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Governance Theories and Digitalisation

Four Conjectures for the Mexican Case

Francisco Porras

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Abstract

Governance theories offer a useful approach to policy by highlighting the need for multi-actor, multi-sectoral, and multi-level cooperation to deal with complex problems. Digitalisation, on the other hand, can be a means for managing networks, for helping to maintain the dynamics of meta-governance, and for generating problem-solving strategies based on knowledge exchange. Both seem to imply each other: governance requires tools to foster collaboration through the development of common understandings of problems, for which digitalisation can be instrumental. Effective digitalisation should foster governmental, social, and private steering towards public service, transparency, and the improvement of accountability. Digitalisation appears to require some basic conditions of governance related to fair access to services; beliefs and narratives that promote cooperation; processes of co-creation; and the interchange of information, as well as operative regulatory institutions. Governance and digitalisation together are fundamental for the management of complex policy problems.

The aim of this Discussion Paper is theory advancement and refinement, linking assumptions about governance theories – particularly those resulting from the three waves of governance – to those of mainstream digitalisation literature. It formulates a research agenda to explore the possible mutual repercussions of those literature developments. The Discussion Paper is neither mainly descriptive nor prescriptive, but develops certain implications that stem from some fundamental problems of governance – defined as a process of multi-actor, multi-sector, multi-level cooperation – and digitalisation. The research agenda is presented in the form of conjectures relevant to the Mexican case, related to the roles, functions, and expected results of different actors dealing with governance problems within the context of increased digitalisation. The conjectures advance possible research areas related to the role of digitalisation in meta-governance carried out by governmental actors; in those of network cooperation maintained by academic institutions; in the improvement of problem-solving by non-governmental organisations; and in the possible co-creation of new knowledge through information-based interactions by the media.

Keywords: waves of governance, inter-sectoral cooperation, digitalisation, Mexico

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Abbreviations

COPARMEX	Federation of Employers of Mexico (*Confederación Patronal de la República Mexicana*)
DEG	digital era governance
EGDI	United Nations E-Government Development Index
ENI	National Informational Ecosystem (*Ecosistema Nacional Informático*, Mexico)
FIDE	Trust for Savings in Electrical Energy (*Fideicomiso para el Ahorro de Energía Eléctrica*, Mexico)
GIS	Geographic Information System
ICT	information and communication technology
INEGI	National Institute of Statistics and Geography (*Instituto Nacional de Estadística y Geografía*, Mexico)
ITESM	Monterrey Technological Institute (*Instituto Tecnológico y de Estudios Superiores de Monterrey*)
Morena	*Movimiento de Regeneración Nacional* (Mexico)
NGO	non-governmental organisation
NIPPs	new instruments of public policy
NPM	new public management
OECD	Organisation for Economic Co-operation and Development
OGDI	Open Government Data Index
PAN	*Partido Acción Nacional*, Mexico
PECiTI	*Programa Especial de Ciencia, Tecnología e Innovación 2021-2024*, Mexico
PND	National Development Plan (*Plan Nacional de Desarrollo, Mexico*)
PPP	public-private partnership
PRI	*Partido Revolucionario Institucional*, Mexico
ProNacEs	National Strategic Programmes (*Programas Nacionales Estratégicos*, Mexico)
RSF	*Reporters sans Frontiéres*
SDG	Sustainable Development Goal
SECIHTI	Federal Ministry of Science, Humanities, Technology and Innovation, Mexico
SNA	social network analysis
SNII	National System of Researchers, Mexico
TWG	three waves of governance
UdG	Guadalajara University (*Universidad de Guadalajara*)
UNAM	National Autonomous University of Mexico (*Universidad Nacional Autónoma de México*)

1 Introduction

Governance and digitalisation should be understood as interlinked social processes, as the title of this Discussion Paper suggests. If governance is defined as a process of multi-actor, multi-sectoral, multi-level collaboration to deal with common problems, digitalised information and processes can be seen as tools to empower actors to participate in problem-solving strategies related to complex problems. From the perspective of governance, digitalisation can be construed as a means for generating common understandings of the problems, to promote processes of co-construction of solutions among governmental and non-governmental stakeholders, and to invest in institution-developing to keep conflict at manageable levels (see Alford & Head, 2017).

The paper uses an approach based on the literature of the three waves (Rhodes, 2012), as a way to consider the usual normative expectations of the concept, and to highlight its analytic and synthetic potential. The first wave, developed with the contributions to network governance in public administration in the 1990s, introduced the definition of governance as inter-dependence among different actors in graph-like interactions. For authors like Rhodes (1997), governance was defined as inter-organisational, self-organised networks that compete for resources in public-policy arenas. According to this approach, states have been hollowed out through the implementation of resource exchange through public-private and, sometimes, social networks of non-governmental actors, that induce governments to redesign their policy contents and interaction patterns.

The second wave is usually understood to have begun in the current century, with publications such as Pierre and Peters (2000). In these, it was argued that the assumed crisis of the hollowing out of the state, a supposed product of the increased number and importance of networks, was actually an adaptation process propelled by the state itself. The focus of this wave is usually meta-governance, that is, the capacity of governmental actors and institutions to steer civil society and markets towards the completion of societal objectives.

The third wave is a contemporary development to the second one, but one which might have more lasting implications for the way governance is understood. Trying to escape the contradictions and tensions between the structural interdependence represented by inter-organisational networks (1st wave), and the institutional challenges of governmental effectiveness in steering and capacity-building (2nd wave), third wave publications have approached governance as a knowledge-creation process, emphasising specific actors, meanings, and narratives (Rhodes, 2018).

Authors of the first wave use information mostly as a tool for network management (for example, Kickert, Klijn, & Koppenjan, 1997); contributions to the second wave presuppose that information should facilitate steering towards societal objectives (that is, meta-governance) and the creation of collaboration capacities (for instance, Torfing, 2016); and third wave analysts understand it as the central resource for maintaining inter-organisational networks, being both the main input and output of governance processes. First and second wave contributions appear to be more concerned with understanding *how* the system works; while third wave ones try to *use* knowledge-creation *to solve* specific problems in particular contexts (for example, Rigolot, 2020).

The different uses of information in governance literature, on the one hand, and the challenges related to complex policy problems – particularly sustainable development – on the other, indicate the potential of digitalisation for fostering cooperation in problem-solving in Mexico. In recent years, the country has improved its performance in promoting digitalisation, particularly through Open Data strategies. The country is recognised by the Organisation for Economic Co-operation and Development (OECD, 2016) as a regional leader in terms of the quantity and quality of information available for in-depth analysis in a great array of subjects. However,

substantial opportunities remain in areas related to the reinforcement of the policy framework of Open Government; the improvement of the institutional governance structure to ensure support from the relevant stakeholders; the need to develop a truly nationwide Open Data strategy; the convenience to foster the alignment of actors with the federal government's vision for Open Data; the creation and engagement with different communities of Open Data prosumers; and the demand for business-oriented data disclosure incentives (OECD, 2016). All these – and the fact that the country ranks as average or below-average (74th out of 163) on Sustainable Development Goals (SDGs) progress, with only two SDGs which are "on track or maintaining SDG achievement", and the rest "moderately improving", "stagnating" or "decreasing" (United Nations, 2022) – suggest an agenda of digitalisation improvement related to sustainable development.

In 2003, Mexico ranked 30th out of 139 countries in the United Nations E-Government Development Index (EGDI); and 11th out of 193 in the E-Participation Index. By 2022, these relatively good positions had deteriorated to the 62nd and 32nd places, respectively (UN-DESA [United Nations, Department of Economic and Social Affairs], 2022b). However, the country has managed to stay within the "Very High" group in the Open Government Data Index (OGDI) with a ranking of 0.9296 points (UN-DESA, 2022a, p. 269), indicating Open Data policies implemented with a certain degree of consistency. The OECD (2019) ranks the country 7th in the Organisation, after Korea, France, Ireland, Japan, Canada, and Australia in terms of data availability, accessibility, and reusability.

The OECD (2020, p. 16) assumes that digitalisation is a factor of "co-creation of public value" that fosters "government accountability, but also public sector performance and social and economic innovations that deliver convenient new services and promote well-being". Mexican authorities have a similar understanding of digitalisation, establishing a narrative of "maximum publicity" in which the greater the number of users of information, the highest possible benefits (INEGI [Instituto Nacional de Estadística y Geografía], 2017, p. 4). A national survey suggests that 66.4 per cent of inhabitants of cities have used Open Data, basically to find the requisites to obtain official documents, such as passports or birth certificates, and to gain access to public health services (INEGI, 2017, p. 14). A more recent survey put that figure at 42.3 per cent, if defined as "interaction with government using internet" (INEGI, 2021a, p. 4). At national level, the country has a 60.6 per cent internet penetration, but mostly using mobile phone technologies. Only 32.9 per cent of households own a laptop, 16.8 per cent tablets, and 14.3 per cent desktops (UNDP [United Nations Development Programme], 2022, p.13). Most internet users are young, with the largest age-group between 25 and 34 years old. 90 per cent of persons in the 12 to 25 age bracket use the internet (UNDP, 2022, p. 15). According to the National Institute of Statistics and Geography (*Instituto Nacional de Estadística y Geografía*, INEGI) internet use in 2023 was actually 81.2 per cent of the population, amounting to 97 million people (INEGI, 2024).

These figures suggest both the limitations and strengths of the country in terms of the potential of digitalisation to foster governance. On the one hand, access and quality of internet services pose challenges to Open Data strategies. On the other, access by itself does not guarantee common understandings of complex problems but, rather, may also encourage the opposite. Analysis, creation of quality content, the need for reflection on it, and coordinated action as a result require individual and social capabilities, practices, and institutions that are not assured in all contexts (Roslyn Kratochvil-Moore, personal communication, 6 September 2022). As Vosoughi, Roy, and Aral (2018, p. 1146) argue, the empirical analysis of the quality of information in social networks suggests that

> falsehood diffuse[s] significantly farther, faster, deeper, and more broadly than the truth in all categories of information, and the effects [are] more pronounced for false political news than for false news about terrorism, natural disasters, science, urban legends, or financial information.

