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Rethinking Public Organizations as Knowledge-Oriented and Technology-Driven Organizations

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Abstract. *Public organizations should rediscover the role of knowledge as a source for designing and implementing internal processes and adopt a knowledge management approach by using and managing technology as means and enabler for building a citizen-centered public management, sustaining democratic and civic values by promoting openness and fostering participation in order to encourage collaboration with citizens for co-producing public services and co-creating public value. Information and communication technologies are driving public organizations as responsive institutions in front of the citizens to proceed towards sustainability as a principle of governance for promoting the public interest and sustaining active citizenship, enhancing both collaboration and interaction between citizens and public administration. Introducing and actively implementing technology in government helps rethink public organizations as knowledge oriented and information based organizations seeking sustainability by involving citizens, businesses and other stakeholders for public value creation, enabling access to information, sustaining openness, transparency and accountability in order to engage citizens and encourage them to be included and actively participate in democratic public life, involving citizens to assume the responsibility for co-production of public services and fostering citizen participation in public policy choices. Technology opens up new opportunities for public organizations seeking sustainability by rediscovering knowledge as source and strategic asset following a knowledge management approach for designing and implementing democratic and administrative processes, redesigning the relationship with citizens, building public trust, encouraging citizen participation and sustaining co-production of public services.*

Keywords: *public organizations, information and communication technology, knowledge management, sustainability, public value, openness, participation and co-production of public services.*

Introduction

Introducing technology in government helps rethink public organizations as knowledge oriented and information based organizations creating public value involving citizens, businesses, and other stakeholders, and enabling access to information. Public organization embracing technology tend to sustain openness, enhance transparency and accountability in order to engage citizens and encourage them to be included and actively participate in democratic public life, enabling

citizens to assume the responsibility for co-production of public services, fostering participation in public policy choices. Technology opening up new opportunities for rediscovering dialogue, cooperation and collaboration towards a citizen-centered public management are driving public organizations to rediscover knowledge as strategic source and to introduce and develop a knowledge management orientation in managing processes for creating public and social value.

The study aims to elucidate how technology enabling and sustaining openness, participation and co-production of public services is driving public organizations to rediscover the importance of knowledge as a source for creating public value and develop a knowledge management approach and culture in order to design and implement democratic and participatory processes supported by the use and the adoption of technology for sustaining a continuous orientation to storing, creating and sharing new knowledge. Public organizations embracing technology tend to promote openness between transparency and accountability, encouraging citizen engagement and active participation, and sustaining co-production of public services in order to proceed towards a sustainable path creating public value within communities for society.

Investigating knowledge management in the public sector is becoming an emerging and relevant research theme even if the body of literature is fragmented and not unitary (Mussari, Dumay & Garlatti, 2015). Introducing and successfully developing knowledge management systems and promoting a knowledge oriented organizational culture has the potential to drive change and innovation in the public sector and transform public sector organizations using and managing knowledge for improving democratic, administrative and managerial processes, building better policies and enhancing the quality of public services delivery and production (Cong & Pandya, 2003; Edge, 2005; Riege & Lindsay, 2006; Wiig, 2002).

Information and communication technologies (ICTs) and the Internet are driving public organizations as responsive institutions sustaining public trust and promoting public interest to build active citizenship and encourage citizens to actively participate in public affairs, enhancing the collaboration between citizens and government for creating and maintaining public value by building a meaningful dialogue and partnership through citizens becoming active and aware co-producers of public services and public value (Denhardt & Denhardt, 2001, 2003; Moore, 1995; Osborne, 2006; Vigoda, 2002).

Knowledge is seen as the most important strategic asset within organizations achieving sustainability (Davenport & Prusak, 1998). With regard to the public sector the concept of knowledge management is related to «capturing, sharing, applying, and creating knowledge in an organization to best leverage knowledge internally and externally» (Liebowitz, 2003, p.254). Introducing knowledge management practices and systems helps drive and accelerate change and innovation within the public sector (Edge, 2005). Technology can support knowledge management as an approach to the capture, management, and dissemination of knowledge. Public organizations embracing and managing technology by shaping a knowledge and network society (Castells, 2005) should

develop a knowledge management approach for developing policy-making and better ensuring high quality and efficiency of public services delivery investing in people, processes, technology, leadership and culture (Cong & Pandya, 2003; Girard & McIntyre, 2010; Leibowitz, 2003; Wiig, 2002), searching dialogue and interaction with citizens because knowledge belongs to communities and flows through communities (McDermott, 1999).

Technology help drives and supports public sector management reform for change and innovation. Thereby, in the public sector knowledge management seems to be still in its infancy even if technology-based tools for knowledge management are rapidly developing while information management systems are well developed (Cong & Pandya, 2003; Wiig, 2002). Public organizations embracing technology for sustaining public sector reform and innovation have to develop knowledge strategies becoming intelligent organizations able to adapt to change and to manage uncertainty for engendering virtuous and learning processes (Bratianu & Bolisani, 2015; Bratianu, Vasilache & Jianu, 2006).

Investigating the concept of sustainability and understanding how information technology can help sustainability in government are emerging themes (Dumay, Guthrie & Farneti, 2010; Fiorino, 2010; Janowski & Estevez, 2013; Larrson & Grönlund, 2014, 2016). Technology helps redesign and implement public management reform for driving change and enables public organizations to proceed towards a sustainable development over time by enhancing democratic and civic values for creating public value and redefining the relationships with citizens and communities for building and maintaining public trust through a citizen-centered collaboration proceeding towards a sustainability perspective focusing on the dialogue of values in the public sector (Bryer, 2006; Cordella & Bonina, 2012; Goodsell, 2006; Larsson & Grönlund, 2014, 2016).

