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Understanding the social implications of the digital transformation: insights from four case studies on the role of social innovation to foster resilience of society

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Abstract This paper advances further the analysis of previous exploratory research conducted by the authors on how social innovation can foster resilience in a digital governance context. The process of innovation in social policy, as well as the building of resilience implies changes in the existing status quo. ICTs can drive and steer such change, while at the same time they can act as counterbalance for the negative consequence of the digital transformation of labour markets on social protection systems. Understanding the logics and principles behind the design and implementation processes of exemplary innovative initiatives is thus crucial from a policy learning perspective, in order to identify the drivers and processes making this change happen and determining its outcomes. Based on an extensive body of literature reviewed the framework proposed for interpreting the effects of social innovation in fostering resilience are discussed through four case studies.

Keywords: Social innovation, resilience, governance, digital transformation

1 Introduction

The digital transformation is impacting on the labour market and social protection systems for guaranteeing people well-being (e.g., promotion of employment, social insurance, and social assistance), pressing society and institutions to change [1, 2]. In fact, alongside the claimed advantages of this ‘new industrial revolution’, possible negative consequences for employees’ identity in the workplace as well as for human resources management emerge [3], strictly related to the new forms of production that are promoted by such phenomenon [4]. Accordingly, the digitalization of society and work risks creating divides between top-of-the-scale jobs, mini-jobs, and unemployment as well as different degrees of freedom, leading to prosperity for some privileged, more precarious conditions for the masses, when not servitude for some part of the population. Consequently, it is urgent to understand and set the conditions for shaping a more resilient and inclusive society, capable to turn these risks into oppor-

tunities for all [5]. This paper aims to contribute to research on the relationships between social innovation and resilience within a digital governance ecosystem, and how to unleash the full potential of social innovation to provide effective solutions in addressing societal challenges and thus fostering resilience. To this end, the paper applied an interpretive framework developed by the authors to case studies from European Union Member States, including the UK (EU28), aiming to identifying patterns allowing to understand some of the social implications of the digital transformation, identifying value drivers and resilience effects and related governance paradigms.

The paper is structured as follows: Section 2 provides the theoretical background for the model and the case studies; Section 3 summarizes the main constructs of the model used for the interpretative framework further applied to the case studies, subsequently discussed in Section 4 before the conclusive remarks and future research directions are outlined.

2 Theoretical Background

Up to the current digital revolution, the resilience of society was mainly guaranteed by the Welfare State [6]. Among the different models, one has been recognized as representative by scholars supporting a convergence perspective [7, 8], the Bismarckian model presents an “industrial achievement-performance model”, where the welfare state provides protection and benefits to those who contributed to its financing through employment contributions [5, 9]. According to the conceptualization of resilience by Manca et al. (2017) [10], the type of resilience offered by such a welfare model was mainly based on “absorptive capacity”, that is defined as the capacity “to cope with and react to shocks or persistent structural changes by resisting to it” (p. 8). Taking these issues into account, for example, the social democratic model, based on a re-distributive function through “taxes against services” [11], was thought to be an adaptive approach to resilience. Also the Mediterranean welfare states can be seen as an institutional strategy to build resilience, where one of the main welfare producers was the family [12]. However, as anticipated, the digitalization of society, work, and economy, reduced the potential impact these models and their strategies (fiscal policies and incentives) were supposed to produce. Nevertheless, *absorptive capacity* is just one of welfare state components, while *adaptive capacity*, i.e. the capacity to adopt a degree of flexibility and make small changes to the system, raises as a new feature urged by the changing socio-economic circumstances in the modern era. After the financial crisis of 2008, then, it became clear that even considering the adaptive capacity it would not be enough to deal with emerging complex challenges [10] as welfare systems are path dependent institutions [13]. A main consequence of this is their resistance to structural reforms and a very low propensity to adapt. However, while the common vulgate represents the welfare state as one of the reason of increasing public expenditure and thus one of the trigger events of the sovereign debt crisis [14], a more informed analysis must underline that welfare service provision has been the main containing factor of a general impoverishment trend, and it prevented the

