
# Impact of digital transformation on public governance

*New forms of policy-making and the provision of innovative, people-centric and inclusive public services*

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## Contents

## Abstract

Public governance concerns how the roles and relations of all actors are organised, structured, managed and administered, including power balance, and capacity and competence, relationships and the levers that each actor has, particularly when using digital technologies. Its overall purpose is to deliver public value benefits that promote the prosperity, wellbeing and flourishing of all people and all parts of society, as enabled by nature's life-support systems. The focus is on the EU but also with a broader international perspective. The setting is (liberal) democratic systems, with their country, regional and local variations and the EU as the overarching level of governance. Since its birth, the EU developed many policies to promote public values of good governance as the means of tackling its social, economic, cultural and environmental challenges and achieve the benefits brought about such values. Yet, at the end of 2022, there is a renewed need for two reappraisals. First, a thorough mapping and understanding of the public governance arrangements, defined as paradigms in this report that have and are being deployed across all the EU's multi-governance levels, the role played by digital technology and the impacts these have had. Second, an analysis of the new strategic challenges the EU faces, especially since early 2020 with the start of the COVID-19 pandemic, the war in Ukraine and the dramatically escalating social, economic and environmental crises, taking account of the role that digital technology and data can play.

## Foreword

The digital revolution has transformed our way of working, our working environment, our social interactions, and almost all aspects of our lives on a global scale. Alongside, digital technologies are transforming the way public services are designed and delivered, generating new value ways of interacting between government, its structural organisation, businesses and citizens. These technological 'disruptions' in the role of government and the way to manage and deliver public services are very closely linked with the rise in importance of data as a fundamental basis for decision making, and the reshaping of relations among all actors involved in the creation of public value.

The ongoing digital transition, and related challenges to achieve the targets set for Europe's Digital Decade to 2030, were already well recognised in the European Union policies. Yet, the COVID-19 crisis showed - more than ever - the importance of digital technologies in supporting and enhancing governance processes to ensure a path of transformation towards sustainability and shared prosperity for a better future of our society. As a response, digital transformation became also a central pillar in the Recovery Plan for Europe (NextGenerationEU) while the Recovery and Resilience Facility (RRF) was designed to provide financial aid to Member States to make the European economy more digital and consequently more resistant to future shocks.

The Joint Research Centre (JRC) is the science and knowledge service of the European Commission, with the mission to support EU policies with independent scientific evidence throughout the whole policy cycle, plays a significant role in achieving those priorities. This includes research on monitoring and shape digital transitions[1], and on trustworthy Artificial Intelligence (AI)[2]. The work of the JRC contributes to the scientific evidence base for European policy making and is the foundation of many rich partnerships with policy Directorate-Generals (DGs) of the European Commission, including DIGIT, DG Connect, DG Reform, DG Grow and DG Research and Innovation.

In providing the required scientific advice to EU policy making, we see a need for more research to:

- Investigate the impacts of digital transformation on new forms of governance, including the changing power-relationships between public authorities, the commercial sector, academia and civil society;
- Explore public sector innovation in a digitalised society, including new forms of policy- making;
- Analyse the opportunities of emerging technologies for the co-design, co-development and co-delivery of public services by public and private actors; and
- Outline and assess possible future scenarios for digital governance and framework conditions for the provision of innovative public services (to citizens and businesses).

The aim of this report is to provide scientific support to the JRC to investigate the impact of digital transformation on new forms of public governance, including the changing power-relationships amongst civil society, public authorities, businesses sector and academia. The work presented here follows up on an overview of the prevailing public governance models throughout Europe between approximately 1945 and 2019, and complements another dedicated investigation on emerging public governance models from the perspective of communities. It identifies and analyses the most relevant emerging governance models, including the key features of the evolutionary trends, in selected critical socio-economic sectors (such as trade, consumption, work and employment). In doing so, it helps answering questions, such as (1) How do disruptive technologies foster (positive or negative) change of public governance models? (2) Which innovative governance models increased public value in particular sectors? (3) What are the influencing factors and underlying framework conditions affecting the reconfiguration of public governance processes? (4) Which are the most critical areas for future research to support the digital transformation of multi-level governance processes in the European Union?

Answers all suggest that it is the socio-economic-cultural factors that determine the development of public governance models and their supporting digital technologies. However, they also clearly call for the need of a human-centric based paradigm - as an impelling fundament for a fairer and more sustainable society that is strongly supported by digital technologies, yet solely ruled for and by men, beyond any digital capabilities, and in full respect of human's and nature's rights.

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1 https://joint-research-centre.ec.europa.eu/jrc-science-and-knowledge-activities/digital-transition_en

2 https://joint-research-centre.ec.europa.eu/jrc-science-and-knowledge-activities/trustworthy-artificial-intelligence-ai_en

Many more related materials, and latest news about our work are available from the innovative public governance section of the JRC's Science Hub[3].

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[3] https://joint-research-centre.ec.europa.eu/scientific-activities-z/innovations-public-governance_en

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## Executive summary

### Policy context

The overall purpose of public governance as addressed in this report is to develop and implement policies that promote the prosperity, wellbeing and flourishing of all people and all parts of society, as enabled by and in full respect of nature's life-support systems. The focus is on the EU but also with a broader international perspective. The setting is (liberal) democratic systems, with their country, regional and local variations and the EU as the overarching level of governance. The EU developed many policies and initiatives that promote its public values and principles of good governance as the means of tackling the challenges it faces to achieve a large range of public value benefits, both with and without the assistance of digital technology. However, at this moment at the end of 2022, in the midst of European and global crises, there is a renewed need for two reappraisals. First, a thorough mapping and understanding of the public governance settings, defined as paradigms in this report that have and are being deployed across all the EU's multi-governance levels, the role played by digital technology and the impacts these have had on public governance. Second, an analysis of unprecedented strategic challenges the EU faces, especially since early 2020, with the start of the COVID-19 pandemic, the war in Ukraine (both revealing fragilities in critical public sectors, such as health, social benefits, employment, immigration, and speculative financial schemes) and the dramatically escalating social, economic and environmental crises, taking account of the role that digital technology and data can play.

### Key conclusions

This report shows that successive public governance paradigms appear to align, to a greater or lesser extent, with the major political and societal developments and shocks since 1945, as well as with digital technology developments, especially around a number of pivotal cleavage dates.

**The early 1990s**: The early beginnings of Generation 1.0, largely one-way, digital technology use in public governance, supporting the traditional Weberian public governance paradigm, boosting New Public Management and then helping to underpin the Neo-Weberian paradigm (emphasizing the need for efficient and timely service to citizens).

**About 2000**: It began to be accepted that government could use digital technology and data to be the prime mover in proactively delivering public value benefits to wider society and not just to improve the administrative machinery in the back-office. At this time, digital technology first began to change the shape and workings of public governance, as opposed simply to being used by it. It is probably no coincidence that the 2000 cleavage date coincided with the significant jump from Generation 1.0 to Generation 2.0 technology enabling two-way participation and interactions between providers and users. This facilitated both, the networked, and public value governance paradigms as two different political philosophies of society, although arising from the same societal and technological conditions.

**From 2008**: The financial crisis, itself triggered by the use of Generations 1.0 and 2.0 technology in the banking and finance sectors spurring globalisation, gave simultaneous rise to two quite different public governance paradigms. First, lean and austerity governance and, second, a new plethora of governance paradigms and models characterised by open governance. Both were significantly enabled by new Generation 3.0 semantic-based technology but based on quite different political philosophies of society.

**About 2015**: Serious moves began to break down governance silos, enabled by the increasing digitisation of both government front- and back-offices. This was in the context of further increasing globalisation with its ensuing economic growth, but scarred by rising inequalities, dissatisfaction and loss of trust in government, coinciding with significant populism and 'post-truth' movements. Both were pushed and pulled by Generation 4.0 distributed and mobile technology. These developments are paired with a significant increase in the availability of data (including personal data) and challenges related to data gathering, capture, access, sharing, and discernment.

**From 2020**: A new age of more or less continuous crisis, disruption and turbulence seems highly likely. Although the groundwork was arguably laid in the 2008 financial crisis, this was turbo-charged first by the COVID-19 pandemic commencing in 2020, followed by a widely denounced war in Ukraine, as well as the even greater threats posed by the ever increasing environmental, social and economic crises. New forms of public governance are undoubtedly required to meet these existential challenges, so it is also imperative that we design, implement and use digital technologies in a more appropriate and responsible way. In these conditions, whether the putative Generation 5.0 technologies and the Fifth Industrial Revolution, implying the need of dramatically new relationships between humans and machines with people in full control, will suffice remains to be seen.

**Main findings**

While keeping "public value creation" as its key mandate, it is noteworthy that the types of public governance paradigms both, change in character, and increase in variety over time. Chronologically, they change from a small number of basic models mainly concerned with internal process, administration and organisation, drawing their justification from an increasing array of 'good governance' public values, towards a much larger number of models bearing a clear public value focus that is directly conceived to address important and concrete societal challenges. This switch taking place around the year 2000 coincides with the big uptake of digital technologies by the public sector and its administrations, starting with Generation 2.0 interactive technology, acting as a highly significant enabler for users, as well as to changing politics and policies. From 2020, a step change now seems to be taking place, mainly influenced by a series of economic, political and environmental turbulences that challenge previously established stakeholders' relations, and have major impacts on the geo-political landscape. These changes seem to be due to: (i) the huge variety of ways different countries and authorities react both politically and organisationally to their churning socio-economic, environmental, cultural and historical situations; (ii) the influence of external factors and crises; and (iii) the increasingly diverse possibilities enabled by innovative digital technology.

The main findings up to 2019 regarding digital technology and public governance include:

- Everything is inevitably influenced by digital technology design, development and use, and it is better to explicitly account for that, than ignoring digital potentialities.
- Yet, digital technology and digital data are best seen as necessary but never as sufficient tools for public governance. Their deployment is always mediated by organisational, institutional, legal, ethical and social conditions, as well as challenges such as digital exclusion and increasing digital gap.
- Considering the many and diverse interrelationships between all actors involved in public governance, digital technologies repurposing and a responsible data harvesting, aggregation, management and use, might be considered as the only possible way to reach fairness, transparency, accountability and inclusiveness.
- The complex roles of digital technology and human-technology relations need to take account of how peoples' quality of life, values and ethics are impacted by increasingly omnipresent digital machines, escalating surveillance by both, public, and private sectors, as well as by the 'post-truth' society manipulative communication strategies and tools, and the 'black-box', impenetrable and inevitably biased AI-based solutions.
- The mix of public governance paradigms that are simultaneously present in any one place and time, including across multi-governance levels, is an important contextual response to prevailing political, socio-economic and cultural differences in given times. However, these responses and mixes may or may not be successful, so governing this mix becomes a crucial issue where the deployment of digital technology is necessary.
- To cope with the challenges of our times, we thus need public services that are, first of all, relevant to the different contexts, digital-ready and interoperable by design – across borders, across sectors, and across different levels of public administrations.
- We are still in an era of understanding the best (context dependent) ways of using digital data and technologies for the public good, and a rich set of diverse experiments still yet to be completed or be entirely conducted to fulfil an entire wave of digital transitions of public governance.

In terms of existing public governance models, the main findings up to 2019 include:

- Political, policy, socio-economic, environmental, historical and cultural factors, especially societal-wide and often international shocks and crises, are the strongest influences on public governance developments.
- The public governance paradigms accumulate layer upon layer resulting in a form of sedimentation over time. Each of the nine paradigms identified between 1945 and 2019 (each with one or more models) continue to have relevance today, although the more recent novel and emerging paradigms tend now to be more dominant but perhaps only because collectively they are more numerous.
- These public governance paradigms do not form a linear progression where one replaces the other but represent a process of co-evolution. Differences can also be seen between central and local governments in the same country, underlining the importance of re-visiting multi-level governance, and to elaborate on

possible evolutions of the original approach – especially as applied within the EU (within and across countries).

- It is the actual 'mix that matters'. The mix of paradigms and models at a specific place and time depends on the context of global, national and local politics, as well as history, culture, socio-economics, environmental factors and the political choices made. This mix may or may not be a successful arrangement, so governing this mix is a crucial issue where the deployment of digital technology is necessary.
- Co-creation, and thus generative and emergent governance paradigms, seem imminent. Both tacit and codified knowledge are a powerful combination for learning, identifying good practices of successful transformations, and thereby for widespread co-creation, replication, scaling and knowledge sharing. At least up to 2020 only promising examples are seen without a truly systemic approach at EU or national levels. It is not yet clear what a balanced approach, which applies representative methodologies to some societal challenges while investing in more participatory approaches in others, might look like. These deliberations on co-creation might be further divided into co-initiation, co-design, co-implementation and co-evaluation, as a cyclic approach that departs from the traditional ladder analogy for citizen participation.
- The most desirable re-balancing of power and responsibilities for future-proof public governance still needs innovation and experimentation so is yet to be found. This will also require a cultural change within public institutions that tend to be risk averse. These risks are often seen in the short term (for example, but not only, connected to election cycles) without considering the longer-term risks of not rebalancing power relations, and without experimenting with new approaches to public governance.

**Related and suggested future work**

The recent crises (from 2020 onward) have already set back decades of public governance progress that had earlier, and despite much unevenness, led overall to greater prosperity, wellbeing and flourishing of most people in most parts of society, and that had begun to make some progress in addressing the vulnerability of nature's life-support systems. At the same time, however, the recent crises also provide opportunities to rethink how public governance and the role of digital technology can assist Europe in getting back on track. This research has identified four strategic challenges that now require urgent public governance action and research, although this is not to imply that there are no other challenges likely to arise:

**Living with turbulence**: Public governance needs to accommodate shocks and crises by moving to more resilient paradigms that move away from traditionally-determined efficiency criteria by also prioritising diversity and interconnectivity. The goal is to be equipped to react better, more nimbly and more timely to unexpected events as well as longer term risks, including environmental breakdown, whilst still providing as much continuity, stability and predictably to society as possible. This should be the case even when it decreases some short-term efficiencies given the clear evidence of the societal damage prevented, including the improved long-term efficiencies that can instead be realised. There should be increased focus on the EU's open strategic autonomy in essential goods and services, also through multi-governance levels where beneficial. Cyber threats and other known risks also need continuing focus, as does seeing resilience in social and economic as well as environmental terms given these are intimately interrelated.

**Changing geographies**: Changes to Europe's geo-political position have been turbo-charged by the recent turbulence creating new global realignments that are reshaping economic and security arrangements and their political manifestations. New EU public governance at all levels needs to draw upon and strengthen the EU's values and principles if these changes are to be successfully addressed. Sub-national level trends include the growing importance of small cities and larger towns within the hinterlands of very large cities which, often excepting capital cities, are themselves decreasing in importance driven by digital work, learning, shopping, etc, There is also a very strong resurgence of local economies and identities linked to efforts to retain as much as possible of locally-created value within the locality. This is seen, for example, by residents becoming more aware of their locality and community as well as the economic benefits of local production and consumption, and local governments focusing much more on local democracy, partnerships and procurement. Urban, rural and community-level geographies are also changing in directions that both accelerate existing trends and carve out new pathways, especially ones that prioritise decentralisation within strong national and EU structures in order to ensure just transitions for all wherever they live.

**Hybrid human-centred relationships**: Traditional welfare state public services, first designed in the early post-1945 period, are no longer fit for purpose. The new age of turbulence, coupled with rapidly changing demographics towards greater cultural and ethnic diversity and an increasingly aged population, require public

services that prioritise the prevention or slowing of social and economic misfortunes affecting individuals and communities, especially manifest at local level and through community-based solutions. Such a shift can be both economically efficient as well as socially beneficial and, especially when meeting the needs of the most vulnerable, requires strong human relationships alongside hybrid service delivery mechanisms to be successful. Resilient structures across all multi-governance levels are necessary to delivery such solutions with a focus on justice, fairness and inclusion by design.

**People-planet systems**: Arguably the greatest challenge that public governance has arises from the scientific facts that climate change, biodiversity loss and other stresses on nature are having profound deleterious impacts on the functions of societies and on the lives of their inhabitants. The needs of a flourishing society are bound together with a flourishing nature, both organic and inorganic, so nature must be centrally incorporated into all public governance paradigms. This should involve moving on from a concept of sustainability that aims only to keep what we currently have through conservation and preservation, and instead aims to regenerate what we really need. This will also involve public governance that better understands the complex dynamic systems that intricately link human societies with natural systems.

The above strategic challenges, if successfully addressed by public governance, will provide highly significant public value benefits across all European societies. This also requires further action and research into the European public values and principles as the means necessary to deliver these public value benefits. It is proposed these include: democracy and power relations; trust and trustworthiness; risk governance and crisis management; regulation; public sector innovation, experimentation and learning; behaviour, values, principles and culture; new innovation frameworks and mission strategies; public governance management and integrity; future proofing; and policy coherence, coordination, alignment and evaluation.

