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PUTTING PUBLIC SECTOR INNOVATION TYPOLOGY IN CONTEXT

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ABSTRACT

The purpose of this paper is to analyse the role of context in public sector innovation typology. Whilst there has been a growing literature in the area, NPM as a conceptual context and US, EU, Australia as factual contexts have dominated the scene. This leads to an unclear picture of the contextualities of PSI typology. We studied 99 innovations from Italy, Turkey, Japan through qualitative and quantitative content analysis to understand the role of factual context in innovation typology.

INTRODUCTION

Public sector innovation (PSI) has attracted a growing level of scholar interest, resulting in a significant body of knowledge accruing over the past two decades (e.g., Borins, 2001; van Acker and Bouckaert, 2017). A great number of studies were conducted in the US, EU and Australia (Devries et al., 2016, Arundel et al., 2019). This results in a weakness, as the PSI literature is significantly context dependent. The context dependency spans beyond a particular factual context, i.e., the location of the investigation. The literature also suffers from conceptual context dependencies, where public administration paradigms, methodological and epistemological camps form the conceptual context and result in limited variations (Cinar et al., 2018). As these contexts were not evaluated and tested systematically, the role of context in PSI has remained ambiguous.

The purpose of this study is to explore how the similarities and differences in the typology of PSI in Japan, Italy and Turkey can be explained. We investigate qualitatively how these typologies were embedded in context. To understand the role of context, we adopt the principles and perspectives introduced by the seminal collective work edited by Pollitt (2013). We aim to contribute empirically to this discussion. In particular, our paper reveals two reasons why the failure to address the context forms a key weakness of the current literature. First, previous studies have not evaluated the conceptual context. Second, most of the PSI studies were conducted in a single country, with an emphasis on western states (e.g. Walker, 2006; Borins, 2014; Arundel et al., 2015; Demircioglu,2017). Whilst a few studies have attempted to address environmental factors, this only captures the organisational environment (Walker, 2010; Damanpour and Schneider,2006; Koraj et al., 2015). Hence the macro context is overlooked.

Our study aims to take a first step in addressing this gap in the literature. The remainder of the paper proceeds as follows. Firstly, we review the literature on PSI through the context

framework by Virtanen (2013). Then, we apply the criterion by Pollitt (2013) to evaluate the role of context on PSI comparing the typology of PSI in three dissimilar contexts, Italy, Japan and Turkey. Finally, we identify divergent PSI typology configurations emerged in administrative, temporal, political, social, economic & technological macro contexts.

Following Christensen and Lægreid (2013) our study defines context as the circumstances, background or settings, which has the potential to clarify, or influence a phenomenon. Pollitt (2013, xviii) positioned context as 'a missing link,' in public administration that is, 'something that enables us to understand the different evolutions of public policy and management in different habitats'. The knowledge and knowledge creation has context dependencies. Factual contexts refer to characteristics of the research object and "Taken-for-Granted" understanding of the research object. On the other hand, conceptual context refers to frameworks, methods and approaches, as well as individual characteristics of authors (Virtanen 2013).

1. TYPOLOGY OF PUBLIC SECTOR INNOVATION IN CONTEXT

The innovations created to provide solutions to complex problems differ in their characteristics and nature (Walker, 2008). A significant number of scholars have studied different typologies of PSI (Table 1).

The first innovation typology of PSI was introduced by Osborne (1998), which was conceptually adapted from Abernathy et al.'s (1983) private innovation model. This typology attempted to distinguish a scale of four innovation types based on the novelty of innovation and thereof target users: *Total*, *expansionary*, *evolutionary* and *developmental*. This typology explains the different extents of innovation. At one extreme total represents new services and new needs of the society i.e. radical innovation, whilst developmental means improved existing services for existing users i.e. incremental innovation. The factual context of this study was voluntary organisations in the UK. Later, Walker et al. (2002) utilised this typology within the context of British housing associations.

Walker (2006; 2007) changed his view and adopted an innovation typology derived from the private innovation literature: *Services innovation*, *organisational innovation*, *technological innovation* and *ancillary innovation*. Administrative process innovations in other words organisational innovations refer to the creation of new ways, methods and forms of undertaking tasks within the organisation. Technological process innovations involve the application of technology to operational activities and service delivery mechanisms. Ancillary innovations were defined as any innovations which requires across boundary activities outside the organisation. The factual contexts of these studies were local governments in England. This framework was refined by Damanpour, Walker and Avellaneda (2009), to include three types: new services, administrative process and technological process innovations. The factual context of each of these studies was local governments in the UK, excluding district councils. Conceptually each of these studies adopted the private sector innovation typology, originally developed by Utterback and Abbarathy (1975) and Damanpour (1987). The conceptual context of these was heavily influenced by NPM and Best Value Program by Labour Government:

The survey explored informants' perceptions of and a management reform regime called Best Value (Walker 2007)

Similarly, in the case Damanpour and Schneider (2009)'s study, the conceptual influence of NPM and 'Reinventing Government' in the USA is illustrated in the following quote:

The source of our data .. is a survey conducted in 1997....about 'reinventing government' in the United States. ... We employed three dependent variables ..associated with the new public management (NPM) movement of government reinvention (OECD, 1995; Osborne and Gaebler, 1992)..