New technologies help public organizations to develop an open government, to enhance and modernize core processes by managing information and knowledge. Sustainable public organizations should embrace and use technology in order to develop a knowledge management approach to enhance openness as a public value between ensuring transparency and promoting accountability, to sustain values of democracy by fostering participation and engaging citizens in public policies choices encouraging the active participation of citizens in policy making.

The study is organized as follows. Following the introduction, in the second paragraph, the role of information and communication technologies (ICTs) as means for rethinking public organizations as responsive institutions seeking sustainability is elucidated. In the third paragraph, the relationships between knowledge management and technology are elucidated in order to explain how public organizations tend to develop as knowledge oriented and technology-driven organizations. In the fourth paragraph, it is explained how information and communication technologies orient and drive public organizations to follow a knowledge approach, promoting openness between transparency and accountability, revitalizing democracy by encouraging citizen participation, sustaining co-production of public services for public value creation. In the fifth

paragraph, a framework is presented in order to identify how technology helps rethink public organizations as knowledge and information oriented organizations selecting different a path between fostering openness between transparency and accountability, encouraging participation from information provision to active participation and involving people to act as citizens or co-producers of public services. Finally, conclusions follow.

Rethinking public organizations following an approach sustainability-oriented by introducing and managing information and communication technologies

Introducing technology in government helps public sector management reform and offers the promise of delivering high quality of public services, providing efficiency, reshaping governance by enhancing transparency, accountability, and participation (Torres, Pina & Royo, 2005). Public organizations as responsive institutions embracing technology for driving change and innovation serve the public interest as a result of dialogue with citizens developing sustainable policies for communities, building cooperation and encouraging a citizen-centered public management by interacting with citizens as partners, opening to learning and change (Bryer, 2006; Cooper, Bryer & Meek, 2006; Dawes, 2008; Denhardt & Denhardt, 2001, 2003; Moore, 1995).

Public organizations contribute to democratic life sustaining public trust by providing efficiency, effectiveness, legality, and fostering integrity, involvement, and fairness (Goodsell, 2006). Public organizations have to rethink how to develop environmental, economic and social sustainability as the principle of governance driving action across policy sectors (Fiorino, 2010) managing information and knowledge (Dumay, Guthrie & Farneti, 2010) and embracing technology to promote citizenship and encourage public discussion, dialogue and participation of citizens in the policy process as a result of dialogue and shared values (Bourgon, 2007). Public organizations seeking a path leading to sustainability have to develop knowledge strategies in order to manage uncertainty becoming intelligent organizations (Bratianu & Bolisani, 2015; Bratianu et al., 2006).

Introducing technology in democratic and administrative processes of government refers to the concepts of e-government and e-governance. E-government refers to use of information technology in order to enable and improve the efficiency of government services for citizens and businesses, to empower citizen in access to government information or making citizen-government interaction more efficient and effective (Fang, 2002; West, 2004), sustaining governmental accountability in order to increase process-based trust by improving interactions with citizens (La Porte, Demchak & De Jong, 2002; Tolbert & Mossberger, 2006).

E-governance refers to the use of ICTs for driving a citizen-focused government building collaboration networks for citizen participation (Qian, 2001) in order to strengthen a dynamic and democratic interaction between government and citizens in order to enhance transparency, accountability and participation in the

democratic political process altering or creating new governance structures or processes (Bannister & Connolly, 2012; Dawes, 2008) by increasingly promoting a meaningful citizen engagement (Panagiotopulos, Al-Debei, Fitzgerald & Elliman, 2012) for creating and sharing knowledge by involving people, civil society, government and businesses (Al-Sudairy & Vasista 2012).

ICTs contribute to enhance public services, to ensure quality and cost-effective operations, to engage citizens and support public sector reform (Dawes, 2008) driving public institutions to enforce democratic public values as impartiality, equity, honesty, fairness and responsiveness in government (Bingham, Nabatchi & O'Leary, 2005; Cordella & Bonina, 2012; Misuraca, Broster & Centeno, 2012; Tolbert & Mossberger, 2006). Janssen and Estevez (2013, p.6) refer to electronic governance as a means for driving the sustainable development as related to "the use of ICT to support public services, public administration, and the interaction between government and the public, while making possible public participation in government decision-making, promoting social equity and socio-economic development, and protecting natural resources for future generations". Sustainability as a dynamic process and ongoing dialogue of values on general issues (Larsson & Grönlund, 2014, 2016) rely on the use of technology in government and governance.

ICTs are leading citizens, businesses and public organizations towards a digital-era-governance relying on reintegration (re-governmentalization, reengineering back office functions, network simplification), needs-based holism (client-based reorganization, data warehousing, agile government processes) and digitization processes (electronic service delivery, new forms of automated processes, isocratic administration and co-production, open book government) (Dunleavy, Margetts, Bastow & Tinkler, 2005). Technology in government processes is becoming a key source of modernization and reforming public organizations empowering citizens, businesses and other stakeholders (Gil-Garcia & Martinez-Moyano, 2007), leading to a smart government enhancing citizen centricity, sustainability, participation, innovation and creation, technology savyness (Gil-Garcia, Zhang & Puron-Cid, 2016), sustaining a lean government doing more with less and enhancing collaboration with public, using capabilities, intelligence and resource existing in the society (Janssen & Estevez, 2013).

