A service research contribution to the global challenge of sustainability

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Abstract

Purpose – Poverty, hunger, inequalities, diseases, unsustainable use of resources, etc., in spite of scientific progress, still remains unsolved worldwide issues. All these issues relate to the challenges of sustainability and sustainable development that now call for urgent answers. The purpose of this paper is to explore how the service research community can respond to this call and to identify key areas of potential contribution.
Design/methodology/approach – After a brief review of selected service literature aimed at exploring its interest in the topics of sustainability and sustainable development, the authors develop the interpretative proposal identifying the key requirements of a global engagement in the challenge of sustainability and sustainable development and highlighting the potential contribution of service research.
Findings – Findings highlight the potential contribution of service research to the global challenge of sustainability and suggest acting upon education by considering the "T-Shaped" professional model as a possible reference for embedding sustainability in the education of future managers and addressing the need of interdisciplinary thinking through the systems approach.
Research limitations/implications – The proposed study of service literature is only an exploratory analysis of main contributions that does not aim to identify gaps but only to highlight the potential of a greater engagement of service research in the global call for a more sustainable and inclusive development.
Practical implications – A trans-disciplinary approach is also required. This implies the involvement of the business and the social real world.
Originality/value – This paper represents a novel call for engaging the service research community in a boundary-crossing collaboration with the aim of contributing to address the challenge of sustainability.
Keywords Sustainability, Education for sustainable development, Viable systems approach,
Service research, T-shaped professionals
Paper type Conceptual paper

1. Introduction: the need for a cultural change in economy and society

The changing social structures and values, as well as new developments in economic, political, and technological fields are creating sea-changes in the philosophy, strategic aims, operational practices, and structures of many organizations. These changes are particularly relevant to the service sector, as public demand for high standards increases, and organizations fight for both market share and public credibility. The journal specifically addresses solutions to these challenges from a global, multi-cultural, and multi-disciplinary perspective (*Journal of Service Theory and Practice*, http://emeraldgrouppublishing.com/products/journals/journals.htm?id=jstp).

Sharing the *Journal of Service Theory and Practice*'s views and aims, in this study we reflect upon the way the service research community can "serve" the cause of many of the unsolved issues of humanity, such as poverty, hunger, disease, inequality, not to mention the related environmental issues, that affect populations and society all over the world requiring urgent solutions for sustainable development.

Governments are discussing at international and national level, together with the scientific, social and business communities, to find solutions that could lead to conditions of well-being for all populations, thus giving rise to a global, multi-cultural and multi-disciplinary debate. The persistence of the above-mentioned issues, despite the engagement of nations all over the world, shows the inadequacy of current proposals to address effectively social progress and economic growth for all and the need for the rethinking of dominant models that must involve governments, businesses and the civil society. Related to the wider issue of sustainable development, the above are typical examples of "wicked problems" (Rittel and Webber, 1984). Like many social and cultural problems, sustainable development is influenced by numerous variables that cannot be managed at the same time. Essentially, it implies dealing with harmonizing social-ecological and socio-technical systems – i.e. interaction between humans and nature on the one hand (Berkes *et al.*, 2003) and between humans and technology on the other (Trist, 1981) – which are *per se*, systems complex to manage. In effect, the management of such complex systems has to rely on incomplete or contradictory knowledge, and is characterized by a number of people and perspectives, huge economic relevance, and most of all, high interconnectedness between the many problems involved, just as the case with wicked problems (Peterson, 2009). Ostrom (2009) highlights the critical aspects of dealing with such systems when she affirms: "scientific knowledge is needed to enhance efforts to sustain SESs [Social-Ecological Systems], but the ecological and social sciences have developed independently and do not combine easily […]. Furthermore, scholars have tended to develop simple theoretical models to analyze aspects of resource problems and to prescribe universal solutions. For example, theoretical predictions of the destruction of natural resources due to the lack of recognized property systems have led to one-size-fits-all recommendations to impose particular policy solutions that frequently fail" (p. 419). Agreeing with the view that "science has developed to deal with 'tame' problems […] and it makes no sense to talk about 'optimal solutions' to social problems unless severe qualifications are imposed first" (Rittel and Webber, 1973, p. 155), we believe that there are no simply technical or technological solutions to such problems. The dynamics emerging from unbalanced human-nature interaction are cultural expressions of the dominant value systems that influence decisions, choices and behaviors (Barile, 2009). Hence, what is required is a cultural change in economy and society toward a more inclusive and sustainable way to conceive the life of human beings on earth. Cultural changes, however, do not follow linear and deterministic logics and do not produce effects in the short term as they generally emerge gradually as outcomes of multiple, overlapping and unpredictable trends (Castells, 2011). Cultural change, in this case, implies a view of progress in which knowledge plays a new role. In other words, a view of progress "in terms of rights and responsibility of entities to acquire and use competences (knowledge) for the benefit of themselves and others in a "nonzero-sum game" of life" (Spohrer *et al.*, 2013, p. 564). Knowledge should imply consciousness and responsibility for the use we make of it, making us good decision makers and not only optimal problem solvers. In short, knowledge should enrich our comprehension capabilities and not only our technical competences.

1.1 What is the role of the scientific and academic community in promoting this cultural change?

1.1.1 In particular, what might be the role of the service research community? We believe that here lies the "knowledge burden" of science, i.e. "the hallmark of comprehension"

(Spohrer *et al.*, 2013, p. 565). The burden of science is to bridge theory (knowledge creation through research) and practice (knowledge application) to promote progress for all and education which plays a key role, as the core process through which theory is put into practice, in achieving change impacting at cultural level.

Thus, the scientific and academic community should direct its traditional research and educational missions toward a process of rethinking the role universities play in today's progress-oriented knowledge economy.

On the basis of such premises, believing that knowledge is "the root of all human-imaginable service capabilities in a service ecology" (Spohrer *et al.*, 2013, p. 562), our aim is to explore the potential role of the scientific community of service research in facing the challenges of sustainability and sustainable development, both intended in their broader meanings related to "the attempt to combine growing concerns about a range of environmental issues with socio-economic issues" (Hopwood *et al.*, 2005, p. 38). More specifically, adopting a view of service as a research domain that goes beyond the boundaries of sectors and disciplines, we identify potential points of intersection between work on sustainability and service research, highlighting in particular how fundamental concepts in service-dominant logic (S-DL), service science (SS) and systems thinking can be used as analytical tools to meet the key requirements expressed by practitioners and thinkers in sustainable development and education for sustainable development (ESD).

Our conceptual work is the outcome of shared reflections on the way the three "Pillars" of the Naples Forum on Service can advance knowledge in a stage of marketing evolution that puts decision makers in front of the complexity of service systems indicating the necessity to recover a systemic view of reality. Thus, our interpretative proposal aims to advance the scientific contribution of S-DL, SS, and network theory and systems theory, to promoting cultural change that would impact future trends of economy and society. Hence, our research question is:

RQ1. What does service research have to offer in order to address the global challenge of sustainability and sustainable development?

To discuss this research question, first, we briefly explore the current interest of service research in the topics of sustainability and sustainable development (Section 3). Second, on the basis of a three-tier interpretative framework, we identify: the key requirements of global engagement toward the challenge of sustainability and sustainable development (Section 4), the key concepts of service research that respond to the key requirements and the key points of convergence that highlight the areas of potential contribution of service research to address the challenge of sustainability and sustainable development (Section 4). Finally, focusing on education and systems thinking as key bridging concepts, we propose a potential reference model for educating future managers engaged in addressing sustainability and sustainable development (Section 5), highlighting, in conclusion, practical implications for research not to mention the limits of our study (Section 6).