The labour governments were keen on promoting innovation in local governments in the UK. Hartley (2006) reviewed the private and then very scarce PSI literature for the Department for Communities and Local Government, UK. In addition to the accepted three dimensions (product-process-organisational), she identified four additional types: *Rhetorical innovation* (new policy discourse), *Governance innovation* (new citizen participation methods), *Strategic innovation* (new strategic objectives), *Position innovation* (new customers). However, excluding governance innovations (Hartley and Moore, 2008), this typology has not been studied empirically nor developed further.

On the other hand, Mulgan (2006), introduced the broad and cross-sectoral concept of social innovation into the field of PSI. Social innovations target social needs such as immigration, juvenile crime, homelessness, domestic violence, and other such acute social problems (Mulgan, 2012). OECD (2010) and EC (2013) has given priority to social innovation projects and research. Voorberg et al. (2014), Massey and Johnson (2016), Dayson (2017) carried the theoretical basis of social innovation further. However, the incidence of social innovations remains unclear as this type of innovations has been not included in large surveys. The adoption of the OSLO Manual and CIS for large survey studies may have led to this gap in the literature.

In a different factual context, China, Wu et al. (2013) studied PSI typology and benefited to some extent from the widely accepted typology of *service – technological process – administrative process*. In addition, the authors distinguished between collaborative innovation and governance innovation. The first originates from ancillary innovation and adopts a joint, holistic and inter-organisational approach, as Borins (1998) identified. The latter mainly aims to deal with citizen participation, transparency and accountability. Identifying factual context differences, the study revealed that the administrative process and collaborative innovations surfaced as commonly introduced initiatives in China.

In summary, there is no common agreement on a PSI typology within the literature. Whilst the first studies of PSI typology were affected by business innovation context; recent studies have attempted to enhance this in accordance with the different context of the public sector. A commonly accepted classification does not exist and recent large surveys cannot capture the complex picture of the innovation typology, due to an overreliance on the basic four types in the Oslo Manual. As the typology of innovations introduced was a dependent variable to measure innovativeness of PSO's, these studies have not attempted to analyse the typology of innovation (Arundel et al., 2015; Demircioglu and Arudtesch, 2017). For the purposes of this study, informed by our review of the literature, we adopted the following typology to capture the broad and complex nature of the PSI: (1) New service, (2) administrative process, (3) technological process, (4) conceptual (5) systemic, (6) governance (7) social innovation.

