university's website and contains topical sections describing student participation in solving problems of social inequality and security. The University of Cape Town takes part in environmental projects related to the African Climate & Development Initiative and its research facilities contribute significantly to the development of science and medicine.

The University of Johannesburg is true to its African roots and well prepared for its role in realizing the potential that higher education holds for the continent's development. There is complex and well-designed system of different research centers in the University of Johannesburg. Its facilities, such as the Process, Energy and Environmental Technology Station and

Techno Lab allow researchers to carry out a variety of tests and studies, whose results are implemented by plants and manufacturing companies in this region. The Laser Research Centre is devoted to contemporary health care studies and its findings are adopted and implemented by medical centers in South Africa.

4.2 Methodology

We have carried out a content analysis of documents, websites and schedules, as well as additional information resources of the chosen universities in order to classify all initiatives into the 4 main directions of the driver-based model.

The tool used for such content analysis is a widely used qualitative research technique in the field of CSR research analyzing non-financial reports and websites. It is a process of gathering and codifying both qualitative and quantitative information into predefined categories. In accordance with existing similarities between CSR and USR, content analysis has been chosen as the methodological approach of the present paper.

The aim of the content analysis is to build a model of USR in BRICS using textual information. In qualitative content analysis the category systems are inductively developed out of concrete material or deductively put together individually for the specific study. In this pilot research, it was determined that the 4 main directions of the driver-based model (Belyaeva, 2015) could be used as initial coding categories. In this moment, the predetermined categories (promotional, educational, cultural, and ecological) matched the 4 groups of impacts.

Moreover, content analysis requires great samples of text information. Most higher education institutions from the list in this paper are supposed to issue reports devoted to the university's sustainable development program or research projects, along with its aims and results. Unfortunately, the situation appeared to be the opposite: only the University of Cape Town has social responsibility report based on GRI recommendations. This report is issued every 2 years and represents a well-structured document including a great amount of data related to the USR of Cape Town University and its interrelations within the entire country.

Besides, the UrFU (Russia) along with Peking University provides guidelines on their Social Responsibility Policy. In addition, the websites of all the universities (except for the Indian Institute of Science, the Indian Institute of Technology and Tsinghua University) provide schedules that allow us to be informed on the educational programs of these HEIs.

Likewise, there are many specialized centers or departments devoted to different activities (economic, health, sustainable development, innovation, culture, research, IT, environment), that represented significant sources of information for our research. These resources are well represented at the webpages of Saint-Petersburg State University, Indian Institute of Science, Indian Institute of Technology, University of Cape Town and University of Johannesburg.

In addition, the authors gathered some information from other resources such as articles devoted to the comparative analysis of universities' practices (Tsinghua, Ural Federal University) (Zou *et al.*, 2015, Belyaeva, 2015).

Eventually, our methodology is based on 2 blocks of data: analyzing internal documents (schedules, website content, reports, programs, guidelines, and conference announcements) and external resources (common national guidelines, comparative analysis in academic literature).

4.3 Findings: various aspects of USR in BRICS countries

As discussed above, predefined codifying categories were determined in accordance with the driver-based model. The promotional group of factors reflects the role of universities in the economic and business fields. In addition, brand awareness and brand recognition are considered in this category. International science and business conferences and meetings held at universities can draw attention and attract investments to the universities' regions. Moreover, such events create an important/a promising environment for networking. The signal words determined for promotional category are the following: "public, interrelations, partnership, endorsement, socio-economic investment, labor standards, networking, and conference".

The next category is education, which represents the basic functions and responsibilities of universities. The first and key role of HEIs is to train students for various vocations and satisfy regional requirements in skilled and efficient human resources. However, in the current new era of socially responsible universities, institutions are endowed with the new role of training and creating socially responsible personnel and, possibly, future socially responsible managers. Accordingly, the following signal words were chosen: "learning program, sustainable economics, sustainable management, corporate social responsibility, corporate governance, subjects, schedule, disciplines, academic publishing, articles, collaboration, curriculum, study levels, academic degree, knowledge exchange , vocational education".

In the first part of this paper, the trends of transforming universities' roles were discussed. The second trend consists in the globalization and internationalization of universities. Consequently, the cross-country activities of institutions (student exchanges, international projects, professional collaboration) inevitably disclose different cultural discrepancies. Therefore, a cultural codifying category combines HEIs' impact on regional cross-cultural problems and peculiarities. Moreover, the information related to this category represents different projects and activities devoted to human rights protection, which could find further implementation in the regional policy or labor standards of the regional business environment. The authors selected expressions like "cross-cultural peculiarities, art, protection of human rights, women's rights, different races, international students, international professors, cultural differences, non-discrimination and equal opportunities" as signal words for the "Cultural factors"category.

There is no questioning the fact that the environmental or ecological component is represented in almost every USR and CSR model. Our case study analysis has revealed that BRICS HEIs are also involved in a variety of regional and international environmental projects. Several universities in

BRICS collaborate with business representatives and develop technological and managerial approaches devoted to environment friendly production. The following signal words were defined for this codifying category: "ecology, environment, health, low carbon technologies, environment friendly, air pollution, environmental protection, waste management, green campus, green university".

The data analysis started with computer-assisted searches for the occurrences of the signal words in the chosen textual resources. The quantity of rows with predetermined signal words (word partnerships) were calculated and compared to the total number of rows of text resources (by country).

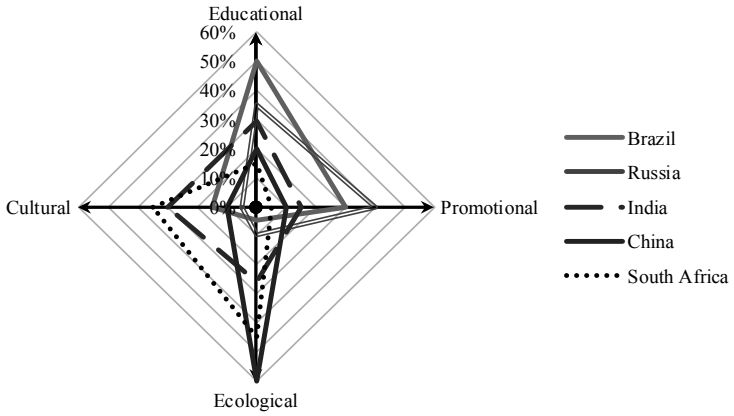
Tab. 2: Results of content analysis

Codified Categories / Countries	Promotional	Educational	Cultural	Ecological
Brazil	30%	50%	15%	5%
Russia	40%	35%	5%	10%
India	15%	29%	30%	26%
China	10%	20%	10%	60%
South Africa	5%	15%	35%	45%

Source: our findings

In order to visualize the results, each category was represented as a percentage value (100% - total quantity for country). According to the results of the content analysis, a USR model of the BRICS countries' universities was created (fig. 3). This graph reflects our first observations based on content analysis. In relation to our findings it is possible to see that all 4 directions of the impact-based model are represented at the different levels.

Fig. 3: Impact-based USR Model of BRICS' universities



Source: our findings

Despite the limitation in the universities' sample, the findings reflect several facts that can be interpreted as typical features of the evolving model of University Social Responsibility in BRICS universities.

Following the perceived contextual picture, it is possible to compare the extent of the implementation of different practices in 10 universities. Moreover, there is some evidence of prioritized directions within the? model. According to the results in fact, it is common for Chinese and South African universities to have a strong ecological impact on regions. Universities in India pay great attention to the cultural components of their activities. In addition, there are visible shifts towards the promotional group of factors in Russian and Brazilian universities. Considering Indian HEIs, there is a tendency towards the prevalence of cultural impacts.

Several drivers (factors), which explain the differences between these five models have been determined. Firstly, the USR model was formed as a response to the countries' cultural peculiarities. There is no questioning the fact that cultural traditions and customs have strong impact on most of the country's internal and external processes And the USR model is not an exception. For instance, a shift towards cultural aspects in India's model is a result of the perception of the significance of the country's customs, religions and traditions. Secondly, different economic development levels predetermine the priorities of the USR system. For instance, China has underwent rapid economic development but this success comes at the cost of environmental deterioration. China's environmental problems have therefore become more pronounced and discussed. Consequently, environmental protection is also the focus of China's development program and USR model. Moreover, diversity of government involvement and support explains differences in the BRICS universities' USR models. Therefore, models of USR are influenced by the countries' socio-economic and environmental peculiarities.

5. Discussion and the Russian perspective

As higher education institutions have become more complex and more important to the community, the University Social Responsibility concept is also becoming more important. There is a growing need for complete and accurate regional and international data for analysis as well. In BRICS understanding of the universities' innovative role in balancing a sustainable multistakeholder approach to regional development is not unified and varies between HEIs and other types of organizations.

The primary objective of this paper was to analyze the University Social Responsibility model of BRICS countries. The sample in this study is limited to ten BRICS universities that have implemented the social responsibility concept in its different stages. To access the cross-cultural context of shared values and drivers for innovative models the authors have carried out a content analysis of the information resources of universities in accordance with a specifically predefined coding system including schedules, reports, development programs, guidelines etc. They

have considered universities' impact on their home regions and defined the prioritized spheres of influence.

University social responsibility is an important aspect of how different universities interact with their internal and external stakeholders in BRICS countries. Universities play a potentially pivotal role in the social and economic development of their regions and are therefore important assets of the regions. In addition, universities in BRICS can act as connecting agents for the collaboration and interaction of students and graduates in order to obtain a synergistic effect for BRICS' future development.

Moreover, the BRICS Network University has recently been established. For Russian HEIs this joint project represents great opportunity to create unified educational environment, develop academic mobility and train highly qualified professionals in the areas of activity that are of high priority to member states.

The successful mobilization of university resources can have a positive effect on their regional economies and the achievement of comprehensive regional strategies.

It is also important to highlight that the practical implications of these findings are complex. Since BRICS are emerging as a new economic power, building the common subject area of these countries is of particular importance for academics, policy makers and business representatives. In order to find evidence of convergence in socially responsible practices among the five BRICS and further develop reasonable and useful recommendations for management, in this paper USR models in BRICS were compare. Despite considerable shifts in different directions of the driver-based model, there are several common characteristics such as the strong presence of environmental activities in South Africa and China and visible offset to the promotional group of factors in the cases of Russian and Brazilian universities.

The current situation in Russia highlights two strong and almost equal directions for the promotional (40%) and educational (35%) groups of factors. Most disclosed activities in Russian universities aimed at attracting and promoting HEIs. Some of the events and ideas were transmitted to society in order to raise awareness about universities among different groups of stakeholders like business representatives, local community and the government. This enables universities to create a specific brand image. Again, there is the issue of the interrelation between disclosure and commitment: if something has been disclosed, it does not necessarily mean that it has been done. In making a parallel between business units and HEIs, it should be mentioned, this problem is also common for the corporate sector of Russia.

To sum up, the following key functions of Russian universities may be enumerated when considering their new positions as socially responsible HEIs:

- Universities have the responsibility to train qualified specialists, who are going to work in prospective industries in a particular region;
- The level of graduates should meet the requirements of businesses; most students must have skills and knowledge related to sustainable management;

- Universities should join different business-initiated or government-initiated projects connected with environmental issues and innovative development activities.

In order to respond to all of these challenges, Russian universities should assess their level of training (quality assurance) on a regular basis. In addition, the management model of HEIs requires changes.

The data is limited by its sample size. For future studies, an empirical analysis of the data is suggested in order to confirm the findings in this paper. Moreover, the present research could be expanded to include more universities in various countries. Another direction of further research could involve a comparison among countries in order to reveal the main differences between emerging economies and developed economies.

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A new scale of brand lovemarks

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Abstract

Purpose of the paper: *The current study attempts to provide a new lovemarks scale that predicts consumers' behavioral outcomes. This scale also bridges over some of the inconsistencies of the measurement of "brand love" that also measure "brand respect".*

Methodology*: In order to test the Lovemarks scale, 3 studies were conducted. Study 1 applied Exploratory Factor Analysis using Principal Component exploratory factor analysis. Study 2 used second-order confirmatory factor analysis (CFA) with a maximum likelihood fitting function of the two-component solution. Study 3 measured the nomological validity of the assessed Lovemarks scale by testing its relations with four other relevant scales.*

Results*: Using EFA and CFA, the reliability and validity of the scale were divided into four different product categories: dairy companies, cellular network providers, banks, and fashion retail chains. The scale does have strong positive correlations with attitude, preference, price premium and recommendation.*

Research limitations*: The main limitation of the current research is that Study 2 used CFA testing only for second-order factors and not third-order factors, which would have also enabled the testing of the antecedents of the scale's items (such as intimacy or trust).*

Practical implications*: This scale helps to predict consumer behavior and set an effective marketing strategy for the brand. It thus gives directions for product adjustments and establishes effective advertising, marketing communication strategies and brand pricing strategy.*

Originality of the paper*: The current study is testing a new Lovemarks scale on the basis of four different product categories: dairy companies, cellular network providers, banks, and fashion retail chains.*

Key words: lovemarks; brand; love; respect; recommendation; price premium

1. Introduction

The current study has tested a new scale of "Lovemarks" that may predict consumers' behavioral outcomes. The Lovemarks theory, introduced by Kevin Roberts (2004), CEO of Saatchi and Saatchi, suggests that two components for "Lovemarks brands", "love" and "respect", are the main drivers of brand loyalty. The importance of this theory and the construction of a short and simple scale is based on the idea that "Lovemarks" may explain why consumers feel loyalty and attachment to one brand and not to another. As Roberts described it, the loyalty for "Lovemarks" brand is "loyalty beyond reason" (2005, p. 66) when citing a loyal Apple user - "After 14 years I am still in love. To be honest I don't know why I feel that way…" (Roberts, 2005, p. 200).

A recent study by Batra *et al.* (2012) has distinguished between "love emotion" and "love relationship". This study suggests that brand love as a "love emotion" is temporary and episodic while a "love relationship" can last for years. However, the Lovemarks theory (Roberts, 2004) argues that "love emotion" combined with "respect" can determine the consumer's relationship with a brand. Kevin Roberts (2004) suggests that *both* components for "Lovemarks brands"can affect satisfaction and loyalty. To date, no research offers an explicit scale which effectively measures a brand's Lovemarks.

Despite its importance, Roberts (2004, 2005) did not offer a published measurement scale to measure brand Lovemarks and research on the Lovemarks theory has been light and limited so far (Cho *et al.* 2015; Pavel, 2013, Pawle and Cooper 2006; Shuv-Ami, 2011; Shuv-Ami, 2013). However, related marketing literature on "brand love" attracted much attention in recent years (e. g. Batra *et al.*, 2012; Broadbent, *et al.*, 2010; Maxian *et al.*, 2013; Ortiz and Mary, 2011; Patwardhan and Balasubramanian, 2013; Cho *et al.* 2015; Rossiter, 2012; Rossiter and Bellman, 2012; Sarkar, 2011). This stream of research has mainly focused on the conceptualization of "brand love" but has used different types and inconsistent measurement in relation to "brand love". Furthermore, the marketing literature has neglected the other decisive component of brand Lovemarks, i.e., "brand respect".

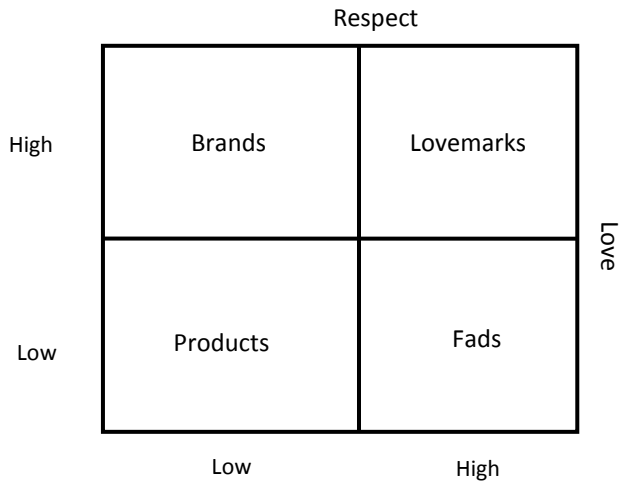
For example, Batra, Ahuvia, and Bagozzi (2012) published a new measurement of "brand love" in the *Journal of Marketing* that was harshly criticized by Rossiter (2012) in a study published in *Marketing Letters*. The purpose of the current study is to provide a scale that will bridge over most of the inconsistences of the measurement of "brand love" and will offer a new scale of Lovemarks that also measures "brand respect". This documented research will test this new Lovemarks scale on *four different product categories*: dairy companies, cellular network providers, banks, and fashion retail chains.

2. Theoretical conceptualization

The Lovemarks theory suggests (Figure 1) that brands with low love and low respect are merely available "products". Brands with high love and low respect are "fads" that will eventually disappear. Brands with low love and high respect are "real brands". Brands with both high love and high respect are "Lovemarks", brands with "loyalty beyond reason". Respect, according to Roberts, represents the more functional attributes of the brand. Such attributes determine consumer perceptions of a product/brand and the way consumers assess a brand's functional performance, especially quality and reliability. The sums of these characteristics reflect consumer preference for the brand (Roberts, 2005, pp. 60-63). Love, on the other hand, represents the brand's associated emotional attributes of "mystery", "sensuality" and "intimacy", which denote the relationship of the user to the brand (Roberts, 2005, pp. 78-79). Such intimacy raises passion in the user and ensures the user's deeply felt loyalty and commitment to the brand. Mystery is driven by great stories, myths and icons; "sensuality"

is driven by our senses (sound, sight, smell, touch and taste); and "intimacy" is impelled by the relationship the user has with the brand. Such relationship includes empathy and commitment, as well as the passion the brand arouses in users. Pawle and Cooper's (2006) findings support the concept of the Lovemarks theory that intimacy, mystery, and sensuality - as well as trust, reputation, and performance - decisively influence the consumers' love and respect for specific brands. Those feelings that most strongly shape consumer choice are the emotional factors which lead to brand "love".

Fig. 1: Lovemarks brand classification



Pawle and Cooper, 2006, p. 39

However, Cho *et al.* (2015), in testing the dimensions of "Brand Lovemarks" as suggested by Roberts (2004), found that, contrary to Roberts' theory, mystery and sensuality are more related to respect than love. The current study offers a new and different scale of Lovemarks. Similar to Roberts' theory, the present scale measures both *respect* for a brand's functional performance and *love* that represents its emotional associations with the brand. However, instead of using intimacy, mystery and sensuality to represent love, the current study is using intimacy, longing and joy, which are well established in the marketing literature (e.g., Ahuvia, 2005, Albert *et al.* 2008, Carroll and Ahuvia, 2006; Sarkar, 2011; Sternberg, 1986; Whang *et al.*, 2004). The notion that consumers are influenced by both the brand's functional attributes and the brand's emotional associations is well-established in brand equity literature (Aaker, 1996; Keller, 1993, 2008; Keller and Lehmann, 2006). While the influence of perceived quality performance on consumer decision-making has been extensively examined (e.g., Helson, 1964; Howard and Sheth, 1969; Mano and Oliver, 1993; Oliver, 1980; Tsiotsou, 2006; Weaver and Brickman, 1974), little research has been conducted on the way love can affect the process of consumer choice and brand selection (e.g., Ahuvia, 2005; Batra *et al.* 2012; Carroll and Ahuvia, 2006; Bergkvist and Bech-Larsen, 2010; Sarkar, 2011).

Love

The current study proposes that love has three dimensions; *intimacy, longing* and *joy*. Love of a brand, in the marketing literature, is mainly considered as a romantic sort of love (e.g., Ahuvia, 2005; Carroll and Ahuvia, 2006; Sarkar, 2011; Whang *et al.*, 2004) animated by intimacy and passion (Sternberg, 1986). Caroll and Ahuvia define love for a brand as "the degree of passionate emotional attachment that a person has for a particular trade name" (2006, p. 5). Sternberg's research (1986) offered a tri-component model of love that includes intimacy, passion and commitment. Shimp and Madden's (1988) tri-component model of love consisted of liking, yearning and commitment. According to Sarkar both Sternberg's research (1986) and Shimp and Madden's tri-component models "perfectly correspond" since romantic brand love is "a combination of emotion (or intimacy or liking) and passion (or yearning) for a brand" (2011, p. 83). However, a commitment that represents a series of attachments (Keller and Lehmann, 2006; Shuv-Ami, 2012) is probably a result of love and not love itself. The drivers of love in the Lovemarks theory are mystery, sensuality and intimacy (Roberts 2005). *Intimacy*, or liking, may be derived from a romantic emotion towards the loved brand. Passionate *longing*, or yearning for a loved brand, may be a result of brand mystery and sensuality. Whang, *et al.* (2004) used Rubin's scale (1970) for studying bikers' love for their motorcycles. Such a scale directly measured the romantic emotion of *intimacy* and passionate *longing*. While *intimacy* was measured by the statement: "I am in love with my bike", passionate *longing* was measured by the statement "If I could never be on my bike, I would feel miserable". Similarly, Bergkvist and Bech-Larsen (2010) measured brand love with two items, one measuring expressed love relating to the *intimacy* of romantic love and the other measuring *longing* as a passionate or romantic sense of loss in case of unavailability.

Batra *et al.* (2012) suggested a new and complex measurement of "brand love" that includes enduring passion, self-brand integration, long-term relationship, positive emotional connection, anticipated separation distress, overall attitude valence and attitude Strength. This measurement was criticized by Rossiter (2012) on two grounds: first, he argued that "Brand love is a discrete, categorical, emotional state which cannot be validly measured on a continuous answer scale" (p. 7). However, he didn't offer a completely new measure of "brand love", but merely suggested a that "brand love" should not be represented just with its positive aspect (ranging from liking to loving) but also with the negative emotions' of "brand hate" (a 5-level scale of "hate - dislike - neutral - like - love"). He therefore offers a new type of scale - a continuous and single item of "Brand Love-Hate" scale and not a "Brand Love" scale. The second criticism was that the new scale of brand love of Batra *et al.* (2012) did not measure only love but also "off-attributes" (e.g., "involvement", "commitment", "very attached", "satisfaction", and "compares well with ideal product") and "additive" components (e.g. "positive-negative", "favorable-unfavorable", "meets needs perfectly" and "makes life worth living"). Moreover, Rossiter argued that "Brand love is achieved only when 'Deep Affection' (not "Positive Affect", which is too weak an attribute) and 'Separation Anxiety'

(not 'Anticipated' anxiety, which is an oxymoron) are *jointly* felt in relation to the potential love object" (p. 908). While it seems that Batra *et al.* (2012) used many "off-attributes" and "additive" components", they also measured the deep affection of passionate desire leading to a likely separation anxiety. Despite this disagreement and while answering to Rossiter's critique, Ahuvia, Bagozzi and Batra (Ahuvia *et al.* 2014) agree with Rossiter on the "importance of brand love" (p. 242) in predicting behavioral outcomes.

Some of the items used by Batra *et al.* (2012) to measure brand love are shared with earlier marketing literature including; passionate "feeling of desire", "feeling of longing" and the "pleasurable" feeling toward brand (p. 8). However, the focus of Batra *et al.* (2012) was not on the passion and joy of brand love but on the related consequences of brand love. Carroll and Ahuvia (2006) measured the joy or pleasure of love with "This brand makes me feel good", "This brand makes me very happy" or "This brand is a pure delight" (p. 84). Sarkar (2011) argued that as a part of love a "romantic person can imagine several things beyond reality and by doing this he/she creates pleasurable experiences surrounding any consumption act" (p. 86). Albert *et al.* (2008) found empirically that French participants who fully agree that they are in love with their brand tend to use words such as "pleasure" and "dream" to describe their love. These researchers concluded that the two dimensions that are explicitly shared by French and Americans are the pleasure and passionate love that are associated with a brand.

Respect

The dimensions of respect, according to Roberts (2005) are functional and represent brand *quality* and reliability or *trust*. The current research also suggests that *honor* toward the brand directly reflects Roberts' notion of consumer respect for that brand.

The concept of brand respect has not been widely discussed in the marketing literature. Pawle and Cooper's testing (2006) for Lovemarks theory found that brand trust, reputation, and performance are the main influences on brand respect. While marketing research does not explicitly measure the concept of respect, it does test the nuanced way respect figures in the process of brand selection.

Research into the functional attributes of products and brands has generally indicated that quality performance *drives brand relationship* and thus has a positive effect on satisfaction, loyalty or commitment and purchase intentions. Oliver (1980), for example, found that consumer satisfaction is a function of expecting a product's quality and that such satisfaction influences post-purchase attitudes and purchase intentions. Conversely, any discrepancy between expectations and perceived quality performance results directly in brand dissatisfaction. Churchill and Suprenant (1982) argued that in relation to durable goods, a direct quality performance-satisfaction link accounts for most of the variance in satisfaction. Mano and Oliver (1993) showed that product quality evaluation (utilitarian and hedonic judgment) has a direct influence on pleasurable effect and a distinct product satisfaction. Bou-Llusar *et al.* (2001) found that overall customer satisfaction acts as a mediating variable on the relationships between a firm, perceived quality and customer purchase. Tsiotsou (2006) noted that

perceived quality had both a direct and an indirect effect (through overall satisfaction) on purchase intentions; overall satisfaction had a direct effect on purchase intentions; and involvement had an indirect effect on purchase intentions through overall satisfaction and perceived quality. Xie *et al.* (2015) found that trust is affected by brand quality and affects behavioral intentions. Chaudhuri and Holbrook (2001) examined both the functional and emotional aspects of the brand and showed that brand trust and brand effects (emotions toward the brand) influenced purchase loyalty (purchase intention) and attitudinal loyalty, which was measured as commitment.

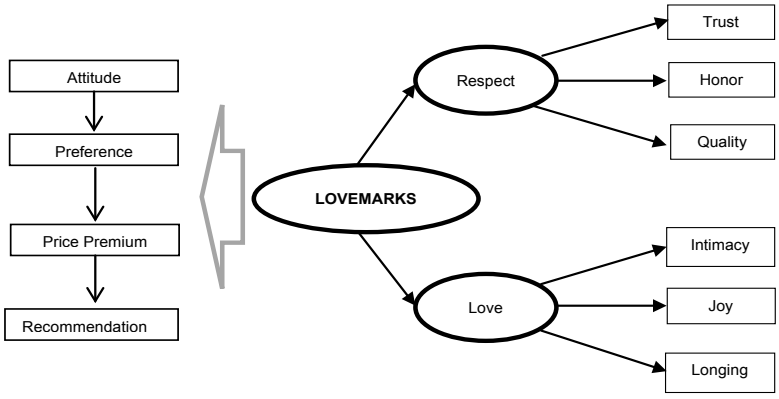
The model

The model suggested here proposes that Lovemarks represent the driver of brand relationship. Thus, the combination of the emotional and romantic love toward the brand with respect to its functional performance will drive the relationship with the brand. Based on the above, the current study attempts to define "brand love", "brand respect" and brand "Lovemarks".

While the current study supports the notion that romantic love is driven by intimacy and passion, it suggests that the passionate component of love has one aspect of "joy" and one of "longing". This study seeks to expand Caroll and Ahuvia's (2006) definition of romantic love and define it as the degree of emotional intimacy and passionate joy and possible longing (in case of unavailability) that a person has for a particular trade name.

Respect is the functional dimension of Lovemarks that represents the perception of brand quality, brand reliability or trust and the overall honor a person has for a particular trade name. Lovemarks are a market position in the mind of consumers that represents both high love and high respect for a particular trade name.

Fig. 2: The suggested Brand Lovemarks Model



Source: Autor's elaboration

The three dimensions suggested here for love are "Intimacy" of love, "Joy" of love and passionate "Longing" for the brand. The three dimensions for respect are "Trust" in the brand performance, "Honor" for the brand's performance and the "Quality" of the brand performance. These two build

brand Lovemarks which affect consumers' relationship with the brand. Such a relationship represents the consumer's attitude toward the brand, their brand preference, their willingness to pay price premiums and recommend the brand to others. Figure 2 represents the model underlying the suggested Lovemarks scale. The combined effect of "love" and "respect" is reflected in the overall Lovemarks scale. Thus, it is a reflective model that affects the overall Lovemarks and whose dimensions are expected to reflect a high correlation (Jarvis *et al.*, 2003).

Hypotheses

Based on the above arguments, hypotheses regarding both the measurement and structural parts of the Lovemarks brand's nomological net were the following:

H1: Two oblique first-order factors - love and respect - suffice to account for the covariations of Lovemarks brand scale items.

H2: The second-order factors that represent the overall brand Lovemarks underlie the first-order factors.

The first two hypotheses, described in Figure 3, show the total structural model hypothesized here.

The last hypothesis attempts to establish the nomological validity of the Lovemarks scale suggested in the current study. This scale's validity is tested against four variables that represent important aspects of brand relationship (Figure 3): *overall attitude, preferred brand, purchase intention and recommendation intention*.

H3: The total score of Lovemarks scale will positively correlate with overall attitude toward the brand, recommendation intention, brand preference and the willingness to pay price premiums for the brand.

3. Methodology

In order to test the Lovemarks scale 3 studies were conducted. The data for all of the studies were collected from an Internet panel.

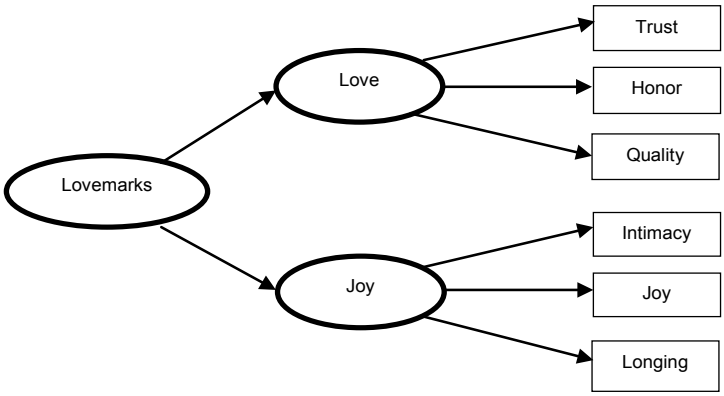
Study 1 applied Exploratory Factor Analysis using Principal Component exploratory factor analysis with varimax rotation in order to extract a two-factor solution. This analysis examined the dimensionality of Lovemarks, as measured by the 6-item Lovemarks scale.

Study 2 used a second-order confirmatory factor analysis (CFA) with a maximum likelihood fitting function will be used to specify and confirm the two-component solution obtained from the exploratory factor analysis and to take the hierarchical structure of Lovemarks (see Figure 2) into account. This approach will provide a more rigorous check of the appropriateness of the Lovemarks scale items than its exploratory counterpart to measure their corresponding latent love and respect constructs.

Study 3 measured the nomological validity of the assessed Lovemarks scale by testing its relations with four relevant scales - overall brand attitude, brand recommendation, intentions, and brand preference - in its hypothesized nomological network. The correlations were estimated by fitting the measurement model for the Lovemarks scale with all possible

correlations between it and the other four variables and among the variables themselves.

Fig. 3: The hypothesized measurement model of the Brand Lovemarks Scale



Note. Ovals represents a latent factor; rectangles represent an observed item (see below); one direction arrows represent a loading (direct effect of a factor on its indicator).

Source: Autor's elaboration

The reliability of all factors for the Lovemarks scale and for all other scales were tested for internal consistency using Cronbach's alpha, and expected to be above .70 (Nunnally, 1978).

The study tested the Lovemarks scale in relation to *four different product categories* that constitute a major part of household consumption: dairy companies, cellular network providers, banks, and fashion retail chains.

Measurements

The two constructs that constitute the *Lovemarks* scale are love and respect. The current study conceptually follows the notion of brand romantic love as suggested by several studies (Bergkvist and Bech-Larsen, 2010; Carroll and Ahuvia, 2006; Pawle and Cooper, 2006; Sarkar, 2011) to measure love. The current research used three items to measure love. Two of the items were adopted from from Bergkvist and Bech-Larsen (2010) and the third item (item 2) was adopted from Carroll and Ahuvia (2006) and represented the pleasure of love or the "joy of love" in using the brand. Item 1 was a direct measure of love that represented "intimacy" love (Bergkvist and Bech-Larsen, 2010) and 3 represents "longing" and a sense of loss of a loved brand. The questions used a 10-point scale asking respondents to agree or disagree with the statements:

Item 1: I love my main brand.
Item 2: I very much enjoy using the products/services of my main brand.
Item 3: I would very much miss my main brand if it were no longer available.

Respect was measured through three questions. Following the Lovemarks theory (Roberts 2005), three aspects of respect were measured: the first item dealt with the trust the customer feels towards the brand, the second item dealt with honor of the brand and third item dealt with brand quality. The questions used a 10-point scale asking respondents to agree or disagree with the following statements:
Item 4: My main brand is a brand you can trust.
Item 5: My main brand is an honored brand.
Item 6: My main brand is a quality brand.

Overall positive attitude was measured accordingly: "Please rate from 1 to 10 the way you overall feel and think about the brand you most often use, one indicating 'a very poor brand' and 10 'a very good brand". *Brand preference* was measured by means of a direct question: "If you had no limitations, please rate how likely are you to prefer your main brand from 1 to 10?" where 1 indicates 'Definitely would not prefer" and 10 means 'Definitely would prefer". The willingness to pay *price premiums* for the brand was measured by the following question "please from 1 to 10 how much do you agree or disagree with the statement: 'I am willing to pay more to continue to buy my main brand', where 1 means you 'completely disagree' with the statement and 10 that you 'completely agree' with the statement". Brand *recommendation intention* was measured using a modified Markey and Reichheld (2008) advocate measure (Net Promoter Scores - NPS): "Please rate from 1 to 10 how likely you are to recommend the brand you most often use, where 1 indicates 'Definitely would not recommend' and 10 means 'Definitely would recommend"

4. Study 1: Exploratory factor analysis

Participants

This study consists of 4 samples corresponding to the four groups of products: banks, dairy products, fashion retail chain, and cellular providers. In the banks sample 185 customers participated, 52% of which were female, mean age 41.1 (*SD* = 15.1). 168 customers participated in the dairy products sample, 51% of which were female, mean age 42.2 (*SD* = 14.7). 174 customers participated in the fashion sample, 47% of which were female, mean age 41.3 (*SD* = 14.9). 181 customers participated in the cellular products sample, 49% of which were female, mean age 42.6 (*SD* = 15.7). All participants were asked to answer the Lovemarks questionnaire with regard to the products of interest. The data for this study was collected from an Internet panel.

Results

For each sample, the 6 items of the Lovemarks Scale were subjected to exploratory factor analysis (EFA) with varimax rotation. Thus, four EFAs were conducted. According the criterions of eigenvalue > 1 and Screen test (Hair *et al.*, 2006) two factors were extracted. The two factors solution of each sample is presented in table 1. On the basis of hypothesized structure and items content, I labeled the two factors "respect" and "love". These factors accounted for a range from 89.1% to 92.2% of common variance in

the four samples, above the recommended minimum threshold of 60%. In all samples, all items loaded highest on the appropriate factor and had substantive loadings that exceeded .6.

Cronbach's alpha coefficients for the three-item respect scale were high for the four groups of products: for banks α = .98, for dairy products α = .94, for fashion α = .96, and for cellular providers α = .96. Similarly, Cronbach's alpha coefficients for the three-item love scale were high: for banks α = .91, for dairy products α = .92, for fashion α = .93, and for cellular providers α = .94. Reliabilities of the total 6 items were also high for all four groups of products; for banks α = .96, for dairy products α = .95, for fashion α = .96, and for cellular providers = .96. Correlations among the factors were r = .74, p < .001 for banks, r = .80, p < .001 for dairy products, r = .80, p < .001 for fashion, and r = .82, p < .001 for cellular.

Tab. 1: Factor analysis of the Brand Lovemarks Scale

	Banks		Dairy		Fashion		Cellular	
	Respect	Love	Respect	Love	Respect	Love	Respect	Love
Trust	**.92**	.36	**.86**	.41	**.88**	.45	**.91**	.36
Honor	**.91**	.42	**.86**	.41	**.88**	.40	**.89**	.41
Quality	**.89**		**.79**	.49	**.84**	.43	**.74**	.56
Intimacy	.47	**.80**		**.88**	.35	**.86**		**.90**
Joy		**.91**	.45	**.82**	.53	**.80**	.54	**.76**
Longing	.57	**.64**	.48	**.82**	.52	.77	.46	**.84**
Rotated eigenvalue	3.22	2.31	2.75	2.60	2.83	2.65	2.80	2.70
% of explained variance[a]	53.7%	38.5%	45.8%	43.3%	47.2%	44.3%	46.7%	44.9%

Note: Loading lower than .35 are not presented.

Source: Autor's elaboration

5. Study 2: confirmatory factor analysis

Participants

This study consists of 4 samples corresponding to the four groups of products: banks, dairy products, fashion, and cellular providers. In the banks sample 239 customers participated, 54% of which were female, mean age 41.6 (SD = 14.6). 243 customers participated in the dairy products sample, 48% of which were female, mean age 42.8 (SD = 15.7). 214 customers participated in the fashion sample, 49% of which were female, mean age 40.9 (SD = 14.1). 230 customers participated in the cellular products sample, 50% of which were female, mean age 42.3 (SD = 16.3). All participants were asked to answer the Lovemarks questionnaire with regard to the products of interest. The data for this study was collected from an Internet panel.

Results

Results are presented in three sections. In the first section, descriptive statistics and Cronbach's alphas are presented for the two Lovemarks subscales: respect and love along with Pearson correlations between the two

sub-scales. In the second section, confirmatory factor analyses are presented for each of the four groups of products. In the third section, the equivalence of the factor structure across the four groups of products is presented.

Table 1 presents descriptive statistics and an indicated intercorrelation for the respect and love subscales. As shown, internal reliability as assessed by Cronbach's alpha was high and exceeded .90 for both the respect and love sub-scales in each of the four groups of products. In addition, as expected, love and respect were significantly and positively correlated in all four groups of products and ranged between .76 and .82. These high correlations may indicate that the two subscales represent a higher order construct, namely Lovemarks.

Tab. 2: Descriptive statistics, Cronbach's alpha and inter-correlations for the Lovemarks scale

	Respect			Love			
	M	*SD*	*α*	*M*	*SD*	*α*	*r*
Banks	6.43	2.45	.98	5.47	2.75	.96	.78***
Dairy products	6.25	2.41	.94	5.60	2.53	.90	.76***
Fashion	5.91	2.59	.96	5.65	2.67	.93	.82***
Cellular providers	6.27	2.87	.96	5.12	3.05	.93	.77***

Note. *** $p < .001$

Source: Autor's elaboration

In order to validate the hypothesized one-second order factor model, four Confirmatory Factor Analysis (CFA) were examined, one for each group of products. In addition, two-nested models - a first-order factor model and a two-correlated first-order factor model - were also tested for comparison purposes. CFA was analyzed with AMOS 18.0 structural equation modeling (Arbuckle, 2009) using the maximum-likelihood estimation method. The models' fit was assessed using the following goodness-of-fit indices (see Hu and Bentler; 1999): Chi-square (Tabachnik and Fidell, 2007), Standardized Root-Mean-Square Error of Approximation (RMSEA; Kline, 1998), Normed Fit Index (NFI; Bentler and Bonett, 1980), Tucker-Lewis Index (TLI; Bentler and Bonett, 1980), Comparative Fit Index (CFI; Rigdon, 1996), and Akaike Information Criterion (AIC; Tabachnik and Fidell, 2007). A NFI, CFI, and TLI close to or greater than .95 and a RMSEA equal to or less than .08 are indicative of an acceptable fit (Hu and Bentler; 1999; Tabachnik and Fidell, 2007). Model comparisons were based on the Chi-square per *df* difference and on differences between the models fit indices.

CFA results for the hypothesized model and the additional two comparison models are presented in table 2. As can be seen in the table, the one first-order factor model had unacceptable fit indices for all four groups, suggesting that the most restricted model is inappropriate for explaining the scale's inter-items covariation. The hypothesized one second-order factor model and the two correlated first-order factor models showed acceptable fit to the data. Although the one second-order factor model and the two correlated first-order factor model showed similar fit indices, the

high loadings of the two first-order factors in the second-order factor may suggest that the hypothesized one second-order factor model is preferred.

Tab. 3: Fit indices for alternative measurement models of the Lovemarks scale

Models	χ^2	df	RMSEA	NFI	TLI	CFI	AIC
Banks							
One first-order factor model	438.76***	9	.43	.79	.52	.79	474.76
Two correlated first-order factor model	34.51***	8	.08	.98	.97	.99	72.51
One second-order factor model (Hypothesized)[a]	34.51***	8	.08	.98	.97	.99	72.51
Dairy products							
One first-order factor model	173.02***	9	.27	.87	.72	.88	209.02
Two correlated first-order factor model	37.03***	8	.07	.97	.94	.98	75.03
One second-order factor model (Hypothesized)[a]	37.03***	8	.07	.97	.94	.98	75.03
Fashion							
One first-order factor model	265.95***	9	34	.84	.64	.85	301.95
Two correlated first-order factor model	25.39**	8	.06	.98	.97	.99	63.39
One second-order factor model (Hypothesized)[a]	25.39**	8	.06	.98	.97	.99	63.39
Cellular providers							
One first-order factor model	312.02***	9	.36	.82	.58	.82	348.02
Two correlated first-order factor model	59.21***	8	.09	.97	.92	.97	97.21
One second-order factor model (Hypothesized)[a]	59.21***	8	.09	.97	.92	.97	97.21

Note. *** $p < .001$
RMSEA = Root Mean Square Error of Approximation, NFI = Normed Fit Index, TLI = Tucker-Lewis Index, CFI = Comparative Fit Index, AIC = Akaike Information Criterion, $\Delta\chi^2$(df) represent the difference in comparison to the hypothesized model.
a. For identification purposes, the loading of the first item in each first-order factor was set to 1, and the disturbances of the two first-order factors were constrained to be equal.