Developing public organizations as knowledge oriented and technology-driven organizations

Knowledge is seen as the most important strategic asset within organizations proceeding towards sustainability (Davenport & Prusak, 1998). Introducing and successfully developing knowledge management systems and promoting an organizational culture knowledge oriented are considered as a very relevant challenge to face in the public sector organizations (Edge, 2005). Investigating the aspects related to knowledge management in the public sector is becoming an emerging and relevant research theme and area even if the literature on knowledge management in the public sector field is fragmented, not cohesive and unitary. In

particular, it should be necessary and useful to investigate how public sector organizations tend to use and manage knowledge for designing, implementing and improving efficiency and quality of public services (Mussari et al., 2015). Governments driving change and innovation have to introduce knowledge management in order to make more efficient and effective public administration, to improve democratic principles and promote human development (UNPAN, 2003). Knowledge management has the potential to transform public sector organizations through the distribution and use of information and knowledge supported by new technologies. There is a coherence between organizational change strategies on information technology and knowledge management (Bloodgood & Salisbury, 2001). Introducing knowledge management practices and systems helps drive and accelerate change and innovation within public sector (Edge, 2005). Public organizations should develop a knowledge management approach for developing policy-making and better ensuring high quality and efficiency of public services delivery investing in people, processes, technology, leadership and culture (Cong & Pandya, 2003; Girard & McIntyre, 2010; Leibowitz, 2003; Riege & Lindsay, 2006) searching for dialogue and promoting interaction with citizens by embracing technology because knowledge belongs to communities and flows through communities (McDermott, 1999).

Managing knowledge as a fundamental resource in public policy formulation implies to design and implement information systems by employing technology for improving the organizational responsiveness of government to social needs engaging citizens (Gates, 1975; Henry, 1974). Leveraging knowledge relies on designing human and information systems in order to sustain information and knowledge sharing and integration within the community (McDermott, 1999).

Knowledge management refers to know what an organization knows and implies to transform data into information as a strategic resource to be valued and used (Bellamy, 2003). Building information based organizations knowledge oriented is becoming a relevant challenge for public sector organizations managing information and knowledge by developing and shaping a network society where digital networking and communication technologies enable the capacity to create knowledge and manage information (Castells, 2005; Drucker, 1988).

Technology can play a relevant role in sustaining knowledge management within public organizations as means for capturing, storing, transforming and disseminating information. Public sector organizations support citizens using on line services and ICTs by developing content-oriented and user-oriented technological infrastructures (Reinslau, 2006).

Technology creating a knowledge network by developing government intranet (Leibowitz, 2003) helps construct a successful knowledge management model (Girard & McIntyre, 2010). Today, the information technology related to knowledge management (e-knowledge management) plays an important role in managing processes within public administration. The use of digital information and communication technology helps support a different form of knowledge management with regard to policy formulation, development, and implementation

enabling citizens to exert influence on policy formulation and definition (Snellen, 2003). Technology helps sustain knowledge sharing and enables knowledge management within public organizations connecting people with information (Cong & Pandya, 2003).

In the public sector, ICTs contribute to sustaining knowledge management design, development, and implementation (Suurla, Makkula & Mustajarvi, 2002). Web 2.0 technologies contribute to enriching knowledge management perspective and opportunities (Levy, 2009). Social media provide new opportunities for transforming knowledge sharing by increasing transparency, participation, accountability and cooperation (Mergel, 2011). Technology and ICT infrastructure help facilitate communication and access to knowledge resources (Misra, Hariharan & Khaneja, 2003), lead to promote knowledge sharing (Gorry, 2008), foster the development of information and knowledge sharing within organizations involving government, businesses and citizens to cooperate and create public and social value within knowledge society. Technology is enabling government organizations to create knowledge as a source for improving the productivity and the performances (Fang, 2000) and to sustain the creation of knowledge assets and the performance of knowledge transfer (Syed-Ikhsan & Rowland, 2004).

People, processes, and technology are the main drivers fostering the introduction of knowledge management systems and approaches for rethinking public organizations able to create public value by sustaining learning processes and knowledge creation and sharing involving citizens, businesses and other stakeholders (Cong & Pandya, 2003). Public organizations as sustainable and knowledge based organizations using, disseminating and sharing knowledge related to social and environmental issues (Leon, 2013) have to develop a knowledge strategy to be implemented in organizational and technical architectures (Zack, 1999) as the own way of dealing with information and knowledge (Tseng, 2008) in order to ensure the quality of service (Sher & Lee, 2004) by embracing new technologies in order to develop information and knowledge management and sharing by enhancing decision making fostering effective citizens participation (Riege & Lindsay, 2006; Wiig, 2002). Information may support knowledge as the outcome of a knowledge process (Bluementritt & Johnston, 1999) but information management and knowledge management systems require different technologies (Zack, 1999) Governments managing knowledge and technologies tend to maximize the knowledge of decision makers before solutions are applied by developing transparent processes that facilitate effective two-way transfers of knowledge between public organizations and stakeholders to better develop sustainable policy solutions (Riege & Lindsay, 2006) Thereby, in the public sector knowledge management seems to be still in its infancy even if technology-based tools for knowledge management are rapidly developing while information management systems are well developed (Cong & Pandya, 2003; Wiig, 2002).