This challenges governance conditions, as co-producing common, similar, or consonant definitions of policy problems becomes more arduous and, as a result, multi-actor, multi-sector, multi-level action is less likely. Digitalisation for governance cannot be defined simply in terms of the massive diffusion of and access to information, even if it is considered to be of good quality.

This Discussion Paper addresses these issues, elaborating on the different approaches and definitions of governance, settling on the three waves of governance (TWG) framework to highlight the structural, institutional, and narrative-related problems presupposed in the literature. From there, it proposes four conjectures related to processes of digitalisation relevant to the Mexican case. It formulates a research agenda to explore the possible mutual repercussions of governance literature, as presented in the TWG narrative, and some of the mainstream definitions/assumptions on digitalisation, defined as the societal processes that result from internet-based information production, systematisation, and exchange.

Being a theoretical Discussion Paper, this paper relies on literature analysis focusing on the assumptions, proposals, and main implications of the different authors considered, according to the basic typology of Rhodes (2012). The paper also discusses official reports related to the conditions of governance and digitalisation in Mexico. Four interviews with key informants were conducted between 18 August and 9 September 2022 and incorporated into Section 3.

2 Governance and digitalisation

As mentioned, this Discussion Paper draws heavily on governance theories to understand policy approaches to complex problems. It focuses on the fundamental problems in governance understandings and their “waves”, as Rhodes (2012) calls the distinct generations of publications based on common trends of theoretical, methodological, and empirical assumptions. The waves, the argument goes, have evolved from definitions of governance as networks, with the corresponding focus on the structure of interdependencies and the *loci* of power within them, to the incorporation of the discussion of the technical, institutional, and political challenges of multi-actor, multi-sectoral, and multi-level decision-making. The more recent developments, however, have approached governance as a process of the co-creation of new knowledge, which is construed as a solution to common and specific problems. Consequently, particular actors and their contexts, narratives and meanings have become more relevant to understanding developments in governance (Rhodes, 2018), implying that dialogic rationality should play a greater role in analysis and implementation (see Hoppe, 2002).

The conceptual and empirical tools of the three waves are relevant to complex problems, such as sustainable development. Networks, institutional capabilities, and knowledge creation to solve common problems are central to the advancement of the Agenda 2030 as a whole, and to each one of the SDGs – not only number 17: Revitalize the Global Partnership for Sustainable Development. These three approaches to governance share a focus on collaboration, which is a “recommendation” on “how public actors can produce solutions and make a real impact in and through the mobilisation of societal actors” (Ansell, Sørensen, & Torfing, 2022, p. 4). This strategy assumes that “knowledge, resources, and governance capacities are widely distributed across an array of government agencies, private enterprises, civil society organisations, political activists, local communities, national development agencies, and international NGOs” (Ansell, Sørensen, & Torfing, 2022, pp. 4).

This is one of the founding assumptions of governance literature: it is impossible for a single actor to secure all the knowledge and information, technical and professional expertise, financial resources, legitimacy, and trust necessary to solve a societal problem or to create a new social opportunity (Kooiman, 2000). The main difficulty is the built-in mismatch between the resources

actually commanded by governmental actors and the ones needed to deal with complex problems (Kooiman, 1993). Most of these resources are owned and exercised by organised society and the markets, and include the values, decision-making criteria, knowledge of specific situations and contexts, acceptance to the rule of law, financial resources, access to credit in private institutions, entrepreneurship, and – most importantly – trust in persons and institutions, which make social capital and economic growth possible. For governance literature and the collaborative governance approach, formal government – although central – is not enough to secure the balance between economic growth, environmental care, and social inclusion implied in complex problems. Given that most societal actors are interdependent among them, governments, organised society, and markets must cooperate to achieve their objectives. Expressed in normative terms, we should cooperate because we depend on each other to confront our shared problems (Sørensen & Torfing, 2007; Porras, 2019).

Digitalisation can play a central role in governance. Information of high quality has always been recognised as a basis for trust-building and sustained cooperative interactions, to the point that its management is one of the main tools for network-steering (Kickert et al., 1997). Digitalisation may be instrumental too for dealing with the substantial complexity that arises from incompatible perceptions and contested knowledge or evidence (Klijn & Koppenjan, 2016). Increasing its quality helps to diminish inequalities that hinder effective coordination, the democratisation of rules and procedures, and accountability. As the European Parliament, Council, and European Commission (2023, p. 3) argue, “Technology should be used to unite, and not divide, people. The digital transformation should contribute to a fair and inclusive society and economy”. According to the principles established by this Declaration of Digital Rights, solidarity and inclusiveness are linked to effective connectivity, education, training, and skills, the increased quality of digital public services, and a fair digital environment (European Parliament, Council, and European Commission, 2023). Governance literature recognises the complexity of achieving that kind of environment, proposing that they are a combination of structural public goods (for example, the democratic dispersion of power combined with robust social capital and, thus, citizens’ participation in public decision-making) with specific decisions of stakeholders (Skelcher, Klijn, Kübler, Sørensen, & Sullivan, 2011). Or as Torfing (2016) proposes, a *hands-off* meta-governance (that is, institutions and implied rules) should be mixed with *hands-on* meta-governance (that is, specific problem-solving interventions).

Open Data might also facilitate public-private cooperation, shaping the discussion of policy or practical solutions of governmental and non-governmental actors working together. Zabaleta (2012), for example, argues that in several infrastructure megaprojects in Mexico that have generated considerable neighbourhood opposition, broader city-wide information could have played a role in increasing policy approval. By administering flows of information, stakeholders “try to convince the others, based on evidence, over their causal vision on the public problem to deal with. For generating evidence, it is fundamental to produce adequate and sufficient information that enables defensible arguments” (Zabaleta, 2012, p. 144). Thus, “the production, distribution, and refutation” of information is at the centre of network management. From the standpoint of Zabaleta (2012), digitalisation in governance processes consists of greater access to information, as an amplifier of beliefs and narratives. By substantially raising the potential number of decision-makers to use it, digitalised information might help to co-generate a common definition of the problems. Stakeholders should agree on a departing point by defining the problem to consider; but also admit that the solution should be the result of a process of co-creation of new knowledge that is shaped by their initial decisions. Solutions are usually contained within our understandings of the problems (Rittel & Webber, 1973).

2.1 Commonalities in the literature

As it is well known, governance literature is complex to the point of being better described as a tree of sub-literatures, a sort of "climber plant" (López, 2015) for its apparent ability to grow sprouts that expand over widely different topics. Among these, good governance, local governance, global governance, network governance, corporate governance, and policy networks are especially noticeable from a theoretical standpoint, although some of its problems and approaches can also be found in the literature of sustainable development, the Agenda 2030, and its SDGs.[1] As can be expected from a term with high normative and prescriptive aspirations, this variety of usages has produced considerable differences in definitions and conceptual frameworks, as well as hermeneutical approaches.

While it is not feasible, nor desirable, to search for an "essence" of governance, it *is* possible alternatively to suggest a certain "family resemblance" in social realities to which the term is applied. This line of reasoning comes from Wittgenstein (1986, pp. 31-32), who proposes an intuitive way of recognising members of the same group. Establishing a logically formal definition, including a notion of its extension – that is, the number of individuals that may be contained within the term – is not strictly necessary. The idea is to abandon the "craving for generality" so common in initial understandings of governance (Bevir & Rhodes, 2006, p. 63) and to focus on the similarities that may be found regardless of the different contexts. According to Graña (2005, p. 7), the family resemblance of governance includes practices based on a *wider* inclusion of actors. For others, the resemblance is the porous division between the state and society, which is movable and "blurred". What in the past was thought to belong exclusively to public institutions may be, in the present, assigned to social or private actors, and vice versa (Bevir & Rhodes, 2006, p. 65).

For Vicher (2014), the family resemblance is the relation to acts of government in the etymological sense. Both *gubernantia* (act of government) and *gubernatio* (government) come from *gubernator*, who is not the *praefectus* (public official) but the pilot of the ship, the helmsman. Governance is the process of imprinting direction: we all govern because we all reproduce social systems. Governance is the emergent pattern of societal interactions (Kooiman, 1993). Vicher (2014) contends that this is the central problem of literature; and that the somewhat contradictory expectation of a government less authoritative and – at the same time – more efficient, based on coordination and soft power, is a quite recent meaning assigned to the term.

Irrespective of the family resemblance argued, this approximation to literature suggests a series of problems that are implied in the various different definitions. They are the structural and unresolved issues that relate to the central problems of social sciences. Their consideration by the academic and professional disciplines helps to "make sense of the life-world" and offer solutions to our "wicked" problems (Paquet, 2009, p. xi). Governance theories have been

1 This is only an initial and indicative list of sub-literatures or families of contributions on governance. The first attempts to organise literature typically mentioned: a) the minimal state literature, b) corporate governance, c) new public management, d) good governance, e) governance as a socio-cybernetic system, and f) governance as self-organising networks (Rhodes, 1997, p. 46). A more recent exploration based on a sizable number of publications proposes the following thematic fields: a) theories and research methods of governance, b) corporate governance, c) healthcare governance, d) non-profit governance, e) public sector governance, f) education/higher education governance, g) urban governance, h) energy (sector) governance, i) environmental governance, j) financial/ fiscal/market governance, k) central banks and governance, l) development and governance, m) human rights and governance, and n) alternative governance (including some approaches that in this Discussion Paper are classified as part of the third wave, such as social enterprise governance, governance through social learning, and governance through epistemic communities/creative commons) (Horvath, 2017, p. 10).

innovative to the extent that they have questioned traditional approximations to these problems, through thought-provoking intuitions, qualitative changes in heuristic criteria, and questions that link variables in new ways.

According to Björk and Johansson (2001, p. 14), Kjær (2004, pp. 10-11), Kersbergen and Waarden (2004, p. 152), Löffler (2009, pp. 217-218), Palumbo (2015, p. xvi), Peters (2012, p. 22), Pierre and Peters (2005, p. 3), and Stoker (1998, p. 18), the various different theoretical frameworks have in common the following issues:

a) The new roles assigned to organised society and the steering capabilities of the state.

b) The role of power in public-social-private cooperation arrangements, underlying the political nature of governance.

c) The (greater) relevance of intersectoral coordination, as a recognition of the pluri-centric and interdependent character of contemporary societies.

d) The tensions between the normative goal of multi-actor, multi-sectoral, and multi-level cooperation, and the practical difficulties to agree on common targets and the means to achieve them.

e) The ambiguity generated by “wicked” problems, given the reconsideration of the traditional conceptual and functional division lines between governmental, social, and market actors and institutions.

f) The new instruments of public policy (NIPPs), based on information-sharing rather than law enforcement, command-and-control, and coercion.

g) The assumption that, in a context of increased complexity, the shift to self-organised inter-organisational networks makes government more effective and efficient.

h) The greater relevance of processes over goals.