Further research and action into the best roles that digital technology can play in support of the above is needed, especially in relation to the human-centred approaches to digital technology that the putative government Generation 5.0 technologies can play. This aims to focus on real people and real peoples' lives where the human, human-touch and human control are more important than the digital, but where public value can be enhanced by the digital. Digital 'sanitisation', in the sense of audits that reduce or remove the digital where this does not add value, but instead increases digital divides, should take place. In parallel with this there is a need for research that the anticipated Industrial Revolution 5.0 can play in envisaging humans and machines performing work hand-in-hand. Combining the unique cognitive abilities of workers and the accurate technical expertise of, for example, robots can better promote an innovative and productive culture in the workforce.

**Quick guide**

This report is organised into eight sections, as follows:

1. An introduction summarising the research context, purpose, objectives and methodology of the study.
2. An overview of definitions and terminology used.
3. A summary of nine existing public governance paradigms and digital technology impacts from 1945 to 2019, which also refers to an accompanying report that examines this state-of-art in detail.
4. An evidence-based description of the four proposed strategic challenges facing public governance in Europe, from 2020 onward.
5. An analysis of the opportunities and challenges of digital technology for public governance going forward.
6. The implications of these strategic challenges and the role of digital technology in three example sectors: food, energy and work and employment.
7. Proposals for rethinking public governance to meet the new strategic challenges.
8. Conclusions that summarise the determinants of changes in public governance, the insights from experience to date, and recommendations for action and research in relation to both public governance and the role digital technology can play going forward.

# 1 Introduction

## 1.1 Research context

The digital revolution has transformed our working environment, our social interactions, and almost all aspects of our lives from the local to the global scale. In parallel, digital technologies are transforming the way public services are delivered and generate new ways of interacting between governments, businesses and citizens. These technological 'disruptions' in the role of government and the way to manage and deliver public services are very closely linked with the rise in importance of data as a fundamental basis for decision making, and the reshaping of relationships among all actors involved throughout the public sector value chain.

The outbreak caused by the COVID-19 crisis showed - more than ever - the importance of digital technologies to enhance governance processes to ensure a path of transformation towards sustainability and shared prosperity for the future of our society - in line with new Digital Strategy for Europe (European Commission, 2021k). In this context, the role of the public sector both, as enabler and regulator is crucial. This calls for investigating deeply the emerging paradigms of governance "with and of" the digital technologies, which are transforming the way governments operate. It can enhance how public services are designed and delivered, and how policies are shaped, implemented and evaluated. However, more research is needed to:

- Investigate the impacts of digital transformation on new forms of governance, including the changing power-relationships between public authorities, the commercial sector, academia and civil society.
- Explore public sector innovation in a digital society including new forms of policy-making.
- Analyse the opportunities of emerging technologies for the co-design, co-development and co-delivery of public services by public and private actors
- Outline and assess possible future strategic challenges for digital governance and framework conditions for the provision of innovative public services (to citizens and businesses).

## 1.2 Purpose and objectives of the study

The aim of this study is to investigate the impact of digital transformation on new forms of public governance, including the changing power relationships amongst public authorities the business sector, academia and civil society. The **two specific objectives of the study** are the following:

- Provide a thorough mapping and understanding of the public governance arrangements, defined as paradigms in this report, that have and are being deployed across all the EU's multi-governance levels and the role played by digital technology. An accompanying report examines this state-of-art in detail.
- Undertake an analysis of the new strategic challenges the EU faces, especially since early 2020 with the start of the COVID-19 pandemic, the war in Ukraine and the dramatically escalating social, economic and environmental crises, taking account of the role that digital technology and data can play.

This report provides the findings from the work, including a summary of the public governance models that prevailed in democratic systems (especially in the EU) from approximately 1945 to 2019. A more detailed elaboration on these models has been published separately (Millard, 2023).

## 1.3 Methodology

The methodological approach adopted in this study consists mainly of a desk research survey of the main public governance activities and rationales adopted by public government and other relevant actors since 1945. This involves unpicking the reported purposes, structures, actor roles and relationships, digital technologies used, strengths, weaknesses, framework conditions and influencing factors that these changes have involved. Thus, the approach is largely empirical in the sense that it draws directly on what the involved actors, including academics and other commentators, report during different periods since 1945. It then attempts to analyse the impacts this has had on public services, public values and public value, illustrated by numerous examples. There is no attempt to impose a top-down theoretical structure, however useful this might be in another context, but rather to trace the explanations and justifications relevant actors give for the different types of public governance adopted. In addition to this desk study based upon a wide-ranging literature review of many actual examples and their impacts using a chronological approach, i.e. how both ideas and practice change over time, an online workshop with practitioners and experts was held on 7 October 2022 as well as widespread consultations with other experts. This provided both a validation of work done up to this point as well as useful critiques and insights, most of which informed the final stages of the study.

# 2 Definitions and terminology

## 2.1 Public governance definitions

For the purposes of this report, public governance concerns how the **roles and relations of all actors are organised, structured, managed and administered, including power and competence relationships and the levers** (i.e. instruments for getting things done) that each actor has, for the **overall purpose of delivering public services and public value**. A focus of the report is on the role of **digital technology**[4] in the evidence gathered, although examples not currently using digital technology to a significant extent are also included given that digital technology could or is likely to have an impact in the future.

**Five actor types are in focus**: public institutions including their direct and indirect representatives; civil society and citizens; the private sector; educational and research institutions; and nature, the needs of which need to be considered given that meeting these underpins the viability of the other four actors to function. Different public governance purposes are served by appropriate roles, arrangements and relationships between all five actors expressed through different **public governance paradigms**, defined by Torfing et al (2020) as a relatively coherent and comprehensive sets of norms and ideas about how to govern, organise and lead the public sector. Each paradigm is composed of one or more specific **public governance models** that demonstrate some of the main characteristics of the paradigm in question.

As this report focusses on paradigms and models of public governance, the public sector is the pivotal actor. Yet, this does not always mean that it will take the leading or most important role in terms of resources invested or decision-making powers, It does mean its role is essential by leading or contributing to the provision of public services and public value. The focus is on **democratic public governance systems**, especially the different forms found in Europe where democracy can be thought of as the 'power of the people' as a way of governing which depends on the will of the people and a strong grounding in human rights (Council of Europe, 2022).

All paradigms are normally also relevant across **multi-governance levels** which, in Europe, typically operate at three country-specific levels, i.e. national, regional and local, although other and/or additional or fewer levels may be appropriate in different administrative regimes. On top of these three levels is the overarching public governance level of the European Union. Example public governance models are often taken from one or more specific governance levels.

Section 3 of this report summarises existing public governance paradigms and models in Europe from 1945 to 2019, whilst an accompanying report on the state-of-art examines these in detail and provides over 50 short case examples to illustrate its findings. Section 4 describes the four proposed strategic challenges facing public governance in Europe, from 2020 onward, Section 5 analyses the opportunities and challenges of digital technology for public governance going forward, and Section 6 looks at the implications for three example sectors: food, energy and work and employment. Section 7 proposes how to rethink public governance to meet the new strategic challenges, whilst Section 8 concludes with a summary of the determinants of changes in public governance, the insights from experience to date, and recommendations for action and research in relation to both public governance and the role digital technology can play going forward.

## 2.2 Public service definitions

A working definition of public services is **services that are designed and delivered for the sole purpose of creating various types of public value**, as defined in Section 2.3 below[5]. Public services can be designed and delivered by the public sector on its own, with or via the other actors mentioned above operating within different government paradigms and models, particularly but not only in this report when using a variety of digital technology. This report proposes examining public services as either or both '**individual' and 'collective' public services**, for example:

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[4] The term 'digital technology' is used in this report as a collective noun encompassing all possible 'digital technologies' without implying any specific type. The term 'digital technologies' is used when the focus is on more than one specific type which are normally further specified. In addition, 'digital technology' is not to be confused with 'digital transformation' where the focus is on the changes in wider society or in nature that digital technology causes, enables or assists.

[5] This is similar in intent to earlier definitions of public services as services of 'general public interest', i.e. as services of interest/relevance to everyone in society, where 'everyone' refers to both the individual and the collective levels and is denoted by the word 'general'.

- **'Individual'/'direct'** public services: include traditional public services aimed primarily at individual citizens in areas like education and training, health, care, social services, libraries, employment, tax, etc. These are individual services as they normally operate at the individual level by establishing a direct interaction between individual service providers and individual service users, thereby providing individual public value as only the individual gains direct benefit.
- **'Collective'/'indirect'** public services: created particularly by the collective impact of laws, regulations and the overall actions of the public sector in areas like planning, policy- and decision-making, institutional frameworks, legal and regulatory frameworks, administration, standard-setting and monitoring, participation and democracy, public procurement, services benefiting the environment, trade, defence, security (both cyber and non-cyber), investments in infrastructures, R&D, etc. In addition, public utilities like energy and water, police and prisons, although these also clearly have impact at the individual/direct level. These are all examples of collective services as their benefits are used or enjoyed by everybody at the same time, mainly continuously and often 'out-of-sight'. They normally operate at societal level as part of a public value framework/structure within which all actors operate, thereby providing collective public value, as everybody gains benefit[6].

## 2.3 Definitions of public values and public value

European public values are ultimately derived from the European Union's overarching values as defined in Article 2 of the EU Treaty: "The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities."[7] The overall basis of the EU and its public values is its governance system which designates the body of rules, procedures and practices that relate to the way powers are exercised in the EU. The objective is to strengthen democracy at the EU level and to bring citizens closer to the EU institutions. In concrete terms, the EU's approach to its public values used in this report is reflected in its good governance framework based on an amalgam of both principles and values defined as (European Commission, 2017):

- "**Good governance** is an agreed set of principles and values widely shared. There is no 'right' or 'wrong' formulation: each administration has its own typology and terminology, but there are recurring themes."
- "**Principles** should be fundamental and enduring. An example is honesty, which should apply to all public officials, irrespective of time or place. In some cases, principles are adopted in laws or regulations, as rights or obligations on the administration, including in the form of civil service acts."
- "**Values** may also be constant, but equally can emerge and evolve over time as conditions change. They might appear to be timeless, but can arise as a product of circumstance, such as transparency which is a relatively recently phenomenon."

A consensus view of current European good governance can be summarised in the following nine public values of good governance (European Commission, 2017), which also directly align with the UN approach to good governance (United Nations, 2009) underlying the Sustainable Development Goals (United Nations, 2015b).

1. Accountable
2. Transparent
3. Responsive
4. Equitable and inclusive
5. Efficient
6. Effective
7. Follow the rule of law
8. Participatory
9. Consensus oriented

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[6] Collective public value can also be defined as 'societal value'.

[7] https://eur-lex.europa.eu/eli/treaty/teu_2012/art_2/oj

In distinction to public values, seen as the means of good governance, public value is seen as the actual benefits to society created. The working definition used in this report distinguishes **three levels of public value** (Kelly et al, 2002):

1. "Services that provide the vehicle for delivering public value through actual service encounters for users or clients and the distribution of fairness, equity and associated values for citizens."
2. "Outcomes that commonly overlap with services but should be considered separately as they encompass much higher order aspirations such as national security, poverty reduction, public health, etc." to which different combinations of services collectively contribute depending on the political and policy context.
3. "Trust, legitimacy and confidence in government at an even higher level which are critical to public value creation: even if formal service and outcome targets are met, a failure of trust will effectively destroy public value". As trust is today also seen as one of the essential values of good governance, it thereby provides an overlap with the European good governance public values listed above.

It can be seen from these three levels that the first approximates to the benefits created for individuals by individual/direct services, and the second approximates to the benefits created by collective/indirect services, as defined in Section 2.2 above. Not necessarily created by public services, however, is Kelly et al (2002)'s third level, although the first and second levels together can, of course, help create or destroy trust, legitimacy and confidence in government.

Leading on from the above, it is useful to clarify the following distinction used in this report between the public values of good governance and public value benefits:

- **The public values of good governance** (based on the European Commission, 2017) refer to how public value is created – thus public values can be seen as the 'means' of creating the 'ends' of public value
- **Public value** (based on Kelly et al, 2002) refers to the actual benefits derived from public governance that accrue to all actors – thus public value can be seen as the 'ends' delivered by the 'means' of public values.

It is important to note that this report, its analysis and conclusions, is prepared from the perspective of European public values of good governance and an understanding of European public value derived from democratic public governance systems, especially the different forms found in Europe.

## 2.4 Digital technology definitions and developments

In the context of this report, examining the evolution and future development of public governance paradigms and models, the impacts of both 'specific' and 'general' digital technology lenses are examined. The **'specific digital technology'** lens looks at individual technologies or groups of technologies and how they evolve over time. This is outlined in Table 1, and briefly summarised at the bottom of Figure 1, showing how each of the five generations of both government and of the web found in the literature tend to be aligned, despite some contrasting definitions and timelines depending on the particular purpose and perspective of each source. Specific generations of government and the web tend to develop together, although web advances often precede government advances by several years as the technology is typically a facilitating factor. However, it is also clear that the government-digital technology relationship is not uni-directional from the latter to the former, given that governance independently also shapes digital technology through economic and technology policy, regulation, investment, procurement, etc.

The '**general digital technology**' lens sees today's digital technology as the latest stage in the evolution of 'general purpose' technologies through successive industrial revolutions each of which builds on previous stages like steam and electricity that were already in place prior to 1945. Thus, digital technology underlies and supports virtually all other technologies and everything in a modern society. For example, today digital technology enables robotics, additive manufacturing and 3D printing, data processing, social media, environmentally-sustainable technologies, food production, health care, etc. According to the World Economic Forum (WEF, 2016): "The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres".

**Table 1**. Indicative cumulative developments in government and web generations

| Generation | Government generation[8] | Web generation[9] | Example digital technology[10] |
|---|---|---|---|
| 1.0<br>c. 1993→ | Online access to service information; standalone services and automation of some traditional back-office procedures but without re-engineering. | 'Read-only' using html pages to display information and deliver content. | Static web-pages and web-directories, search engines (e.g. Netscape, early Google) |
| 2.0<br>c. 2000→ | Interactive 'socialised' user-centred services; user generated content; collaborative tools for more open, accountable, responsive and efficient government; recognition of digital divide: start of re-engineering both front-office services and back-office procedures to better fit societal demands. | 'Read-write' functionality; social and interactive media (e.g. fora); early machine-machine interaction & networking. | Early APIs; web apps like podcasts, blogs, images, videos; social networks. |
| 3.0<br>c. 2008→ | Semantic web-based government that can start to personalise & proactively deliver services; balancing efficiency and effectiveness; open & platform government, open government data; service co-creation; inclusion and participation; CAPs (community-awareness-platforms); crowd-sourcing; e-Signature and e-Identity; gamification; once-only; digital-by-default; policy modelling; smart city. | Semantic 'intelligent' web; interoperability; open-source; open data; intelligent machine-machine interaction; early data decentralisation sharing by users; smart mobile services; traceable & transparent interactions. | Data integration, automation and discovery; natural language processing; web ontology language (OWL); 3D graphics and spatial 3D; connectively and ubiquity; gamification; cloud computing; IoT; open data; early AR, VR; robotics, AI & blockchain. |
| 4.0<br>c. 2015→ | From e-gov to digital gov; optimising work processes and systems; operational efficiencies and increased productivity through agile approaches using big data; life-events triggering advanced personal-ised & proactive government; breaking down silos, joined-up and whole-of-government; one-stop-shop; learning, 'cognitive' & predictive government, e.g. no-stop-shop (through AI and machine learning). | Distributed & mobile data regardless of location; self-learning systems; full user-control; | Voice and symbiotic interaction between physical and virtual worlds; big, linked & interactive data; more advanced AI, blockchain, robotics, AR & VR; facial recognition; crypto currencies; decentralised apps; RFID tags; digital twinning (replicas). |
| 5.0<br>c. 2020→ | From user- to human-centric; focus on real people & real peoples' lives; services fitting peoples' lives, not the reverse, using a 'whole-of-life' mindset; the human is as important as the digital; governing not for but with people; people expect more 'human touch' through digital sanitisation; balancing efficiency with both effectiveness & 'affectiveness' (peoples' emotions); full virtual assistants. | Decentralised web apps platform & APIs to empower people to regain and retain control of own data and identity; but opposite dangers of public and/or private surveillance. | Emotional intelligence; full digital wallets; full social personas; full digital twinning; full VR (metaverse?), decentralised web nodes; decentralised identifiers; digital sovereignty; cryptographic security. |

Source: The author (Millard, 2023).

# 3 Existing public governance paradigms and digital technology impacts

## 3.1 Overview of existing public governance paradigms

Based on the literature survey and evidence undertaken for this report (see Millard (2023) for more details), Figure 1 provides a synopsis of the main developments since 1945 of European public governance paradigms,

[8] Governments 1.0, 2.0 and 3.0 are largely derived from GOV 3.0 (2021); Government 4.0 is largely derived from Telecom Review (2022), Long et al (2021) and European Commission (2021b); Government 5.0 is largely derived from PwC Consulting (2019) and European Commission (2021b).