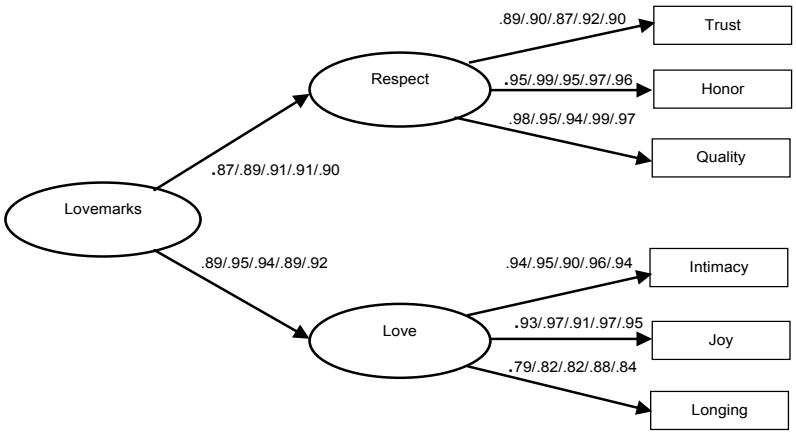
Source: Autor's elaboration

The one second-order factor model standardized coefficients are presented in Figure 4. All items loadings on respective first-order factors were greater than .79, suggesting good convergence. Second order loading exceeded .87, suggesting that higher order factors explain more than the recommended half of the variance in lower order factors. Overall, evidence of convergent validity was gained and the hypothesized model can, thus, be considered a plausible and sufficient measurement for the Lovemarks scale.

To test the equivalence of the strength of the relations among variables in the structural model in the four groups of products, the path coefficients (i.e. loadings) were constrained to equality and this model was compared to the model in which path coefficients were free. For these invariance analyses, Little suggested (1997) that a none significant chi-square difference and TLI, NFI, CFI, and RMSEA differences that do not exceed .05 indicate paths equivalence. Using the multi-group analysis in AMOS, I assessed the fit indices of the free model, a model with no constrained paths. Results indicated an acceptable fit to the data, chi-square (35) = 161.80, $p < .001$, *NFI* = .98, *TLI* = .95, *CFI* = .98, *RMSEA* = .06. Next, I examined the equivalence of the paths across products by constraining all

path coefficients. The model that was constrained to equality also showed acceptable fit to the data, chi-square (47) = 176.33, $p < .001$, *NFI* = .97, *TLI* = .97, *CFI* = .98, *RMSEA* = .05. Comparing the fit of the constrained model to the fit of a baseline model in which none of the measurement coefficients were constrained yielded a non-significant chi-square difference ($\Delta\chi^2$ = 14.53, Δdf = 12, *NS*, and a change in fit indices that is lower than .05 (*ΔNFI* = .01, *ΔTLI* = .02, *ΔCFI* = .0, and *ΔRMSEA* = .01). These results suggest that the strength of the first-order loadings and that of the second-order loadings were equivalent across the four groups of products. Figure 3 presents the standardized constrained coefficients.

Fig. 4: Second order factor analysis of the Brand Lovemarks Scale



Note. Values represent standardized path coefficients for cellular providers, fashion, dairy products, and banks respectively. Bold values represent the standardized constrained coefficients.

Source: Autor's elaboration

6. Study 3: nomological validity

Participants

This study consists of 4 samples corresponding to the four groups of products: banks, dairy products, fashion, and cellular providers. In the banks sample 203 customers participated, 47% of which were female, mean age 42.1 (*SD* = 14.8). In the dairy products sample 212 customers participated, 51% of which were female, mean age 41.3 (*SD* = 15.2). In the fashion sample 206 customers participated, 49% of which were female, mean age 43.6 (*SD* = 14.6). In the cellular products sample 208 customers participated, 51% of which were female, mean age 41.9 (*SD* = 15.1). All participants were asked to answer the questionnaire with regard to the products of interest. The data for this study was collected from an Internet panel.

Instruments

Using the Lovemarks scale, the items were the same as in studies 1 and 2. The internal reliabilities for the respect sub-scales were high: for banks α = .97, for dairy products α = .96, for fashion α = .96, and for cellular products α = .96. Internal reliabilities for the love sub-scales were high: for banks α = .90, for dairy products α = .91, for fashion α = .93, and for cellular providers α = .92. Internal reliabilities for the overall Lovemarks scale were high: for banks α = .95, for dairy products α = .95, for fashion α = .96, and for cellular providers α = .96.

Results

The nomological validity of the Lovemarks scale was assessed by testing its relations with four relevant scales in its hypothesized nomological network in all four samples. Table 4 presents the correlations between the research variables. As expected, results indicate significant and strong correlations of the Lovemarks sub-scales and overall scores with overall attitudes, recommendations, preferences, and price premiums. Thus these correlations provide evidence for the nomological validity of the Lovemarks scale.

Tab. 4: Correlations among the research variables

	Lovemarks		
	Respect	Love	Overall score
Banks			
Overall attitude	.70***	.64***	.69***
Recommendation	.69***	.66***	.70***
Preference	.62***	.58***	.62***
Price premium	.54***	.76***	.69***
Dairy products			
Overall attitude	.62***	.59***	.64***
Recommendation	.59***	.59***	.63***
Preference	.54***	.52***	.54***
Price premium	.49***	.66***	.62***
Fashion			
Overall attitude	.69***	.69***	.74***
Recommendation	.69***	.70***	.74***
Preference	.62***	.61***	.66***
Price premium	.47***	.72***	.64***
Cellular providers			
Overall attitude	.55***	.56***	.58***
Recommendation	.55***	.48***	.54***
Preference	.47***	.45***	.46***
Price premium	.51***	.65***	.62***

Note. *** $p < .001$

Source: Autor's elaboration

7. Conclusions and discussions

This study developed a new Lovemarks scale for consumer behavior. Lovemarks is a market position in the mind of consumers that represents both high love and high respect for a brand. It is the place for a desired brand and a place where all brands want to be (Kevin, 2004). The reliability and validity of the scale were established in relation to four different product categories. As hypothesized, the EFA showed that a two-factor solution was the preferred measurement model. Also as hypothesized, the CFA showed that the two oblique first-order factors - love and respect - suffice to account for covariations of the brand. The Lovemarks brand scale items and the second-order factors that represent the overall Brand Lovemarks underlie the first-order factors.

Recently, Cho *et al.* (2015) suggested a "Brand Lovmarks" scale using Roberts' (2004) dimensions of love and respect. The findings of Cho *et al.* (2015) supported Roberts' theory that Lovemarks have a strong influence on brand loyalty. However, contrary to this theory, they also found that mystery and sensuality are more related to respect then to love. The new scale of Lovemarks suggested here measures love based on well-established marketing literature and suggests that love is reflected by intimacy, longing love (e.g., Ahuvia, 2005; Carroll and Ahuvia, 2006; Sarkar, 2011; Whang *et al.*, 2004) and joy (Albert *et al.*, 2008; Carroll and Ahuvia, 2006). In other words, the love of a brand is not just romantic and therefore animated by intimacy and passion (Sternberg, 1986). Similar to Rossiter (2012), the present study also argues that brand love should not be measured by its related consequences (e. g., "commitment", "very attached", "satisfaction", and "compares well with ideal product", "meets needs perfectly" and "makes life worth living"), as recently suggested by Batra *et al.* (2012). On the contrary, this study does not support Rossiter's (2012) criticism of Batra *et al.* (2012) and the long stream of research that sustains that brand love is discrete and categorical. In fact Rossiter (2012) suggested a new type of continuous and single item scale that measures "Brand Love-Hate" (a 5-level scale of "hate - dislike - neutral - like - love") and not "Brand Love".

Brand Lovemarks are not just about love. They are also about respect, which represents the functional aspects of the brand - the *quality, trust* and *honor* of the brand. The current study offers new definitions for brand love, brand respect and brand Lovemarks. This study demonstrates that brand Lovemarks have strong and positive correlations with overall attitude towards the brand, brand preference, price premium and brand recommendation. These strong correlations suggest that the brand Lovemarks construct is an important driver for brand relationship. In contrast to Batra *et al.* (2012), emotional love is a decisive factor in developing a prolonged - rather than short term or episodic - relationship with a specific brand.

This scale helps to predict consumer behavior and set an effective marketing strategy for the brand. The scale further provides the ability to evaluate the factional and main emotional strength and weakness of the brand; it thus gives directions for product adjustments and establishes effective advertising and marketing communication strategies. The "Lovemarks" scale suggested here can help marketing managers in the

process of building desired brands in terms of which emphasis is needed for the brand's attributes and communication messages and should it be more emotional (Love) or functional (Respect). The fact that the willingness to pay more (price premium) is strongly associated with the Lovemarks scale may also provide direction for brand pricing strategy. The measured scoring strength on the brand Lovemarks scale may suggest the price level that consumers would be willing to pay for that brand.

The main limitation of the current study is that *Study 2* used CFA testing only for second-order factors and not third-order factors, which would have enabled the antecedents of the scale's items (such as intimacy or trust etc.) to be tested. Future research may test the current scale antecedents and focus on testing the relationship of this Brand Lovemarks scale with brand commitment, brand loyalty and satisfaction with the brand's performance brand image and overall brand personality. It can thus depict the detailed process of purchasing behavior. Such a measurement may even be used for countries as brands and tourist attractions. Moreover, such Lovemarks measurements may be applied to the avid enthusiasm of sports fans for their favorite teams as they rise or fall, or win or lose, during a season.

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Capital budgeting for information technology service management. Modeling, classifying, and disclosure from a structural capital perspective

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Gerardino Metallo

Abstract

***Purpose of the paper**: The study proposes a modeling, classifying and disclosure framework for investment evaluation in Information Technology Service Management (ITSM) considered as a component of structural capital, in order to communicate better with stakeholders in relation to ITSM value.*

***Methodology**: The research is based on a conceptual construction that also takes traditional capital budgeting criteria into consideration for Information Technology (IT) investments, and ITSM investments in particular, contextualizing them within the environment of structural capital.*

***Results**: In order to evaluate ITSM investments, blended methods (quantitative and qualitative) appear to be the most appropriate option, above all in order to better disclose their real value as fundamental components of structural capital to stakeholders.*

***Research limitations**: The study is mainly theoretical, with a single case of indirect practical evidence. Therefore, further empirical investigations would widen the conceptual framework, given growing interest for ITSM.*

***Practical implications**: Given the recent economic-financial crisis, a 'back to basics' tendency has arisen, aiming at assigning the almost exclusive ability of assessment, even for IT investments, to fundamental methods. Appropriate evaluation methods, which are proposed in this study, will enable managers to communicate better with stakeholders about ITSM as a component of the structural capital. The use of blended methods of evaluation for structural investments, particularly ITSM, also highlights other appreciable factors, such as time saving, work wellbeing, pollution reduction, and others.*

***Originality of the paper**: The research focuses on ITSM and its activities, services, processes, procedures, and operations as innovative components of structural capital, proposing a conceptual framework to facilitate better communication to stakeholders in relation to the real value of such structural assets.*

Key words: structural capital; investment disclosure; itsm; information technology service management; capital budgeting; blended methods.

1. Introduction

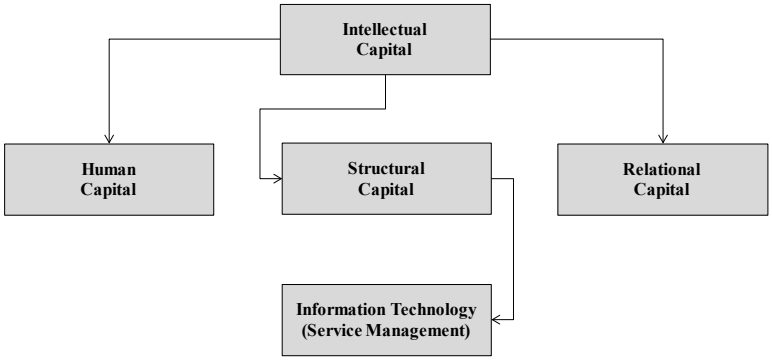
The serious economic and financial crisis of recent years, symbolically sanctioned by the bankruptcy of Lehman Brothers in 2008, started earlier

with the subprime mortgage bubble in the United States. Unfortunately, it is still creeping into many stormy contingencies (the weakness of Greece in the Euro area, the slowdown of BRICS growth, etc.). The crisis furthermore, has forced entrepreneurs, managers, professionals, and scholars to deal with highly problematic situations that are due, in most cases, to excessive financial operations.

In this sense, especially with regard to management responsibilities, many have invoked a 'back to basics' approach (see Blanchard, 2009; Civi, 2013; Broome, 2015). This also seems to be the case of intellectual assets (Beattie and Davison, 2015; Yukselturk and Tucker, 2015).

As shown in Figure 1, we assume that intellectual capital resides in human capital, structural capital and relational capital, according to a classification on which there appears to be a certain consensus (Hormiga *et al.*, 2006). Our study aims at focusing, in particular, on a specific component of structural capital, i.e. activities, services, processes, procedures, and operations regarding Information Technology, specifically considered from the perspective of Information Technology Service Management (ITSM). Generally, the following considerations relative to the capital budgeting of ITSM can be extended to other components of structural capital, providing a more consistent evaluation of the entire intellectual capital.

Fig. 1: Information Technology (Service Management) in the intellectual capital context



Source: authors' elaboration

In reconsidering the evaluation of intellectual assets from the perspective of Information Technology (IT) managers, the most important precept seems to be the necessity to move the methodological center of gravity of capital budgeting from *software efficiency* to *business efficiency*, as nowadays it is clear that a computer science project is satisfactory only if it contributes to the creation and diffusion of enterprise value (Amadi-Echendu *et al.*, 2012). In truth, these efforts of IT management must be adopted from the initial of the IT project management (i.e., the technical and economic evaluation of feasibility), even though, at a strategic level, a problem of competence may obviously arise.

In other words, can the Information Systems Function be recognized and/or delegated (also) with the responsibility of the business decision? This question seems to be quite evident, for example, in the case of electronic business (when IT is the reference platform for carrying out the service) but it should be evident also in other circumstances, seeing as we argue that at its current state, it is simply not possible to avoid such commitment (Laudon and Laudon, 2004; Peppard *et al.*, 2011; Fell, 2013).

Given the indispensability of the contribution of IT managers to business decision making, this study aims to build a theoretical model in which fundamental quantitative and qualitative criteria of capital budgeting can find their place. In particular, the model attempts to pursue a research goal (investigating how it is possible to accurately evaluate an ITSM investment from the perspective of structural capital) and to accomplish a research objective by answering the following research question: «Is it appropriate to limit the evaluation of ITSM investments to ROI - Return on Investment, EVA - Economic Value Added, and/or NPV - Net Present Value?».

2. ITSM from an investment evaluation perspective: literature review and analysis

Within the 'mare magnum' of Information and Communication Technology (ICT), ITSM aims to handle computer science services performance inside and outside an organization. In short, ITSM regards the services which regulate the performance of IT equipment (cf. Young, 2004; Keel *et al.*, 2007; Winniford *et al.*, 2009; Marrone and Kolbe, 2011; Cots *et al.*, 2016). In the borderline case of software houses, clearly, ITSM regards computer science services that are enabled to produce software and not (directly) the software to be sold: in this sense, ITSM is considered from a back office perspective in this study.

In truth, the most modern and authoritative models of IT governance are methodologically oriented towards ITSM (Iden and Eikebrokk, 2013; Vicente *et al.*, 2014), even distinguishing between Information Technology Service *Management* and Information Technology Service *Governance* (Jäntti and Hotti, 2015). Recently, in fact, great ferment has been provoked at international level in the field of IT management in relation to practices (*structural capital*), models (*structural capital*), and certifications (*structural capital; human capital; relational capital* in the sense of reputation), by virtue of different reasons, including two which seem to emerge more clearly.

Firstly, in recent years, IT has represented a fundamental (and sometimes unique) competitive advantage for enterprises engaged in global competition. Such a vision is frankly theoretically wrong as in the current era (when consumption at the end of the supply chain has become more and more sophisticated) brands, ethics, reputations, and so on are very important factors (*relational capital as business capital*), albeit not completely unfounded in the Information and Communication Society.

From an entrepreneurial viewpoint, however, it is essential that perception on the role of IT does not remain merely a declaration of principle - or worse still - only a pretext to gain more powerful positions

in organizational charts and budgets. Honors are balanced by sacrifices and IT managers are requested to collaborate actively, as real managers and not as 'internal consultants', to define business strategy and the related responsibility, especially in terms of risk management (Bentley, 2005; Kerzner, 2005; Gollenia and Uhl, 2012).

Secondly, orientation towards value creation should be a constant principle of good management, not only strategically, but also operatively. Thus, a healthy entrepreneurial rationale is indispensable in any part of IT management, throughout the entire life cycle of the computer science project, in the 'planning' stage (of a managerial nature) as well as in that of 'development' (of a technological nature).

Having verified a definite orientation of modern enterprises towards IT governance, the most intriguing part of this evolution relies consequently in the assessment of the value that is generated by the computer science project. IT managers have to use adequate methodologies, techniques and tools for their capital budgeting in order to direct the project governance correctly, and in this respect, a specific theoretical model seems to be particularly useful.

3. Modeling and classifying evaluation criteria for IT investments: a methodological framework

The economic evaluation of computer science investments has long been investigated by scholars and professionals: nevertheless, the recent success of ITSM seems to require diverse and much more commitment. The ITSM perspective for example, considers back office perspective rigorously because its focus is on IT performances and not on the business object thus significantly complicating the economic-financial evaluation of IT investments.

In truth, it seems that in some of the most recent trends, the entrepreneurial need to link costs and revenues has, to a great extent, restricted the analysis of such evaluations (the above mentioned 'back to basics'). In essence, the only parameters that are acceptable nowadays for the evaluation of IT investments seem to be Return on Investment (ROI) (also to be used for EVA) or the cash flow (to be used for NPV). The importance of such criteria is clear, since they are objective measures (cash even more so than revenues), but in some cases they are very difficult to assess, as the enterprise placed within a systemic space becomes increasingly characterized by continuous and unpredictable relations and interactions, 'between' the internal and 'with' the external resources.

In other words, is it appropriate to focus the evaluation of IT investments 'exclusively' on revenues and cash? Surely these two parameters have the merit of anchoring the theoretical analysis to a level of concreteness (Fell, 2013), which is indispensable to entrepreneurs, who peremptorily require a 'numeric' reference for their ICT expenditure.

Most probably, however, the focus on ROI, EVA, and NPV for IT investments tends to become myopic. This concentration does not consider (i.e. it does not 'feel') other aspects such as positive and/or negative components of value, which different evaluation methods can at least

identify and esteem (maybe by under-measurement, in order to respect a common principle of caution).

In order to analyze potential inconsistencies more in depth and propose possible solutions at the same time, we have attempted to build a theoretical framework for providing investments in ITSM with adequate capital budgeting criteria. Thus, the research is posited on a conceptual construction that finally also takes traditional capital budgeting criteria into consideration for Information Technology (IT) investments, and ITSM investments in particular, contextualizing them within the environment of structural capital.

The ambition of our investigation is to support entrepreneurs, managers, professionals, and scholars by providing a more in-depth comprehension of the link between ITSM as a component of structural capital and appropriate evaluation methods. The methodology we have adopted in this process has been organized into the following steps:

- determination of the main characteristics of an ITSM investment that are potentially important from an evaluation viewpoint;
- engineering of such characteristics into a framework due to the possible combinations of these characteristics;
- pairing/matching some of the most frequently used capital budgeting criteria with potential combinations of the above characteristics.

As regards the first step, three binomial dimensions for an IT investment are taken into account in relation to the construction of a structural (and consequently intellectual) capital perspective:

a) *utility destination*, such as ITSM, even though it is strongly customer-oriented, has a back office, rather than a front office, perspective;
b) *benefit certainty*, which is the most important characteristic of the taxonomy of capital budgeting criteria, along with financial nature (Metallo, 2013). However, in this context a financial criterion, which considers different values at different times, seems to be less relevant because the structural capital perspective is always long term; and
c) *result tangibility*, which clearly is not always evident for technological capital, structural capital, and intellectual capital (in a sort of progression).

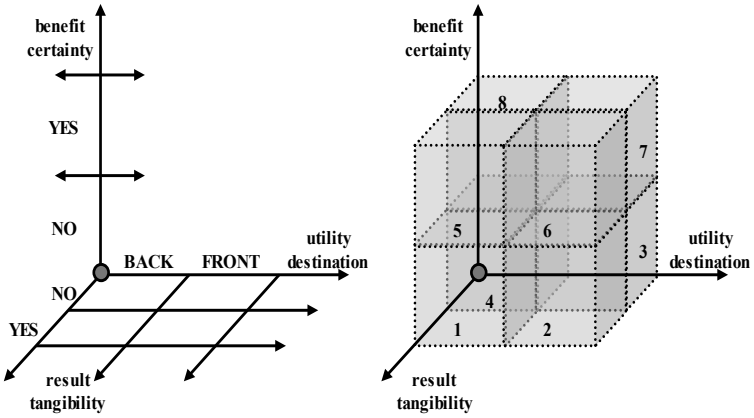
As regards the second step, the graph in Figure 2 is structured as follows:

a) on the X axis, we have placed the utility destination of the computer science investment ('back office', inside the organization: 'IT as a process'; 'front office', outside the organization: 'IT as a product');
b) on the Y axis, we have placed benefit certainty/uncertainty (in a scenario with minor or major predictability); and
c) on the Z axis, we have inserted the result tangibility/intangibility (intended as the fundamental aspects of assets, revenues and cash).

As regards the third step, this theoretical framework provides eight conceptual positions, which can be paired/matched with their most adequate capital budgeting criterion (the proposed criteria have been extracted by the literature review on capital budgeting in general and IT capital budgeting in particular (cf. Irani *et al.*, 2006; Bierman and Smidt, 2007; Festa, 2011; Metallo, 2013):

1: (back office, uncertainty, tangibility): Score
2: (front office, uncertainty, tangibility): Expected NPV
3: (front office, uncertainty, intangibility): ROV (Real Option Valuation)
4: (back office, uncertainty, intangibility): Check List
5: (back office, certainty, tangibility): BSC (ex ante / ex post Balanced Score Card)
6: (front office, certainty, tangibility): NPV
7: (front office, certainty, intangibility): EVA (Economic Value Added)
8: (back office, certainty, intangibility): CBA (Cost-Benefit Analysis).

Fig. 2: Theoretical framework for the modeling, classifying and disclosure of IT(SM) investments



Source: authors' elaboration

Such a framework, based on binomial dimensions, clearly does not aim at completeness (which would simply be impossible because of the width and evolution of capital budgeting criteria), but it aims to express a fundamental coherence for the methodological positioning of the single method of evaluation. Strictly speaking, this theoretical scheme is based on a fundamental observation: 'direct' value creation prevalently emerges in front office relationships, while 'indirect' value creation, in terms of efficacy and efficiency, prevalently emerges in back office relationships.

In this model, qualitative criteria have a larger space in the back office 'segment', even though this consideration could obviously generate evident criticism. In the case of a support investment (according to the traditional classification of the value chain: Porter, 2002) it is also possible to find revenues and/or cash flows (or at least a component of the same) in the sense of a higher saving, which could have been generated by an ITSM project, thus enabling a lower cost, an increase in profit (and, by down-streaming the financial chain, less expenditure and a greater increase in cash inflow, given *ceteris paribus*). Consequently, why shouldn't a stakeholder use 'only' ROI, EVA and/or NPV for the evaluation of ITSM investments, particularly from a structural capital perspective?

4. Evaluation, application, and disclosure of ITSM investments

According to strictly rational business thinking, there are no ultimate reasons to avoid quantitative methods for the estimation of ITSM projects. Rather, they provide entrepreneurs with a concrete key of interpretation. What is not persuasive is their 'exclusive' use, which would definitely be misleading, as IT investments, especially when referring to back office computer science, cannot be appreciated completely, if only the quantitative dimension is counted, while other values, which certainly exist, are not taken into consideration and are thus lost (Baggio and Caporalello, 2003; Lee, 2004). An example is better product quality (*product innovation*), which definitely expresses a higher solidity of the supply (Longbottom and Hilton, 2009), but does not automatically guarantee an increase in revenues or cash flow, as opposed to cost saving. In fact, market impact is less predictable and manageable than internal efficiency.

Furthermore, ITSM investments could certainly enable better quality of the work environment (*process innovation*), with consequent benefits on human resources productivity and business functioning performance. Ignoring these aspects, which are natural characteristics for assets with a back office destination, would mean limiting the effective substance of the investment (Davenport and Short, 2003; Mvungi and Jay, 2009).

An example could probably better clarify this construct. A well-constructed calculation process for measuring ROI, deriving from the adoption of ITSM solutions, is proposed in a Business White Paper by Hewlett Packard ("Measure your ITSM investments", 2013). In this good practice presentation, a table of calculations is set out in order to show the possible benefits associated with single ITSM operations, in this case regarding service desk and call management (see. Table 1), whereby a "… reduction of inbound and outbound service calls, and reduction in the duration of the remaining calls" (p. 13) is achieved.

The method presented above is well engineered and deployed. In the White Paper perspective, the aim is achieved, seeing that the calculation is oriented to give professional evidence of the value that can be generated in terms of ROI (which is considered in the Economic Value Added method in our model).

Upon considering the same investments from an intellectual capital perspective, it is quite evident that improved service desk and call management could also generate time saving for employees (improving work wellbeing and then human capital), procedures (improving organizational efficiency and structural capital), and customers (improving enterprise reputation and finally, relational capital). ROI, EVA, or NPV, as previously mentioned, do not take these values, which in any case exist, into consideration.

Furthermore, a simple 'something else' beyond NPV, as is the case of CBA, seems to be insufficient because in most cases, if not always, it will inevitably be discretionary. In truth, even nowadays (Irani and Love, 2002), an 'ex ante' BSC (which is a blended method) seems to be more complete for the evaluation of ITSM investments because it enables several aspects of overall business performance to be taken into consideration (as is verifiable 'ex post' by an adequate gap analysis).

Tab. 1: ROI expectation deriving from an ITSM investment

ROI example for service desk call management					
US-based financial services firm: ROI by helping eliminate inbound and outbound service desk calls					
Value proposition		Automated incident management reduces costs by providing end user self-service capabilities, which in turn eases the load on the service desk by reducing a number of incoming and outgoing calls.			
Solution benefit summary		End-user, self-service capabilities – to open and check the status of tickets – as well as improvements in operational processes such as incident management can help to ease the load on the service desk significantly by reducing a large number of incoming and outgoing calls.			
Applications		Consolidated service desk.			
			Expected improvement associated with HP software solution		
ROI example	*Metrics*	*Before HP Service Manager*	*Conservative*	*Probable*	*Optimistic*
	New calls/incidents	$1,244,057	20.0%	30.0%	40.0%
	Password resetting	$1,036,720	50.0%	75.0%	100.0%
	Status follow-up calls	$995,252	20.0%	30.0%	40.0%
	General non-IT calls	$870,843	20.0%	30.0%	40.0%
	Outbound calls	$471,236	20.0%	30.0%	40.0%
	Total annual IT cost	$4,618,108			
	New calls/incidents		$995,246	$870,840	$746,434
	Password resetting		$518,360	$259,180	$0
	Status follow-up calls		$796,202	$696,676	$597,151
	General non-IT calls		$696,674	$609,590	$522,506
	Outbound calls		$376,989	$329,865	$282,742
	Projected annual costs		$3,383,470	$2,766,152	$2,148,833
	Projected annual benefit		$1,234,638	$1,851,956	$2,469,275

Source: Hewlett Packard Business White Paper "Measure your ITSM investments", 2013, p. 13.

In practice, it is clear that all enterprise investments in back office and those in ITSM are conceived and implemented in order to generate value, which would become, by down-streaming the chain, more and more evident in terms of revenues and cash. At the same time, however, it is difficult (or worse, misleading) to find, in upstreaming the chain, the single sources of that value, especially due to the highly pervasive role of ITSM, mainly from a structural capital perspective. In this sense, blended methods, like the above mentioned BSC, can support entrepreneurs, managers, professionals, and scholars in making better decisions about ITSM evaluation (*capital budgeting*) and communication (*disclosure*).

5. Results, implications, and conclusion

The main outcome of this research is the construction of a theoretical framework for the modeling, classifying (or positioning'), and disclosure of capital budgeting criteria for evaluating ITSM investments by virtue of

three fundamental dimensions: utility destination, benefit certainty, and result tangibility. The discussion relative to the model has highlighted that basically, qualitative criteria seem particularly appropriate for the back office 'segment' and for ITSM investments, which nowadays represent one of the most important elements of structural capital.

The limitations of the research are a consequence of its very nature, i.e. being a theoretical study: thus, further empirical research is necessary to validate the model presented and the (well-based) assumptions made towards its development. The study also provides a context of prescriptive actions and processes while offering a valuable theoretical basis for empirical development and practical application.

In terms of scientific implications, this result could encourage the adoption, dissemination, and innovation of qualitative techniques for IT project evaluation and for other components of structural capital in order to better communicate the real value of structural investments to stakeholders (Dumay, 2009). In the specific case of ITSM, fortunately, the growing attention of the scientific and professional communities to this field of research enables the proposal of further experimentations in a back office context, also due to the current ferment related to practices, models, and certifications (concurring to boost human capital, structural capital, and relational capital).

In terms of managerial implications, it is clear that without an accurate conception of IT capital budgeting criteria, Information Technology managers (and Information Technology Service managers in particular) will always be forced into a role of secondary importance as regards business strategy beyond their more or less formal recognition in decision making (i.e. the presence of a CIO, *Chief Information Officer*, on the executive board), and this would be applicable to other managers of structural assets (processes, procedures, facilities, etc.). In a healthy business the importance of a resource depends most of all on its capacity to create value obviously (Metallo, 1995), as long as this can be accurately measured, communicated and (in line with the perspective of this study) disclosed (Festa, 2006).

In conclusion, searching for the right balance between quantitative and qualitative evaluations (Anandarajan and Wen, 1999; Dameri, 2005; Schilling, 2005; Saleem *et al.*, 2012) represents a daring challenge for IT capital budgeting, as has been repeatedly highlighted by the scientific literature in the field: this combination also seems theoretically true for other elements of structural capital that are based on the same dimensions (back office perspective, benefit certainty/uncertainty, and result intangibility). A qualitative method is not necessarily 'inaccurate': on the contrary, the indefiniteness of the object under evaluation obliges greater severity in the application of the method in terms of modeling, classifying and disclosure for ITSM investments in this particular study, but also for other structural assets.

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Improving public sector performance by using business process modelling and measurement: a case study analysis

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Abstract

***Purpose of the paper**: The main purpose of the paper is to demonstrate the use of business process modelling and measurement as basic Business Process Management techniques to improve Enterprise Resource Planning systems and existing processes in public sector institutions.*

***Methodology**: The research methodology used is a single case study of a Polish public sector institution. The selected process has been modelled in an as-is and to-be state, i.e. before and after the organisational change and implementation of an ERP system.*

***Results**: The measurement of cost, time, quality and throughput capacity of a process demonstrates specific improvements and thereby proves an increase in the efficiency of public sector institutions. The author indicates that business process modelling and measurement are techniques useful in both the area of design and implementation of IT systems, as well as the design and improvement of an organisation.*

***Research limitations:** The main limitation of this research is the analysis of merely one process in a single institution with virtually no comparative analysis.*

***Practical implications:** The implementation of effectiveness and efficiency indicators as criteria for the public institution evaluation gives rise to the appreciation of the BPM concept as the appropriate management method in the public sector.*

Research results can be used as recommendations for policy makers who plan and evaluate projects to improve the efficiency of public institutions.

***Originality of the paper**: The results of this study can contribute to the existing body of knowledge on BPM in the public sector. The uniqueness of the study arises from the merging of three research areas: improving performance of the public sector; the evaluation of cost-effectiveness IT projects in public administration; and, business process modelling and measurement applied to the aforementioned two areas.*

Key words: business process modelling; measurement of business processes; BPM; public sector; public administration

1. Introduction

A noticeable worldwide trend in the transformation of public administration aims to enhance the efficiency of public units through modern management concepts requiring the use of management methods and techniques common to profit-based organisations. Effective management translates into high quality services provided to citizens and the

efficient use of resource capacity, including human resources and existing IT systems. The approach presented by the New Public Management philosophy advocates a comprehensive, market-oriented system of public administration transformation towards a cost-effective organisation (Supernat, 2003; Izdebski 2006). A similar approach is presented in the concept of t-Government, which is the "ICT-enabled and organisation-led transformation of government operations, internal and external processes and structures to enable the realisation of citizen-centric services that are cost effective and efficient" (Weerakkody and Dhillon, 2008). Thus, the public sector needs concepts, methods and tools which improve performance by reducing costs and enhancing the overall efficiency of public sector institutions, but also, in the context of the digitisation of this sector, introducing new technologies and services to citizens and increasing their satisfaction (Weerakkody and Dhillon, 2008; Weerakkody *et al.*, 2011; Janssen and Estevez, 2013).

The implementation of effectiveness and efficiency indicators as a criteria for the evaluation of the public sector (Kickert, 1997; Krukowski and Siemiński, 2011) gives rise to an appreciation of the Business Process Management concept as the appropriate method of management in the public sector (Gulledge and Sommer, 2002; MacIntosh, 2003; Rinaldi *et al.*, 2015). The introduction of process management to an organisation and building its process maturity requires, in the first step, identifying, understanding and documenting processes using adequate methods and modelling tools (Greasley, 2006; Gabryelczyk and Jurczuk, 2014). In the next step, according to the Business Process Management Lifecycle, processes should be measured, analysed and implemented after their improvement (Macedo de Morais *et al.*, 2014).

Business process models and the results of their measurement can have multiple uses in various projects of organisational change. Generally, they can be used in two main areas: 1. the design and improvement of an organisation, and, 2. the design and implementation of IT systems (Rosemann *et al.*, 2005). This study will prove that the modelling and measurement of processes in public sector institutions will contribute to improving performance in both areas.

The main aim of this paper is to demonstrate the use of business process modelling and measurement as basic Business Process Management techniques to improve existing processes, and, Enterprise Resource Planning systems in a public sector institution. In addition, more specific aims have been set out. The first one is to indicate, based on a case study, that business process modelling and measurement are techniques useful also in the area of design and implementation of IT systems, as well as in the area of organisational design and improvement. The second specific aim is to build a set of process indicators that allow the measurement of process efficiency before and after the change.

The research methodology used is a single case study of a Polish public sector institution. The example provides observations concerning the practical use of process models and measurements in enhancing the organisation's performance, particularly through the better use of the information technology system.

The paper has been structured as follows: the background provides the theoretical foundation, explains the conditions of using the process approach in the management of public sector institutions and the need for managerial approach in the public sector. Later, the methodology of the research and analysis framework is described. In the next section, the case study and a disscussion of the findings are presented. In the final part the limitations of the study and plans for future research are stated.

2. The background study and literature review

The background analysis related to this study covers three main areas. The first is the justification of why Polish public sector institutions need to improve their efficiency and how they can achieve this goal. The second is a literature review concerning the use of process management in the public sector. The third area covered are the theoretical foundations of using business process modelling and measurement.

2.1 The need for improving performance in the public sector

The requirement to continually improve performance through the use of methods leading to enhanced effectiveness is imposed on public administration by the Polish Public Finance Act and by new public management policies. Furthermore, the public sector's obligation to efficient operation follows the Public Finance Act of 2009, whose provisions specify that: "public expenditure should be effected in a purposeful and cost-effective manner, following the principle of maximised effects and optimised selection of methods and means to be used to achieve the intended objectives". National activities in this field comply with the Europe 2020 Strategy and the applicable Common Provision Regulations in respect of enhancing institutional capacity of public authorities and stakeholders, and efficient public administration (Regulation (EU) No 1303/2013). Efficiency of public institutions, development of information and communication technologies, and improvement of the quality of human resources in central and local administration are just some of the issues addressed in the "Efficient State 2020" development strategy for Poland (Monitor Polski, 2013), a document presenting an optimum state model (Open Society Foundation, 2011). To implement this strategy in practice, it is necessary to improve the quality of public administration services by means of information technology, and to achieve digital synergy of modernisation projects in the sector of administration. An analysis of the state efficiency in terms of its weak points draws attention to the following aspects: the insufficient efficiency of organisational structures; the insufficient use of modern management tools; delays in the development of ICT solutions and barely initiated comprehensive integration of information technology systems; inadequate IT awareness and competency of administration personnel; and, weak mechanisms for assessment and monitoring (Report Państwo 2.0, 2012).

The requirement of spending public funds in a reasonable and cost-effective manner should also apply to IT system deployment projects in

public institutions, as well as to redesign projects with a focus on the need to review the existing systems, adapt them to the needs of service recipients, and, evaluate their effectiveness and efficiency. Studies on the methods used for the evaluation of IT projects cost-effectiveness in the public administration sector indicate that no common methodology has been developed in this field, so far (Lech, 2007). According to the vision of the Ministry of Administration and Digitisation, the several hundred information technology projects currently being implemented in the public administration sector in Poland should "guarantee the best possible proportion of effect to expenditure, transparency and efficiency" (Report Państwo 2.0, 2012). According to this report, public administration offices and institutions are, and will remain, the most attractive buyer of IT goods and services in Poland in the financial perspective 2014-2020, most probably owing to the EU funds being assigned to, and spent intensely on, the implementation of IT solutions in this sector. Therefore, the subject of measuring the efficiency and effectiveness of ITC implementation is worth discussing in the additional context of proven solutions used successfully by the private sector. These might be referred to as *good practices* when adopting the New Public Management approach and implementing the public administration efficiency improvement plans and strategies in Poland.

Both this diagnosis and provisions of documents establishing the policy, plans and strategies of digitisation of the state make one acknowledge the role of a process approach in developments intended to enhance the performance of public sector institutions. This method should be integrated into state digitisation programmes and projects of ERP-class systems implementation that are already common in Poland.

2.2 Process management in the public sector

Processes are fundamental elements of management systems in all public administration institutions. Processes, logical sequences of repeatable activities leading to a pre-defined outcome, are present in any organisation, regardless of how mature its management system is. Effective process management translates into high quality services provided to citizens, and the efficient use of human, IT and other resources. Methods to be used to reengineer processes are proposed by such classic approaches as Business Process Reengineering (Hammer and Champy, 1993), Business Process Orientation (McCormack and Johnson, 2001), Business Process Change (Harmon, 2007), and, Business Process Management (Jeston and Nelis, 2006). The common ground for these concepts is a comprehensive, holistic, process-based management approach in an organisation that uses information technology, and aligns with the needs and requirements of customers through the processes organisational objectives (Elzinga *et al.*, 1995; DeToro and McCabe, 1997; Jeston and Nellis, 2006).

The last twenty five years have witnessed the continual development of the process approach, its concept, methods and IT tools enabling business process modelling and improvement intended to enhance an organisation's performance. Yet, literature does not address the subject of

business process improvement in the public sector as often as it does with respect to commercial organisations. There are many reasons preventing innovations in business processes and to organisational structures in the public sector, some of them being of a political nature. Not only in Poland is the implementation of process management in the public sector impeded by numerous reasons, including public organisation culture, a multitude of procedures, the silo structure, personnel lacking awareness and mission, the domination of political stakeholders, and, a turbulent political environment (Saxena, 1996; Halachmi and Bovaird, 1997; Krukowski and Siemiński, 2011).

However, organisational changes in public administration institutions are only partly achievable, and most typically consist of the unification of business processes, automation, and the partial elimination of redundant activities. Therefore, classic process improvement methods and business process redesign need to be adequate for the public sector environment. When enhancing public sector performance, one should combine elements of radical methodology, such as Business Process Reengineering (Hammer and Champy, 1993; Weerakkody *et al.*, 2011) with those based on continual improvement, e.g., Business Process Orientation (McCormack and Johnson, 2001), and Business Process Management (Gulledge and Sommer, 2002; Harmon, 2007). Most process redesign projects fall somewhere between radical and gradual changes (Harmon, 2007). Moreover, some process redesign strategies also propose process modelling with IT tools and process measurement intended to evaluate the effectiveness and efficiency of changes (Rosemann *et al.*, 2005; Scheer *et al.*, 2005).

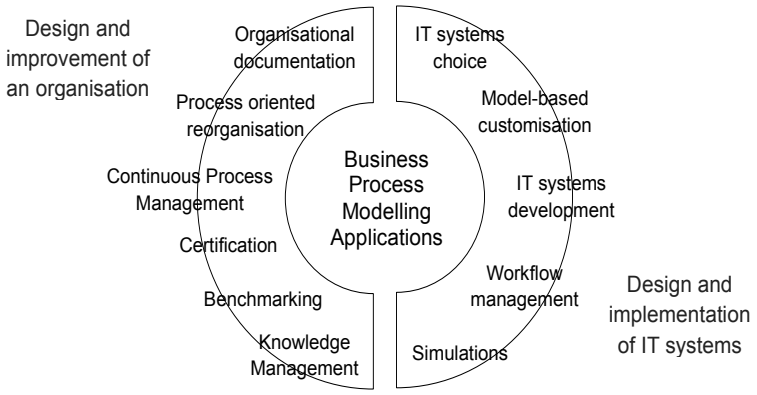
2.3 Business process modelling and measurement

Process identification and modelling is a starting point for building process maturity in various organisations, including public institutions. Business process modelling can be defined as a process of documenting business processes through a combination of text and graphic notation. In the context of business process management, it is most typically defined as a process used for mapping "the real world" (the *as-is* modelling), while being an active creation at the same time, reflecting the potential future states of the organisation or its processes, and suggesting the potential direction of changes (the *to-be* modelling) (Krcmar and Schwarzer, 1994). Process models help define processes and process interfaces, document processes, and present logical and chronological relations between process tasks, thereby enabling analyses, the assignment of agents, identification of information being transformed in the course of the process, and, information received as the process output (Gabryelczyk and Jurczuk, 2014).

