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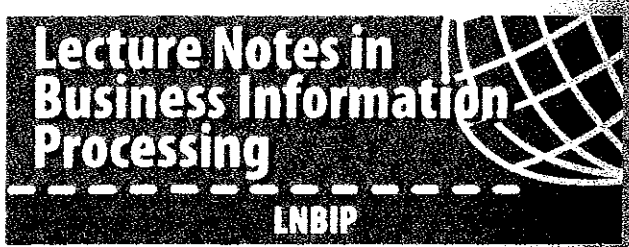

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Contents

Knowledge Sharing and Value Co-creation: Designing a Service System for Fostering Inter-generational Cooperation

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Abstract. This paper highlights the necessity of knowledge transfer and sharing between young and old people, to avoid skills and expertises loss by the organizations and for co-creating value. The paper depicts how the use of a digital platform providing a common place in which people act and interact could facilitate the exchange of knowledge and experience between these two generations, thus fostering value co-creation. A case study describing the "5020 project" is presented in which this kind of a digital platform is developed. In this scenario, mixed work groups, composed by young and old people, are created, in which people, working together, share the knowledge acquired in the past (respectively at school and on the job by experiences), co-creating value and providing good solutions to requests of enterprises.

Keywords: Knowledge transfer · Knowledge sharing · Inter-generational cooperation · Value co-creation · Service system

1 Introduction

In today's economy, sometimes it is difficult to grasp how enterprises modify the environment in which they act. Very often, it is the environment that modifies behaviours of enterprises and encourages their changes [1]. Anyway, in both cases there is always an interaction between organizations and their environment, as emphasised by many organizational theories [2]. There are several, various and also complex factors affecting environment as well as enterprises [3]. These factors change continuously and rapidly, causing uncertain situations, in which knowledge becomes one of the most important competitive factors for enterprises. [4, 5]. In this scenario businesses tend, then, to become more and more information-intensive and networked [6]. Moreover, the most part of that knowledge reposes in the mind of older workers, especially if they acting in the same enterprise for a long time [7].

On the other hand, the continuing technological improvement and development, combined with other reasons, increase the unemployment rate [8]. For instance, in the

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Italian context, this situation penalizes especially two categories of people: (i) young people who are looking for a job[1] (and often they don't find it due to the lack of experience) and (ii) elderly workers not retired yet and expelled from work by downsizing or other types of enterprises transformations, that have also difficulty to find a new employment due to the lack of updated competencies and flexibility [9].

Furthermore, people belong to the second category, also known as "baby boomer generation", have built up a huge amount of knowledge [10] that could be no simple to transfer to the succeeding generation, since it has different behaviours and communication style. Consequently, the knowledge and the skills acquired by older workers during their work life are neglected. At the same time, nowadays young people with no work experiences risk to remain unemployed without the possibility to exploit their knowledge acquired mainly through academic training and/or university courses.

On the basis of these assumptions, considering the two categories of unemployed people, the issue on which this work seeks to bring a contribution is twofold:

- how it is possible to avoid the waste of the knowledge reposing in the older workers' minds;
- how it is possible to improve the possibilities for young people to exploit their academic knowledge.

For facing these two aspects, there should be a way to allow:

- older workers to become "upgradable" and "flexible";
- young workers to acquire experiential knowledge without too much experiences.

To face this issue, this paper presents preliminary results of a project designing a digital platform [11] for providing a meeting place in which the two categories of people can get to know one another, working together and "mixing" and "combining" their knowledge to solve problems. Those problems or tasks are provided by Italian enterprises especially micro, small, medium[2] and non-profit organizations, involved in this design project. In this way, the two kind of unemployed people transfer their knowledge reciprocally in informal way, co-creating value [12]. Value co-creation is defined as a special case of collaboration where the intent is to create something that is not known in advance [13]. The interaction at work between young and old people, that constitute the same team, reciprocally could foster the transfer of knowledge, offering to enterprises a new complete approach to solve problems. These are the staring points for the definition of "meta-requirements", in compliance with the Design Research model of Walls et al. [14], adopted for designing this particular e-service environment [15]. The first part of the research path provides: (i) a taxonomy of the aspects (formal and informal) that foster knowledge sharing and knowledge transfer among individuals inside an organization, (ii) the different motivations that lead elderly and young people to share knowledge; (iii) a description of changes produced in this field by using digital

[1] The unemployment rate of "under 24" people is about 30 % in Italy (Istat - http://www.istat.it/en/); in 2013 people "over 50" were 438.000, increased from 2008 by 261.000, equal to 146 % - (Censis – http://www.censis.it/).