[9] Web 1.0, 2.0 and 3.0 are largely derived from Mosinegutu (2022) and Hackeroon (2001); Web 4.0 is largely derived from Hackeroon (2021); Web 5.0 is largely derived from Weston (2022) and Uptech Solution (2022).

[10] Sources include those shown for government and web generations.

each of which gives rise to one or more public governance models in three main groups: A) prevailing, B) novel and experimental, and C) new and emerging. Only A) and B) are summarised in this Section 3 of the report with a summary of their characteristics provided in Table 3, while a detailed consideration of C) is presented in Section 4. The intention is not to provide exhaustive portraits of each group, but to attempt to highlight archetypes of representative public governance paradigms and their constituent models rather than attempting to cover everything.

A. **Prevailing**: illustrated by four representative governance paradigms (numbered 1), 2), 3) and 6) in Figure 1. To a large extent, these still provide the basic foundations of public governance today in all European countries, depending on their different historical, political and cultural conditions. The heyday of 1) and 2) long predates any significant relevance of digital technology for public governance, which first started to have an impact in the early-1990s. On the other hand, 3) coincides with the early impact of digital technology and 6) arose as a heightened version of 2) in the wake of the 2008 financial crisis. All four are, however, less prominent today, if only because there is now a large number of more recent governance paradigms that crowd the field (as covered in B below):

   1) Traditional Pubic (Weberian) Administration: from about 1945 with digital technology only relevant from the early-1990s.

   2) New Public Management (NPM); market-based: from about 1980 with digital technology only relevant from the early-1990s.

   3) The Neo-Weberian State: from the late 1990s: a reaction against NPM and some reversion to Weberian Administration but with a more external orientation.

   6) Lean and austerity: a particular version of NPM in response to the financial crisis commencing in 2007-8.

   These four paradigms arise from a long-established combination of mainly top-down and market-driven policies, and their influence is still prevailing today in the form of underlying structures and principles. However, their dominance is now weakening as more recent governance paradigms, often enabled by digital technology, are taken up.

B. **Novel and experimental**: illustrated by at least five governance paradigms, forming two chronologically defined clusters in Figure 1:

   4) Networked and 5) Public value management: these generally coincide with the significant impact of Generation 2.0 digital technology on public governance from about 2000.

   7) Open: begins to have a significant impact on public governance in the wake of the 2007-8 financial crisis coinciding with Generation 3.0 digital technology

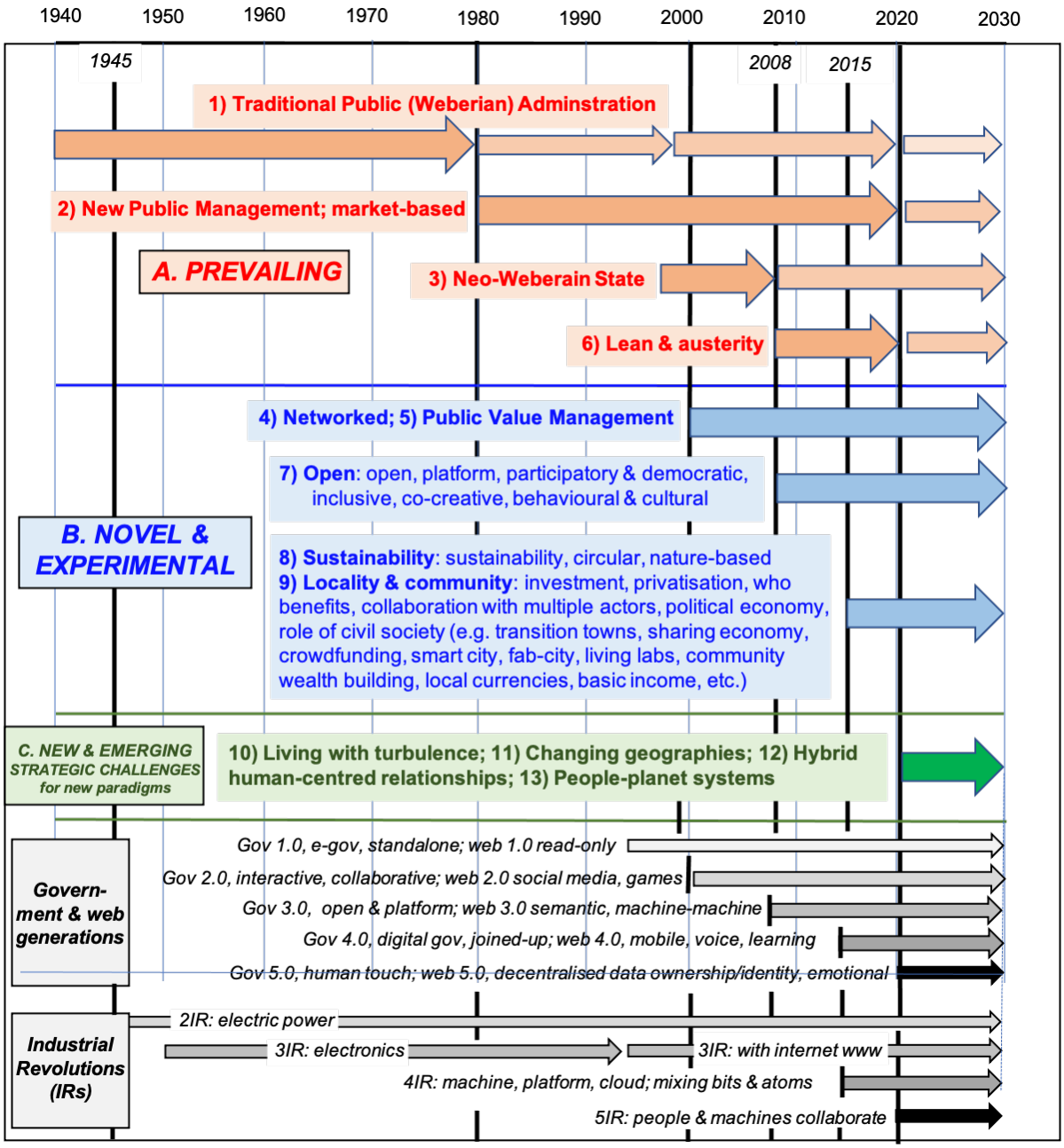
   8) Sustainability and 9) Locality and community: these begin to have a significant impact on public governance from about 2015 coinciding with Generation 4.0 digital technology.

   These group B) five novel and experimental governance paradigms give rise to a large number of distinct models that are today more important collectively in most countries than the prevailing models in group A). However, their variety and relatively recent provenance mean their individual adoption is, to date, not as ubiquitously widespread as Group A). Their developmental speed and sophistication is necessarily based on digital technology to varying degrees, although the technology is never itself a sufficient condition. Indeed, all of the paradigms illustrated in Figure 1 are primarily driven by contemporaneous influencing factors and framework conditions in different European countries, as outlined below in Section 3.3.

C. **New and emerging strategic challenges**: the number and type of governance paradigms from about 2020 is as yet unclear as they are largely in the future and thus highly speculative. Thus, at this stage, four strategic challenges are identified which new public governance paradigms will need to address through a rich set of diverse experiments. These strategic challenges are proposed by tracing very recent developments and commentary and are strongly interrelated as they arise from, or are at least significantly accelerated by, turbulence and uncertainty. Although these challenges initially kicked off in the aftermath of the 2007-8 economic and financial crisis, they become acute and much more visible in early 2020 with the onset of the COVID-19 pandemic, now reinforced by the invasion of Ukraine as well as the dramatically worsening climate crisis and other ongoing shocks (for an overview of shocks, see WEF, 2022a):

   10) Living with turbulence; 11) Changing geographies; 12) Hybrid human-centred relationships; and 13) People-planet systems.

**Figure 1.** Evolution of European public governance paradigms[11]




Source: The author (Millard, 2023).

During the whole time span examined from 1945 to the present, each public governance paradigm, once established, retains real influence to the present day, although this often declines in relative terms as new paradigms are created. Thus, commencing in about 2000, new paradigms will also run in parallel, building upon each other in distinctive ways related to each countries', as well as to Europe's, key influencing factors and framework conditions. In these different contexts, different paradigms are likely to both complement as well as contradict each other. Full details of the existing public governance paradigms and many of their constituent models are available in an accompanying report that examines their state-of-art from 1945 to 2019.

[11] Note that the thirteen paradigms are numbered chronologically, but positioned in Figure 1 according to which of the three groups (A, B or C) the paradigm is allocated.

## 3.2 Tracing the relationship between digital technology and public services

Section 2.4 described the specific roles of digital technology for designing, developing and especially delivering specific types of public services, thereby facilitating specific types of public governance. How this has developed since the early 1990s is summarised in Table 2. The use of data and information is crucial for digital technology, especially in terms of how they are acquired, stored, re-accessed and analysed to create an 'information regime' for the rational or efficient conduct of governance as well as of business. In all pre-digital public governance models, data compression had been used to reduce complex realities to data and information in formats and quantities that could be easily classified, indexed, filed and re-found when needed, mainly by physical means. With the advent of New Public Management from about 1980 and then the Gov 1.0 and Web 1.0 technologies from about 1993 in Table 2, hybrid forms of machine/professional bureaucracy developed, focusing on metrics-based compression using pre-fixed statistics, key performance indicators and similar data in a central governance role.

From about 2008 onwards with Gov 3.0 and Web 3.0, the importance of data and data governance become increasingly important as one of the prime assets of the public sector. Technologies facilitating big data, artificial intelligence and data science approaches have made feasible a new information regime of 'lossless' uncompressed data and expanded data science, opening a potential for bureaucratic operations to alter in fundamental ways fostering new forms of post hoc knowledge development, e.g., via machine learning and algorithmic governance (Annoni et al, 2018; Dunleavy 2022).

In this context, the 2022 European Data Governance Act, fully in line with EU values and principles, is designed to bring significant benefits to EU citizens and companies by increasing trust in data sharing, strengthening mechanisms to increase data availability and overcoming technical obstacles to the reuse of data. Common European data spaces will be established in strategic domains, involving both private and public players, in sectors like health, environment, energy, agriculture, mobility, finance, manufacturing, public administration and skills. This will be a powerful engine for innovation and new jobs allowing the EU to ensure that it is at the forefront of the 'second wave of innovation based on data'. Society as a whole will benefit from more evidence-based policies and better solutions to societal challenges, such as climate change and the COVID-19 pandemic (European Commission, 2022a; De Nigris et al, 2020). Understanding the influence of online technologies on political behaviour and decision-making is also important, for example in terms of behavioural psychology where it is clear that "social media changes people's political behaviour", in particular through the attention economy, choice architectures, algorithmic content curation; and mis/disinformation (Lewandowsky et al, 2020).

Drawing on Table 1, and examining the evidence presented in this report and especially the accompanying state-of-art report, Table 2 provides a summary overview of how the specific types of digital technology aligned with each public governance paradigm have impacted public services since the early 1990s. Table 2 has been adapted, clarified and updated from the European Digital Forum (2015) and aligns surprisingly well with the four government and web generations used in Table 1, themselves derived directly from the literature. The fifth generation has been added in this report to bring the schema fully up-to-date.

Table 2 thus shows how each of the digital technology generations impacts public services, changing cumulatively from providing support in Generation 1.0, through enabling, then driving followed by digital-only services in Generation 4.0. Each generation reveals a specific relationship between humans and digital technology in how the services are delivered and operate and, in turn, each generation offers its own specific array of public services linked to the cumulative development of public governance paradigms. It must be stressed that, like Table 1, and the public governance paradigms of Figure 1, Table 2 is cumulative. Thus, it is not a question of one generation of human-technology relationships and types of service replacing those of a previous generation, but rather complementing and building on what already exists.

The human-digital technology relationship in Table 2 is of particular interest as through Generations 1.0 to 4.0 it changes sequentially from technology being the main supporter of the public services provided to doing most or all of the work to the extent that it sometimes becomes invisible. The next step, to the future Generation 5.0, is crucial as this involves profound human, societal and philosophical issues about what we want technology to do. This is examined in more detail in Section 5.1.

**Table 2**: Tracing the cumulative relationship between digital technology and public services since the early 1990s

| | **Digitally-supported public services** (from early 1990s) | **Digitally-enabled public services** (from 2000) | **Digitally-driven public services** (from 2008) | **Digital-only public services** (from 2015) | **New hybrid public services** (from 2020, but mainly in future) |
|---|---|---|---|---|---|
| **Description** | Humans provide service but back-office processes are digitised. Typically, these services rely on physical work and/or tangible assets | The potential for digitising public services is huge, but these services are only partly digitised, so digital technology but can only play an enabling role | Public services can be largely digitised, hidden & operate semantically & intelligently in the background, providing personalised & proactive services. They do not normally produce physical deliverables | Artificial intelligence (AI) will analyse available relevant data to deliver insights & automatically intervene to achieve best outcomes via fully joined-up & predictive services | Decentralised web app platforms & APIs, advanced AI & blockchain, etc., to empower people to regain and retain control of digital life & how it mixes with physical life |
| **Human role** | Provide the service, supported by the digital technology | Provide all evidence-, value- and judgement-based decisions | Only intervene where necessary | Define & design framework conditions and determine what are 'best' and/or acceptable outcomes | 'Whole-of-life' physical & digital control; hybrid of emotional, human & digital interactions. |
| **Digital technology role & generation**[12] (cumulative) | Supports humans in providing the service. **Gov 1.0 & web 1.0** | Enables the service. **Gov 2.0 & web 2.0** | Both generates & delivers the service. **Gov 3.0 & web 3.0** | Find & analyse data, make & implement decisions within framework. **Gov 4.0 & web 4.0** | All tasks, but under full conscious human control and/or predictive & benign intervention. **Gov 5.0 & web 5.0** |
| **Public service examples** (cumulative) | Law making & enforcement, defence, utilities, emergency services, transport, social housing, healthcare, social care, education, etc. | e-Healthcare, e-Medicine, e-Learning, e-Town planning, e-Mapping, e-Property data etc. | Payment of social security, pensions & other benefits & taxes; purchase of services; administrative services; obtaining licenses, permits, permissions, etc. | Full life / busines events / other event services (e.g. for education, health prevention, running a company); early warning systems to identify, diagnose & prevent known & unknown risks, etc. | Fully hybrid services of all kinds; optimise interaction between physical & virtual life with human in full control also of own data & identity; full virtual assistance, digital twinning, personas, etc. |
| **Public governance paradigms** (cumulative) | 1) Traditional Weberian<br>2) New Public Management<br>3) Neo-Weberian | 4) Networked<br>5) Public value | 6) Lean & austerity<br>7) Open governance: open, platform, participatory, inclusive, co-creative, behavioural & cultural<br>8) Sustainability governance: sustainability, circularity, nature-based<br>9) Local & community governance: locality, civil society involvement, community | | 10) Turbulence<br>11) Changing geographies<br>12) Hybrid human-centred systems<br>13) People-planet systems |

Source: Adapted and updated from European Digital Forum (2015), see also Millard (2023).

[12] For definitions of government and web generations, see Table 1.

## 3.3 Aligning public values and public value with changing public governance paradigms

Table 3 provides a cumulative chronological overview and summary of public governance paradigm characteristics constructed directly from the detailed evidence and sources provided in the accompanying state-of-art report. It shows the nine public governance paradigms in rows arranged chronologically, plus summaries in columns A to I of important characteristics of each. Of particular interest are column C which summarises which of the nine European public values are addressed by each paradigm, column D shows the changes in public value, column E the digital technology used and Column I the **framework conditions and influencing factors**.

It is very clear from column C in Table 3 that the number of European public values incorporated increases over time but with two important exceptions against this trend that show significant reductions in the numbers. First, the introduction of NPM from about 1980 reduces the focus to just two dominant public values, i.e. being efficient and the rule of law. Although the rule of law is clearly present in NPM in a European context, one of NPM's weaknesses is that it can sometimes be difficult for other actors to see this given the paradigm's opaqueness, for example when outsourcing and partnership contracts are typically hidden because of 'commercial confidentiality'. The primacy of efficiency in NPM is related to its raison d'être that market principles are the best way to operate more or less any organisation or institution and that public service users should be viewed as customers with a purely transactional relationship with the public sector. NPM's highly focused entrepreneurial culture views outsourcing, a focus on cost-cutting efficiencies and 'value for money' principles, as the most important for good governance. Second, the lean and austerity public governance paradigm was rapidly introduced in the aftermath of the global economic and financial crisis of 2007-8. However, rather than just two dominant public values of being efficient and the rule of law as in NPM, leanness also includes being accountable and transparent. This more nuanced public values portfolio is likely due to the fact that the Neo-Weberian governance paradigm appears after NPM but before leanness and adds additional public values. In addition, it is almost certainly also related to the introduction of Generation 2.0 and 3.0 modes of government and web technologies which have opened up governance to a considerable extent immediately before and after 2008.