TABLE 2 PUBLIC SECTOR INNOVATION TYPOLOGY AND THE ROLE OF CONTEXTS

STUDY	CONCEPTUAL CONTEXT OF KNOWLEDGE	FACTUAL CONTEXT OF KNOWLEDGE	CONCEPTUAL CONTEXT OF KNOWLEDGE CREATION	FACTUAL CONTEXT OF KNOWLEDGE CREATION	INNOVATION TYPES	CONTEXT VARIABLES		
Osborne (1998)	<ul style="list-style-type: none"> • Organisation Theory 	<ul style="list-style-type: none"> • ENGLAND • NGO's • Personal social services • 195 organisations • Survey period: 190-1994 	<ul style="list-style-type: none"> • Private innovation typology • Radical-incremental innovation 	<ul style="list-style-type: none"> • Voluntary sector activity is included in the PSI 	<ul style="list-style-type: none"> • Total • Expansionary • Evolutionary • Developmental 	<ul style="list-style-type: none"> • NA 		
Walker (2006)	<ul style="list-style-type: none"> • Diffusion and Adoption of Innovations • Quantitative methods 	<ul style="list-style-type: none"> • ENGLAND • Local Governments • Sample size 120 • Survey period: 2001 	<ul style="list-style-type: none"> • NPM praise • Labour Party praise • Best Value Program 	<ul style="list-style-type: none"> • Antecedents of innovation adoption and organisational innovativeness 	<ul style="list-style-type: none"> • Product • Process • Ancillary 	<ul style="list-style-type: none"> • Service need • Diversity of service need • Political disposition (proportion of Labour votes cast in the 2001 election) 	<ul style="list-style-type: none"> • Changes in the social, political and economic context 	<ul style="list-style-type: none"> • Diffusion determinants: Public pressures: external sources
Damanpour, Walker & Avellaneda (2009)	<ul style="list-style-type: none"> • Resource based view • Quantitative methods 	<ul style="list-style-type: none"> • ENGLAND • Local Governments • Sample size 428 organisations • Survey period: 2001-2004 	<ul style="list-style-type: none"> • NPM praise • Labour Party praise • Best Value Program 	<ul style="list-style-type: none"> • Innovation is an output as the perception of adopted innovation types • Innovation – organisational performance relationship 	<ul style="list-style-type: none"> • Service • Technological process • Administrative process 	<ul style="list-style-type: none"> • Urbanization 	<ul style="list-style-type: none"> • Service need Index of Multiple Deprivation Service diversity-Ethnic Diversity 	<ul style="list-style-type: none"> •
Walker, Berry & Avellaneda (2015)	<ul style="list-style-type: none"> • Organizational task environment • Open systems theory • Resource based view • Quantitative methods 	<ul style="list-style-type: none"> • ENGLAND • Local Governments • Sample size 405 • Survey period: 2001-2004 	<ul style="list-style-type: none"> • NPM praise • Labour Party praise • Best Value Program 	<ul style="list-style-type: none"> • Innovation is an output as the perception of adopted innovation types 	<ul style="list-style-type: none"> • Service • Process: marketization, organizational, and technological • Ancillary 	<ul style="list-style-type: none"> • Capacity: <ul style="list-style-type: none"> ○ Political ○ Economic ○ Social variables • Community 	<ul style="list-style-type: none"> • Complexity: <ul style="list-style-type: none"> ○ Concentration • Heterogeneity diversity 	<ul style="list-style-type: none"> • Dynamism <ul style="list-style-type: none"> ○ Uncertain socioeconomic context, • Uncertain external political context
Korac, Saliterer & Walker (2016)	<ul style="list-style-type: none"> • New institutionalism - Isomorphism • Resource dependency • Quantitative methods 	<ul style="list-style-type: none"> • AUSTRIA • Local Governments • Sample size 425 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Innovation is an output as the perception of adopted innovation types 	<ul style="list-style-type: none"> • Organizational • Service • Marketization • Ancillary 	<ul style="list-style-type: none"> • Contextual Pressures <ul style="list-style-type: none"> ○ social, economic, and political changes 	<ul style="list-style-type: none"> • Vertical pressures <ul style="list-style-type: none"> ○ central government mandate 	<ul style="list-style-type: none"> • Public pressures <ul style="list-style-type: none"> ○ Citizen demands ○ Media pressures ○

						<ul style="list-style-type: none"> ○ service provider competition 		
Bernier, Hafsi & Deschamps (2015)	<ul style="list-style-type: none"> • PSI literature in general • Quantitative methods 	<ul style="list-style-type: none"> • CANADA • Provincial and Central Governments • 1990-2011 • 1563 innovations 	<ul style="list-style-type: none"> • Best practice research 	Innovation is an output as the total of submitted awards application	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Economic strength within authority area ○ Slack resources 	<ul style="list-style-type: none"> ○ Investments in R&D within authority area 	<ul style="list-style-type: none"> • Unemployment rate • Majority government Political ideology
Wu, Ma & Yang (2013)	<ul style="list-style-type: none"> • Typology of Innovation literature • Content Analysis • Quantitative Analysis 	<ul style="list-style-type: none"> • CHINA • Provincial and Local Government • 80 Innovations • 2001-2008 	<ul style="list-style-type: none"> • Best practices research 	<ul style="list-style-type: none"> • Innovation is an output as the total of submitted awards application 	<ul style="list-style-type: none"> • Service innovation • Technological innovation • Management innovation • Collaborative innovation • Governance innovation 	<ul style="list-style-type: none"> • Economically advanced regions introduced more innovations 	<ul style="list-style-type: none"> • City and counties introduced more innovations 	<ul style="list-style-type: none"> •
Borins (2001)	<ul style="list-style-type: none"> • Survey • Quantitative and Qualitative Analysis • Successful innovation process 	<ul style="list-style-type: none"> • COMMONWEALTH • USA 1990-1998 • Federal, State, Local Governments • 83 Innovations • 	<ul style="list-style-type: none"> • NPM praise 	<ul style="list-style-type: none"> • Innovation is a process 	<ul style="list-style-type: none"> • No typologies. Instead characteristics of innovations 	<ul style="list-style-type: none"> • Economic context • Technological context • Administrative context • Political context 	<ul style="list-style-type: none"> • 	
Borins (2000)	<ul style="list-style-type: none"> • Survey • Quantitative and Qualitative Analysis • Successful innovation process • 	<ul style="list-style-type: none"> • USA & CANADA • Federal, State, Local Governments • 33 Innovations from Canada • 217 Innovations from USA 	<ul style="list-style-type: none"> • NPM praise • Reinventing Government praise • Local heroes praise • Harvard Best Practice Research 	<ul style="list-style-type: none"> • Innovation is a process 	<ul style="list-style-type: none"> • No typologies. Instead characteristics of innovations 	<ul style="list-style-type: none"> • Political context • Administrative Context • Social context • Economic context • Technological context 	<ul style="list-style-type: none"> • 	