[2] In Italy they are the majority; the micro enterprises are 6,5 million and Small and medium enterprises are about 265.000 (Confindustria, http://www.confindustria.it/).

artefacts or platforms. According to Walls et al., these contents will contribute to the definition of the so-called "Kernel Theories". The research project, called "5020 – Fifty Twenty", aims at creating a digital environment to support the not-formal-knowledge transfer process between elderly and young workers and to avoid the "waste of skills", considering the organizational and social needs of the context under investigation.

In particular, the workers taken into account act in the IT/IS context, so the knowledge content concern mainly to IT/IS competencies and capabilities. The digital platform in which both categories of workers act and interact for solving specific problem is one of the outcomes of the design research process. Currently the experimentation phase is still in progress, but this paper can already shows some preliminary results.

2 Value Co-creation

Value co-creation can be defined an interaction among people, a relationship, a special case of collaboration where the intent is to create something that is not known in advance [16]. Vargo et al. [17] argue that value is fundamentally derived and determined in use, the integration and application of resources in a specific context. The interaction through mutual service exchange relationships creates an integration of resources and the actors involved in value co-creation, also mutually benefice of them [18].

According to Sanders and Simon [19], it is possible to individuate three types of value co-creation: monetary, use/experience and social. The key actors can be several and they can bring to the value creation process different resources. Knowledge can be one of them, especially its flow and sharing.

The people's creativity and empathy, inside companies and organizations, create value that they can utilize themselves. The roles of producers and consumers are not distinct; value is always co-created, jointly and reciprocally, in interactions among providers and beneficiaries through the integration of resources and application of competences [20]. In this way, the service system can improve the adaptability and survivability by allowing integration of resources that are mutually beneficial.

3 Knowledge Economy and Italian Situation

Organisations interact with their environment and reshape the environment and even themselves through the process of knowledge creation [21]. The knowledge takes place through the action and the social interaction between individuals and organisations and it could be tacit or explicit. Thanks to the conversion process, based on the interaction between these two forms, knowledge grows in both quality and quantity [5]. The dynamic capability of knowledge creation could sustain the competitive advantage of enterprises [22].

Hence in a dynamic and knowledge-based economy, how the knowledge is managed could represent both a way to create a competitive advantage of organizations or to avoid loss of organizational knowledge [4, 23–26].

3.1 Knowledge Sharing and Knowledge Transfer

We are living in a "Knowledge based society" [21, 27], where innovation and dynamic process of knowledge create value for the firms [5] and determine their competitive advantage. Furthermore it is necessary to combine internal and external competences [28], integrating and applying Knowledge [29]. Enterprises are constituted by set of productive resources and competence [30–32], therefore the knowledge process must permeate in all the organization with the dynamic capability to continuously create new knowledge [5].

According to Nonaka, the knowledge-creating process arises in dialectical thinking, which transcends and synthesizes some contradictions. Indeed, it is not always so easy to communicate tacit knowledge to others, since it is an analogue process that requires a kind of "simultaneous processing" [5]. Often people don't realize that they have tacit knowledge; they can transfer it only if there is trust. If there isn't, tacit knowledge could atrophy in each one. On the contrary, from an organisational viewpoint, if enterprises don't promote sharing knowledge, they lose expertise. It is necessary to have relational knowledge to build organizational sense [5, 33]. The process of embodying explicit knowledge into tacit knowledge is called "internalization". Through internalisation, related to "learning by doing", explicit knowledge created is shared throughout an organisation and converted into tacit knowledge by individuals [5]. Business relations between colleagues, and friendship relationships between the members, could enlarge the possibility of knowledge exchange [34, 35] and promote the informal learning of new competences [36]. Hence the colleagues' experience is an important source of knowledge [37], in particular for the more creative ideas that the exchange of experience can bring out. In addition to a good trust climate, openness in the business culture is also a precondition in order that knowledge exchange occurs [38].