In terms of public value, the Weberian, NPM and Neo-Weberian public governance paradigms establish the basic building blocks of welfare state services at level 1 public value. They do so in different ways, however, related to the changing framework conditions, first of post-war austerity, followed by the 1970s financial crisis and then Neo-Weberian attempts to find a balanced 'third way' between 'small' and 'big' government. The immediate post-2008 lean governance paradigm undoes this balancing attempt and reverts to 'small' government policies.

After about 2000 the networked and public value governance paradigms both come to the fore, again as reactions to NPM as well as to the Neo-Weberian lack of innovation, but also enabled by the arrival of Generation 2.0 government and web technologies. This digital technology revolution was clearly a major turning point as it enabled interactive rather than one-way governance, social media and completely new types of public services as shown also in Table ***2***. It is noteworthy that the networked and public value governance paradigms appear at about the same time with the same technological opportunities and societal challenges, but represent somewhat different political, policy and cultural responses to these conditions, showing **the paramount importance of the type of political and policy responses enacted**. After 2008's financial crisis, but also again driven by further digital technology revolutions (Generation 3.0), both lean and open governance emerge as two very distinctively different, and in many ways contradictory, responses to the same societal challenges and technological opportunities. Similarly, from about 2015, in the context of Generation 4.0 technology, the sustainable and locality-community paradigms emerge as distinctively different responses but, this time, as largely complementary.

These changing public values of good governance are also reflected in the types of services delivering public value. From about 2000, the network and public value governance paradigms in the context of Generation 2.0 interactive technologies start attempts to join-up and coordinate services. However, it is only with the introduction of the open governance paradigm and Generation 3.0 semantic technology that such joining-up attempts, through a life-event and one-stop-shop focus, become more mainstream, although still have only very limited success in breaking down silos. From about 2015, however, further political and policy changes, alongside technology Generation 4.0 with possibilities to better link distributed data that the breaking down of silos starts to have some real success in the context of the sustainability and locality-community paradigms that can deliver public value level 2.

**Table 3.** Cumulative chronological overview and summary of public governance paradigm characteristics

| Public governance paradigm (dates) | A) Purpose | B) Governance structures, norms & cultures | C) Good governance public values for delivering public value | D) Public services contributing to public value | E) Digital technologies (ref Table 1 & Figure 2) | F) Role of public sector in public governance | G) Role of other actors in public governance | H) Weaknesses | I) Framework conditions & influencing factors |
|---|---|---|---|---|---|---|---|---|---|
| 1) Traditional public (Weberian) administration (from before 1945) | Authority & control; rule of law; professional; politically neutral; objective: central role of the state | Top-down hierarchy; centralised; internal orientation; clear rules; functional specialisation; standardised procedures; culture of civil service ethics | 1) Accountable<br>5) Efficient<br>7) Rule of law | Increasing provision of all basic European welfare state services, incl. health, education, transport & housing | Only from mid-1990s, G1.0 Industrial Rs: 2IR & 3IR | Monopoly on policy design & implementation, on service design & delivery & on public value creation | Formally minimal, but in early period services, later seen as 'public' still delivered by private & civil sectors | High implementation & monitoring costs; lack of useful know-ledge; rigid one-size-fits-all solutions so many not served leading to dissatisfaction | Post-1945 initial austerity, & later very strong growth; Keynesian interventionist 'big' government; welfare state starts but baby boom increases service pressure. |
| 2) New Public Management (NPM) & market-based (from about 1980) | Operate as a business; market focus; treat users as 'customers' with private sector management who get 'choice'; cost reduction; targets & measurement | Decentralised & competitive; 'small government'; moves to privatise, reduction of government control; outsourcing & competition; culture of entrepreneurialism. | 5) Efficient<br>7) Rule of law | Increasing role of non-public actors for all basic European welfare state services. From mid 1990s online service access. | Mainly G1.0, later G2.0 Industrial Rs: 2IR & 3IR | Significant outsourcing, 'arms-length' oversight & financing of governance functions & public services for implementation by private sector | Huge role for private sector in competing for and implementing many governance functions & public services. | Short-termism; budget rigidity put before ser-vice quality: opaque ethics; possible corruption; less democratic account-ability due to 'com-mercial confidence'; over reliance on KPIs | In wake of supply-side energy shocks of 1970s, Milton Friedman Chicago School supply-side economics; hands-off 'small' government; privatisation & market competitiveness; boosted by the fall of communism from 1990 when neo-liberal worldwide assumed the 'end of history' |
| 3) Neo-Weberian State (from late 1990s) | As Weberian but more professional, responsive, open & results focused; some networking within public sector & with other actors | Some reversion to Weberian plus both more internal centralisation & external orientation with focus on meeting user needs; culture focused on increasing service quality & responsiveness. | 1) Accountable<br>3) Responsive<br>5) Efficient<br>7) Rule of law | Greater state service provision; start of digital interactive user-centred services & user generated content. | Mainly G1.0 & later G2.0. Industrial Rs: 2IR & 3IR | Dominant actor for policy design & implementation, for service design & delivery & for public value creation | Less dominant as service providers cf. to NPM; but start of feedback from cit-izens & businesses as service users but not initially digital | Danger of some reversion to Weberian weaknesses, and emergence of digital divide problems. | Reaction against NPM in many countries with some retention / reintroduction of public interventionism; focus on a 'third-way' in politics between 'big' & 'small' governance |
| 4) Networked governance (from about 2000) | Focus on formal, systemic network relationships & coordination across public sector & with other actors | Networking technology improves efficient & effective interconnection of public entities & multi-levels, & with non-public actors; culture of collaborative decision-making | 1) Accountable<br>3) Responsive<br>5) Efficient<br>6) Effective<br>7) Rule of law | Increased service coordination & targeting between public entities & with other actors | Mainly G2.0. Industrial Rs: 2IR & 3IR | Facilitating network actor for coordinating different public entities, & with other actors, in service design & delivery & for public value creation | All other actors better able to find niche roles for different public services at different governance levels | Huge digital & mana-gerial competence challenges amongst all actors; not addressing 'wicked problems' sufficiently; start of digital divide; some technology hype | 'Network society'; 'wicked' & cross-boundary problems; societal individualisation & horizontalisation; economic growth & globalisation; 2000 dotcom crash; 2001 9/11 terror attacks in New York. |
| 5) Public value governance (from about 2000) | Government recog-nises itself as the prime mover in creating public value through its unique role as supporting interests of all actors | Systems of dialogue & exchange of multiple actors led by government through its organisational & managerial capacity, combining culture of all actors creating value together. | 1) Accountable<br>2) Transparent<br>3) Responsive<br>5) Efficient<br>6) Effective<br>7) Rule of law<br>9) Consensus | Start of service focus on maximising value for users via consultation and joint value creation between all actors. | Mainly G2.0. Industrial Rs: 2IR & 3IR | Managing & orchestrating all actors through consultation & collaboration to create value for each based on political legitimacy | Motivated by their involvement in networks and partnerships, especially with pub-lic sector to join in creating their own & public value | Big strain on public leaders & managers; how to measure; actor consultation not direct involvement; silos try to cooperate but still follow own interests | Relatively 'big' government creating public value for all actors seen as necessary to address 'wicked' societal problems; accelerating economic growth & globalisation |

Source: The author (Millard, 2023).

**Table 3 (continued).** Cumulative chronological overview and summary of public governance paradigm characteristics

| Public governance model (dates) | A) Purpose | B) Governance structures, norms & cultures | C) Good governance public values for delivering public value | D) Public services contributing to public value | E) Digital technologies (ref Table 1 & Figure 2) | F) Role of public sector in public governance | G) Role of other actors in public governance | H) Weaknesses | I) Framework conditions & influencing factors |
|---|---|---|---|---|---|---|---|---|---|
| 6) Lean and austerity (from 2008) | Continue basic NPM tradition but even greater focus on cost savings & service cuts; doing 'more with less' | As NPM but even stronger emphasis on outsourcing & 'arms-length' oversight of civil & private sector actors taking public tasks via networking; some collaborative culture | 1) Accountable<br>2) Transparent<br>5) Efficient<br>7) Rule of law | Austerity scales down provision of basic welfare state services with some slack taken by other actors, especially civil society | Mainly G1.0, G2.0 & G3.0 Industrial Rs: 2IR & 3IR | Reversion to NPM with, even greater efforts to outsource but also collaborate with, & orchestrate roles of, other actors to create public value | Esp. civil society pushed to takeover more responsibility for social public services that private sector unwilling to do, whilst still outsourcing more lucrative services to private sector | Even less ability to directly address 'wicked' societal challenges than NPM as attempt to out-source much of this responsibility despite private sector often unwilling & civil sector often not able | 2007-8 global financial crisis creating complex political, economic, managerial, cohesion & democratic challenges leading to a period of austerity, small gov & growing inequality & poverty |
| 7) Open governance (from 2008) | Gov opens its processes, services & data, incl. decision & policy making inviting all other actors to do the same to create societal level public value for all; doing more by leveraging more. | Networking & platform structures become dominant fostering multiple governance structures & cultures, through transparent, participatory, inclusive, co-creative & behaviour-al/cultural gov. | 1) Accountable<br>2) Transparent<br>3) Responsive<br>4) Inclusive<br>5) Efficient<br>6) Effective<br>7) Rule of law<br>8) Participatory<br>9) Consensus<br><br>Add 'open' | Semantic platform based personalised & co-creative services via participation & max inclusion; e-Signature & e-Identity; gamification; once-only; digital-by-default; policy modelling; life events & one-stop-shop attempting to break down silos; joined-up, proactive & predictive. | Mainly G3.0 & then G4.0 with G2.0 still present Industrial Rs: 2IR, 3IR & then 4IR | As public value (& some lean) governance, with public sector becoming responsible for orchestrating public value but recognising it does not have monopoly on assets, knowhow & wisdom to do so. | Critical role of private, civil & education actors to contribute their assets & knowhow to create their own value within the overall public value context. | Lack of interoperability; reluctance to share data; lack skills & competences; openness risks data security; blurring of accountability & of how quality is ensured; new digital & socio-economic divides | Obama's 2007-8 crisis different response to lean with a relatively big gov approach; leading to strong economic growth but also contributing to the increase in inequality & poverty as globalisation, outsourcing & long supply-chains accelerate in importance. |
| 8) Sustainability governance (from about 2015) | Society needs to make all its activities sustainable, socially, economically & environmentally in an integrated & nexus manner; meet needs of society both today & tomorrow. | Public sector is pivotal whilst working with all actors at all levels through networks & platforms in sustaina-bility culture including for circularity & nature-based approaches | As open governance.<br><br>Add 'sustainability' | As open governance, plus focus on nature monitoring, resilience & regeneration services with attempts to break-down silos only partially successful. | As open governance | As open governance & public sector taking lead, including for policy & regulation, on all sustainability issues at all levels of government & across all sectors & parts of life; identify, reduce & assign respon-sibility for externalities | Variable roles; at minimum support public sector's lead, but also take own lead in contexts where actor is active or has specific interest. | Nature not given big enough voice; still seen just as source of eco-services & natural resources, with focus on these functions paramount rather than nature's own interests; problem of shifting baseline syndrome | As open governance, plus especially after 2015 UN SDGs & climate change agreement & corresponding EU initiatives. |
| 9) Local & community governance (from about 2015) | 'New localism' aims to retain as much value generated locally within the locality; not in isolation but based on networking, interconnectivity, local participation & democracy. | Interacting multi-level structures where local & community author-ities exercise subsidia-rity power & access resources relevant for their function; culture of local responsibility in national, historical & cultural context. | As open & sustainability.<br><br>Add locality & community | As open & sustainability governance, but mainly focused on local and city levels where joining up silos easier than at national level | As open governance | As open governance, & national public sector providing open struc-tures & frameworks for localities to thrive, & local public sector often taking lead role locally & a strong enabling role to maximise & retain local public value. | Variable roles; often community, some-times firms, taking lead roles as they have extra resources, know-how & energy to innovate; e.g. sweet-spot of smart cities & transition towns. | Poor locality gov can lead to national postcode lottery & complex inoperable solutions, loss of scale economies & other benefits; local fiefdoms & isolationism; bad externality impacts on near/other localities. | As open governance & new devolved powers in many countries; new urban & city-region agendas; new focus on rural areas & rural-urban relationships; especially cities & neighbourhoods gaining more power & recognition; many city cooperation networks. |

Source: The author (Millard, 2023).

A noteworthy observation of changing public values as new public governance paradigms appear is that being efficient and the rule of law are the only public values for good governance that run through the whole period from 1945, clearly reflecting the main underlying principle of Weberian administrative governance which has remained the bedrock of European governance since. As mentioned, apart from the significant reduction in the variance of public values in NPM and the smaller regression during the lean and austerity period, the number and diversity of public values addressed by successive public governance paradigms increases chronologically. It is also noteworthy that from about 2000 and Generation 2.0 technology, a very large number of new public governance paradigms and models was enabled that are clearly interdependent, often mutually reinforcing but sometimes also contradictory. Apart from the technology, these were also enabled by significant changes in the framework conditions, as summarised in column I of Table 3. Based on the evidence in this and the accompanying state-of-art report, these post-2000 paradigms were able, at least in principle but often in practice, depending on the specific focus of each, to start developing many more public values.

It is also relevant to observe that another **important change around the year 2000 sees paradigms and models switch from being mainly process and organisationally focused**, and labelled as such by the actors involved as well as by researchers, **to having a specific public value and societal focus**. Post-2000, labelling began to be directly conceived to address important societal challenges, enabled and driven by the fact that digital technologies have become powerful enough for public governance to exploit them in a myriad of significant ways. Before about the year 2000, there were only a few standard paradigms and models, but in the years since there has been a **mushrooming of novel and experimental trends and possibilities enabled by the technology but also driven by changes in society, politics and policy**.

As mentioned, apart from the lean and austerity retrenchment, all of the post-2008 public governance paradigms, covering openness, sustainability and locality/community, ostensibly address all ten public values, clearly also related to the increasing effectiveness of digital technology based on Generation 3.0 and then 4.0. It can thus be deduced that this period saw the fulfilment of all European good governance objectives. However, these were consolidated in the period up to 2017 and **it is clear from the evidence of the open, sustainability and locality/community paradigms that there is a need for agreeing additional European public values that reflect these paradigms**. Indeed, the 2017 consolidation of public values (European Commission, 2017) does hint that sustainability, both in terms of making government itself more sustainable but also related to problems in the use of finite resources, impacts on the natural environment and climate change, could be a relevant public value. However, neither locality nor community are promoted as possible public values in this document.

# 4 Strategic challenges facing public governance from 2020 onward

This part of the report takes the story of existing European public governance paradigms narrated above into the post-2019 present and future by attempting to paint a credible set of pictures about Europe's current and near future public governance challenges up to at least 2030. This and subsequent sections will also need to be seen in the context of Europe's Digital Decade to 2030 (European Commission, 2021k), and draws upon recent work by the JRC on the Future of Government 2030+ (Vesnic and Scapolo, 2019; Vesnic et al, 2019). Four overarching strategic challenges are identified for public governance in this report, each of which is exemplified through a number of potential paradigms and models. As was clear with the nine existing public governance paradigms identified above, and although there is chronological change driven largely by political, socio-economic, environmental and cultural factors and events where digital technology and data are best seen as necessary but never sufficient tools, a new paradigm does not replace earlier ones but rather cumulatively adds to the mix of those being used. Clearly, the most recent paradigms tend to attract most attention and, if seen as beneficial, become widely rolled out, but most if not all earlier paradigms typically continue to play important roles and exert significant influence. This is also due to the fact that, although some paradigms are in conflict with each other (e.g. as seen in the switches between 'big' and 'small' government as summarised in Table 3, most are complementary, so that it is the actual 'mix that matters' (Bevir, 2013) in any time and place.

In contrast to **the 2007-08 financial crisis** characterised by a massive demand slump due to dramatically reduced consumer spending power, **COVID-19 hitting Europe in early 2020** caused a severe supply-side recession. This is being turbo-charged by **the invasion of Ukraine during 2022**, depositing a thick layer of geo-political tectonic change on top. Underlying all this is **the 'mother-of-all' crises that sees our natural environment stretched to near collapse**, thereby putting the very survival of our species in peril. All this has disrupted both global and local supply chains as much of the workforce becomes used to virtual, remote and hybrid working, restrictions on the movement of people and goods with transport and logistics put under severe

pressure. At the same time, demand for many goods and services mushrooms in Europe as elsewhere as pandemic restrictions are lifted.