Business process modelling is a key element in organisational change management and has many and varied applications, not limited solely to projects intended to develop a process-oriented organisation. Other important areas of business process model application include arrangements preceding the selection or development of an IT system supporting business management (adjusting the system to the organisation, not vice-versa, a common language for IT and Business), the designing of workflow systems, the

documentation of processes in the implementation of quality management systems (including ISO 9001 certification), and process benchmarking or Activity Based Management. The most common applications of business process modelling at a glance are presented in Figure 1. adapted from Rosemann *et al.* (2005). Process measurement allows for the analysis and evaluation of improvements. In the context of the information technology systems implementation, Davenport's thesis, according to which an economic effect is achieved only after business processes are reengineered and information technology is the method enabling process innovation, is also valid for the sector of public administration.

Fig. 1: Business process modelling applications



Source: (adapted from Rosemann *et al.*, 2005)

The issues of business process modelling and measurements are most often specified as an element of pre-deployment analysis. The aim of process identification and modelling is to identify an organisation's needs as regards IT system support, occasionally to select a system, and, finally, to implement it at the level of identified and improved processes (Hammer, 1990; Davenport, 1993; Stemberger *et al.*, 2009). Yet, such a scenario is extremely rare in practice in Polish (Sasak and Kożuch, 2011). Furthermore, no studies on IT system implementation in the Polish public administration exist. The system implementation project should be efficient both with respect to the implementation process itself and to its deliverables (Lech, 2007). Reports on the status of ITC and digitisation projects co-financed from European Funds under the Innovative Economy Programme in Poland in the years 2007-2012 seem to confirm the diagnosis that those responsible for the operation of Polish public institutions still underestimate the significance of projects intended to enhance the performance of public administration institutions in terms of their effectiveness and efficiency (Report Państwo 2.0, 2012).

Business process measurement can constitute an element of various methods used for the evaluation of major, national-scale IT projects, as well as tasks undertaken by individual public institutions. When the

efficiency of an IT project is evaluated prior *to* and *after* its implementation, the extent of automation can be measured, as well as the resultant benefits, such as time gains, cost reduction and quality improvement. The prerequisite to developing a system for measuring process performance and determining criteria for the performance indictor use, is knowledge of the process architecture. Process duration, cost and quality are most frequently referred to as measures of benefits gained as a result of process improvement (Davenport, 1993; Murphy, 2002; Kaplan and Norton, 1996; Harmon, 2007). These measures can be both quantitative and qualitative, may deliver both *hard*, fully measurable results, as well as *soft* ones - relative, difficult to specify and evaluate, but giving a better frame of reference. Shorter process durations achieved through the elimination of redundant activities translate into, for example, a lower cost of the process or enhanced customer satisfaction, and may improve the financial effect, while the elimination of errors in operational processes reduces the value of losses and process automation cuts the overall cost level owing to employment reduction. The purpose of measuring the quality of processes is to reduce the cost of repairs, to eliminate weak points in the process flow, thereby continually enhancing the satisfaction of process deliverable recipients. When analysing the process flow in terms of adding value, it is worth paying attention to how much time is spent on activities adding value the customer is willing to pay for.

In public administration, it is the process architecture level (Scheer *et al.*, 2005; Krukowski and Siemiński, 2011) and the process type that determine how these measures are structured and what they refer to. Cost is the basic performance indicator, although it is seldom measured in public administration, being often allocated to the fixed cost category. Duration reflects the level of process organisation and its degree automation (Davenport, 1993; Peppard and Rowland, 1995). Process quality is determined by the number of errors and the resultant amount of work that needs to be repeated (Gabryelczyk, 2000). According to the new public management concepts, quality should not only be pursued to satisfy the citizen, but also, the administration officer - a recipient of the process deliverables.

The literature on this subject points out that the operating cost reduction achieved owing to the administration service process improvement should be regarded as the greatest benefit of adopting the process approach in public administration (Bugdol, 2008; Zaheer *et al.*, 2008). The implementation of the process approach in the public sector, despite many diagnosed differences in features and measures of processes in comparison to the private sector (Krukowski and Siemiński, 2011; Stemberger *et al.*, 2007), is usually carried out using the same concept methods and tools (MacIntosh, 2003; Greasley, 2006; Stemberger *et al.*, 2007). Regardless of the methodology for the implementation of a process approach in each phase there is a diagnosis of the current state of processes (*as-is*) and the phase of the target state processes (*to-be* or *can-be*) (Rosemann *et al.*, 2005; Harmon, 2007; Scheer *et al.*, 2005). A similar approach is used in administration offices (Weerakkody *et al.*, 2011; Stemberger *et al.*, 2007; Gulledge and Sommer, 2002). The measurement of costs, lead times and quality processes can occur in both phases.

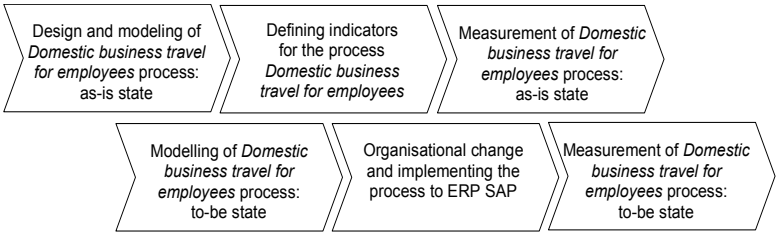
3. Research design and methodology

A single case-based research methodology was chosen for this study. The business process modelling and measurement exercise was conducted in an institution representing the public finance sector - an entity providing services and logistical support to the state authorities. According to Yin (2013), this kind of research copes with technically distinctive situations and is aimed at illustrating certain topics in an easy-to-understand way preserving the most important advantage - they present real-life context. According to the single case study methodology (Yin, 1994), the analysis of the institution may also act as a pilot project, the first step taken to show other institutions the method of measuring the potential for improvements, which has been used by commercial organisations for years. However, the case study allows, but only to a limited extent, the generalisability of the findings.

The choice of public sector institutions to be studied was dictated by a practical consideration, namely, the availability and access to information on organisational changes in said institutions. Furthermore, in the process of implementation of these changes, the co-authors of the presented study were also involved.

For the purpose of evaluating the process improvement potential of the institution representing the public finance sector, the process of *Domestic business travel for employees* was defined, modelled, measured, analysed, and improved according to the conceptual model presented in Figure 2.

Fig. 2: Flow diagram of the case study analysis



Source: Own elaboration

The choice of the process of *Domestic business travel for employees* for analysis as a case study stems from the fact that in 2015 the implementation of the SAP Travel Management (TM) module occurred in the examined institution. This circumstance allowed the modeling and measurement of the process before and after the implementation in SAP system (according to Figure 2).

We modelled and measured business process diagrams of *Domestic business travel for employees* together with their sub-processes. Initial diagrams reflect the as-is state (version 1.0) of the process prior to system ERP SAP implementation. The final diagrams presents the *to-be* state (version 2.0) of the process after organisational change and implementation to the system. The collection of data such as activities allocations, responsible roles, sub-processes interfaces, costs, process

durations, and, process quality data was undertaken by the authors through interviews with employees of the organisation, observations and analysis of the documentation of the ERP SAP system. Interviews were conducted with employees responsible for arranging domestic business travel for employees in the Financial Department and in 9 functional departments that send employees on business trips. According to Figure 3 and 4, interviews were carried out with the Chief Financial Officer in the studied institution, 2 specialists in financial settlement, and with 9 secretaries responsible for the preparation of business travel reports in 9 different functional departments.

The authors collected data for the study in April and May, 2015, being the period before the implementation of the SAP Travel Management (TM) module, and in November, 2015, during the implementation of the TM module, which was launched later in April, 2016.

For business process modelling, Business Process Model and Notation (BPMN) notation was used. BPMN is a graphical representation for specifying business processes in a business process model. BPMN is the global standard currently maintained by the Object Management Group (OMG, 2011).

The measurement of the *Domestic business travel for employees* process and their sub-processes was carried out with the use of indicators of cost, time, quality and *throughput* capacity. Changes in value were compared between versions *as-is (1.0)* and *to-be (2.0).*

4. Findings of the case study analysis

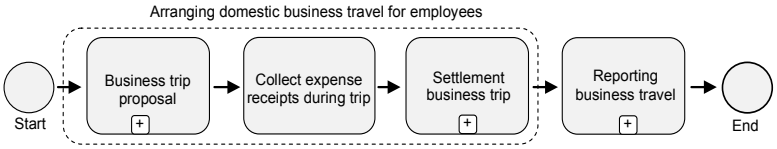
The case study demonstrates the use of business process modelling and measurement to change existing processes and Enterprise Resource Planning systems in a public sector institution. The institution is subject to the Public Finance Act and its regulations in respect of an obligation to ensure the cost-effective expenditure of public funds. These regulations should also be adhered to when implementing ICT projects. The institution uses an ERP SAP system implemented mainly to integrate insular solutions and upgrade IT tools. The institution's management considered the implementation project to be the "IT department's business" and has not defined any indicators that might demonstrate performance improvements. There has been no pre-deployment analysis, process analysis or analysis of the organisational changes required; no methodology has been used to reduce the risk associated with the choice of technology in the context of the institution's needs. The potential for the institution's performance improvement is to a great extent based on increasing the volume of services without increasing the level of cost. The institution's annual expenses on the SAP system remain, in practice, at an unchanged level and stem mainly from the number of ERP licences used by the system users. The institution has been able to use all of the SAP ERP functionalities since 2010, therefore the activation of any new functionalities or module is not associated with any new licence cost of the system itself. It would, therefore, be a case of mismanagement not to utilise what the system offers, given that all IT projects financed from public funds should be subject to evaluation for

cost-efficiency and effectiveness. When co-financing any projects, the EU requires these to be evaluated according to the applicable standards and guidelines. The direction of changes shown in the case study presented below is based on the process modelling and measurement used to ensure effective cost management in a public institution.

The *as-is* modelling of the *Domestic business travel for employees* process included the business process diagram identification (Figure 3) and the modelling of their sub-processes: *Business trip proposal, Settlement business trip, and Reporting business travel.* The first 2 processes create an overriding process that can be named *Arranging Domestic business travel for employees*. A task *Collect expense receipts during the trip* indicates the necessary work to be performed in order to settle the process of *Domestic business travel for employees*. The process *Domestic business travel for employees* on a general level of description is the same in the versions *as-is (1.0)* and t*o-be (2.0)*. The differences in the process versions appear only on the level of the sub-processes modelling. In this case, all employees in the institution are process clients and agents. The modelling was performed using the Business Process Management tool Adonis CE and the BPMN process modelling notation.

Data for process models and measurement were sourced from interviews with process participants from the institution's financial department and from other departments that have registered the most business trips. The data was also collected using the observation method, examinations of the SAP ERP system reports, as well as from legal regulations referred to in the institution's applicable instructions.

Fig. 3: 'Domestic business travel for employees' - Business process diagram (BPMN 2.0)



Source: Own elaboration

Process performance indicators for measuring process duration, cost and quality were determined based on the literature and a review of the *Domestic business travel for employees* process *as-is* models.

The institution does not have any process measurement system. For the purpose of the *as-is* and *to-be* analysis of processes in the case study, performance indicators were defined in the category of process *cost, time, quality* and *throughput capacity* (Table 1), based on data available for the exercise. These indicators can be used for measuring the effects of the analysed process automation, as well as for the assessment of organisational changes in the process itself.

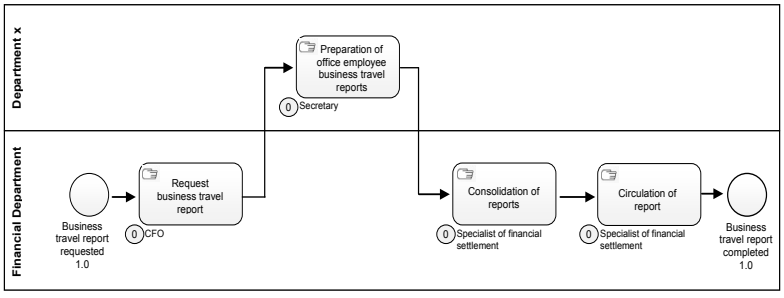
Tab. 1: Performance indicators for the process of 'Domestic business travel for employees'

Category	*Indicator*	*Definition*
Cost	Mean personal cost	Cost based on the taxable monthly salary averaged by positions of individuals performing the functions
Time	Waiting time	Average time of waiting for the possibility to perform the function
	Execution time	Average time of function processing – performing the real work
	Resting time	Average time of rest, waiting for transport
	Transport time	Avarage time of transport
	Total time	Average total time of process
Quality	Number of interfaces between organisation's units	Number of border crossings between organisation's units at the office level
	Number of functions	Number of functions performed by process participants without using the ERP SAP system
	Number of SAP functions	Number of functions performed automatically by the ERP system (the so-called SAP transactions)
	Number of SAP ERP data base uses	Number of SAP ERP uses in order to enter data (but the same SAP functions may be used for the registration of data in further steps of the process)
Throughput capacity	$\left(\frac{\text{Execution time}}{\text{Total time}}\right)*100\%$	Share of time in the process spent on value adding activities

Source: Own elaboration

To indicate a sample of an as-is and to-be model, the *Reporting business travel* sub-process has been selected. Figure 4 presents a diagram of this process before the change in the *as-is* version (1.0), while Figure 5. shows the changes in the process after the implementation to the SAP system, the *to-be* version (2.0).

Fig. 4: 'Reporting business travel' - Business process diagram (BPMN 2.0) – as-is (1.0)

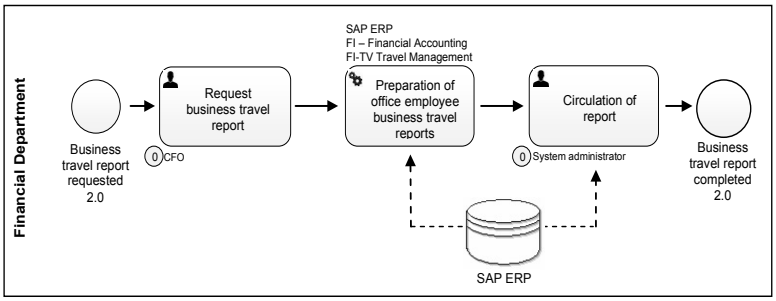


Source: Own elaboration

The changes visible in the models (Figure 4 and 5) relate to automating functions that were previously performed manually. In the *to-be* version (2.0)

all functions have been implemented in the Travel Management module (TM) in the SAP system. However, to allow the integration of information, it is also necessary to use the Financial Accounting module. This improved process involves less human resources.

Fig. 5: 'Reporting business travel' - Business process diagram (BPMN 2.0) - to-be (2.0)



Source: Own elaboration

The cumulated values of the *Business trip proposal, Settlement business trip*, and *Reporting business travel* process performance indicators were used to compute the percentage difference between the *as-is (1.0)* and *to-be (2.0)* performance indicator values.

For the purpose of process improvement, the *Domestic business travel for employees* process model included an analysis of the mean personal cost of personnel, time (waiting time, execution time, resting time, transport time), resources (including SAP system) and engagement of the organisation's units. The process in version *as-is (1.0)* was found to be time-intensive, with the vast majority of activities performed manually without using the SAP system. The *as-is (1.0)* models of the *Domestic business travel for employees* process revealed that very little of what SAP offers was used and that printed paper documents prevailed in the institution's operation. Very few insular solutions based on the system were not integrated into the chain of process operations. The analysis resulted in a proposal to automate the process of *Domestic business travel for employees* in SAP ERP and to modify its organisation with regard to the standardisation required. The changes proposed were modelled in Adonis CE so as to develop *to-be* process models and compute the target performance indicators.

To illustrate the effects of changes, Tables no. 2 and no. 3 specify differences between the *as-is* and *to-be* indicator values expressed in as a percentage calculated using the following formula:

$$\frac{\text{as-is (1.0)} - \text{to-be (2.0)}}{\text{as-is (1.0}} * 100\%$$

As a result of the SAP-based automation of the *Domestic business travel for employees* process and following changes in the process flow, a definite improvement in the process performance indicators was observed (Table 2).

Tab. 2: Change in the value of the 'Domestic business travel for employees' process cost and time indicators expressed in percent

		Costs	*Time*				
	Process	Mean personal cost	Waiting time	Execution time	Resting time	Trans-port time	Total time
		Change in percent					
1	Business trip proposal	↓81%	↓29%	↓ 22%	↓ 79%	↓ 60%	↓ 62%
2	Settlement business trip	↓ 14%	↓ 7%	↓3%	↓4%	↓ 20%	↓22%
3	Reporting business travel	↓ 93%	↓ 100%	↓ 94%	↓67%	↓50%	↓90%
	Total	↓ 41%	↓ 14%	↓ 12%	↓ 60%	↓52%	↓45%

↓ - decrease of x %

Source: Own elaboration

The SAP-based automation involved an increased use of the system databases and functions (Table 3). Changes to the process organisation involved improvements to the process flow, a reduction of paper documents, the delegation of authority and implementation of SAP. Neither the obvious benefits of deploying SAP on a fuller scale than earlier, nor the measurement of the entire project effects are being discussed here now.

Tab. 3: Change in the value of the 'Domestic business travel for employees' process quality indicators expressed in percent

		Quality			
	Process	Number of interfaces between organisation's units	Number of functions	Number of SAP functions	Number of SAP ERP data base uses
		Change in percent			
1	Business trip proposal	↓25%	↑13%	↑100%	↑300%
2	Settlement business trip	↓50%	↑14%	↑100%	↑150%
3	Reporting business travel	↓100%	↓ 25%	↑ ∞	↑100%
	Total	↓50%	↑ 5%	↑ 200%	↑ 175%

↓ - decrease of x %; ↑ - increase of x %

Source: Own elaboration

The measure, which allows to assess the share of value-adding activities in the process duration, is *throughput capacity* (Peppard and Rowland, 1997). The indicator was calculated according to the formula presented in Table 1, and the results summarised in Table 4. We see that the greatest potential for improvement lies in the *waiting time, rest time*, and *transport time* components of the process. The share of process time spent on value adding activities is higher. The *Reporting business travel* subprocess is the only one where the indicator decreases due to the strong improvements of all types and times of the construction of this indicator.

Tab. 4: Troughput capacity and change in the value of the 'Domestic business travel for employees' process expressed in percent

		Troughput capacity	
	Process	*as-is (1.0)*	*to-be (2.0)*
1	Business trip proposal	4.76%	9.85%
2	Settlement business trip	11.21%	13.98%
3	Reporting business travel	50.00%	28.57%
4	*Total*	8.73%	12.47%

Source: Own elaboration

In this study, process modelling allowed the measuring of the benefits of organisational changes and of the *Domestic business travel for employees* process implementation to the SAP system. The aim of the study is to draw attention to the process measurement system as an element of system evaluation and operation, as well as a quantitative measure of the potential for improvements. The institution's contracts with SAP provide for access to the entire functionality of the system, without any extra charges in excess having been paid so far. Under these circumstances, not to use the system's potential in full would be a case of mismanagement. The scale of this mismanagement is clearly reflected in the value of the *Domestic business travel for employees* process performance indicators.

5. Conclusions

The case study presented in this paper provides arguments for using business process modelling and measurement in the public sector,where the ERP systems are overloaded by the existing organisational structures and processes. The research shows that through defining, modelling and measuring selected processes it is possible to evaluate the potential for improvements in the processes that have only been partly automated following the ERP system deployment.

Although BPM and particularly process modelling and measurement are frequently applied and verified in the private sector, they are still uncommon in the public sector. Thus, the contribution of this study to the existing body of knowledge results from the merging of 3 research areas: 1) improving performance of the public sector, 2) the evaluation of IT projects cost-effectiveness in public administration, and, 3) business process modelling and measurement applied to the aforementioned 2 areas. To the best of our knowledge, this combination of research areas and the reasoning behind them took place only in earlier papers by the authors: Gabryelczyk and Rakowska (2015).

Managerial contribution mainly concerns the implementation of business process indicators as effectiveness and efficiency criteria for public institution evaluation, particularly in the case of IT implementation. Results of this study give rise to the appreciation of the BPM concept as the appropriate management method in the public sector.

Research results also can be used as recommendations for policy makers who plan and evaluate projects improving the efficiency of public institutions. An institution's obligations stemming from the Public Finance Act require it to operate in a cost-effective manner and to use the best methods to achieve these objectives. Similarly, the New Public Management guidelines (Kickert, 1997; Supernat, 2003; Izdebski, 2006; Krukowski and Siemiński, 2011) and the t-Government concept (Weerakkody *et al.*, 2011) emphasise the need for public administration to adopt methods and techniques which guarantee the best benefit-to-cost ratio. To follow the principles of a cost-effective operation, an institution should optimise the use of its resources, including the already deployed SAP system. To discuss cost-effectiveness, one needs to measure both costs and benefits (Hammer, 1990; Davenport, 1993; Lech, 2007, Stemberger *et al.*, 2009; Sasak and Kożuch, 2011). Process modelling and measurement, according to Business Process Redesign concepts, enable one to evaluate the quality of system implementation, reveal the potential for more extensive deployment, and indicate, the directions of changes for a public institution which is expected to meet the statutory requirements in respect of the efficient spending of public funds.

6. Limitations and future research

The main limitation of this research is the analysis of only one process in a single institution with virtually no comparative analysis. One similar study of a public sector institution, presented by Gabryelczyk and Rakowska (2015), arrived at the same results. It is difficult to make a comparison of the findings obtained during the analysis of business processes in an institution representing the public finance seector because of the lack of comparable data. Taking into account the paucity of studies on the adoption of the process approach in public administration institutions, the purpose of this case study was to expand the existing case descriptions into this area.

Currently, public institutions are looking for transformational change by through radical improvement. Future research work on the process approach implementation, including, in particular, the aspects of process modelling and measurement in public administration institutions in Poland, should focus on the development of recommendations and the identification of best practices for projects intended to enhance performance through process improvement.

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Feature

Il valore del cinema per il management

Dario D'Incerti

La definizione delle cosiddette "competenze manageriali" è stata, ed è tuttora, oggetto di innumerevoli studi e ricerche e ha sostanzialmente accompagnato il progressivo aumento della complessità, reale o percepita, delle organizzazioni contemporanee. Di fatto, la risposta alle sfide della modernità ha comportato la necessità di adeguare una classe dirigente cresciuta secondo modelli datati e, attraverso una minuziosa descrizione delle sue capacità, abilità, *skills*..., metterla in condizioni di assolvere più efficacemente ai propri compiti. Il manager oggi deve essere capace di galleggiare nelle contraddizioni della sua epoca, deve essere innovativo e rispettoso delle tradizioni, con lo slancio della gioventù e la saggezza dell'esperienza, capace di affrontare il noto e l'ignoto, decisionista ma anche capace di ascolto, dotato di sufficiente autostima ma anche in grado di valorizzare i collaboratori. E così via. È accaduto quindi che la quantità di cose che il manager dovrebbe essere in grado di fare è aumentata a dismisura ed è divenuto centrale il bisogno di riflettere sui processi di apprendimento di tutte queste competenze e individuarne i relativi strumenti di valutazione. Si è poi insistito sul fatto che la formazione del manager non può, di fatto, mai avere fine ed è altresì indispensabile darsi ad attività di auto-formazione. Infine, si è dato spazio al concetto di meta-competenza, precondizione indispensabile perché avvenga un qualsiasi processo di formazione e di apprendimento. Non basta imparare, bisogna "imparare ad imparare". E bisogna anche - altra novità - capire che la componente razionale della conoscenza è sempre accompagnata da un sentimento, da uno stato emotivo che la connota e spesso la condiziona. Tutto ciò ha inevitabilmente allargato il campo degli strumenti attraverso cui favorire questi processi, andando "oltre l'aula" (come recitava il titolo di un libro di Boldizzoni e Nacamulli) e introducendo linguaggi a maggior contenuto emotivo come la letteratura, il teatro e il cinema. Il percorso che quest'ultimo ha fatto nei suoi centoventi anni di vita per ritagliarsi uno spazio significativo nel panorama degli artefatti culturali è stato tutt'altro che facile, e ancor più difficile è stato accreditarsi come strumento di conoscenza e apprendimento: ha dovuto prima di tutto contrastare la diffidenza che il mondo della pedagogia ha sempre avuto nei confronti delle innovazioni tecnologiche, viste spesso come fonti di alienazione (in una contrapposizione fra *psichè* e *technè* che a volte riaffiora anche oggi), e ha poi sofferto di una derubricazione a "pratica bassa", a espressione di una sottocultura di massa che lo assimilava ai beni di consumo come la musica leggera e il fumetto.

Già Walter Benjamin dovette lottare per sostenere l'idea che la fotografia potesse essere una forma d'arte e fin d'allora - giova ricordarlo - si fece largo in lui un'intuizione destinata a legittimare l'uso delle immagini tecniche, statiche o dinamiche, come strumenti di formazione. Secondo Benjamin, infatti, non si trattava solo di considerare la fotografia come arte ma,

viceversa, l'arte come fotografia , nel senso che l'arte è una delle forme attraverso cui la società elabora un pensiero e un'immagine di sé. Da questo punto di vista, tutte le invenzioni narrative che l'uomo ha prodotto, da Omero a David Foster Wallace, dai graffiti rupestri ai film in 3D, sono potenti contenitori simbolici con cui noi ci relazioniamo - ieri come oggi - nella fondata ipotesi che il fatto che siano invenzioni non compromette minimamente la nostra capacità di creare relazioni "reali" con esse[1]. Per questo si può dire - oggi come ieri - che noi siamo abitati dalla realtà ma anche dall'immaginario. Ora, è indubbio che il cinema, avendo riassunto in sé tutte le precedenti forme d'arte (pittura, letteratura, musica, fotografia…) di questo immaginario ha costituito per più di un secolo la parte preponderante (con buona pace di coloro che ritengono che i nuovi *media* lo abbiano - in una misura che è però difficile stabilire - soppiantato). Ciò dipende in primo luogo dalle caratteristiche strutturali del cinema, dal suo raccontare la realtà con la realtà, dall'essere contemporaneamente "completamente oggettivo e completamente soggettivo" (Pasolini. 1977), dalla sua polisemia che fa sì che ogni film sia unico ma non sia mai univoco. È stato anche giustamente sostenuto che "il cinema contiene più di quanto lo spettatore possa ricevere e lo spettatore riceve più di quanto il cinema contenga" (Nepoti, 2004).

L'uso del cinema nelle aule della formazione - pratica peraltro più diffusa di quello che si crede comunemente - potrebbe essere fatto rientrare in quel fenomeno sociale che va sotto il nome di spettacolarizzazione. A sua volta, la spettacolarizzazione rientra nella cosiddetta società mass-mediale o società dell'informazione. Il concetto centrale - detto in maniera estremamente semplificata - è che la nostra conoscenza della realtà è sempre meno frutto di un rapporto diretto con essa ma, al contrario, sempre più di un rapporto, appunto, "mediato". La mediazione va fatalmente verso forme sempre più estreme di spettacolarizzazione. L'informazione quindi si spettacolarizza e, d'altra parte, lo spettacolo "forma". Cioè a dire: si sarebbe tentati di affermare che è la formazione che deve andare verso forme sempre più spettacolarizzate (anche perché le generazioni che si affacciano hanno sempre più fame di linguaggi spettacolari) ma è vero anche il contrario e cioè lo spettacolo è divenuto un agente formativo, se non altro nel senso che è formatore di mentalità. Lo spettacolo, e quindi il cinema, si fa in sostanza portatore di valori, modelli culturali, mode e modi di vivere che in maniera a volte palese a volte carsica, vengono assimilati nei nostri comportamenti quotidiani e determinano il nostro agire ben più profondamente di quanto noi stessi siamo disposti ad ammettere. Esporsi ad una qualche forma di spettacolo ha dunque una valenza formativa di per sé. L'altro aspetto importante è l'irrompere nelle aule - anche qui già da tempo, si pensi all'uso dei casi - della narratività. Si riconosce cioè il valore non di una ricostruzione oggettiva della realtà - peraltro impossibile -, ma di una realtà narrata il cui statuto ontologico non è meno perspicuo di quello che siamo abituati ad attribuire alla realtà *tout court*. La narrazione introduce a sua volte un elemento necessariamente legato alla sfera delle emozioni, emozioni di cui, come abbiamo già detto, è stato finalmente

[1] "Perché la falsità dei termini non implica fatalmente quella della loro relazione" in Beckett S., *Molloy*, p. 120.

riconosciuto il valore cognitivo. Ci si potrebbe chiedere a questo punto perché si debba attribuire al cinema un significato pedagogico particolare che lo stacca dalle altre forme di spettacolo. Il cinema non è più, da anni, l'unico mezzo "narrativo"; è stato affiancato prima dalla televisione, poi dai nuovi strumenti cosiddetti multimediali (anche il cinema è multimediale) o interattivi. La televisione, in particolare, ha portato via spettatori al cinema, questo è fuor di dubbio. Ha però avuto l'effetto, essendo considerata una pratica bassa, di collocare il cinema in una fascia più alta, sia culturalmente che qualitativamente. Il cinema conserva dunque un'idea di autorialità che è appunto un termine che trascina con sé un'idea di autorevolezza. Diviene così un linguaggio "forte", in grado di penetrare forse più incisivamente nella mente dei discenti di quanto non siano più in grado di fare pratiche d'aula ancorate a modelli prevalentemente verbali. È altrettanto evidente come la presenza del cinema nelle pratiche formative si configuri come una forma di riutilizzo, avvicinandosi in tal modo alle innumerevoli esperienze artistiche che si possono ricondurre alla *poetica del frammento* o al concetto, appunto, di *riutilizzo* (dall'*objet trouvé* di Marcel Duchamp all'*assemblage* di Joseph Cornell, dal *Trash* alla *Green Art*) e che hanno avuto grande rilevanza anche nel cinema (si pensi al cosiddetto *Found Footage* o ad un'opera cruciale come "Historie(s) du Cinema" di J.L. Godard). Inoltre ha avuto spesso l'effetto di operare una sorta di ri-significazione e di ri-contestualizzazione con esiti a volte sorprendenti. Ma c'è di più. Fra le direzioni che questo riutilizzo di opere cinematografiche può prendere, ce n'è una su cui vale la pena di riflettere. La si può definire un effetto di "ri-estetizzazione", intesa come capacità di sentire il mondo (che si contrappone alla "anestetizzazione" che è invece uno degli effetti generalmente attesi - se non voluti - dal sistema mass-mediale). Il cinema diviene così una pratica ri-estetizzante e favorisce quel processo di *separazione* e *distinzione* che sono i due termini con cui si traduce di solito il termine greco "*krinein*", termine da cui deriva fra l'altro l'italiano "critica": uscire dall'aula, fisicamente o metaforicamente, e vedere un film, in quanto separazione e distinzione, è già una forma (di) critica. E una posizione "critica" nei confronti degli artefatti mediali di cui è costituito il nostro panorama esperienziale è la pre-condizione indispensabile non solo per l'auto-formazione ma prima di tutto per una *cittadinanza del mondo* consapevole e matura.

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Original research papers

The green investments and competitiveness of the Italian manufacturing system[1]

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Abstract

Purpose of the paper: *This paper aims to verify whether investments in climate change mitigation and adaptation would result in sectoral gains in relation to the way in which resources are allocated and used, thus potentially contributing to the competitiveness of Italian manufacturing firms.*

Methodology: *We carried out an econometric analysis on a data set drawn from the annual Istat Structural Business Statistics (SBS) with specific reference to manufacturing sectors based on their size class during the middle years of the economic crisis (2009-2012).*

Findings: *We find that expenditures in climate change mitigation and adaptation have positive and significant effects on business performance in terms of labour productivity over the whole period considered.*

Research limits: *Some limitations apply to this study. The relationship between investments in environmental technologies and different measures of economic performance should be explored, possibly from a comparative perspective. Additional research is also needed to explore firm-level environmental behaviours in order to bring out potential heterogeneity and difference in economic performances.*

Practical implications: *Our results are in line with the hypothesis that firms having environmental concerns and devoting substantial resources to green technologies may also improve their economic performance and competitiveness. Evidence from this study also indicates that there is great potential in adopting more proactive environmental strategies other than compliance-driven ones. From this perspective, the so-called Paris Agreement creates huge market opportunities at a global level.*

Originality of the paper: *Several studies have recently attempted to assess the effects of the decarbonisation process on business performance and industrial competitiveness. This paper brings new insights into the economic effects of environmental activities and green management by focusing on the relationship between investments in green technologies and productivity, still regarded as the foundation of industrial competitiveness.*

Key words: green technologies; investments; productivity; manufacturing industry; environmental policies

[1] Disclaimer:
The views expressed in the article are those of the authors and not of the institutions they are affiliated with.
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1. Introduction

Several studies have recently attempted to assess the effects of the decarbonisation process on business performance and industrial competitiveness. The persisting economic crisis has further widened the divergence between those who identify environmental protection as a burden, particularly for the manufacturing sector, and those who, by contrast, envisage major opportunities for future growth precisely in more sustainable economic processes (Rodrik, 2014).

While the adoption of environmental management in the organizational and production process has increasingly become a strategic issue within the current competitive scenario (Ki-Hoon, 2009), there are no clear-cut conclusions concerning the nature of the relationship between environmental proactivity and economic performances.

As a matter of fact, global investments in the so-called green sectors have increased exponentially, signalling an expanding commitment in environmental protection, although mainly as a result of the support policies that are implemented, to different extents, in many countries. Looking at renewable energies, often considered as a good proxy of overall trends, global expenditures in environmental sustainability have increased more than fivefold between 2004 and 2014, going from only 45.1 billion to 270.2 billion U.S. dollars, with an average annual growth of 20% (Frankfurt School-UNEP, Bloomberg New Energy Finance, 2015). This is a much more marked increase compared to the totality of the investments, which grew by about 7% in annual average over the same period (IMF, 2015). The economic crisis has only partially hindered the described trend, which is instead bound to strengthen further over the next decades insofar as the new agreement negotiated in the Paris Climate Conference (COP21) to contain the increase of global warming under 2°C will be effectively put into place.

Full assessment of the economic effects of green investments is complex (Iraldo *et al.*, 2011). From a theoretical point of view, the existence of a potential conflict between environmental sustainability and economic, as well as financial, performances has been progressively called into question on company, sectoral or national levels (Jaffe *et al.* 2003; Rodrik, 2014). Following the seminal contributions of Porter (1991) and Porter and van der Linde (1995), attention has mostly been paid to the economic consequences of environmental regulation and the effectiveness of the different regulatory instruments that can be potentially introduced (Koźluk and Zipperer, 2013; Dechezleprêtre and Sato, 2014). More recently, managerial studies founded on a resource based view framework contributed to shift the focus on the competitive benefits of green management and firms environmental conducts, regardless of whether or not they were the outcomes of specific obligation (Hart, 1995; Hart and Dowell, 2011; Pane Haden *et al.*, 2009; Costantini and Mazzanti, 2012). Indeed, improvements in environmental performance can be the results of a complex set of motivations that are not mutually exclusive, ranging from standard financial considerations to compliance and domestic law and regulation, or from ethical and social concerns to marketing policies. When beyond-compliance behavior is

taken into account, the subsequent effects can be rather different both at a firm and industry level. Potential competitive advantages can stem from a more efficient use of resources, future cost savings, gains in productivity, the opening of new market opportunities, reduced cost of compliance, etc. (Ambec and Lanoie, 2008). Results from empirical literature are however inconclusive in validating or confuting theoretical considerations (Albrizio *et al.*, 2014). Therefore, there is still space for further in-depth analysis, especially in understanding the effects of investments in green technologies on productivity, still regarded as the basis of industrial competitiveness.

For the purpose of bringing new insights into the economic effects of environmental activities, the present article contributes to the empirical investigation of the relationship among investments at an industry level to improve the environmental performances and resource productivity of Italian manufacturing firms. More specifically, the aim is to verify whether investments in climate change mitigation and adaptation would result in sectoral gains in terms of the way resources are allocated and used, thus potentially contributing to firms' competitiveness; if there is a specific role in the productivity gains of green investments compared to other types of investments; whether improvements in productivity are eventually related to technologies that are adopted by firms; and, finally, if those gains rest on the structural characteristics of industries, such as average firm size and energy and raw material intensity, rather than specific environmental policies in combating climate change. Indeed, the industry still remains a key level of analysis for scholars since literature has emphasised that the ability of firms to benefit from green management differs across sectors since they are strongly influenced by specific features of the production process and relative international pressure on the optimization of the use of natural resources, as well as the existence of market-based environmental policies (Koźluk and Zipperer, 2013; Albrizio *et al.*, 2014). Our focus is on investments in green technologies, considered as a proxy of the commitment to green management and to potential improvements in environmental performances (Albrizio *et al.*, 2014). According to Eurostat's definition, green investments are expenditures «resulting from actions and activities which have as their prime objective the prevention, reduction and elimination of pollution and any other degradation of the environment». As is known, in green technologies, the literature distinguishes between integrated technologies (ITs) and end-of-pipe technologies (EOPTs). Although both have the aim of limiting polluting emissions, ITs reduce emissions prima facie by modifying the polluters' production process and/or by adopting cleaner production methods, while EOPTs curb emissions by implementing add-on measures such as anti-pollution devices (Frondel *et al.*, 2007). As ITs generally include the development of new products and/or new production processes, they are considered potentially more advantageous from an economic, as well as an environmental, point of view (Antonietti and Marzucchi, 2013).

The rest of the paper is organised as follows. Section 2 sets the theoretical background to the linkages between green investments and economic performance, with particular reference to productivity. Section 3 presents the empirical analysis carried out on national statistical data and discusses the results. Section 4 looks at managerial implications and concludes.

2. Relationship between investments in green technologies and productivity: theoretical background

The analysis of the relationship between investments in green technologies and productivity is traditionally placed within the wider theoretical debate about the effectiveness of environmental policies and their impact on the competitiveness of firms, industrial sectors and national economies. It is an extremely prolific body of research that was progressively enriched over the last few years as a consequence of the increasing need of a better understanding of the economic effects of environmental policies (Jaffe *et al.*, 1995; Lanoie *et al.* 2008; Morelli and Meleo, 2013; Ambec *et al.*, 2013; Iraldo *et al.*, 2011; Koźluk and Zipperer, 2013; Dechezleprêtre and Sato, 2014; Albrizio *et al.*, 2014).

Even if extremely wide, there are at least two main threads from which theory and insights might be woven.

The first starts from the idea that an investment that is capable of improving productivity will always be made, irrespective of whether it has an environmental purpose or not (Jaffe *et al.*, 1995). Since environmental regulations are promoted to internalise a (negative) externality, their introduction inevitably determines an increase in the cost of the inputs, a reduction in the range of technologies that can be potentially adopted by firms and a deduction of financial resources to more profitable investments (Ambec *et al.*, 2013). Therefore, the expected economic impacts are negative, or neutral at most. As a consequence, an investment in climate change mitigation and adaptation could not be carried out by firms without any specific obligation, no matter if it is imposed by environmental standards, or market based instruments, such as taxes, subsidies, or authorisations (Dechezleprêtre and Sato, 2014; Rubashkina *et al.*, 2014). It is recognised, however, that the overall impact might be different between firm, industry and national level (Iraldo *et al.*, 2011; Koźluk e Zipperer, 2013).

An alternative theoretical point of view rests on the belief that environmental regulation, on the contrary, could reinforce the competitive position of firms, enhancing their performance (Porter, 1991; Porter and van der Linde, 1995). Under the condition that the environmental policies are well designed and properly implemented, the expected effect in terms of productivity will therefore be positive (Lanoie *et al.*, 2008; Brännlund and Lundgren, 2009). Productivity growth would be the effect of the benefits derived from the push towards innovation and technological change that environmental regulation is able to stimulate, whose extent would be such as to overcompensate inevitable compliance costs (Porter and van der Linde, 1995; Frondel *et al.*, 2007). The potential advantages would go beyond that, both with reference to the single firm - more efficient use of resources, access to new markets, increase in product value and differentiation, etc. - and looking at the economic system as a whole - growth in competitiveness, increase in employment, etc. (Ambec and Lanoie, 2008). The solidity of the so-called Porter hypothesis has been, as is well known, a matter of intense debate with an increasing number of contributions trying to empirically settle the theoretical controversy (Ambec *et al.*, 2013; Rubashkina *et al.*, 2014). So far, evidence at firm,

industry and aggregate levels does not allow definitive conclusions to be drawn (Jaffe and Palmer, 1997; Costantini and Mazzantini, 2012; Antonietti and Marzucchi, 2014).

Focusing on industry studies dealing more directly with effects in terms of productivity and in particular with the role of firms' investments in green technologies, literature has mainly focused on more polluting sectors and those characterised by more stringent environmental regulations (Koźluk and Zipperer, 2013). Besides, investments in green technologies have been mainly regarded as a proxy of the impact of environmental regulation on firms' strategies (Gray and Shadbegian, 1998; Lanoie *et al.* 2008).