4. THE INFLUENCE OF CONTEXT ON THE TYPOLOGY OF PUBLIC SECTOR INNOVATIONS

The existing literature provides limited understanding of the role of factual context in the frequency of each innovation type within the overall PSI typology. These variables have been referred to as environmental (Bernier et al., 2015), contextual (Korac et al., 2016), and external (Walker et al., 2015). However, the role of context remains unclear for a number of reasons. First, the emphasis of prior studies has been on investigating organisations and the success of NPM and as a result thereof managers (see Table 2). Whilst internal and managerial variables have largely been measured through perception questions, the context variables have primarily been explored in secondary data. This fail to examine how PSI is produced and constructed within the context. Hence, these studies suggest contextual factors have a weaker influence (e.g. Walker, 2006; Damanpour and Schneider, 2006; Damanpour et al., 2009). Because of their constructivist contextuality of knowledge creation, the role of context has been understated. Indeed recent studies which measured contextual factors via survey questions or specifically examined contextual variables reveal their important role (e.g., Korac et al. 2016; Bernier et al., 2015).

Secondly, the quantitative nature of the studies considered the context stable and measurable. However, the innovation process significantly interacts with the temporal context where problems are recognised, ideas are created, solutions are implemented and innovations subsequently lead to further innovations (Rogers 2003). Further, the role of political and administrative contexts is multi-layered with temporal context. For instance, NPM is identified as a conceptual context factor in most studies presented in Table 1. From this perspective, it is clear that the innovations emerged and were embedded in NPM reforms, which can be conceptualised through temporal, political and administrative contexts. Quantitative variables cannot reflect these mechanisms and embeddedness entirely (Pollitt, 2013).

Finally, a lack of cross-country comparisons in the PSI literature (Devries et al., 2015) has hindered conceptualising the influence of the context. The variation of economic context in one country is not significantly divergent to reflect the role of context. Indeed, Arundel et al. (2015) uncovered the influence of economic context in innovation methods (bottom-up, policy dependent, knowledge scanning) among EU nations. However, they did not investigate the relationship between context and innovation types. To date, only Borins (2000, 2001) has explored the influence of macro context. He uncovered the roles of political, administrative, social, economic and technological contexts in the characteristics of innovations in the USA, Canada and Commonwealth countries. However, the literature dominated by the studies in the USA, EU and Australia cannot shed sufficient light on the role of context.

4. FACTUAL CONTEXTS

Contextual factors in PSI represent the setting within which innovations are developed and implemented (Christian and Laegreid, 2013). Following Pollitt (2013)'s criterion, we conceptualise six different contexts that were identified as influential by previous PSI and administrative change & reform literature. It is worth noting that contexts can layer together and have common dimensions. For instance, the citizen voice index can be included within both social and political contexts. Table 3 provides information about the factual contexts in the three countries selected.

TABLE 3 Factual Contexts from the literature in Italy, Japan and Turkey

	ITALY	JAPAN	TURKEY
1.SCOPE	Southern Europe	Asia	Eurasia
Levels of Government	Regions , provinces , municipalities	Prefectures, municipalities	Provinces, districts, municipalities
2.ECONOMY			
GDP per capita, PPP\$	30,165 \$	34,362 \$	14,615 \$
Growth Average (04-15)	-0.14 %	0.81 %	5.92 %
ICT use	26th out of 141	5th	53rd
3.POLITICS			
Form of Government	Coalition	Majoritarian	Majoritarian
Policy priorities	Austerity, transparency	Austerity,	Growth and reform
Rule of law	49th out of 141	22th	55th
Transparency	Medium	High	Low
Corruption	Medium	Low	High
International Pressures	EU regulations	N/a	EU membership process
4.ADMINISTRATION			
Public expenditure by central government	56%	14%	91%
Centralisation	Centralised=>Decentralised	Centralised=>Decentralised	Centralised
Gov. online service	48th out of 141	9th	78th
Gov. effectiveness	47th out of 141	21th	49th
Administrative Culture	Napoleonic	Confucian	Napoleonic
Governance Paradigms	NWS	NPG	Traditional → NPM
5.SOCIAL CONTEXT			
Voice & Accountability	High	High	Low
Population	Aging population	Aging population	Young population
Welfare State	Welfare State	Welfare State	N/A
Immigration	From Africa	N/a	Domestic and from Syria
6.PERIOD			
Major Public Sector Reforms	Reform from 1990s Privatisation Decentralisation Managerialism E-government	Reform from 1990s E-government Outsourcing Decentralisation Citizen Participation	Reforms from 2000s Privatisation E-government Decentralisation
Crisis & Disasters	1991 Political Crisis, 2003 Earthquake, 2011 Immigration Flow	2011 Earthquake	1995 and 2001 economic crises and instability, 1999 earthquake, 2011 Syrian Conflict

Sources: Pollitt and Bouckaert (2017); Natalini and Stolfi (2011); Ongaro (2011); Mele (2010) Furukawa (1999); Kim (2017); Goldfinch and Wallis (2010); Kudo (2015), Guler (2010); Sezen (2016), World Bank (2018); OECD (2018)

6. METHODOLOGY

DATA DESCRIPTION

Our data source is the applications submitted to UNPSA. We selected the complete population of forms from Italy, Japan and Turkey between the years of 2009 and 2015. The unit of analysis is semi-finalist innovations that were presented to the UNPSAS as an innovation process.