The economic contraction caused by the COVID-19 pandemic in 2020-21 left a heavy health and human toll, shrank the Eurozone economy by a record 12.1% and wiped out more than a decade of expansion during the largest economic shock the world has experienced since 2008 (Elliot, 2020). A further sharp tightening of the economic screw began in early 2022 with the Russian invasion of Ukraine. The International Monetary Fund (IMF) drastically downgraded its growth forecasts, predicting further global economic fragmentation, rising debt and social unrest (IMF, 2022). The World Bank stated a "human catastrophe loomed" with an estimated unprecedented 37% rise in food prices, caused by war-related disruption to supplies, pushing millions into poverty, increasing malnutrition, and reducing funding for education and healthcare for the least well-off (BBC, 2022). By April 2022, more than five million people had fled Ukraine in two months, with more likely to follow, exacerbating an international migration emergency that extends from Afghanistan to the Sahel (Aljazeera, 2022). In drought-hit east Africa, the World Food Programme says 20 million people face starvation during 2022. The war in Ukraine did not create the drought, but the UN warns it could hurt efforts to reduce global heating, thereby triggering further displacement and forced migration (Harvey, 2022).

It is clear that **the 21st Century has ushered in a new age of more or less continuous crisis and disruption** and that these are not times for business-as-usual. It is time for rethinking many of our shibboleths, both sustainable development and resilience, how we re-structure our economies and politics, as well as how we work, play and live on the earth's surface. These are huge issues, intimately inter-related, and in which public governance and digital data and technology clearly play essential roles.

Referring to Figure 1, four strategic challenges are identified which new public governance paradigms will need to address through a rich set of diverse experiments which, although mainly in the future and somewhat tentative, are based on tracing very recent developments and commentary. They are likely to be strongly interrelated given they arise from, or at least are significantly accelerated by, turbulence and uncertainty. Although some of these challenges initially kicked-off in the aftermath of the 2007-8 economic and financial crisis, they are now much more acute. It must also be stressed that the four identified strategic challenges are not proposed as an exhaustive list as others are likely to arise during on-going turbulence. Each challenge also suggests several likely public governance paradigms and models designed to increase public value and that build on, complement and are perhaps sometimes in conflict with, the public value delivered by existing public governance, as summarised in Section 3.

**Strategic challenge 1**— Living with turbulence: open strategic autonomy; security and risk; societal resilience.

**Strategic challenge 2**— Changing geographies: European and global geo-politics; re-ordering settlements and communities; turbo-charged localities and communities.

**Strategic challenge 3**—Hybrid human-centred relationships: preventative public services; 'community-based solutions'; justice, fairness and inclusion by design.

**Strategic challenge 4**— People-planet systems: quintuple helix; from sustainability to resilience to regeneration; dynamic systems

Each of these four strategic challenges, together with their suggested public governance paradigms and models, are proposed for further experimentation testing, validation and refinement. In relation to digital technology, the question for experimentation would be what role does current and future technology have in supporting, improving and indeed extending the public value of these paradigms and models?

## 4.1 Strategic challenge 1: Living with turbulence

### 4.1.1 Open Strategic Autonomy

Open Strategic Autonomy is a relatively new EU concern designed to ensure that it is able to internally source most strategic goods and services, with the rest via 'friend-shoring' from allied, stable and reliable democratic countries. This has been developed in order to support Europe's post-coronavirus recovery programme (European Commission, 2020c), part of which is a review of the EU's trade and investment policy (European Commission, 2020d). "Two key objectives are driving this process. First, to assess how trade policy can contribute to a swift and sustainable socio-economic recovery, reinforcing competitiveness in the post-Covid 19 environment, addressing the challenges the EU will face, and helping to promote our values and standards. Second, to see how trade policy can help build a stronger EU based on a model of 'Open Strategic Autonomy'

reaping the benefits of openness for our businesses, workers and consumers, while protecting them from unfair practices and building up our resilience to be better equipped for future challenges." This policy review is designed to set the political direction for EU trade and investment policy in the years to come.

In 2021, the JRC carried out a foresight process to look at Open Strategic Autonomy in a systematic and systemic way, encompassing different dimensions in a holistic manner by presenting an overview of Europe's existing capacities, dependencies and vulnerabilities through synthesising existing knowledge on the current state and future possibilities in 2040 and beyond. This also encompassed examining trends and emerging issues, looking forward at how they could evolve over time, and looking at the opportunities and risks they entail. The report highlights ways the EU can start to seize the benefits from positive developments and ways to transform risks into potential for positive transformation (Cagnin et al, 2021).

According to Van den Abeele (2021), the President of the European Council, Charles Michel, dubbed 'open strategic economy' goal No. 1 for our generation: "For now, much of the debate on strategic autonomy has been on semantics, marking clear political divides between countries that see this as a threat to Europe's openness, and its proponents who see a chance to advance European industry and help foster 'champions' able to compete on a global scale." The concept was endorsed by the European Council of 1 and 2 October 2020, was referenced at the European Council of 26 March 2021, and at the same time needs to be seen in the context of the EU's green and digital transition and the resilience of the EU's socio-economic model in the aftermath of the pandemic, and now even more critical in light of the Russian invasion of Ukraine. Other countries, including close allies, are also pursuing their own forms of strategic autonomy. For example, France and Germany as the EU's two leading economies, are pushing for tougher industrial policies such as more state subsidies for European businesses, to counter the threat from U.S. reforms that risk triggering a transatlantic trade war. They have issued a joint statement vowing to "explore industrial policy possibilities" to safeguard European industries from discriminatory trade measures from Washington and also Beijing, signalling an escalation of European efforts to protect home-grown manufacturing from the threat of unfair competition as the era of free unfettered trade comes to an end. (Politico, 2022)

The European Parliament (2022a) now regularly reviews the EU's progress towards open strategic autonomy, with the latest in July 2022 examining post 2019 developments: in 2020 the Covid-19 shock in relation to supply chain vulnerabilities; in 2021 in terms of 'one concept under many names' showing that this is not a zero sum game but rather a sliding scale between full autonomy and full dependency with different results for different policy areas; and the latest in 2022 in reaction to the Ukraine shock, translating words into action, that brought the debate back to hard realities with the need to react with concrete, practical action. Thus, **open strategic autonomy is now for Europe more than just a goal but rather a strategic necessity**. In addition, according to the European Parliament (2021a), an important pillar is that "the EU should now strive for '**open digital autonomy**' by defining well integrated policies that combine more funds, regulation when needed but without excess, global strategic partnership and alliances, and a new and innovative approach to digital diplomacy that leverages European strengths also in areas such as the setting of global standards". In particular, although Europe has many current digital strengths, such as in software services, there is a need to address the EU's continuing dependence on non-European technology providers.

### 4.1.2 Security and risk

The WEF's latest Global Risks Report (WEF, 2022a), was published shortly before the Russian invasion of Ukraine in February 2022 but this has only further accentuated the risks highlighted. For example, COVID-19 and its economic and societal consequences continue to pose critical threats, further increasing inequality whilst uneven **economic recovery risks** compounding social fractures and geopolitical tensions. At a global level, this complicates the coordination needed to tackle the most common challenges identified as **societal and environmental concerns**, including strengthening climate action, enhancing digital safety and tackling cyber vulnerabilities, restoring livelihoods and societal cohesion, managing migration and addressing competition in space. Since the start of the pandemic in early 2020, societal risks in the form of social cohesion erosion, livelihood crises and mental health deterioration, have worsened the most. For the next three years, expectations are seen as either consistent volatility with multiple surprises or as fractured trajectories that will separate relative winners from losers. For the next five years, societal and environmental risks are seen as the most pressing, but over a 10-year time horizon, the health of the planet dominates all other concerns, especially climate action failure, extreme weather and biodiversity loss. Technology risks are also seen as increasing, especially digital inequality and cybersecurity failure (WEF, 2022a).

In addition to these global risks that also strongly threaten Europe, important European risks over the last 2 years have included t**hreats to the continued provision of financial services, fiscal stability and the**

**resilience of the financial system**. However, to date, this risk has been successfully addressed primarily due to the continued supply of credit (European Systemic Risk Board, 2022). However, the Russian invasion of Ukraine now threatens to undermine this success, especially given the uncertainty as to how long it will continue, as well as the certainty that European politics and security have already been dramatically re-set regardless of the war's duration. According to FERMA (2022) the top 5 risks in Europe within the next 12 months are cyber threats, supply chain or distribution failure, geopolitical uncertainties, uncertain economic growth and over-regulation. Over the next 3 years, the top 3 risks are seen as changing customer behaviour, cyber threats and uncertain economic growth, whilst the top 3 over the next 10 years are perceived as climate change and environmental damage, plus changing customer behaviour and natural disasters. It is clear from this that in the short to medium term, cyber threat and uncertain economic growth stand out, to be replaced in the top three by climate and environmental threats and resulting natural disasters over the long-term. This long-term risk perception is similar to that seen globally.

In terms of **cyber security**, EU-wide legislation first started in 2016 when it launched the Network and Information Systems (NIS) Directive with some success, and this was followed in 2019 when the European Council supported a concerted approach to the security of 5G network European Parliament (2021a). In 2020, the JRC reported on cyber security as Europe's 'digital anchor' by providing multidimensional insights into the growth of cybersecurity over the last 40 years, identifying weaknesses in the current digital evolution and their impacts on European citizens and industry. The report also set out the elements that potentially could be used to shape a brighter and more secure future for Europe's digital society, taking into account the new cybersecurity challenges triggered by the COVID-19 crisis. According to some estimates, cybercrime cost the world EUR 5.5 trillion during 2020, up from EUR 2.7 trillion in 2015, due in part to the exploitation of the COVID-19 pandemic by cyber criminals. This figure represents the largest transfer of economic wealth in history, more profitable than the global trade in all major illegal drugs combined, putting at risk incentives for innovation and investment (Baldini et al, 2020).

In November 2022, the European Commission put forward a Joint Communication on an EU Cyber Defence policy and an Action Plan on Military Mobility 2.0 to address the deteriorating security environment following Russia's aggression and to boost the EU's capacity to protect its citizens and infrastructure (European Commission, 2022c). Given that cyberspace has no borders, there is a need for the EU to enhance cooperation and investments in cyber defence to better protect, detect, deter, and defend against a growing number of cyber-attacks on energy networks, transport infrastructure and space assets that pose risks to both civilian and military actors.

This builds on the EU's 2020 cyber security strategy that aims to address the fact that the EU's economy, democracy and society depend more than ever on secure and reliable digital tools and connectivity, so that cybersecurity is essential for building a resilient, green and digital Europe. This threat landscape is compounded by geopolitical tensions over the global and open Internet and over control of technologies across the whole supply chain, including for electronic components, data analytics, cloud, faster and smarter networks with 5G and beyond, encryption, AI, and new computing and trusted data processing paradigms such as blockchain, cloud-to-edge and quantum computing. Of particularly high importance are the malicious targeting of critical infrastructure and security threats as a major disincentive to using online services. Improving cybersecurity is therefore essential for people to trust, use, and benefit from innovation, connectivity and automation, and for safeguarding fundamental rights and freedoms, including the rights to privacy and to the protection of personal data, and the freedom of expression and information (European Commission, 2020e).

### 4.1.3 Societal resilience

In the aftermath of COVID-19, there is a need for a re-evaluation of global value chains given that the market is already contemplating **the move from a globalised to a more de-globalised world**, although not back to the same place before the last 20-30 years of massive globalisation. This will involve some new on-shoring and friend-shoring economic activity and employment and a re-focus back to more domestic markets in new forms of re-localisation, also down to regional and especially city levels, although it is important to retain openness, connectivity and cooperation at all levels including globally. This is likely to be seen especially in relation to 'strategic' manufactured goods, such as health and other vital goods, as well as in critical infrastructures, and increased focus on more domestic and regional sources in order to diversity supply towards greater resilience at times of future shock. This is already taking place to some extent, for example through more circular economies and a strong move to additive manufacturing using tools like 3D printing which is able to use waste from one industrial process as the feedstock for another, rather than importing new raw materials from the other side of the globe. Supply chains have considerably shortened during the pandemic and, although

there will likely be new rounds of re-globalisation, the advantages of better control through a stronger focus on resilience, reductions in environmental footprints and some re-shoring of jobs in the context of shifting geo-political trends towards more inward-looking global blocs, is likely to continue to be priortised.

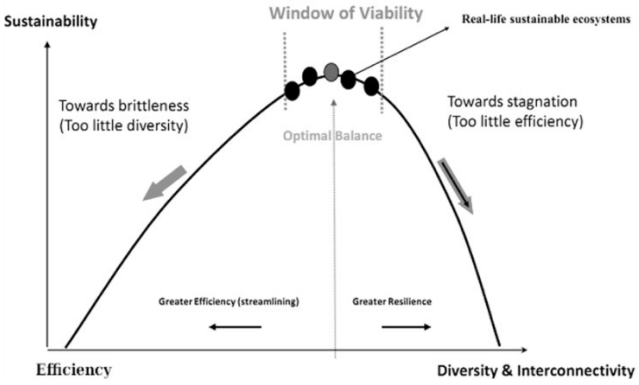
A fundamental issue is the **balance between economic efficiency** on the one hand, which has been the prevailing just-in-time mantra but increasingly seen as a short-term strategy, **and economic resilience** on the other, that also promotes societal and environmental wellbeing, but typically requires a medium- to longer-term perspective and a just-in-case approach. When efficiency is prioritised over all other requirements of an economic system, this tends to become 'hard-wired' so pressure is on to eliminate all so-called slack in the system, for example by eliminating stock in hand for productive industry, financial reserves for banks and additional human resources in all types of economic activity, given that each of these adds to organisational costs thereby reducing efficiency. However, this type of efficiency leads to so-called 'economic brittleness' – there is no problem when the economic environment is highly predictable and changes very slowly, but when subject to shock there is no slack to respond in a robust manner. According to the Ellen MacArthur Foundation (2013), successful companies and successful economies require a "**tradeoff between efficiency and resilience**" and "**that economic resiliency is based on economic diversification and complexity**". According to a paper prepared for the UN in the summer of 2020 in the wake of COVID-19, these observations became even clearer (Millard, 2020), while an OECD paper in the same year (OECD, 2020c) observed that when "aspiring for maximum efficiency and optimisation, systems have neglected resilience against disruptions whose shocks may leave governments, the public, and the environment in a weakened state".

As shown in Figure 2, in order to optimise sustainability (defined as the ability for successful survival of any system over the long-term) there is a trade-off between efficiency (and brittleness), on the one hand, and resilience through diversity and interconnectivity (adaptive to shock but slow to change radically), on the other. To optimise the system requires finding the 'sweet spot' between too much efficiency, risking large scale breakdown from time to time as seen with the shock of COVID-19, and too much resilience, which risks stagnation and struggles to accept radical change. Most economies have so far failed to achieve let alone recognise the need for an 'optimal balance' where both are in play. This is seen in the prevailing focus on short-term shareholder, as opposed to shared or stakeholder, value (Porter and Kramer, 2011), 'lean' companies and value chains and indeed 'lean' governments (Millard, 2015a) and arguably an over-reliance on just-in-time supply chains with no flexibility or ability to find alternative sources in case of disruption. The economic mantra has generally been one of 'squeezing assets', including human assets, and squeezing value chains to maximize quarterly returns whilst leaving no margin for slack in case of system shock. Since the 2008 financial crisis, too many countries have had an obsession with efficiency to the extent that investing in infrastructure has been neglected. Cost-cutting has been given a higher priority than capacity building.

As a result of the economic and social disruptions caused by the pandemic, many international organisations, as well as governments, are now starting to advocate building resilience much more strongly into global economic systems. For example, the World Economic Forum's focus on the 'Great Re-set' (WEF, 2020), which also recognises that in the context of the three interconnected pillars of sustainable development in the UN's 2030 Agenda (United Nations, 2015b), resilience needs to be seen not only in narrow economic terms, but also as social and environmental resilience. It is clearly more 'efficient' over the medium- to long-term, also in narrow economic terms, to focus on the joined-up resilience of all three pillars of the social, the economy and the environment, because if one fails all fail.

Successfully addressing turbulence also requires **a resilient society in which social structures and conditions are both diverse and interconnected**. Diversity is important for innovation, to promote thriving cultures and to support multiple values and identities through 'unity in diversity' (Scharfbillig,et al, 2021). However, without hybrid interconnectivity (both digital and human-to-human in multiple ways) with policies that promote inclusion, cohesion, justice and fairness, this can lead to atomisation, separateness and even conflict. Diversity should not mean inequality. For example, the huge inequalities within as well as between countries illustrate the pernicious effects on societies: eroding trust, increasing anxiety and illness and encouraging excessive consumption. It is clear that across a wide range of health and social problems (physical health, mental health, drug abuse, education, imprisonment, obesity, social mobility, trust and community life, violence, teenage pregnancies, and child well-being) that outcomes are significantly worse in more unequal countries, whether rich or poor (Wilkinson and Pickett, 2009). Other research has shown conclusively that the global economy has developed to such a point that greater income is being derived simply through the continuing increase in the value of already accumulated wealth assets rather than through income derived from work in the labour market where this wealth is actually produced. According to (Piketty, 2014), trickle-down economics has been entirely discredited both as a theory and as a real phenomenon.

**Figure 2**. Balance between efficiency and resilience




Source: Ellen MacArthur Foundation, 2013.