3.2 Elderly and Younger Workers

The "baby boom generation" is constituted by people, which were born between 1946 and 1964 and have built up a considerable amount of knowledge about how things work, how to get things done and who calls when problems arise. Their knowledge comes especially from their own experience. Many organizations are going to lost a lot of knowledge and their gaps in skills and capabilities grow, largely due to the baby boomer retirements [10]. The knowledge transfer process from baby boom generation to the next generation is necessary because young people need to be helped to acquire work experience. [39]. On the other hand, it is extremely hard because it has been developed in an era of unprecedented technological and scientific advance [10]. Furthermore, elderly and young workers unlikely have business relationships and friendship relations that could create the necessary confidence to transfer tacit knowledge. They have different characteristics, habits, values and expectations; they determine different working dynamics that ask an organisational transformation and a working method change.

Moreover, they are two most disadvantaged generations and, at the same time, antagonistic in the working world. However, the non-use of professional skills can "atrophy" skills, and, on the other hand, the rapid change of technology increases the risk of obsolescence and could decreases progressively their value.

The young people are looking for their first job while the workers "over 50" are prematurely expelled from the companies. Both are in difficult because younger are missing experience, older are missing update and often their salaries are too high due to their seniority. So it could be profitable for both of them, find a common space of personal relationship to share and transfer tacit knowledge, filling the gap between academic/theoretical competences and capabilities built on long work experiences.

3.3 The Italian Landscape

In the Italian context, it is possible to identify at least two main issues that can hinder diffusion of knowledge, exacerbated also by the economic and financial crisis of the recent years:

1. The market is constituted over ninety per cent by many micro, small and medium-sized enterprises (SMEs), in which the knowledge creation process is especially based on the training on the job for reasons of efficiency and economic sustainability [40]. Small and Medium-sized enterprises are important drivers of economy but often they neglect knowledge management issues and investments in information system and technologies. Due to the lack of resource, SMEs in Italy have more difficulties than larger enterprises to employ experts or hire external consultants.
2. There is a growth of third sector and non-profit organizations and also they have to manage the generational shift and need to improve their knowledge organization and transfer.

In general SMEs and non-profit organizations rarely make investments in process of knowledge creation, especially in ICT [26]; they do it only if they are conveniently "stimulated", for example by funding, as it is arisen in the recent few years. [41]. Therefore this research work wants to study the problem of knowledge transfer between elderly and younger workers that especially is relevant for these two important sectors of the Italian economy.

4 A Design Research Model

The use of specific innovative technologies may represent an effective solution for fostering that knowledge transfer process [42]. According to Walls et al. (2004), design theories should be based on natural and social science theories (referred to as "kernel theories") since the "laws" of the natural and social world govern the components that comprise an information system.

The "5020 Fifty-Twenty" project aims at creating a technological environment for whom that work in IT/IS area, such as: IS Manager, IS Designer, IS Auditor, IT System Administrator, etc. Considering this specific sector, the good practices learned (also informally) by the elderly worker and the IT competences related to IT innovations acquired by the younger generation attending specific courses (e.g. master, official university courses, etc.) could represent for an organization the right component to mix for gaining a competitive advantage combining both kind of knowledge.

On the basis of these assumptions, in according with the Design Research model of Walls et al. [14], it is possible to identify the following requirements:

- create a network to promote knowledge sharing and knowledge transfer between senior and junior employees;
- provide opportunities of employment to elderly workers who have lost their job and the younger who are seeking it in Information Technologies;
- promote the training on the job of younger workers;
- bring up to date the older, giving them the opportunity to upgrade technology;
- provide high-level skills;
- enable workers who live in remote or poor areas or to get in labour market;
- provide good product /service but low-cost to the enterprises, especially SMEs and non-profit, who need to review their processes or improve their efficiency or that need improving their information technology;
- reduce the cost /time of transfer (and the consequent pollution).