Previous innovation literature benefited from award applications (e.g., Borins, 2001; Wu et al., 2013). The use of existing database classifies this study as an “opportunistic” research design. We have discussed this critical issue above and identified the awards applications form scientifically comparable elements to test contextual differences between countries.

The United Nations has celebrated the 23rd of June as ‘Public Service Day’ and aims to reward innovative public sector projects worldwide. Since 2003, more than 2,500 innovation initiatives have been submitted for awards on a yearly basis (United Nations, 2015). Applications were evaluated through three rounds. In the first round, nominations are assessed and ranked. Applications above a certain threshold pass to the second round, where additional supporting documents are required. In the third round, a United Nations Committee of Experts in Public Administration decides the first and second place winners for each region. The final step involves verifying and validating the application forms, practical activities and impacts of the initiative via UN or other international institution offices in the respective country (United Nations, 2015). The UN openly provides the application forms short-listed for the second round of evaluation for the benefits of practitioners and academicians.

Prior studies have utilised award applications as a representative sampling proxy (e.g., van Acker and Bouckert, 2017). In the context of this study, we consider the sample to be representative of PSI in the selected countries for three key reasons. Firstly, the UN has announced the award through various channels, increasing awareness and the number of applications. All three countries are well-established members and the UN has had local offices in the countries for several years. National governments announce the UN competition via official channels to make every organisation aware. The media coverage and news on PSO’s websites also indicate that there is a general awareness for the award (see TRT News, 2015; Formez PA News, 2013; Ministry of Foreign Affairs of Japan, 2010). Second, the application uses a simple online procedure. This increases the number and diversity of applications and six languages can be used to complete the open-questionnaires. Italy, Japan and Turkey each utilised English to submit the innovations, which represents an equal barrier to each when completing the application effectively. Third, the awards call for all levels of government to apply.

DATA ANALYSIS

The open-questionnaires include rich qualitative data on the innovation process (See [UN Database](#)). The analysis of ninety-nine open-questionnaire forms was undertaken by qualitative and quantitative content analysis, following previous public administration studies (see Wu et al., 2013; Friedrichsmeier and Marcinkowski, 2016; Schlauffer, 2016). Content analysis is suitable to quantify qualitative data (Neundorf, 2016) and was utilised to code the typology of innovation through the pre-defined coding book. To test the reliability of the

coding, two cases from each country were randomly selected, with a total of six cases being coded independently by two researchers. The intercoder agreement through the Holsti coefficient was over 0.9 which is a commonly accepted measure of reliability within the literature (Krippendorff, 2012). Further, the remainder of the cases were solely coded by the leading author.

Qualitative content analysis is crucial to understand the role of context in PSI. Whilst quantitative content analysis is interested in consistency and counting isolated from context, qualitative content analysis attempt to understand how the reality is developed in its context. (Krippendorff, 2012). Hence, the role of context on the innovation process can be uncovered through the analysis of the qualitative responses of the award applications. The qualitative content analysis process can be described as both deductive and inductive. Firstly, a coding book was constructed from prior literature. The results and alternatives for the codes were discussed in the meetings and the codebook was improved via additional codes.

7.FINDINGS

Our coding reveals that the PSI typology shows divergent configurations in three countries (Table 4). Further, the articulation of various contexts within the innovation processes is displayed in Table 4. In Turkey, technological process innovations and systemic innovations dominated the scene. This is consistent with the temporal context of the government's *Digital Transformation* reform agenda since 2003. With a high economic growth rate, Turkey attempted to fill the technological gap in government services. This aim was articulated frequently and strongly in the applications.

The administrative context of strong central-unitary government necessitated coordinating the arm-length organisations through systemic innovations, which were supported by IT. The national scope and coordination characteristics of the initiatives were the common discourse in these innovations. The second aspect of the administrative context is institutions for supporting innovations. State Planning Organisation (DPT) emerged as the institution to select and fund these extensive innovations in Turkey.