**Poverty and inequality** have also been growing dramatically in Europe, especially since the 2007-8 financial crisis and even more since 2020 with the turbulence induced by the pandemic and the war in Ukraine. In 2020, 96.5 million people in the EU were at risk of relative poverty or social exclusion; this was equivalent to 21.9 % of the EU population. The risk of poverty or social exclusion in the EU was higher in 2020 for women than for men (22.9% compared with 20.9%). Neither is poverty evenly distributed. Romania has Europe's highest risk of in-work poverty with a rate of 18.9%. Spain and Greece follow with 13.1% and 14.1%, respectively. Additionally, the in-work poverty risk has increased from 8.3% in 2010 to 9.6 percent in 2016 (Eurostat, 2021a).

McGarvey (2022) looked at relative poverty in the UK and recognised the huge consequences of a lack of interconnectivity through the "proximity gap between the powerful and the powerless as the root cause of many of society's ills." In education, health, housing and benefits there is a fundamental and maintained distance between those who make the policies and the people at the bottom of society who are on the receiving end of them. This is a gap in experience, understanding, culture and, above all, in empathy. McGarvey shows through his analysis of why and how most politicians, as a select group of people with very limited experience of social inequality, has been charged with discussing and debating it and making the rules and structures that surround the poor and vulnerable. The gap to those at the bottom of society, with the lived experience of the ramifications of these structures, policy and decisions, has been both revealed and turbo-charged during COVID-19. This lived experience needs to be coopted in decision- and policymaking as it was in the design of the original welfare state in the UK, but this has not happened since.

**Digital divides** directly relate to existing socio-economic divides, so that both reinforce each other (Millard 2015b), and the uneven roll-out and use of digital technology can exacerbate these inequalities (Oxfam 2016). This is not a given outcome of the technology, but instead derives from the governance, institutional framework, regulatory, labour market and wider economic system. Europe is also struggling to keep up with the digital revolution with a 2019 survey showing that 43% of the adult population in Europe had limited digital skills, and 37% had no digital skills at all. Meanwhile, young refugees and asylum seekers are experiencing a crisis of their own in Europe, finding it very difficult to integrate socially and in the workplace (European Commission, 2019a).

In **digital government**, the drive to be more efficient can push efforts to 'hardwire' processes which can reduce agility and flexibility. To counter this, for example, data-sharing approaches can provide access to information in a range of preferred standardised approaches to readily enable reuse, whilst open-source technology can be important for this reason in some 'business' contexts. Being resilient is also about planning and being prepared, for example, for a pandemic, given that even though the risk of this happening may be low the costs are extremely high if it happens. 'Continuity' is also a keyword for resilience. The Internet (ARPANET) was built so that communication could still work even if nodes were taken out due to war, sabotage, accident or natural disaster, as other nodes could continue to operate in a decentralised but interconnected network. From the governance perspective, it is the overall goal that is important, whether this be sustaining European values, the economy, well-being, etc., but this means choices will need to be made given that when such disruption occurs this allows for some evaluation to take place that, in turn, can improve efficiency. In the context of turbulence and disruption, it is also important to ask what sustainability means for the different actors, who wins and who loses, and who decides what is a sustainable/social/valuable interaction? The European Commission (2022d) has established resilience dashboards aimed to assess the vulnerabilities and capacities of the EU and its Member States in each of four dimensions (social and economic, green, digital and geopolitical), taking a forward-looking perspective informed by strategic foresight. The important role for resilience governance in the post-pandemic world is also explored by Brown (2022) and Bonime-Blanc (2022) with a focus on businesses.

## 4.2 Strategic challenge 2: Changing geographies

### 4.2.1 European and global geo-politics

Prior to 2020 there have been significant geo-political shifts that have impacted public governance, especially the break-up of the Soviet Union in 1989-90 and the 2001 9/11 terror attacks on New York that turbo-charged technology innovation. In particular, this latter event dramatically changed the discussion away from the rights of individuals and companies to keep their online activities away from any government scrutiny, ostensibly to uphold democracy and free-speech, towards intensive government surveillance that aimed to gather enough intelligence to counter further terror threats (Zuboff, 2019). Other important events included the change in US President in 2016 and the Brexit referendum in the UK, both heavily influenced by new social media.

However, the post-2019 shocks have perhaps been the most important for changing geo-politics and their impact on the EU. The rise of China as a world power and changes in South America, Africa, South Asia and the Pacific have also exacerbated geo-political differences and strained as well as strengthened spheres of influence and geographic blocs. In particular, the Russian invasion of Ukraine has had a considerable unifying pull on the EU and NATO and a strengthening of trans-Atlantic relations with a new US President from early 2021. According to the European Commission (2022h), "**the world is experiencing tectonic geopolitical shifts**, reinforcing the megatrends already affecting the EU. The long-term implications of Russia's military aggression against Ukraine, including for energy, food, economy, security, defence and geopolitics, will clearly affect Europe's path to achieving fair green and digital transitions. However, these and other future challenges will not divert the European Union from its long-term objectives. With the right set of policies, they can serve as a catalyst to speed up achieving them. Ultimately, this could foster our resilience and open strategic autonomy in various areas, from energy, food, security and critical supplies – including raw materials needed for the transitions – to cutting-edge technologies."

These shocks have also considerably sharpened both the perception and reality of **political differences between the so-called 'democracies' and 'autocracies', although a more nuanced dichotomy might be between countries that support a stable world order and the rule of law and those that do not**, given that this does not map directly onto whether or not a country is 'democratic' as defined by Freedom House (2022). The number of 'democratic' countries defined using this definition has fallen by half since the late 2000s and is now down to less than 20%.

The EU is attempting strategically to navigate this currently highly volatile landscape, both proactively on the front-foot as well as with intelligent reactivity when unexpected shocks appear as experienced at high tempo over the last 2-3 years, and this inevitably requires appropriate public governance responses. Thus, again this is about the mix that needs to be right and is an important element to frame within the multi-level governance setting of the EU, as examined in Section 7.4.3.

However, there are different views if the Russian invasion of Ukraine means a fundamental geopolitical shift in EU external action that catapults the bloc toward greater geopolitical assertiveness and unity. The war seems to have unlocked more progress on EU foreign and security policy in a few months than was achieved in previous decades, with High Representative Joseph Borrell declaring "the awakening of geopolitical Europe". However, while unity has tightened between member states on some issues it has splintered on others and, despite the step-change in the EU's external action, there is limited evidence so far it will project a stronger or different form of power internationally—that is, as an emergent geopolitical actor—than it did before the war. For now, there seems to be no dramatic birth of any radically new European geo-strategy. In fact, the war invites a less comfortable debate about the EU's global role and identity (Carnegie Europe, 2022).

In contrast, it is clear that **the EU's neighbourhood is increasingly hostile and unstable**, with great power competition between China and the US drawing in Europe, and climate change posing ever-growing economic, social and geopolitical challenges. The US's precipitate withdrawal from Afghanistan in August 2021 showed that even under Joe Biden the US may act in its own interests first, with minimal consultation with its allies. In such an environment, the EU needs to reconsider how it acts on the global stage in order to protect its prosperity and security. It needs to develop the governance and other tools to face these challenges effectively, boosting its diplomacy, its defence capabilities, and its instruments for tackling internal security issues (Centre for European Reform, 2022). Indeed, these other tools will certainly need to include strengthening the EU's digital posture in all its aspects, not only in cyber security but also in consumer industries and public services.

### 4.2.2 Re-ordering settlements and communities

The EU's Committee of the Regions (2020) examined **the territorial dimensions of Covid-19 across the EU** and showed that, although government responses were largely national, they resulted in very different regional impacts. The socio-economic asymmetry of consequences across Europe, countries, regions and cities is largely shaped by diverse regional characteristics that call for higher levels of place-sensitive policy responses, taking into account a region's economic structure, structural challenges, and social profile. Although much of the analysis is focused on specific regions rather than regional types, the findings show both that, because Covid-19 responses vary so much, the usual urban-rural differentiation does not easily apply, but that also metropolitan areas have generally been most strongly hit, though also tend to experience quicker recovery. Sharifi and Khavarian-Garmsir (2020) report that cities that do not have a diverse economic structure are more vulnerable to Covid-19. For example, in Poland, cities going through trans-industrialism, with hard coal mining, large care centres and shrinking cities, are the most vulnerable ones. Whilst the evidence is mainly on the negative impacts, more positive developments are also seen, for example Covid-19-induced transportation restrictions and border closures disrupted food supply chains in cities but have in turn provided additional momentum to urban farming movements. It is expected that more attention will be paid to local supply chains in the post-Covid-19 era. There are also successful cases of social innovation and collaboration, such as in Naples where efforts have been made, through volunteering programs, to get people involved in local practices that contribute to meeting local food demands and also strengthen social ties during the pandemic (Cattivelli and Rusciano, 2020).

To understand processes and relations within different regional types, it is useful to consider the **three stages of the urbanisation process** and how these can repeat themselves (Aleksandrzak, 2019; Mitchell and Bryant 2020):

1. Initial urbanisation, or agglomeration, accompanies the shift from an agrarian to an industrial factory-based society and sees growth concentrated in urban cores.
2. This is later followed by a suburbanisation stage during which growth occurs beyond the urban core, at the expense of the core's population as new forms of efficient transport allow the better-off to move out of the centre to new suburbs.
3. The final counter-urbanisation (or de-glomeration) stage sees the growth of smaller cities and towns in nearby areas beyond the built-up suburban ring and is accompanied by population decline in the core and its immediate suburbs.

The cycle can re-start with a re-urbanisation stage that sees new growth back in the original urban core, driven by the inward movement of both counter-urbanite and suburbanite populations. Many metropolitan regions, particularly in advanced economies like Europe, experienced a counter-urbanisation period in the past, for example in the early 1970s. Since then, parts of this cycle have repeated themselves especially in the last twenty years but through somewhat different processes, this time driven by globalisation and enabled by digital technologies leading to the counter-urbanisation that is currently taking place. These distinct metropolitan cycles, often reflecting at the regional scale an inverse relationship between population growth and city size, are also charted by Cividino (2020) with metropolitan growth being highly positive before 2000 but declining progressively in the subsequent decades. The 1990s were a transitional period away from a spatially homogeneous demographic regime based on high rates of population growth strictly dependent on city size, to the regime we largely see today grounded on low rates of population growth varying over space. This seems synonymous with Mitchell and Bryant's (2020) counter-urbanisation phase and the growth of smaller cities.

Capital cities typically exhibit pockets of poverty alongside very wealthy households, while other very large cities are often characterised by older economies and are more likely to have the lowest urban incomes as former industrial areas that have been left behind economically with relatively high levels of unemployment, poverty and social exclusion. The latter are also cross-related to class, occupation, gender and ethnicity which are themselves subject to such regional variation (Eurostat, 2021 and Millard et al, 2022). On the other hand, smaller cities typically changed less during Covid-19 given their relative younger demographic profiles based on newer economies compared with the other regional types. **This current counter-urbanisation trend is seen in this growth of smaller cities beyond the traditional suburbs accompanied by population decline in the core and its suburbs**. This is being recognised in many countries, for example, the Danish Knowledge Centre for Housing Economics (2021) is charting the movement of population out of the five largest Danish Cities, including Copenhagen, to the smaller provincial cities in their hinterlands which are today the fastest growing municipalities in a development that is expected to continue to at least 2040. Similarly in France where Loumeau and Russo (2022) show that the 2017 expansion of the French high-speed rail network from

Paris to Rennes and Bordeaux induced Parisian skilled workers to move to these cities, a trend considerably boosted by the dramatic growth in tele- and hybrid-work during the pandemic (see also Section 6.3).

This dynamic is being driven by a better quality of life in the smaller cities balancing urban and rural advantages, high service levels, as well as continued good connectivity to the larger cities when desired. These movements to smaller cities are also being fuelled by some population movement from rural areas thereby further weakening rural infrastructures and increasing the digital divide, except in some relatively attractive and accessible rural areas where 'second homes' are being bought up by well-off urbanities. However, this tends to have the additional downside of squeezing out lower paid locals from the rural housing market and only bringing business into the locality at irregular intervals.

Many **rural areas are particularly disadvantaged** being characterised by lack of digital and other infrastructures, such as housing and other facilities, poor digital skills and declining economic sectors. Their population profiles tend to be ageing with many retirees moving in whilst younger people and families move to towns and smaller cities where facilities and prospects are better. Although there are many exceptions and success stories based, for example, on tourism, bio-services and nature, culture and enterprising agriculture practices, there is a need for more focus on 'rural proofing', i.e. ensuring and improving the prosperity and connectivity of rural areas. Compared with urban areas, where there are often unitary authorities, the governance of rural areas typically suffers from greater complexity through shared and scattered responsibilities amongst a large number of actors across many more governance levels (local to European) and administrative bodies (economy, agriculture, etc.), so that power-relationships are out of balance. Rural authorities also tend to have a much lower per capita tax base and larger distances to contend with. The COVID-19 pandemic exposed pre-existing weaknesses in rural connectivity and widened digital gaps, so a policy roadmap to tackle this and other gaps is needed. Digital technology is important for service delivery and policymaking, especially to address locality issues (see also JRC (2022a)).

These complex movements have considerable housing, infrastructure and socio-economic implications, for example pushing up housing costs in the smaller cities, around the central districts of national and regional capitals and in rural areas. Thisse et al (2022) report that in London the premium paid for having a home closer to the CBD has fallen by 17.1% over the past two years. In 2019, moving 10% closer to the CBD meant spending 4.6% more on housing; in 2021 this premium fell to 2.91%. In the past there has also been significant 'gentrification' where younger well-educated workers' move to the cheaper parts of the cities, create a café culture, encourage in turn the influx of wealthier house seekers, thereby changing the structure of the local housing market. In part, this increases the quality of the neighbourhoods but also changes the dynamics for those already living there, often forcing out lower paid workers to worse accommodation further away from their workplaces often living alongside immigrant groups and possibly forming ghettos and place-based racism (see also Thisse et al (2022)).

According to KPMG (2021), Covid-19 has especially accelerated the move from some larger cities towards the growth of smaller cities, though not an overall decrease in the urban population, through the adoption of **online shopping, working from home and online gatherings** rather than meeting in person in cities and towns in England. KPMG predict that many people are unlikely to return to the old ways of doing things. With fewer people coming into very large cities to work and shop, that leaves a big space in areas that were once characterised by bustling shops and offices. Those places that are most at risk are those that have little else to attract locals and visitors from further afield. In these cities there has been a loss of commuter flow from over a tenth to under a third of commuter footfall seen pre-Covid. Apart from the largest, mainly capital, cities like London, the authors contend that it is unlikely there will be a return to old commuting habits in most very large cities, with a significant proportion of those able to work from home doing so for at least part of the week or shifting to working closer to home in smaller cities. This is likely to lead to significant reductions in office space in large cities and at least a partial collapse in their central retail areas. For example, Thisse et al (2022) report that London is experiencing an exodus of high-skilled workers seeking less expensive housing and better lifestyles in residential-friendly towns and cities and that this coincides with the closure of up to 14% of central London restaurants since 2020 with similar reports from other major cities including Manhattan, Toronto, and Paris (see also Section 6.3 below, JRC (2022b) and Alberti et al (2019)).

Several other questions arise here, including in a local development context, that the privatisation of ownership often leads to the privatisation of 'profits', primarily reflected in land value appreciation, with corresponding public ownership of 'losses' (Noring, 2018; McGreal et al, 2000). This can prevent the public sector from accessing and reinvesting the revenue stemming from public asset value appreciation that local government helps to create through measures such as land use, zoning, and localised infrastructure Whereas this is an issue emerging from the ownership of physical assets, the challenges also affect the recent discussions on the

providers of digital technologies for innovating public services and the public sector, i.e., the recent debates on GovTech (Mergel et al, 2022; Kuziemski et al, 2022). Another important issue is the changing relationship between physical and digital space, as well as between physical and digital identities. There is certainly a need for a new understanding of both the public governance of the land and of cyber and augmented space and how this may be changing as society possibly moves towards digital technology generation 5.0 and the Fifth Industrial revolution, even if this happens this will not apply to everyone, whether this be by choice or inability.

### 4.2.3 Turbo-charged localities and communities

In the years since the economic and financial crisis of 2007-08, most European countries have experienced a **resurgence in 'localism', what some have termed a 'new localism'**. According to Katz and Nowak (2018): "power is shifting in the world: downward from national governments and states to cities and metropolitan communities; horizontally from the public sector to networks of public, private and civic actors; and globally along circuits of capital, trade, and innovation." As noted by Millard (2017c), **cities, in particular, are at the 'sweet spot'** being, in general, sufficiently large to possess significant political power, financial and other resources, whilst at the same being sufficiently small and close to their populations to understand their needs, collaborate meaningfully with them and take and implement appropriate decisions on the ground. Cities constitute the new locus of power in the 'new localism' "that is needed to solve the critical challenges of modern societies: economic competitiveness, social inclusion and opportunity; a renewed public life; the challenge of diversity; and the imperative of environmental sustainability". New localism is not a replacement for the vital roles of national governments, but instead is the ideal complement to an effective overall governance (Katz and Nowak, 2018).