2. Exploring the interest of service research in the topics of sustainability and sustainable development

Service research has proposed several definitions of sustainability (Wolfson *et al.*, 2010; Navarro-Espigares *et al.*, 2012; Gretzel *et al.*, 2015) attempting to identify variables and dimensions that influence the way in which actors approach the concept of sustainability and its management (Johnson *et al.*, 2004; Scheirer and Dearing, 2011). Various proposals have been framed in order to define models that highlight the relationships between environmental forces, contextual influences and interventions in the field of sustainability (Aarons *et al.*, 2011; Stirman *et al.*, 2012).

Interestingly, sustainability has been defined as "a mother lode of organizational and technological innovations that yield both bottom-line and top-line returns" (Nidumolu *et al.*, 2009, p. 56). Obviously, the perspective is that of business scholars with the focus on the economic dimension of the sustainability framework.

However, our aim is to investigate the conditions of a wider view of sustainability in which the boundaries between environment, society, and economy, and related disciplines, fade within a holistic and systemic view of reality.

To this aim, our study begins with an analysis of leading journals in service research through which we intend to explore interest in the topics of sustainability and sustainable development. Essentially, our intention is to assess the "sensitivity" of the service community to these issues, by verifying whether, to what extent and how the terms "sustainable" and "sustainability" (word "sustainab*") are used in service literature. We analyzed five leading journals in service research selected because of the wider scope of their mission and their global, multi-cultural and multi-disciplinary perspective: *Journal of Service Theory and Practice*, *Journal of Service Management, Service Science Informs*, *Journal of Service Research* and *Journal of Service Science Research*[1]. Our study, however, is neither a literature review of service research nor an analysis targeted at gaps to cover, but merely a preliminary exploration of the field from which potential strands for future research may emerge.

To the summary of our findings we premise that in several articles the use of the term "sustainab*," especially as an adjective, seems intended in its more general meaning as "able to be used without being completely used up or destroyed" (*Merriam Webster* on line dictionary). Moreover, in many cases, focus is on the organizational perspective that deals with sustainability of competitive advantage or of the business itself.

Our findings[2] seem to show that although the interest in the issues of sustainability and sustainable development does not appear particularly significant, a positive trend is noted relative to an increase of interest particularly in journals launched more recently.

From the analysis of the relevant articles, we note that different perspectives are adopted when referring to sustainability and/or sustainable development. In this respect, Enquist *et al.* (2007) propose a multi-faceted, five-dimensional construct of sustainability (Kemp, 2005): ethical, social, "nature-philosophical," economic and legal. Authors underline the relational aspect of these dimensions and the management of this relation is fundamental for defining sustainable approaches and pathways. Furthermore, focusing on the approach, in a recent paper, Enquist *et al.* (2015) highlight the relevance of the ways in which various actors are engaged in achieving sustainability whereby they should be able to combine their resources, information and knowledge in a common "value creation network." In both articles Enquist et al. (2007) adopt, within a wider perspective, a true notion of sustainability, even enlarging the traditional triple bottom line view to propose "a more philosophical reflection on the practice of sustainable development" (p. 389).

From a different perspective, Stamenkov and Dika (2015) focalize their attention on sustainability as the capability to satisfy the needs and expectations of the various actors, based on the capacity of organizations to develop strategies and pathways aligned with the vision, mission and values of the market. In this paper, the notion of sustainability refers to the sustainability of service quality that is a more specific concept. It appears, however, that the notion of "sustainability" is relevant in the management of service systems, although applied, as in this case, to the sustainability of the system itself and of its processes and outcomes.

Similarly, Sultan and Yin Wong (2014), in a study on the capabilities of universities to attract resources and students, underline that "sustainable" strategies require a deep understanding of the needs and expectations of the various actors in order to develop pathways aligned with them. The authors also refer to the sustainability of a service system,

a service organization, in this case a university. In short, it appears that the view of "sustainability" is that applied to the management of service systems. Our aim, however, is not to investigate what the sustainability perspective has to offer to the research on service and service systems management; conversely, we aim to investigate what service research has to offer to sustainability.

In this context, an interesting contribution offered by Andreassen *et al.* (2015) underlines how service approaches and research directions can support the shift from the intellectual to the practical level in debates on planet sustainability. More specifically, the authors, focusing on new trends from a service innovation perspective and distinguishing between the planes of action of individuals and society, highlight the relevance of considering the impact of people and organizational behaviors on the sustainability of the planet.

This wider view already adopted by Reynoso (2009) highlights the need to foster the "balanced integration of economic, social and environmental values" (p. 475) as a strong foundation for value co-creation. Reynoso also indicates that more research is required in this area. Similarly, Zhang *et al.* (2012) underline that, despite strong research interest, there are still several knowledge gaps to cover on how "to reduce the environmental impact through sustainable initiatives while maintaining competitiveness" (p. 378). The necessity and criticality of combining different targets is highlighted by Saviano *et al.* (2010) who indicate sustainability as a third target to add to efficiency and effectiveness (hence competitiveness) of business performance.

The need for more impactful research in the field, to stimulate real changes, is also affirmed by Wolfson *et al.* (2010) who, emphasizing that sustainability requires the integration of numerous fields and factors, highlight that, despite increasing knowledge and awareness, "little has happened 'on the ground' and we have made no real change in our lifestyles, an interim outcome due mainly to the complexity of living a truly sustainable life" (p. 217). Their view maintains that involvement from various sciences (natural, engineering and technology, management, and behavioral) is required.

Similarly, Christopher (2010) evidences that the new challenge for companies and organizations that aim to survive is to adopt a wider perspective in order to build products and solutions aligned with the needs of the market. As underlined by Wolfson *et al.* (2011), a change in perspective can be realized in which all actors become "suppliers of sustainability" under a common "umbrella for comprehensive and complex service systems" (p. 173).

Commenting on these findings, we should say that several terms and concepts, other than the specific expressions "sustainable" and "sustainability," refer to the field of interest under investigation. Thus, interest might be – and most probably is – even greater than would appear from our analysis. For example, in a recent special issue of the *Journal of Service Research*: "Transformative service research: a multi-disciplinary perspective on service and well-being," both the concepts of Transformative Service Research (TSR) and well-being are of great interest in the field of research on sustainability and sustainable development. TSR "represents research that focuses on creating 'uplifting changes' aimed at improving the lives of individuals (both consumers and employees), families, communities, society, and the ecosystem more broadly (Anderson *et al.*, 2013)" (Anderson and Ostrom, 2015). The concept of well-being is also central to the sustainable development framework. It refers to "physical health (objective and subjective perceptions), mental health (e.g. resilience, stress, and burnout), financial well-being, discrimination, marginalization, literacy, inclusion, access, capacity building, and decreased disparity among others" (Anderson and Ostrom, 2015). Interestingly, Anderson and Ostrom highlight that the sociocultural ecosystems that services and customers function within are "a critical and under-researched area of well-being." Apparently, TSR represents a promising area of collaborative research for both service and sustainability communities (a first attempt to build a common framework for the two communities is proposed in Golinelli *et al.*, 2015).