These issues have different theoretical depths and include practical frictions that are not exclusive to governance but also fairly common in policy implementation and evaluation. However, they suggest a fundamental issue: the bounded/limited steering capabilities of the state in contexts where non-governmental actors hold relevant resources and are able to self-organise in different sectors and at different levels. The fundamental problems of governance are related to the new collective-steering required to solve complex problems, which implies the need for greater flexibility and adaptation on the part of public institutions. This also presupposes higher levels of self-organisation and social capital (Porras, 2019, p. 60). From this standpoint, the fundamental problems of governance are:

a) The increased self-organisation among a high number of relevant actors, particularly at micro/community level (Naím, 2014; Leeson, 2014).

b) The challenges of multi- and inter-sectoral cooperation, as a result of a political culture and institutional design that recognises greater interdependencies than in the past (Paquet, 2013).

c) The need for more sophisticated and interlinked forms of accountability, including political, administrative, personal, professional, output-based, and deliberative accountability, among governmental and non-governmental actors (UN-DESA, 2005, pp. 17-19).

d) Effective steering, in the sense of meta-governance, that is, the capacity to converge, or to produce consonance of public-social-private networks over societal objectives (Torfing & Triantafillou, 2011).

e) Transdisciplinarity, understood as the combination of interdisciplinarity with the effective inclusion of local actors' knowledge and other resources, in spite of their possible lack of academic or professional credentials (Rigolot, 2020).

These problems can be examined from different levels of analysis. However, for a closer view of contexts, the approach of Horvath (2017, pp. 4-6, 10) might be more useful. In one of the most notable cases of a recent literature review assisted by artificial intelligence, she examined 9,067 journal articles in the fields of International Relations, Political Science, Management Studies, Business Studies, Economics, International Law, Public Policy and Administration, Development Studies, and Higher Education Studies. In it, she argued that the literature has six domains that constitute the critical contribution of governance theories, methods, and practices. Interestingly, she avoids the issue of the actual definition of governance, which she assumes should be the result of the analysis rather than the initial presupposition of research. According to her, the fundamental emergent problems of literature are:

a) *Who are the actors in governance?* Horvath (2017, p. 15) argues that, as the literature has grown, so too have the number and kinds of actors. However, state or governmental actors continue to be central in most governance processes. In governance arrangements, actors behave "as bounded groups of individuals and/or organisations that act either in synchrony to reach shared goals/interests (for instance, as in network theories, where state-civil-corporate actors are said to cooperate in non-hierarchical/partnership/autonomous relations), or as competing and self-interested groups of actors situated at different levels within organisational and national structures and across the globe".

b) *What practices/activities are associated with governance?* The author proposes defining these as an umbrella of "extremely varied activities" that include "policy making, steering, planning, funding, provision, control, decentralisation, representation, cooperation, coordination, participation, integration" and so on (Horvath, 2017, p. 15). However, the classical first wave dichotomy between hierarches and networks has not been sufficiently analysed and probed. As a result, there is a poor understanding of the interfaces between government and governance, including traditional instruments and NIPPs (Horvath, 2017, pp. 15-17).

c) *What are the techniques/methods of governance?* Horvath (2017, pp. 17-19) argues the importance of defining governance as a set of diverse techniques or methods that can complement or compete among them, recognising their composite nature. She also invites us to question if fashionable practices are equivalent to governance (for example, assuming that governance is only possible by innovation, as opposed to change or evolution; or that any kind of networking that includes non-governmental actors is, by that fact, a governance network).

d) *What is the scope of governance?* Governance aims at:

> setting direction; exercising power and authority; strengthening democratic systems; instituting good, equitable and sound systems; resolving conflicts; achieving and maintaining economic sustainability and long-term financial viability; safeguarding assets; achieving organisational and institutional change; empowering communities; steering health and education systems; promoting fairness, transparency and accountability; managing risk; providing public goods; protecting stakeholder interests; improving efficiency and productivity; getting value for money; capacity building; creating order and legitimacy; course correction in response to unanticipated events; curbing executive excesses; preventing future institutional, systemic and moral failures. (Horvath, 2017, pp. 19-20)

e) *On what values is governance based?* Governance literature is especially rich and complex regarding values that guide – or should guide – cooperation. Even if it is not the only one,

democracy plays an important role that is usually assumed normatively without discussion. Here we have a fundamental problem that requires further theoretical and empirical research (Horvath, 2017, pp. 21-24).

f) *What are the outcomes of governance?* Considering what are the results of implementing NIPPs is another emergent problem. According to literature, governance might result in:

> strengthening democratic systems; resolving conflicts; achieving economic sustainability; achieving organisational and institutional change; empowering communities; providing public goods; improving efficiency and productivity; capacity building; creating order and legitimacy; course correction in response to unanticipated events; curbing executive excesses; preventing future institutional, systemic and moral failures. (Horvath, 2017, p. 24)

The assumption is, of course, that inter-sectoral cooperation is at the root of possible improvements in dealing with "wicked" problems.

These fundamental problems/dimensions of governance offer a guide for case analyses that, at the same time, connects with the systemic-level problems proposed by the authors mentioned above.

2.2 The three waves of governance

Either as systemic understandings of structural conditions, or the closer-to-empirical-evidence commonalities, the fundamental problems approach to governance offers a tool to deal with the complexity of literature. The narrative of the waves of governance attempts to do the same, presenting the three-decade-old research in three sub-groups, according to their main theoretical/methodological priorities. However, the three waves of governance should not be presented as a competing framework to that of the fundamental problems or commonalities of Horvath (2017). On the contrary, many of the similitudes and differences argued in the waves are actually based on the characterisation of different actors, practices, techniques, scopes, values, and outcomes, mentioned above.

The waves are numbered matching the approximate periods in which their key publications where made: the first during the 1990s; the second and the third simultaneously, from the beginning of this century until today, though the latter has gained momentum more recently. They should not be interpreted as mutually exclusive; similarly, one should not assume that the more recent waves have eclipsed the previous ones, for important contributions continue to be made using the three approaches. Researchers must also be wary about the usual assumption that the newest development is the best. It is not possible to suggest that the more recent wave systematically amends the possible weaknesses of previous theory, practice, or methodology – as if governance literature could accommodate, in a snowball manner, the useful and consistent proposals, discarding the ones that are not. On the other hand, it is clear that the idea of successive waves seems to imply a certain linear movement that calls for the improvement of literature, recognising the need for new complementary knowledge. In that sense, the waves assume that networks need meta-governance, and that meta-governance requires narratives, problem-solving, and knowledge-creation as will be explained bellow. The argument of the three waves does not propose that we get rid of the first two but, rather, that we need more comprehensive methodologies that consider the fundamental problems of the three.

The first wave is a "modernist-empiricist description of the public sector change" (Rhodes, 2012, p. 34) resulting from the fragmentation into networks. It argues that governments have changed because of the increased number and importance of inter-organisational self-organising networks, producing a modification in the conditions and processes of governing. Networks also

offer an opportunity to consolidate citizens' participation in policy, and to "work collaboratively" (Rhodes, 2012, p. 35). The first wave assumes that the shift from government to governance signals a structural change resulting from neoliberalism. Comparative studies are relevant as a way to chart diverse configurations of networks (Stoker, 2006); local governance and new localism are part of the research agenda of the first wave (see Stoker, 2005).

Despite the fact that these developments convey the idea of a more or less consolidated "hollowing out of the state" (see Rhodes, 1996, 1997), analyses carried out in different contexts give a more complicated image, in which networks are only one component, among others, of a wider system of interdependencies (see, for example, Aguilar, 2006, on the Mexican case). Criticisms showed that networks do not substantially threaten the state, given its considerable capabilities to adapt (Pierre & Peters, 2000), and that networks may actually grow "at the shadow of hierarchy" (Sørensen & Torfing, 2007), making governance and government mutually dependent.

Davies (2011), on the other hand, argues that network governance privatises policymaking by the incorporation of citizens defined as political clients; resulting in austerity policies that weaken the governmental responsibilities in dealing with the public agenda (Davies & Blanco, 2017). The governance narratives in Mexico conceal the fact that the most influential networks are not the public-social ones – typically, the hybrid planning and evaluation councils or committees assisting local governments – but rather the public-private partnerships, which have played a central role in housing policies, urban development, and gentrification, empowering market dynamics over social inclusion and just access to the habitat (Guarneros-Meza, 2007).

Additionally, capture by powerful interests, even in basic public services, is frequent. Networks usually follow neo-corporatist dynamics with political parties or municipalities, and clientelism is widespread, exchanging political support for participation in social programmes or for access to potable water, street paving, or sanitation infrastructure (Montambeault, 2009, 2011). In the case of water for human consumption, it is common for powerful businessmen elites or traditional community self-government organisations to take control of its supply and distribution (Cadena & Salgado, 2017). In the end, governance networks appear to be indistinguishable from policy networks, and this distinction can only be made through the theoretical lenses by which they are analysed and the normative expectations over their democratic nature (Cadena & Morales, 2021). Nevertheless, literature recognises that the democratisation of governance networks is still an important challenge that needs to be addressed, mainly through considering the influence of contexts over networks' performance. Skelcher et al. (2011) propose that a democratic milieu that disperses power, combined with high levels of social capital, is conductive to lead to cooperative interactions between networks and governmental hierarchies.