There has been a clear return to an understanding that social, economic and cultural structures and competences at local level have huge value and are crucial to building wider concepts of socio-economic and environmental development in general. This understanding is, however, not a return to earlier notions of localism based on hierarchical structures, but instead closely mirrors the objectives and desired impacts of open and social innovation in meeting real social needs in new ways. This approach is increasingly focused on the daily social needs of people in their communities for work, education, health and prosperity in local contexts and in ways they themselves have some control over and so they can also contribute to strengthening how their localities work. This illustrates the dialectic between, on the one hand, a more macro, top-down and sometimes rigid structural one-size-fits-all approach, with, on the other hand, a more locally-embedded, nuanced as well as socially- and culturally-aware agency approach which, however, adds complexity to governance, multiplies the numbers of actors and relationships and potentially adds to the 'silo' problem. Whilst the locality has become more important in recent years, it has not yet seriously threatened the continued dominance of statism. Into this mix of systemic societal change, new conglomerations of this structure-agency dialectic approach are emerging. Many are attempting to build new economic models based on shared value and social value often derived from and embedded in localities (for example, as described by Porter and Kramer, 2011), alongside an increased concern for inequality, poverty and social distress.

However, this is not only a simple model of top versus bottom as there are many layers and levels dependent upon the particular national, historical and cultural context. There can be hierarchies within hierarchies. For example, taking a 'new localism' approach also means recognising that the largely top-down structures and policies of many smart city initiatives, in which the city authorities and other organisations deploy sensors, networks, data and data analytics to improve the efficiency of urban systems, like transport, utilities, and services, important as these are, is only half the story. From this perspective on its own, there is the danger of a one-size fits all, top-down view of local development. The diverse needs of the inhabitants as individuals, households, neighbourhoods, communities, organisations and businesses, that bring a locality to life, are just as important. Thus, any adequate governance model for the locality/city must also focus on the engagement and knowledge of its citizens and encourage the processes, and especially social and cultural processes, that make these places important: those that sustain very different, sometimes conflicting, activities. Cities, in particular, are in their nature engines of diversity, so focusing solely on efficiently streamlining utilities, transport, construction and unseen city administration processes can be massively counter-productive. Instead, localities will be successful, innovative and smart because their citizens have found new ways to craft, interlink and make sense of their own and each other's assets, data and other resources (Millard, 2017c).

The **new localism attempts to retain as much as possible of the value generated locally within the locality, rather than see it seep away**, possibly out of the country and to tax havens from whence there is little chance of return investment. The definition here of 'locality' does not necessary mean within a particular administrative jurisdiction, nor does it negate the importance of seeing value retention in the context of

collaboration with other localities, however defined, or with other authorities in the multi-level governance system. Indeed, the issue of value creation, use, retention and/or sharing, as well as the politics and policies that surround this, is a critical concern of a re-evaluation of multi-level governance. Awareness and action on this premise has become turbo-charged since the pandemic, partially driven by de-globalisation and more on-shoring of economic activity from which localities seek to benefit, as well as by the highly spatially differentiated impacts turbulence and shock are having. This is seen, for example, in the very significant increase since 2020 towards both food and energy localisation (see also Sections 6.1 and 6.2) where both consumer awareness and behaviour have changed towards accessing and supporting local sources and supply chains and that point to the need to rebalance national-local powers and to develop cross-cutting plans (Millard et al, 2022).

In the specific context of food and energy, the role of community infrastructures is critical, but so too are middle infrastructures to reconnect production with consumption and larger markets, thereby building resilience through intermediate markets. However, in other sectors such as tourism, work and mobility the local community role is likely to be less important given their general need for much wider markets, and certainly for collaboration between authorities in the multi-level governance system, as mentioned above. The overall thrust of this focus is about the importance of linking local and community policies across all sectors and providing new types of place leadership. The growing importance of the sustainability of local and city-region systems is inevitably linked to the topic of shortening supply chains and re-shoring, especially in the context of some de-globalisation which was already evident prior to the COVID-19 pandemic but also strongly accelerated by it and the 2022 Russian invasion of Ukraine. There is starting to be a movement to more directly reconnect producers with consumers, both physically in the locality from local trusted suppliers who are able to guarantee genuine and safe products, as well as virtually using digital technology. This involves building more transparent supply chains with the fair distribution of power among actors. These and similar developments help to strengthen the sustainability agenda and enhance resilience, especially during shocks and emergencies like the pandemic.

Policy orientations for governments in this respect have been identified by the OECD (Bulakovskiy, 2021). In the new post pandemic reality, policy-makers need to promote the creation of enabling environments and frameworks that foster the emergence and the development of local as well as national development through both demand and supply-side measures. On the demand side, the main goal would be creating local markets which do not leak wealth through a series of measures, including awareness campaigns, public procurement to prompt the integration of small enterprises, impact measurement tools to assess the relevance of such activities, and fiscal policies, namely tax incentives and subsidies. On the supply-side, these measures need to expand the number of actors and enhance the quality of their activities. These would include direct or indirect financing of local initiatives, the provision of infrastructures allowing local socio-economic ecosystems to flourish, such as incubators, the promotion of a process of skills development in accordance with the know-how required in a given sector, as well as the provision of the suitable tools and means needed to foster effective cooperation between all relevant actors. It is often at the local level that it's easier to break down governance silos and link across actors and sectors in order to realise a joined-up whole-of-government experience for users, given their smaller and shorter interaction and transaction chains and much more fine-grained knowledge, both implicit and explicit, about local conditions and contexts.

Traditionally local governance, especially in relation to local financing and economic development, have been in the competence and power of both the public sector and the private sector, each playing various roles, sometimes cooperating, sometimes competing. In recent years, however, and especially since the start of the pandemic, there has been **increasing involvement of civil society** in this mix. This is often in cooperation with both public and private actors, but also sometimes taking place without reference to them and even under their perception radar. Civil society is composed of a very large number of diverse organisations and institutions, ranging from very informal to formal, including individual citizens, families, neighbourhood groups, communities, NGOs, social entrepreneurs and the alike and where the concept of community is important, which means their roles and impact are highly diverse and dependent on the local context. Their activities encompass both direct monetary as well as in-kind initiatives, so measurement and impact assessment can be challenging. It is clear, that local public value is co-created both through the collective efforts of public and private investment as well as through the myriad socio-economic and cultural activities of civil society.

There is strong evidence that the **involvement of the civil sector can increase inclusion, trust, the quality of decisions and overall effectiveness, through the consideration of a wider set of ideas and access to additional assets** (Millard, 2015a). In some instances, this can include extra revenue for local development, as well as retaining finance and revenue within the locality through re-circulation rather than seeing this seep away. To date, however, these effects are relatively small compared to the impact the public and private sectors make, although their effect can be significant on the ground and in highly specific contexts, and it is now clearly increasing quite significantly. It might be argued that one reason why civil activities flourish

and new localism has spread so widely, in the USA and the UK for example, is that there is a gap between a relatively small public sector and a relatively large private sector that the civil sector is able to address and fill, particularly by providing for the most vulnerable in society. In contrast, in most European countries, such as in Germany and Denmark, the role of civil society in addressing this gap and fulfilling such roles is relatively smaller given that the public sector tends to be larger, is often more responsive and, to some extent, more capable of providing comprehensive public services in these and similar countries (Millard et al, 2019b).

A good example of community development is the **Community Wealth Building (CWB)** movement as a system-changing approach to community governance that works to produce broadly shared economic prosperity, racial equity, and ecological sustainability through the reconfiguration of institutions and local economies on the basis of greater democratic ownership, participation, and control. It aims to link different governance levels to support local community development by attempting to retain as much as possible of the value generated locally within the locality. It creates a new model of economic development for cities and communities that offers real, on-the-ground solutions to localities and regions battered by successive waves of extraction, dis-investment, dis-placement, dis-empowerment and now by the many post-2019 shocks. CWB is based on a new configuration of economic institutions and approaches capable of producing more sustainable, lasting, and equitable economic outcomes. Rooted in place-based economics, with democratic participation and ownership, and mobilising the largely untapped power of civil society, of the local public sector and other anchor institutions (CLES, 2022).

This is done, for example, by designating **local anchor institutions** (public, private and civil) that invest and procure locally where possible, and by increasing local, employee and community ownership and control. An anchor institution is a place-based organisation that is invested in its local area and cannot relocate to another part of the country. Examples include local councils, universities, colleges, local housing associations, local emergency services as well as local civil and community organisations. By their very nature, these organisations also spend substantial amounts of money that is retained within the local area. While most of their employees and volunteers are likely to live within the local area, and spend their wages there, they also have significant procurement and investment spend which can be spent locally. They have a collective interest in seeing their local area and community improve and are always looking for more opportunities to advance collaboration. For example, many attempts to promote local currencies, such as the Bristol Pound (£B) in the UK, aim to retain locally generated financial value within the locality, but with relatively unconvincing results across the broad range of economic sectors. However, in a few sectors such as food production, processing and retailing, local circulation loops have shown to be highly successful, perhaps because food lends itself particularly well to further localisation as many of its activities are viable without the need to interact with regional, national or international businesses. Thus, it is a question of smart targeting of local currencies through the adequate analysis of the business models for specific goods and services in each specific local context (Geofutures 2020).

The CWB approach stands in opposition to the prevailing model of community development that puts the accumulation of private wealth and profit above the basic needs of people—entrenching and exacerbating racial, economic, and geographic disparities. There is no one-size-fits-all model of CWB building. Rather, it is a bottom-up approach that centres democratic ownership of the economy and community self-determination. This means that each local experiment with CWB might be different, based on the local context, ecosystem, resources, and politics. What all CWB strategies have in common, however, is that they aim at improving the ability of communities and individuals to increase broad-based asset ownership, anchor jobs and resources locally, create broadly shared prosperity, and ensure local community economic stability and democratic control. Importantly, true CWB must be reparative and inclusive by design so that it delivers for those who have historically been the most excluded, marginalised and exploited. CWB is about moving in the direction of a different political-economic system, linking new bottom-up forms of development with economic and political interventions at a variety of scales to create an economy in which all can flourish.

Emerging trends related to globalisation since the 1990s—such as the relative decline of manufacturing in most developed economies, the rise of the private service sector and mounting government fiscal crises— and now more recently related to the new localism—including some on-shoring and reduced national government services resulting from these fiscal crises—both suggest the growing importance of anchor institutions to local economies. Indeed, in many places, these have surpassed traditional manufacturing corporations to become their region's leading employers. If the economic power of the anchor institutions were more effectively harnessed, they could contribute greatly to community wealth building. The earliest examples of CWB are both in the UK and USA, where the retreat of the state as well as increased local poverty, unemployment and social exclusion especially since 2020, have tended to be greater than in most EU countries that typically have larger public sectors. These include in the Ayrshire and Arran regions of Scotland where the focus is on ensuring that

wealth is locally owned and benefits the local community (Ayrshire and Arran NHS, 2019), and in Preston in England where the purpose is to provide value for the city's communities. (Preston City Council, 2022).

Although also important at national level (Hofstede Insights, 2022), locality and community are very relevant for **identity, behaviour, values and culture**. These attributes are often cross-related to class, occupation, gender, ethnicity, age and family composition, that are themselves subject to strong spatial concentration and variation (see Section 4.2.2). Local pride and identity can be deeply rooted, even when people move away from where they grew up, but identities can also be mixed without being contradictory. For example, football fans living in Milan have intense rivalry with those in Turin, and northern Italians do not always readily identify with the culture and mores of the country's south, but everyone in Italy supports the national football team. History and historical memories also play a part in defining local and community identities. Older East Germans who grew up in the DDR tend to have a decidedly different view of the war in Ukraine than the younger generation in this region or compared to those living in the former West Germany. Also, the short social and physical distances inherent in locality and local community make it easier to generate and judge positive reputation and trust, given that contextual links are more vivid, broader and multi-dimensional. This makes these difficult to replicate digitally and it is doubtful that a new cyber-localism that disconnects itself from physical proximity is possible, although there is widespread use of local social media to complement, rather than supersede, physical interaction. 'Local' and 'community' are forms of identity politics, e.g. where I come from, where I work, where I socialise, etc., for example as manifest in areas like cultural heritage. It is clear that place, identity and policy are linked, so the often profound geographic changes after the pandemic need to be addressed by new public governance. It is also particularly the case that social identity relates strongly to locality and community (Scharfbillig et al, 2021). Some of these issues are further addressed in the accompanying community perspective report (Errandonea, 2023)).

The role of digital technology in this context might also be both location- and event-based services in which the user gives permission for their location to be a factor in the experience offered when in a particular place or participating in a particular activity. Such permission by the user might also be given to be made aware of relevant services in this type of situation, for example, when entering a certain zone in a city if augmented reality is being used, thereby potentially linking human, digital and bridged realities (Millard, 2010).

## 4.3 Strategic challenge 3: Hybrid human-centred relationships

### 4.3.1 Balancing 'episodic' with 'preventative' public services

Many public welfare services were originally designed and intended to support individuals get through an occasional problem, such as an illness or becoming unemployed. Such 'acute' services remain absolutely essential but do not necessarily reflect the lives of everyone, especially the vulnerable the proportions of whom have been growing in Europe since at least the 2008 financial crisis but have again now been dramatically increased since 2020. Such episodic welfare problem solving services are also expensive especially in the time of squeezed public budgets. They are transactional and reactive which fits ill with many people's complex, and in the case of the vulnerable often fragile, lives. These services were originally designed in the 1940s and 1950s when European societies were very different from what they are today. There is thus **a need for radical change in public welfare services to move towards being much more relational and proactive**. The relationship between these services and the people who use them needs to be transformed to **allow people to take greater control of their own health and wellbeing in the context of more continuous support in a community context**. Existing ways of delivering services can sometimes disempower the people they are there to help, leaving people feeling unable to make positive changes in their lives and their communities. In the case of health and social care services, this means striking a new relationship that puts more power in the hands of patients and service users and emphasises 'working with' rather than 'doing to' (BBC Analysis, 2022).

One relatively new but still quite rare innovation is to move the balance away from services only designed for occasional support when people have a problem, such as a specific life event like a birth, marriage, loss of job, etc. There is also a need for services that recognise peoples' lives are continuous and multi-dimensional with interlinked needs that **require preventative personalised hybrid support** and that are, especially for the vulnerable, 'wrapped around the whole person'. This does not involve unwanted intrusion but is **based on sufficient time and ethically-guided elective dialogue between the service user and provider in a confidential setting** that aims to understand the full range of the user's needs given that these are typically strongly intertwined and embedded in personal and community relationships. One example is in Wigan in the north-west of England where austerity cuts since 2010 have been huge obliging the local authority to re-think such services from scratch. Over a period of six years from 2013-19, public services in Wigan have been through

a major process of transformation, based on the idea of building a different relationship with local people using an 'asset-based' working approach in which **public services seek to build on the strengths and assets of individuals, their relationships and their communities to improve outcomes** (Social Care Institute for Excellence, 2022). This also involves providing hybrid support to residents at home through digital technology as much as possible, or in convenient places in their community, keeping hospitals for when they are most needed for more acute care. Digital technology is also essential in coordinating across all the involved actors and providing easy access to documentation (Wigan Council, 2019).

In Wigan, the main focus has been on health and adult social care services, but the approach also applies to community support in general, businesses, children and young people and wellness (Local Government Association, 2022). Wigan has shown it is possible to achieve substantial financial savings at the same time as improving the community's overall health and wellbeing. Such savings are made by reducing the need for and frequency of expensive one-off acute interventions when things go wrong, as well as making efficiencies while simultaneously improving effectiveness and protecting or improving outcomes. This only happens when services are genuinely transformed and upfront investment is available to help bring about new ways of working. This is not a panacea, but it does illustrate the kind of work that is needed to shift to a new model of public service delivery in which service users, professional local authority staff, volunteers and communities are all involved as active partners. Apart from asset-based working, other core elements of Wigan's approach include: **the need for profound cultural change amongst all actors but especially the professionals**; recognising and nurturing the strengths of individuals, families and communities and to build independence and self-reliance; permission to innovate; investing in communities; and place-based working (King's Fund (2019).

Physical drop-in facilities are also available where vulnerable people have immediate access to an adviser with whom they can **build a long-term relationship** with time to talk and who has access to, and knowledge of, all services and solutions available whether within the public regime or not. In some ways this is **a 'one-stop-person' approach** which attempts to 'move on' from the already quite widespread physical 'one-stop-shops' where people can get help accessing digital services, such as in Portugal (Millard, 2017b), especially for those on the wrong side of the digital divide (see also Section 4.3.3 below). The difference in Wigan is that the support is personal (or small team based) and relational, as well as more continuous and community-based for vulnerable users requiring longer-term support.