Overall, what emerges from our exploratory study is that while service researchers have not shown a particular interest in sustainability either as a topic or as an issue, more recently, especially over the last few years, interest has grown significantly. It is likely that also the wider scope of the journals has stimulated reflections and debate on the problems of our society, increasingly recognized as relevant for service research.

Service research, capturing current trends and requirements from the evolving socio-economic context, is progressively adopting a much wider view in its approach to the study and management of service systems, recognizing the specific relevance of the environmental context in which the action of service systems takes place. As evidence of this wider view, is the growing focus on the notion of ecosystems, included in the framework of S-DL (Vargo and Lusch, 2006, 2015; Lusch *et al.*, 2008; Vargo *et al.*, 2008; Vargo and Akaka, 2012). The interest in value co-creation, central in S-DL, with its expanding ecosystemic perspective, has made clearer in recent years that "the narrative of value co-creation is developing into one of resource-integrating, reciprocal-service-providing actors co-creating value through holistic, meaning-laden experiences in nested and overlapping service ecosystems, governed and evaluated through their institutional arrangements" (Vargo and Lusch, 2015, p. 3). The ecosystems view of value co-creation is emerging as the foundation of the new service logic whose scope, in our view, goes far beyond the domain of service marketing to embrace a wider view of management of networked service systems (Barile *et al.*, 2016). In this research area, the scientific contribution of SS is also fundamental (Spohrer *et al.*, 2007; Maglio and Spohrer, 2008; Spohrer, Golinelli, Piciocchi and Bassano, 2010; Demirkan *et al.*, 2011; Edvardsson *et al.*, 2011; Spohrer and Murphy, 2013). SS is engaged in the development of a science of service systems, as a growing multi-disciplinary research and academic effort that integrates aspects of established fields of knowledge on service and service systems (Lobler, 2011). Furthermore, SS is showing notable engagement in the challenges of sustainability by promoting several programs and projects, such as that of a "smarter planet," a global collaborative agenda for business, government and civil society engaged in exploring and exploiting the potential of smarter systems to achieve economic growth, near-term efficiency, sustainable development and societal progress (www-03.ibm.com/ibm/history/ibm100/us/en/icons/servicescience/). In the view of SS, "the world is made up of populations of service system entities that interact (normatively) via value propositions to co-create-value" (Spohrer and Kwan, 2009, p. 6). In Figure 1, a representation of this complex service-for-service interaction that emerges from networks of social-ecological and socio-technical systems acting in many sectors is proposed. Ultimately, from a systems view, the conditions of more or less sustainable environmental equilibrium depend on the way these social and economic systems interact.

The ecosystems view of service and service systems, in our view, can contribute significantly to foster desired change in current business and development models as it focuses on key processes for sustainable development, such as resource integration and value co-creation. This, we believe, goes far beyond the narrow scope of the single business to include the entire socio-economic and environmental context.

These emerging trends in service research, which to date are not linked significantly and explicitly to the debate on sustainability and sustainable development, should be expanded and reinforced to express their potential in addressing the challenges and the requirements of a transition toward a more sustainable and inclusive world.

To highlight this potential contribution, in the next section, we analyze the main criticalities and related requirements of the global challenge of sustainability and sustainable development, focusing on what is of particular interest for the scientific and academic world and, more specifically, for the service research community as a whole.
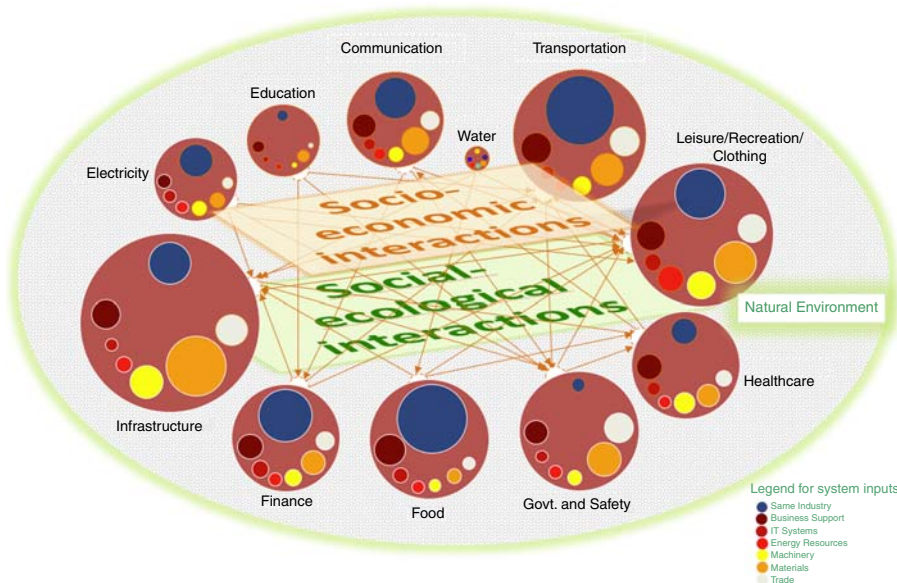
Note: Size of bubbles represents systems' economic values
Source: IBV analysis based on OECD; elaboration from Spohrer (2010); IBM (2010)

3. The key requirements for global engagement in the sustainability and sustainable development challenge

Following the conclusion of the meeting of the Brundtland Commission (World Commission on Environment and Development, 1985), the concept of sustainability has gained growing attention, becoming the focus of multi- and trans-disciplinary international debate (Komiyama and Takeuchi, 2006). The interest in sustainability has progressively involved various scientific domains, going beyond the initially prevailing environmental perspective and including, in particular, the social and economic spheres.

While the notion of sustainable development has become consolidated in the various disciplinary domains, there are still different views of sustainability and vagueness about the definition of the term (WCED, 1987; Pearce *et al.*, 1989; Burger, 2006; Dobson, 1996). A basic distinction is that between strong and weak sustainability, the former recognizing that we must live within the environmental and ecological limits that the planet clearly has, the latter accepting that humanity can replace the natural capital with human-made capital (Scottish Executive, 2006).

An initial attempt to develop an integrated framework for sustainability – and perhaps also the most popular – is the Triple Bottom Line model, formalized by Elkington (1998). This model highlights the relevance of combining three dimensions – economy, environment and society – to define development strategies able to meet the challenges of sustainability (Elkington, 1998, p. 37).

Numerous indications emerge from the corpus of knowledge resources on sustainable development (e.g. see https://sustainabledevelopment.un.org/). Among these indications are what we consider key requirements in that they appear as pre-requisites of a global engagement capable of promoting impactful changes. In the following sub-sections, we briefly illustrate and discuss such requirements to highlight the potential contribution of service research.

3.1 Multi-stakeholder engagement and participatory process

Sustainability and sustainable development imply dealing with complexity that can hardly be resolved by developing technical and technological solutions. What is required is "a great effort of multi-stakeholder and interdisciplinary collaboration through effective, long-term partnerships between the public and private sectors, between companies, and between companies and groups 'campaigning for a broad range of triple bottom line objectives' […] 'to achieve outstanding triple bottom line performance […]'" (Elkington, 1998, p. 37). The partnerships should be first engaged in promoting a widespread cultural change toward the sharing of a values system that recognizes sustainability as a common target.