Hamamoto (2006) highlights an increase in investments in research and development, used as a proxy of the innovating activity, connected to a subsequent productivity growth that tends to progressively decrease in five sectors of the Japanese industry with a high environmental impact. A positive impact of environmental regulation on innovative and productive activities is also noticed by Yang *et al.* (2012) with reference to various sectors of the manufacturing industry in Taiwan, whereas Lanoie *et al.* (2008), in focusing on Canadian manufacturing industry, demonstrate that the positive effect on productivity of a stricter environmental regulation is actually delayed due to initial compliance costs, and is generally stronger in the sectors that are most exposed to international competition. Comparing US and Mexican food industry and still using the frequency of environmental inspections as an explanatory variable, Alpay *et al.* (2002) find a null effect on the productivity of the expenditures made for the control and the reduction of pollution in the US, and a positive impact in Mexico. Rubashkina *et al.* (2014) analyse the impact on a European level of environmental regulation on the economic performance of manufacturing sectors, highlighting how stricter policies stimulate innovative activity (with the number of patents as a proxy) but do not seem to affect growth levels and rates of the total factor productivity. Chen e Golley (2014) estimate a lower growth of the total factor productivity in emission-intensive sectors characterised by a high capital/labour ratio, a higher presence of public enterprises and a lower percentage of small enterprises. Albrizio *et al.* (2014) estimate the effects of a stricter environmental regulation at firm, industry and national levels on OECD countries. On a macroeconomic level, the initial negative effect determined by a greater rigidity of the environmental regulation seems to be compensated by a subsequent productivity growth with a negligible net impact over the medium term. On an industry level, the productivity effect would be rather positive in the short term, but less and less relevant when gradually drifting away from the technological frontier and from the most technologically advanced industries; finally, the positive impact would be extremely restricted at a firm level, affecting only a third of the considered firms, while it is even negative for lower productivity firms. In addition, larger firms could eventually benefit more from environmental policies changes due to a more rapid adoption of technologies, the opportunity to better exploit new markets' opportunities, and to externalise and outsource abroad at least part of the production.

More recently, investment decisions in climate change mitigation and adaptation have started to be analysed in the light of the firm's overall

strategy without limiting itself to the compliance to environmental regulations (Antonietti and Marzucchi, 2014). Growing concerns about climate change, together with the persisting economic crisis, have provided a further boost towards strategies of investments in technologies capable of improving environmental performances as well as re-launching productivity dynamics and growth (OECD, 2015).

In this perspective, many studies have emphasised the distinction between EOPTs and ITs. Analysing the determinants of firms' investments, Frondel *et al.* (2007) show that investment in EOPTs is determined at least in part by environmental regulations, while the adoption of ITs can reflect more complex reasons and depends, among other things, on market factors. The role of ITs, however, remains difficult to assess, as they should be placed among the firms' wider investment strategies (Klassen, 2000). With reference to a sample of Italian manufacturing industries, Antonietti and Marzucchi (2013) show that the firms that have invested in environmental technologies and in a more efficient use of raw materials have experimented an improvement of the export capacity, especially in countries that adopt stricter environmental legislation. In one of the few studies that explicitly consider the possibility that green technologies can be the result of reasons that differ from the obligations imposed by environmental regulations, Antonietti and Marzucchi (2014) highlight a positive impact of investments in ITs only for firms characterised by lower levels of productivity. However, positive responses seem to be limited to the investments in ITs that aim at the reduction of the consumption of raw materials.

3. Empirical analysis

3.1 Data

The empirical analysis of the relationship between green investments and industrial productivity is based on a data set drawn from the Structural Business Statistics (SBS) annual statistics by Istat, the Italian National Institute of Statistics.

The data refer to all manufacturing sectors, with the exception of the manufacturing of tobacco products, according to the Nace Rev.2 classification at a 2-digit level and to different enterprise size classes, defined in terms of the number of persons employed (fewer than 10 employees, 10-19; 20-49; 50-249; 250 and more). As known, SBS describe the structure, activity, competitiveness and performance of economic activities across the European Union (Istat, 2014). Table A.1 reports the breakdown of Italian manufacturing firms by sector and size class. We estimate some missing data that was not published for determined sector/size classes by Istat for confidentiality reasons but was needed to compute specific variables by means of the application of direct or indirect methods, starting from information derived from other sources of administrative or statistic nature and through the construction of specific parameters.

Focusing on industry-level data has several advantages for the purposes of our study. First, they are designed to be representative of the entire universe of manufacturing activities, thus providing a more comprehensive view on firms' investment trends in the last few years and on their economic effects. It should be noted that investments have been largely hindered by economic crises with high variability among sectors. According to Istat (2014), overall investments by Italian manufacturing firms have declined on average by 6% per year over the 2010-2012 period, while investments in environmental protection, amounting to 2.5 billion euros, proved to be substantially flat in the same period and largely concentrated in large enterprises. In this regards, SBS also provide detailed information on the amount of investments made by Italian firms in environmental protection, which are distinct from other business purposes (such as construction, machinery and equipment, transport vehicles , etc.). Moreover, investments in environmental protection are further classified as investments in EOPTs and ITs, allowing to take into account their potential different effects in business performances (Istat, 2013; Frondel *et al.*, 2007). In the 2009-2012 period, about 69% of green investments by Italian manufacturing firms have been directed to EOPTs. However, while this latter has decreased annually by 8% in the last few years of the economic crisis, investments in ITs have shown an average annual increase of 17% in the same period. Finally, the Istat survey builds a set of data for a greater understanding, at least in monetary terms, of the linkages between production activities and resource consumption, including the use of raw materials and energy inputs.

3.2 Empirical strategy

Consistent with recent empirical studies on industry-level data (Issoufou and Ouattara, 2011; Costantini and Mazzanti, 2012; Antonietti and Marzucchi, 2014; Dognay *et al.*, 2014), we test the research hypothesis by employing an OLS regression.

The effects of investments on economic performance is carried out using two different empirical specifications, where labour productivity at a sectorial level is the dependent variable used as a measure of performance and expressed in terms of real gross value added per hour worked[2].

In the first specification, labour productivity is expressed in absolute values. For this reason, this specification can be defined *structural*, since it aims to test whether investments made by manufacturing firms in the last few years contribute in explaining the current level of sectorial labour productivity.

Analytically, the estimated equation is the following:

$$LP_{ijt_f} = \beta_0 + \beta_1 ARInvG_{ijt_0-t_f} + \beta_x \boldsymbol{I}_{ijt_0-t_f} + \beta_x \boldsymbol{X}_{ijt_0} + \beta_z \boldsymbol{Z}_{ij} \quad [1]$$

In equation [1], LP represents the level of labour productivity in the last year (2012), calculated with reference to each sector *i* Nace Rev.2 (2-digit) and size class *j*, while t_0 represents the first year of the considered time horizon (2009) and t_f represents the last year (2012).

[2] The data on gross value added were opportunely deflated using deflators derived from National economic accounts.

To control for the inherently lagged impacts of investments on economic performance, the investment variable is measured in terms of accumulation rate, that is the ratio of investments to gross value added in the 2009-2012 period (*ARInvG*)[3]. It should be noted that, according to Confindustria (2015), Italian managers usually set the longest acceptable payback period for investments in environmental protection technologies at four or five years. Moreover, the accumulation rate allows them to also control for the high variability of firms' investments, especially in time series analyses. This is particularly true for investments in green technologies that suffer from government decisions on support schemes in addition to other broad macroeconomic determinants such as global risks, economic climate, investors' expectations, and so on.

Vector I includes, within the limits that such a classification inevitably entails, a further categorization of the investments which is aimed at verifying the linkages between expenditures in environmental protection and other capital investments (such as investments in buildings, machinery and equipment, furniture and other equipment, transport vehicles, other assets, patents[4]). Especially when ITs are considered, the decision to invest in environmental protection can only be hardly analysed independently from the overall business objectives of the firms (Klassen, 2000).

Finally, vector X indicates a set of variables, considered at the initial year t_0 of the period (2009), which are used as proxies of the sectorial weight of environmental protection and natural resources issues on investment decisions at a managerial level. More in detail, they refer primarily to resource intensity, which is a measure of efficiency of resource use and is calculated as the value of expenditure in raw materials per unit of product, and to energy intensity, that is the value of expenditure in energy inputs per unit of product. Although rather imprecise, it is expected that the greater value of such indicators, also related to the cost of fossil fuels, may either be a signal of larger future productivity gains deriving from investments in resource efficiency or create competitiveness concerns, especially when their products are traded internationally, due to comparative higher investment costs, to increase environmental sustainability (Eyraud *et al.*, 2011). In contrast, to not completely ignore industry-level differences in environmental mandatory regulations, we include a variable reflecting if the sector is covered by the European Union Emissions Trading Scheme (EU-ETS) in our regressions. As is known, the EU-ETS is the cornerstone of the EU's strategy to limit or reduce greenhouse gas emissions and it covers, above certain capacity thresholds, power stations and other combustion plants, oil refineries, coke ovens, as well as iron and steel plants

[3] Analytically, the accumulation rate (ARInv) is calculated as follows:

$$ARInvG_{t_0-t_f} = \frac{\sum_t Inv_{ijt}}{\sum_t VA_{ijt}}$$

where t varies from t_0 to t_f for $t_0 = 2009$ and $t_f = 2012$, *Inv* represents the nominal investment spending in green technologies and *VA* the sectorial gross value added of NACE 2-digit sector *i* and size class *j*.

[4] Consistently, Istat survey does not take into consideration green investments as an independent category, but as a sub-classification of the different types of capital investments that are traditionally considered.

and factories making cement, glass, lime, bricks, ceramics, pulp, paper and board[5]. The way environmental mandatory regulations affect economic efficiency and business performance remains a highly controversial issue on an empirical level (Borghesi *et al.*, 2014).

Lastly, vector Z includes control variables related to the particular sector and size class in terms of employment and production. To take into account for endogeneity, we also include the level of productivity at the initial time t_0.

The second empirical specification uses the time variation of labour productivity, ΔLP, comparing the average level of the 2011-12 biennium with the average level of the 2009-10 biennium. This specification can be labelled as dynamic, because it seeks to test the effect of investments in green technologies on labour productivity trends. Analytically, the estimated equation is the following:

$$\Delta LP_{ijt_f} = \beta_0 + \beta_1 ARInvG_{ijt_0-t_f} + \beta_x \boldsymbol{I}_{ijt_0-t_f} + \beta_x \boldsymbol{X}_{ijt_0} + \beta_z \boldsymbol{Z_{ij}} \quad [2]$$

In analogy with specification [1], ARInvG represents the accumulation rate of investments in green technologies; vector I represents the corresponding accumulation rate of investments in buildings, machinery and equipment, furniture and other equipment, transport vehicles , other assets and patents. Vector X is the vector of control variables (production value, employment, energy and raw material intensity and labour productivity), always considered at the initial year t_0; finally, vector Z includes dummy variables referring to the sector and size class in terms of persons employed.

The analysis in dynamic terms of the relationship between investments in green technologies and productivity can provide additional information. In this respect, it has been considered appropriate to further subdivide the investments into green technologies, distinguishing between investments in EOPTs and in ITs.

Tables A.2 and A.3 present the variables used in the econometric analysis and some descriptive statistics. Table A.4 reports the correlation matrix among the variables.

3.3 Results

Overall, the results show that investments in green technologies have a strong impact on labour productivity of manufacturing sectors both in structural terms (specification 1) and in dynamic terms (specification 2).

In the attempt to check for the robustness of the estimates, for each specification, Model A only considers variables related to firms investments; Model B includes the variables related to energy and raw material intensity; Model C includes the variable *ets* reflecting if the sector is covered by the EU-ETS; finally, considering that *ets* and energy intensity variables are highly correlated[6], model D includes only *ets* without considering energy intensity. The dataset comprises 115 records.

[5] The EU-ETS sectors correspond to NACE Rev.2 divisions 17, 19, 23, 24 and 25 (Ecorys, 2009).

[6] The four considered EU-ETS sectors are among the first five sectors with high energy intensity.

The positive relationship between investments in green technologies and the way resources are allocated and used, as measured by labour productivity, is robust and meaningful to all the different models tested within each specification. Sectors with higher investments in climate change mitigation and adaptation during the economic crisis have thus experimented improvements in labour productivity. Tables 1 and 2 report the results of the econometric analysis.

Conversely, we find that other capital investments, such as investments in buildings, machinery and equipment, furniture and other equipment, transport vehicles, other assets, and patents do not have the same significant effects on labour productivity. This evidence may be explained in light of the observed trend of fixed investments, which strongly declined during the economic crisis. However, many investments made by firms have multiple purposes (Istat, 2014).

It remains difficult to analyse the interaction between green investments and other capital investments because of the intrinsic problem to isolate and measure the differential contribution of green technologies in terms of the improvement of economic performance (Leiter *et al.*, 2009). This is especially true for investments in machinery and equipment which should theoretically represent the asset category more closely related to the accumulation process and the potential adoption of new technologies in sectors other than manufacturing. Indeed, we estimate a positive effect of investments in machinery and equipment on labour productivity in the dynamic specification. Perhaps more complex variables that consider the interaction between different investments are needed in order to capture this effect. Contrary to what was expected (Chen e Golley, 2014), the results show the absence of a significant relationship between labour productivity and the resource- or energy-intensive nature of single sectors both in the structural and dynamic specifications. In other words, such a result indicates that different values of raw materials and energy expenditures per unit of product are not directly linked to labour productivity. This, in turn, suggests caution in considering them as indicators of related opportunities of manufacturing sectors by improving their efficiency through environmental expenditures.

Among the structural characteristics, we find a positive and significant relationship with the size of the firm at least in the structural specification. More in detail, the estimated coefficients increases along with the enterprise size class, together with an increase in significance. This may point to the existence of some sort of "scale factor" related to the amount of made investments, with greater benefits in terms of resource productivity that would be realized once certain expenditure thresholds are exceeded. Albrizio *et al.* (2014) have argued that the adoption of environmentally friendly practices are associated with larger financial and human resources and that larger firms have better opportunities to benefit from environmental activities.

Tab. 1: Effects of green investments on productivity. Structural specification

	(A)	(B)	(C)	(D)
ARInvG09-12	190.200*** (2.993)	185.196*** (3.427)	185.196*** (3.427)	169.476*** (3.208)
ARInvConstr09-12	33.896 (1.475)	50.109** (2.535)	50.109** (2.535)	55.426*** (2.857)
ARInvMachEquip09-12	-21.498 (-1.274)	-3.408 (-0.218)	-3.408 (-0.218)	-12.234 (-0.869)
ARInvFurnOEquip09-12	-94.747 (-1.326)	-1.856 (-0.030)	-1.856 (-0.030)	-5.871 (-0.096)
ARInvTransp09-12	-245.481* (-1.719)	-184.428 (-1.556)	-184.428 (-1.556)	-180.132 (-1.514)
ARInvOthers09-12	106.202 (0.461)	164.714 (0.831)	164.714 (0.831)	230.544 (1.200)
ARInvPat09-12	6.236 (0.055)	-73.552 (-0.773)	-73.552 (-0.773)	-68.050 (-0.713)
LP09	0.360*** (3.569)	0.474*** (5.303)	0.474*** (5.303)	0.436*** (5.156)
ProdN09	0.000 (-1.006)	0.000 (0.367)	0.000 (0.367)	0.000 (0.613)
EmplT09	0.000 (0.695)	0.000 (-0.260)	0.000 (-0.260)	0.000 (-0.539)
Energy_prodN		-36.989 (-1.276)	-36.989 (-1.276)	
RawMat _prodN		1.379 (1.636)	1.379 (1.636)	0.306*** (6.028)
size10-19 dummy	0.488 (0.158)	1.029 (0.398)	1.029 (0.398)	1.485 (0.577)
size 20-49 dummy	4.304 (1.266)	4.242 (1.488)	4.242 (1.488)	4.841 (1.715)
size 50-249 dummy	7.597* (1.726)	7.589** (2.081)	7.589** (2.081)	7.935 (2.174)
size 250+ dummy	16.215*** (3.216)	14.136*** (3.379)	14.136*** (3.379)	14.457 (3.449)
sect dummy	Yes	Yes	Yes	Yes
ets dummy			6.246* (1.880)	5.731* (1.731)
Observations	115	115	115	115
R^2	0.931	0.954	0.954	0.953
F	29.167	41.485	41.485	42.218
p-value	0.000	0.000	0.000	0.000

Note: t-statistics in parenthesis; *** p<0.01, ** p<0.05, * p<0.1

Source: own elaboration

However, this result is to be expected, given that the preponderant share of expenditure in green investments during the economic crisis period is ascribable to large firms, while micro and small enterprises maintain a very moderate level of expenditure and accumulation rate. It should be noted that, conversely, there is not a clear and marked positive effect of the variable *ets* in the dynamic specification.

Tab. 2: Effects of green investments on productivity. Dynamic specification

	(A)	(B)	(C)	(D)
ARInvG09-12	3.637** (1.453)	3.851*** (1.407)	3.851*** (1.407)	3.313** (1.352)
ARInvConstr09-12	-0.902* (0.497)	-0.719 (0.474)	-0.719 (0.474)	-0.608 (0.468)
ARInvMachEquip09-12	1.460*** (0.377)	1.750*** (0.381)	1.750*** (0.381)	1.551*** (0.351)
ARInvFurnOEquip09-12	3.838** (1.562)	5.100*** (1.479)	5.100*** (1.479)	4.996*** (1.484)
ARInvTransp09-12	-6.731** (3.088)	-6.939** (2.875)	-6.939** (2.875)	-6.489** (2.868)
ARInvOthers09-12	-3.865 (4.929)	-2.849 (4.762)	-2.849 (4.762)	-1.275 (4.630)
ARInvPat09-12	-1.343 (2.421)	-2.180 (2.248)	-2.180 (2.248)	-2.170 (2.258)
LPm0910	-0.006** (0.003)	-0.006** (0.003)	-0.006** (0.003)	-0.006** (0.003)
ProdNm0910	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
EmplTm0910	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Energy_prodNm0910		-1.231 (0.939)	-1.231 (0.939)	
RawMat_prodNm0910		0.044 (0.027)	0.044 (0.027)	0.009*** (0.002)
size 10-19 dummy	-0.081 (0.067)	-0.070 (0.062)	-0.070 (0.062)	-0.061 (0.062)
size20-49 dummy	-0.078 (0.075)	-0.077 (0.071)	-0.077 (0.071)	-0.060 (0.070)
size 50-249 dummy	0.014 (0.098)	0.021 (0.092)	0.021 (0.092)	0.036 (0.092)
size 250+ dummy	0.116 (0.115)	0.101 (0.107)	0.101 (0.107)	0.115 (0.107)
sect dummy	Yes	Yes	Yes	Yes
ets dummy			0.057 (0.081)	0.046 (0.081)
Observations	115	115	115	115
R^2	0.611	0.676	0.692	0.510
F	3.399	4.176	4.176	4.203
p-value	0.000	0.000	0.000	0.000

Note: t-statistics in parenthesis; *** p<0.01, ** p<0.05, * p<0.1

Source: own elaboration

Confirming Jaraité and Di Maria (2012), we find a positive correlation between the inclusion of sectors in EU-ETS and the level of labour productivity. This result provides interesting empirical insights on the debate on the effectiveness of environmental policies and the economic consequences of beyond-compliance behaviours (Koźluk and Zipperer, 2013; Albrizio *et al.*, 2014). Indeed, such a result offers support to Porter's argument that strict environmental regulation may lead to improvements in the productivity with which resources are used (Frondel *et al.*, 2007; Lanoie *et al.*, 2008; Brännlund and Lundgren, 2009; Albrizio *et al.*, 2014). Furthermore, once the variable related to energy intensity is eliminated from the model due to its high correlation with the *ets* variable, the latter still has a positive effect on labour productivity, although it slightly

decreases. The described evidence could also be the reflection of investment strategies combining the need to conform to environmental laws and regulations with more advanced environmental management to improve resource productivity and hence competitiveness.

The outcomes of the separate regressions on ITs and EOPTs are shown respectively in Tables 3 and 4. We find that both investments in ITs and EOPTs have a positive effect on labour productivity. It should be noted that ITs generally show a higher intensity of effect, although with a lower significance of relationship (always at 10% except for the model reported in Column D in Table 4). This confirms the argument that ITs are potentially more advantageous - from an economic as well as environmental point of view - than EOPTs (Frondel *et al.*, 2007), although the specific role of ITs on business performances remains difficult to assess (Klassen, 2000).

Tab. 3: Effects of green investments EOPTs on productivity. Dynamic specification

	(A)	(B)	(C)	(D)
ARInvGeop09-12	4.403** (1.726)	4.653*** (1.652)	4.653*** (1.652)	4.113** (1.600)
ARInvConstr09-12	-0.893* (0.496)	-0.700 (0.472)	-0.700 (0.472)	-0.596 (0.466)
ARInvMachEquip09-12	1.470*** (0.376)	1.751*** (0.380)	1.751*** (0.380)	1.561*** (0.349)
ARInvFurnOEquip09-12	3.779** (1.559)	5.047*** (1.475)	5.047*** (1.475)	4.957*** (1.479)
ARInvTransp09-12	-6.518** (3.091)	-6.682** (2.872)	-6.682** (2.872)	-6.273** (2.864)
ARInvOthers09-12	-3.846 (4.922)	-2.716 (4.741)	-2.716 (4.741)	-1.250 (4.612)
ARInvPat09-12	-1.406 (2.416)	-2.253 (2.240)	-2.253 (2.240)	-2.229 (2.249)
LPm0910	-0.006** (0.003)	-0.005* (0.003)	-0.005* (0.003)	-0.006** (0.003)
ProdNm0910	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
EmplTm0910	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Energy_prodNm0910		-1.162 (0.928)	-1.162 (0.928)	
RawMat_prodNm0910		0.042 (0.027)	0.042 (0.027)	0.009*** (0.002)
size 10-19 dummy	-0.079 (0.067)	-0.067 (0.062)	-0.067 (0.062)	-0.058 (0.062)
size20-49 dummy	-0.076 (0.075)	-0.073 (0.071)	-0.073 (0.071)	-0.057 (0.070)
size 50-249 dummy	0.016 (0.098)	0.025 (0.092)	0.025 (0.092)	0.040 (0.091)
size 250+ dummy	0.117 (0.115)	0.103 (0.107)	0.103 (0.107)	0.118 (0.106)
sect dummy	Yes	Yes	Yes	Yes
ets dummy				0.041 (0.091)
Observations	115	115	115	115
R^2	0.612	0.678	0.678	0.671
F	3.415	4.208	4.208	4.248
p-value	0.000	0.000	0.000	0.000

Note: t-statistics in parenthesis; *** p<0.01, ** p<0.05, * p<0.1

Source: own elaboration

The positive effects of EOPTs on labour productivity contrast with the findings of Antonietti and Marzucchi (2013) and, in general, with the view that, as green investment adoption is often the outcome of behaviours of mere compliance to environmental regulations, they inevitably cause additional costs, which in turn erode a firm's global competitiveness (Ambec *et al.*, 2013). Such a result is of particular interest, since EOPTs represent more than two-thirds of total investments in the environmental protection of Italian manufacturing firms.

Tab. 4: Effects of green investments in ITs on productivity. Dynamic specification

	(A)	(B)	(C)	(D)
ARInvGtech09-12	12.359*	12.267*	12.267*	9.504
	(7.189)	(7.209)	(7.209)	(6.754)
ARInvConstr09-12	-0.945*	-0.754	-0.754	-0.649
	(0.506)	(0.489)	(0.489)	(0.480)
ARInvMachEquip09-12	1.436***	1.700***	1.700***	1.533***
	(0.385)	(0.391)	(0.391)	(0.360)
ARInvFurnOEquip09-12	3.933**	5.160***	5.160***	5.042***
	(1.600)	(1.527)	(1.527)	(1.525)
ARInvTransp09-12	-7.580**	-7.757**	-7.757**	-7.231**
	(3.144)	(2.970)	(2.970)	(2.934)
ARInvOthers09-12	-3.610	-2.386	-2.386	-0.981
	(5.028)	(4.916)	(4.916)	(4.748)
ARInvPat09-12	-1.300	-2.142	-2.142	-2.180
	(2.475)	(2.320)	(2.320)	(2.322)
LPm0910	-0.006**	-0.006**	-0.006**	-0.006**
	(0.003)	(0.003)	(0.003)	(0.003)
ProdNm0910	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
EmplTm0910	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Energy_prodNm0910		-1.073	-1.073	
		(0.988)	(0.988)	
RawMat_prodNm0910		0.040	0.040	0.009***
		(0.029)	(0.029)	(0.002)
size 10-19 dummy	-0.099	-0.089	-0.089	-0.079
	(0.067)	(0.064)	(0.064)	(0.063)
size 20-49 dummy	-0.100	-0.099	-0.099	-0.083
	(0.076)	(0.072)	(0.072)	(0.071)
size 50-249 dummy	-0.016	-0.009	-0.009	0.005
	(0.099)	(0.093)	(0.093)	(0.092)
size 250+ dummy	0.086	0.070	0.070	0.083
	(0.116)	(0.109)	(0.109)	(0.108)
sect dummy	Yes	Yes	Yes	Yes
ets dummy			0.015	0.013
			(0.084)	(0.084)
Observations	115	115	115	115
R^2	0.595	0.657	0.657	0.652
F	3.180	3.835	3.835	3.898
p-value	0.000	0.000	0.000	0.000

Note: t-statistics in parenthesis; *** p<0.01, ** p<0.05, * p<0.1

Source: own elaboration

4. Conclusions and managerial implications

The relationship between investments in green technologies and business performance has been hotly debated in the last few years. Understanding whether green management has any economic benefits has become even more relevant in light of the economic crisis, since environmental practices and supply-chain sustainability were often seen as a means to improve firms' competitive advantages.

This article relies on SBS data to provide further empirical evidence on the effects of investments in green technologies and on the way resources are allocated and used at an industry level, focusing in particular on Italian manufacturing sectors and on the central years of the economic crisis. Confirming the existing literature (Albrizio *et al.*, 2014), we find that expenditures in climate change mitigation and adaptation have positive and significant effects on business performance in terms of labour productivity over the whole period considered. Improvements in economic performance are not correlated with the raw materials and energy-intensive nature of single sectors, when used as indicators of the related dependency on natural resources and energy inputs at least in monetary terms. From a different point of view, this could imply that these factors are not necessarily penalising in the enhancement of competitiveness of the firm. We found that the inclusion of sectors in EU-ETS has a positive impact on labour productivity that is in line with the findings of previous research on Porter's hypothesis (Frondel *et al.*, 2007; Lanoie *et al.*, 2008; Brännlund and Lundgren, 2009; Albrizio *et al.*, 2014). Finally, there is also some support for the view that investments in EOPTs, even if merely aimed to meet legal requirements, may positively influence economic performances although at a sectoral level. Moreover, in confirming the existing literature (Antonietti and Marzucchi, 2013), we find new evidence in support of the positive impact of ITs.

From a managerial perspective, our results are in line with the hypothesis that firms having environmental concerns and devoting substantial resources to green technologies may also improve their economic performance and competitiveness (Antonietti and Marzucchi, 2013; Costantini and Mazzanti, 2012; Lanoie *et al.*, 2011). The positive effect on labour productivity may be the result of the reduction of inefficiencies caused by pollution as well as of savings in raw materials, water and energy usage deriving from green technologies. Since firms investing in green technologies are those with a greater propensity to innovate, and considering that a large amount of innovation is often embedded in these kind of investments, the latter also stimulate organisational learning and the development of human resources, such as to trigger a virtuous "green-innovation-skills" circle (Symbola Foundation, Unioncamere, 2016). After all, the relationship between green investments and productivity proves to be strong both in structural and in dynamic terms, confirming how such investments may lead to competitive advantages. Evidence from this study also indicate that there is great potential in adopting more proactive environmental strategies than compliance-driven ones. As observed, more than two-thirds of total expenditures in environmental protection has been devoted to EOPTs during the middle years of the economic crisis. Insofar as they often goes together

with radically new products, product redesign, changes in production processes, etc., investments in ITs may promote efficiency and enhance the corporate image, competitive advantage and marketing exposure. After all, the entry into force of the so-called Paris Agreement intends to create huge market opportunities at a global level. This, in turn, suggests that fostering investments to improve environmental performance may bring fundamental early-mover advantages to companies.

Some limitations apply to this study and offer opportunities for further research. Firstly, the relationship between investments in environmental technologies and different measures of economic performance, such as total factor productivity, should be explored. Taking advantage of SBS data, the relationships that are suggested in this paper should be empirically tested in different countries to enable comparative studies. Additional research is also needed to explore firm-level environmental behaviours in order to bring out the potential heterogeneity and difference in economic performances. Finally, the analysis of cause-effect mechanisms between green investments and economic performances would require a longer time horizon than the one available here.

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Appendix

Tab. A.1: Italian manufacturing firms by sector and size class (2012)

	number of enterprises		distribution by size class			
	absolute values	% of total	small	medium	large	Total
10.food products	55,100	13.2	98.6	1.2	0.2	100.0
11.beverages	2,891	0.7	96.5	2.9	0.5	100.0
13.textiles	15,291	3.7	97.2	2.5	0.3	100.0
14.wearing apparel	32,376	7.8	98.8	1.1	0.2	100.0
15.leather and related products	15,692	3.8	97.9	1.9	0.2	100.0
16.wood and products made out of wood and cork	31,720	7.6	99.5	0.5	0.0	100.0
17.paper and paper products	4,054	1.0	93.9	5.5	0.6	100.0
18.printing and reproduction of recorded media	16,289	3.9	99.0	0.9	0.1	100.0
19.coke and refined petroleum products	320	0.1	87.8	7.5	4.7	100.0
20.chemicals and chemical products	4,436	1.1	90.4	8.3	1.4	100.0
21.basic pharmaceutical products and pharmaceutical preparations	464	0.1	58.6	28.0	13.4	100.0
22.rubber and plastic products	10,588	2.5	93.5	5.9	0.6	100.0
23.other non-metallic mineral products	21,420	5.1	97.8	1.8	0.3	100.0
24.basic metals	3,811	0.9	89.1	9.2	1.8	100.0
25.fabricated metal products, except machinery and equipment	69,528	16.7	98.1	1.8	0.1	100.0
26.computer, electronic and optical products	5,520	1.3	94.3	4.8	0.9	100.0
27.electrical equipment	8,971	2.1	94.9	4.2	0.8	100.0
28.machinery and equipment n.e.c.	23,685	5.7	93.3	5.9	0.8	100.0
29.motor vehicles, trailers and semi-trailers	2,326	0.6	86.8	9.4	3.9	100.0
30.other transport equipment	2,638	0.6	93.7	4.7	1.5	100.0
31.manufacture of furniture	19,332	4.6	98.0	1.8	0.2	100.0
32.other manufacturing	30,883	7.4	99.3	0.6	0.1	100.0
33.repair and installation of machinery and equipment	39,967	9.6	99.3	0.6	0.0	100.0
Total manufacturing	417,302	100.0	97.6	2.1	0.3	100.0

Source: own elaboration on Istat data

Tab. A.2: Variable definitions

Variables	Name	Calculation
LP	Labour productivity (level)	Ratio of real value added to number of hours worked (VAreal/H)
ΔLP	Labour productivity (change)	Change medium level 2011-12/medium level 2009-10 (Yt / Yt-1)
ARInvG	Accumulation Rate – total Green Investment	Ratio of total Green Investment to value added (InvG/VA)
ARInvGeop	Accumulation Rate – Green Investment end of pipe	Ratio of Green Investment end of pipe to value added (InvGeop/VA)
ARInvGtech	Accumulation Rate – Green Investment integrated technology	Ratio of Green integrated technology Investment to value added (InvGtech/VA)
ARInvConstr	Accumulation Rate –Investment in Costruction, buildings and structures	Ratio of Investment in Construction, buildings and structures to value added (InvCostr/VA)
ARInvMachEquip	Accumulation Rate –Investment in Machinery and Equipment	Ratio of Investment in Machinery and Equipment to value added (InvMachEquip/VA)
ARInvFurnOEquip	Accumulation Rate –Investment in Furniture and Other Equipment	Ratio of Investment in Furniture and Other Equipment to value added (InvFornOEquip/VA)
ARInvTransp	Accumulation Rate –Investment in Transport vehicles	Ratio of Investment in Transport vehicle to value added (InvTransp/VA)
ARInvOthers	Accumulation Rate –Investment in Other tangible goods	Ratio of Investment in Other tangible goods to value added (InvOther/VA)
TAInvPat	Accumulation Rate –Investment in concessions, Patents, licences, trade marks and similar rights	Ratio of Investment in concessions, Patents, licences, trade marks and similar rights to value added (InvPat/VA)
ProdN	Production value in nominal terms	
EmplT	Total number of persons employed	
Energy_prodN	Energy input per unit of product	Ratio of purchases of energy products to production value (Energy/prodN)
RawMat_prodN	Raw materials input per unit of product	Ratio of purchases of raw materials to production value (RawMat/prodN)
sect	Economic sectors 2digit Nace Rev.2	dummy
size	Size class of persons employed	dummy

Source: own elaboration

Tab. A3: Summary statistics

	Mean	S.D.	Min	Max
LP_{12}	33.7484	17.3346	9.2773	93.2358
ΔLP	1.1117	0.1570	0.5296	1.7019
$ARInvG_{09\text{-}12}$	0.0034	0.0111	0.0000	0.1042
$ARInvGeop_{09\text{-}12}$	0.0023	0.0093	0.0000	0.0892
$ARInvGtech_{09\text{-}12}$	0.0011	0.0023	0.0000	0.0150
$ARInvConstr_{09\text{-}12}$	0.0365	0.0351	0.0007	0.2664
$ARInvMachEquip_{09\text{-}12}$	0.0754	0.0542	0.0039	0.4168
$ARInvFurnOEquip_{09\text{-}12}$	0.0130	0.0123	0.0003	0.0739
$ARInvTransp_{09\text{-}12}$	0.0104	0.0114	0.0001	0.0533
$ARInvOthers_{09\text{-}12}$	0.0039	0.0039	0.0000	0.0225
$ARInvPat_{09\text{-}12}$	0.0055	0.0078	0.0000	0.0450
$ProdN_{09}$	6,836,979	7,350,573	134,571	34,401,017
$EmplT_{09}$	35,520	34,004	459	183,952
$Energy\_prodN_{09}$	0.0388	0.1587	0.0039	1.7145
$RawMat\_prodN_{09}$	0.9469	5.4587	0.2011	58.9647

Source: own elaboration.

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Tab. A4: Correlation matrix

	LP_{12}	ΔLP	$ARInv G_{09\text{-}12}$	$ARInv Geop_{09\text{-}12}$	$ARInv Gtech_{09\text{-}12}$	$ARInv Constr_{09\text{-}12}$	$ARInvMach Equip_{09\text{-}12}$	$ARInvForn OEquip_{09\text{-}12}$	$ARInv Transp_{09\text{-}12}$	$ARInv Others_{09\text{-}12}$	$ARInvPat0_{9\text{-}12}$	$Prod_{N09}$	$EmplT_{09}$	$Energy\_ prodN_{09}$	$RawMat\_ prodN_{09}$
LP_{12}	1.000	0.114	0.393**	0.382**	0.341**	-0.025	0.009	-0.434**	-0.603**	0.279**	0.211*	0.254**	-0.144	0.326**	0.324**
ΔLP	0.114	1.000	-0.013	-0.034	-0.040	-0.038	0.027	0.024	-0.125	0.062	-0.022	0.039	0.019	0.223*	0.217]
$ARInvG_{09\text{-}12}$	0.393**	-0.013	1.000	0.993**	0.826**	-0.057	0.311**	-0.180	-0.132	0.167	-0.024	0.164	-0.097	0.094	0.072
$ARInvGeop_{09\text{-}12}$	0.382**	-0.034	0.993**	1.000	0.778**	-0.060	0.299**	-0.165	-0.128	0.159	-0.005	0.156	-0.091	0.067	0.046
$ARInvGtech_{09\text{-}12}$	0.341**	-0.040	0.826**	0.778**	1.000	0.002	0.320**	-0.187*	-0.112	0.196*	-0.095	0.104	-0.136	0.190*	0.164
$ARInvConstr_{09\text{-}12}$	-0.025	-0.038	-0.057	-0.060	0.002	1.000	0.309**	0.387**	0.240**	-0.168	0.224*	-0.205*	-0.157	-0.050	-0.039
$ARInvMachEquip_{09\text{-}12}$	0.009	0.027	0.311**	0.299**	0.320**	0.309**	1.000	0.100	0.240**	-0.057	-0.004	-0.026	-0.140	-0.013	-0.039
$ARInvFurnOEquip_{09\text{-}12}$	-0.434**	0.024	-0.180	-0.165	-0.187*	0.387**	0.100	1.000	0.581**	-0.298**	0.085	-0.302**	-0.076	-0.103	-0.090
$ARInvTransp_{09\text{-}12}$	-0.603**	-0.125	-0.132	-0.128	-0.112	0.240**	0.240**	0.581**	1.000	-0.214*	-0.008	-0.223*	0.143	-0.078	-0.082
$ARInvOthers_{09\text{-}12}$	0.279**	0.062	0.167	0.159	0.196*	-0.168	-0.057	-0.298**	-0.214*	1.000	0.094	0,215*	0.028	0.026	0.024
$ARInvPat_{09\text{-}12}$	0.211*	-0.022	-0.024	-0.005	-0.095	0.224*	-0.004	0.085	-0.008	0.094	1.000	-0.141	-0.222*	-0.034	-0.031
$ProdN_{09}$	0.254**	0.039	0.164	0.156	0.104	-0.205*	-0.026	-0.302**	-0.223*	0.215*	-0.141	1.000	0.760**	-0.087	-0.085
$EmplT_{09}$	-0.144	0.019	-0.097	-0.091	-0.136	-0.157	-0.140	-0.076	0.143	0.028	-0.222*	0.760**	1.000	-0.068	-0.066
$Energy\_prodN_{09}$	0.326**	0.223*	0.094	0.067	0.190*	-0.050	-0.013	-0.103	-0.078	0.026	-0.034	-0.087	-0.068	1.000	0.997**
$RawMat\_prodN_{09}$	0.324**	0.217*	0.072	0.046	0.164	-0.039	-0.039	-0.090	-0.082	0.024	-0.031	-0.085	-0.066	0.997**	1.000

** Correlation values are significant at the 0,05 level; ** Correlation values are significant at the 0,01 level.*

Source: own elaboration

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Servizi ecosistemici e biodiversità: una nuova prospettiva per un'economia più sostenibile

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Abstract

***Obiettivo del paper**: Il contributo punta a evidenziare la relazione esistente tra l'economia d'impresa, le scienze naturali e l'economia ecologica. I concetti di servizi ecosistemici e di biodiversità vengono introdotti e discussi al fine di fornire alle discipline manageriali una nuova prospettiva per lo sviluppo di una gestione più sostenibile dell'impresa.*

***Metodologia**: Il contributo è teorico: attraverso un'analisi di costrutti e strumenti sviluppati da altri ambiti disciplinari propone una nuova base di conoscenza per gli studi manageriali.*

***Risultati**: Il lavoro propone: a) uno schema interpretativo delle relazioni di impatto e dipendenza tra impresa ed ecosistemi; b) un esame dei principali strumenti economici introdotti per favorire la protezione dei servizi ecosistemici e della biodiversità; c) analizza le principali implicazioni per l'attività d'impresa.*

***Limiti della ricerca**: Si tratta di un primo lavoro volto ad aprire nuovi percorsi di ricerca a livello teorico ed empirico. Studi di natura qualitativa (case studies) e quantitativa potrebbero arricchire il percorso avviato in queste pagine.*

***Implicazioni pratiche**: Lo schema concettuale e gli strumenti economici per la protezione dei servizi ecosistemici discussi nel paper offrono numerosi spunti pratici per una gestione più sostenibile della relazione tra impresa e ambiente.*

***Originalità del paper**: Il lavoro contribuisce ad arricchire la letteratura manageriale introducendo alcuni costrutti sviluppati dalle scienze ambientali. La nuova prospettiva aiuta a collocare l'impresa all'interno del più ampio sistema ecologico-sociale, favorendo una più coerente interpretazione della relazione di scambio (di impatto e dipendenza) di risorse con la natura.*

Parole chiave: sostenibilità; servizi ecosistemici; biodiversità; gestione d'impresa; strumenti economici; scienze naturali

***Purpose of paper**: This paper aims at building a bridge among management studies, natural sciences and ecological economics. Concepts such as ecosystem services and biodiversity are introduced with the purpose to provide a new perspective to sustainability management.*

***Methodology**: The paper is theoretical. Constructs and tools developed in other disciplines are illustrated and discussed in order to provide a new knowledge platform to management studies.*

***Results**: The main results are: a) a theoretical framework to illustrate the relation of interdependence between the firm with the social-ecological systems; b) an exam of the most important economic tools developed to protect ecosystem services and biodiversity; c) analyze the main implications of the management of the firm.*

***Limits of the study**: This is a first study aiming at opening new research avenues both theoretical and empirical. Qualitative (e.g. case studies) and quantitative research can stem from this contribution.*

***Practical implications**: The theoretical framework and the economic tools analyzed in this paper provide several hints and suggestions to develop a more environmentally sustainable management strategy.*

***Novelty of the paper**: The paper broadens managerial literature introducing new constructs and concepts from natural sciences. This new perspective helps to position the firm into the social-ecological system, favoring a more coherent interpretation of the relation of interdependence with the natural environment.*

Key words: sustainability; ecosystem services; biodiversity; management; economic tools; natural sciences.

1. Introduzione

Lo studio della relazione tra economia e protezione dell'ambiente non è nuovo al mondo dell'economia d'impresa. A livello internazionale il tema delle relazioni tra imprese e ambiente è ormai coperto con discreta continuità da pubblicazioni di economia e management a elevato impatto[1], e ha visto l'affermarsi di numerose riviste specialistiche, che hanno acquisito visibilità e prestigio nella comunità accademica[2]. A livello nazionale l'attenzione è cresciuta, anche grazie alla recente pubblicazione di contributi e di numeri dedicati in riviste quali L'Industria (AA.VV., 2011), Sinergie (Brown *et al.*, 2015), Mercati e Competitività (Pastore, 2012).