How technology helps rethink and re-address public organizations rediscovering a knowledge-based approach: promoting openness, encouraging participation and sustaining co-production of public services

Public organizations as responsive institutions interacting and dialoguing with citizens should improve social and democratic performances for developing better policies: rediscovering knowledge as critical source and following a knowledge management approach by promoting openness between ensuring transparency and building accountable relationships with citizens and various stakeholders; by opening up to participation and encouraging citizens to move from passive information access to actively participate and be included in democratic processes; by sustaining the co-production of public services as a means for driving citizens and public organizations to create sustainable social and public value. Promoting openness, encouraging participation and fostering democracy, sustaining the collaboration between citizens and public administration for co-production of public service help rethink and re-address public organizations as knowledge oriented, knowledge and information based organizations creating and maintaining public value managing processes and communication for enhancing the wealth of communities.

Promoting openness between transparency and accountability

Transparency is a fundamental value and a key element for policy processes in democratic societies. People have the right to access to government information. With regard to public sector transparency can be defined as the availability of information about public administration in order to permit to citizens to oversee government performance (Meijer, 2013). The Internet has increased the access to government information. Technology is driving public institutions to build an open government leading citizens to oversee government policies and evaluate both correctness and legitimacy of public administration. Introducing technology in government offers new opportunities for making public organizations as open and responsive institutions willing to serve the interest of citizens (La Porte et al., 2002). Transparency should contribute to promote and increase government accountability by providing information as strategic asset for citizens about what governments are doing (McDermott, 2010). Information technology offers a useful opportunity to enhance public trust and citizen satisfaction improving transparency, effectiveness and policy participation, reducing corruption in public administration keeping government honest by exerting pressure on public sector performances (Moon, 2003).

Democratic institutions have to behave as transparent organizations in order to increase and restore the trust of citizens. Internet technologies significantly enable transparency that strengthens the legitimacy of public institutions (Curtin & Mejier, 2006; Grimmelikhuijsen, 2009). New technologies favor the development and implementation of a citizen-centered transparency in order to engage citizens and increase accountability and participation in government affairs (Jaeger & Bertot, 2010).

Public organizations can be transparent but not accountable institutions. Transparency does not automatically lead to accountability. Transparency and accountability are conceived along a *continuum*. While transparency implies dissemination and access to available information, the accountability requires the capacity to produce answers. Democratic institutions as transparent organizations tend to restore the relationship of confidence with citizens because interactivity and increased transparency lead to building the trust of citizens in government and their acceptance of public institutions (Welch & Hinnant, 2003). Thereby, the Internet as means for ensuring policy discussion, accountability, and evaluation from citizens is still in its infancy (Pina, Torres & Royo, 2010; Wong & Welch, 2004).

Revitalizing democracy and participation of citizens

Public institutions need to promote public consultation and encourage citizens to participate in searching for a dialogue and creating knowledge for defining better policy choices. ICTs contribute to reinforce representative democracy and address direct forms of democracy in order to facilitate public discussion and consultation for policy-making (Bellamy, 2003). New technologies are leading public organizations to behave as responsive and collaborative institutions strengthening forms of democracy and encouraging the participation of citizens by engaging them in contribution to public policies choices ranging from information to active participation. Public institutions should promote participation by new technologies for building a fair and efficient society and government valuing knowledge research for analyzing and solving public problems (Saebo, Rose & Flak, 2008). E-participation as knowledge, interactive and collaborative, the dynamic process enables participatory and democratic initiatives, empowering, open and trustworthy systems (Islam, 2008; Sanford & Rose, 2007).

Increasingly technological developments contribute to enhance and strengthen participation in order to develop the policy process as result of dialogue and shared values, knowledge creation and sharing through interaction between public institutions and people (Grönlund, 2003). According to a *civil society model* technology should encourage connections between citizens in order to enhance the degree and quality of public participation in government, to promote public debate and sustain an informed and critical citizenry. Technology helps the government to encourage the *active participation* by which citizens are empowered to actively participate in the policy making process (partnership) (OECD, 2003), leading citizens to exert influence on policymaking and support the democratic decision-making processes (Korac-Kakabadse, Korac-Kakabadse & Kouzmin, 2003), improving the quality of opinion formation and opening new spaces of information and deliberation (Trechsel, Kies, Mendez & Schmitter, 2003). Developing consultative and participatory models of interaction between government and citizens helps build better policies by searching consensus and knowledge sharing (Chadwick & May 2003). ICTs permit to improve quality of information exchange government-citizens fostering the participation of citizens in decision-making processes and enhancing the development of a deliberative and strong democracy

where the citizen can act as an opinion former. Participation is seen as a means for providing education (Åström, 2001; Päivärinta & Sæbo, 2006).

Sustaining co-production of public services

Public organizations are following a public value management paradigm based on trust, legitimacy and outcomes as performance objectives (O'Flynn, 2007) involving people in networks and partnership centered on respect and shared learning (Stoker, 2006). Citizens, clients and governmental organizations tend to behave as active co-producers of public value (Moore, 1995). New technologies empowering the citizen as responsible partner in public services delivery (Linders, 2012) are leading to a networked coproduction of public value coherently with a community/citizen centered approach where citizens interact with government agencies and contribute to co-production by using electronic processes (Dunleavy et al., 2005; Meijer, 2011). Internet-enabled collective co-production enriches decision making and benefits more people than those directly participate in the process (Bovaird & Loeffler, 2009). Public service organizations have to build and maintain trust-based and long-term relationships sustaining collaboration and cooperation with various stakeholders, users and citizens in order to better ensure efficiency, quality and sustainability of public services (Osborne, 2006). Co-production as source of effective performance and innovation in public services helps both social inclusion and citizen engagement. Public services are complex service systems employing human, organizational and technical elements and processes (Osborne, Radnor, Vidal & Kinder, 2014). Co-production should be considered as cooperative and voluntary relationship (Brudney & England, 1983) in which citizens behave as active co-producers of services they receive in order to create public value for society within community valorizing the social exchange perspective on the relationship between citizen and government (Alford, 2002). Co-production relies on partnership and collaboration leading to construct trust identification-based in government over time. Thereby, co-production does not automatically lead to more trust, and does not address a one-size-fits-all solution for variety of services provided by governments (Fledderus, Brandsen & Honingh, 2014).