Fundamental in this context is science-policy-industry collaboration widely recognized as the key for integrating the various perspectives involved in the debate on sustainability and sustainable development. Global policy makers – the United Nations in primis – are especially engaged in promoting initiatives at international level to involve local governments, scientific communities, the business world and the civil society in a collaborative effort to define a common governance approach and to develop models and tools, progressing together along the pathway toward a more sustainable world (Sempels and Felix, 2009). The intricate pathway created by the numerous initiatives promoted by each actor involved, however, although positive to promote engagement, has generated fragmentation, evidencing the need for integrating the multiple and often overlapping efforts at global scale. The approach, however, has changed over time, progressively recognizing the need for a more decisive shared effort.

Thus, a first requirement of a global engagement in the challenge of sustainability and sustainable development is a participatory approach through extensive stakeholder engagement capable of creating synergies in the efforts of the various actors involved. Promoted since the Conference on Sustainable Development – Rio+20, this participatory process has involved policy makers, universities and research centers, the business world and the civil society, in shared reflections on the achievements of the millennium development goals (MDGs) global program and the requirements of the new agenda. This global effort has culminated in the definition of the new set of sustainable development goals (SDGs), approved in 2015 at the United Nations Sustainable Development Summit (https://sustainabledevelopment.un.org/post2015/summit – September 2015). The new SDGs incorporate the MDGs framework putting sustainability and sustainable development at the center of the future global agenda (Sachs, 2012).

During the course of this global effort, several targets have been achieved satisfactorily, while several others have been less successful. Thus, many great challenges are still unfulfilled.

3.2 Cultural change through education

As has been recognized by UNESCO (2013), "sustainable development cannot be achieved by political agreements, financial incentives or technological solutions alone. Sustainable development requires changes in the way we think and act" (p. 4). Although fundamental, technological advances, legislation and policy frameworks are not enough, as they merely create the operative conditions for change that, instead, must first occur at cultural level involving mind-sets, values and lifestyles (Ostrom *et al.*, 2015). What is launched is a shared challenge for a transition in education, teaching, learning and professional development toward more holistic, integrative and critical ways of tackling sustainability issues (Wiek, Ness, Schweizer-Ries, Brand and Farioli, 2012).

While the need for collaboration of science-policy-industry is widely recognized, global engagement in the challenge of sustainability clearly results policy-led. In such engagement, the scientific community does not seem to have played a leading role. It is the scientific community itself, however, that has the "knowledge burden" of embedding the paradigm of sustainability and sustainable development into the economy and society systems

(Golinelli *et al.*, 2015). New socio-economic and business models, capable of better harmonizing the "environmental" constraints and necessities with the evolving society's needs, i.e. a transformative change, are what is required. Such a "transformative" change cannot rely but on deep "cultural" change by acting in the first place on education. Education, in both its formal and informal learning processes, is a fundamental leverage to act upon (Fullan, 1993; Leithwood *et al.*, 1999; King, 2002; Kemp *et al.*, 2007; McNamara, 2010; Sala *et al.*, 2013). It is most probably the only effective leverage for promoting medium- and long-term change, as the most common "means" (incentives) produce results only in the short term and even foster speculation logics. Hence, the scientific community must play a more central role in the global engagement in sustainable development, not only through research but also through education.

Thus, education is a fundamental requirement of the challenge of sustainable development.

In the worldwide engagement for education, UNESCO represents the unquestioned global leader guiding the process of cultural change in favor of the widespread trend toward sustainability, playing a central role in promoting education as a key lever to act on. Numerous initiatives include a structured and shared approach of ESD promoted through the institution of the United Nations Decade of Education for Sustainable Development (DESD) (2005-2014). An ambitious goal, the program aimed at "integrating the principles and practices of sustainable development into all aspects of education and learning, to encourage changes in knowledge, values and attitudes with the vision of enabling a more sustainable and just society for all" (Buckler and Creech, 2014, p. 9).

As an "umbrella for many forms of education that already exist, and new ones that remain to be created," the program involved a vast number of stakeholders – across Member States, UN agencies, the education sector, the private sector and civil society – to work in partnership with the aim of reorienting education systems toward sustainable development. A deep rethinking of educational programmes and systems that currently support unsustainable societies, targeted to affect all components of education (legislation, policy, finance, curriculum development, instruction, learning, assessment, etc., www.unesco.org) and to impact on the capability of future decision makers to first understand then try to govern socio-economic dynamics in the view of a more sustainable world.

At the end of the decade, several key findings and trends emerged that provided directions for future efforts. Much success was achieved during the decade. However, Member States and other stakeholders involved in the process have indicated relevant challenges that remain open (Buckler and Creech, 2014, p. 10) regarding the need for:

- further alignment of education and sustainable development sectors;
- more work toward institutionalizing ESD to ensure strong political support for implementing ESD on a systemic level; and
- more research, innovation, monitoring and evaluation to develop and prove the effectiveness of ESD good practices.

Behind these unfulfilled results, the weak role and involvement of the scientific and academic community appears, especially in the educational mission. Therefore, a strong effort from educational institutions to rethinking consolidated approaches to education, assuring understanding and acceptance of sustainable practises and models at all levels, is required (Rust *et al.*, 2005; Lambrechts *et al.*, 2013).

3.3 Multi-perspective approach, interdisciplinary thinking and systems thinking mindset
One of the main criticalities in realizing ESD is implementing a multiple-perspective approach by promoting the development of interdisciplinary and intercultural competencies: interdisciplinary thinking, in which concepts and knowledge from different

academic traditions and disciplines are used in new and creative ways to analyze and understand complex situations (UNESCO Education Sector, 2012).

In a scientific study of sustainability and sustainable development, as well as in managing any kind of process related to sustainability and sustainable development, the integrated contribution of various disciplinary bodies is required (McKeown *et al.*, 2002; Barth *et al.*, 2007). As we highlight, such integration implies a capability of knowledge seeking and acquiring by moving across different domains.

Thus, a relevant key requirement for an effective approach to sustainable development, and subsequently to ESD, is interdisciplinary thinking, which should allow involvement, integration and exchange of knowledge resources from various disciplinary fields. In such a knowledge creation process, it is also necessary to go beyond the disciplinary knowledge involving professionals and organizations from the business world and civil society. This further involvement, which is required to obtain an effectively global and multi-level participation in the process, also highlights the relevance of trans-disciplinarity, which is considered as fundamental for a transformative change capable of deeply impacting on society and economy (www.scienzasostenibilita.org).

All these requirements, however, cannot be approached without putting in place a systems approach (Fiksel, 2006), i.e. a systems thinking mindset through which to combine a holistic view of the multiple and overlapping complex dynamics of sustainable development and an action-based approach capable of implementing a systemic change in thinking and practice: such an approach implies, essentially, "a new paradigm emerging around the poles of holism, systemic thinking, sustainability, and complexity" (Sterling, 2001, p. 2). Such a systems thinking approach would also enable the moving across conceptual (cultural, political and professional) and spatial (organizational, community, regional and international) boundaries (Bosch *et al.*, 2010, p. 2).

In short, to promote cultural change toward sustainability:

- extensive stakeholder engagement is required;
- through a synergistic participatory process; and
- based on a multi-perspective view.

Furthermore, to achieve change:

- a systems thinking mindset must be developed;
- by acting upon education;
- through interdisciplinary thinking; and
- trans-disciplinary involvement.

On the basis of these requirements, which derive from the long pathway of experiences and studies addressed to defining the most appropriate approaches to promote sustainable development, in the following section we explore the potential contribution from the service research scientific communities with particular reference to the three "Pillars" of the Naples Forum on Service.