These elements gave rise to the second wave of literature. Rhodes (2012) argues that Pierre and Peters' (2000) emphasis on the state's rethinking of its policy mix, preferring in some policy sectors to use "negotiation, diplomacy, and more informal modes of steering" (Rhodes, 2012, p. 37) instead of the traditional hierarchical command and control, has put the problem of governmental coordination back in central stage, but using more indirect and softer approaches. The second wave is concerned with meta-governance, meaning by this, its capabilities to steer different actors and stakeholders to the completion of societal objectives. In its more abstract sense, meta-governance implies cognitive contents, values, and rules of the political system that foster coordination; to be more concrete, meta-governance is concerned with the practical tensions among governance networks and the challenges related to unblocking agreement through specific interventions. The former, called *hands-off* meta-governance, is the general context of interactions and interdependencies; the latter, *hands-on* meta-governance, is defined by the particular decisions and styles of government (Sørensen & Torfing, 2007).

Meta-governance requires one to recognise, maintain, and promote beliefs and values that, working as "action principles", may help to articulate the different modes of interaction

(hierarchies, markets, and networks) to converge over common purposes (Palumbo, 2015, pp. 162-164). The meta-governance ideal would be to generate

> highly functional system[s] [in which] hierarchy […] balance[s] the welfare, freedoms and responsibilities of the subsystems and total system – there must be enough central control to achieve coordination toward the large-system goal, and enough autonomy to keep all sub-systems flourishing, functioning, and self-organising. (Meadows, 2008, p. 85)

This would usually require information and other resources to be exchanged in a way that boosts reaching goals and punishes behaviour that hinders this (Koening, 2018, p. 16-20).

For Jessop (2003, p. 110), meta-governance implies a) the capacity to evaluate periodically whether the objectives shared by governmental and non-governmental stakeholders are reached, according to the mutually-defined minimum levels that are considered acceptable; b) the development of a repertoire of policy answers, which he calls the Law of Requisite Variety, that allows flexibility, adaptation to changing contexts, and the consideration of different agreement options; and, c) – crucially – the shared belief that, in spite of previous failure, governance is possible. This "self-reflexive irony" requires network participants to recognise "the likelihood of failure but proceed as if success were possible".

In this sense, the discussion on meta-governance points at the challenges of coordination among governance networks, a sort of "governance of governance" (Torfing & Triantafillou, 2011), and the problems related to the accumulation of successful micro-experiences and their incorporation into the political, economic, and social systems as a whole. Meta-governance requires the maintenance of incentives for the stakeholders' participation in policy decisions; the definition of a general objective for policy interactions; the construction of rules that ensure democratic deliberation and the management of conflict; and the establishment of mechanisms to follow the results and outcomes (Torfing & Triantafillou, 2011, p. 10).

This is not feasible in all contexts; but it should be seriously considered, given that meta-governance is a central problem of sustainable development. In effect, the 17 Sustainable Development Goals are usually understood to be an interlinked and "integrated" set of problems (United Nations, 2015, p. 2), which cannot be individually divided (Graute, 2016, p. 1935). Prioritising might be obstructed by assuming that sustainable development objectives are equally important, given their assumed deep-rooted interdependency. Lempert (2017) argues, on the other hand, that the Agenda 2030 approach could disrupt processes of wider recognition and defence of human rights, as well as the standards of good professional practice. Evidence suggests that the lack of a clear structure in the SDGs facilitates governments in achieving those closer to their interests and policy objectives, while ignoring the rest (Nordbeck & Steurer, 2016). The meta-governance discussion deals with the problem of governmental and non-governmental steering towards SDGs objectives.

Finally, the third wave focuses on persons, shifting "from institutions to meanings in action" (Rhodes, 2012, p. 39). It emphasises "the actors' own interpretations of their *beliefs* and *practices*" that are "informed by *traditions* and expressed in *stories*. It explores the diverse ways in which situated agents are changing the boundaries of State and civil society by constantly remaking practices as their beliefs change in response to *dilemmas*. It reveals the *contingency* and contestability of narratives. It highlights a more diverse view of state authority and its exercise" (Rhodes, 2012, p. 39; italics in the original). The third wave promotes "interpretive approaches" that assume that

> we cannot explain network and meta-governance adequately by using allegedly objective social processes or locations. Rather, we explain governance by using narratives that relate actions to the beliefs and desires that produce them. (Rhodes, 2012, p. 40)

Interpretive approaches offer

> interpretations of interpretations. They concentrate on meanings, beliefs and discourses, as opposed to laws and rules, correlations between social categories or deductive models. (Rhodes, 2018, p. 3)

Consequently, beliefs are considered "the basic unit of analysis" because they are "the interpretations of individuals of their world and their surroundings" (Rhodes, 2018, p. 5). These interpretations produce narratives, that is, stories that relate such beliefs to actions (Rhodes, 2018, p. 5). From this standpoint, governance interactions are assumed to be mostly the result of the actors' beliefs and narratives; rather than the mere product of the structure of interdependencies in networks, or the rules and steering tools that foster agreement over shared goals.

Community studies have traditionally pointed at the importance of maintaining learning processes, similar to those present in peacekeeping and peace-building operations, based on the recognition of actors that are trusted by participants. This is a requirement to generate "commons among the different" by communicating effectively and exchanging information (Alatorre, Merçon, Rosell, Bueno, Ayala, and Lobato, 2016, pp. 37-39).

This problem signals the importance not only of information, digitalised or otherwise, but also the complexities related to the epistemic foundations of democracy and cooperation. By bringing people back to networks, third wave authors emphasise the possibility of substantive complexity. This arises when a single fact generates multiple perceptions in an environment of contested knowledge (Klijn & Koppenjan, 2016), or when there is insufficient and controversial information (Klijn, 2010). Even in the extreme case of survivors of life-threatening disasters who have suffered the same tribulations, for example, parochial and xenophobic attitudes can coexist along with cooperative ones (Grimalda, 2020). Experiencing the same events does not secure similar understandings of the problem; on the contrary, it is frequent to find incompatible definitions of the type, causes, and possible solutions of public problems, hindering cooperation. Third wave authors are painfully aware that the absence of relevant and high-quality information, and compatible interpretations of it, is an obstacle to maintaining governance dynamics.

Table 1 offers a summary of the main arguments discussed in this section, proposing a series of hypotheses on how to understand the different components of governance definitions. It uses Horvath's (2017) commonalities and suggests how they can be addressed according to the attributes of the three waves of Rhodes (2012). Table 1 also uses the distinction of Zurbriggen and Juri (2021), proposing that the more recent waves have shifted from an analytical approach concerned with a systemic understanding of reality, to a synthetical one, focused more on particular persons and narratives, local actors' empowerment, and a problem-solving attitude. Table 1 can also be read as a matrix that spells out the different research issues that arise from considering the TWG from a cross-sectional perspective – that of the commonalities in the literature. Thus, actors, practices, methods, scopes, values, and outcomes in governance are analysed according to the structure of interdependencies that maintain public-social-private networks (1st wave); the institutions, rules of the game, and capacities that maintain collaboration (2nd wave); and the beliefs and narratives that foster cooperation, problem-solving, and new knowledge creation (3rd wave). The assumption is that, for example, in order to analyse actors from the perspective of the three waves, it would be necessary to study the structure of direct and indirect interactions (possibly using social network analysis); public-social-private coalitions, their steering capacities and the use of NIPPs to achieve common objectives; and the beliefs and narratives developed by the specific members of networks, as well as paying attention to knowledge creation processes. The approach is not one of "either/or" but rather one that aims at complementarity.

Table 1: Fundamental problems of the three waves of governance

Variables	First wave	Second wave	Third wave
Actors	Nodes in graphs, particularly the ones maintaining direct exchanges with other members of the network, or with intermediation roles connecting different sections of the graph (social network analysis, SNA)	Leaders who imprint direction, mostly governmental actors using new instruments of public policy (NIPPs), or coalitions maintained by governmental and non-governmental stakeholders	Specific persons in networks/local actors
Practices	Resource exchange	Steering	New-knowledge creation
Methods	Network management, SNA	Rules (*hands-off* meta-governance) and direct intervention (*hands-on* meta-governance)	Open Data and processes/narrative creation
Scopes	Structure of interdependencies	Societal goals, as represented by democratic government policies	Problem-solving, regardless of its public, social, private, or mixed nature
Values	Inter-organisational self-organisation	Convergence/ consonance	Empowerment of individual actors
Outcomes	Sustainability	Consistency/feedback loops	Legitimacy
Conjectures on the main roles played by digitalisation in governance	Mostly analytical roles, focused on understanding how the system works (mapping interdependencies)	Mostly analytical roles, focused on steering (mapping capacities)	Mostly synthetical roles, focused on changing reality by problem-solving (mapping empowerment)

Source: Author, based on Horvath (2017), Rhodes (2012) and Zurbriggen and Juri (2021)

2.3 Linkages of governance and digitalisation

It is important to note that the approach used in this Discussion Paper – that of the implications or linkages between governance, defined as a process of multi-actor, multi-sector, multi-level cooperation and digitalisation – is mostly absent in the TWG literature, at least in an explicit way. Still, there are important overlapping areas shared by those pieces of literatures, many times with similar assumptions on the nature of knowledge/information; processes of social change that result from digital technologies; and steering/governance mechanisms.

2.3.1 The role of knowledge/information in governance

Knowledge/information is a central factor of governance. Traditionally, it has been treated as a resource to produce some degree of agreement between governmental and non-governmental

stakeholders. First wave authors would typically recommend how to control its flows to foster democratic openness in data and processes, given the tendency of networks towards closedness and to be captured by their members' interests (Rhodes, 1997). For Shaap and Twist (1997, pp. 69-72) those recommendations should focus on strategies to deal with individual veto power, the actors' frames of reference, and the creation of a common "social reality" or "network culture" based on fluid communication. The main assumption behind those areas of concern is that governance networks introduce new non-elected actors in policy decision-making processes, which could modify the usual answerability chains of democratic accountability. Kickert and Koppenjan (1997) point to the need to influence policy, interrelationships, values, norms and, most importantly, the perceptions of network members. For Termeer and Koppenjan (1997, pp. 86-95) knowledge creation and distribution, conducted mainly by governmental actors, aims at:

a) *Managing perceptions for joint action*, on the assumption that although partners do not need to share "visions, aspirations or intentions", they certainly require a minimum that allows agreement on the means to use.

b) *Facilitating processes in which perceptions are changed,* instead of trying to directly change the content of these perceptions. This is promoted mostly by the incorporation of new actors, ideas, and procedures; and by increasing the quantity and quality of the information exchange.

c) *Advancing towards a common language*, which is necessary to maintain networks of cooperation.