Rethinking knowledge oriented and technology-driven public organizations: a framework of analysis

Technology can drive public institutions to adopt a knowledge orientation following a sustainable development for public value creation. Technology helps public organizations as responsive institutions rediscovering the importance of managing information and knowledge by designing and implementing processes in order to sustain transparency and accountability, encouraging citizen participation, promoting an aware and active citizenship for policy contribution, paying attention to collaboration and networking for co-production of public services.

A framework is presented in order to identify how technology helps rethink public organizations as knowledge and information oriented organizations selecting a

different path between fostering openness between transparency and accountability, encouraging participation ranging from information provision to active participation and involving people to act as citizens or co-producers of public services (fig. 1).

Public organizations as information and knowledge oriented organizations interacting with citizens by embracing technology can follow a different path by strengthening openness, transparency, and access to government information, enhancing accountability and active citizenship by encouraging citizen engagement and democratic participation, involving citizens as co-producers of public services.

Public organizations as information oriented organizations tend to restore the relationship with citizens by enabling them only to access to government. Public organizations following a knowledge management approach enable citizens to participate to be included in decision-making processes.

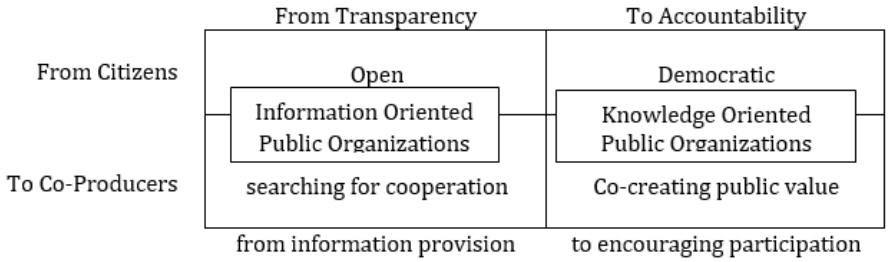

Figure 1. Rethinking public organizations proceeding towards a knowledge approach technology driven

Public organizations behave as open and transparent institutions following an information management orientation by managing technology for modernizing services and processes for ensuring the access of citizens to government data and information.

Democracy implies that citizens, associations, public administration, businesses and other stakeholders have to build a dialogue for better improving knowledge about public policies and problem solving. Democratic public organizations select a knowledge orientation by sustaining openness and transparency providing access to government information through websites, privileging one-way communication and limited consultative processes in order to activate mechanisms of public accountability. Public organizations as information oriented institutions are still in an early stage in understanding the role and contribution of citizen participation for developing policy making as an opportunity for building consensus and knowledge about public choices by involving and engaging citizens.

Public organizations as information oriented organizations encouraging co-production of public services tend to build cooperation and collaboration with citizens following a citizen-centered public management perspective. Public

organizations co-producing public policy and value with citizens tend to develop a knowledge management approach in order to improve internal processes and behave as accountable institutions engaging citizens in the policy process as a result of dialogue and consensus, by developing an active participatory democracy sustaining a two-way communication, involving citizens to contribute and act through e-petitions, e-consultations and social media to gather inputs and receive a feedback on policy design. Public organizations proceeding towards co-production of public services tend to develop a participatory democracy making citizens as responsible partners and active participants in policy choices and design of services.

Public organizations are seeking a path towards a sustainable development by privileging an information or knowledge management approach, promoting openness, transparency, and participation by constructing accountable relationships with citizens. Open government implies to sustain transparency and accountability in order to encourage the involvement of citizens in *res publica* ranging from merely information provision to sustaining active participation. The path driving public organizations to behave and act as sustainable organizations knowledge based and oriented relies more and more on citizens feeling to contribute being continuously prone to gather information and acquire new knowledge in order to give inputs and make better proposals before proceeding towards the construction of policies and initiatives for creating public value in a changing and dynamic social, economic and institutional environment.

Conclusions

Technology opens up new opportunities for public institutions and citizens building public trust by rediscovering role and meaning of their relationships based on shared values and responsibilities. Introducing technology in government permits to design and implement reform for change and innovation within public administration. Technology helps public organizations to rediscover the role of knowledge as a source for building dialogue and partnership for creating public value and driver for leading to sustainable public management. Public organizations as responsive institutions have to use strategically the potential of technology for developing a knowledge management approach for creating and maintaining public value by interacting and searching for a dialogue with citizens to better develop and implement public policies. Sustainable public organizations are managing knowledge developing the potential of new emerging and interactive information and communication technologies in order to redefine and restore the relationship with citizens improving openness in order to strengthen public and civic values by ensuring transparency and promoting accountability, fostering active participation and citizenship, engaging citizens in debating public policies choices.