impacts of financial crisis to be worse than they have been. The reasons for welfare systems reform are mainly related to socio-demographic changes, which indeed became the spreading force of new social risks and needs. These risks now characterize also the lives of the middle-class, especially young people, families and precarious workers [15]. In order to capture the breadth and nature of change, we must direct attention towards developments in the market and in civil society, and especially towards those new forms of collaboration and synergy that have been emerging between these two spheres in welfare provision. The need to go beyond the action of the public sector moves from the idea that the role of the State is increasing and changing, since it has protection and promotion functions for individuals and society's wellbeing, along with the responsibility to unleash the transformative capacity required to fully reach the goal of a more resilient society [10]. According to [16], in the context of complex systems, it is possible to refer to the results of such transformative capacity as social innovation – that is, any initiative, product, process, or program that change basic routines, resource and authority flows, or beliefs of any social system. Therefore, looking at social innovation does not mean studying social entrepreneurship, third sector market or civil society contribution, rather understanding the main features and behaviours of those networks that populate the innovation ecosystems and from which the public sector might take advantage to build transformative capacity. In particular, social innovation might be seen as a welfare reform micro-strategy, structured along different, by nature and intensity, logics of interventions. This strategy cannot be implemented successfully without considering the 'integrated-governance framework' within which such ecosystem is embedded and the policy-orientation it assumes [17].

3 Conceptual Framework

In this paper we build upon the argument presented in [18] where we have adopted the conceptual framework proposed by two of the authors [19] to analyze cases of Information and Communication Technology (ICT)-enabled innovation of Social Protection Systems with a specific focus on resilience. The framework includes a conceptual model based on a typology of innovation attitudes and a stage model of welfare state changes. Table 1 shows at a glance the connection between the different elements of the interpretive framework discussed in this Section, that are the welfare state initiatives, the types of resilience, value drivers, networked governance orientation, and type of ICT-enabled innovation [19]. The conceptual model is made up of three key value drivers, *Performance*, *Openness*, and *Inclusion* and their relationship with governance model characteristics, i.e., *State governance system*, *Cultural administrative tradition* and *Socio-economic characteristics* of the context of intervention. The conceptual model also considers the network governance configurations enabled by a given set of digital governance systems, having different impacts on the governance configuration of the stakeholders' networks. Accordingly, at each governance configuration corresponds a type of innovation attitude [19]. Then, the different types of ICT-enabled innovation can be mapped to the different stages of welfare state and

the corresponding initiatives for resilience. For instance, in the early stages the emphasis is on the administrative activities and on the absorptive capacity of the public sector employees, with a consequent relevance of performance as efficiency and a technical/incremental type of ICT-enabled innovation. When instead social investment required by flexibility asks for an adaptive approach to resilience, the focus is shifting to performance as effectiveness and an organizational/sustained type of ICT-enabled innovation.

Table 1. Welfare state initiatives, type of resilience, value drivers, networked governance orientation, and type of ICT-enabled innovation, adapted from [18].

Welfare State initiative	Type of resilience	Value driver	Networked governance orientation	ICT-enabled innovation
Social protection	Absorptive	Performance (Efficiency)	Internal governance relationship	Technical/ Incremental
Social investment	Adaptive	Performance (Effectiveness)	Internal governance relationship	Organizational/ Sustained
Social innovation	Transformative	Openness Inclusion	External governance relationship	Transformative/ Disruptive Transformative/ Radical

Yet, the technology development and the consequent societal changes enforce external governance relationships, thus leading to a transformative/disruptive type of ICT-enabled innovation, with the advent of social networks, open government [20], and the progressive digitalization of businesses and society [21]. This paper advances further the analysis of the exploratory research being conducted by the authors on *how* social innovation can foster resilience in a digital governance context. The process of innovation in social policy, as well as the building of resilience implies *changes* in the existing status quo. ICTs can drive and steer such change, while at the same time they can act as counterbalance for the negative consequence of the digital transformation of labour markets on social protection systems. Understanding the logics and principles behind the design and implementation processes of exemplary innovative initiatives is thus crucial from a policy learning perspective, in order to identify the drivers and processes making this change happen and determining its outcomes. Based on an extensive body of literature reviewed, a successful implementation of social innovations in social policy context depends on two general factors – actors, that engage in the innovation process (agency), and the existing institutional landscape of the system (structure). Most research on social innovation focuses on one side only: either on ‘agency centred perspective’ - an individualistic and behaviourist approach in which social innovation is created through the actions undertaken by specific individuals; or on a ‘structuralist perspective’ in which social innovation is perceived as determined by the external structural context [22]. Same could be said about research on resilience: its discourse tends to focus either on agency or structure [23].