4. The potential contribution of service research to progress in the sustainable development agenda

Beyond the current interest service research literature is addressing to the topics of sustainability and sustainable development, briefly illustrated in Section 2, we believe that the service research communities have much more to offer to advance the sustainable development agenda.

As we mentioned at the end of Section 2, analyses and current trends indicate that enlargement of its scope with attention shifting from the technical and operative level of problem solving to more complex developments emerging in economic, political and social fields (Barile *et al.*, 2016).

An area in which service research is already exploring its contribution to sustainability, integrating advances from the network and systems theory and the SS "Pillars" (Gummesson, 2002, 2008, 2009; Hofacker and Pagani, 2009; Golinelli, 2010), has been created within the research strand of the viable systems approach (vSa). Essentially, vSa is a scientific proposal that provides a methodological framework to apply systems thinking to the management of business and social organizations in complex scenarios. The notion of viability, central in the framework of vSa, is closely linked to that of sustainability and inspires the entire methodology built upon the Viable System Model of Stafford Beer (Beer, 1972; Barile, 2009; Barile and Polese, 2009, 2010; Barile and Saviano, 2011; Golinelli, 2010). Essentially, vSa provides "general schemes" through which more established research on service can be integrated and valorised within an extensive body of knowledge useful to frame the problem of sustainability and sustainable development. The notions of service, value co-creation, service systems, networked service systems and ecosystems, through the lens of vSa, incorporate a systems thinking mindset (Barile *et al.*, 2016), and become concepts, logics and models, hence analytical tools, useful to address the above discussed requirements of sustainable development.

More specifically, as shown in Table I, for each set of key requirements of sustainable development and ESD identified in Section 3 and relative sub-sections, there are one or more key concepts in the frameworks of S-DL, SS and vSa that can "serve" as analytical tools to build a "service research" approach to promote sustainable development and ESD.

As regards the first requirements, i.e. the multi-stakeholder engagement and the participatory process, S-DL and SS offer the concepts of co-creation and resources integration and related models (Vargo and Lusch, 2006) as references for building an effective relational context, engaging many stakeholders who contribute (diverse) resources and collaborate in the creation of a shared outcome (value). Participatory processes are expected to involve many stakeholders, who generally have different views and pursue different goals. In this respect, the S-DL notion of service as "the process of doing something for another person (or entity) that is beneficial" in which the knowledge and skills of each party are integrated to co-create value in a true mutual exchange (Lusch and Wu, 2012, p. 2) can effectively inspire actors that desire or are engaged in a participatory process. Characterized "by dialog, continuous interactions and updating" (Pels *et al.*, 2013, p. 13), this "relational" notion of service appears

Sustainability and sustainable development frameworks	S-DL, VSA, SS frameworks
Key requirements in sustainable development	*Key concepts in service research*
Multi-stakeholder engagement and participatory process	Service, co-creation, resources integration, networks, consonance
Cultural change through education	T-shaped professionals
Multi-perspective approach and interdisciplinary thinking	Multi- inter- and trans-disciplinary knowledge
Systems thinking mindset	Ecosystems, viable systems approach
Key points of convergence	
Multi-stakeholder engagement and co-creation logic	
Systems thinking mindset and ecosystems view	
Education of T-shaped managers	
Multi-, inter- and trans-disciplinary knowledge	
Source: Our elaboration	

Table I.
Elements of
convergence between
sustainable
development and
service research
frameworks

useful to set the correct logic of interaction in multi-actor contexts converging toward common goals. Moreover, this notion of service appears implicitly oriented to embed the "burden" of sustainability and to promote the required cultural change toward more inclusive and sustainable business models (Reynoso, 2009). To this framework, vSa adds the study of the conditions underpinning an effective co-creation context, indicating consonance as a criterion of reference to govern multi-actor relational contexts. Consonance qualifies conditions of relational harmony among the actors involved, based on shared value systems and the functional complementarity/compatibility of implemented processes (Golinelli, 2010). The exploitation of the network potential lies in the possibility of effectively integrating the entire variety at play. vSa advises that organizing a good network relational structure is a necessary but not sufficient condition for obtaining a synergistic outcome: all finally depends on the way interaction occurs, which in turn depends on the effective alignment of the different views and interests toward a shared goal. Mechanisms of "emergence," which typically characterize the functioning of complex adaptive systems (Folke *et al.*, 2002), may occur and impact on the final outcome of interaction. vSa and service researchers are also interested in the study of complex adaptive systems (Badinelli *et al.*, 2012), which is a central theme in the framework of sustainable development. Focus, however, pivots on social-ecological systems, which, as mentioned, are human-nature coupled systems (Ostrom, 2009), while business scholars are more focused on socio-technical systems (Gorman, 2010), which are human-technology coupled systems. This common interest in the complexity of adaptive systems, together with the growing focus on ecosystems, represent areas of converging interests and views about how to govern the complexity of wicked problems.

As regard the second requirement, i.e. cultural change through education, a field in which the contribution of service research to sustainability can be further explored derives from the debate around the notion of "T-shaped professional" (Spohrer, Gregory and Ren, 2010), which is gaining attention both at academic and professional level. This debate is relative to a rethinking of the education programs of future managers to enable them to face the challenges of the new socio-economic scenario (Senge and Sterman, 1992; Hekkert *et al.*, 2001). The seminal works of Leonard-Barton (1995) have led to the defining of the profile of future managers as "T-Shaped" professionals (Schneider and Bowen, 2009; Spohrer and Freund, 2014; Spohrer and Gardner, 2014). T-shaped professionals combine in depth vertical expertise in one or more disciplines or systems, and horizontal capabilities of crossing boundaries between disciplines and systems to deal effectively with various emerging problematic contexts. Envisioning a very demanding future scenario, in 1997 it was declared that future decision makers must be able to "invent, and continually reinvent, radically effective management development methodologies that our generation cannot even imagine – yet" (Taylor, 1997, p. 313). This is now a key challenge for progressing toward sustainable development, which the scientific and academic community of service research should embrace by leveraging the various elements of convergence between the frameworks of sustainable development and ESD, on the one hand, and S-DL, VSA and SS, on the other.

Thus, we believe that the T-shaped education stream can be a very promising area of interdisciplinary collaboration for promoting sustainable development.

As regards the third set of requirements, i.e. multi-perspective approach, interdisciplinary thinking and systems thinking mindset, vSa, in particular, can represent a good reference point, at methodological scale, as long as it is intrinsically oriented to "serve" the cause of sustainability and sustainable development. This orientation derives, in particular, from the holistic view and the focus on context that characterize the systems approach compared to the traditional reductionist view (Barile and Saviano, 2011). vSa, in particular, extends the view of the system as a static structure to its dynamics in the

context (Barile and Saviano, 2011). A shift from an "ego" to an "eco" view is suggested (Barile *et al.*, 2013) directing toward the adoption of an ecosystems perspective (Barile *et al.*, 2016). This ecosystems perspective, which is gaining interest among service researchers, is central in the framework of sustainability and sustainable development that is rooted in ecology. An ecologist – Tansley (1935) – was the first to use the term "ecosystem." Thus, we believe that the notion of ecosystem can act as a useful bridging concept among all communities at play, as highlighted in Table I. Moreover, these communities are oriented to creating inter- and multi-disciplinary bodies of knowledge, because they all deal with complex problems that require the contribution of multiple perspectives and fields of knowledge. SS, in particular, aims at abstracting a multi-, inter- and trans-disciplinary body of knowledge from the study of service systems (Spohrer *et al.*, 2007). Service systems can be generalized as models of networked systems of actors, such as those typically engaged in sustainable development and ESD.