Sustainability implies that public administration should appear as open, transparent, democratic and accountable institution managing knowledge and engaging citizens to have access to information in order to acquire knowledge and

contribute to sustaining new knowledge creation and sharing for realizing positive outcome for society. The concept of sustainability refers to public organizations continuously proceeding towards change and innovation being ready for a change by developing new channels of communication and implementing new mechanisms and forms of citizen participation by challenging traditional structures and patterns of authority by enabling a two-way, interactive and intense relationship between the community and public organizations for improving governance and management of *res publica*. Technology enables new opportunities for people, citizens, organizations designing and developing communities and government as knowledge-oriented organizations, technology-enabled, accountable and participatory-driven, encouraging citizens to actively participate to be included in democratic policy processes for creating public value.

References

Alford, J. (2002). Defining the Client in the Public Sector: A Social-Exchange Perspective. *Public Administration Review,* 62(3), 337-346.

Al-Sudairy M.A.T., and Vasista, T.G.K. (2012). Fostering Knowledge Management and Citizen Participation via E-Governance for Achieving Sustainable Balanced Development. *IUP Journal of Knowledge Management*, 10(1), 52-64.

Åström, J. (2001). Should be democracy on line be quick, strong or thin? *Communication of the ACM,* 44(1), 49-51.

Bannister, F., and Connolly, R. (2012). Defining E-Governance. *e-Service Journal,* 8(2), 3-25.

Bellamy, C. (2003). Moving to e-government: the role of ICTs in the public sector. In Bovaird, T., and Löffler, E. (Eds.), *Public Management and Governance* (pp.113-125). London: Routledge.

Bingham, L.B., Nabatchi, T., and O' Leary, R. (2005). The new governance: Practices and processes for stakeholder and citizen participation in the work of government. *Public Administration Review,* 65(5), 547-558.

Bloodgood, J.M., and Salisbury, W.D. (2001). Understanding the influence of organizational change strategies on information technology and knowledge management strategies. *Decision Support Systems,* 31(1)*,* 55-69.

Bluementritt, R., and Johnston, R. (1999). Towards a Strategy for Knowledge Management. *Technology Analysis & Strategic Management,* 11(3), 287-300.

Bourgon, J. (2007). Responsive, responsible and respected government: towards a New Public Administration theory. *International Review of Administrative Science*, 73(1), 7-26.

Bovaird, T., and Loeffler, E. (2009). User and Community Co-production of Public Services and Public Policies through Collective Decision-Making: the Role of Emerging Technologies. In Brandsen, T., and Holzer, M. (Eds.), *The Future of Governance* (pp.231-244). Washington D.C.: Fifth Transatlantic Dialogue.

Bratianu, C., and Bolisani, E. (2015). Knowledge strategy: An integrated approach for managing uncertainty. In Garlatti, A., and Massaro, M. (Eds.), *Proceedings of the 16th European Conference on Knowledge Management* (pp.169-177). Reading: Academic Conferences and Publishing International.

Bratianu, C., Vasilache, S., and Jianu, I. (2006). In search of intelligent organizations. *Management & Marketing*, 1(4), 71-82.

Brudney, J.L., and England, R.E. (1983). Toward a Definition of the Coproduction Concept. *Public Administration Review,* 43(1), 59-65.

Bryer, T.A. (2006). Toward a Relevant Agenda for a Responsive Public Administration. *Journal of Public Administration Research and Theory,* 17(3), 479-500.

Castells, M. (2005). The network society: form knowledge to policy. In Castells, M., and Cardoso, G. (Eds.), *The network society: From knowledge to policy* (pp.3-23). Washington, DC: Johns Hopkins Center for Transatlantic Relations.

Chadwick, A., and May, C. (2003). Interaction between States and Citizens in the Age of Internet: e-Government in the United States, Britain, and the European Union. *Governance: An International Journal of Policy, Administration and Institutions,* 16(2), 271-300.

Cong, X., and Pandya, K.V. (2003). Issues of Knowledge Management in the Public Sector. *Electronic Journal of Knowledge Management,* 1(2), 25-33.

Cooper, T.L., Bryer, T.A., and Meek, J.W. (2006). Citizen-centered collaborative public management. *Public Administration Review*, 66(1), 76-88.

Cordella, A., and Bonina, C.M. (2012). A public value perspective for ICT enabled public sector reforms: A theoretical reflection. *Government Information Quarterly,* 29(4), 512-520.

Curtin, D., and Mejier, A.J. (2006). Does transparency strengthen legitimacy?. *Information Polity,* 11(2), 109-122.

Davenport, T.H., and Prusak, L. (1998). *Working Knowledge: How Organizations Manage What They Know*. Boston: Harvard Business School Press.

Dawes, B. (2008). The Evolution and Continuing Challenges of E-Governance. *Public Administration*, 68(1), 86-101.

Denhardt, R.B., and Denhardt, J.V. (2001). The New Public Service: Putting Democracy First. *National Civic Review,* 90(4), 391-400.

Denhardt, R.B., and Denhardt, J.V. (2003). The New Public Service: An Approach to Reform. *International Review of Public Administration*, 8(1), 3-10.

Drucker, P.F. (1988). The Coming of the New Organization. *Harvard Business Review,* 66(1), 45-53.

Dumay, J., Guthrie, J., and Farneti, F. (2010). GRI Sustainability reporting guidelines for public and third sector organization. A critical review. *Public Management Review,* 12(4), 531-548.

Dunleavy, P., Margetts, H., Bastow, S., and Tinkler, J. (2005). New Public Management is Dead-Long Live Digital-Era Governance. *Journal of Public Administration Research and Theory,* 16(3), 467-494.