Nonetheless, based on the principles of the structuration theory [23], we argue that in an ecosystem, various actors are both constrained and enabled by existing structures (especially, in terms of rules and resources), and social innovations are developed in the dialectic relationship of agents and structures. More specifically, agents are empowered by structures both by the knowledge that enables them to mobilize resources, and by the access to resources that enables them to act [24]. Structure, in turn, is dynamic. Actions of individuals reinforce and/or modify the existing institutions, and by those reinforcements/modifications, future actions are influenced [25]. This is further reinforced by the intermediating role that ICTs play and the networked orientation of governance that they enable [19]. In the following Section we apply the framework to four illustrative case studies representing different ICT-enabled social innovations from Belgium, Estonia, Sweden and the United Kingdom (UK) (the cases discussion and analysis are based on [26]).

4 Case studies

4.1 Employment and social inclusion in Belgium: the SMart.Be project

SMart (*Société Mutuelle d'Artistes*) was born as non-profit organization in Belgium in 1998 to enable artists, and independent workers to tackle the managerial and administrative complexity of the arts sector in the country. With time it broadened its scope to precarious workers in many sectors. Through SMart, these workers who manage their own career paths in direct contact with clients, can access a salaried legal status. The system offers workers the opportunity to build or preserve their social rights by allowing them to obtain the benefits usually reserved for employees, through various services such as information, trainings, legal, advice, subsidies, a social professional network and invoicing tools. SMart, through its online tools, allows freelancers to obtain, for example, access to unemployment benefits, which are usually reserved for employees only. The organization reconciles social protection with a real entrepreneurial dynamic, mainly through its interactive tools. SMart charges a 6.5% fee to cover cost of services and development of mutualized services in Belgium, (although this varies between 6.5% and 8.5% depending on which country the member operates in). Furthermore, the new version of the software currently developed and used by the organization allows also groups of individuals to invoice, whereas before this could be done only at the individual level. SMart also has a training department offering a range of courses on business and entrepreneurial skills. Courses are both generic and sector specific. Smart.Be's target population is equal to the number of self-employed in Belgium, which in 2017 amounted to 591.200 individuals and accounted for 13% of the total employment population. The most common type of self-employment works are: managers (65%), professionals (29%), craft and related trades workers (17%), service and sales workers (14%). At the end of 2016, the company counted on more than 75,000 service users and more than 100,000 different clients. In 2016, 21,244 people used the SMart services for a contract of at least one day. In total, the short-term employee contracts provided via SMart correspond to 595,940 days of declared work, full-time or part-time, which corresponds to

2709 full-time equivalents. In total, between 2012 and 2016, 40,487 people used the company's services, the equivalent of 1/122 of the country's active population. With such results, SMart can be considered as one of the largest employers in Belgium for the creative and cultural sectors. In summary, the company initiative takes a social innovation approach with an absorptive type of resilience, characterized by the presence of fundamental changes in the relationships between stakeholders. The strength of the ICT-enabled social innovation is strong. Concerning the ICT-enabled innovation, SMart presents a transformative/radical innovation because it substantially uses ICTs outside of the recognized institutional setting and aims to radically modify the existing mechanisms of services provision. Finally, as to the levels of governance SMart can be categorized as having an external orientation moved by openness as value driver.