Turkey has negative indicators on democracy, governance and corruption and this suggests a need for governance innovations to deal with these problems. However, only a single governance innovation was reported. Solving this problem seems not to have been a priority within the political and temporal context despite the EU membership process. As of today, when Turkey is far from EU membership and has frozen the reforms (Ciddi, 2018), we can clearly understand party politics had preferred to introduce NPM paradigm reforms to increase efficiency, service quality and economic gains, which were articulated frequently in the applications, rather than promoting democratic values. Citizen satisfaction was constructed from a clientelist view to assure citizen satisfaction and vote in the polls. The sole initiative presented as a citizen participation mechanism was basically giving roses, tickets and other pragmatist benefits to citizens and this approach was expressed honestly in the application.

Social innovations were also rarely reported in Turkey, despite the social context of urbanisation and growing young population. This support the previous findings of EU reports that social innovation has been limited in Turkey (Boelman and Heales, 2015). This is evidence that political and administrative context can dominate social context. Finally, the temporal

context with recently implemented successful innovations was articulated as an explanation for further technological innovations in Turkey.

Table 4 Typology of Innovations as a Percentage of Total Cases

	ITALY		JAPAN		TURKEY	
	Number of Occurrences	%	Number of Occurrences	%	Number of Occurrences	%
PROCESS IT	18	52.9%	9	34.6%	28	71.8%
SYSTEMIC	10	29.4%	8	30.8%	20	51.3%
GOVERNANCE	11	32.4%	14	53.8%	2	5.1%
NEW SERVICE	4	11.8%	5	19.2%	6	15.4%
SOCIAL	5	14.7%	7	26.9%	3	7.7%
PROCESS ADM	7	20.6%	0	0.0%	5	12.8%
CONCEPTUAL	2	5.9%	6	23.1%	3	7.7%
Total Sample	34	167.6%	28	188.5%	39	171.8%

In Italy, the configuration is different from Turkey and Japan. Applicants written descriptions revealed that the temporal and political context facilitate innovation through reforms and government promises for innovation and transparency by frequently changing new governments. The Ministry for Public Administration emerged as the institution responsible for these reform and innovation activities. Administrative technological innovations and governance innovations for accountability & transparency emerged within these contexts. The elements of the NWS governance paradigm, such as trust and legitimacy, were articulated frequently as a part of the administrative context. In addition, the deteriorating economic context was revealed frequently in governance innovations as it interlayered and interacted with other contexts exacerbating them. Organised crime as a significant aspect of social context was also reported within governance innovations. Moreover, systemic innovations surfaced, yet not as frequently as Turkey, with the aim of coordinating fragmented regions and municipalities. The changing nature of unitary administration and the shift from centralisation to decentralisation were expressed as the administrative context of these systemic innovations.

Finally, the innovation configuration in Japan, with its unique contexts, is more balanced than Turkey and Italy. Governance innovations were the most common type, and administrative process, systemic and social innovations had similar frequencies. This is consistent with the shift in the administrative context from NPM to multi-actor collaboration and decentralised administrative structure, where local governments focused on citizen participation and legitimacy (Kudo, 2015). Whilst the discourse of all governance paradigms can be observed in Japan, the dominant articulation was for NPG and citizen participation. Further, lower frequencies of technological process innovations can be attributed to the economic and technological, political and temporal context. Japan had previously progressed technology and e-government reforms prior to the studied period, and they were ahead of Italy and Turkey in terms of digital government. The technological advancement of Japan was expressed frequently within applications. On the other hand, Japan had a digital agenda within this period, yet the aim was expressed by the applicants as to integrate existing digital government services and to increase citizen participation on digital platforms. In addition, systemic innovations surfaced within the decentralised administrative context, with the aim

of integrating services of local governments frequently revealed. The well-known *Ministry of Economy, Trade and Industry (METI)* for Japanese developmental state also was reported quite often as the responsible institution for the coordination of these innovations. Finally, the Japanese sample reported the most frequent social innovations, where the social context of urbanisation and aging population was articulated frequently. Apart from this social context and the local responsibilities of decentralised municipalities were manifested as the administrative context producing social innovations.