Il risultato è la progressiva istituzionalizzazione di concetti come *green economy*, sviluppo sostenibile, eco-efficienza, *cleaner production* che sono entrati a far parte del linguaggio economico-manageriale (Frey, 1995, Golinelli e Volpe, 2012, Tencati e Pogutz, 2015; Testa *et al.*, 2014), ma che di fatto fino ad oggi non hanno avuto la capacità di incidere con efficacia sulle traiettorie di sviluppo industriale né dei paesi ad elevato reddito, né delle economie emergenti.

Il *Millennium Ecosystem Assessment* (MEA, 2005) ha evidenziato che circa i 2/3 degli ecosistemi censiti risulta danneggiato o seriamente compromesso (il 60% a livelli non più sostenibili) a causa della crescente pressione antropica e della diffusione su scala globale di stili di vita fortemente improntati ai consumi. Johan Rockström (Rockström *et al.*, 2009) e più di recente Will Steffen (Steffen *et al.*, 2015) in alcuni lavori pubblicati su riviste quali Nature e Science, hanno esaminato lo stato di salute del Pianeta, individuando nove parametri critici. Per questi parametri il superamento di valori soglia, detti *planetary boundaries*, potrebbe comportare l'insorgere di rischi catastrofici come risultato di

[1] Ad esempio, Academy of Management Review, Academy of Management Journal, Accounting Review, American Economic Review, Journal of Business Venturing, Journal of Finance, Journal of Management Studies, Journal of Marketing, Strategic Management Journal.

[2] Ad esempio, Ecological economics, Journal of Cleaner Production, Journal of Environmental Management and Economics, Journal of Industrial Ecology, Business Strategy and the Environment.

trasformazioni improvvise e non-lineari nei sistemi ecologici. Da questi lavori emerge che in ben tre casi - clima, biodiversità e azoto - i margini di sicurezza sono già stati ampiamente superati.

Nonostante l'istituzionalizzazione di concetti come sostenibilità, *green economy*, tecnologie più pulite, la visione della relazione tra sistemi industriali, imprese ed ecosistemi in questi decenni non è cambiata, e l'idea che la natura sia un capitale libero e inesauribile è rimasta alla radice del nostro modo di interpretare tale relazione (Starik e Kanashiro, 2013; Tencati e Pogutz, 2015).

Per cercare di costruire un ponte tra economia d'impresa e scienze naturali si propone l'analisi di un concetto che ha trovato rapida diffusione in ecologia (Holling, 1998; Levin, 2009) e nel ramo dell'economia detto *ecological economics* (Costanza, 1989; Daly, 1977), ma che non ha avuto ancora capacità di influenzare le discipline manageriali e organizzative, e l'ambito specialistico che si occupa della sostenibilità ambientale e sociale delle imprese (Whiteman et al, 2013; Winn e Pogutz, 2013): gli *ecosystem services*, o servizi ecosistemici (Costanza el al, 1997; MEA, 2005; TEEB, 2010). Gli ecosistemi, infatti, svolgono una serie di funzioni che contribuiscono al benessere e alla salute dell'uomo, sia in modo diretto (si pensi a una foresta e alla produzione di legna e di cibo, o all'attività di purificazione delle acque), sia indiretto (ad esempio, l'impollinazione, la regolazione del clima, i processi di formazione del suolo). Il concetto di servizi ecosistemici rappresenta il raccordo tra le funzioni svolte dalla natura e i benefici che l'uomo, le organizzazioni, la società ottengono dall'utilizzo di tali funzioni. L'analisi dei servizi ecosistemici, e la loro misurazione/valutazione, offre all'economia d'impresa una nuova lente interpretativa per leggere la relazione tra organizzazione e ambiente e consente di cogliere in modo più nitido le sfide che accompagnano il progressivo degrado della biosfera.

Nelle prossime pagine viene proposto: l'esame di alcuni concetti fondamentali in ecologia, quali ecosistema e biodiversità; l'analisi dei servizi ecosistemici e un nuovo modello per interpretare la relazione tra impresa e ambiente; l'analisi delle principali implicazioni che derivano dall'adozione di questo approccio a livello di impresa; un approfondimento dei nuovi meccanismi di policy, con particolare attenzione agli strumenti economici; l'analisi delle implicazioni a livello di ricerca e per le imprese.

2. Ecologia, ecosistemi e biodiversità

L'ecologia costituisce una scienza moderna, nata attorno alla metà del XIX secolo con l'obiettivo di studiare le interazioni tra organismi e ambiente[3].

Il concetto fondamentale su cui si fonda l'ecologia è l'ecosistema, termine introdotto per la prima volta in modo formale dall'ecologo inglese Arthur Tansley nel 1935, che per primo ha riconosciuto l'importanza delle relazioni tra le componenti inorganiche dell'ambiente naturale e gli organismi viventi.

Eugene Odum, uno dei padri dell'ecologia, circa due decenni dopo nel volume *Fundamentals of Ecology* propone la prima definizione moderna di

[3] Il termine ecologia, dal greco οίκος (oikos - casa) e λόγος (logos - studio), viene coniato dallo zoologo tedesco Ernst Haeckel nell'opera *Generelle Morphologie der Organismen*, pubblicata nel 1866.

ecosistema come «qualsiasi entità o unità naturale che include parti viventi e non viventi che interagiscono producendo un sistema stabile in cui lo scambio di materiali tra le componenti biotiche e abiotiche segue percorsi circolari» (Odum, 1953). Grazie a E. Odum e al fratello Howard T. Odum, anche egli autore di importanti pubblicazioni in materia (Odum, 1983), il concetto di ecosistema acquisisce popolarità e credibilità all'interno della comunità scientifica come unità di riferimento per l'esame della relazione tra popolazioni di organismi e ambiente. Si tratta, infatti, di un costrutto flessibile che può assumere livelli di analisi diversi in funzione dell'obiettivo di studio, delle metodologie utilizzate, dei tipi di flusso (informazioni, materiali, energia) oggetto di osservazione. Un ecosistema può essere un piccolo stagno, l'estuario di un fiume, una foresta, una prateria o l'intera biosfera. Al contempo, i fratelli Odum contribuiscono ad allargare i confini dell'ecologia, che grazie a loro diventa una disciplina sistemica e olistica, riconoscendo che l'uomo è parte della natura e che, pertanto, la scienza degli ecosistemi deve incorporare lo studio delle attività realizzate dall'uomo.

Negli anni Settanta l'ecologia attraversa un profondo cambiamento, abbandonando la prospettiva deterministica per adottare l'approccio dei sistemi complessi. Secondo Simon Levin gli ecosistemi possono essere descritti proprio come: «esempi prototipici di sistemi adattivi complessi» (Levin, 1998, p. 431). Come tali sono caratterizzati da alcune proprietà specifiche quali: la *non linearità*, che indica come le trasformazioni seguano percorsi caotici, difficili da prevedere, governati principalmente da eventi stocastici in grado di rinforzarsi mutuamente, e da forte *path dependency*; la *diversità*, che si riferisce sia alla varietà di specie che popolano un ecosistema, sia alla produzione/mantenimento di questa varietà; la nozione di *flusso*, che indica la gamma di sostanze nutritive, materiali, energia e informazioni che connettono le singole parti del sistema in una rete di relazioni. Un elemento importante nella *nuova ecologia* è proprio la gestione dell'incertezza, che diventa parte integrante dell'approccio agli ecosistemi e, dunque, una condizione da gestire e non da eliminare (Holling, 1998).

Gli ecosistemi, grazie alla propria struttura e ai processi che controllano gli scambi tra le singole unità, svolgono una serie di funzioni dette *cicli dei nutrienti*, che permettono la continua ricostituzione degli elementi essenziali alla vita. Queste funzioni sono condizionate, tra l'altro, da un elemento, che sta divenendo sempre più rilevante, nel confronti con l'attuale crisi ambientale: la *biodiversità*, che è condizione per il mantenimento della vitalità degli ecosistemi e, quindi, della capacità di svolgere le funzioni da cui dipende il nostro benessere individuale e sociale (TEEB, 2010). La perdita di biodiversità cui il Pianeta sta andando incontro, dunque, aumenta la fragilità degli ecosistemi riducendone la *resilienza*, ossia la capacità di resistere a situazioni di stress senza passare a uno stato organizzativo completamente diverso, e quindi mantenendo le stesse strutture, processi, e funzioni (Gunderson e Holling, 2002; Folke, 2006).

Natura, società ed economia sono mondi integrati, e gli ecosistemi sono sistemi socio-ecologici le cui parti non possono essere studiate in maniera isolata (Daly, 1977; Daily, 1997; Vitousek *et al.*, 1997; Folke *et al.*, 2010).

3. Servizi ecosistemici: una nuova prospettiva per leggere la relazione impresa-ambiente

Il concetto di servizi ecosistemici si sviluppa dall'incontro tra la moderna ecologia e il ramo dell'economia chiamato *economia ecologica*. A partire dagli anni Settanta una serie di studiosi sottolinea come le funzioni svolte dagli ecosistemi generino utilità per gli esseri umani, per le organizzazioni e per la società (Daly, 1972; Odum e Odum, 1972; Ehrlich e Ehrlich, 1981, Costanza *et al.*, 1997). L'intento di questi autori è duplice:

- evidenziare la nostra *dipendenza* dalla disponibilità e dalla qualità di questi servizi, che non vengono - di norma - intercettati dai meccanismi di mercato;
- porre l'attenzione sulla questione della conservazione del capitale naturale e della biodiversità come condizione essenziale del nostro benessere (Gómez-Baggethun *et al.*, 2010).

Gli ultimi anni vedono il proliferare di studi e pubblicazioni sul tema, che percorrono principalmente due linee di ricerca (Gómez-Baggethun *et al.*, 2010): da un lato, lo sviluppo e la sperimentazione di metodologie di misurazione e di valutazione degli ecoservizi; dall'altro, la progettazione e la costruzione di mercati per i servizi degli ecosistemi (noti anche come *Payment per Ecosystem services*, *o PES,* di cui si dirà più avanti).

Per potere meglio comprendere la relazione con il mondo delle imprese, è utile soffermarci ancora un momento sul concetto di *ecosystem services*. Vengono individuate quattro tipologie principali di servizi (MEA, 2005):

- *di fornitura o approvvigionamento*, che generano i beni veri e propri, quali cibo, acqua, fibre, legno, combustibile e altre materie prime, materiali genetici, ecc.;
- *di regolazione*, quali la regolazione del clima, delle maree, la qualità delle acque (potabilizzazione dell'acqua), impollinazione e controllo delle infestazioni, ecc.;
- *culturali*, che comprendono l'utilizzo della natura per finalità spirituali o estetiche, ricreative, ed educative;
- *di supporto alla vita*, che includono la produzione primaria, il ciclo dei nutrienti, da decomposizione e la formazione del suolo (si veda sopra).

Tutte le tipologie di ecoservizi identificati contribuiscono a generare benessere per gli individui e valore per le imprese, che utilizzano in modo diretto o indiretto le funzioni svolte liberamente dalla natura. Si pensi, ad esempio, al comparto della pesca e allo sfruttamento delle risorse ittiche; all'industria agro-alimentare, e all'utilizzo di processi quali l'impollinazione o la regolazione del clima; si considerino produzioni come il legno, la carta, la gomma o il settore tessile che beneficiano direttamente per l'approvvigionamento di materie prime degli eco-servizi chiamati di fornitura; ancora si pensi al turismo e al valore generato da foreste, boschi, litorali marini, spiagge, barriera corallina.

Variazioni nella disponibilità degli ecoservizi, effetto della crescente pressione sul capitale naturale e di consumo superiori ai tassi di rigenerazione (MEA, 2005; Rockström *et al.*, 2009; Steffen *et al.*, 2015), possono riflettersi sull'operatività dell'impresa fino a mettere a rischio la continuità del business e la sua sostenibilità economico-finanziaria, richiedendo adeguate

risposte a livello gestionale e organizzativo. Nella tabella seguente vengono riportati alcuni esempi che illustrano come la variazione della disponibilità di questi servizi possa condizionare l'attività industriale.

Tab. 1: Relazione tra servizi degli ecosistemi e imprese: alcuni esempi

Servizio dell'ecosistema	Evento	Impatto sull'attività dell'impresa	Risposte approntate a livello di imprese
Servizio di fornitura	Negli anni '90, improvvisa scomparsa del merluzzo nel mare del nord come effetto di pesca intensiva e prolungata.	Diverse aziende, tra cui Unilever che utilizzava la materia prima per i bastoncini di pesce, soffrono gli aumenti dei prezzi delle materie prime e rischi di business interruption a causa della improvvisa scarsità della risorsa.	Ricerca di nuove specie ittiche per sostituire il merluzzo, introduzione di un marchio e di un sistema di "certificazione" per la pesca sostenibile, il Marine Stewardship Council.
Servizio di regolazione	Nei primi anni '90, contaminazione della fonte da cui proviene l'acqua minerale Vittel come effetto di un'azione di disboscamento di un'area a monte del bacino idrico e dell'adozione di pratiche agricole intensive.	Improvvisa indisponibilità dell'acqua della fonte a causa della modifica nella qualità, conseguente perdita di valore del marchio Vittel e impatto sul portafoglio prodotti Nestlé.	Sviluppo di un meccanismo ad hoc, mediante cui Nestlé finanzia gli agricoltori per l'adozione di pratiche agricole a minore impatto e la riforestazione di parte dell'area a monte. Sviluppo di una politica di sostenibilità focalizzata sulla tutela dei servizi ecosistemici.
Servizi di fornitura, di regolazione e di supporto	L'utilizzo intensivo delle risorse naturali e l'impiego di agenti chimici influenzano la vitalità e l'integrità degli ecosistemi alla base della produzione di materie prime quali caffè, the, cacao, grano, cotone ecc.	Riduzione della produttività del suolo, diminuzione della qualità delle materie prime, effetti sulle comunità locali (ad esempio, trade-off nell'impiego dell'acqua per uso privato o agricolo).	Diverse imprese (Unilever, Barilla, Nestlé, Mars, L'Oreal, Syngenta) hanno avviato progetti diretti a preservare la biodiversità e il funzionamento degli ecosistemi modificando le tecniche di coltivazione e addestrando gli agricoltori a un migliore utilizzo delle risorse.

Fonte: Elaborato da diverse fonti

L'economia d'impresa da molti anni ha abbracciato la sfida ecologica dando vita a una nuova branca che studia le molteplici relazioni tra organizzazione e ambiente naturale. In oltre tre decenni di ricerca, questo comparto ha acquisito maturità e legittimità, sviluppando nuove teorie e favorendo approcci e modelli concettuali innovativi (per una rassegna analitica si vedano Bansal e Hoffman, 2012; Hoffman e Georg, 2012; George *et al.*, 2015). A livello macro, questi studiosi hanno esplorato le conseguenze dei fallimenti del mercato per le risorse naturali, analizzando le relazioni tra azioni dei *policy maker*, regolamentazioni, movimenti sociali, ONG e attività delle imprese (Jaffe e Palmer, 1997; Ansari *et al.*, 2013). A livello strategico, un ampio filone di ricerca ha esaminato se e come la protezione ambientale influenzi il vantaggio competitivo e le *performance* aziendali (Porter e van der Linde, 1995; Berchicci e King, 2007; Eccles *et al.*, 2014), e ha investigando quali risorse, competenze e meccanismi possano portare

a gestire in modo più efficiente l'ambiente naturale attraverso innovazioni sostenibili (Hart, 1995; Aragon-Correa and Sharma, 2003). Infine, molteplici discipline manageriali quali marketing (Reinhardt 1998; Peattie, 2001), *supply chain management* e produzione (Linton *et al.*, 2007), contabilità (Schaltegger *et al.*, 2006) hanno approfondito le implicazioni operative derivanti dalla necessità di misurare e gestire gli effetti sugli ecosistemi di processi e prodotti inquinanti.

Ciò che appare sorprendente, tuttavia, è la scarsa attenzione dedicata da questo filone di ricerca agli ecosistemi, allo loro funzionalità quali sistemi complessi adattivi, e all'interdipendenza con le imprese e i loro comportamenti (Levy e Lichtenstein 2012; Boons e Lüdeke-Freund, 2013; Starik e Kanashiro, 2013; Whiteman *et al.*, 2013; Winn e Pogutz, 2013; Hoffman e Jennings, 2015).

Diversamente, nell'ambito della cosiddetta *grey literature* il tema è stato oggetto di interesse crescente grazie all'azione di organizzazioni come il World Business Council for Sustainable Development[4] (2011), UN Global Compact (2012) e alla spinta di ONG come The Nature Conservancy[5] (2012), WWF e Natural Capital Project[6], che hanno iniziato a proporre riflessioni sulle implicazioni che il degrado degli ecosistemi e la perdita di alcuni ecoservizi possono generare per l'attività strategica e operativa delle imprese.

Dando evidenza a queste iniziative, e attingendo alle recenti teorie elaborate in ambito ecologico, l'approccio dei servizi ecosistemici consente di riformulare la tradizionale visione della relazione tra impresa e natura, concependo l'esistenza di due sistemi, quello economico-sociale e quello ecologico, non solo interconnessi ma anche - e soprattutto - interdipendenti; superando, così, la concezione dell'ambiente come elemento esterno e indipendente dal contesto organizzativo, che fornisce risorse e accoglie le diverse forme di inquinamento (Cervellini, 1990; Baccarani *et al.*, 1993).

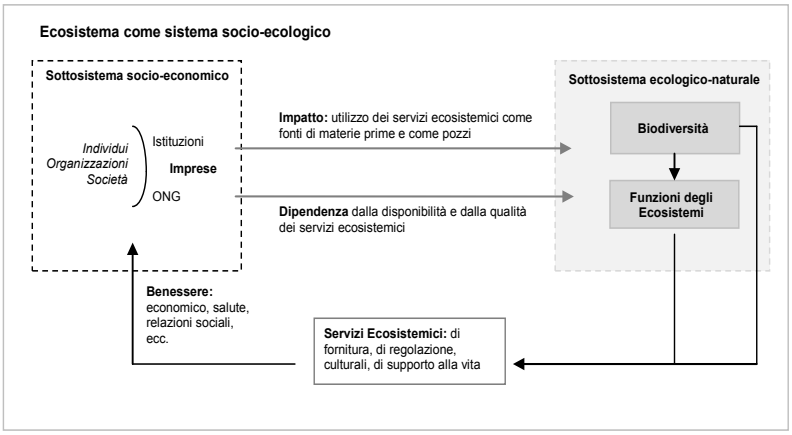
La figura seguente illustra questa relazione, proponendo una rappresentazione del sistema socio-ecologico, in cui le organizzazioni, e dunque le imprese, sono integrate e co-evolvono con gli ecosistemi naturali. In questo modo, da un lato il concetto di servizi ecosistemici, con le sue proprietà distintive che derivano dalla natura dei sistemi complessi adattivi, viene posto all'attenzione degli studiosi di impresa; dall'altro si introduce il concetto di interdipendenza, scomponendo la relazione impresa-ambiente in due dimensioni principali: l'*impatto* da e verso gli ecosistemi, e la *dipendenza*, una nuova categoria che permette di cogliere un'altra dimensione delle relazioni che intercorrono tra gli elementi del sistema socio-ecologico.

[4] Nato nel 1995, il WBCSD è un'organizzazione internazionale che raggruppa circa 200 imprese multinazionali con l'obiettivo di affrontare la questione delle relazioni tra business e sviluppo sostenibile.

[5] The Nature Conservancy è un'ONG internazionale con la missione di proteggere gli ecosistemi.

[6] Questo progetto, nato nel 2006, si propone di integrare il valore del capitale naturale in tutti i processi decisionali che impattano sull'ambiente e sul nostro benessere.

Fig. 1: Ecosistema come sistema socio-ecologico



Fonte: adattata da MEA, 2005; TEEB, 2010; Winn e Pogutz 2013

Con il termine *impatto* vengono identificate le forme di utilizzo degli ecoservizi sia come *risorse*, o *input* per i processi industriali (ad esempio, *input* quali materie prime, energia, materiali ausiliari), sia come *pozzi*, per accogliere gli *output* indesiderati derivanti dalle attività di trasformazione a livello di processo o di prodotto (ad esempio, le emissioni atmosferiche, i rifiuti, le acque reflue, ecc.). Se il termine impatto identifica una dimensione della relazione che negli anni è stata oggetto di un certo approfondimento anche da parte delle discipline manageriali e organizzative, con il concetto di *dipendenza*, invece, si introduce un elemento nuovo nella relazione tra impresa e ambiente.

Questo concetto pone l'accento sull'interazione tra la funzionalità dell'impresa e la disponibilità dei servizi generati dal sistema ecologico, che deriva a sua volta dallo stato di salute dei suoi processi. La crescente fragilità degli ecosistemi, la perdita di biodiversità, la riduzione della resilienza ecologica possono retroagire sulle imprese e sulle filiere tecnologico-produttive che le caratterizzano, generando nuovi rischi e richiedendo nuove soluzioni strategiche e operative (World Resources Institute *et al.*, 2008; EC, 2008; TEEB, 2010). Gli esempi riportati in Tabella 1 evidenziano come il degrado degli ecosistemi possa tradursi in una perdita di ecoservizi con effetti sull'attività delle imprese. Muovendo dai lavori realizzati da WRI e WBCSD (2008) e dall'UNGC (2012) si possono identificare alcune tipologie di rischi, diretti e indiretti, che emergono dalla relazione di impatto/dipendenza e che condizionano l'attività d'impresa.

Rischi operativi. La variazione nella capacità di un ecosistema di generare servizi condiziona la disponibilità (ad esempio, l'accesso alla risorsa e la quantità disponibile), i prezzi, e la qualità dei fattori produttivi in molteplici filiere. Se si considerano, ad esempio, la regolazione del clima e gli effetti sulla disponibilità di acqua, nell'ultimo decennio il comparto agro-alimentare (coltivazioni come caffè, the, cacao, grano, cotone) e quello energetico (in particolare, idroelettrico) hanno sofferto gli effetti

del cambiamento climatico a livello locale (ad esempio, prolungate siccità e fenomeni metereologici violenti), affrontando rischi di *business interruption*, perdite di produttività della terra, accompagnati da intense oscillazioni nei prezzi delle materie prime.

Rischi regolamentativi. L'attenzione alla protezione degli ecosistemi e della biodiversità ha determinato l'adozione di nuove regolamentazioni e nuovi strumenti economici (si veda il prossimo paragrafo). L'introduzione di tasse, tariffe, permessi di emissione, forme di responsabilità extra-contrattuale, certificazioni rappresenta una nuova dimensione del rischio ambientale, che impatta il profilo di costo dell'attività aziendale e richiede adeguate politiche di copertura e gestione.

Rischi di reputazione. La crescente attenzione da parte di movimenti sociali, ONG, ma anche clienti e catene di distribuzione verso aziende e prodotti che rispettano la natura è diventata un fattore critico in numerosi mercati. Il mancato rispetto di certe condizioni ambientali, o l'avere generato danni agli ecosistemi si possono tradurre nel ritiro della "licenza di operare". Questi possono provocare, ad esempio, mancati rinnovi - o ritiri - delle concessioni per l'utilizzo di risorse ambientali, esclusione dalle gare di appalto, boicottaggi, con evidenti danni economici e di immagine.

Rischi di mercato. Sono sempre più numerose le categorie di prodotti per cui i consumatori scelgono in base alla presenza di certificati e marchi che garantiscono la sostenibilità ambientale e il rispetto degli ecosistemi. Le aziende che non intercettano queste nuove richieste possono perdere importanti opportunità di mercato nei segmenti più sensibili a queste tematiche. Un altro caso estremamente interessante è legato a imprese che investono nella protezione del capitale naturale e negli ecoservizi connessi come elemento fondante del proprio business. Ad esempio, aziende che investono in attività di forestazione per la *carbon sequestration* o in progetti di conservazione degli *habitat* possono vendere i certificati ad altre imprese che hanno bisogno di questi permessi in quanto sottoposte a specifiche normative (per gli strumenti di *market creation*, si veda il seguente paragrafo) (Bishop *et al.*, 2008).

Rischi finanziari. Anche la comunità finanziaria è oggi attenta a questi aspetti e valuta attraverso l'applicazione di principi, procedure e indicatori se e come le tipologie di rischio individuate impattino dimensioni quali la redditività e la liquidità, e il complessivo profilo di rischio d'impresa[7]. Nuove agenzie specializzate in servizi di *rating* e di misurazione forniscono le proprie competenze a fondi di investimento (*Socially Responsible Investing*), banche e assicurazioni (Novethic, 2013). Per quelle imprese che risultano esposte a condizioni di dipendenza da ecoservizi danneggiati o compromessi, o per quelle realtà che impattano ecosistemi e biodiversità a causa di attività particolarmente pericolose (ad esempio, l'industria estrattiva) il risultato di una procedura di *due diligence* approfondita si può tradurre in un maggiore costo del capitale o in maggiore complessità nell'accesso a finanziamenti.

Le condizioni di crescente degrado degli ecosistemi determinano dunque l'emergere di nuovi rischi ed opportunità per le imprese, e richiedono:

[7] Se consideriamo il mondo della finanza due iniziative appaiono particolarmente importanti con riferimento ai servizi ecosistemici: gli Equator Principle (www.equator-principles.com); e l'IFC's Performance Standards (http://www.ifc.org).

- l'adozione di metodologie e strumenti idonei per identificare, misurare e valutare le condizioni di impatto e di dipendenza dai servizi degli ecosistemi;
- strategie e soluzioni operative per affrontare e gestire tali rischi e cogliere le opportunità collegate.

Riconoscere e accettare l'idea di interdipendenza suggerisce un'altra breve riflessione a completamento di questa breve analisi. Se il concetto di *impatto* ha fino ad oggi visto nelle competenze tecnologico-produttive e nell'innovazione di processo/prodotto la chiave di lettura prevalente per migliorare il rapporto impresa-ambiente, riconoscere la *dipendenza* dai servizi prodotti dagli ecosistemi può rendere necessarie trasformazioni più profonde, estese a livello di interi settori industriali, coinvolgendo *stakeholder* molto diversi. Questa prospettiva, infatti, integra l'approccio più tradizionale basato sull'eco-efficienza e sulle *cleaner technologies*, e spinge verso una completa ri-progettazione delle filiere tecnologico-produttive. Prendere atto del fatto che la sostenibilità di un'impresa nel tempo è legata alla disponibilità dei servizi generati dalla natura, e che questi servizi sono oggi a rischio, dovrebbe condurre a sviluppare strategie specifiche, ad esempio finalizzate a garantire continuità nella disponibilità delle risorse naturali utilizzate in termini di quantità, qualità, e prezzo desiderati. Questo può volere dire non solo ridiscutere le tradizionali logiche di approvvigionamento, ma anche sviluppare *partnership* ad *hoc* con i produttori di materie prime, con le altre comunità che utilizzano gli eco-servizi, con i regolatori e gli amministratori locali, con i concorrenti, al fine di individuare pratiche e soluzioni più sostenibili.

In assenza di un sistema di governo e di protezione del capitale naturale e della biodiversità, tuttavia, la spontanea iniziativa delle imprese non può che risultare limitata per frequenza, dimensione e capacità di impatto. Infatti, i servizi ecosistemici sono ancora percepiti da chi li utilizza come beni pubblici a disponibilità illimitata. Dato l'orientamento opportunistico di molti beneficiari, abituati a dare per garantiti determinati servizi, una delle risposte più interessanti su cui si sta focalizzando l'attenzione congiunta di studiosi, regolatori, ONG e organizzazioni di imprese come il WBCSD, vede nel ricorso al mercato e agli strumenti economici una possibile soluzione per governare e proteggere il capitale naturale. Il prossimo paragrafo si focalizzerà sull'esame di questi meccanismi e sulle implicazioni per le imprese.

4. Strumenti economici per governare la biodiversità e i servizi ecosistemici

Alla luce della sempre maggiore consapevolezza dei legami esistenti tra servizi ecosistemici e biodiversità (Balvanera *et al.*, 2006; Loreau, 2010) il *policy maker* ha cercato di guardare in modo congiunto ad essi (si veda, tra molti, TEEB, 2011) proponendo un efficace *mix* di politiche per una loro tutela (OECD, 2004). In questo quadro, gli strumenti economici e di mercato appaiono estremamente interessanti per la capacità di influenzare i comportamenti delle imprese, e le scelte strategiche e operative. Di seguito

vengono descritti sinteticamente alcuni tra quelli di principale interesse.

Strumenti price-based (tasse e tariffe). Tali strumenti si fondano sull'idea che i costi della perdita di ecoservizi e biodiversità possono essere imputati al prezzo da far pagare per lo svolgimento delle attività produttive che causano tale perdita. Ad esempio, essi sono comunemente utilizzati con obiettivi di tutela della biodiversità nei paesi membri dell'OECD nella gestione del ciclo idrico: per l'uso dell'acqua, per lo scarico di acque reflue e per l'estrazione di materiali dai bacini (OECD, 2008).

Strumenti di responsabilità extra-contrattuale. Questi strumenti hanno l'obiettivo di modificare l'incentivo economico associato a comportamenti particolarmente rischiosi dal punto di vista ambientale al fine di aumentare le probabilità che coloro che hanno causato un danno ambientale paghino per le conseguenze generate. Esempi sono le sanzioni, stabilite dal legislatore, associate a comportamenti non conformi a requisiti prestazionali o di gestione, che possono essere quantificate sulla base di variabili specifiche come il danno arrecato o il guadagno ottenuto grazie ai ridotti costi sostenuti.

Sussidi. L'utilizzo dei sussidi è molto diffuso nelle strategie di tutela della biodiversità grazie alla elevata accettabilità sociale e alla facilità di applicazione (OECD, 2008; Bräuer *et al.*, 2006). Questi strumenti possono contribuire a correggere specifici fallimenti del mercato o generare benefici ambientali, come, ad esempio, nel caso delle misure agro-ambientali a favore degli agricoltori o dei proprietari di aree forestali per l'adozione di pratiche di gestione più sostenibili (TEEB, 2011).

Strumenti di market creation. Scopo di questi strumenti è di proteggere la biodiversità e gli ecoservizi creando mercati. La logica è quella di definire chiaramente diritti di proprietà sulle risorse o sul loro uso e consentire lo scambio di tali diritti tra gli operatori. Un tipico esempio è il sistema *cap-and-trade* che, originariamente concepito per il controllo delle emissioni inquinanti in atmosfera è stato adattato per scopi di tutela della biodiversità. Il *Biobanking Scheme* definisce le regole per la creazione di un mercato in cui gli operatori possono comprare - a fronte di una attività dannosa per la biodiversità - un credito da un operatore a cui questo è stato riconosciuto, proprio in virtù delle azioni compiute a tutela della biodiversità.

Pagamenti per i servizi ecosistemici (PES). Particolare attenzione meritano, questi meccanisimi, che sono definiti come transazioni volontarie in cui un servizio ecosistemico viene acquistato da almeno un compratore (*ES buyer*) ad un fornitore (*ES provider*), se e solo se la fornitura è assicurata (Wunder, 2005; TEEB, 2011). In questa fattispecie, il settore privato concorre insieme al pubblico nello stabilire schemi di PES, che si caratterizzano per la loro flessibilità e per poter essere applicati a scale diverse.

Uno dei primi casi di PES è stato quello dell'acqua minerale Vittel, che dal 1993 ha stabilito uno schema per la gestione di oltre 5.000 ettari di bacino idrico nelle montagne dei Vosgi per il mantenimento di determinati *standard* di qualità delle risorse idriche. Il degrado dell'ecosistema, infatti, minacciava la possibilità di utilizzare l'acqua della fonte Vittel con un rischio significativo per uno dei *brand* più importanti nel portafoglio prodotti di Nestlé. La soluzione al problema venne individuata nel compensare economicamente gli agricoltori che operano nell'area perché adottassero pratiche agricole a basso impatto e nel creare una specifica azienda di servizi

che si dedicasse a ripristinare e a monitorare la funzionalità dell'ecosistema locale, ossia investendo direttamente per la fornitura di un servizio ecosistemico (risorsa idrica) (TEEB, 2011).

Pur nella varietà che caratterizza tali schemi, l'aspetto principale dei PES è che coloro che traggono beneficio dalla presenza di un servizio ecosistemico remunerano tale beneficio compensando il produttore (Gutman, 2006). Essi possono avere diverse strutture - a seconda del o dei servizi che considerano - scala e contesto di applicazione: alcuni si fondano su previsioni normative, come quelli legati al *carbon market* nell'ambito di obiettivi di emissione obbligatori (come nel caso dell'*emission trading scheme*) o al *biobanking scheme*, ed altri hanno carattere volontario e comportano un coinvolgimento minimo dei soggetti pubblici.

In conclusione, gli strumenti economici e di mercato possono contribuire alla valorizzazione della biodiversità e dei servizi ecosistemici, favorendo la loro misurazione e quantificazione ed incentivando comportamenti favorevoli alla loro tutela. In un simile contesto, la realizzazione di azioni congiunte tra attori pubblici e privati, con particolare riferimento alle imprese, può consentire la legittimazione istituzionale e culturale necessaria a superare alcune delle difficoltà strutturali che caratterizzano la tutela del capitale naturale (Gusmerotti *et al.*, 2012), contribuendo alla creazione di un necessario modello di *governance* e protezione del capitale naturale e della biodiversità. Si fa riferimento ad un modello in cui le imprese possano essere incoraggiate ad identificare la propria dipendenza dai servizi ecosistemici e i potenziali danni derivanti dalla loro perdita; ed i *policy makers*, dal canto loro, possano integrare gli strumenti di *policy* implementando *market based ecosystem management instruments*, che sappiano tenere conto delle specificità in termini di conoscenza e fiducia dei contesti locali (Ostrom, 2011), e che coinvolgano gli *stakeholder* nella definizione delle regole da adottare e da far rispettare (Ostrom, 2012).

5. Problemi aperti e nuove aree di ricerca

La nozione di servizi ecosistemici offre, dunque, un nuovo costrutto per interpretare la relazione di interdipendenza (impatto/dipendenza) tra imprese e ambiente naturale. Questa sezione punta a offrire alcuni spunti, delineando possibili linee di ricerca.

Servizi ecosistemici e teorie organizzative. Sia gli ecosistemi che le imprese sono sistemi complessi adattivi (Holling, 1998; Levin, 1998; Anderson *et al.*, 1999; Maguire *et al.*, 2006). Queste ultime agiscono, crescono, si trasformano all'interno dei sistemi socio-ecologici, con cui co-evolvono lungo molteplici scale spazio-temporali. Un primo filone di ricerca, dunque, potrebbe prendere in esame le diverse teorie organizzative (teoria istituzionale, *resource dependency*, approccio sistemico, agenzia, ecc.) per capire quali siano più idonee a leggere l'interdipendenza tra imprese e natura, e quali permettano di fornire gli strumenti interpretativi migliori per esaminare le implicazioni indotte dalle condizioni di scarsità e di incertezza dei servizi ecosistemici, e dal nuovo concetto di limite, introdotto con i *planetary boundaries*.

Tab. 2: Domande di ricerca

Macro aree di ricerca	Domande di ricerca
Teorie organizzative	- Quali teorie organizzative sono più utili per rappresentare e analizzare l'inter-dipendenza sistemica tra imprese ed ecosistemi? - Quali teorie organizzative sono più adatte per riconoscere le implicazioni del concetto di planetary boundaries? - Quali teorie organizzative possono essere utili per esaminare i meccanismi che legano le condizioni di scarsità dei servizi ecosistemici e i comportamenti degli attori economici?
Regolamentazioni e strumenti economici	- In che modo i "nuovi" strumenti di regolamentazione ambientale, introdotti per tutelare gli ecoservizi, potranno condizionare le strategie e le scelte delle imprese? - Quali nuove forme di governance dovranno essere adottate per garantire l'efficace protezione del patrimonio naturale, e in che modo le imprese verranno coinvolte (ad esempio, nell'implementazione dei mercati per gli ecosistemi e dei PES)?
Processi strategici e decisioni manageriali	- In che modo le imprese dovranno adattare le proprie strategie alle nuove condizioni degli ecosistemi e potenziare la propria resilienza? - Quali industrie sono più dipendenti, e pertanto esposte, alle nuove condizioni di scarsità e incertezza degli ecoservizi? - Quali opportunità competitive si possono generare dall'investimento nella conservazione del capitale naturale? - In che modo, le nuove condizioni dell'ambiente naturale influenzano le decisioni di integrazione verticale e di gestione delle supply chain? - Quali effetti si potranno generare sulle logiche di innovazione e progettazione di prodotto e di processo?
Risorse e competenze	- Quali risorse e competenze verranno richieste alle imprese per alimentare non solo la resilienza organizzativa, ma anche quella ecologica legata all'interdipendenza tra sistema sociale e naturale? - Perché alcune imprese hanno deciso condividere le proprie risorse e competenze con altre organizzazioni (concorrenti, ONG, agenzie) per affrontare le nuove sfide ambientali, mentre altre si mantengono periferiche o scelgono di non collaborare?
Misurazione e rendicontazione	- Quali strumenti di misurazione e rendicontazione dovranno essere sviluppati per monitorare e valutare i costi e i benefici legati al consumo di servizi ecosistemici?

Fonte: elaborazione degli autori

Regolamentazioni e strumenti economici. Nuovi strumenti economici e nuove forme di *governance* sono desinati ad essere adottati nei prossimi anni per garantire l'efficace protezione del patrimonio naturale, con evidenti implicazioni per i comportamenti delle imprese. Si aprono, pertanto, nuovi spazi per la ricerca sul ruolo delle politiche e delle regolamentazioni ambientali quali driver dell'adozione di comportamenti sostenibili, di nuove tecnologie più pulite, ma soprattutto per la creazione di mercati diretti a proteggere il capitale naturale.

Processi strategici e decisioni manageriali. Per chi studia gestione d'impresa diventa interessante analizzare come le dinamiche degli ecosistemi influenzano i processi strategici e le decisioni manageriali. La teoria della complessità e la moderna ecologia hanno introdotto i concetti di adattamento e di resilienza, laddove di fronte a sistemi complessi adattivi la logica riduzionista, orientata al controllo e alla semplificazione, ha dato prova di non funzionare.

Risorse e competenze. Ancora, un'altra area di ricerca potenziale ha per oggetto il tema delle risorse e delle competenze necessarie per affrontare le trasformazioni discusse (Aragón-Correa e Sharma, 2003). In questo ambito, appare estremamente interessante il caso delle piattaforme *multi-stakeholder* che sono sorte per diverse filiere nel tentativo di allineare l'utilizzo dei servizi ecologici e la sostenibilità dei sistemi da cui questi servizi sono generati. Marine Stewardship Council, Forest Steward Council, Roundtable for Sustainable Palm Oil, Better Cotton Initiative rappresentano nuove forme di *governance* sviluppate in *partnership* da imprese, ONG, istituzioni e agenzie indipendenti, per cercare di mettere a sistema risorse e competenze diverse, e affrontare problemi complessi.

Misurazione e rendicontazione. Infine, laddove sempre più spesso si chiede alle imprese di rendicontare gli impatti delle proprie azioni sull'ambiente e sulla società attraverso i bilanci di sostenibilità, un altro tema emergente ha per oggetto lo studio di nuovi strumenti di monitoraggio, misurazione e rendicontazione per integrare la prospettiva degli ecosistemi. Si tratta di un nuovo ambito di ricerca in cui l'attenzione si sposta da quanto succede nel perimetro di controllo dell'impresa, a quanto succede in scale spazio-temporali anche molto distanti dall'attività aziendale tipica.

6. Implicazioni manageriali

Da quanto sinora descritto, appare evidente come sia necessario fare emergere una nuova consapevolezza nel mondo delle imprese, diffondendo una prospettiva che integra nella relazione impresa-ecosistema dipendenza e impatto. Questo articolo, dunque, offre ai manager una nuova chiave interpretativa per leggere i rischi e le opportunità legati a tale relazione, e apre la strada a nuove strategie che si estendono oltre i tradizionali confini aziendali: a monte, lungo la gestione delle filiere, fino alla fase di interazione con la generazione dei servizi ecosistemici; a valle, verso la chiusura dei cicli di produzione e consumo, secondo la logica *cradle to cradle*.

In particolare, il lavoro fornisce ai manager un *framework* innovativo per analizzare e monitorare la relazione di impatto-dipendenza e, dunque, provare a prevenire l'emergere di rischi legati alle proprietà dei sistemi adattivi complessi e alla crescente scarsità degli ecoservizi. Ad esempio, l'attivazione di un processo di monitoraggio volto ad esaminare la provenienza geografica delle materie prime utilizzate da un'impresa (si pensi a caffè, cotone, gomma naturale, olio di palma, nocciole) e le condizioni di stress/resilienza degli ecosistemi da cui vengono originate (ad esempio, come effetto del cambio climatico, della perdita di biodiversità, o di una

domanda eccessiva dell'ecoservizio) potrebbe permettere di anticipare eventuali situazioni di crisi improvvise dei sistemi socio-ecologici, con effetti su disponibilità, prezzi e qualità delle materie prime. Da questo punto di vista, la realizzazione di azioni efficaci per affrontare situazioni che sono al di fuori dei confini materiali e cognitivi dell'impresa, richiede l'attivazione di nuove risorse e lo sviluppo di nuove competenze. I casi delle piattaforme *multi-stakeholder* descritti forniscono un supporto a questa tesi. Proprio la costruzione di queste competenze risulterà critica, a parere di chi scrive, per affrontare la nuova epoca dell'Antropocene, diventando un importante fattore competitivo dei prossimi decenni.