In keeping with the kernel theory of knowledge creation this Information Systems Design Theories (ISDT) is not specific but it could be connect to the concept of "ba", i.e. a shared space that could be a combination of physical, virtual and mental area or only one of them; it is more than an ordinary human relation the cause of knowledge creation [43]. Ba provides a platform to create and improve individual and/or collective knowledge.

4.1 The "5020 – FiftyTwenty" Project

This project is an intergenerational agreement for work and training, made through a platform that promotes cooperation of recruitment and work team creation, between baby boomer and next generations.

The platform is a combination of a technological platform and a virtual and mental area (see the "ba" concept), looking at young and "over Fifty" workers who live a particularly disadvantage and sometimes dramatic social problems of unemployment. It promotes employment in information system sector by spreading the culture of innovation and knowledge transfer. The project indeed considers that skills acquired in both learning and job experiences are a valuable asset that can't and should not be wasted.

In this context, value is co-created by three key actors: (i) young people that doesn't work because of their lack of experience; (ii) older people that are prematurely thrown up from work and that with difficulty can be reinstated because of the lack of upgrade, and (iii) organizations – public administration, SME or no-profit – that can hire them and improve themselves. These actors bring a resource, their knowledge, for supporting the value creation process, especially through knowledge transfer and sharing.

The platform is designed to recruit non-occupied people, younger and older and to distribute few of them into the same team, depending on requires of the enterprises participating to this project. Fostering by the a common space (virtual) provided by 5020 platform, they can transfer and share their knowledge. Both, younger and older, have indeed an absorptive capacity and a teaching skill, concerning respectively the college-prep and the work experience; they learn and explain each other. The appropriation affects the flow and the knowledge transfer.

The project proposes the use of that platform as organizational solution to improving expertise, experience and innovation of SMEs and non-profit organizations. These enterprises can obtain tools and methodologies saving cost and improving their efficiency (Fig. 1).

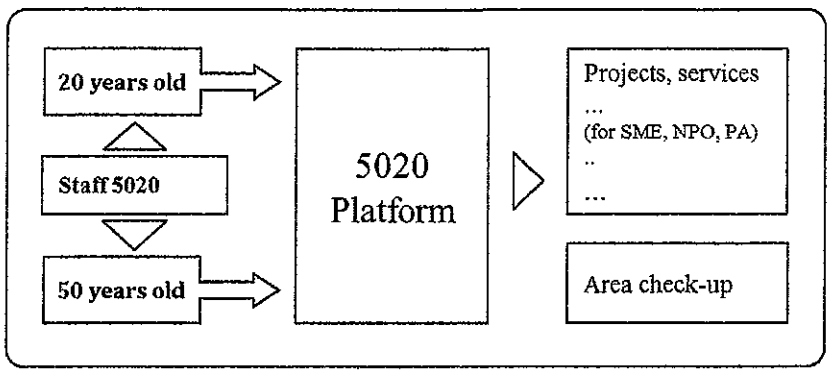

Fig. 1. The "5020 project": an intergenerational agreement for work and training, made through a platform of recruitment and work team creation.

One small staff, also working in 5020 spirit (the managing team is constituted by 2 senior and 2 young), selects the senior and the young people each time. The digital platform supports planning, operational and organizational processes. It is also a showcase to present the job opportunity and it is the tool to select the most appropriate people.

The 5020 project uses a dynamic recruitment (in collaboration with local Universities for the selection of new graduates). The platform organizes the team and controls the progress of activities too. It creates a real learning community and upgrading as well as representing the first channel of communication and promotion. The wide number of job applicants permits to identify the most suitable job profile and allows the composition of highly specialized teams. In this way the team member's skills increase: young people complete their training, taking the "best practices" from senior; elderly upgrade their knowledge, learning from the younger.

4.2 Preliminary Results

Knowledge originates and resides in people's minds, but its sharing requires a common place to exchange knowledge and create it [43]. The "5020 project" would want to be that place. It is more important that all the stakeholders (i.e. policy makers, enterprises, employers and employees) need to be interested to the age-group relationships in regard to workplace practices [44, 45].