4.2 Integrated health and social care in Estonia

The Estonian Ministry of Social Welfare, in cooperation with public and private service providers, is implementing a radical re-organisation of how health and social services are provided switching to person-centred service delivery. Estonia is engaged in institutional care reform toward deinstitutionalization, closing old facilities located in remote areas and replacing them with a network of modern, family-living type facilities in populated areas. The objective is to build a network of easily accessible local and regional services. The Special Care Development Plan of 2014, which is part of the Social Welfare Development Plan for 2014-2023, was the first policy strategy document to address deinstitutionalisation and shift towards community-based options. Other reforms support community-based living, including the 2015 Social Welfare Act and labour reform. The Social Welfare Act regulates municipalities' activities and obliges them to provide necessary help and services in order to ensure that people can access services where they live thereby supporting the development of community-based services. These efforts requires a broader ICT development as well as general changes in the health and social services system that affect, in particular, individuals with serious mental illnesses (SMIs). Moreover, existing ICTs that support deinstitutionalisation and community-based care includes the use of digital referrals within the healthcare system and e-consultations between family doctors and psychiatrists to help ensure access to care. Thus, ICT systems play a key role in supporting the functionality of the social care process, which is strictly linked to the eHealth infrastructure and the existence of a shared case management system across services. In this regard, in fact, e-Health has developed faster than ICTs use in social welfare. Estonia began investing heavily in eHealth in 2000 making its online health information system, managed by the Estonia eHealth Foundation, operational in 2008. Since its inception, 95% of health records have been uploaded, e-prescriptions account for 97% of all prescriptions, and 100% of billing is now digital. The system received 500,000 queries by doctors each year. At the same time, the overall sophistication of e-governance in Estonia has contributed to development across sectors. This includes the development of centralized databases (for municipalities and the national government) linked to other databases in order to facilitate policy design and man-

agement analytics. However, Estonia's reform efforts in the social services area face two primary challenges: (1) addressing privacy concerns posed by the sharing of consumer information across service systems and (2) creating a financial incentive system for service providers to ensure that consumer outcomes are the primary goal. Privacy concerns exist regardless of whether the sharing takes place in-person or via ICT systems as many persons with SMIs do not want to share sensitive information with all service providers. The use of ICTs compounds the problem by adding digital security issues. In terms of business model, financial incentives via bonuses for goal attainment are intended to address the costs of growing workloads and turnover losses. However, to achieve these goals, the current financing system needs to be reviewed to ensure that private providers have the incentives to change practices and work with clients in accordance with the person-centred approach. Estonia's health and welfare reform efforts can be positioned between the welfare initiatives oriented toward social innovation and social protection with a transformative type of resilience. The shifts in service delivery philosophy is driven by inclusion as main value with an external network orientation given the goal of avoiding long-term hospitalization while supporting community-based care for persons that have had a psychotic episode as well as more general health concerns. Actually, the reform is posing a great emphasis on the person-centered approach and on the establishment of an open process of co-creation/collaborative innovation networks experimenting pilots with external organization and with the financial help of third institutions. Finally, the overall relevance of ICTs places this initiative as a transformative/disruptive innovation being directed toward a radical re-organization of how health and social services are provided.

4.3 Migrants and refugees integration in Sweden: the Mobilearn project

Mobilearn is a for-profit, self-sustainable micro-company, which assists new migrants and refugees in Sweden to build their CVs and provides help with mapping both their soft and hard skills. It supplies information on what skills and competences are needed on the Swedish labour market, and where, and sends users regular job offers. With regards to housing, Mobilearn complements the government's offer by exploiting the potential of the private housing market and, when possible, suggests accommodation in areas where there is work that matches the individual's competences. Mobilearn also tackles the lack of language skills that affects the migrant's ability to work by offering digital language courses. Additionally, if a migrant cannot read, an audio option can read the information to him/her. If a medical service/ assistance is required, Mobilearn helps the newcomer to search for symptoms or find a doctor's address in his/hers native language (it provides services in five different languages: Swedish, English, Arabic, Somali, and Persian). Additionally to these main services offered, Mobilearn assures also secure messaging by providing a message inbox for users and thus a communications channel for customers, along with a selection of news articles, events and other information regarding the host country. Furthermore, it is based on an open data solution and in return it gathers crucial data on end-users.