7. Conclusioni

La consapevolezza di dipendere da servizi ambientali che rischiano di essere irrimediabilmente compromessi sta cominciando a diffondersi anche nelle mondo delle imprese; mentre i *policy maker*, attraverso la messa a punto di strumenti specifici, hanno iniziato a spostare l'attenzione collettiva sulla conservazione del capitale naturale e della biodiversità. Parlare di protezione ambientale non significa, più occuparsi solo di cambiamento climatico, o di quello che succede nel "mio giardino" (Cervellini, 1990; Brown *et al.*, 2015; Tencati e Pogutz, 2015). Il tema della perdita di funzionalità degli ecosistemi (MEA, 2005) rappresenta una delle sfide più importanti di questo secolo.

È pertanto interesse di chi studia i comportamenti delle imprese e la gestione dei processi organizzativi riflettere su queste dinamiche, aprendosi all'influenza di altre discipline che analizzano l'interazione tra sistemi ecologici e sociali (ad esempio, l'ecologia e l'economia ecologica), e cercando di sviluppare nuova conoscenza. Questo contributo ha voluto proporre alla comunità di management italiana una prima analisi di un tema altamente di frontiera, nella speranza di aprire un nuovo filone di studi capace di favorire risposte innovative rispetto alla crisi che caratterizza l'interazione tra i modelli di produzione e consumo prevalenti e i sistemi naturali.

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Contratto di rete e creazione di valore: riflessioni ed evidenze empiriche sulle determinanti della performance

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Abstract

***Obiettivo del** paper: Lo scopo di questo paper è quello comprendere se la cooperazione tra imprese basata sullo strumento giuridico del "contratto di rete" è in grado di creare valore e migliorare la performance aziendale.*

***Metodologia**: Il paper dopo una review della letteratura sulle forme aggregative d'impresa e sui vantaggi che tale modello di business è in grado di produrre, si sofferma sull'analisi dei contatti di rete stipulati in Italia a partire dal 2010.*

Attraverso un'analisi statistica condotta su 531 imprese manifatturiere che hanno stipulato contratti di rete, si ricercano evidenze empiriche sulla capacità di tali contratti di migliorare la performance delle imprese retiste e sulle determinanti di tale processo.

***Risultati**: Le conclusioni a cui il lavoro perviene evidenziano le potenzialità del "contratto di rete" come strumento manageriale in grado di superare alcuni dei limiti dei network informali di imprese. I risultati dell'analisi statistica indicano segnali positivi circa la capacità del contratto di rete di migliorare la performance delle imprese retiste attraverso un incremento della produttività e dell'efficienza. Inoltre, si dimostrano significative anche variabili esogene quali il territorio ed il settore di attività.*

***Implicazioni pratiche**: Si forniscono evidenze circa la bontà del contratto di rete come strumento per migliorare la performance delle PMI e suggerimenti per sfruttare appieno tutte le potenzialità del contratto di rete.*

***Originalità del lavoro**: L'analisi della performance dei network d'imprese viene indagata attraverso un analisi quantitativa basata su dati contabili ed extracontabili delle imprese retiste che hanno sottoscritto un "contratto di rete". I benefici individuati sono estendibili ad altre imprese in Italia e all'estero e possono essere utili al legislatore per migliorare le policy in materia di contratto di rete.*

Parole chiave: contratto di rete; performance; creazione di valore; PMI

***Purpose of the paper**: The purpose of this paper is to understand if the business cooperation based on the new legal instrument called "network contract" is able to create value and improve business performance.*

***Methodology**: After a review of the literature on business networks and the analysis of the benefits that this business model is able to produce, the paper focuses on the analysis of "network contacts" signed in Italy since 2010.*

Through a statistical analysis on 531 manufacturing companies signing network contracts the paper looks for empirical evidence on the ability of these contracts to improve the performance of the involved companies and on the determinants of this process.

***Main findings**: The findings show potential of "network contract" as a managerial tool able to overcome some of the limitations of informal business networks. The results of the statistical analysis indicate a positive effect on the performance of the firms involved in network contracts, in particular because of an increased productivity and costs efficiency.*

***Practical implications**: The paper provide evidence of the ability of network contracts to increase SMÈs performance and provide tips to take full advantage of the potential of these contracts.*

***Originality of the** paper: The analysis of the performance of the network is investigated through the accounting data of a sample of SMEs, identified thanks to the presence of a formal contract relationship. The potential benefit of the instrument are replicable in other countries and useful for the legislator to improve existing policies.*

Key words: network contract; performance; value creation; SME

1. Introduzione

Le PMI italiane, in un contesto di forte competitività internazionale soffrono della scarsa capacità di avviare percorsi di crescita ed innovazione e della difficoltà di accesso al mercato del credito. Inoltre, risultano tra le più colpite dalla crisi economica e finanziaria che a partire dal 2009 ha ulteriormente indebolito il sistema produttivo Italiano.

In questo contesto si sviluppano le reti di impresa. Una forma di aggregazione che si aggiunge agli strumenti giuridici esistenti per la formalizzazione delle relazioni di rete, quali ad esempio i consorzi, le associazioni temporanee di imprese, ecc., o alle relazioni di rete informali che hanno nel tempo ricevuto riconoscimento giuridico, quali i distretti.

L'intento del legislatore sembra quello di introdurre uno strumento di politica industriale in grado di favorire stabilmente l'aumento della competitività e dell'innovazione nonché l'accesso al credito delle PMI.

Benché fosse ovviamente possibile, in passato, costituire delle reti informali, la novità è legata al fatto che il legislatore italiano ha previsto la formalizzazione della collaborazione mediante il c.d." contratto di rete", istituito dalla Legge n. 33/2009 e di fatto operativo dal 2010. L'idea del legislatore è quella di individuare uno strumento che permetta di assicurare il coordinamento interno delle imprese partecipanti tramite un accordo formalizzato da un contratto ma evitando al contempo eccessivi adempimenti procedurali, amministrativi e fiscali.

Il contratto di rete è utilizzato, quindi, quando "*più imprenditori*" vogliono perseguire "*lo scopo di accrescere, individualmente e collettivamente, la propria capacità innovativa e la propria competitività sul mercato….*" e "*si obbligano, sulla base di un programma comune di rete, a collaborare in forme e in ambiti predeterminati attinenti all'esercizio delle proprie imprese ovvero a scambiarsi informazioni o prestazioni di natura industriale, commerciale, tecnica o tecnologica ovvero ancora ad esercitare in comune una o più attività rientranti nell'oggetto della propria impresa*".

Questo nuovo strumento sembra essere molto gradito agli imprenditori data la crescita esponenziale del numero di contratti di rete firmati tra 2010

e 2016. L'ampiezza assunta da questo fenomeno, che a novembre 2016 vede coinvolte ben 16.048 imprese in 3.189 contratti di rete (di cui solo 455 a soggettività giuridica), rende opportuna una riflessione sulla capacità o meno del contratto di rete di costituire uno strumento manageriale in grado di produrre effetti positivi in termini di *performance* delle imprese coinvolte.

Questo lavoro si focalizza quindi sulle reti di imprese formalizzate con un contratto di rete ma senza soggettività giuridica, che rappresentano la fattispecie più diffusa, nonché quella in cui è possibile apprezzare i risultati conseguiti attraverso l'analisi dei loro bilanci, dato che in essi si producono tutti gli effetti economici attivi e passivi[1] delle azioni intraprese.

2. Letteratura di riferimento ed obiettivi di ricerca

Le reti d'impresa, intese come forma di cooperazione (c.d. i*nterfirm cooperation*) sono state definite (Hanna, 2008) come un modello complesso caratterizzato da legami formali e informali tra gli individui, le imprese ed i terzi (mediatori, soggetti no-profit, ecc.). Il modello di rete è stato studiato a fondo a livello internazionale e diversi autori hanno evidenziato che la partecipazione a una rete d'imprese è in grado d'influenzare la sussistenza ed i percorsi di sviluppo delle imprese associate. Le c.d. *inter-firms relationship* sono state viste come un fattore positivo che influenza in senso migliorativo la *performance* delle imprese (Huggins, 2001), consente l'innovazione (Capaldo, 2007) e permette l'intensificarsi di scambi informativi anche di tipo strategico e contabile (Caglio e Ditillo, 2012).

Tuttavia, diversi autori (Kingsley e Klein, 1998; Szulansky, 1996, Hanna, 2008) individuano alcuni limiti al funzionamento delle reti riconducibili alla difficoltà a stabilire una cooperazione di successo soprattutto tra le PMI e suggerendo l'uso di intermediari di rete al fine di garantire una cooperazione più efficace.

Allo stesso tempo, è stato evidenziato che le reti sono particolarmente utili per le PMI che hanno la necessità di sviluppare le relazioni con il mondo esterno in termini di comunicazione, informazioni e scambio di idee. In particolare Powell (1990) basa la sua analisi sulle piccole imprese in rete considerandole alla stregua di una nuova forma organizzativa emergente in cui l'aggregazione è determinata da motivazioni che non si limitano solo alla prossimità fisica o comunità sociale di appartenenza (che sono le determinanti tipiche dei distretti industriali). Nelle reti, intese come *network*, i membri non sono né omogenei né fungibili e piuttosto che svilupparsi spontaneamente tali *network* sono costruiti intenzionalmente. Altri studi (Mort *et al.*, 2006) considerano la partecipazione alle reti essenziale per permettere alle PMI di competere a livello mondiale.

In tale contesto, il modello industriale italiano è un laboratorio unico in quanto tradizionalmente basato su forme di cooperazione tra imprese (Beccattini, 2009). In Italia, i distretti industriali sono stati visti come un mezzo per influenzare la posizione competitiva delle imprese attraverso la diffusione della conoscenza (Lorenzoni, 2010; Camuffo *et al.*, 2011,

[1] La fattispecie meno diffusa delle reti con soggettività giuridica (che rappresenta circa il 14% del fenomeno osservato) non sarà oggetto del presente *paper*.

Trequattrini, 2012). Gli effetti delle reti d'imprese sull'innovazione sono studiati attraverso le dinamiche relazionali delle imprese retiste (Sciarelli e Tani, 2014) e attraverso il modello della *open innovation* che porta gli attori ad essere parte di uno stesso eco-sistema che crea una spinta imprenditoriale basata su una visione aperta e condivisa dello sforzo e dell'investimento in innovazione (Bifulco *et al.,* 2014).

Rullani già nel 2003 osservava l'importanza di una politica volta alla costituzione di reti anticipando quelle che sarebbero state le successive scelte del Governo volte alla formalizzazione di questo strumento (Rullani, 2003, p. 9).

L'Associazione Italiana della Produzione (AIP) nella sua collana su "Gestione d'impresa e innovazione" ha condotto nel 2008 una mappatura delle reti, intese come aggregazioni informali, basate su oltre 90 casi facendo emergere l'importanza del territorio come punto d'appoggio essenziale per le imprese di piccole dimensioni. La stessa AIP nel 2011 ha approfondito i profili di finanziamento ed il *rating* delle reti d'imprese concludendo che i neonati contratti di rete, rispondevano alle esigenze delle PMI al fine di sostenere un proficuo livello di competitività, seppure anche altri modelli associativi potrebbero rispondere a questo scopo.

L'indagine annuale sulle PMI italiane condotta da Unioncamere - Tagliacarne (2011) su un campione di 4000 aziende (di cui circa 3000 manifatturiere), si sofferma sui vantaggi che le imprese possono trarre da forme di collaborazione in rete, sebbene nel 2011 lo strumento contratto di rete non sia ancora così diffuso a differenza di altre modalità aggregative quali consorzi, gruppi di imprese, ATI etc. Dall'indagine emerge un'ampia consapevolezza da parte delle imprese (specie quelle di dimensione inferiore) circa l'importanza di instaurare relazioni stabili sul territorio con altri attori locali al fine di migliorarne le proprie capacità competitive. Nonostante ciò, la percentuale di aziende che nel 2011 è ricorsa a qualche forma di collaborazione è molto bassa (14%); con una prevalenza delle collaborazioni (6,8%) rispetto a forme di cooperazione permanenti (5,7%). La distinzione fra reti permanenti e reti saltuarie è, in letteratura, un fattore fortemente distintivo in quanto la stabilità delle collaborazioni può incidere in modo rilevante sulla competitività delle imprese. Nella ricerca Unioncamere - Tagliacarne, con riferimento al Centro Italia si è osservata una maggior presenza di collaborazioni di tipo permanente rispetto alle altre aree territoriali. Le imprese meridionali al contrario hanno dichiarato di prediligere reti saltuarie. Inoltre, un numero consiste di imprese (72%) specifica che le reti instaurate riguardano legami con imprese localizzate nella stessa regione. Altro fattore distintivo, risulta essere quello dimensionale. La suddetta ricerca denota un'evidente correlazione fra crescita dimensionale e propensione a cooperare in modo stabile con le altre imprese. Le variabili esogene area geografica, dimensione e settore di attività risultano quindi di estremo interesse, anche ai fini della presente ricerca, per valutare appieno i fattori che incidono sulla *performance* delle imprese retiste.

Negli ultimi anni diversi autori si sono soffermati sul fenomeno delle reti d'impresa ed in particolare sull'introduzione dello strumento "contratto di rete".

In particolare, diversi autori hanno sottolineato l'importanza del contratto di rete al fine di assicurare la condivisione tra le imprese di un disegno strategico in grado di generare vantaggi competitivi (Grandinetti, 2014; Tunisini, 2015, Brino *et al.*, 2015).

Alcuni studi teorici ed empirici hanno analizzato i rapporti di collaborazione interaziendali e cercato di spiegare le ragioni che inducono le imprese ad aggregarsi.

Secondo alcuni autori (Aureli *et al.*, 2011) gli obiettivi strategici delle imprese che si mettono in rete possono essere classificati in difensivi, proattivi, di consolidamento o in una loro combinazione. Essi si traducono per le PMI italiane soprattutto nella ricerca di maggiore capacità di innovazione e competitività. Dall'analisi empirica condotta nel 2011 da tali autori su 25 contratti è infatti emerso che gli accordi più diffusi sono quelli che hanno ad oggetto attività di ricerca e sviluppo (72%) e attività di marketing (72%) seguiti da accordi di produzione (68%) aventi come obiettivo un incremento della produttività e dell'efficienza tramite la realizzazione in comune di progetti o commesse.

Non mancano, altri tentavi d'indagine sul campo, principalmente attraverso analisi qualitative basate su *case studies*.

Nel 2013, Ciambotti *et al.,* analizzano sulla base di *case studies* gli elementi considerati necessari per il buon funzionamento dei rapporti interaziendali nelle reti d'imprese, con particolare riferimento al settore manifatturiero, gettando le basi per una riflessione sulla reale efficacia del contratto di rete rispetto allo sviluppo delle aziende di minore dimensione.

Tunisini *et al.* (2013, p.120) approfondiscono, attraverso interviste dirette, dieci casi di reti tra imprese studiando i rapporti che si generano tra tali imprese, nonché la concentrazione regionale o interregionale e concludendo che non è la forma contrattuale che consente di dare vita ad un progetto congiunto ma "*la comunione di intenti che fornisce sostanza ad un progetto che poi incontra nella forma contrattuale un terreno fertile dove può esprimersi al meglio*".

Massari *et al.* (2015, p.144) approfondiscono attraverso interviste semi-strutturate 4 *case studies* concludendo che il contratto di rete è uno strumento efficace per migliorare la *performance* competitiva delle imprese coinvolte, trasformandole in "*real player*" del mercato.

Altri autori si sono interrogati sulla capacità di questo strumento di contribuire allo sviluppo territoriale. In particolare, (Capuano, 2015, pp.57-58) identifica nel contratto di rete "*uno strumento di politica regionale finalizzato, oltre che alla crescita dimensionale delle imprese, alla riduzione degli squilibri territoriali*". Analizzando 1.358 contratti di rete (stipulati fino al 31/12/2014) l'autore osserva che la maggior parte dei contratti vede il coinvolgimento di imprese operanti nella stessa regione e che la variabile territoriale è molto importante per determinare il successo o l'insuccesso di una azienda e la decisione di attivare un contratto di rete. L'autore evidenzia in conclusione come la "vocazione territoriale" può giocare un ruolo importante per far nascere e sviluppare il modello di rete e come al momento della sua introduzione giuridica "*esso è stato mediamente correlato alla densità delle imprese localizzate sul territorio e al modello di sviluppo e/o grado di specializzazione produttiva del territorio di appartenenza*".

Queste riflessioni portano a chiedersi se il modello gestionale alla base del "contratto di rete" si candidi come modello alternativo ad altre aggregazioni sul territorio tra cui il distretto. Sul punto alcuni autori (Martiniello *et al.*, 2015) ritengono che, pur trattandosi di modelli organizzativi che operano su piani diversi, alcune imprese legate al distretto (non necessariamente parte di esso in senso produttivo) potrebbero trovare utile lo strumento contrattuale della rete per consolidare la loro relazione e per aumentare il loro potere contrattuale anche nei confronti del distretto stesso.

Altro tema di estrema rilevanza per il successo delle reti d'imprese è il fattore territorio.

Secondo Rullani (2009) il territorio svolge un ruolo importante nelle filiere se ha conservato risorse critiche e indispensabili per la competizione come la conoscenza non codificata sedimentata dall'esperienza, le competenze disponibili, la cultura delle società locali. Il valore di queste risorse dipende dal loro grado di insostituibilità ma anche dall'efficienza delle reti che valorizzano e moltiplicano il loro apporto. In questa prospettiva, pertanto, i distretti apportano all'interno delle reti globali del valore le loro specifiche competenze, conoscenze e specializzazioni. La prossimità spaziale e le relazioni tra imprese in rete favorisce il flusso di *know-how* tecnico e manageriale (Saxenian, 2002; Nohria, 1991) generando un processo di proliferazione *by imitation* di valori imprenditoriali e di modelli di sviluppo organizzativo efficienti che agiscono da traino per l'imprenditorialità (Presutti, 2010, p. 93). Inoltre, lo strumento contratto di rete, rispetto alla sola vicinanza geografica delle imprese e alla loro concentrazione, consente un maggiore scambio di fonti di informazioni e conoscenze consentendo di raggiungere anche le imprese isolate (Rullani, 2000).

Il territorio diviene, quindi, luogo di accumulazione di *skills* specifici grazie ai *network* relazionali che si instaurano e consolidano nel tempo tra gli attori locali (Powell *et al.*, 1996; Almeida *et al.*, 1999).

Secondo questi autori, la vicinanza geografica favorisce in sostanza lo scambio naturale di informazioni e di idee tra le imprese sia attraverso relazioni formali che informali.

D'altra parte le alleanze tra le imprese posso avere anche natura trans-territoriale. Sul tema emergono due concetti fondamentali: il *networking* e il *clustering* (Sassen, 2002). Il *clustering* è un concetto meramente spaziale; il *networking* può avvenire anche tra imprese distanti, soprattutto se di grande dimensioni, perché di natura trans-territoriale (Coe, 2004).

I cluster sono dei poli di crescita territoriale in grado di sfruttare i vantaggi del *networking*, in modo da rafforzare la competitività della singola impresa e dell'intero territorio. Ciò crea valore economico in quanto il legame tra imprese diverse, pur rimanendo autonome, consente di convergere in modo stabile e consapevole verso un processo congiunto di generazione di valore per l'intero territorio.

Secondo altri autori, la sola prossimità geografica non è una condizione sufficiente ad accedere agli *spillovers* di conoscenza (Saxenian, 2002). Con lo strumento del contratto di rete viene ripensata la logica dell'importanza del territorio e della co-localizzazione ai fini della diffusione dell'imprenditorialità e dell'innovazione, includendo e contestualizzando

anche significati meno tangibili della prossimità geografica come il *social capital* (Nooteboom *et al.*, 2007; Bathlet *et al.*, 2004).

In coerenza con la logica dei *network*, i contratti di rete possono essere, in linea teorica, uno dei motori di trasformazione dei territori in sistemi aperti a lavorazioni e competenze non-locali, permettendo l'acquisizione di competenze e specializzazioni esterne e assicurando la riorganizzazione del territorio in modo da far fronte alle sfide della globalizzazione (Intesa San Paolo, 2014).

Resta però da comprendere meglio se e come la prossimità geografica giochi un ruolo fondamentale nell'ambito dei contratti di rete al fine di favorire lo sviluppo del capitale relazionale grazie al coordinamento e alla cooperazione tra gli attori coinvolti, o se viceversa, tale fattore non debba ritenersi particolarmente rilevante.

Se gli elementi strategici, organizzativi e territoriali del contratto di rete sono stati oggetto di analisi ed approfondimento, ancora molto pochi sono i contributi sul tema della *performance* delle imprese retiste.

Nel 2014 lo studio redatto dall'Osservatorio Intesa Sanpaolo-Mediocredito Italiano sulle reti d'impresa ha condotto un'analisi di tipo quantitativo volta a verificare gli effetti dei contratti di rete sulle "*performance economico-reddituali delle imprese entrate in rete nel corso del 2011*" finalizzata a verificare l'effetto dell'ingresso in rete sull'EBITDA e sul fatturato. Tale ricerca ha evidenziato l'assenza, nel breve periodo, di un differenziale di crescita positivo a favore delle imprese coinvolte in rete osservando che tale risultato "*riflette molto probabilmente la tipologia degli obiettivi dei contratti, spesso orientati su strategie di medio-lungo termine come innovazione e internazionalizzazione*".

Questo *paper* si ricollega al recente filone di ricerca che mira a comprendere, anche attraverso l'analisi quantitativa, se la stipula di contratti di rete sia in grado di produrre effetti economici positivi sulle imprese retiste.

L'ipotesi alla base della presente ricerca è che la partecipazione delle imprese ad un contratto di rete ha inciso positivamente sulla loro *performance*.

L'obiettivo del lavoro è quello di rispondere alle seguenti domande di ricerca.

1. La redditività operativa delle imprese (in termini di ROI) si è modificata in senso migliorativo dopo l'entrata in rete ed in funzione di quali fattori?
2. La redditività operativa delle imprese (in termini di ROI) si è modificata in senso migliorativo rispetto alla media di settore dopo l'entrata in rete ed in funzione di quali fattori?
3. La *performance* commerciale delle imprese (in termini di fatturato) si è modificata in senso migliorativo dopo l'entrata in rete ed in funzione di quali fattori?

Il presente lavoro conduce, in sintesi, un'analisi quantitativa sui fattori determinanti per il successo del fenomeno "contratti di rete". In particolare, si analizzano i risultati delle imprese nel periodo precedente e successivo alla stipula dei contratti stessi, per valutare gli effetti economici prodottisi in funzione del fattore rete e la loro associazione con altre variabili aziendali, territoriali e settoriali. L'obiettivo è presentare prime riflessioni ed evidenze empiriche circa la capacità di questo strumento di creare valore migliorando

le *performance* aziendali e rilanciando la competitività delle imprese, nel pieno della turbolenza economica finanziaria.

3. Metodologia

Per rispondere alle domande di ricerca si utilizza un modello econometrico che evidenzia gli effetti della partecipazione al contratto di rete misurando l'effetto della rete in base all'analisi della *performance* delle imprese, in termini di ROI e fatturato, prima e dopo l'ingresso in rete.

Nello specifico si introduce un modello *logit* (Hosmer *et al.*, 2000; Agresti e Kateri, 2002) al fine di indagare la *performance* delle imprese che per prime hanno sottoscritto un contratto di rete (periodo 2009-2011), in modo da poterne apprezzare gli effetti economici nel biennio successivo (2012-2013).

Il modello proposto permette di analizzare la presenza o l'assenza di una determinata caratteristica, il miglioramento del ROI (o del fatturato) delle imprese dopo l'entrata in rete, rispetto ad una serie di variabili di controllo, le cosiddette covariate o predittori, rappresentate da alcune variabili caratteristiche della gestione economico-industriale, del territorio e della specializzazione produttiva.

In altri termini, dopo aver verificato, attraverso statistiche descrittive, quali sono i risultati in termini di *performance* delle imprese dopo l'entrata in rete, per quelle che mostrano un miglioramento della *performance*, si ricercano le variabili che incidono maggiormente sul risultato positivo ottenuto e si verifica se sono imputabili a fattori economici ovvero ad altri fattori settoriali e/o territoriali.

Il modello di regressione logistica binomiale esprime, quindi, la presenza e/o l'assenza della caratteristica di volta in volta indagata (es. aumento del ROI o aumento del fatturato) sotto forma di variabile dicotomica. L'analisi è condotta in riferimento a due distinti periodi di osservazione, vale a dire il triennio 2009-2011, in cui le imprese del campione hanno sottoscritto i contratti di rete ed il biennio 2012-2013, in cui si possono valutare i primi effetti economici, che si ipotizza siano imputabili alla rete.

Si costruisce così una variabile aleatoria che assume, a seconda dei 3 casi indicati, valore 1 (successo) se:

1) l'impresa presenta una crescita del ROI tra i due diversi periodi di osservazione e 0 altrimenti (regressione 1). Si studia in questo modo quali fattori hanno contribuito al miglioramento del ROI delle imprese dopo il loro ingresso in rete;
2) l'impresa presenta una variazione del ROI superiore al valore medio del settore manifatturiero nel periodo 2012-2013 e 0 altrimenti (regressione 2). Si studia in questo modo quali fattori hanno permesso il miglioramento della competitività delle imprese retiste collocandole oltre la media di settore;
3) l'impresa presenta una crescita del fatturato tra i due diversi periodi di osservazione e 0 altrimenti (regressione 3). Si studia in questo modo come l'ingresso in rete ha migliorato il fatturato delle imprese utilizzando tra le variabili di controllo anche la redditività dell'impresa (ROI) rispetto all'intero settore manifatturiero (ROI medio di settore).

I dati

Il database utilizzato è stato realizzato attraverso il *matching* tra la banca dati InfoCamere, nella quale sono state reperite le informazioni sulle reti (codice fiscale delle imprese, anno di costituzione della rete, settore di attività economica), l'archivio statistico delle imprese attive "ASIA" per controllare la dimensione media delle imprese, e la banca dati AIDA, riferita alle sole società di capitali, che offre informazioni di natura contabile circa gli indici di redditività (fatturato e ROI), il valore aggiunto (per addetto), l'efficienza degli investimenti in termini di *capital turnover* ed i costi di produzione. Il set delle informazioni è completato con l'introduzione di alcune variabili di controllo di natura industriale e territoriale quali:

- la vocazione produttiva,
- il livello tecnolo gico,
- la localizzazione geografica.

Come già detto, i dati si riferiscono ai primi contratti di rete ovvero alle imprese che hanno sottoscritto tali contratti entro il 2011 e che nel biennio successivo 2012-2013 non presentano situazioni di criticità aziendale ovvero di insolvenza.

In termini formali, nel modello *logit*, si definisce la variabile dipendente Yi nel seguente modo:

$$Y_i = \begin{cases} 1 \text{ crescita della redditività dovuta all'effetto rete} \\ 0 \text{ altrimenti} \end{cases}$$

dove l'indice $i = 1,.....N$, indica la generica impresa retista.

I regressori (covariate), identificati dalle variabili indipendenti x_{1i}, x_{2i},....x_{ki} e riferiti alla i-esima unità, vengono introdotti per descrivere il comportamento della variabile dipendente e sono suddivisi in due gruppi di controllo, come di seguito riportato:

Variabili di controllo di natura contabile:

- Produttività (logaritmo del valore aggiunto per addetto)
- Costi di produzione (logaritmo dei costi di produzione)
- *Capital turnover* (Fatturato/investimenti)

Variabili di controllo di natura industriale e territoriale:

- Dimensione d'impresa (logaritmo del numero degli addetti)
- Localizzazione geografica (Nord; Centro; Sud e Isole)
- Area a vocazione produttiva (Si; No)
- Livello tecnologico (Alta tecnologia; Medio Alta Tecnologia; Medio Bassa tecnologia; Bassa tecnologia)

In particolare: la variabile "Area a vocazione produttiva" identifica la specializzazione produttiva dell'area osservata come rapporto tra il numero di addetti occupati in una determinata attività manifatturiera e il totale degli addetti dell'industria manifatturiera dell'area. In particolare, sono selezionate come aree a vocazione produttiva quelle identificate dall'ISTAT (Istat, 2011).

La variabile "Livello tecnologico" è, invece, suddivisa in 4 differenti cluster in relazione ai codici Ateco delle imprese osservate sulla base della classificazione convenzionalmente utilizzata a livello internazionale (OECD, 2007).

Inoltre, il modello prevede l'analisi degli effetti di interazione significativi tra le variabili indipendenti.

L'obiettivo è di stabilire se c'è un legame tra alcuni valori economici, relativi in particolare a produttività, costi ed efficienza degli investimenti e la variabile dipendente dopo la sottoscrizione del contratto di rete da parte dell'impresa i-esima, controllando anche per l'effetto di alcune caratteristiche di natura industriale (livello tecnologico) e territoriale (area geografica e vocazione produttiva dell'area).

4. Analisi descrittiva

I dati del Registro Imprese, pubblicati da Infocamere, mostrano che novembre 2016 oltre 16 mila imprese hanno stipulato un contratto di rete.

Le reti sono state costituite in tutte le regioni italiane con una concentrazione più elevata in Lombardia (16,7%), Toscana (10%), Emilia Romagna (9,7%), Veneto (8,9%) e Lazio (8,7%) dove sono presenti oltre il 50% delle reti nazionali.

I contratti di rete hanno dimostrato, inoltre, delle peculiarità settoriali evidenti. Oltre il 46% delle imprese in rete appartiene al settore dei servizi e commercio, seguito dal settore manifatturiero (29,5%), mentre minore diffusione sta trovando il contratto di rete negli altri settori.

Il report Intesa-San Paolo 2014 evidenzia che le reti sono costituite da imprese di dimensioni medio piccole. L'analisi dei fatturati di circa 10.000 imprese retiste mostra che circa il 54% delle reti si posizione nella fascia delle micro-imprese con un fatturato inferiore a 2 mln di euro, mentre il 30% circa presenta fatturati tra 2 e 10 mln di euro. Sono invece solo il 3% le imprese in rete di grandi dimensioni con oltre 50 mln di fatturato.

I dati che emergono dai contratti di rete evidenziano, inoltre, come già osservato da altri autori, che sotto il profilo della numerosità delle imprese, i contratti di rete aggregano in misura prevalente poche imprese (in media quattro o cinque) e che le imprese che si aggregano appartengono generalmente a settori diversi. Infine, è interessante osservare come il 72,6% dei contratti coinvolge imprese della stessa regione.

A partire da questi dati di contesto si procede ad una prima analisi di statistica descrittiva sul campione di imprese oggetto di osservazione nel presente *paper* ovvero le imprese manifatturiere, che hanno stipulato contratti di rete, ed hanno forma giuridica di società di capitali.

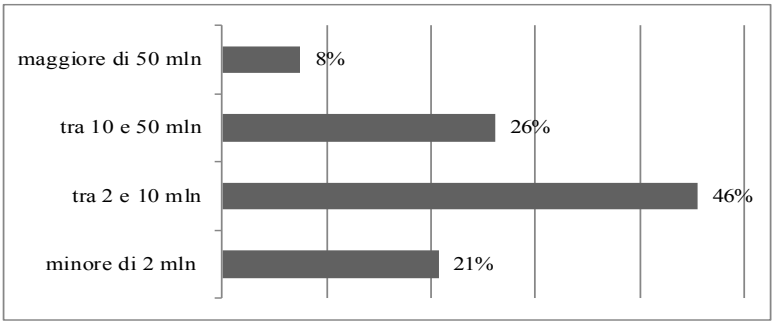
Il campione oggetto di osservazione

Il campione oggetto di osservazione è composto da tutte le imprese manifatturiere che hanno firmato contratti di rete nel periodo 2009-2011 per le quali è stato possibile rilevare i dati contabili (società di capitali con bilanci depositati), per un totale di 531 imprese.

Dal punto di vista della ripartizione territoriale tali imprese appartengono per il 19% al Centro, per il 19% al Sud e per il 63% al Nord, in coerenza con la numerosità generale dei contratti di rete in Italia che vede un maggior numero di contratti nelle regioni del Nord Italia.

Nel campione oggetto di osservazione la dimensione media prevalente nel 2013 è quella tra 2 e 10 mln di fatturato (46%). Complessivamente oltre il 54% delle imprese ha una dimensione micro o piccola.

Fig. 1: La dimensione delle imprese in rete nel campione



Fonte: Ns. elaborazione su dati Infocamere e AIDA

Passando a una preliminare osservazione dei dati contabili delle 531 imprese selezionate si apprezza un andamento del ROI medio significativamente decrescente nel periodo 2008-2010 in cui il rendimento delle imprese osservate crolla di oltre 3 punti percentuali probabilmente per effetto della crisi economica che ha colpito il nostro paese proprio a partire dal 2009. Segnali di ripresa mostrano, invece, gli anni 2011 e 2012, mentre il 2013 è nuovamente caratterizzato da un andamento discendente del ROI.

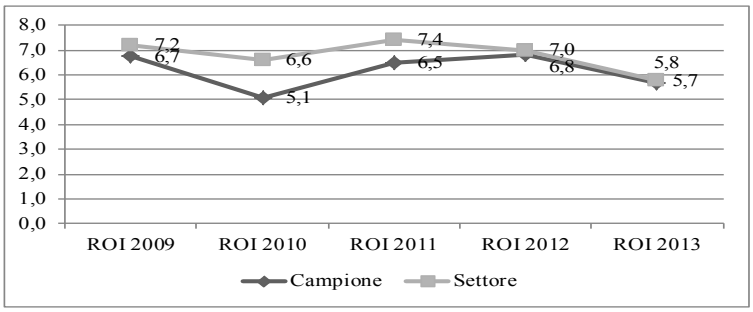
Se si confronta questo andamento con il ROI medio dell'intero settore manifatturiero italiano si osserva che le imprese, poi divenute retiste, si collocavano mediamente sotto le medie di settore nel periodo 2009-2011, ovvero prima dell'ingresso in rete, per poi mostrare nel 2012, ovvero dopo l'entrata in rete, una crescita del ROI medio fino al livello del settore di riferimento. In particolare, nel 2012 il ROI medio del campione osservato di imprese manifatturiere è del 6,6% ed ha quasi raggiunto quello dell'intero settore (6,8%), come riepilogato in figura 2.

L'analisi descrittiva evidenzia che solo il 13,9% delle imprese ha livelli del ROI più elevati del settore sia prima che dopo l'entrata in rete, mentre il 21% delle imprese analizzate riesce (a partire dal 2012), ovvero dopo l'ingresso in rete, a migliorare la propria redditività operativa superando la media del settore. Tale risultato sarebbe imputabile all'effetto rete in quanto le imprese utilizzerebbero lo strumento rete come opportunità di rilancio e di crescita per contrastare la crisi economico-finanziaria e guadagnare competitività.

Nel complesso il 35% delle imprese del campione presenta valori crescenti della redditività operativa superiori alla media del settore dopo l'entrata in rete. Per le altre imprese non si osservano significativi miglioramenti, anche se nel 25% dei casi le imprese, forse per effetto della crisi, producono nel 2013 risultati peggiori rispetto al passato scendendo sotto le medie di settore.

Nel 2013, infatti, la redditività media delle imprese retiste osservate, rispetto al settore, cala probabilmente per effetto dei risultati significativamente negativi di alcune delle imprese del campione.

Fig. 2: L'andamento del ROI tra 2009 e 2013 del campione e dell'intero settore (%)



Fonte: Ns. elaborazione su dati AIDA

In questo contesto si osserva preliminarmente come i vantaggi dell'entrata in rete potrebbero essere stati importanti per il recupero di redditività delle imprese retiste osservato nel periodo 2010-2012, in controtendenza rispetto all'andamento del settore che vede invece un calo, anche se lieve, della redditività dal 7,4% al 7% circa.

I fattori di natura aziendale a cui potenzialmente ricondurre i risultati migliorativi osservati sono:

1) La capacità delle imprese retiste di aumentare la produttività (valore aggiunto pro-capite) dell'impresa mediante un aumento del *know-how* e dell'innovazione;
2) La capacità delle imprese retiste di ridurre i costi (mediante economie di scala e gestione congiunta di alcune attività);
3) La capacità delle imprese retiste di aumentare la produttività degli investimenti in termini di *capital turnover* a fronte di minori risorse impiegate per acquisirli ovvero grazie alla possibilità di investimenti congiunti (rilevati pro-quota nei bilanci delle imprese retiste);
4) La capacità delle imprese retiste di incrementare il fatturato mediante migliori politiche di comunicazione e marketing.

Una variazione in queste variabili si traduce sempre, a livello contabile, in un miglioramento della redditività degli investimenti (ROI) che, come noto è dato dall'EBIT (ricavi - costi operativi) diviso gli Investimenti Operativi Netti (ION).

Si indaga quindi, attraverso tre regressioni di tipo logistico, l'effetto rete declinato in un ROI crescente; in un ROI superiore alla media di settore; e infine, in un fatturato crescente rispetto ad alle già descritte variabili dipendenti di natura contabile ed extra-contabile.

Con riferimento alle variabili extra-contabili l'obiettivo è principalmente quello di osservare se il binomio contratto di rete - territorio si sviluppa a prescindere dalla vocazione produttiva territoriale mirando alla creazione di relazioni di tipo funzionale come veicolo di sostegno rivolto alle singole imprese. Si vuole cioè verificare se il territorio rimane un elemento centrale della collaborazione tra imprese, in grado di incoraggiare il trasferimento tecnologico e la creazione di prodotti sempre più competitivi, e se la vocazione produttiva già esistente in un certo territorio è da considerarsi un elemento che incide sulla *performance* delle imprese retiste. Unitamente alle variabili territoriali verrà inoltre considerato anche il livello tecnologico

dell'area ovvero se le imprese in rete che operano nei settori maggiormente tecnologici siano grado di sfruttare meglio i benefici della rete al fine di elevare le proprie competenze e *skills* in campo tecnologico e migliorare conseguentemente la loro redditività.

5. Analisi quantitativa: principali risultati

Per esprimere la relazione esistente tra la variabile causale di interesse e la variabile dipendente dicotomica, ovvero per stimare l'effetto esercitato dalle covariate sulla variabile dipendente si ricorre, come già detto, agli *odds ratio*, che rappresentano un duplice rapporto di probabilità tra le categorie considerate e quelle di riferimento[2].

Dal punto di vista puramente descrittivo, le imprese che mostrano una crescita del ROI dopo l'entrata in rete (variabile Y=1) sono circa il 49% del campione analizzato. Ciò fornisce una preliminare indicazione della capacità del contratto di rete di migliorare la *performance* delle imprese retiste e induce ad indagare i fattori economici e territoriali determinanti, ovvero quelli in grado di spiegare il miglioramento nella redditività delle imprese dopo il loro ingresso in rete.

L'applicazione del modello di regressione logistica binomiale (tab. 1), presenta una buona capacità predittiva. Dai risultati conseguiti, con riferimento ai fattori economici analizzati (produttività, costi, investimenti) si evince che un impatto positivo sulla redditività delle imprese, dopo il loro ingresso in rete, viene svolto esclusivamente dalla produttività nel 2013. Sembrerebbe, quindi, che il miglioramento della *performance* delle imprese retiste non sia da attribuirsi ad una maggior efficienza operativa in termini di riduzione dei costi o di *capital turnover* quanto alla capacità di aumentare la competitività attraverso l'incremento del fatturato. Ciò negherebbe la tradizionale funzione di strumento di riduzione dei costi attribuita al contratto di rete a favore di un vantaggio di tipo strategico che ne farebbe un veicolo di miglioramento della produttività delle piccole e medie imprese italiane. Infatti, secondo la letteratura sul tema i vantaggi del contratto di rete sarebbero da ricercare non solo in un aumento della produttività, ma anche nella possibilità di beneficiare di economie di scala e di apprendimento (frutto dell'aggregazione) nonché di ampliare la capacità d'investimento a fronte di investimenti congiunti sia in ricerca e sviluppo che in *assets* materiali.

Le variabili inerenti i costi ed il *capital turnover* non sembrano, invece, contribuire a spiegare l'aumento di redditività delle imprese retiste.

Con riferimento alle variabili territoriali non si denota alcuna relazione positiva tra l'incremento del ROI e la localizzazione geografica delle imprese e neppure con lo svolgimento dell'attività in aree considerate a vocazione produttiva. Ciò sembrerebbe confermare che il fattore geografico non

[2] In termini probabilistici, se $\exp(\beta)>1(<1)$ ciò implica che il rapporto tra la probabilità di crescita delle imprese dovuta a una variazione positiva del ROI eñ la probabilità di non crescita (variazione negativa del ROI) è maggiore (inferiore) di 1. È possibile, quindi, identificare la variabile dipendente con il valore 1 (successo), se le imprese registrano una variazione positiva del ROI, e 0 altrimenti.

è rilevante al fine di spiegare l'incremento di redditività delle imprese analizzate. Inoltre, emerge che appartenere a un'area a vocazione produttiva (es. ad un distretto) non risulta essere un elemento chiave per l'incremento della redditività delle imprese. Ne discende che le imprese retiste possono essere localizzate anche in territori senza specializzazione produttiva o con specializzazione diversa da quelle delle imprese retiste. In questo senso risulterebbe confermato la posizione secondo la quale il contratto di rete prescinde dal fattore territoriale, rappresentando anzi uno strumento di superamento dei limiti di sviluppo territoriale.

Dall'analisi emerge che di fatto anche se molte imprese retiste si collocano in aree limitrofe, la loro *performance* non sarebbe positivamente correlata ad una certa collocazione geografica o allo svolgimento della propria attività in una certa area produttiva.