Overall, the elements of convergence discussed above show that service research can effectively be oriented toward "serving" the cause of sustainability and sustainable development.

The service research framework and the discussion on T-shaped professionals touch many aspects fundamental in particular in the framework of ESD. It is our opinion that the notion of T-shaped professionals, which appears to satisfy key requirements of ESD, can represent a fundamental contribution of service research to the sustainable development agenda. Accordingly, in the next section, we will explore in more detail the potential of this contribution by proposing a preliminary attempt to embed the education requirements of decision makers needed to face the challenges of sustainable development (as they emerge from UNESCO DESD) into the model of "T-Shaped" professionals.

5. Toward a model of "T-Shaped" people educated for addressing sustainable development

The evidence from UNESCO DESD as well as from other studies on education (Krajnc and Glavič, 2005; Gough and Scott, 2008) provide useful indications of the skills with which decision makers must be endowed to face the challenges of transformative change toward sustainability and sustainable development (Sternberg, 1994; Frey and Iraldo, 2008; Ostrom, 2009; Wiek, Farioli, Fukushi and Yarime, 2012; Wiek, Ness, Schweizer-Ries, Brand and Farioli, 2012).

In Section 3, we highlight targets, methodological requirements and conditions for implementing an effective program of ESD, whose main criticalities regard inter- and trans-disciplinarity and the subsequent need for cross-cutting disciplines, sectors and systems, to develop and disseminate knowledge useful to implement and promote sustainable development.

Given that a huge amount of specialized knowledge is currently available from the various disciplinary fields interested in sustainable development, such as ecology economics, social sciences, engineering, computer sciences and legal sciences, the problem is to link these disciplines within a coherent whole to achieve and promote sustainable development. In fact, specialization and technological progress have produced a class of highly skilled managers who appear increasingly incapable of effectively facing decision making especially when dealing with complex issues (Aguiari and Di Nauta, 2011). Hence, the skills necessary to face such complex decision making conditions appear to be lacking. We wonder then:

What are the skills necessary to address Sustainable Development? How can they be developed?

Based on long-term experience in ESD, the ESD decade, in its final report, clearly indicates such skills as "critical thinking, understanding complex systems, imagining future scenarios, and making decisions in a participatory and collaborative way" (UNESCO, 2013, p. 5).

In fact, sustainability and sustainable development must typically deal with complex problems that continuously challenge decision making at all levels of the social, economic and environmental processes.

To be capable of addressing the wide range of goals and targets of sustainable development, appropriate knowledge is required which spans various disciplines and sectors. Thus, one of the main criticalities to face, as discussed in Section 3, is to integrate views, sciences, sectors, interests that generally appear difficult to combine, if not irreconcilable.

As highlighted, the main challenge of advancing the sustainable development agenda involves science and education. The development of an education program for sustainable development suffers from the inability to implement interdisciplinarity, in theory simple but very difficult to put in practice, also because of the institutional barriers which impede the affirmation of interdisciplinary sciences (Frost and Jean, 2003). In this respect, the experience of the SS community in multi-, inter- and trans-disciplinary contexts, more established at both academic and professional level, can be of support to the development and promotion of sustainability and sustainable development.

In the light of the above, by building upon UNESCO's ESD reports, in the following section, we delineate a potential model of reference based on the notion of "T-shaped professionals," reinterpreted through the lens of vSa (Barile *et al.*, 2012; Barile and Saviano, 2013; Barile, Saviano and Simone, 2014).

5.1 The skills of a "T-Shaped" professional in the vSA view

T-shaped professional are "deep problem solvers with expert thinking skills in their home discipline but also have complex communication skills to interact with specialists from a wide range of disciplines and functional areas" (IfM and IBM, 2008, p. 19). The need for T-shaped professionals has progressively emerged during the last decade as the current knowledge and service economy increasingly requires managers and professionals who combine in depth knowledge in at least one discipline or system (vertical bar) with capabilities of moving across disciplines, sectors and systems (horizontal bar). While an I-Shaped professional is distinguished by in depth expertise in solving specific problems, which tend to maximize efficiency in management processes (Spohrer *et al.*, 2007; Spohrer, Golinelli, Piciocchi and Bassano, 2010), a T-shaped professional is "a new kind of executive, one who breaks out from the traditional corporate hierarchy to share knowledge freely across the organization (the horizontal part of the 'T') while remaining fiercely committed to individual business unit performance (the vertical part)" (Hansen and Von Oetinger, 2001, p. 108).

A key problem in developing a T-shaped knowledge is crossing the boundaries between disciplines (vertical bars) to integrate knowledge resources necessary to face the management of more complex interconnected systems (horizontal bar). In vSa, this problem has been analyzed in depth by re-interpreting the knowledge possessed by a T-shaped professional in terms of information variety (Barile, 2009) and distinguishing between three kinds of knowledge endowment (see first part of Figure 2): "information units" that represent data possessed by the system and exchanged during interaction; "schemes of synthesis" that represent structured and contextualized knowledge, which qualifies the system's set of competences; and "general schemes" that represent the system's cognitive schemes, i.e. fundamental models through which experienced reality is interpreted; a further level completes the framework including the "categorical values," which are the set of values, strong beliefs, convictions, etc. that over time settle the knowledge identity of the system (Barile, Saviano and Simone, 2014). This latter level is not represented in the figure that focuses on the more structured part of the information variety; however, it is fundamental in cross-boundary processes. Thus, in vSa terms, "I" shape knowledge is characterized by a basic endowment of general schemes, schemes of synthesis and
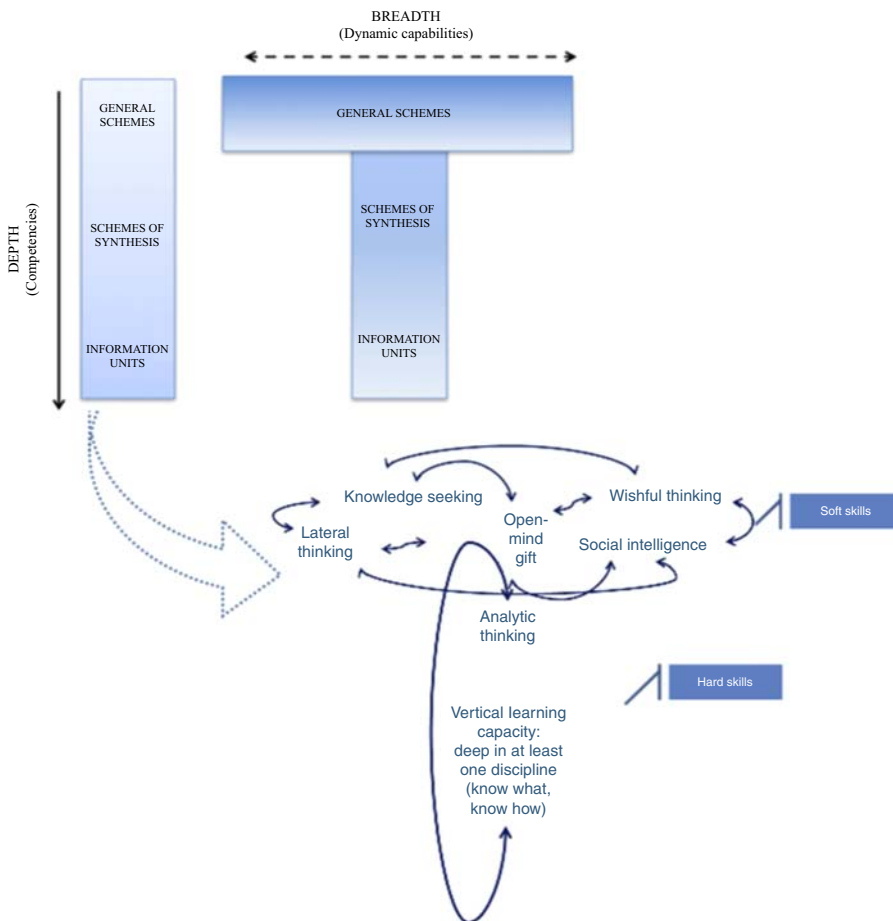
Figure 2.
The set of skills of
T-shaped people from
a VSA perspective