If migrants are the ultimate end-users, it is the Swedish government, or better yet the Swedish society as a whole, the product's main beneficiary. As of now, Mobilearn has engaged with more than 280 Swedish Municipalities, as well as the Swedish Government, which have already implemented the service as part of their integration/welcoming package, for a total of 40.000 end users engaged. To create the Mobilearn digital solution, its creators contacted the thirteen biggest local Swedish public entities, from healthcare to labor, and required access to all their open government data in order to create the connections to the databases and collect in a single platform all the relevant information provided. This information was then translated in the five biggest migrant languages. Additionally, an advisory board consisting of their local community, and its authorities, along with a group of end-users, was formed to assist the team in the intervention's establishment. Finally, the Mobilearn group also applied an impact measurement tool called the "Mobilearn model". The model is a 24-month activity plan based on the app clients' different key performance indicators (KPIs). The client commits to follow the plan by distributing, working with and including Mobilearn in their strategy – in order to reach agreed upon goals during the two years. It captures end users' feedback through surveys, and measured the actual usage of the service by looking at statistics and analysing data. One of the immediate results of the intervention is that more than half of all municipalities in Sweden are contracted, resulting in approximately 40,000 migrant users registered, which represents approximately 30% of the migrant population that arrived in Sweden in 2015. Public agencies such as the Swedish Migration Agency, the Swedish Employment Office, the Swedish Tax Authority, the Swedish enterprise agency (Verksamhet), and Hermods, the largest private education institute, all use Mobilearn as a communications channel towards migrants.

Mobilearn was fully funded via private equity, raising an initial amount of 1.2 million euro and its business model is based on licensing the app to various clients in the public sector, which are then in charge of providing the service to migrants. Mobilearn can be positioned among the social innovation welfare initiatives and characterized by a transformative type of resilience. Concerning the ICT-enabled innovation, Mobilearn presents an organizational/sustained innovation implying the introduction of new management methods and techniques, new working methods, and new partnerships. Furthermore, the main value drivers are openness and inclusion, considering that Mobilearn, revolutionized the way to leverage open data for public use and immigrants as well as migrants inclusion, by combining different functions (aggregation, search, delivery, translation and partially personalization). Finally, being capable of generating social value by improving information exchanges between different stakeholders, the app implies a external orientation for what concerns networked governance.

4.4 Social assistance in the UK: the Troubled Families Programme

In 2012 the UK government implemented the Troubled Families Programme (TFP) in an effort to change service delivery and adopt a whole family approach in order to reduce poverty, increase employment and school attendance, reduce juvenile delin-

quency and criminal offending, as well as reducing reliance on social services and social assistance for multi-problem families in the UK. The unit charged with operating the TFP, established in January 2012, identified the delivery partners (152 top tier local councils due to their contact with families) and set up the guidelines for programme operation within a three-month period. The guidelines do not specify the interventions to be provided, but call for a results-based “whole family” approach according to which councils are paid in two phases: an upfront payment for each family and a final results-based payment for families deemed to have been “turned around” meaning that they met designated outcome criteria. Initial target group estimates were based on Cabinet Office analyses of the Families and Children Study and led to the identification of 120,000 families in England that met five of the following criteria: no parent in the family was in work; the family lived in poor-quality or overcrowded housing; no parent had any qualifications; at least one parent had a long-standing limited illness, disability or infirmity; the family had a low income (below 60% of the median); and the family could not afford a number of items of food and clothing. The 2015-2020 extension of the programme expanded the intervention to include an additional 400,000 families and saw the inclusion of new criteria including: having a child in need of protection, health (physical and mental health) issues, domestic violence, and substance abuse. The TFP model, once implemented, was expected to lead to savings across systems, but this does not necessarily translate into immediate savings or into savings for the service making a given investment in resources. Information sharing, data protection and consent represent ongoing challenges. To address such challenges the development of numerous ICT systems was deemed necessary; this includes improving capacity to identify families, securely storing and sharing data, having easy access to the family plan, progress made and other relevant data, and inputting and tracking results. The most innovative use of ICTs can be seen in technologies to help identify families based on the services’ priorities. This entails both the creation of data warehouses to store and link information from across services (including schools) and the use of behavioural analytics to support the adoption of a preventive approach, enabling the identification of families in need of whole family service delivery *before* problems reach a critical point. Computer system suppliers have supported data warehouse development, modifying systems to support TFP needs. As of December 2016, 185,420 eligible families were enrolled in the programme and receiving whole family services. During phase 1, 51% of enrolled families received “intensive” services whereas 11% of families reported receiving no support. Phase 1 statistics indicate that of 117,910 families enrolled, 116,654 or 99% had been “turned around” as of May 2015. Only two authorities (Cornwall and Lancashire) had a “turn around” rate below 90%, while 132 authorities “turned around” 100% of enrolled families. Government data indicate that 43,813 families achieved significant and prolonged progress as of March 2017. Service delivery indicators comprise the level cooperation with other agencies, data sharing, and speed of services (e.g., getting a health diagnosis). TFP can be positioned in the area of welfare initiatives for social protection, characterized by an absorptive type of resilience. The national framework provided by the TFP works to alter service delivery via an innovative shift from an individual model to a whole family model based on integrated