In the 5020 project it is possible to identify seven main activities fostering directly or indirectly knowledge transfer, depicted below:

1. Interview: the job interviews is made generally by the management team 5020 and, certainly, they were always between people of different age and/or experience. The team, to fully understand the candidate's experience and to address him/her towards

the enhancement of the skills that the market requires, based on the experience of 5020. Sometimes the 5020 staff suggests attending to institutional courses (e.g. organized by region or province institutions), online training or participation in free courses organized by 5020.

2. Training: the 5020 staff organizes free courses combining for each one people of different generations to facilitate the knowledge transfer starting from the moment of the training;
3. Post Training: the 5020 staff organizes sessions of practice exercises on the product of the course, for people who have not found immediate employment in 5020 neither on the labour market, by developing applications that could be presented to the market;
4. Design activity: the project activities are composed by mixed teams that operate at the customer or during the feasibility study or preparation of the bid. The 5020 staff spends time and pays attention to young people, to identify the critical points of the phase that they are facing and to prevent any mishaps. Similarly, evaluates all the innovative proposals;
5. Lessons on Soft skills: 5020 staff also organizes horizontal or soft skills courses (e.g. customer relationship, clarity of exposition, consumptive activities, project management, etc.).
6. Management issues: the meetings to organizing the activities occur with high frequency during each month, and they are often occasions to illustrate and compare management practices.
7. Team building: the organization of mixed teams senior / junior is confirmed, where possible. However, analysing the people profiles, we found a greater number of unemployed over 50 and a significant presence into the intermediate band (40–50 years old), and in general a growing interest in the initiative 5020 especially young people who want to improve their skills.

Davenport and Prusak (1998) assert that technology is a tool that enables knowledge behaviours and Hendriks (1999) states that it can facilitate knowledge transfer. Thanks to "5020 project", 3 courses were made (81 days in all) of learning for 20 people, on the average 42 years old. Furthermore, since knowledge resides in people, not in technology, it is necessary to act toward and with people. According to Deng and Weight (2001) rewards and encouragements can represent an essential motivation. In this particular case it is necessary to act towards and with younger and elderly workers.

Finally, 69 % of learning people was employed post learning or job experience. Six teams are employing in four different organizations: one enterprise (Pirelli S.p.A.), one public administration (Veneto Region), one non – profit organization (ASD US-Acli), and one small cooperative company (Cooperativa Lavoro).

5 Conclusion

Thanks to the conversion process, based on the interaction between of tacit and explicit forms, knowledge grows in both quality and quantity [5]. In a dynamic and knowledge-based economy, the knowledge is managed could represent both a way to create a

competitive advantage of organizations or to avoid loss of organizational knowledge [4, 23–26]. However in Italian market, small and medium sized enterprises and non-profit organizations, which are the majority, have some difficulties to create process for retaining and growing knowledge. The knowledge transfer from baby boom generation and younger workers is not so easy and lot of skills and competences could be wasted. Some authors above mentioned assert that knowledge transfer and sharing behaviours can be facilitating, and technologies could be a useful tool. The "5020 project" could be one of those solutions.

The literature review and the preliminary results of the case study underline that knowledge sharing is facilitated when elderly and young workers find a common space with a good trust climate or/and if they are motivated to share (e.g. in 5020 project, some unemployed people can get work). This research is still in progress; at the moment the first results shows that some proposed objectives are achieved or reachable.

Finally this work contributes to the literature on the technology mediated employee organization relationship and on the technology impact on work flexibility [46].

Future works should verify if and how fostering intergenerational knowledge sharing could be really useful or not for SMEs and non-profit organizations, gathering information using the 5020 platform in the next years. Furthermore, further steps could be related to investigate (i) on which factors motivate Knowledge transfer from baby boom generation to younger people and (ii) on the possible role-played by digital artefacts/platform in supporting the value co-creation. According to Hendriks [47], the use of ICT, indeed, can be an important instrument to foster knowledge sharing among people but it cannot work alone.

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