On the other hand, second wavers emphasise the centrality of digitalisation, although many times assuming its neutrality as a mostly technical means to distribute information massively and to produce knowledge to conduct analysis and take adequate policy decisions. The key problems lie in the theoretical and methodological issues related to governance measurement. The literature on governance measurement is abundant but, as Ansell and Torfing (2016) point out, in this particular field governance is typically understood as being equivalent to good government – see, for example, the World Governance Indicators of the World Bank (2022); or the wider (but still very government-centric) Bertelsmann Transformation Index (BTI, 2022). Both cases illustrate the substantial research agenda that needs to be addressed, given that these, and many other sophisticated governance indexes, have not incorporated the cooperative public-private-social approach discussed here.

However, an advantage of the second wave literature has been to introduce a substantial discussion on the problematic nature of indicators and indexes that assume that standardisation for comparison is possible. Focus on performance may miss the point of cooperation and of processes themselves. Concentrating on results and outcomes – although this may eventually lead to the consideration of the presupposed causal models – may also reduce the understanding of digitalisation to simple digitisation, or conversion of analogic information into digital format, as will be elaborated on below. Second wave contributions encourage the use of indicators and indexes but caution against their use as surrogates of "good judgement, personal experience, and talent", criticising the belief that digitisation/digitalisation automatically makes institutions transparent and accountable, and that obtaining a high place in rankings – or avoiding low ones – is a motivation strong enough to maintain processes of continuous improvement in the involved organisations (Muller, 2018, p. 18). In addition, the political use of indicators and indexes, under the assumption of the effectiveness of "name and shame" strategies, normalises ranking-diplomacy deployed by governments, inter-governmental organisations, international NGOs, prestigious think tanks, and even universities and research centres (Cooley & Snyder, 2015).

Finally, third wave contributions approach governance as a process of production of new knowledge, which is a co-constructed answer to a common problem and which is motivated by beliefs and narratives. This is only possible by maintaining institutions (that is, rules) that diminish polarisation and levels of conflict, and foster long-term high-quality interactions and knowledge-exchange in order to co-produce solutions (Alford & Head, 2017). The co-design, co-implementation, and co-evaluation of the new knowledge thus obtained requires inter-discipline (Jessop, 2003), combined with non-credentialised expertise developed by extensive practical experience in the field. These local experts are really necessary to address complex problems despite the fact that they may not have academic degrees nor be in a decision-making position (Rigolot, 2020).

Third wave approaches focus on generating new knowledge that effectively solves the problems of specific persons and communities, linking it to beliefs and narratives. In this sense, trans-disciplinarity is undistinguishable from governance. Truly transdisciplinary new knowledge amounts to governance conditions in the sense that it is co-produced in the context in which it will be applied, goes beyond discipline borders, includes different skills, viewpoints, and experiences that come along with the incorporation of network members, ensures that the knowledge generated complies with democratic inclusiveness and quality criteria (that is, it is fact-based), and is “socially robust and relevant for the actors involved” (Rigolot, 2020, p. 2). Defined this way, governance increases transversality and convergence of knowledge: Open Data, Open Science, Citizen Science, and the human right to knowledge/science are part of a trend that concurs with the fundamental problems of the third wave. However, a related challenge is that knowledge convergence is usually confined to a specific industry or areas of expertise (Casalet, 2017, p. 9).

Glücker, Herringel and Handke (2020) have summarised the arguments in the literature by proposing that knowledge/information enables governance. Governance results from:

a) Bringing together different kinds of knowledge.

b) The recombination of knowledge, drawing on the previous experience of actors, but generating new ones as the result of interaction.

c) Obtaining a precise definition of the problem to address but, unlike Alford and Head (2017), they suggest that this definition is the outcome of a recombination of knowledge rather than a precondition to initiate the process.

d) Attracting knowledge expertise around collective (public) goods.

e) The incorporation of experts, able to establish common trends among the different kinds of knowledge.

f) The integration of good quality knowledge on the resources needed, including natural ones; on the relevant stakeholders; on the possibilities to monitor and sanction participants; and on the roles and responsibilities involved.

g) The inclusion of knowledge/experience of persons most affected by the problem to address. Carnerero (2019) argues that this is a relevant distinction, given that incorporating persons of disadvantaged backgrounds, including elderly persons, women, persons with disabilities, refugees and asylum-seekers, internally and internationally displaced persons, migrants, sexual minorities, members of ethnic and national minorities, members of indigenous peoples, and the sufferers of chronic diseases, defines the problem more precisely by increasing/refining the range and scope of variables to consider. In this regard, beliefs and narratives may play a role in fostering or inhibiting inclusion of disadvantaged or minority groups.

Knowledge/information in itself – but also about the specific processes of governance – shapes political actions (Voß & Freeman, 2016). In this sense, there are important gnoseological and epistemic dimensions in steering, particularly when it is expected that this should be carried out by a combination of actors with different kinds of expertise, working in varied policy sectors, and coordinating several levels of action. Knowledge/information is a central resource for maintaining this kind of collective order, although it may be ambiguous. Indeed, the main problem is how "authoritative claims about the nature and process of governance" (Voß & Freeman, 2016, p. 2) are generated, maintained, and modified, which implies knowledge/information on the classification of actors, political agencies, fields of interaction, political systems, interdependencies, models of political change, legitimacy, effectiveness, trajectories and capacities for collective action, diagnoses on reform, mechanisms, metrics, indicators, templates, standards, and institutions, among many others (Voß & Freeman, 2016, p. 2).

As an implication, it can be argued that knowledge is a component of governance, but it is not sufficient by itself to produce multi-actor, multi-sector, and multi-level cooperation. Still, acknowledging this limitation, it can also be argued that there are varieties of knowledge/information that may foster cooperation more easily than others. The obvious cases would be participatory diagnoses and planning, the one resulting from long-term processes based on grassroots trust, or the conclusions reached by an interacting group of experts, aided by facilitators (Alatorre, Merçon, Rosell, Bueno, Ayala, & Lobato, 2016). In these cases, co-created knowledge may be promoted/maintained by beliefs and narratives that reward cooperation.

2.3.2 The role of digitalisation in governance

Knowledge/information is a resource for governance; but this does not necessarily translate into effective appreciation of the relevance of digitalisation for governance. This is actually one of the main opportunities in the governance-digitalisation research agenda.

As in the case of the literature of governance, digitalisation literature is complex and polysemic. However, an important initial distinction is the conceptual difference between digitisation and digitalisation, mentioned above. Digitisation

> is a process that has both symbolic and material dimensions. Symbolically, digitization converts analog signals into bits that are represented as 1s and 0s. Digitization therefore produces information that can be expressed in many different ways, on many different types of materials, and in many different systems. Theoretically, almost any material with two easily differentiated states can be used to store and communicate digitized signals, including silicone transistors, punch cards, or atoms. (Brennen & Kreiss, 2014)

On the other hand, digitalisation refers to the complex societal issues related to the introduction/use of digital technology:

> […] Writing about digitalization has grown into a massive literature – one concerned less with the specific process of converting analogue data streams into digital bits or the specific affordances of digital media than the ways that digital media structure, shape, and influence the contemporary world. In this sense, digitalization has come to refer to the structuring of many and diverse domains of social life around digital communication and media infrastructures. (Brennen & Kreiss, 2014)

According to the German Advisory Council on Global Change (*Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen*) (WBGU, 2019, p. 33), digitalisation is a process that "impacts on the physical coupling […] between infrastructures and the Earth System", with the "potential to solve global environmental and development problems better and faster". Valenduc and Vendramin (2017) understand digitalisation in a similar way, pointing to

the different implications of the current industrial revolution in employment patterns, and in the shift from flexible work to virtual work. Digitalisation combines "continuing trends […] of the information society or knowledge-based society […] with significant breakthroughs". Digitalisation can be understood as

> the use of digital technologies to transform social, economic and cultural systems" [but] digitalisation is not only about technology. It is about leading to new social practices. (Pinto, Nogueira, & Vieira, 2023, p. 34)

Digitalisation can be a "driver of disruptive change" (TWI2050 [The World in 2050], 2019, p. iii).

The most basic overlapping conceptual areas between governance and digitalisation, albeit defined in very broad terms, are those considered by data governance literature. Data governance

> is the data management discipline that focuses on the quality, security and availability of an organization's data. Data governance helps ensure data integrity and data security by defining and implementing policies, standards and procedures for data collection, ownership, storage, processing and use […] The goal of data governance is to maintain safe, high-quality data that is easily accessible for data discovery and business intelligence initiatives. (Holdsworth & Kosinski, 2024)

Data governance seems to be closer to digitisation than to digitalisation, given its focus on the quality and processes related to data. Digital governance, on the other hand, seems to include some basic elements of data governance, but also to presuppose that digital technologies are mostly a tool to achieve good governance which, in turn, is a very restrictive – and in this case instrumental – notion of governance. Even so, digital governance is closer to the fundamental problems of digitalisation, pointing at the social implications of the use of digital technologies, both potentially beneficial but also damaging. In the argument of the United Nations Development Programme:

> Digital tools and platforms can empower people by providing widespread access to information and global connections. Where it is available, citizens are using technology to hold governments accountable, and governments, in turn, are using technology to be more transparent, accountable, and inclusive. The public and private sectors are also innovating solutions to pressing issues, including improved public service provision, the development of e-marketplaces, advancing fiscal transparency, and fighting fraud and abuse […] However, the same digital technologies can cause real risks to democracies and push those caught on the wrong side of the digital divide into deeper poverty. Unaccountable institutions can use digital technologies to pursue their interests. Fast-moving technologies often outpace legal safeguards and government oversight, putting people at risk of cyberattacks, data breaches, abuse, and worse. (UNDP, n.d.)

These normative assumptions about the potential societal benefits of digitalisation are shared by the World Bank and other institutions:

> Digital technology offers the potential to increase efficiency, transparency, responsiveness, and citizen trust, directly improving government quality […] Digitalization and the data revolution also create an opportunity for civil society organizations and individual citizens to engage with and improve government accountability. (Demirgüç-Kunt, 2021)

Regardless of the consistency and feasibility of these conjectures, which have been questioned by the larger governance and TWG literatures, digital governance literature has incorporated the approach of digitalisation as a complex societal development resulting from digital technology.