Tab. 1: Regressione 1

Tabella 4 – Stima dei coefficienti β del modello di regressione logistica binomiale per l'analisi della redditività degli investimenti tra le imprese manifatturiere - Anni 2009-2011e 2012-2013 (Effetti principali)

Statistiche[3]								
Confronto ROI ex ante-ex post rete	Categorie	β	S.E.	Wald	Sig. (pvalue)	exp(β)	Intervallo di confidenza al 95% per exp(β)	
							L. inf.	L. sup.
Imprese il cui ROI cresce nei due periodi osservati [a]	Intercetta	-0.678	0.927	0.534	0.465	0.1969		
Vocazione produttiva (Area)	Si	-0.133	0.365	0.133	0.716	0.875	0.428	1.791
	No	0[b]				1		
Localizzazione geografica	Nord	0.273	0.241	1.287	0.257	1.314	0.820	2.108
	Centro	0.377	0.299	1.599	0.207	1.458	0.812	2.617
	Sud e Isole	0[b]				1		
Livello tecnologico	Alta tecnologia	-0.218	0.413	0.278	0.598	0.804	0.358	1.806
	Medio Alta tecno	-1.529	0.863	3.141	0.076	0.217	0.040	1.176
	Medio Bassa tecno	-1.885	1.143	2.770	0.099	0.152	0.016	1.426
	Bassa tecnologia	0[b]				1		
Dimensione d'impresa	In addetti 2013	-0.974	0.858	1.228	0.256	0.378	0.070	2.029
	In addetti 2012	1.055	0.786	1.804	0.179	2.872	0.616	13.392
Produttività	In va per add 2013	0.154	0.144	01.150	0.284	1.167	1.080	1.548
	In va per add 2012	0-.374	0.190	3.878	0.049	0.688	0.474	0.998
Capital turnover	CT 2013	-0.007	0.009	0.630	0.427	.993	.974	1.011
	CT 2012	-0.001	0.007	0.009	0.924	.999	.985	1.014
Costi produzione	In Costi prod 2013	2.391	.838	8.148	0.004	10.922	2.115	56.399
	In Costi prod 2012	-2.371	.805	8.677	0.003	0.093	0.019	0.452

[a] La categoria di riferimento è: 0 Imprese il cui ROI decresce nei due periodi osservati
[b] Questo parametro è impostato su zero perché ridondante

Fonte: Ns. elaborazione su dati AIDA e ASIA

Analogamente a quanto descritto precedentemente, è possibile effettuare una seconda regressione logistica in cui la variabile dipendente assume valore 1 se le imprese presentano una variazione del ROI, nel biennio 2012-2013, maggiore del valore medio del settore manifatturiero e 0 altrimenti.

[3] Per semplicità di esposizione si omettono nella tabella di stima dei parametri i gradi di libertà (df).

I risultati della seconda regressione (tab. 2) confermano quanto già ottenuto nella prima regressione in termini di stime per la variabile produttività. Anche in questo caso è confermata una relazione positiva e significativa tra l'aumento della redditività oltre la media del settore (dopo l'entrata in rete) e la produttività per addetto delle imprese analizzate. Anche in questo caso l'aumento di redditività oltre la media del settore non è, secondo le evidenze statistiche, riconducibile ad una maggiore efficienza interna o esterna e neppure ad una maggiore produttività degli investimenti in termini di *capital turnover*.

Tab. 2: Regressione 2

Tabella 2 – Stima dei coefficienti β del modello di regressione logistica binomiale per l'analisi della competitività tra le imprese manifatturiere - Anni 2012-2013 (Effetti principali)

Statistiche[4]								
Imprese retiste	Categorie	β	S.E.	Wald	Sig. (pvalue)	exp(β)	Intervallo di confidenza al 95% per exp(β)	
							L. inf.	L. sup.
Imprese il cui ROI cresce più della media del settore [a]	Intercetta	0-.789	0.996	0.627	0.428	0.454		
Vocazione produttiva (Area)	Si	0-.975	0.378	6.660	0.010	0.377	0.180	0.791
	No	0b				1		
Localizzazione geografica	Nord	0.255	0.260	0.962	0.327	1.290	0.775	2.147
	Centro	0.694	.313	4.911	0.027	2.002	1.084	3.698
	Sud e Isole	0[b]				1		
Livello tecnologico	Alta tecnologia	0.137	0.439	0.097	0.755	1.147	0.485	2.709
	Medio Alta tecn	-2.163	1.109	3.803	0.051	0.115	0.013	1.011
	Medio Bassa tecn	21.410	16276.09	0.000	0.999	0.000	0.000	0.000
	Bassa tecnologia	0[b]				1		
Dimensione d'impresa	ln addetti 2013	-0.678	0.941	0.520	0.471	0.508	0.080	3.208
	ln addetti 2012	0.217	0.818	0.071	0.790	1.243	0.250	6.172
Produttività	ln v.a per adde '13	0.423	0.193	4.795	0.029	1.526	1.045	2.229
	ln v.a. per adde '12	-0.121	0.180	0.454	0.501	0.886	0.622	1.261
Capital turnover	CT 2013	0.002	0.009	0.075	0.785	1.005	0.897	1.019
	CT 2012	-0.006	0.009	0.388	0.533	0.994	0.977	1.012
Costi produzione	ln Costi prod 2013	1.695	.874	3.758	0.053	5.447	.979	30.225
	ln Costi prod 2012	-1.168	.833	1.969	0.161	0.311	.061	1.590
*Livello tecnologico * Vocazione produttiva*	Area a vocazione produttiva * Medio Alta tecnologia	2.596	1.142	5.168	.023	13.404	1.430	125.634

[a] La categoria di riferimento è: 0 Imprese il cui ROI cresce meno della media del settore
[b] Questo parametro è impostato su zero perché ridondante

Fonte: Ns. elaborazione su dati AIDA e ASIA

Come detto l'aumento della redditività dopo la stipula del contratto di rete è spiegata principalmente dall'incremento della produttività per addetto. Questo effetto è probabilmente riconducile alla possibilità per le imprese di avvalersi di nuovi strumenti di gestione congiunta del personale come la "codatorialità" che permettono alle imprese di ottimizzare la gestione delle risorse umane, nonché all'incremento del *know-how* e degli

[4] Per semplicità di esposizione si omettono nella tabella di stima dei parametri i gradi di libertà (df)

skills delle risorse umane impiegate frutto di un proficuo confronto tra le imprese retiste. Nel modello si evince, inoltre, un'associazione positiva tra la variabile dipendente e le variabili di controllo territoriali e industriali, quali la localizzazione geografica delle imprese nel Centro Italia e l'interazione tra aree a vocazione produttiva e livello tecnologico medio-alto.

In particolare, si evidenzia una relazione positiva tra crescita del ROI oltre la media del settore e localizzazione delle imprese retiste nel Centro Italia.

Un risultato analogo, in tema di relazione tra competitività della rete e localizzazione geografica, era stato già osservato nell'analisi di Unioncamere-Tagliacarne (2012), in cui si evidenziava nel centro Italia il ricorso a forme di collaborazione di tipo permanente, in grado di assicurare alle imprese crescita dimensionale ed aumento della competitività.

La tipologia di collaborazione, ed in particolare la sua stabilità, può quindi incidere sulle *performance* aziendali, anche se questa variabile merita ulteriori approfondimenti finalizzati a comprendere se effettivamente sia la tipologia di relazione a incidere positivamente sulla *performance* piuttosto che la capacità di quel territorio di assicurare esternalità positive alle imprese che vi operano.

Proprio a tale scopo è stata approfondita anche la variabile "vocazione produttiva" che però non risulta significativa se non quando combinata con il livello tecnologico (medio/alto) delle imprese osservate.

In particolare, con riferimento agli effetti di interazione il modello ha analizzato le variabili territorio e tecnologia, misurato dalla combinazione "*area a vocazione produttiva*livello tecnologico medio-alto*". Tale fattore risulta correlato positivamente all'aumento della redditività delle imprese retiste nonché significativo. Ciò significa che le esternalità positive del territorio diventano rilevanti per un miglioramento della *performance* aziendale soprattutto quando le imprese operano in settori più tecnologici.

Nel modello viene, quindi, confermata la propensione delle imprese in rete ad essere più competitive, con risultati addirittura superiori alla media del loro settore, in forza di una maggiore produttività. Tali risultati sono enfatizzati da fattori esterni alla rete in particolare a carattere territoriale quali l'area geografica di appartenenza e la vocazione produttiva di tale area fattore quest'ultimo che diventa significativo solo per le imprese che operano in settori con livello di tecnologia medio-alto.

In sintesi, sulla base delle due precedenti regressioni, l'entrata in rete permette di migliorare la *performance* aziendale ma per essere pienamente competitivi (oltre la media del settore) continuano ad essere rilevanti anche fattori esogeni, rispetto allo strumento rete, quali in particolare quelli territoriali. Non sembra, invece, incidere sulla *performance* la dimensione della rete ovvero il numero totale di imprese che costituiscono la rete sfatando così la convinzione che aggregazioni numerose (come quelle distrettuali o dei consorzi) possano garantire vantaggi maggiori alle imprese rispetto a quelli che potrebbero essere ottenuti da un gruppo piccolo ancorché coeso di imprese retiste.

Si presenta, infine, una terza regressione che analizza la crescita del fatturato delle imprese retiste. Anche in questo caso, si indica con il valore 1 (successo) le imprese retiste che presentano una variazione positiva

del fatturato nel biennio 2012-2013 rispetto al triennio 2009-2011 e 0 altrimenti. Inoltre, si introduce una ulteriore variabile di controllo, il valore del ROI delle imprese retiste rispetto alla media del settore manifatturiero per verificare se le imprese retiste sono anche le più competitive rispetto all'intero settore manifatturiero.

Le statistiche descrittive indicano che circa il 50% delle imprese incrementano il loro fatturato dopo l'ingresso in rete. Tale dato è coerente con quello emerso dall'analisi della redditività in termini di ROI.

Il modello logistico (Tab. 3) conferma alcune delle ipotesi di partenza, già dibattute precedentemente ed in particolare quelle che vedono l'effetto rete tradursi in aumento della produttività, con una forte associazione positiva, nel 2013, tra la crescita del fatturato e la produttività. Al tempo stesso, in quest'ultimo modello si osserva (sempre per il 2013) anche una relazione negativa tra la variabile dipendente ed i costi di produzione, riduzione che potrebbe essere frutto di economie di scala o di apprendimento ottenute con l'entrata in rete.

Tab. 3: Regressione 3

[6]

Tabella 3 – Stima dei coefficienti β del modello di regressione logistica binomiale per l'analisi della redditività basata sul fatturato tra le imprese manifatturiere - Anni 2009-2011 e 2012-2013 (Effetti principali)

Statistiche[5]								
Imprese retiste	Categorie	β	S.E.	Wald	Sig. (pvalue)	exp(β)	Intervallo di confidenza al 95% per exp(β)	
							L. inf.	L. sup.
Imprese il cui Fatturato cresce nei due periodi osservati [a]	Intercetta	-0.789	0.996	0.627	0.428	0.454		
Vocazione produttiva (Area)	Si	0.034	0.391	0.008	0.931	1.034	0.481	2.225
	No	0b				1		
Localizzazione geografica	Nord	-0.147	0.266	0.305	0.581	0.863	0.512	1.455
	Centro	-0.391	0.328	1.421	0.233	0.676	0.355	1.287
	Sud e Isole	0b				1		
Competitività del settore (ROI sopra la media di settore)	Si	0.065	0.232	0.077	0.781	1.067	0.677	1.680
	No	0b				1		
Livello tecnologico	Alta tecnologia	-0.123	0.454	0.073	0.787	0.884	0.363	2.153
	Medio Alta tecn	-0.185	0.867	0.046	0.831	0.831	0.152	4.541
	Medio Bassa tecn	1.011	0.977	1.072	0.300	2.749	0.405	
	Bassa tecnologia							
Dimensione d'impresa	ln addetti 2013	5.176	1.357	14.557	0.000	177.041	12.395	2.528.762
	ln addetti 2012	-4.904	1.403	12.209	0.000	0.007	0.000	0.116
Produttività[6]	ln v.a per adde '13	6.593	1.198	30.283	.000	730.043	69.748	7641.233
	ln v.a. per adde '12	-6.645	1.234	28.977	.000	.001	0.000	0.015
Capital turnover	CT 2013	0.001	0.008	0.010	0.921	1.001	0.984	1.018
	CT 2012	0.003	0.008	0.144	0.704	1.003	0.987	1.020
Costi produzione	ln Costi prod 2013	-2.389	1.192	4.018	0.045	0.092	0.009	0.948
	ln Costi prod 2012	2.448	1.225	3.989	0.046	11.560	1.047	127.665

Fonte: Ns. elaborazione su dati AIDA e ASIA

5 Per semplicità di esposizione si omettono nella tabella di stima dei parametri i gradi di libertà (df).

6 Nel presente modello la produttività è calcolata come logaritmo del fatturato per addetti

Il modello evidenzia, inoltre, una relazione positiva tra crescita del fatturato e dimensione d'impresa nel 2013 ovvero una propensione delle imprese retiste ad accrescere il numero dei dipendenti.

Le piccole e medie imprese notoriamente hanno difficoltà ad accrescere la propria dimensione e ad assumere personale. Una soluzione al problema può essere quindi costituita dalla promozione di forme di collaborazione in rete tra imprese manifatturiere sul fronte del personale che spiegherebbero anche l'incremento della produttività per addetto delle imprese retiste. In particolare, la crescita aziendale (misurata dal logaritmo degli addetti) conferma che le imprese retiste con questa scelta stanno affrontando con successo il problema del sottodimensionamento di cui soffre il sistema produttivo italiano, riuscendo a gestire meglio il personale, uno dei maggiori costi delle imprese che operano in questo comparto.

Infine, non appare significativa la relazione con la competitività del settore manifatturiero (variazione del ROI rispetto al ROI del settore) sebbene tale relazione sia comunque positiva come era lecito attendersi date le ipotesi iniziali di lavoro.

Dal punto di vista della capacità del contratto di rete di assicurare maggiori *performance*, le tre regressioni presentate, in linea con quanto segnalato da primi studi quantitativi sulla *performance* delle imprese retiste (Intesa San Paolo 2014a), offrono segnali ancora deboli ma comunque incoraggianti.

I risultati qui presentati consentono di trarre prime conclusioni, ancorché parziali, data la necessità di considerare un orizzonte temporale più ampio. In particolare:

1. nei tre modelli costruiti la variabile produttività conferma le ipotesi di lavoro.
   A seconda, poi, della variabile dipendente utilizzata (ROI vs Fatturato), le evidenze empiriche del secondo e terzo modello confermano quanto già emerso dall'analisi descrittiva ed in particolare:
2. nel secondo modello si nota una relazione positiva tra crescita del ROI superiore alla media del settore e l'interazione tra area a vocazione produttiva e livello tecnologico (medio-alto).
3. nel terzo modello si rileva un'associazione positiva della crescita del fatturato con la crescita della dimensione d'impresa in linea con le funzioni che deve assolvere lo strumento contratto di rete.

L'effetto sugli investimenti (in termini di *capital turnover*), ad oggi non significativo in tutte le regressioni, dovrà, invece, essere ulteriormente verificato nel lungo termine. È auspicabile attendersi dalle imprese retiste una maggior efficienza nella gestione degli investimenti ottenuta grazie ad investimenti congiunti. Questo effetto non sembra essersi prodotto, probabilmente a fronte del permanere di diffidenze tra gli imprenditori, difficoltà nel trattamento contabile dei beni in comproprietà o difficoltà nella fruizione dei benefici fiscali di cui gli investimenti di rete dovrebbero poter beneficiare. In tal senso sarebbe necessario ipotizzare azioni in grado di rendere il contratto di rete uno strumento in grado di incidere sulla crescita degli investimenti, che resta una delle priorità per le imprese del settore manifatturiero che vogliono crescere e diventare più competitive.

6. Considerazioni conclusive

Il presente *paper* analizza il fenomeno dei "contratti di rete" con l'obiettivo di indagarne gli effetti sulla *performance* d'impresa.

Preliminarmente si osserva che, come già sostenuto da diversi autori, l'estremo interesse dimostrato dagli imprenditori verso la sottoscrizione di tali contratti è riconducibile ad una serie di punti di forza che ne fanno uno strumento manageriale in grado di supportare la definizione degli obiettivi strategici ed operativi dell'aggregazione nel medio termine, anche attraverso l'inserimento nel contratto di indicatori di misurazione della *performance*.

In particolare la stipula di un "contratto" benché in linea teorica non indispensabile per il buon funzionamento di una aggregazione di imprese, si pone come uno strumento concreto, che risponde a diversi dei principali limiti di funzionamento e successo dei *network* già individuati in letteratura ed apre la strada a opportunità altrimenti difficilmente sfruttabili, in quanto:

1. funge da strumento di coordinamento interno tra le imprese permettendo l'instaurarsi di rapporti chiari, trasparenti e di medio lungo termine che agevolano il superamento di quelle barriere culturali che vedono l'imprenditore come un soggetto diffidente, poco propenso a collaborare ed allo stesso tempo passibile di comportamenti opportunistici.
2. stimola l'identificazione di obiettivi chiari e di una programmazione delle attività, nonché la fissazione di indicatori di risultato in quanto contenuti obbligatori del contratto;
3. permette di introdurre figure manageriali in grado di gestire i nuovi processi (*export manager, sales manager, web-manager*, ecc.) o semplicemente di coordinare le attività di rete con l'utilizzo di un *manager di rete*.
4. permette di intraprendere investimenti congiunti (altrimenti non affrontabili sia per il loro elevato costo sia per la diffidenza tra gli imprenditori) regolando l'uso dei beni comuni nel contratto (beni che saranno iscritti pro-quota nei rispettivi bilanci);
5. permette la fruizione di benefici fiscali e di finanziamento.

Oltre ai descritti vantaggi questo strumento presenta però anche alcuni limiti. Come già detto, un contratto anche se ben strutturato, non può sostituirsi al ruolo "attivo" spettante a chi governa la rete con riguardo alla valutazione delle opportunità connesse al contratto di rete e alla gestione quotidiana del rapporto con le imprese retiste. Inoltre, il contratto genera dei costi di costituzione (benché ridotti) e dei costi di coordinamento che dovranno essere sostenuti pro-quota dalle imprese retiste (es. gestione di una segreteria operativa congiunta, o affidamento dell'incarico ad un manager di rete).

Se da un lato è possibile identificare una serie di vantaggi del contratto, che ne stanno di fatto comportando una rapida diffusione, dall'altro è lecito domandarsi se il contratto di rete stia effettivamente migliorando la *performance* delle imprese retiste. I descritti vantaggi dovrebbero infatti, in ultima istanza, tradursi in effetti economici quali incrementi del fatturato o del ROI conseguibili per effetto di una più efficace gestione economica e degli investimenti da parte delle imprese retiste.

Sul punto l'analisi quantitativa della *performance* delle imprese retiste prima e dopo l'ingresso in rete evidenzia:

1) risultati positivi sul fronte dell'incremento della produttività in termini di fatturato pro-capite del personale impiegato;
2) risultati positivi, ma ancora da approfondire, sul fronte dell'efficienza interna intesa come contrazione dei costi di gestione delle imprese retiste;
3) rilevanza della variabile territorio intesa come area geografica delle imprese retiste più che come appartenenza ad un area a specifica vocazione produttiva;
4) rilevanza del settore di attività con particolare riferimento ai settori tecnologici nei quali il contratto di rete sembra assicurare maggiori vantaggi in termini di incremento della *performance*, soprattutto quando collocati in aree a vocazione produttiva.

Il contratto di rete non sembra, invece, produrre gli effetti positivi attesi in relazione all'incremento della produttività degli investimenti, mentre resta ancora da indagare l'effetto sul costo dei finanziamenti della partecipazione ad un contratto di rete.

L'aumento della competitività delle PMI, attraverso il contratto di rete, potrà quindi realizzarsi compiutamente solo laddove esse siano in grado di sfruttare in concreto tutte le teoriche potenzialità di questo strumento che attualmente i dati mostrano essere solo parzialmente utilizzate.

Perché ciò accada è necessario che anche altri attori agiscano in maniera significativa per migliorare questo strumento, ed in particolare:

- "il legislatore", rendendo più chiaro il contesto normativo anche con riferimento al trattamento contabile degli investimenti in comproprietà dalle imprese retiste, nonché rendendo di più facile fruizione l'ottenimento di agevolazioni fiscali ancora troppo limitate negli importi e di difficile accesso da parte delle imprese;
- "le istituzioni e le associazioni di categoria", diffondendo la cultura della rete e supportando le aggregazioni anche attraverso la redazione di contratti ben scritti che riescano a svolgere l'auspicato ruolo di strumento manageriale;
- "il sistema finanziario" valutando il fattore rete tramite un *rating* di rete in grado di ridurre il costo del debito e/o agevolare l'accesso al credito.

Limiti e sviluppi futuri

Il *paper* sconta alcune limitazioni imputabili alla ridotta estensione del campione analizzato ed al limitato periodo di osservazione dopo la stipula del contratto (2 anni). Futuri approfondimenti di questo lavoro, già in corso, avranno ad oggetto l'ampliamento del modello a ulteriori variabili di controllo volte a studiare meglio il legame della rete con il territorio (in particolare con le aree a vocazione produttiva) e con tecnologia e know how, nonché l'effetto del fattore rete sul costo del debito.

Si intende, inoltre, analizzare l'effetto di rete anche tramite un campione composto anche da imprese non retiste (*matching sample*) ed estendere il periodo di osservazione agli anni successivi al fine di apprezzare effetti di più lungo termine che potrebbero mostrare risultati più evidenti dell'effetto del fattore rete sulla *performance* aziendale.

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La comunicazione web dei quartieri fieristici

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Abstract

***Obiettivo del paper**: Obiettivo del lavoro è delineare le tendenze ed il ruolo assunto dalla comunicazione web all'interno dello scenario fieristico internazionale, approfondendo l'adeguatezza della comunicazione online degli Exhibition centers in Italia.*

***Metodologia**: Il contributo adotta un processo di systematic review per identificare tutti gli articoli accademici sui Trade Shows (TSs) fra il 1996 ed il 2016 (evidenziando, nello specifico, il ruolo della comunicazione web) e un modello di valutazione della qualità dei siti web adattato con una serie di quality variables specificatamente identificate in letteratura.*

***Risultati**: Dall'indagine emerge un impiego ancora deficitario ed arretrato della comunicazione online da parte dei poli fieristici nazionali. Nonostante la quasi totalità dei quartieri italiani possieda oggi un sito web, risultano essere ancora pochi i quartieri che adottano una comunicazione web realmente interattiva.*

***Limiti**: Il limite dello studio si collega al fatto che l'indagine è stata realizzata da una prospettiva esterna, non rendendo possibile, in questo ambito, effettuare una valutazione della comunicazione web in relazione agli specifici obiettivi delle governance fieristiche.*

***Implicazioni pratiche**: Lo studio individua una serie di possibili percorsi di innovazione che il comparto fieristico nazionale potrebbe intraprendere per ridurre il gap che attualmente lo separa da un uso totalmente performante degli strumenti comunicativi del web.*

***Originalità del lavoro**: La review ha permesso di mappare gli articoli accademici che si sono occupati, negli ultimi 20 anni, di approfondire lo studio sui Trade Shows, consentendo di delineare le principali tendenze della recente letteratura di settore dedicata a tale filone di ricerca.*

Parole chiave: comunicazione web; quartieri fieristici; trend fieristici; website evaluation; Trade Shows.

***Purpose of the paper**: The main goal is to outline the trends and role played by the web communication within the international Trade Fair scenario. Then, the adequacy of the online communicative activities, adopted by the Italian Exhibition centers, is evaluated.*

***Methodology**: A systematic review (aimed at identify the academic articles focused on the Trade Shows field between 1996 and 2016 and in particular on the web communication role) and a website quality evaluation model are adopted. The model is here adapted by the insertion of a series of quality variables used in literature for the Trade Show websites quality evaluation.*

***Results**: The survey shows an overall underdeveloped adoption of the online communicative tools by the National Exhibition centers. Although the majority of them own a website, only a small percentage realizes really interactive online communicative activities.*

***Limits**: The limitation is linked to the fact the survey has been conducted from an external perspective, not making possible to realize a Trade Show online communication assessment in relation to the governance objectives.*

***Implications**: The study identifies a series of learning and innovative paths the National industry could undertake in order to reduce the gap that currently separates the National Exhibition universe from a totally powerful use of the web communication tools.*

***Originality of the paper**: The review has permitted to map the different academic articles that have deepened, in the last 20 years, the Tradeshows field, allowing to outline the main trends characterizing the recent literature specifically dedicated to this sector.*

Key words: web communication; exhibition centers; trade show trends; website evaluation; trade shows.

1. Introduzione

Definite nel 1986 come "eventi che riuniscono, in un unico luogo fisico, gruppi di fornitori e di distributori aventi come principale obiettivo quello di presentare i propri prodotti/servizi appartenenti ad un medesimo settore/disciplina" (Black, 1986), le fiere rappresentano ancora oggi un business di primo piano ed un volano per l'economia mondiale ed europea (Tafesse, 2014). Con 465 centri fieristici, il continente europeo detiene più del 50% della superficie espositiva mondiale (AEFI, 2016), con Germania, Italia e Francia che dominano l'intero settore in termini di sedi, di espositori e di visitatori (UFI 2016; Li, 2015; Chu e Chiu, 2013; Smith *et al.*, 2004).

In particolare, in un paese come l'Italia, il cui sistema industriale è composto principalmente da piccole e medie imprese, le manifestazioni fieristiche rappresentano ancora oggi uno degli strumenti più efficaci per promuovere prodotti e servizi, contattare nuovi clienti e soprattutto per ottenere l'ingresso in nuovi mercati (secondo dati AEFI 2016, per l'88,5% delle PMI nazionali le fiere continuano a rappresentare un palcoscenico comunicativo di primaria importanza). Nel 2016, nei quartieri fieristici italiani sono state programmate 946 manifestazioni, 189 delle quali a carattere internazionale. Nel complesso, ogni anno l'industria fieristica movimenta 22 milioni di visitatori, genera un giro d'affari pari a 60 miliardi di euro ed un fatturato pari a 2 miliardi, con rilevanti ricadute per le città ospitanti, in termini di trasporti, ristorazione e di strutture alberghiere (AEFI, 2016; Tafesse, 2014).

Diventato argomento sistematico di ricerca nel corso del decennio 1980-1990 (Soilen, 2010), gli studi dedicati alle fiere (*Trade Show*) si sono principalmente concentrati, in quegli anni, sulla importanza di tale strumento in una ottica prettamente promozionale/di vendite (Aloui e Jebsi, 2016; Li, 2015; Rodriguez *et al.*, 2015; Çobanoğlu e Turaeva, 2014;

Soilen, 2010; Tafesse e Korneliussen, 2012; Kirchgeorg *et al.*, 2010; Power e Jansson, 2008; Herbig *et al.*, 1998).

In particolare, le fiere venivano percepite unicamente come luoghi di incontro domanda-offerta dove l'obiettivo principale, per l'espositore, era aggiudicarsi la vendita prima del termine della manifestazione stessa (Çobanoğlu e Turaeva 2014). Il focus quindi era principalmente indirizzato sui *selling objectives* dello strumento fiera a scapito dei *non selling* (Menon e Manoj, 2013).

Negli ultimi anni, si assiste ad una inversione di tendenza: le fiere non vengono più percepite unicamente come uno strumento di vendita e di promozione fine a se stesso, ma diventano parte vitale del *marketing mix* (Rinallo *et al.*, 2016; Sasaka, 2012), una leva strategica di marketing in grado di conseguire obiettivi di vendita e non (Çobanoğlu e Turaeva, 2014; Soilen, 2010). Racchiudendo in sé le potenzialità della comunicazione di massa, tipica della pubblicità, delle strategie di profilazione, connotative della *direct mail*, della vendita diretta e delle strategie di *networking*, caratteristiche dei nuovi media, le fiere acquisiscono nuove funzioni e nuovi ruoli (Li, 2015; Chu e Chiu, 2013; Sasaka, 2012).

Accanto quindi agli obiettivi di vendita la letteratura di settore degli ultimi anni identifica nuove funzioni che le fiere potrebbero esercitare in qualità di piattaforme relazionali, dove i diversi attori partecipanti (espositori, visitatori, organizzatori, poli fieristici, città, ecc.) rispondono non solo a stimoli commerciali (Andreae *et al.*, 2013), ma anche e soprattutto di *information/knowledge exchange* (Li, 2015).

Il *focus* si sposta dai *selling objectives* ai *non selling*, in grado anch'essi, in maniera differente, di influenzare, nel lungo termine, le future decisioni di acquisto dei visitatori fieristici (Chu e Chiu, 2013). Le fiere diventano così uno strumento non solo promozionale/di vendita, ma soprattutto di scambio relazionale/informativo in grado di contribuire alla 1) costruzione della *brand identity* delle aziende partecipanti (Chu e Chiu, 2013); 2) instaurazione di rapporti informativi e relazionali fra gli *stakeholder* fieristici (Li, 2015); 3) presentazione/trasferimento degli sviluppi tecnologici/innovativi dei prodotti e dei servizi presenti negli stand (Aloui e Jebsi, 2016); 4) trasferimento informativo, cooperazione e future relazioni commerciali (Cop, Kara, 2014); 5) *learning/knowledge creation*; accesso a nuove tecnologie, trend di mercato e potenziali partner (Rodriguez *et al.*, 2015); 6) *customer relationship building, competitive intelligence e market information gathering* (De Freitas e Da Silva, 2013; Tafesse e Korneliussen, 2012); 7) costruzione di *network* relazionali (Soilen, 2010; Evers e Knight, 2008); 8) strategie di *benchmarking* (Çobanoğlu e Turaeva, 2014).

Le fiere, quindi, rappresentano da anni un tema di grande interesse e al contempo in forte mutamento (Gottlieb *et al.*, 2014; Tafesse, 2014; Prado-Roman *et al.*, 2012; Tafesse e Korneliussen, 2011). Un mutamento riconducibile ad una evoluzione dei ruoli, delle funzioni e della natura stessa della fiera (Rodriguez *et al.*, 2015), in seguito anche ai recenti cambiamenti socio-economici che hanno caratterizzato l'ultimo decennio (Rodriguez *et al.*, 2015; Menon e Manoi, 2013; Kirchgeorg *et al.*, 2010). Di fronte a questo scenario e sulla base di queste preliminari considerazioni, il presente contributo si prefigge un duplice obiettivo: a) identificare le principali

tendenze emergenti dalla recente letteratura internazionale dedicata al filone *Trade Show*s (TSs); b) capire il ruolo assunto dalla comunicazione *web* all'interno di tale scenario fieristico, valutando, l'adeguatezza delle attività comunicative *online* attualmente adottate in Italia da uno dei principali *stakeholder* fieristici di interesse (Gopalakrishna *et al.*, 2010): gli *Exhibition centers*. Nello specifico il lavoro cercherà di rispondere alle seguenti domande di ricerca:

RQ (1) Quali sono le principali tendenze emergenti dalla recente letteratura di settore dedicata al filone Trade Shows (TSs)?

RQ (2) Alla luce delle tendenze in atto, che ruolo assume la comunicazione web all'interno dell'attuale scenario fieristico internazionale?

RQ (3) Alla luce del ruolo assunto dalla comunicazione web in ambito fieristico, i poli fieristici nazionali adottano attività di comunicazione web adeguate?

Per rispondere a questi interrogativi, dopo aver delineato le principali tendenze, mediante una *review* della letteratura degli ultimi 20 anni (1996-2016), si procederà con una analisi dei siti *web* ufficiali di tutti i quartieri nazionali attualmente attivi, avvalendosi di un modello (2QCV2Q; Mich e Franch, 2000) specificatamente adattato per la valutazione della qualità *web* fieristica. I dettagli della metodologia sono esposti nel § 2 e 3.

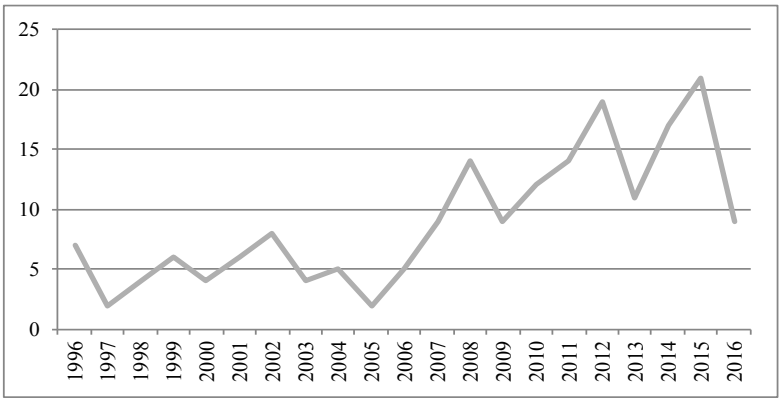
2. Background teorico e review della letteratura

Al fine di delineare come le principali tendenze caratterizzanti la letteratura di settore dedicata al filone *Trade Show* (TSs) siano evolute nel corso degli ultimi 20 anni, si è proceduto con una *literature review* articolata nelle seguenti fasi: raccolta, sistematizzazione/selezione ed analisi approfondita del campione di pubblicazioni identificato. Nella fase di raccolta è stata condotta una ricerca sistematica (Ricerca avanzata con le *key word* "*Trade Show*", "*Trade Fair*", "*Exhibition*" e "*Fair*" nel titolo del contributo; Intervallo temporale: 1996-2016), mediante la consultazione dei seguenti Database: 1. Google Scholar; 2. Scopus; 3. Elsevier ScienceDirect; 4. Repec (IDEAS).

Nella fase di sistematizzazione/selezione, partendo dai contributi iniziali identificati (1.899), ripartiti fra i diversi motori di ricerca, sono stati presi in considerazione tutti gli articoli accademici (459). In un secondo momento, si è proceduto con la lettura degli abstract dei 459 lavori al fine di eliminare gli articoli non in linea con l'obiettivo della ricerca. Al termine di questa fase, si è giunti ad un campione finale composto da 188 pubblicazioni che si sono specificatamente occupate dello studio dei *Trade Show*s (TSs) fra il 1996 ed il 2016. In questa fase è stato, inoltre, possibile risalire ai Journal che hanno pubblicato il maggior numero di articoli sul tema: *Journal of Business and Industrial Marketing* (15), *Industrial Marketing Management* (10), *Journal of Convention and Event Tourism* (5), *Journal of Promotion Management* (5). Dal punto di vista temporale (Fig. 1), emerge come l'interesse della letteratura di settore per la tematica sia

considerevolmente aumentato nel corso degli ultimi anni (in particolare nel corso del 2008), raggiungendo un picco massimo nel 2015, seguito da una successiva fase di calo (2016).

Fig. 1: Articoli per anni



Fonte: Nostra elaborazione

In un' ottica metodologica, più della metà degli articoli (55%) è di natura empirico-quantitativa (*survey*, questionari, modelli statistici), mentre la restante percentuale (45%) adotta metodologie di carattere qualitativo (*Review* focalizzate su specifiche tematiche afferenti al filone *Trade Show*, *Case studies*, interviste in profondità). Anche se alcuni lavori empirici si focalizzano sulla comparazione fra *Trade Show*s appartenenti a sistemi fieristici geografici differenti, nella maggior parte dei casi i lavori non analizzano settori fieristici specifici, ma si occupano dello strumento fiera in una ottica manageriale. Dal punto di vista geografico, infine, emerge come la letteratura si sia interessata ad approfondire l'importanza dello strumento fiera, sia nei paesi sviluppati, che in quelli emergenti con una prevalenza di studi condotti in Europa (34%), in Asia (33%) ed in America (24%).

Dal punto di vista dei temi affrontati, dalla lettura dei *full tex*t dei 188 articoli accademici del campione, emerge come alcuni argomenti di ricerca abbiano caratterizzato l'intero periodo di riferimento (1996-2016), confermandosi come aree tematiche di grande interesse degli ultimi 20 anni.

In particolare, emerge come la letteratura si sia costantemente occupata di approfondire l'importanza dell'evento fiera per le imprese. Evento considerato strumento vitale del marketing mix (Cop e Kara, 2014; Menon e Manoj, 2013; Ahola, 2012; Kirchgeorg *et al.*, 2010; Blythe, 2009; Ling-Yee, 2006; Blythe, 2002; Palumbo e Herbig, 2002; Munuera e Ruiz, 1999; Herbig *et al.*, 1997) in grado di contribuire alla creazione di rapporti fra i diversi *stakeholder* fieristici (Remolar *et al.*, 2015; Tafesse e Skallerud, 2015; Sarmento *et al.*, 2014; Rinallo e Golfetto, 2011; Kirchgeorg *et al.*, 2009; Ling-Yee, 2007; Blythe, 2002; Hansen, 2000; Ponzurick, 1996) e di incentivare la creazione/diffusione di *information/knowledge Exchange* (Rinallo *et al.*, 2016; Cheng *et al.*, 2014; Li, 2014; De Vanujany *et al.*, 2013; Conway, 2011;

Rinallo e Golfetto, 2011; Ling-Yee, 2007; Lee e Kim, 2008; Ponzurick 1996). Accanto all'importanza delle fiere come strumento del marketing mix, emerge come la letteratura abbia focalizzato la sua attenzione anche su altri due importanti filoni: l'analisi della misurazione delle *performance* (Alberca-Oliver *et al.*, 2015; Lin *et al.*, 2015; Gottlieb *et al.*, 2014; Tafesse, 2014; Tafesse e Korneliussen, 2012; Rinallo *et al.*, 2010; Ling-Yee, 2007; Hansen, 2004; Tanner, 2002; Munuera *et al.*, 1996) e della organizzazione/gestione fieristica (Spann *et al.*, 2015; Tafesse e Korneliussen, 2012; Lampel e Meyer, 2008; Horn, 2002; Gregor e Breiter, 2001; Munuera *et al.*, 1996) e lo studio degli *stakeholder* (Sarmento e Farhangmehr, 2016; Lin *et al.*, 2015; Wong *et al.*, 2014; Gottlieb *et al.*, 2011; Rinallo *et al.*, 2010; Tafesse *et al.* 2010; Berne e Garcia-Uceda, 2008; Smith *et al.*, 2004; Smith *et al.*, 2003; Rolf Seringhaus e Rosson, 2001; Munuera e Ruiz, 1999).

Suddividendo idealmente i 20 anni di analisi in 3 periodi (1996-2002; 2003-2010; 2011-2016), risulta come alcune aree tematiche, poco o per nulla indagate nel corso della prima fase temporale, abbiano ricevuto una crescente attenzione, da parte della letteratura, durante i due periodi successivi. Nello specifico è infatti a partire dalla seconda fase (2003-2010) e soprattutto nel corso della terza (2011-2016) che la letteratura accademica, dedicata al filone *tradeshows/tradefairs,* inizia ad approfondire, in maniera sistematica, le seguenti aree tematiche: *trade show and opportunities/Risks* (Bartosik-Purgat e Schroeder, 2015; Cop e Kara, 2014; Palumbo 2008); *trade show and online communication* (Hlee *et al.*, 2016; Lapoule e Rowell, 2016; Wu e Wang, 2016; Tafesse, 2014; Kalafsky e Gress, 2013; Conway, 2011; Ling-Yee, 2010, Lee *et al.*, 2008); *Trade Show and economic/urban development* (Alberca-Oliver *et al.*, 2015; Li, 2014; Kowalik, 2012; Sasaka, 2012; Nunez *et al.*, 2009); *trade show and network creation* (Measson e Campbell-Hunt, 2015; Sarmento *et al.*, 2015; Li, 2014 Evers e Knight, 2008); *trade show and temporary cluster* (Rinallo *et al.*, 2016; Bartosik-Purgat e Schroeder, 2015; Li, 2015; Li, 2014; Rinallo e Golfetto, 2011; Ramirez-Pasillas, 2010); *virtual trade show* (Remolar *et al.*, 2015; Sharda *et al.*, 2012; Remolar *et al.*, 2011; Geigenmuller, 2010; Mcclure, 2009); *trade show and internationalization* (Sarmento e Farhangmehr, 2016; Li, 2015; Cheng *et al.*, 2014; Çobanoğlu e Turaeva, 2014; Kalafsky e Gress, 2013; Kreivi *et al.*, 2012; Conway, 2011; Ramirez-Pasillas, 2010; Yuksel e Voola, 2010; Wilkinson *et al.*, 2009; Evers e Knight, 2008; Smith e Smith, 2003); *trade show and experential/entertainment component* (Wong *et al.*, 2016; Gilliam, 2015; Gottlieb *et al.*, 2014; Andreae *et al.*, 2013; Christopher e Emmanuel, 2012; Rinallo *et al.*, 2010).

Accanto alle aree tematiche caratterizzanti l'intero intervallo di analisi (1996-2016), dalla *review* emerge, nel corso degli ultimi due archi temporali oggetto di indagine (2002-2010; 2011-2016), un interesse crescente degli studiosi per 1) lo strumento fiera in qualità di piattaforma informativa votata alla creazione di *informational/relational network* anche e soprattutto in una ottica di crescita/espansione internazionale per le aziende partecipanti (*trade show and internationalization*); 2) l'importanza delle ricadute dell'evento fiera per le città ospitanti, in termini di trasporti, ristorazione e strutture alberghiere (*trade show and economic/urban development*); 3) il ruolo crescente assunto dalla comunicazione *web* e dalla

virtualizzazione in ambito fieristico (*trade show and online communication; virtual trade show*) 4) l'importanza attribuita alla componente esperienziale/di intrattenimento nella organizzazione/gestione dell'evento fieristico (*trade show and experential/entertainment component*).