Edge, K. (2005). Powerful public sector knowledge management: a school district example. *Journal of knowledge management*, 9(6), 42-52.

Estevez, E., and Janowski, T. (2013). Electronic Governance for Sustainable Development – Conceptual framework and state of research. *Government Information Quarterly,* 30(1), 94-109.

Fang, Z. (2002). E-Government in Digital Era: Concept, Practice, and Development. *International Journal of Computer, The internet and Management,* 10(2), 1-22.

Fiorino, D.J. (2010). Sustainability as a Conceptual Focus for Public Administration. *Public Administration Review*, 70(1), 578-588.

Fledderus, J., Brandsen, T., and Honingh, M. (2014). Restoring Trust Through the Co-Production of Public Services: A theoretical elaboration. *Public Management Review,* 16(3), 424-443.

Fox, J. (2007). The uncertain relationship between transparency and accountability. *Development in practice,* 17(4-5), 663-671.

Gates, B.L. (1975). Knowledge management in the technological society: government by indicator. *Public Administration Review,* 35(6), 589-592.

Gil-Garcia, J.R., and Martinez-Moyano, I.J. (2007). Understanding the evolution of e-government: The influence of systems of rules on public sector dynamics. *Government Information Quarterly*, 24(2), 266-290.

Gil-Garcia, J.R., Zhang, J., and Puron-Cid, G. (2016). Conceptualizing smartness in government: An integrative and multi-dimensional view. *Government Information Quarterly,* 33(3), 524-534.

Girard, J.P., and McIntyre, S. (2010). Knowledge management modeling in public sector organizations: a case study. *International Journal of Public Sector Management,* 23(1), 71-77.

Goodsell, C.T. (2006). A New Vision for Public Administration. *Public Administration Review*, 66(4), 623-635.

Gorry, G.A. (2008). Sharing knowledge in the public sector: two case studies. *Knowledge Management Research & Practice*, 6(2), 105-111.

Grimmelikhuijsen, S. (2009). Do transparent government agencies strengthen trust? *Information Polity,* 14(3), 173-186.

Grönlund, Å. (2003). Democracy in an IT-Framed society. *Communications of the AICM,* 44(1), 23-27.

Henry, N.L. (1974). Knowledge Management: A New Concern for Public Administration. *Public Administration Review,* 34(3), 189-194.

Islam, M.S. (2008). Towards a sustainable e-Participation implementation model. *European Journal of ePractice,* 5(10), 1-12.

Jaeger, P.T., and Bertot, J.C. (2010). Transparency and technological change: Ensuring equal and sustained public access to government information. *Government Information Quarterly*, 27(4), 371-376.

Janssen, M., and Estevez, E. (2013). Lean government and platform-based governance - Doing more with less. *Government Information Quarterly,* 30(1), 1-8.

Korac-Kakabadse, A., Korac-Kakabadse, N.K., and Kouzmin, A. (2003). Reinventing the Democratic Governance Project through Information Technology? A Growing Agenda for Debate. *Public Administration Review,* 63(1), 44-60.

La Porte, T., Demchack, C., and De Jong, M. (2002). Democracy and Bureaucracy in the age of the web. Empirical Findings and Theoretical Speculations. *Administration & Society*, 31(1), 411-446.

Larsson, H., and Grönlund, Å. (2014). Future-oriented eGovernance: The sustainability concept in eGov research, and ways forward. *Government Information Quarterly*, 31(1), 137-149.

Larsson, H., and Grönlund, Å. (2016). Sustainable eGovernance? Practices, problems and beliefs about the future in Swedish eGov practice. *Government Information Quarterly*, 33(1), 105-114.

Leon, R.D. (2013). From the Sustainable Organization to Sustainable Knowledge-Based Organization. *Petroleum-Gas University of Ploiesti Bulletin, Technical Series,* 65(2), 63-73.

Levy, M. (2009). Web 2.0 implication on knowledge management. *Journal of Knowledge Management,* 13(1), 120-134.

Liebowitz, J. (2003). A knowledge management implementation plan at a leading US technical government organization: a case study. *Knowledge and Process Management,* 10(4), 254-259.

Linders, D. (2012). From e-government to we-government: Defining a typology for citizen coproduction in the age of social media. *Government Information Quarterly,* 29(4), 446-454.

Massaro, M., Dumay, J., and Garlatti, A. (2015). Public sector knowledge management: a structured literature review. *Journal of Knowledge Management*, 19(3), 530-558.

McDermott, R. (1999). Why Information Technology Inspired but Cannot Deliver Knowledge Management. *California Management Review,* 41(4), 103-117.

McDermott, P. (2010). Building open government. *Government Information Quarterly,* 27(4), 401-413.

Meijer A.J. (2011). Networked Coproduction of Public Services in Virtual Communities: From a Government-Centric to a Community Approach to Public Service Support. *Public Administration Review*, 71(4), 598-607.

Meijer, A. (2013). Understanding the Complex Dynamics of Transparency. *Public Administration Review,* 73(3), 429-439.

Mergel, I. (2011). The use of social media to dissolve knowledge silos in government. In O'Leary, R., Kim, S., and VanSlyke, D. (Eds.), *The future of public administration, public management, and public service around the world. The Minnowbrook perspective* (pp.177-183). Washington DC: Georgetown University Press.

Misra, D.C., Hariharan, R., and Khaneja, M. (2003). E-knowledge management framework for government organizations. *Information systems management,* 20(2), 38-48.

Misuraca, G., Broster, D., and Centeno, C. (2012). Digital Europe 2030: Designing scenarios for ICT in future governance and policy making. *Government Information Quarterly*, 29(1), 121-131.