Ravšelj, Umek, Todorovski and Aristovnik (2022) argue that digitalisation has produced a model of new public governance called digital era governance (DEG), sometimes referred to as e-government, digital government, e-governance, or digital governance, that has fostered citizen-oriented e-services combining citizens' participation with smart services. According to them, the basic areas of research of DEG literature are related to open government, government and information and communication technologies (ICTs), e-governance, e-government, the adoption of ICT in developing countries, trust and security, evaluation and implementation, and interoperability (Ravšelj et al., 2022, p. 23). Digital governance and DEG literature have a clear grasp of the socio-economic, and political structural implications of digitalisation, but have as a starting point the assumption that public governance processes are mainly conducted or regulated by governmental actors, although in close collaboration with non-governmental ones. Digital technologies are modifying the nature of governance by questioning/redefining this assumption. DGE consists of the new steering nature, actors, sectors, levels, and methods resulting from digital technologies.

An intriguing development in this line is that of Dunleavy, Margetts, Bastow, and Tinkler (2006), who argue that digital technologies have had effects on governmental agencies, driving change in public organisations, but also in the information available to civil society, thrusting change in its behaviour. As a result, new public management (NPM) policies and assumptions have been modified in the United States, the United Kingdom, Canada, Australia, New Zealand and the Netherlands, producing three intertwined developments (Dunleavy et al., 2006, p. 480):

> *Reintegration* – The key opportunities for exploiting digital-era technology […] lie in putting back together many of the elements that NPM separated out into discrete corporate hierarchies, offloading onto citizens and other civil society actors the burden of integrating public services into usable packages. Reintegration approaches are not simple reruns of the old centralization phases of centralization/decentralization cycles […].
>
> Needs-based holism – In contrast to the narrow, joined-up-governance changes included in the reintegration theme, holistic reforms seek to simplify and change the entire relationship between agencies and their clients. The task of creating larger and more encompassing administrative blocs is linked with ‘‘end to end’’ reengineering of processes, stripping out unnecessary steps, compliance costs, checks, and forms. It also stresses the development of a more ‘‘agile’’ government that can respond speedily and flexibly to changes in the social environment.
>
> *Digitization changes*, broadly construed – To realize contemporary productivity gains from IT [information technology] and related organizational changes requires a far more fundamental take-up of the opportunities opened up by a transition to fully digital operations. Instead of electronic channels being seen as supplementary to conventional administrative and business processes, they become genuinely transformative, moving towards a situation where the agency ‘‘*becomes* its Web site” […].

Reintegration, needs-based holism, and digitalisation-changes-broadly-construed modify the assumptions of NPM based on disaggregation of public agencies, competition, and the pecuniary-based incentivisation of governmental officials (Dunleavy et al., 2006, p. 470). Joined-up governance, simplification of bureaucracy, and becoming its own website suggest the potential for convergence/consonance among different governmental agencies to overcome fragmentation, which is usually considered to be an attribute of both governance and NPM (see Krahmann, 2003). In the same way, digitalisation appears to facilitate the recognition by society of the need of genuine bureaucratic digital transformation.

To sum up, the literature suggests that digitalisation may play a relevant role in governance. This supposition, however, takes different forms according to the corresponding understanding of governance. In this way:

a) First wave understandings of governance may benefit from digitalisation developments that help to explain/improve interdependencies among actors. As well as highlighting the need for cooperation to solve complex problems, digital data, technologies, and processes analysing/managing resources distributed among governmental, social, and private actors, could help to identify central and peripheral relations. Knowing these relations is essential to optimising policy, to increasing the sustainability of public-private partnerships (PPPs), and to fostering private involvement in the public agenda.

b) Second wave understandings of governance may benefit from digitalisation developments that help to explain and improve steering capabilities. Digital data, technologies, and processes analysing/managing capacities to agree on societal goals could promote new styles of leadership based on inter-sectoral cooperation. Institution-consolidation, meta-governance, and convergence/consonance may benefit from DEG processes that increase transparency, accountability, and equality. These could also facilitate common understandings of common problems, and the analysis/aggregation/accumulation of information and resources.

c) Third wave understandings of governance may benefit from digitalisation developments that help to explain and promote beliefs/narratives that enable cooperation. Digital data, technologies, and processes analysing/managing transdisciplinary approaches, could help to co-create new knowledge to solve problems. Digitalisation that empowers persons and local communities is necessary to foster synthetic forms of governance, as opposed to fragmented ones.

In other words, according to the framework of the TWG literature (see Table 1), digitalisation can play a role in governance that, according to the different objectives, contexts and circumstances, includes:

a) Mapping/managing interdependence.

b) Facilitating meta-governance.

c) Fostering knowledge creation and problem-solving.

3 Four conjectures for the Mexican case

The previous sections underline the fact that literature still lacks a “robust theory of information-based governance” (Bullock, 2016, p. 289) that could link DEG developments with multi-actor, multi-level, multi-sector decision-making processes. However, the TWG literature allows for educated suppositions about the changes that actors, practices, methods, scopes, values, and outcomes experience as the result of digitalisation. Using evidence from the previous Mexican federal administration, and the main priorities established in the National Development Plan, 2025-2030 (*Plan Nacional de Desarrollo*, or PND) of the current one, this Discussion Paper proposes four conjectures based on Table 1, focusing on developments related to sustainable development.

3.1 Government: digitalisation for meta-governance

The previous Mexican federal administration seemed to be a classical second wave example reliant on hierarchical steering, rules (*hands-off* meta-governance), convergence over objectives established by governmental agencies, and a strategy for Open Data production and the consistent use of it. However, it appeared to be considerably less dependent on cooperation processes than previous administrations from the once hegemonic Institutional Revolutionary Party (*Partido Revolucionario Institucional*, PRI) and the centre-right National Action Party (*Partido Acción Nacional*, PAN), especially regarding its relations with civil society organisations and the private sector.

Federal government has maintained the National Council of the Agenda 2030 for Sustainable Development, originally established in the 2012-2018 administration. The Council is formed by federal government ministries, autonomous agencies, members of the legislative branch, civil society, and private sector representatives, and is organised into six committees (National Strategy; Monitoring and Evaluation; Social Welfare; Sustainable Economic Growth; Environment and Climate Change; and, Inequality Eradication). It is expected that the Council will add a committee on Local Government, and another on SDG 16. The Council has an Executive Secretary who used to be the Chief of Staff of the President's Office (*Jefatura de la Oficina de la Presidencia*) as a way to signal the relevance of the Agenda 2030 (Secretaría de Economía de México, 2021, pp. 26-27). However, by the end of 2020, the Executive Secretariat was relocated to the Economy Ministry, with the subsequent perception that its relevance in federal policy had diminished. However, the government used a narrative of economic recovery in the post-pandemic context, arguing that linking sustainable development to micro-, small, and medium-sized businesses was the best way to promote target completion (Former Federal Official, personal communication, 18 August 2022).

In spite of the governmental narrative of public-social-private collaboration, membership of social and private institutions in the Agenda 2030 steering bodies has diminished with time. The official webpage of the System of Indicators of the Agenda 2030 offers a sophisticated and detailed account of the different SDGs indicators, including international, national, state-level, and municipal ones (Gobierno de México, 2025a). Out of the 14 institutions in charge of defining these indicators, only two are not part of federal government – they are United Nations agencies. There is no permanent representative of the social or private sector with voting rights (Presidencia de la República, 2019, p. 24). The private sector is practically absent in the National Strategy for the Implementation of the Agenda 2030, with the exception of policies related to SDG 7 (Affordable and Clean Energy), in which it is advised to engage with private stakeholders "to promote public-private partnerships in financing projects for energetic efficiency and clean energies" (Presidencia de la República, 2019, p. 53). However, in the guiding principles for achieving SDG 16, the National Strategy argues that it is necessary to "separate political power from economic power". This includes the possible influence of businessmen in lobbying in favour of "legal reforms" or "public policy" which, in practical terms, could hinder cooperation between the federal government and the private sector (see Presidencia de la República, 2019, p. 90).

Federal government agencies aim to generate information "that is clear and trustworthy" because "there have been situations in which different institutions produce inconsistent data over the same subject or problem". Producing good quality information and Open Data on the completion of SDGs' targets

> is the best strategy for a government that is harshly criticised. There have been many failures [despite] the efforts of academia and civil society […] Information should be open, accountable, and safe. (Former Federal Official, personal communication, 18 August 2022)

The main obstacles to making digitalised information foster cooperation among different actors are political disagreements: politicians and officials, especially among states and municipalities, are encouraged to use SDG information for planning and evaluation, but "they do it to the extent that they are interested in showing their contribution towards them". In practical terms, academia and civil society are the main beneficiaries of the System of Indicators of the Agenda 2030 (Former Federal Official, personal communication, 18 August 2022).

The general attitude among governmental officials tends to be defensive: they are concerned about which piece of information is the valid one; who can make use of it; and who can communicate it to other governmental agencies and to the general public (Former Federal Official, personal communication, 18 August 2022). At least from the outside, it appears that the Executive Secretariat of the National Council of the Agenda 2030 dedicates considerable resources to securing the quality and consistency of the Open Data published in the System of Indicators, without being able to promote its use towards problem-solving cooperation. Having good quality Open Data is at the centre of sustainable development in Mexico. But this is useless if data are not linked to relevant actors with a territorial/administrative perspective. A possible arrangement could be to generate and improve digitalisation processes useful for local governments and academia researchers, aimed at solving the particular problems of specific regions. This would require a new approach to both digitalisation and its management – one more sensitive to the actual needs of population (Former Federal Official, personal communication, 18 August 2022).

The current federal administration has announced that they

> […] will implement the most ambitious digitalisation in history, and we will simplify paperwork and tax collection, which will be key to fight corruption, optimise public resources, and offer good quality services with a close-to-citizens and transparent government (Gobierno de México, 2025b, p. 14). […] Digitalisation will allow not only improvements in the efficiency and accessibility of public services, but also significant savings of time and resources, in a framework of transparency and efficacy in public administration […] This strategy aims at unifying the technological capacities among the different levels of government, securing greater coordination, interoperability, and efficiency. (Gobierno de México, 2025b, p. 86)

Evidence of the previous administration and the current one suggests that, for the Mexican federal government, digitalisation is understood as a means to foster governmental policy coherence, to optimise public resources, to improve the consistency of data (both to use in decision-making and official reports), and to facilitate the convergence over strategic objectives. These suppositions place digitalisation and governance within the canonical approaches and problems of the second wave.