TABLE 4 Articulated context in the qualitative data

	ITALY	JAPAN	TURKEY
ADMINISTRATIVE CONTEXT			
	<i>...considering the high number of public administrations and their heterogeneity (large central government, small municipalities, schools, etc.)(IT17)..the current Italian legislative and administrative system is extremely fragmented and is divided up in more levels of competence.(IT26)</i>	<i>Public services are individually announced and provided by municipal governments, and their information formats are not consistent(JP03)</i>	<i>The..Project is a national-scale project... System gives service with 3.250 Call Center workers in 5 different call centers, 32.621 specialist physicians in 822 hospitals in 81 provinces and 21.062 family doctors in 947 Family Health Centers.(TR09)</i>
	<i>..started from an agreement between the Ministry of Home Affairs - Department of Public Safety and the Prime Minister's Office - Department of Public Administration(IT02)</i>	<i>The Ministry of Economy, Trade and Industry developed an information exchange framework for government agencies which is necessary for the effective use of public data.(JP03)</i>	<i>Integrated Social Assistance Services System (ISASS) is a component of Information Society Strategy Action Plan and is financed by State Planning Institute(TR04)</i>
	<i>.. citizens had changed their point of view: they stopped strongly criticizing local public administration and engaged in constructive dialogue with administrators and public servants.(IT01)</i>	<i>"Community Power" is defined as ability of communities to cooperate with each other and sort out regional problems through collaborative activities such as ...JP21)</i>	<i>.. the private sector and in five star hotels were examined. We accepted the customer satisfaction which is experienced by the citizens when they stay in a hotel for holiday, as a measure for ourselves. (TR26)</i>
	<i>One of the most important priorities in the public sector agenda is to keep healthcare costs under control. ... all available resources better planned in terms of effectiveness and efficiency. (IT23)</i>	<i>It is a precious treasure that citizens voluntarily proposed their idea and opinions and shared motivation to implement the project (JP22) ..It is widely recognized,however,that a large number of civil society organizations (CSOs) and the private sector institutions have recently become very active in various public service areas (JP23)</i>	<i>..the perspective of the new public management (NPM)...Turkish public administrations are also within the transformation period... change in allocation and use of resources; effectiveness and efficiency, performance-based budget, fiscal transparency and strengthening of accountability, internal control issues came into force(TR24)</i>
TEMPORAL CONTEXT			
	<i>national legislation urged the authorities to translate into concrete action the key elements of the Open Government (IT05)...thanks to specific legislation on the subject (the Digital Administration Code(IT12)... the legislator has obliged the public administrations to publish information and data in their institutional websites(IT17)..Government approved...a comprehensive reform of the public administration...with a view to improving</i>	<i>..the Japanese government will create the information exchange framework at a national level and implement a standardization approach.(JP03) ..a newly enforced national law obligated municipalities to give alarm and provide proper evacuation guidance to residents in case of armed attacks or terrorist acts.(JP24)</i>	<i>.. is a component of Information Society Strategy Action Plan(TR04) these institutions are involved in e-Government transformation (TR11) ... in the Strategy of Information Society that has been prepared by the State Planning Organization(TR19) Prime Ministry published a memorandum that made transition to e-government system obligatory(TR20) The E-government initiative, .. is one of key government priorities(TR22) Turkey started working</i>

	<i>labour productivity as well as efficiency and transparency(IT26)</i>		intensively in 2000s on putting the advancing technology at the judiciary's service(TR30)
	<i>In those last years, the economic crises hit (IT11) The global economic crisis has had a major impact..(IT13).an earthquake of 6.3 Richter scale .. killing and destroying (IT27)</i>	<i>in response to the Great Earthquake in March 2011(JP03)..the devastating heavy rain hit....(JP04)..This incident was featured in the Japanese media with headlines such as ..JP05)</i>	<i>In 2006, a big fire occurred in a national park (TR15)..Throughout history Turkey has faced frequent earthquakes very often(TR32).. the flood that occurred..(TR39)</i>
	<i>A number of previous projects could supply their results to that initiative..(IT29)</i>	<i>..previously developed a dataset framework.. This experience helped it to gain operational know-how by applying the system in promoting the policies to the public (JP03)</i>	<i>the personnel, who have already been employed under the...project...has contributed to e-visa system development (TR04)</i>
POLITICAL CONTEXT			
	<i>Patronage of institutional stakeholders committed to road safety such as the Italian Prime Minister's Office (IT16) The Prime Minister Decree of 2.10.2008 transferred the HC functions to the Department for Public Administration (DPA) within the Presidency of the Council of Ministers.(IT28)</i>	NA	<i>... by the predecessor Minister of Health ... (TR09) Prime Minister...were in attendance during the ceremony...The media widely covered the humorous dialogue between showman .. and the Prime Minister.(TR27)The Office of The Prime Minister started an undertaking to select E-Government projects...(TR35)</i>
	<i>..so the local administrators decided(IT05) ..the City Council planned the "NOVA project"(IT11)</i>	<i>Initiative was proposed by current Mayor .., and implemented under his strong leadership (JP09) ..the Governor .. aimed at the "creation of an all people-friendly city with the universal design."(JP15) The reform-oriented Governor ..guided the Team (JP23)</i>	<i>Vice mayor, ...designed the... During the initial year of their marriage, 3.700 couples have been visited at home and greeted with rose. A specialist letter including the regards of our Mayor and pearls of wisdom for a long-lasting, happy and peaceful marriage have been presented. (TR28)</i>
	<i>The inclusion of the Mafia in large and small competitions for contracts(IT02) Those problems caused also a lack of transparency(IT10) In response to pressure by the public asking for a solution to corruption..(IT17) recurrent news items about inappropriate use of public money(IT21)</i>	NA	NA
	<i>The Transparency Operation initiative is in line with international instruments such as the OECD ... (IT28) related to the normative procedures of two EU directives on ... (IT02)</i>	NA	<i>Besides, in accordance with Turkish-EU harmonization process...(TR05)...to align the Turkish tax system with the EU directives.(TR24)</i>
SOCIAL CONTEXT			