information units that are contextualized to a given problematic context and targeted to solve specific problems. A "T" shape, instead, is characterized by a richer endowment of general schemes. People endowed with I knowledge are vertically specialized in one (or more) fields. People endowed with T knowledge in addition to a competencies expertise, are also capable of facing different categories of problems from different fields thanks to their flexibility in reconfiguring knowledge by cross-cutting different contexts and applying their powerful endowment of general schemes. General schemes enable people to move horizontally and develop new knowledge through contextualization in new problematic situations.

In the light of vSa, significant convergence clearly appears between the fundamental requirements identified by ESD and the T-shaped framework. At this point, we can attempt to develop our interpretative proposal of a T-shaped model applied to ESD.

As highlighted, the key endowment required for people engaged in sustainable development is characterized by a systems thinking mindset that helps to develop boundary-crossing capabilities. These capabilities are typical examples of soft skills, i.e. a "set of non-technical, professional abilities such as communication, interpersonal and

customer service skills as well as personal traits such as integrity, and responsibility" (Wushe *et al.*, 2014, p. 187). The boundary-crossing skills are capabilities that allow or strongly support connections/links of various kinds: links between heterogeneous specialized knowledge; links between problems requiring solutions and solutions in need of problems; and links between people who have different cognitive frames because they live or work separated by geographical, organizational, hierarchical or cultural boundaries (Di Nauta *et al.*, 2015). The key of this knowledge is in the "bridging capabilities," which play a crucial synapse role in continuous learning and innovation (Barile, Saviano and Polese, 2014) and are the key process for a viable survival (Saviano and Caputo, 2013).

A general representation of T-shaped knowledge that combines soft and hard skills derived from the vSa view of T-shaped professionals is proposed in Figure 2.

5.2 Embedding sustainability into the "T-shaped" model
To apply this model to EDS, we can consider that the horizontal capabilities endowment is the common part of any T-shaped profile. Thus, to contextualize our model, we have to specify the vertical endowment necessary to complete the "T."

Although debate on a science of sustainability as an inter- and trans-disciplinary body of theoretical and practical knowledge required for progressing toward sustainable development is still in progress (Becker *et al.*, 1999; Komiyama and Takeuchi, 2006; Christen and Schmidt, 2012; Wiek, Farioli, Fukushi and Yarime, 2012; Wiek, Ness, Schweizer-Ries, Brand and Farioli, 2012; Miller *et al.*, 2014; Takeuchi, 2014; Kajikawa *et al.*, 2014), especially with reference to the creation of inter- and trans-disciplinary knowledge, there should be a convergence on what disciplines to integrate to achieve economic growth, environmental protection and social progress. Accordingly, the vertical knowledge that is necessary to deal with sustainable development issues by analyzing and solving related problems have to include basic competencies in environmental sciences, social sciences and economic sciences, which are the three disciplinary areas generally involved in sustainable development. A science of sustainability should emerge from the integration of basic principles and knowledge from environmental, social and economic sciences. The depth of such knowledge can vary depending on the degree of specialization, but the fundamental interpretation schemes and information characterising the three disciplinary fields are necessary. The key of the vSa perspective, in this respect, is that it is not really necessary to develop in depth expertise in each of the three scientific fields, because they are the general schemes that support the understanding of basic problems emerging from interaction between the three domains, while the schemes of synthesis (specialized and contextualized knowledge) can be easily searched or developed in case of need by activating, for example, the capabilities of "knowledge seeking" that effectively direct the search for more specialized knowledge necessary to solve specific problems that emerge.

As we have highlighted, when dealing with wicked problems, there are no ready and consolidated technical solutions, as in the case of well-experienced "tame" problems. In similar conditions of complexity, decision makers must leverage a more general level knowledge endowment, capable of capturing general if not universal principles that explain the behavior of observed systems. Indeed, the problems a T-shaped manager will be faced with when dealing with sustainable development, are rarely issues that can be resolved with a problem solving approach and following linear causality thinking, as these problems generally emerge from complex interaction almost impossible to govern. It is worth noting that they are efficiency concerns that tend to push service systems toward over specialization; conversely, "sustainability concerns tend to push service systems toward diversification and general competences" (Spohrer *et al.*, 2007, p. 15).

Therefore, in our view, considering that ESD acts as "an umbrella" in the UNESCO framework, we argue that:

> Education to develop T-shaped knowledge for Sustainable Development should be approached not only by combining or integrating the various disciplinary domains involved in sustainable development but by stimulating the development of systems thinking general schemes which are transversal to the various fields or problematic contexts involved in Sustainable Development.

These systems thinking general schemes, which form the required boundary-crossing capabilities, are those that, in the vSa representation, are identified as critical and lateral thinking, knowledge seeking, wishful thinking, open mind gift and social intelligence. We believe that these skills are fundamental also for implementing a true service logic in the management of the interconnected and networked service systems that configure a smarter planet that also aims to be more sustainable. ESD should be primarily targeted to develop capabilities to cross the boundaries between disciplines and sectors as suggested in Figure 3, in which a possible model of reference is represented.

Thus, the "T-shaped professionals" framework can provide role models to follow when dealing with sustainability issues. A model useful not only for managers and human resources to create "the learning organization, necessary for tomorrow's success" (Choppin, 1997, p. 272), but also for any person that aims to contribute to promoting more balanced progress for all. In a world of highly innovative and diverse service ecosystems, we would probably need all participants (workers, homemakers, laborers, consumers and even children) to be T-shaped. This aspect underlines the relevance of education as leverage and suggests that the adoption of a T-shaped model may be a reference even earlier or later than the university education stage in a lifelong view of learning.

In Figure 4, we sum up the whole conceptual framework proposed highlighting that to manage complex service-for-service interaction emerging from networks of social-ecological and socio-technical systems of systems (Figure 1), an interdisciplinary knowledge endowment is required. This knowledge endowment configures a T-shaped professional (Figure 3) equipped to face the challenge of sustainability and sustainable development by relying on a systems thinking based educational framework.