3.2 Academia: digitalisation for network cooperation

Collaboration with and in academia, as defined by the Federal Ministry of Science, Humanities, Technology and Innovation (SECIHTI, by its acronym in Spanish), resembles first wave structuration based on interdependence and resource exchange in order to address societal needs. SECIHTI is a governmental agency in charge of funding research and technological projects, scholarships for postgraduate and postdoctoral researchers, and the National System of Researchers (SNII), among other functions. Its Special Programme of Science, Technology, and Innovation (*Programa Especial de Ciencia, Tecnología e Innovación 2021-2024*, PECiTI) offers guidance to public, social, and private institutions regarding priorities related to research, technological innovation and development, and the solution/management of social problems. The PECiTI specifies the broad national strategies defined in the PND. The 2025-2030 PECiTI has not been published yet, but it is expected to have a degree of continuity with the previous

one, given that both administrations belong to the same political party, Morena (*Movimiento de Regeneración Nacional*).

The PECiTI uses a narrative of cooperation among public, private, and social stakeholders in which Open Data generated by scientific research are expected to help to deal with the "national problems" defined by the PND. These problems are linked to toxic agents and pollutants; lack of potable water and hydric stress; culture (including education and processes of horizontal knowledge-creation); energy and climate change; public health; human security; socio-ecological systems; food sovereignty; and housing (CONAHCYT [Consejo Nacional de Humanidades, Ciencias y Tecnologías], 2024b). The proposed collaboration is not necessarily with traditional private actors or NGOs (for example, in PPPs), but rather one that resembles a first wave inter-organisational self-organised network of institutions, in which the resource-exchange-based interdependence aims at sustainability. The PECiTI argues that

> [o]nly with the participation of the scientific community and the social, public, and private sectors, it will be possible to find effective solutions to the priority national problems; solutions that allow the reduction of inequality, the [improvement of] the population's health, the quality and access to water, the decrease of pollutants, [and] the care of the environment, among other important problems. (CONACYT [Consejo Nacional de Ciencia y Tecnología], 2021, p. 50)

Multi-sectoral, multi-stakeholder cooperation implies the increase of direct private investment, which can generate collaborative projects between governments, the academia, and civil society. The PECiTI proposed a two-fold rise in the number of this kind of projects by the end of 2024, a target that would be evaluated in the 2025 Annual Presidential Report (*Informe Presidencial al Congreso de la Unión*), roughly equivalent to the State of the Union address in the United States.

An important innovation of the 2021-2024 PECiTI, if compared with previous versions, is the central role that Open Data is expected to play in maintaining network collaboration. Open Data being, in theory, accessible to all, can be used for the generation of new commercial products, to foster the use of scientific knowledge by the general population and by students and researchers, and for the formulation of a more effective public policy (CONACYT, 2021, pp. 25-26). According to the PECiTI, digitalisation should seek "universal access to knowledge", implying a widespread recognition of the relevance of science for everyday problem-solving (CONACYT, 2021, p. 60). The idealistic view of digitalisation by SECIHTI cannot be achieved without a substantial shift towards multi-disciplinarity. This implies the capacity of working together around basic science, with the conviction that this can be instrumental for dealing with the causes of the national problems.

The PECiTI has been criticised for not offering high quality indicators of the specific means to achieve these objectives. Nevertheless, it has been able to produce useful digital environments that can encourage knowledge-exchange and creation projects, with a cooperative problem-solving approach. For example, SECIHTI maintains a National Informational Ecosystem (*Ecosistema Nacional Informático*, ENI) on the Coronavirus Disease 2019 (COVID-19). It offers a substantial repository of data and publications on COVID-19; databases that integrate research results and offer analysis on the development of the illness; models of the pandemic in Mexico; information boards and tools; applications for Geographic Information Systems (GIS), and maps' generation and visualisation (see CONAHCYT, 2024a). However, ENIs were in their initial stages when the change of administration took place, and it is still unclear if the SECIHTI will continue with the policy of maintaining an ENI for each priority national problem defined by PECiTI. In the previous administration, research projects were funded by the Ministry through its National Strategic Programmes (*Programas Nacionales Estratégicos*, ProNacEs). In the recently published PND, ENIs and ProNacEs are not mentioned among federal government priorities or programmes.

Big universities appear to have been more successful regarding problem-solving research with a sustainable development approach, assuming that this implies a degree of networking among different actors. The National Autonomous University of Mexico (*Universidad Nacional Autónoma de México*, UNAM; public) has 91 points (64 overall place) in the latest Impact Ranking of the Times Higher Education (2024). The Monterrey Technological Institute (*Instituto Tecnológico y de Estudios Superiores de Monterrey*, ITESM; private) is at place 67 with 90.7 points), and the Guadalajara University (*Universidad de Guadalajara*, UdG; public) is in the 101-200 range. The three universities are the most prestigious in the country and, according to this index, they contribute towards the completion of SDGs 1 (No Poverty); 3 (Good Health and Well-being); 6 (Clean Water and Sanitation); 7 (Affordable and Clean Energy); 9 (Industry, Innovation, and Infrastructure); 12 (Responsible Consumption and Production);16; and 17 (Partnerships for the Goals) (Times Higher Education, 2024).

At least from the standpoint of the SECIHTI, collaborative exchange based on Open Data suggests an understanding of digitalisation in line with the first wave approaches: interdependence of resources may facilitate cooperation in some contexts. The working assumption of the PECiTI – that Open Data have the potential to foster a collaborative approach among researchers, students, grassroots social organisations, and policymaking officials – is innovative. However, it is unclear if the current administration will continue with this policy.

3.3 Non-governmental organisations: digitalisation for problem-solving

If digitalisation for governmental and academic actors appears to follow the logic of the second and first waves of governance, respectively, non-governmental organisations (NGOs) are the natural environment for third wave projects. In Mexico there are approximately 43,691 NGOs according to the most recent official record (INDESOL [Instituto Nacional de Desarrollo Social], 2021), many of which deal with issues and problems directly related to the SDGs and human rights. The key informants suggest a narrative that resonates with the characterisation of the third wave used here, in which specific persons – mainly local actors –, their empowerment, and narratives of new-knowledge creation, problem-solving, legitimation, and cooperation are at the centre.

One of the informants, with experience in the Trust for Savings in Electrical Energy (*Fideicomiso para el Ahorro de Energía Eléctrica*, FIDE), a public-private body that certifies consumer electronics, household appliances, and companies, and who currently works for the (private) Federation of Employers of Mexico (*Confederación Patronal de la República Mexicana*, COPARMEX) argues that digitalisation is very relevant for Energetic Transitions. The key is

> to know what to do with data […] how to manage all available digitalised knowledge coming from governmental and private sources (Elisa Ávila Requena, personal communication, 9 September 2022).

In practical terms, it means that actors "must link up decarbonization, public health policies, good households' practices, and clean energies", a process that requires different kinds of high-level expertise. Digitalisation may play a central role in "sensibilisation". As the informant argues, "you need to put information out there", so persons open up to both the problem, and the scientific knowledge upon which policy solutions are built (Elisa Ávila Requena, personal communication, 9 September 2022).

Another informant, an expert on new masculinity forms of paternity and the SDG 5, suggests that digitalisation for sustainable development is essential, but that there are also other requirements:

> Data themselves are the tool, the instrument that allows you to present hard facts. But citizens and activists are the means to take data produced in the academia or the NGOs into processes. We give life to these processes when we use data, give them meaning, and use them to produce policy change […] We know when information is reliable because it is produced by persons in which we have high levels of trust for their [professional] trajectories. We have to discriminate [between] the value of digitalisation and its political use […] We cannot get involved in something that is not true. (Hernando Hernández Nava, personal communication, 9 September 2022)

The informant's argument echoes some of the concerns of Innerarity and Colomina (2020) regarding exacerbated polarisation produced by social-network use. Fake news and low-quality information are frequently used in politics in order to advance disruptive agendas. In these new contexts, the role of experts and expert knowledge is questioned or rejected as part of the status quo that is to be modified. Therefore, sensibilisation on specific societal problems is not necessarily secured by digitalisation:

> Post-truth does not aim at confronting models but, simply, to contribute to confusion. Lies are noise, and the confrontation of narratives offers truths to be freely chosen. In a very short time, we have gone from celebrating empowerment through social networks, democratisation of information and knowledge, and possibilities in digital collaboration to fear the manipulation by the few, to build narratives, politics, and laws to persecute lies, conspiracy theories or electoral interference, conveniently used to justify failure or demobilisation. All this epic of combat against post-truth and alternative facts implies a cultural change. (Innerarity & Colomina, 2020, p. 14)

Both informants assume the relevance of having clear objectives – knowing what to do with data – but also of wider issues related to meanings and legitimation. In the end, it is not only an issue of deciding *what to do* with digitalised information, but also of *how* to understand its value and social implications.

One central complication regarding digitalisation is how to integrate everything together, particularly the digital-technical side with the personal-experiential one. Jacobi et al., (2022, p. 107) point at the possibilities of incorporating non-academic actors "in a setting that enables discussions on an even footing and the empowerment of actors who are not often heard" for the specific problems of sustainable development. The challenge, as always, is how to do this in a context in which people appreciate NGOs (they are trusted by 51.4 per cent of the population, over businessmen, unions, and political parties) but where they also suffer low levels of practical support and lack of resources – only 6.2 per cent of the population has belonged to one NGO related to sustainable development, at least once in their lives (INEGI, 2021b, pp. 72, 147).

Digitalisation in the context of organised civil society is expected to offer resources related to greater sensibilisation on societal issues. This is in line with problem-solving understandings of governance, common in third wave contributions. However, underlying structural difficulties lie at the bottom of this presupposition. Digitalisation does not necessarily foster sensibilisation but, on the contrary, it could isolate societal groups from relevant expertise by promoting a post-truth approach to politics. In that sense, the research/action agenda resulting from the problem-solving needs of NGOs and digitalisation must deal with basic societal values, attitudes, and practices. It is necessary not to assume that putting "[digitalised] information out there", as an informant put it, will not require traditional networking and community-building, areas in which NGOs have traditionally flourished.