	<i>In addition, there is the issue of the ageing population...has to consider in its next interventions to meet users requirements(IT31)</i>	<i>Due to the effects of a progressively aging population...(JP07) the end of population growth(JP14)</i>	<i>Rapid growth of population (TR12)</i>
	<i>The Italian Constitution and laws protect workers and disadvantaged groups(IT08).</i>	<i>Traditionally, only welfare offices provided assistance to welfare recipients... Prefectural Government solicited support from the private sector in order to implement a comprehensive self-support program that assists in three areas: education, work, and housing. (JP07)</i>	NA
	<i>If Italy is involved in the reception of foreigners ..seeking for politic asylum, and if it helps refugees, it cannot fail to look at its citizens who, without personal faults, live conditions of enormous economic difficulty ..(IT08)</i>	NA	<i>..an increasing number of refugees from the Syria have sought asylum in Turkey(TR01) The migration in South-east Anatolia Region from villages towards cities ..I. (TR39)</i>
	NA	<i>..beautiful rural landscapes disappeared and many local communities are losing vitality(JP02) In urban societies .. where there is a lack of local communities(JP17) ..urbanization led to the spread of the nuclear family.(JP18)</i>	<i>Urbanization and increasing population in the urban areas during the late 90s led to unbalanced distribution of (TR09)</i>
ECONOMIC & TECHNOLOGICAL CONTEXT			
	<i>..in a context of severe social and economic elements, constantly worsening because the structural problems of the economy of southern Italy (IT08)</i>	<i>With the further degeneration of the financial situation of the central government and the municipalities..(JP17)</i>	<i>Turkey has experienced an economic growth with an average rate of 7.5% per annum since 2001. The housing and construction sector has been very active and is growing at a 7% rate...(TR22)</i>
	<i>Another important obstacle was represented by the old hardware used in the Municipality's offices that were not adapt for the new digital procedures.(IT04)</i>	<i>METI E-Government team was implementing the text analysis trial project at the time. Using the key word "lack", we retrieved about 1000 tweets by Google each day from March 12-15 and about 1500 tweets by a visualization engine from March 16-26.(JP11)</i>	<i>Another lesson..is that IT infrastructure of government bodies must be sufficient for integrating their services to ... To accelerate... necessary IT infrastructure and human capital investment should be made by relevant institutions.(TR20)</i>

CONCLUSION

This paper is progressing the discussion on the importance of context in PSI research. Having studied an international sample of innovations through qualitative and quantitative content analysis, we have explored our research question to establish how the typology of PSI varies across divergent contexts. In doing so, this study makes two main contributions. Firstly, we have developed a framework to assess the role of context through the review of the previous literature on innovation typology. Secondly, we have provided detailed empirical insights into how divergent innovation typologies can be produced within the different; administrative, temporal, political, social and economic & technological contexts of each country. Our analysis extends the previous empirical studies on PSI typology (Walker 2006; Wu et al. 2013, Devries et al. 2016) via studying 99 PSI from UPSAS award competition.

We have provided evidence that administrative context, in particular administrative structure and governance paradigms, play a crucial role on the configuration of the typology. Our findings revealed that this depends on interlayering contexts. In addition, temporal context influence the PSI typology as catastrophic events, crisis, previous and current reforms create possibilities for different types of PSI. The political context is also of great importance, as strong national political leaders can build opportunistic politics and policy priorities and promote solely administrative innovations rather than governance and social innovations. On the contrary, frequently changed political context can keep innovation as a part of the reform agenda, and as a tool to gain citizen trust. We have also uncovered social context and economic & technological contexts can be a part of the explanation of the typology configuration to some extent, however they can be dominated by other contexts.

We have identified that the nature of each innovation can be differ depending on the context. Systemic innovations frequently introduced in each country aimed to integrate diverse PSOs: Local governments in Japan; the fragmented central, regional, local organisations in Italy; and arm-length periphery agencies of ministries in Turkey. Similarly, governance innovations aimed to: increase accountability and transparency in Italy; citizen participation and co-creation in Japan; and conversely citizen satisfaction through clientelism in Turkey.

These findings broadened the literature on the environment and context understanding of PSI research to macro context factors and contributed a limited number of studies (Borins, 2000,2001; Arundel 2015 et al.). Previous research was based predominantly on local government data and meso-factors surrounding organisations (e.g. Walker,2006; Damanpour and Schneider,2006; Damanpour et al., 2009; Gonzalez et al., 2013). Finally, our findings shed light on the current state of PSI in Italy, Japan and Turkey. Whilst Italy has been studied by a number of studies (e.g Mele,2008; Nasi et al., 2011), our knowledge has been scarce to Japan and Turkey.

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