In relazione alla prima domanda di ricerca (RQ1), dalla *review* emergono alcune specifiche tendenze caratterizzanti la letteratura di settore più recente dedicata al filone *Trade Shows (TSs)*. In particolare, accanto al ruolo di primo piano assunto recentemente dallo strumento fiera in qualità di palcoscenico (Andreae *et al.*, 2013) informativo votato alla creazione di *relational network* (Conway, 2011) in una ottica di opportunità di crescita/espansione internazionale (De Freitas e Da Silva, 2013; Geigenmuller e Bettis-Outland, 2012) soprattutto per le piccole e medie imprese (Measson e Campbell-Hunt, 2015; Çobanoğlu e Turaeva, 2014), emerge un interesse sempre più evidente, da parte della letteratura recente, verso l'impatto emozionale che l'evento fiera può generare negli *stakeholder* fieristici (Wong *et al.*, 2016). L'attenzione quindi si sposta dagli aspetti prettamente economici e commerciali dello strumento fiera alla componente emozionale/esperienziale, in qualità di fattore chiave per la efficacia complessiva delle *performance* fieristiche (Gilliam, 2015; Gottlieb *et al.*, 2014) e in qualità di uno dei motivi fondamentali di partecipazione, all'evento fiera, da parte dei visitatori (Christopher e Emmanuel, 2012).

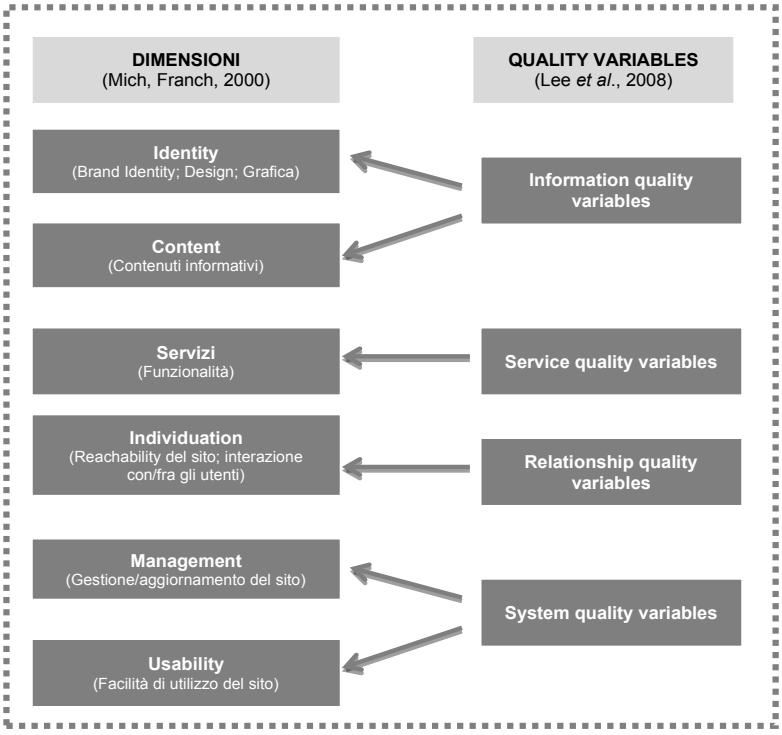
Emozionalità questa che deve essere ricercata non solo nella fase di pianificazione/realizzazione dell'evento fisico (*Atmosphere, events*), ma anche nell'approccio strategico sempre più omnicanale (Lapoule, Rowell, 2016) in grado di gestire i canali *offline* ed *online* fieristici (*Trade Show websites, Virtual Trade Show*s) in maniera sempre più sistematica, garantendo così ai visitatori l'uniformità della esperienza fieristica *offline* ed *online*. La rassegna dei contributi internazionali consente inoltre di rispondere alla seconda domanda di ricerca (RQ2), facendo emergere come la comunicazione *web* assuma oggi un ruolo strategico a sostegno delle manifestazioni fieristiche fisiche (Wu, Wang, 2016), ruolo questo che dipende soprattutto dalla presenza di siti *web*, in grado di accompagnare gli utenti prima, durante e dopo l'evento fieristico, oltre che dalla qualità dei siti (*website structure, content design, user experience*). Risulta importante anche la capacità delle fiere virtuali di diventare, a tutti gli effetti, una valida estensione dell'evento fisico (Remolar *et al.*, 2015; Sharda *et al.*, 2012; Remolar *et al.*, 2011; Geigenmuller, 2010), la cui capacità di favorire contatti fisici/reali rappresenta ancora oggi una delle principali caratteristiche di successo dello strumento fiera (Sarmento *et al.*, 2015; Sarmento *et al.*, 2014).

Per approfondire gli aspetti legati alla comunicazione *web* nel contesto del sistema fieristico italiano di seguito viene descritta l'analisi dei siti *web* dei quartieri fieristici nazionali. L'indagine è stata realizzata utilizzando il modello 2QCV2Q di Mich e Franch (2000), specificatamente adattato per la valutazione della qualità *web* fieristica. I dettagli della metodologia sono esposti nel paragrafo successivo.

3. Metodologia di ricerca

Obiettivo dell'analisi è descrivere l'adeguatezza delle azioni di comunicazione *web* adottate dai quartieri fieristici nazionali[1], attraverso una valutazione della qualità dei loro siti *web* ufficiali. Il modello 2QCV2Q di Mich e Franch (2000) è lo strumento adottato, con opportuni adattamenti, per la valutazione della qualità dei siti *web* delle fiere, modello che permette di analizzare qualsiasi sito *web* indipendentemente dal settore aziendale di studio (Mich e Franch, 2000). Partendo quindi da tale modello e dalla sua struttura generale/dimensioni principali (Identity, Content, Services, Individuation, Management, Usability), si è proceduto con l'inserimento di una serie di quality variables (Tab. 1) specificatamente identificate in letteratura per la valutazione della qualità *web* fieristica (Lee *et al.*, 2008).

Fig. 2: Modello per la valutazione della qualità dei siti web dei quartieri fieristici



Fonte: Nostra elaborazione

[1] L'Italia conta attualmente 51 quartieri fieristici attivi (Fonte: Nostra elaborazione): Arezzo, Bari, Bassano, Bergamo, Bologna, Bolzano, Brescia, Cagliari, Carrara, Catania, Cesena, Chiuduno, Cremona, Erba, Faenza, Ferrara, Firenze, Foggia, Forlì, Genova, Gonzaga, Lanciano, Lario, Longarone, Lucca, Messina, Milano, Modena, Montichiari, Monza e Brianza, Napoli, Padova, Palermo, Parma, Pesaro, Piacenza, Pordenone, Reggio Emilia, Rimini, Riva del Garda, Roma, Silvi Marina, Sora, Spezia, Torino, Udine e Gorizia, Valenza, Vercelli, Verona, Venezia, Vicenza.

In seguito alla costruzione del modello, si è proceduto con l'analisi di tutti i siti *web* dei quartieri fieristici nazionali (49 su 51). Ai fini della valutazione, ad ognuna delle variabili identificate è stato attribuito un punteggio binario in base alla presenza (1 punto) o assenza (0 punti) delle singole *quality variables* all'interno dello specifico sito *web* analizzato.

Tab. 1: Dimensioni e quality variables[2][3][4]

Dimensione	Quality Variables
IDENTITY	Presenza del logo del quartiere fieristico (Mich, Franch, 2000; Nostra elaborazione)
	Presenza di immagini immediatamente riconducibili al quartiere (Mich, Franch, 2000; Nostra elaborazione)
	Layout del sito coordinato con layout/immagine cartacea (Mich, Franch, 2000; Nostra elaborazione)
CONTENT	Informazioni sul quartiere (Lee *et al.*, 2008; Nostra elaborazione)
	Informazioni sui padiglioni (Lee *et al.*, 2008; Nostra elaborazione)
	Informazioni sul calendario eventi (Lee *et al.*, 2008; Nostra elaborazione)
	Informazioni sui servizi offerti (Lee *et al.*, 2008; Nostra elaborazione)
	Informazioni sul territorio/ospitalità (Lee *et al.*, 2008; Nostra elaborazione)
	Link esterni (Mich, Franch, 2000)
SERVICES	Form di richiesta (Lee *et al.*, 2008)
	Acquisto ticket *online* (Lee *et al.*, 2008)
	Prenotazione *online* (Lee *et al.*, 2008)
	Form di registrazione (Lee *et al.*, 2008)
	Area riservata/Privacy (Mich, Franch, 2000)
INDIVIDUATION	Indirizzo del sito facilmente individuabile (Mich, Franch, 2000)
	Posizionamento sul motore di ricerca Google (N. pagina) (Mich, Franch, 2000)[2]
	Presenza dei contatti (Mich, Franch, 2000)
	Presenza di community/blog (Mich, Franch, 2000)
	Presenza di Newsletter (Mich, Franch, 2000)
	Presenza pulsanti social (Mich, Franch, 2000; Nostra elaborazione)
	Presenza di strumenti per la valutazione della customer satisfaction (Mich, Franch, 2000)
MANAGEMENT	Presenza calendario eventi aggiornato[3] (Mich, Franch, 2000; Nostra elaborazione)
	Presenza area stampa aggiornata (Mich, Franch, 2000; Nostra elaborazione)
	Presenza news aggiornate (Mich, Franch, 2000; Nostra elaborazione)
	Presenza social aggiornati (Mich, Franch, 2000; Nostra elaborazione)
USABILITY	Presenza mappe online del sito (Mich, Franch, 2000)
	Rapidità Download Pagine[4] (Mich, Franch, 2000)
	Presenza opzione multilingua (Mich, Franch, 2000)

Fonte: Nostra elaborazione

[2] Posizionamento nelle prime 3 pagine Google mediante parole chiave "Quartiere fieristico + Regione di appartenenza del polo fieristico": 1 punto; Assenza nelle prime 3 pagine: 0 punti. In generale, gli utenti si fermano alle prime tre pagine di risultati google dopo aver digitato un termine di ricerca (Matthews, 2015).

[3] Aggiornamento non superiore a un mese.

[4] Valutazione effettuata mediante software di speed test (Web Analyzer). Tempi compresi fra 0,1 e 1 secondo: 1 punto; Tempi superiori a 1 secondo: 0. Nielsen (2000) valuta i tempi di download compresi fra 0,1 e 1 secondo come lasso di attesa accettabile.

4. Risultati generali

Nel complesso, su un punteggio massimo raggiungibile pari a 28 punti, solo un quartiere fieristico su 49 ha ottenuto un punteggio superiore a 25 punti, il 48% dei poli nazionali ha conseguito un punteggio alto (compreso fra 20-25 punti), mentre il restante 52% ha raggiunto un punteggio medio (il 44% fra 10 e 19 punti) e basso (l'8% non ha superato i 10 punti complessivi).

Se si tiene conto delle finalità di utilizzo, emergono due distinte tipologie di siti *web* fieristici: da un lato, siti *web* prettamente informativi (57%), che hanno come unico scopo quello di fornire ai propri utenti informazioni dettagliate sulle caratteristiche strutturali del quartiere, sul calendario eventi e sul territorio in cui esso sorge (predominanza della dimensione CONTENT) e, dall'altro, siti *web* interattivi (43%) che, accanto a sezioni puramente informative, offrono all'utente un'ampia gamma di servizi (Es. prenotazione *online*, acquisto ticket *online*) e di strumenti relazionali (Es. pulsanti social), il cui obiettivo principale è quello di favorire la creazione di rapporti interattivi e diretti con gli utenti fieristici (predominanza della dimensione SERVICES/INDIVIDUATION).

Per quanto riguarda l'impiego dei Social *Network*, Facebook si conferma il social più utilizzato dai quartieri fieristici italiani (39 su 49), seguito da Twitter (28), Youtube (19), Google Plus (12), Linkedin (9) e Flickr (5). Agli ultimi posti della classifica *social*, si attestano Vevo, Foursquare e Vimeo, adottati da un solo quartiere fieristico su 49.

Dai risultati emerge che il 35% dei poli fieristici offre contenuti dei siti *web* solo in lingua italiana, mentre il 65% permette la traduzione dei contenuti in lingua inglese. Solo 4 siti *web* su 49 sono tradotti anche in tedesco, 3 in francese ed infine solo un quartiere include anche altre lingue (Cinese, Spagnolo, Russo e Arabo).

Dal punto di vista delle singole dimensioni, infine, quelle della IDENTITY, del CONTENT e del MANAGEMENT si confermano gli ambiti maggiormente sviluppati all'interno dei siti *web* fieristici nazionali, seguite, ad una certa distanza dalla dimensione della INDIVIDUATION. Agli ultimi posti si attestano la dimensione USABILITY e SERVICES (Tab. 2).

Tab. 2: Punteggio singole dimensioni

Dimensione	Punteggio massimo raggiungibile	Punteggio medio dell'universo (Valore assoluto)	Punteggio medio dell'universo (%)	Distanza % dal punteggio massimo
IDENTITY	3	2,7	90%	10%
CONTENT	6	4,7	78%	22%
SERVICES	5	2,1	42%	58%
INDIVIDUATION	8	4,1	51%	49%
MANAGEMENT	4	2,9	73%	27%
USABILITY	4	1,8	45%	55%

Fonte: Nostra elaborazione

5. I siti web distinti per gruppi di strutture fieristiche

Al fine di evidenziare possibili relazioni tra il sistema fieristico italiano e le *performance* di comunicazione *online*, si è proceduto con la individuazione/applicazione di una serie di criteri di raggruppamento (UFI, 2014; Commissione Europea, 2013) dei quartieri fieristici nazionali (Tab. 3). In particolare, al fine di individuare specifici *cluster*, le fiere sono state raggruppate secondo le seguenti variabili: 1) *Struttura proprietaria* (Natura privata, pubblica o mista); 2) *Posizione geografica* (Nord, Centro, Sud/Isole); 3) *Numero dipendenti* (<10; 10-49; 50-249; > 249); 4) *Fatturato* (<= 2; <= 10; <= 50; > 50 milioni di Euro).

Tab. 3: Criteri di raggruppamento (Dati 2015)

Criterio di raggruppamento				
Posizione geografica	Nord 69%	Centro 16%	Sud 15%	
Struttura proprietaria	Capitale pubblico 46%	Capitale misto 39%	Capitale privato 15%	
Dimensione	Micro 35%	Piccola 44%	Media 15%	Grande 6%
Fatturato	<= 2 43%	<=10 33%	<= 50 15%	>50 9%

Fonte: Nostra elaborazione (Dati AIDA/Contatto diretto)

Sotto il profilo della struttura proprietaria, risulta che il 46% dei quartieri fieristici nazionali è di natura pubblica, contro il 39% a capitale misto (pubblico e privato). Solo il 15% dei poli presenta una struttura di natura esclusivamente privata. A livello geografico, la maggior parte dei quartieri nazionali (69%) sorge nel Nord Italia, a scapito delle zone centrali (16%) e meridionali/insulari della Penisola (15%). In una ottica dimensionale, invece, l'analisi mette in luce una netta prevalenza di quartieri fieristici di piccole (44%) e di micro dimensioni (35%), seguiti ad una certa distanza da strutture di medie (15%) e di grandi dimensioni (6%). Dal punto di vista del fatturato, infine, se il 76% dei poli ha conseguito nel 2015 un fatturato non superiore ai 10 milioni di Euro, solo una ridotta percentuale dell'universo fieristico (9%) ha raggiunto un fatturato superiore ai 50 milioni di Euro.

La Tabella 4 mostra i punteggi medi perseguiti dai diversi gruppi fieristici identificati (Struttura proprietaria, Posizione geografica, Dipendenti, Fatturato) rispetto al punteggio massimo perseguibile (28 punti).

Tab. 4: Gruppi fieristici e punteggio medio complessivo

Forma Giuridica	**Punteggio Medio**
Pubblica	18/28
Privata	24/28
Mista	21/28
Posizione geografica	**Punteggio Medio**
Nord	20,1/28
Centro	19,6/28
Sud/Isole	17,3/28
Dimensione	**Punteggio Medio**
Micro	16,5/28
Piccola	20,8/28
Media	22,5/28
Grande	23/28
Fatturato	**Punteggio Medio**
<= 2 Milioni di Euro	15,9/28
<= 10 Milioni di Euro	21,4/28
<= 50 Milioni di Euro	23
> 50 Milioni di Euro	23,6

Fonte: Nostra elaborazione

Nel complesso, i punteggi complessivi più elevati sono stati raggiunti dai quartieri fieristici:
- di natura privata;
- collocati nel Nord della penisola;
- di grande dimensione (Oltre 250 addetti);
- con un fatturato superiore ai 50 milioni di Euro.

A livello di singole dimensioni, emerge come i quartieri con struttura proprietaria privata abbiano conseguito il punteggio più elevato (rispetto ai poli con capitale pubblico e misto) grazie soprattutto agli ambiti del CONTENT, SERVICES e MANAGEMENT. CONTENT e USABILITY rappresentano, invece, le dimensioni che hanno permesso ai quartieri del Nord Italia di posizionarsi al primo posto, mentre per quanto riguarda i quartieri di grandi dimensioni (oltre 250 addetti ed un fatturato superiore ai 50 Milioni di Euro), gli ambiti del CONTENT, MANAGEMENT e USABILITY rappresentano le dimensioni che, più di altre, hanno permesso a tali gruppi fieristici di superare i poli di medie, piccole e di micro dimensioni.

6. Discussione dei risultati

Nel complesso, la quasi totalità dei quartieri fieristici nazionali (96%) possiede un sito *web*, risultato questo che mette in evidenza come il comparto sia comunque consapevole dell'importanza di essere oggi presenti *online*.

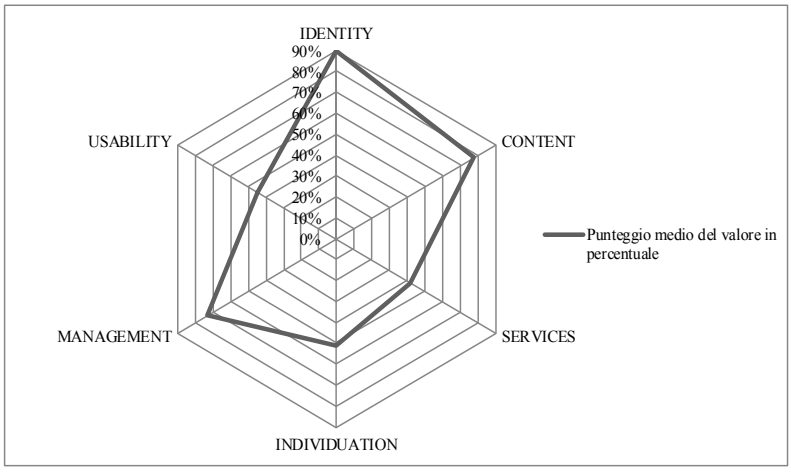
Da un'analisi più dettagliata emerge come esista una netta differenziazione fra i quartieri che hanno ottenuto un punteggio alto e

quelli che, al contrario, hanno conseguito un punteggio medio-basso. In particolare, se da un lato il 48% ha ottenuto un punteggio elevato (compreso fra i 20 ed i 25 punti), la restante percentuale (52%) ha conseguito un punteggio medio (il 44% ha ottenuto un punteggio compreso fra 10 e 19) e basso (l'8% non ha superato i 10 punti). Solo un quartiere fieristico, sul totale analizzato, ha ottenuto un punteggio superiore a 25.

Dal punto di vista delle singole dimensioni indagate, i siti *web* presentano una forte *Brand identity* (IDENTITY), con la presenza in Home Page del logo/immagini immediatamente riconducibili al quartiere fieristico, un'elevata ricchezza contenutistica - CONTENT (offerta di informazioni sul quartiere, sul calendario eventi e sul territorio in cui sorge il polo) e (anche se in misura minore) una corretta ed attenta gestione/aggiornamento delle informazioni presenti al loro interno (MANAGEMENT).

Al contrario, le dimensioni della INDIVIDUATION, della USABILITY e dei SERVICES risultano gli ambiti meno performanti dei siti *web* osservati (Fig. 3). In sostanza, i quartieri nazionali sembrano essere meno inclini a 1) investire in SEO; 2) incrementare la costruzione di rapporti diretti ed interattivi con/fra gli utenti (mediante l'offerta di *chat*, *blog* o una stretta connessione sito internet e *social*); 3) migliorare la navigabilità del sito (attraverso, ad esempio, l'inclusione di mappe *online* o attraverso la possibilità di leggere i contenuti in più lingue); 4) arricchire il sito di funzionalità *online* (Es. acquisto *online ticket*, prenotazioni *online*).

Fig. 3: Punteggio singole dimensioni



Fonte: Nostra elaborazione

Nonostante i punteggi medi più elevati siano stati conseguiti dai quartieri nazionali più grandi (oltre 250 addetti/fatturato superiore ai 50 milioni di Euro), emerge come, nelle prime due posizioni della classifica generale, compaiano quartieri fieristici di micro/piccole dimensioni e con un fatturato inferiore ai 50 milioni di Euro (Tab. 5).

Tab. 5: Classifica generale (Prime tre posizioni)

Podio	Capitale	Posizione geografica	Numero Addetti	Fatturato	Pt. Tot.
1	Privato	Nord	P	<= 50	26/28
2	Privato	Centro	P	>= 10	25/28
2	Misto	Nord	G	> 50	25/28
2	Misto	Nord	Micro	<= 10	25/28
2	Misto	Nord	M	> 50	25/28
2	Misto	Nord	P	<= 10	25/28
3	Misto	Nord	M	<= 50	24/28

Fonte: Nostra elaborazione

Dai risultati emerge dunque un interrogativo: è possibile anche per una piccola struttura fieristica realizzare e gestire siti *web* di qualità? Tali quartieri fieristici rappresentano infatti imprese *best in class* che testimoniano come, non solo i poli di grandi dimensioni, ma anche aziende di piccole/micro dimensioni possano essere in grado di adottare strategie comunicative *online* ben progettate e pianificate.

Dall'analisi della classifica generale emerge come la maggioranza delle piccole strutture non sembra in grado di sfruttare appieno le potenzialità offerte dalla rete, limitandosi ad offrire siti *web* vetrina. Nel complesso, molteplici possono essere le cause che conducono le imprese fieristiche di piccole dimensioni verso questa quasi generalizzata situazione di sottoutilizzo delle potenzialità del *web* ed in particolare:

- scarsa numerosità di risorse umane;
- mancanza di competenze specializzate all'interno del personale;
- mancanza di risorse economiche da dedicare;
- percezione di dover affrontare investimenti particolarmente elevati e, di conseguenza, non alla loro portata.

7. Conclusioni e implicazioni teoriche e manageriali della ricerca

La ricerca ha permesso di rispondere ai tre quesiti iniziali da cui è partito lo studio. Per quanto riguarda il primo (*Quali sono le principali tendenze emergenti dalla recente letteratura di settore dedicata al filone Trade Shows?*), dalla *review* emerge come *Internationalization, Network building, Entertainment component* e *Online communication & Virtualization* rappresentino le principali tendenze caratterizzanti la letteratura di settore più recente (2011-2016) dedicata ai *Trade Shows*.

Relativamente al secondo quesito della ricerca (*Alla luce delle tendenze in atto, che ruolo assume la comunicazione web all'interno dell'attuale scenario fieristico internazionale?*), lo studio ha evidenziato come la comunicazione *web* stia assumendo sempre più, in ambito fieristico, una importanza strategica a livello internazionale, in qualità di strumento di supporto e di completamento della esperienza fieristica fisica.

Per quanto riguarda, infine, la terza domanda di ricerca (*Alla luce del ruolo assunto dalla comunicazione web in ambito fieristico, i poli fieristici*

nazionali adottano attività di comunicazione web adeguate?), dalla analisi dei siti *web* degli *exhibition centers* italiani emerge nel complesso un impiego ancora deficitario ed arretrato della comunicazione *online*: pochi infatti (meno della metà dell'universo indagato) sono i quartieri che adottano attività comunicative *online* realmente interattive, limitandosi, nella maggior parte dei casi, ad offrire siti *web* vetrina, aventi come unico scopo quello di comunicare agli utenti la loro esistenza in Rete.

Dal lavoro emergono alcune implicazioni manageriali. Lo studio individua una serie di possibili percorsi di apprendimento e di innovazione che il comparto fieristico nazionale potrebbe intraprendere per ridurre il *gap* che attualmente lo separa da un uso totalmente performante degli strumenti comunicativi del *web*.

In particolare, diventa fondamentale, per i quartieri fieristici nazionali, comprendere come sia assolutamente imprescindibile l'adozione di politiche comunicative realmente interattive a due vie (mediante quindi la creazione e gestione di siti *web* che consentano un reale dialogo fra gli utenti) e come, di conseguenza, sia necessario superare la concezione "sito vetrina = esistenza *online* per l'utente", in quanto oggi possedere un sito statico/vetrina non sarà più sufficiente a richiamare nuovi interlocutori fieristici e/o a fidelizzare quelli già esistenti.

Il modello di valutazione di qualità esposto rappresenta inoltre uno strumento di management operativo utile per identificare le aree di criticità/miglioramento dei siti *web* fieristici.

In particolare, dall'analisi empirica emerge come le dimensioni dei SERVICES, INDIVIDUATION, del MANAGEMENT e della USABILITY rappresentino le aree maggiormente critiche dei siti *web* dei quartieri fieristici italiani, per le quali si possono mettere in luce significative aree di miglioramento (Tab. 6).

Tab. 6: Aree di miglioramento: Possibili interventi

Aree di miglioramento	Possibili interventi
SERVICES	Maggior orientamento commerciale (inclusione all'interno del sito *web* di funzionalità *online* come la possibilità di acquistare i biglietti *online*, prenotare una *accomodation* per il periodo di permanenza in fiera, ecc.).
INDIVIDUATION	Maggior orientamento interattivo mediante l'investimento in risorse umane specificatamente dedicate alle strategie di Social Media Marketing (inclusione/gestione di funzionalità che consentono di incentivare la creazione di rapporti interattivi e diretti con/fra gli utenti).
MANAGEMENT	Necessità di investire in risorse umane (interne/*outsourcing*) per garantire una gestione continua ed un aggiornamento costante dei contenuti/struttura del sito *web*.
USABILITY	Necessità di aprirsi a livello internazionale (offrire, ad esempio, all'utente la possibilità di leggere i contenuti del sito in più lingue); Superamento della filosofia "Think local, act local".

Fonte: Nostra elaborazione

In particolare, i responsabili delle strutture fieristiche italiane sono chiamati a:

- accrescere la consapevolezza circa l'importanza della comunicazione *web* in qualità di strumento di supporto/promozione e di commercializzazione fieristica;

- avviare processi di innovazione volti ad investire maggiormente nella realizzazione/gestione di siti *web* interattivi, canali potenzialmente in grado, molto più di altri, di avvicinare nuovi interlocutori fieristici e/o fidelizzare quelli già esistenti;
- sviluppare, accanto alle competenze professionali tradizionali (allestimento, logistica, accoglienza, ecc.), nuove e diversificate capacità di natura comunicativa e relazionale mediante l'inserimento di figure specializzate nella comunicazione *online*/*social*.

Per avviare azioni di comunicazione *online* performanti si rendono necessarie molteplici nuove competenze specializzate: 1) strategiche (pianificazione della strategia; integrazione sito *web*/altri strumenti di comunicazione adottati); 2) di gestione/management (*content management*; competenze per svolgere attività di *copy* e azioni di aggiornamento dei canali comunicativi *online* adottati). Non potendo, inoltre, essere sempre gestite all'interno delle strutture fieristiche (soprattutto nel caso dei quartieri di piccole dimensioni), queste competenze potranno essere incluse mediante processi di *outsourcing*/sviluppo di *networking*.

In definitiva, diventa fondamentale, per i quartieri nazionali, comprendere come la promozione delle proprie strutture e delle singole manifestazioni in calendario debba essere sempre accompagnata da una comunicazione *web* costante (allo scopo di seguire i propri interlocutori prima, durante e dopo la chiusura degli eventi fieristici) e dalla consapevolezza che un aggiornamento saltuario e sporadico del proprio sito *web*/profili *social* non sarà sufficiente a richiamare nuovi interlocutori e/o fidelizzare quelli già esistenti.

Il principale limite del lavoro si collega al fatto che l'indagine è stata realizzata da una prospettiva esterna (mediante la valutazione dei siti *web* aziendali dei poli fieristici nazionali), non rendendo di conseguenza possibile, in questo ambito, effettuare una valutazione della comunicazione *web* in relazione alle risorse e agli specifici obiettivi delle *governance* fieristiche (valutazione necessaria per capire se le azioni comunicative adottate dai poli indagati siano consapevoli o meno).

Per il futuro, è interesse degli autori estendere la ricerca sia da un punto di vista metodologico (mediante interviste dirette ai responsabili dei poli fieristici nazionali), che geografico (mediante un confronto con i sistemi fieristici di altri paesi, allo scopo di capire l'effettivo stato di sviluppo della comunicazione *web* fieristica nazionale).

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Book reviews

Giuseppe Lupo, **La letteratura al tempo di Adriano Olivetti**, Edizioni Comunità, Roma - Ivrea, 2016, pp. 316.

Veramente esiguo è il numero delle personalità che hanno suggestionato, anche se non sempre con la stessa intensità, l'opinione pubblica non soltanto italiana, quanto Adriano Olivetti (1901-1960) che ha precorso i tempi su molte problematiche della società contemporanea, innanzitutto per ciò che «attiene alla funzione e alla missione dell'impresa come dimensione eminentemente sociale, al ruolo del lavoro, al rapporto tra impresa e territorio, a quello tra cultura industriale e cultura *tout court*» (A Castagnoli). Già nel corso degli anni Cinquanta Adriano Olivetti era finalmente arrivato a realizzare, con sede principale ad Ivrea, un importante complesso industriale considerato il primo in Europa nel settore delle macchine da scrivere e contabili, e attivo, tramite una rete di succursali, in tutta Europa, in alcuni paesi del Commonwealth britannico e perfino in Africa ed in America.

Questi straordinari risultati erano stati possibili grazie anche ad una schiera di ingegneri, di tecnici e di specialisti molto preparati nel campo della progettazione, della ricerca, della complessa e sempre aggiornata organizzazione aziendale, del marketing e delle indispensabili e determinanti relazioni pubbliche. Non si può trascurare di prendere in considerazione anche un gruppo di intellettuali quelli di formazione letteraria assunti da Adriano Olivetti come collaboratori per le sue aziende e che sono il riferimento principale di questo libro di Giuseppe Lupo, autorevole studioso di letteratura industriale che qui ha raccolto suoi saggi alcuni dei quali in precedenza editi in altra sede. Ottiero Ottieri, assunto da Adriano Olivetti come consulente al personale della sua azienda viene tuttora riconosciuto come l'autore in ordine di tempo del primo romanzo a tematica industriale, negli anni del *boom* economico in Italia, intitolato *Tempi stretti* (1957). Certamente Ottieri non fu ostacolato dal suo datore di lavoro a scrivere un romanzo che non parlava in maniera positiva di una realtà estranea a quella di Ivrea, perché alludeva in esso alle vicende di in un piccolo nucleo di personaggi di estrazione operaia, stressati in fabbrica dal lavoro davvero inumano che li privava anche di un minimo di serenità nei momenti, fuori dalla fabbrica, della loro vita privata. Ben diversamente gestita era l'azienda di Ivrea, perché diretta da una personalità senza dubbio dotata di sensibilità che non ostacolava la libertà artistica dei suoi collaboratori ed in tal caso quella di Ottieri, che ben conosceva come il processo produttivo in corso presso l'azienda di Olivetti, almeno nei suoi riflessi umani ed esistenziali, non era certo paragonabile a quanto egli aveva scritto nel suo romanzo *Tempi stretti*.

Un altro romanzo di Ottieri, edito nel 1959, è intitolato *Donnarumma all'assalto* e riguarda l'esperienza dell'autore che accettò la proposta di Olivetti di andare a Pozzuoli, in Campania, con l'incarico di selezionare gli operai da assumere nella nuova fabbrica, inaugurata nel 1955 da Adriano Olivetti. In quella occasione nel suo discorso rivolto agli operai di Pozzuoli questi aveva detto: «La fabbrica fu […] concepita alla misura dell'uomo perché questi

trovasse nel suo ordinato posto di lavoro uno strumento di riscatto e non un congegno di sofferenza. Per questo abbiamo voluto le finestre basse e i cortili aperti e gli alberi nel giardino a escludere definitivamente l'idea di una costrizione e di una chiusura ostile». Nel suo romanzo, in qualche modo autobiografico, Ottieri dava conferma a questa ricca umanità dell'imprenditore di Ivrea, la cui scomparsa nel 1960 condizionò non poco la realizzazione di importanti progetti industriali senza recare danno però alle ormai qualificate istituzioni della Olivetti come la rivista «Comunità», le numerose riviste di settori culturali specialistici ed i libri tradotti di celebri personalità straniere, come, per esempio, quelli di Simone Weil, studiosa del pensiero religioso fatta conoscere ad una larga fascia di lettori dalla casa editrice olivettiana «Comunità».

A molte di queste iniziative diedero il loro contributo autorevoli collaboratori della stessa azienda Olivetti, fra i quali ricordiamo i nomi ormai noti di Franco Fortini, Giovanni Giudici, Geno Pampaloni. Un altro giovane letterato, Paolo Volponi, entrato nella azienda di Ivrea come responsabile dei servizi sociali si fece valere come originale autore di narrativa industriale quando esordì con il suo primo romanzo intitolato *Memoriale,* edito nel 1962. Adriano Olivetti aveva favorito l'incontro fra letterati e la complessa realtà della sua azienda, ma anche dopo la sua scomparsa, soprattutto per merito di Paolo Volponi, non si indebolì il versante della narrativa industriale con il romanzo di questo autore che riscosse ampi consensi di critica e di pubblico. Scritto dal protagonista in forma di memoriale, il libro di Volponi ricostruisce, con una ottica deformata, le vicende personali di un paranoico, di un asociale sofferente di complessi di persecuzione. Lo incontriamo in una fabbrica non identificabile dove lavora in un primo tempo con fiducia, perché vede in essa finalmente l'approdo della sua ambizione di diventare operaio stabile in un posto sicuro. Ma i suoi rapporti con la fabbrica e con i suoi compagni di lavoro si complicano quando i medici che lo visitano gli rivelano la sua malferma salute, costringendolo ad un periodo di convalescenza e di cure. Tutto ciò lo deprime, perché si sente perseguitato dai medici stessi e si sente anche impegnato in una sfida da cui non può uscire indenne. Egli non riesce più ad accettare il suo posto di lavoro, anzi da questa sfida esce sconfitto, perché alla fine riceverà una «diffida scritta di licenziamento» per essere diventato quasi inavvertitamente protagonista di una azione sindacale ostile alla fabbrica dove era stato assunto.

La fabbrica presentata dal punto di vista di un personaggio del genere non sarebbe mai stata accettata da Adriano Olivetti perché veniva rappresentata come luogo di sofferenze e di umiliazioni. Ciò che temeva lo stesso Volponi (come ci sembra di intuire dal saggio di Giuseppe Lupo) era proprio questo, cioè la fabbrica in futuro avrebbe potuto diventare luogo di sofferenze e di umiliazioni, se gli imprenditori degli anni a venire, a differenza di Adriano Olivetti, avessero coltivato solo l'ambizione del profitto e del potere, senza contribuire ad impiantare una diffusa emancipazione sociale e morale della classe operaia, come aveva cercato di fare appunto Adriano Olivetti.

Nel 1989 uscì di Paolo Volponi *Le mosche del capitale*, romanzo a tematica industriale che fin dal titolo allude ai dirigenti d'azienda

che affollano la narrazione e che «si muovono in tutte le direzioni con apparente leggerezza ma con profonda volgarità, che come le mosche volano dappertutto e imbrattano ogni cosa», senza che gli imprenditori, padroni incapaci, siano in grado di intervenire per evitare, come è avvenuto, il fallimento completo del progetto di una moderna razionalità industriale, come invece era avvenuto con il modello imprenditoriale di Adriano Olivetti, cui è dedicato il romanzo con queste parole da parte dell'autore: «Per Adriano Olivetti, maestro delle industria mondiale».

Non si possono pertanto considerare eccessivamente infondate, pur a distanza di tempo, le previsioni pessimistiche in qualche modo allusive fatte intuire ai lettori da Volponi con il suo *Memoriale* ed ancora oggi pertinenti alla sua carriera di dirigente presso l'azienda Olivetti, perché ad un certo punto egli decise di lasciare il suo posto, deluso e amareggiato rispetto ai tempi passati quando era ancora in vita Adriano Olivetti. Infatti nell'anno della propria morte (1994) Volponi ebbe a scrivere: «Con le sue fabbriche, con la sua ricerca scientifica e tecnologica, con i suoi esperimenti sociali e di comunicazione, Adriano era un vero protagonista del rinnovamento del Paese. E lo era realizzando metodi, aggregazioni e conquiste «di sinistra», cioè di crescita culturale, sociale ed economica».

Per la realizzazione di tali progetti si erano resi disponibili, nei vari settori della produzione industriale, molti collaboratori di prestigio e tra questi lo scrittore Libero Bigiaretti, fin dal 1952 direttore dell'ufficio stampa e responsabile del periodico «Notizie Olivetti». Questo periodico era destinato a promuovere, in modo capillare, la comunicazione interna alla azienda con una finalità primaria, quella che puntualizzò lo stesso Bigiaretti quando scrisse «che la conoscenza degli scopi, delle tecniche e dei risultati di una produzione industriale da parte di chi vi è addetto (non importa a quale livello) provoca un interesse, un attaccamento che, rendendolo cosciente, attenua in qualche modo la fatica e può risolversi in un aumento di produttività». Tale enunciazione rifletteva uno dei capisaldi della imprenditorialità di Adriano Olivetti, cui si affiancò Libero Bigiaretti, come si può verificare con una sua raccolta di interventi dal titolo *Scritti e discorsi di cultura industriale*, curati recentemente da Giuseppe Lupo.

Ricordiamo anche il romanzo *Il congresso* (1963), opera narrativa di Bigiaretti, il cui titolo è giustificato dal fatto che in essa si fa esteso riferimento ad un convegno di pubblicitari, al quale partecipa l'io narrante protagonista del romanzo, dirigente di una azienda indicata con un nome di fantasia. Rovesciando completamente la scaletta prevista dal suo intervento circa la pubblicità aziendale, in questo convegno il protagonista sostiene scandalizzando l'uditorio, di essere «uno di quegli intellettuali di fabbrica che hanno accettato in buona fede di svolgere una attività mistificatoria». In proposito Giuseppe Lupo scrive che questo dirigente «pur di assicurarsi le attenzioni sentimentali/erotiche di una collega, pronuncia una arringa accusatoria contro la propria azienda, seminando scandalo tra gli iscritti al convegno. Si tratta di una esternazione manifestata in forma parodica, quasi una provocazione da teatrante, che assomiglia certo ai modi dei giullari di corte, però mette a nudo le debolezze di una categoria prigioniera negli ingranaggi delle realtà aziendali».

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Giuseppe Lupo si è soffermato su Bigiaretti ed altrettanto ha fatto per un altro letterato meno conosciuto rispetto a quelli cui abbiamo fatto riferimento fino ad ora. Il suo nome è Giancarlo Buzzi, tra il 1955 e il 1960 dipendente della Olivetti con incarichi di responsabilità nei vari centri culturali e sociali di Ivrea e del Canavese. Prendiamo in considerazione Buzzi, perché è l'autore di un romanzo intitolato *L'amore mio italiano*, pubblicato nel 1963 è riproposto con una nuova edizione riveduta (2014), a cura di Silvia Cavalli e con postfazione di Giuseppe Lupo. L'ambiente del romanzo è quello di Ivrea, anche se non è nominata esplicitamente, ma riconoscibile grazie «alla presenza della grande fabbrica, che regola la vita dei suoi abitanti: dalle attività lavorative al tempo libero, organizzate in strutture ben precise, come gli appartamenti per operai, impiegati e dirigenti, i locali adibiti a biblioteca, le sale per conferenze, gli spazi destinati a mostre e a cineforum». Basta questo accenno per convincersi che si tratta proprio della città di Adriano Olivetti e della sua fabbrica, che resta sullo sfondo ma di cui riusciamo a sapere «quasi nulla su ciò che in essa viene fabbricato o quale sia la ricaduta morale della ricchezza sul territorio» come ha fatto notare Giuseppe Lupo.

Dominante invece è l'intreccio narrativo delle due relazioni, una coniugale l'altra adulterina, vissute nell'euforia del boom economico tra un dirigente di una fabbrica (senza dubbio l'Olivetti), sua moglie ed una impiegata che lavora nella stessa fabbrica del dirigente. Questi è l'io narrante di tutta la storia raccontata in questo romanzo, nel quale si insiste, in parecchie pagine, a parlare della non tranquilla vicenda extra-coniugale del protagonista infedele alla moglie, privo di slancio professionale, sensibile soltanto a conservare, senza difficoltà, il privilegio che continua ad offrirgli il suo posto di lavoro. Egli è una poco rassicurante figura di dirigente non certo all'altezza del suo compito, deludente figura pure di nuovo rintracciabile in alcuni romanzi posteriori della narrativa industriale e quindi non solo nella narrativa di matrice olivettiana. Quest'ultima abbiamo tratteggiato, nell'intero suo percorso, proprio in questa sede.

Umberto Casari

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GOLINELLI G.M., (2010), *Viable systems approach (VSA). Governing Business Dynamics*, Cedam, Wolters Kluwer, Padova.

Articles
BACCARANI C., GOLINELLI G.M., (2008), "The enterpreneur and the frontiers of complexity", *Sinergie*, n. 75, pp. V-X.

Book chapters
VARALDO R., (1987), "The internationalization of small and medium-sized italian manufacturing firms", in Rosson P., Reid S., (edited by), *Managing export entry and expansion: concepts and practice*, Praeger, New York.

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