care. This shift in service delivery led to the need for innovation or re-thinking of the use of ICT to support more efficient identification of service recipients and subsequent service delivery. Thus, concerning the ICT-enabled innovation, the TFP presents a technical/incremental innovation and the main value drivers are performance (efficiency) and inclusion, implying an external orientation for what concerns networked governance.

5 Conclusion And Future Work

In this paper, we have applied the proposed framework of analysis taking into consideration the variables defined as the most relevant for operationalizing the approach on the agency-centric and structure-centric factors enabling and shaping social innovations and resilience in a digital governance context (see Table 2).

Table 2. Comparison among the considered social innovation initiatives

Initiative	Welfare state initiative	Type of resilience	Value driver	Networked governance orientation	ICT-Enabled Innovation
Smart.Be (Belgium)	Social Innovation	Absorptive	Openness	External	Transformative/Radical
Health and welfare reform (Estonia)	Social Innovation/Protection	Transformative	Openness	External	Transformative/Disruptive
Mobilearn (Sweden)	Social Innovation	Transformative	Openness/Inclusion	External	Organizational/Sustained
Troubled Families Programme (UK)	Social Protection	Absorptive	Performance (Efficiency) /Inclusion	External	Technical/Incremental

The comparison among the four cases analyzed show different approaches to achieve different levels of change that are appropriate to the challenge addressed and are context-dependent. In particular, by looking at the main variables that are prominent in each case it is possible to operationalize the logics and principles of change, induced by social innovations to foster resilience. For instance, the case of TFP in the UK, shows that in the early stages of a public sector led intervention, the emphasis is on the administrative activities and on the absorptive capacity of the public sector employees, with a consequent relevance of performance as efficiency and a technical/incremental type of ICT-enabled innovation. The case of Smart.be in Belgium instead, though keeping an absorptive capacity to ‘build the case’ for a new way of social protection for precarious workers, has a transformative / radical ICT-enabled innovation type building on openness. Openness is also the main driver for the Estonian case, where, however, the transformative type of resilience is enabled by a disruptive ICT-enabled innovation potential, that addresses the challenge of integrating health and social care systems. Finally, Mobilearn in Sweden, results in a transformative type of resilience produced by an organizational/sustained type of ICT-enabled

innovation driven by openness and inclusion principles and orientation. It is exactly the external orientation of the networked governance systems that represent, in all cases, the added value generated by the combination of social innovation and digital technologies to foster resilience in the local ecosystems in which the initiatives have been designed and contextualized. It is in fact the adaptation and adoption of technology to the local context (enabled by a co-design and co-development approach) that is a critical aspect of initiatives that have a core social investment perspective: this requires flexibility and the adoption of the adaptive approach to resilience. The framework proposed is designed to be applied in the analysis of individual social innovation initiatives (e.g. process tracing, contribution analysis) to understand their potential of fostering system resilience. It also allows comparing individual initiatives one to another in terms of their likely contribution to resilience. It does not, however, take into account how several separate innovations may interact within a single system. For example, transformative change within a system may result from an incremental impact of several niche innovations [27]. Such developments would require additional elements to the presented approach and will be addressed in future research. In doing so future research shall look at how the framework could capture and assess to what extent the objectives of a social innovation initiative were achieved, looking into how the actually achieved outcomes relate to the resilience capacities of the system. In addition a further development of the framework shall also help researchers and policy makers to guide the case selection for the empirical analysis. This would require identifying a number of additional variables that may be applied to achieve the maximum variation of case selection, which would allow not only validating this framework in different contexts, but also raising additional hypotheses and unveiling new relationships.

Disclaimer

The views expressed in this paper are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

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