Figure 3.
Crossing boundaries
through education
for sustainable
development
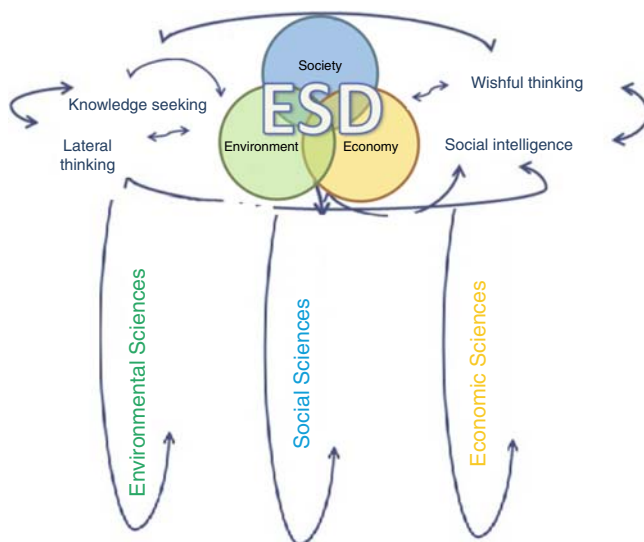
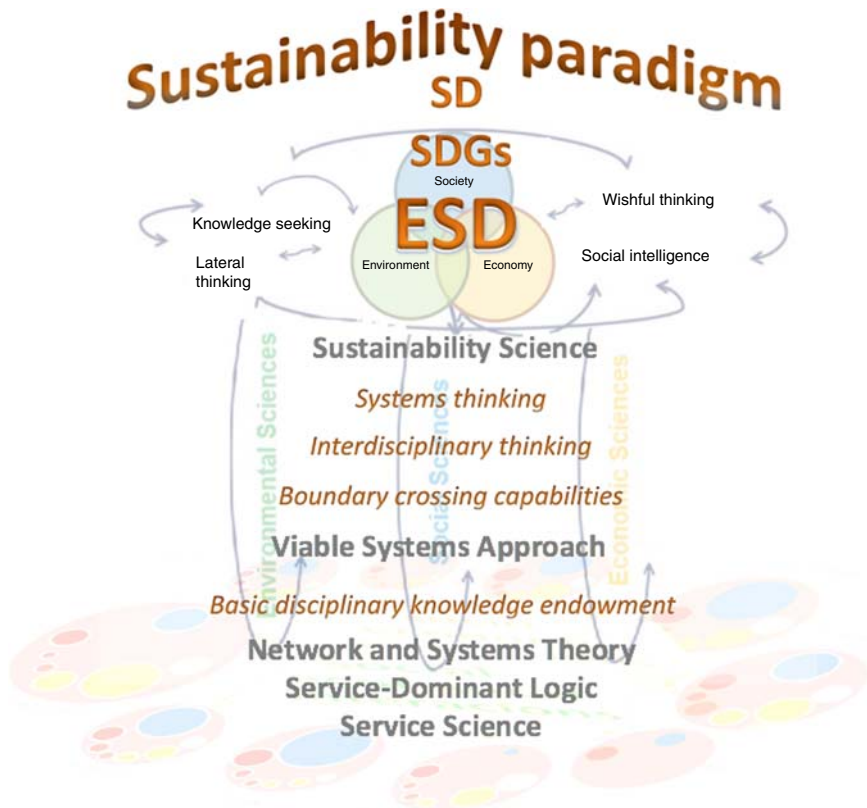**Sources:** Elaboration form Saviano (2015), www.asvsa.org

Figure 4.
A synthesis of a
cross-disciplinary
knowledge framework
for sustainability

Notes: Bold, enabling knowledge; Italic, key competences and capabilities
Sources: Elaboration from Spohrer (2010) and Barile *et al*. (2014a, p.11), www.asvsa.org

6. Concluding remarks, implications and limits of the study

This work relaunches and spans the SS's call to integrate resources and co-create knowledge by means of "an inclusive multi-disciplinary approach to service innovation, with science, management, engineering and design as supporting academic disciplines, and with T-Shaped professionals as adaptive innovators to link and unite these disciplines," believing that this cannot only create measurable growth in service innovation for business and society (IfM and IBM, 2008, p. 21), but also promote progress and well-being for all, by incorporating the environmental view of the sustainability paradigm, and more widely engage the service research community.

Several research directions are opened up by this study, especially when applying systems thinking to the sustainability framework, which imply further reflection upon key theoretical and practical issues. Main implications for future research are strongly related to the issue of interdisciplinarity by redirecting scientific progress from vertical disciplinary specialization to horizontal integration, which does not mean generalist knowledge but general level cross-sectional knowledge. Thus, systems thinking, as a meta-discipline, should be considered not so much another discipline but a general framework incorporated into any discipline, as the vSa view of the T-shaped model suggests. Many implications for research, as well as for education, arise from this view

directing interest toward an innovative study of the systems approach more oriented to address complex life issues, beyond the boundaries of disciplines, rather than at technical level. Key concepts are given a new focus: for example, in depth understanding is fundamental of the relationship between sustainability and resilience, where resilience is defined as the "capacity of a system to tolerate disturbances while retaining its structure and function" (Fiksel, 2003, p. 5333).

It should be noted, however, that while our paper attempts to identify how service research can help solve real-world issues in sustainability, its current focus is mainly on how systems thinking influences sustainability although using service research concepts. More specific areas of service research can contribute, at a more practical level, to better addressing the research question, especially exploring application of ecology (and biology to service systems (Barile *et al.*, 2016).

Further areas of service research can contribute, at a theoretical level, to better addressing the research question, especially exploring application of ecology and biology to service systems (Barile *et al.*, 2016). On the other hand, further contributions to address the challenge of sustainability and sustainable development can also derive, at a more practical level, from typical areas of research of service marketing, service operations, service human resources, organizational design, service information systems, service quality, customer satisfaction, etc., whose models, techniques and tools can be reinterpreted to explore the possibility to make them useful in a sustainability oriented management approach.

Moreover, our study, while discussing both the policy and the science engagement in the challenge of sustainability, does not include a focus on the industry perspective, which is a central component of the whole framework, completing the science-policy-industry collaborative configuration necessary to implement sustainable development. Focus, however, on education is a preliminary problem to face at both theoretical and practical level.

Our study, however, does not go into detail of an in depth analysis of the topics discussed, neither theoretically nor conceptually. We intend mainly to contribute to stimulating development of an emerging area of interest in which the scientific community, and particularly service research scholars, could play a leading role.

Notes

1. The analysis regards the following periods with reference to each journals: *Journal of Service Theory and Practice* (previously published as: *Managing Service Quality: An International Journal*) – 1991-2015; *Journal of Service Management* (previously published as: *International Journal of Service Industry Management*) – 2009-2015; *Journal of Service Research* – 1998-2015; *Service Science, Informs* – 2009-2015; *Journal of Service Science Research* – 2009-2015.

2. As regards the *Journal of Service Theory and Practice*, the research shows that among 1,204 articles published in the time period considered, 146 articles contain the word "sustainab*" in the full text, three in the title, six in the keywords and 15 in the abstract. With reference to the *Journal of Service Management*, on 765 articles published, 168 articles contain the word "sustainab*" in the full text, two in the title and four in the abstract, while there are no articles which contain the word "sustainab*" in the keywords. Analyzing the *Journal of Service Research*, it emerges that of the 545 articles published, 84 articles contain the word "sustainab*" in the full text, and four in the abstract, while there are no articles which contain the word "sustainab*" in the title and/or in the keywords. More attention to the topic of sustainability is shown by the journal *Service Science Informs* in which of the 184 articles published, 47 articles contain the word "sustainab*" in the full text, four in the title, three in the keywords, and seven articles in the abstract. Finally, in the *Journal of Service Science Research*, of the 51 articles published, 16 articles contain the word "sustainab*" in the full text, three in the title, three in the keywords and four in the abstract.

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