Therefore, it seems that the DEG processes do not exclude but, rather, *require* the person-to-person interaction upon which trust, commitment, and participation have been traditionally constructed.

3.4 Media: digitalisation for problem-solving and potential knowledge creation

As in the three previous conjectures, the media is very difficult to characterise given its complexity. It is relatively easy to find examples of the three waves represented in the different actors involved in the news cycles; but as in the case of NGOs, a third wave, problem-solving approach is particularly useful given the urgent security challenges of the country. In the 2023 Index of *Reporters sans Frontiéres* (RSF, 2023) Mexico reached the 128th place out of 180 countries, being recognised as one of the most dangerous places for journalists. In a characteristic description, RSF (2023) states that

> [c]ollusion between officials and organized crime poses a grave threat to journalists' safety and cripples the judicial system at all levels. Journalists who cover sensitive political stories or crime, especially at the local level, are warned, threatened and then often gunned down in cold blood. Others are abducted and never seen again, or they flee to other parts of the country or abroad as the only way to ensure their survival. [Former] President López Obrador [did] not carr[y] out the reforms needed to rein in this violence and impunity. Nearly 150 journalists have been murdered in Mexico since 2000 and 28 have gone missing.

In addition, the high concentration in the telecom, broadcasting, and newspaper sectors makes independent journalists' work more difficult. The former president frequently accused them of being supporters of the opposition, calling them "biased", "unfair", and "the scum of journalism" when they published information criticising his government, encouraging attacks from his political base (RSF, 2023). In the more recent version of the same Index, in which there was a slight improvement moving to place 121 out of 180, it is argued that, despite the fact that freedom of expression and freedom of the press are recognised in the Constitution,

> in practice […] censorship [is] imposed with threats or direct attacks against the journalists rather than lawsuits, imprisonment, or rulings of suspension of activities. (RSF, 2024)

However, a considerable percentage of the population trusts journalists (48.95 per cent), just less than Roman Catholic priests (50.7 per cent) (INEGI, 2021b, p. 72). To obtain information related to politics or community problems, 29.8 per cent of persons use social networks (Facebook, Twitter, and so on); 15.3 per cent television; 7.7 per cent internet news sites; 6.7 per cent radio; and 4.1 per cent paper newspapers (INEGI, 2021b, p. 16). Despite this relatively high use of communication media, Mexicans continue to trust neighbours (60.4 per cent) and family members (37.5 per cent) as their main source of news (INEGI, 2021b, p. 16). Within this range of channels, information related to sustainable development has been rising with time, although it is still relatively low compared to other subjects: 6.3 per cent of the population think that pollution and climate change are the most urgent problems of the country, compared to corruption (54.6 per cent), poverty (53.1 per cent), and insecurity and violence (50.4 per cent) (INEGI, 2021b, p. 28).

Misinformation, hate speech, cyber-bullying, and propaganda have hindered the "huge amounts of opportunities" (Roslyn Kratochvil-Moore, personal communication, 6 September 2022) that digitalisation offers to people. They are "bombarded with information", polarising societies not only in terms of political positions, but also because the skills and competences that are needed to navigate these complicated environments are not evenly distributed (Roslyn Kratochvil-Moore, personal communication, 6 September 2022). Media have the responsibility of "holding [to] account" and "fostering dialogue", developing "a very active role in a healthy society" (Roslyn Kratochvil-Moore, personal communication, 6 September 2022) Digitalisation in the media can play a central role in reaching these expectations to the extent that they develop "scalable"

resources that can “help you help yourself” and “solve a problem for the people”. Digitalisation must be tailored to develop five skills that are necessary to deal with post-truth environments and become “media literate” (Roslyn Kratochvil-Moore, personal communication, 6 September 2022):

a) *Access information and media*. Find accurate information; fact check and find original sources and statistics.

b) *Analyse information*. Question the content they have consumed: Why has this angle been taken? Why have they spoken to these people? Check original sources and information.

c) *Create content*. Write a post for social media; create articles, audio, and videos.

d) *Reflect on what they learned*. Understand personal rights; understand obligations as a media consumer. How could a piece of journalism have been done better? Is there a motive behind the information?

e) *Act on conclusions*. Consciously consume media, participate in the media; report misinformation or hate speech on Facebook; demand transparency; and protect personal data online (DWA [Deutsche Welle Akademie], 2020).

The priorities described by the *Deutsche Welle Akademie* (DWA, 2020) on the potential of digitalisation for becoming media literate in general, with its possible implications for sustainable development in particular, resonate with the Latin American traditions of social discernment in community action – including the one formed in the Theology of Liberation school – of “Seeing-Judging-Acting” (see Pellegrino, 2017). From this perspective, generating problem-solving digitalisation for sustainable development in communication media goes beyond simply amplifying the “right” information and avoiding the “bad” kinds, so audiences have elements to decide what to do. It implies navigating, gaining access, and reflection skills; but, most importantly, it assumes digitalisation to be an empowerment tool to change reality in the sense that it allows people to act. For the Latin American traditions, this cannot be done alone but requires friendship and an accompanying community that fosters dialogue and reflection. Digitalisation should open up processes of new knowledge-production. As Ansell, Sørensen, and Torfing (2020) propose, digitalisation should deal with the technical problems concerning the quantity and quality of information published; but the *really* important issue is that it should promote exchanges and interrelations between different societal actors.

In this sense, digitalisation in the media, Mexican or otherwise, can be understood within the suppositions of third wave authors. Digitalisation must face the challenge of access to useful information for problem-solving with a cooperative stance, but the potential for new knowledge-generation using interaction with the media must be explored. This requires going beyond the usual approach of access to good-quality information by developing participatory and community skills and processes that accompany information distribution and discernment, as well as the actions prompted by it.

4 Conclusions: an agenda of governance theories and digitalisation

This Discussion Paper has built its argument using theoretical building blocks that are not that usual when considering digitalisation. However, it is clear that there is a substantial research and action agenda arising from the issues and problems of governance and digitalisation. The dialogue among the literatures of the three waves of governance (for instance, Rhodes, 2012), of the fundamental problems of governance (such as Horvath, 2017; Porras, 2019), and of the Digital Era Governance (for example, Ravšelj et al., 2022) suggest research areas in need of further exploration, including:

a) *The interdependencies between digitalisation and governance.* It is necessary to go beyond the canonical interpretation of information management in networks as the main tool to steer them, so as to incorporate the understanding of information as a resource for creating public, social, and private steering capacities. It is also essential to consider the implications of defining governance as a process of co-generation of new problem-solving knowledge. The challenge is to revisit governance theories, questioning the assumption that all governance takes the form of networks, and that meta-governance is achieved mainly through the control of information flows. In view of DEG and TWG developments, it is crucial to rethink*:*

   - *a.1) The role of digitalisation for managing interdependence.* This is a thought-provoking possibility. Has the use of digital technology changed the canonical definition of first wave governance as inter-organisational self-organised networks as posed by Rhodes (1997)? Are trust-flexibility-and-resource-exchange still the glue that maintains networks in the digital era? How does digitalisation modify the structure of typical governance graphs? How is centrality and peripherality changed by digitalisation?

   - *a.2) The role of digitalisation in creating capacities for steering*. Does digitalisation improve multi-actor, multi-sector, multi-level processes of steering? How does digitalisation modify conditions for information/data-based soft-steering? Are aggregation of interests and contributions towards the completion of common objectives/targets more feasible in the digital era? How is *hands-off* or *hands-on* meta-governance modified/facilitated/hindered by digitalisation?

   - *a.3) The role of digitalisation in trans-disciplinarity and the co-generation of new knowledge*. Is trans-disciplinarity made more feasible by digitalisation, through the combination of inter-disciplinary expertise and the non-credentialised one? Does digitalisation improve the conditions for knowledge recombination? Is co-generation possible using digitally enhanced technologies or artificial intelligence? Are there beliefs/narratives maintained through digital means that may foster cooperation?

   - *a.4) The role of digitalisation in governance conditions*. Does digitalisation enable/ foster/hinder formulating common understandings of problems, producing solutions accepted by the majority of relevant stakeholders, and/or lowering polarisation? (Alford & Head, 2017).

b) *The fundamental problems of digital era governance.* It is necessary to map the fundamental structure of the literatures dealing with DEG-related developments, including data governance, digital governance, and digital era governance proper (that is, e-government, digital government, e-governance, and open government). What are the presupposed theoretical, empirical, and methodological problems? (That is, those that will remain even if the categories evolve or stop being used). Is it possible to argue commonalities in the literatures? Can we postulate criteria for the discernment of concepts (that is, when they are

properly used and when they are not)? What are the particular methodological problems related to operationalising DEG-related concepts?

c) *The particular conditions of DEG in Mexico.* Elaborating on the conjectures proposed in this Discussion Paper, what are the broader societal implications of:

- *c.1) Digitalisation for meta-governance*. The Mexican government appears to have adopted an approach to sustainable development closer to the second wave, with a greater concern placed on steering processes, as well as on the articulation and consistency of data on SDGs. Is digitalisation a means to measure/monitor/control/steer completion of targets to which public, social, and private actors contribute? Are convergence or consonance feasible in a digitally polarised context?

- *c.2) Digitalisation for network cooperation*. Mexican academia – at least in its understanding by SECIHTI – is closer to forms of first wave governance, focusing on possible cooperation projects based on knowledge recombination and exchange. Does digitalisation enable/foster/hinder network-governance in the Mexican academic context?

- *c.3) Digitalisation for problem-solving and knowledge-creation*. Mexican NGOs and media appear closer to third wave concerns, with its varied configurations based on personal narratives, the empowerment of local actors in issues of sustainable development, problem-solving, and new knowledge creation. Does digitalisation enable problem-solving strategies to be more effective in Mexico? What are the criteria to consider a third wave governance experience successful? What are the beliefs and narratives that, from the personal standpoint, sustain multi-actor, multi-sectoral and multi-level collaboration in Mexico?

These conjectures need further exploration and research and may develop into a full and systematically designed agenda, including the required operationalisation of variables.

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