Moon, J.M. (2003). Can IT help government to restore public trust?: Declining Public Trust and Potential Prospects of IT in the Public Sector. Retrieved from https://pdfs.semanticscholar.org/85b1/66413c11b31221590e15af6fb6d7f9e9c3b5.pdf.

Moore, M.H. (1995). *Creating Public Value. Strategic Management in Government*. Cambridge: Harvard University Press

OECD (2003). *Promise and problems of E-Democracy: Challenges of Online Citizen Engagement*. Paris: Oecd.

O'Flynn, J. (2007). From New Public Management to Public Value: Paradigmatic Change and Managerial Implications. *The Australian Journal of Public Administration*, 66(3), 353-366.

Osborne, S.P. (2006). The New Public Governance? *Public Management Review*, 8(3) 377-387.

Osborne, S.P., Radnor, Z., Vidal, I., and Kinder, T. (2014). A Sustainable Business Model for Public Service Organizations. *Public Management Review*, 16(2), 165-172.

Päivärinta, T., and Sæbø, Ø. (2006). Models of E-Democracy. *Communications of the Association for Information Systems,* 17(1), 818-840.

Panagiotopulos, P., Al-Debei, M.M., Fitzgerald, G., and Elliman, T. (2012). A business model perspective for ICTs in public engagement. *Government Information Quarterly,* 29(2), 192-202.

Pina, V., Torres, L., and Royo, S. (2010). Is E-government leading to more accountable and transparent local governments? An overall view. *Financial Accountability & Management,* 26(1), 3-20.

Qian, H. (2011). Citizen-Centric E-Strategies Toward More Successful E-Governance. *Journal of E-Governance,* 34(3), 119-129.

Reinslau, K. (2006). Knowledge Management in Estonian Regional Administration: Background, Outputs, and Unused Resources. *Information Technology for Development,* 12(1), 63-76.

Riege, A., and Lindsay, N. (2006). Knowledge Management in public sector: stakeholder partnerships in the public policy development. *Journal of Knowledge Management,* 10(3), 24-39.

Sæbø, Ø., Rose, J., and Flak, L.S. (2008). The shape of eParticipation: Characterizing an emerging research area. *Government Information Quarterly,* 25(3), 400-428.

Sanford, C., and Rose, J. (2007). Characterizing eparticipation. *International Journal of Information Management,* 27(6), 406-421.

Saxena, K.B.C. (2005). Towards Excellence in E-Governance. *International Journal of Public Sector Management,* 18(6), 498-513.

Sher, P.J., and Lee, V.C. (2004). Information technology as a facilitator for enhancing dynamic capabilities through knowledge management. *Information & Management,* 41(8), 933-945.

Snellen, I. (2003). E-knowledge Management in Public Administration: An Agenda for the Future. In Wimmer, M. (Ed.), *Knowledge Management in Electronic Government* (pp.70-75). Berlin: Springer-Verlag.

Stoker, G. (2006). Public Value Management. A New Narrative for Networked Governance? *American Review of Public Administration,* 36(1), 41-57.

Suurla, R., Mustajarvi, O., and Markkula, M. (2002). *Developing and Implementing Knowledge Management in the Parliament of Finland*. Helsinki: Oy Edita Ab.

Syed-Ikhsan, S.O.S., and Rowland, F. (2004). Knowledge management in a public organization: a study on the relationship between organizational elements and the performance of knowledge transfer. *Journal of Knowledge Management,* 8(2), 95-111.

Tolbert, C.J., and Mossberger, K. (2006). The Effects of E-Governments on Trust and Confidence in Government. *Public Administration Review,* 66(3), 354-369.

Torres, L., Pina, V., and Royo, S. (2005). E-government and the transformation of public administrations in EU countries: Beyond NPM or just a second wave of reforms? *Online Information Review*, 29(5), 531-553.

Trechsel, A.H., Kies, R., Mendez, R., and Schmitter, P.C. (2003). *Evaluation of the use of new technologies in order to facilitate democracy in Europe*. Geneva: University of Geneva.

Tseng, S.-M. (2008). The effects of information technology on knowledge management systems. *Expert Systems with Applications,* 35(1), 150-160.

UNPAN (2003). Knowledge Management Basics: Concepts, Objects, Principles and Expectations*.* Retrieved from http://unpan1.un.org/intradoc/groups/public/documents/un/unpan031578.pdf.

Vigoda, E. (2002). From responsiveness to Collaboration: Governance, Citizens, and the Next Generation of Public Administration. *Public Administration Review*, 62(5), 527-540.

Welch, E.W., and Hinnant, C.C. (2003). Internet Use, Transparency, and Interactivity Effects on Trust in Government. In *Proceeding of the 36th Hawaii International Conference on System Sciences* (pp.1-7). Big Island, HI, USA: IEEE Xplore.

West, D.M. (2004). E-Government and the Transformation of Service Delivery and Citizen Attitudes. *Public Administration Review*, 64(1), 15-27.

Wiig, K.M. (2002). Knowledge Management in Public Administration. *Journal of Knowledge Management,* 6(3), 183-221.

Wong, W., and Welch, E. (2004). Does E-Government Promote Accountability? A Comparative Analysis of Website Openness and Governmental Accountability, Governance. *An International Journal of Policy Administration and Institutions,* 17(2), 275-297.

Zack, M.H. (1999). Developing a Knowledge Strategy. *California Management Review,* 41(3), 125-145.

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