Another important innovation of moving to hybrid and preventative human-centric public services is Buurtzorg, the biggest home care organisation in the Netherlands. It shows both inclusive and co-creative governance, developed an approach based on **self-leading teams of carers and other professionals with the slogan of putting "humanity over bureaucracy"**[13]. Buurtzorg is a pioneering healthcare organisation established in 2006 with a nurse-led model of holistic care that has revolutionised community care in the Netherlands and is now represented in about 25 other countries. It has increased from 10 to over 10,000 staff today, has **a miniscule administration** of about 30 staff overall whilst each of the now 850 self-leading teams has 10-12 **staff with ad hoc roles who decide everything for their team** (including what coffee to drink). This is an example of so-called '**mass customisation' (i.e. mass personalisation)** as all patients are individually unique and need individually unique care that is in constant flux to maximise their welfare. This also works out cheaper and better than any alternative with financial savings of 40% compared to other comparable models.

Buurtzorg has a **simple, flat organisational structure providing and accessing all necessary services with intimate involvement of the patients' family and community**. Its evolutionary goals are diversity and the innovative search for promising ideas – "if something works it will find a way to flower". Buurtzorg's user satisfaction rates are the highest of any healthcare organisation and staff commitment and contentedness are reflected in its title of Best Employer (4 out of the last 5 years). Buurtzorg scaled very quickly across the Netherlands and has also moved into related areas of care such as mental health, children and families, as well as supporting other Dutch and international care organisations to take on the Buurtzorg model. Digital technology is an essential enabling tool, including for collective intelligence, communication, fast decisions, eg. facilitating 'real time' information that is directly connected to the care process and reduces administrative overhead.

[13] https://www.buurtzorg.com

### 4.3.2 'Community-based solutions'

'Community-based' solutions are, in essence, a subset of preventative public services. For example, the Wigan case also encompasses 'the Hamlet' which offers day-provision for those children and young adults with 'additional needs' such as learning difficulties who, at the time of admission, are independently competent, and aim to progress to full-time unsupported employment or voluntary work. Wigan Council has set up a "**community-investment fund**" as a type of local crowdfunding, with the aim to support the re-booting the social connections and relationships that have often been lost. The aim is to use this resource, together with other local assets including from the local authority, to **focus less on asking public service users "what's the matter?" and instead setting up a dialogue focused on "what matters to you?**". As one focal point of this, 'the Hamlet' is a community and provides community-based solutions for those with these additional needs in order to develop life skills, get a job or contribute to society in other ways. Apart from, but supplementing, these social services there is a shop, café, laundry, florist and a printing works, as well as a range of social activities such as singing groups for example for people with breathing issues as this can increase lung capacity by 20%. Impacts have been huge by helping to move these young people away from anger and frustration in attempting to deal with opaque and narrowly focused and often unresponsive public services, where they have little say in what happens, towards a sense of hope, belonging and empowerment. Many more 'hamlets' are being set up around the country and elsewhere (BBC Analysis, 2022).

It is only by addressing the complexity of real interlinked problems, on the citizen's own terms and at their own pace in the context of their family and community relationships, that solutions are found that can also mitigate far greater problems in future which are likely to cost much more money. An often important issue is the stigma felt by many vulnerable people who, for example, are in poverty and are ashamed of admitting it, thus privacy and ongoing confidentiality are sacrosanct. Community-based solutions in this way attempt to **provide holistic solutions that 'wrap around' the whole individual by bringing many previously separate services together** using a similar approach as deployed in Wigan. This is a massive change compared to traditional public services.

However, **the barriers to moving to preventative and community-based services are huge**, hence the lack of widespread adoption despite their documented success and cost savings. The main issue is **the need for massive administrative, legal and, above all, cultural change**. It involves asking departments to stop being autonomous, to work together and to pool their budgets, leadership and decision-making. This is a huge ask. There is the need to **dismantle traditional professions and the professional boundaries that pull in one direction and to redesign new emergent professions that pull in another direction**. Making such changes at scale is hard and doubly so in the public sector because of its inherently political nature. The **traditional professions are deeply cemented through the levels of government up to and including ministries at the state level**. The local professionals are dependent on these connections and lines of authority, structure, power, accountability and political will.

Even when change is attempted, it takes time which frustrates the political need for quick results and tick-box targets. All this amounts to a compelling professional and political logic that is maintaining the status quo, even against rational and evidence-based argument. It is this logic that makes public services and their political paradigms so immune to change. This is nothing new given that during the founding of the welfare state in Europe in the late 1940s and 1950s there was just as much resistance and inertia as seen today. However, this was eventually **overcome by clear leadership with a compelling vision** backed by massive early post-war popular support through inspiring stories based on **the only question that really matters: what is needed for a good and flourishing life?** The solution today probably rests on these same ingredients, but this time in the context of much more devolution and decentralisation given that preventative and community-based services are inherently local and require local co-creation and relationship building that is also necessary to generate the trust needed to lubricate change (BBC Analysis, 2022). **A new social contract is indeed needed** (Vesnic Alujevic et al, 2019) alongside a new political contract.

Digital technology and data are used to support these otherwise strongly human to human relational services on the basis of current controls and standards. As in most other governance models, however, it is also realised there are dangers of data misuse especially where volunteers and private companies are involved. The issue is what role does current and future technology have in supporting, improving and indeed extending the benefits of such services without degradation. There is of course also a diversity of approaches and views across the EU. Both between countries and within their regions, preventive services might be perceived very differently, especially because of the cultures surrounding privacy and data handling by both public and non-public entities. Some of these issues are further addressed in the accompanying community perspective report.

### 4.3.3 Justice, fairness and inclusion by design

Human-centred public services, and public governance more generally, need to incorporate 'design justice' **principles**, where decision-making processes include designing not only for but also with citizens and communities. The focus is particularly, though not only, on marginalised and oppressed communities, which have relatively little power, by centring the voices of those most impacted and using transparent processes through co-creation. According to Costanza-Chock (2020), **design justice takes into account the relationship between design and power by explicitly challenging, rather than reproducing, structural inequalities**. It has emerged from a growing community of designers in various fields who work closely with social movements and community-based organisations around the world. The approach attempts to counter the danger of universalist design principles and practices unfairly erasing certain groups of people—specifically, those who are intersectionally disadvantaged or multiply burdened. Design Justice goes beyond recent calls for design for good, user-centred design, and employment diversity in the technology and design professions; it connects design to larger struggles for collective liberation and ecological survival.

To implement design justice principles, digital technologies need to be developed and used to support the design of policies and governance management in ways that are fair, transparent, embed accountability, and centre the voices of citizens and civil society. This requires **questioning how technologies themselves are currently being used, designed and controlled**. For example, 'big tech' companies dominate the type of technologies we use, which are designed in ways that do not afford justice because they are designed to generate profits through reactive engagements and polarising loops and through the use of people's data, rather than designed to facilitate deliberation, understanding and decision-making, and in ways that protect people's rights. In short, digital technologies can be used in ways that enable democratic and justice-based processes but, for this to happen, **the technologies themselves also need to be democratised**.

A good example from Taiwan of using democratised technology is the POLIS software used for participatory governance through **'radical transparency' by throwing opaque processes open to the light so that everyone who is affected by a decision should have a say in it**. This is a way, not to measure division, but to construct consensus using the internet. However, the internet is normally part of the problem as the kinds of **online spaces where political debate happens are engineered for an entirely different purpose: to capture attention and thereby to attract advertising revenue**. Most social media platforms serve up information that is shocking, horrifying or crazy enough to keep people glued to their screens. And that often means amplifying the raucus politics of division and outrage rather than the subtle complexities of compromise. POLIS is designed differently. Citizens are invited into an online space for debate that the POLIS software uses to draws map showing all the different knots of agreement and dissent as they emerge. As people express their views, rather than serving up the comments that were the most divisive, POLIS gives most visibility to those finding consensus. In this way, "people spend far more time discovering their commonalities rather than going down a rabbit hole on a particular issue." "Invariably, within three weeks or four, we always find a shape where most people agree on most of the statements", says Audrey Tang who became the country's digital minister (Miller, 2020). POLIS shows that re-engineering the online space had exposed a deeper human truth. In politics, humans spend most of their time concentrating on what they disagree upon. However, if you gamify consensus, you expose points of unity that were previously hidden. By clearing away the noise and divisiveness, outcomes are created that the government can actually act on. POLIS has formed the core of around a dozen pieces of laws and regulations now implemented in Taiwan, on everything from revenge porn to fintech regulation. Many other countries are now using POLIS software (Miller, 2019).

Justice, fairness and inclusion also have a strong regional dimension. The **Just Transition Mechanism and Fund** is one of the European Union's key tools to support regions' transition towards climate neutrality by 2050, under the 2021-27 programming round within the framework of the EU Cohesion policy. It is part of the European Green Deal aiming to achieve EU climate neutrality in an effective and fair manner. Focus is on the regions and sectors that are most affected by the transition due to their dependence on fossil fuels, including coal, peat and oil shale, and on greenhouse-gas-intensive industrial processes. Its main objectives are to alleviate the impact of the transition by financing the diversification and modernisation of the local economy and by mitigating the negative repercussions on employment. In order to achieve its objective, the Just Transition Fund supports investments in areas such as digital connectivity, clean energy technologies, the reduction of emissions, the regeneration of industrial sites, the reskilling of workers and technical assistance (European Parliament, 2022c).

The challenges of the lack of justice, fairness and inclusion by design in the use of digital technology have been highlighted during COVID-19. Although the pandemic has sped up digitalisation and related changes in work,

production and the provision of services which has mitigated many of the lockdown and slowdown problems for many people, it has also **supercharged the pre-existing digital divide and further reinforced pre-existing socio-economic exclusion**. According to Watts (2020) any health-care development that doesn't rapidly become available to all individuals has the unintended but inevitable consequence of fuelling health inequality. The response to COVID-19 is no exception and has inevitably thrown a spotlight on this digital divide, most obviously in everyday domestic life. Many patients who do not have COVID-19 in the UK, fearful of acquiring the infection, have been reluctant to enter hospital buildings. Attendances have shown a marked fall. Many outpatient consultations can of course be done online—but only if you have access to a computer.

Work by Eurofound (2021), shows that **the uneven pace of the acceleration of digitalisation created by the COVID-19 crisis increases inequalities and the digital divide between territories, urban and rural areas, and citizens in the EU**. Telemedicine may not provide the same quality standards as traditional healthcare systems, and data collection and sharing of personal and non-personal sensitive data during the health emergency have raised concerns where they have taken place for purposes not directly or specifically related to the COVID-19 response. In the EU, there is a geographical **urban–rural digital divide in terms of the quality and affordability of broadband networks**, which affects people's opportunities to make use of telemedicine and many other online services. There is also a digital divide between those who are used to managing digital devices and those who are digitally illiterate or have a low level of digital skills. Inequalities in health, purchasing power and digital literacy mean that the patients who stand to benefit most – such as older people, people with disabilities and those who have retired – are often also those who are least able to access and make use of telemedicine.

## 4.4 Strategic challenge 4: People-planet systems

Arguably **the greatest challenge that public governance has** arises from the scientific facts that **climate change, biodiversity loss and other stresses on nature are having profound deleterious impacts on the functions of societies** around the world and on the lives of their inhabitants. These functions and lives are all too often, in turn, increasing environmental stresses in a downward mutually damaging spiral that can run out of control. This is leading to numerous spin-off challenges, like poor air quality, heat island effects, increased flood risks, increased frequency and severity of extreme events, as well as rises in crime, social exclusion, inequality and a degraded infrastructures that can be directly traced to environmental stress. All these have deleterious impacts on human health, quality of life, wellbeing and security, and hit the less privileged and vulnerable the hardest of all. To address these existential challenges, public governance has a critical, if not the pivotal, role to play. There is also significant and credible evidence that by **working with nature rather than against it**, a whole range of environmental as well as economic and social gains can be realised that benefit all societies as well as nature itself (Millard et al, 2019a). Societies need to adopt both climate change adaptation and mitigation initiatives, drawing upon the ecosystem services and natural capital that nature provides, as well as going beyond these to incorporate soft engineering, bio-mimicry and industrial design approaches designed to enhance environmental resilience and reduce risks to people. Public governance needs to transform towards the facilitation of sustainable, resilient and regenerative solutions, including for example circular economies and systems (Raworth, 2017 and European Commission, 2020a) and nature-based solutions (European Commission, 2021f). These prioritise strategies derived from natural ecosystem lessons, where 'nature' is recognised as an actor in its own right that is just as important as the familiar human actors.

Such a radical public governance reorientation will need to envelop ecosystem governance, such as truly 'green' business models, eco-based policy and the promotion of bio-based industries, circular and iterative systems where there is no such thing as 'waste', such as in hydroponics and rewilding. The use of digital technologies is critical, such as in support of 3D printing which use recycled materials and ape the way spiders secrete their web, street level air pollution measurement using hand-held sensors, sharing economy platforms, etc. Where beneficial, **it is important for public governance to facilitate the mimicking of nature's successful innovations also in organisational and human development**. For example, in de-centralised and self-leading teams as adopted in the Buurtzorg business model (see Section 4.3.1 above), in business practices where many of the most successful companies mimic natural systems (Bragdon, 2016), regenerative instead of wasteful strategies, frugal innovation and an ecosystems approach to successful social and business networks. Nature, defined here as both biological and non-biological systems, should thus no longer be treated as an afterthought or add-on, but should be central to every public governance policy, strategy and action, both by drawing on nature's innovation potential as well as by testing against the needs of nature.

### 4.4.1 Quintuple helix

Public governance needs to acknowledge and promote the understanding that it is **both human and natural assets and knowledge, especially working together, which are the only real sources of any type of innovation, including technological and business innovation**. Natural systems often show the way for successful societal innovations, such as ecosystem development, diversity and interdependence, re-cycling and re-using assets, circular societies and economies, and learning systems through co-creation and an understanding that any under-used asset is a wasted asset. Often completely new forms of social and ecological activity and organisation will be needed, most of which are experimental and only few are currently on the drawing board.

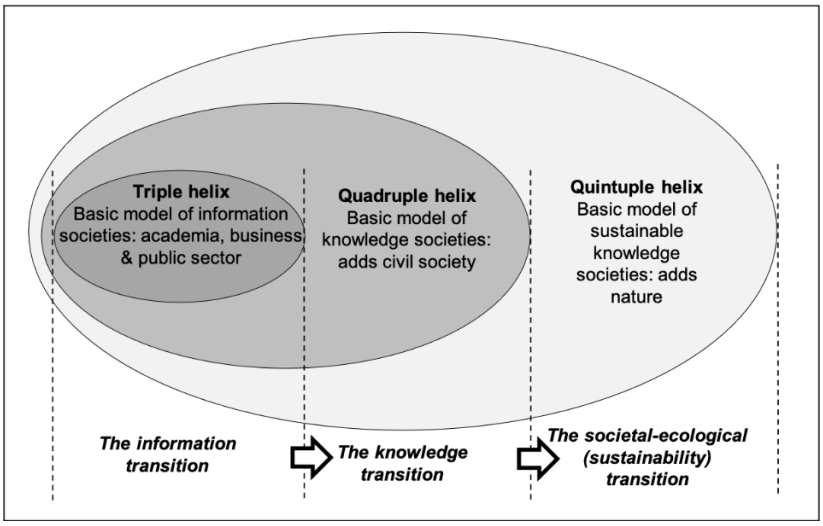
Four actor types are already involved in public governance, i.e. as the quadruple helix: the public, private, knowledge (e.g. education and research) and civil sectors. It is imperative to add nature as the fifth actor and thereby govern the quintuple helix. Nature, as defined here, encompasses both living and non-living systems, i.e. the biosphere plus the rocks, atmosphere, oceans, etc., all already heavily transformed by humans (Carayannis et al, 2012). Nature needs to be incorporated in its own right given it is essential for all society's functions, especially given the multiple environmental crises we currently face including climate change and biodiversity loss. **Giving nature a seat at the public governance table ensures that environmental as well as economic and social sustainability is also a major goal** and that these three pillars are pursued together with good governance, as in the UN's Sustainable Development Goals (United Nations, 2015b), also adopted by the EU (European Commission, 2021c). Given that the four quadruple human actors rely completely on nature for all aspects of their existence, **it is arguably legitimate to express the notion that nature is the 'table'** and not simply just one actor sitting at it. In some contexts, therefore, it might be that a 'beyond human' approach needs to be an aim, given that we quite literally make sense of our surroundings through our touch, sight, hearing, smell and taste, but that this is in many ways different from how other sentient beings see and interpret the world. Attempting to do so is likely to facilitate a better accommodation between humans and nature.

Nature, as defined here, has been innovating biologically for at least 3.8 billion years and non-biologically since the birth of the universe, far longer than human actors. **A useful strategy when we have a societal, business or technological challenge is first to ask whether nature has already solved the problem and, if so, how?** There are already a huge number of examples across all sectors (Benyus, 2016). In many industries, this is recognised and being exploited in the so-called Fourth Industrial Revolution, characterised by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres (WEF 2016). This also needs to happen in public governance in order to facilitate the societal-ecological transition as illustrated in Figure 3.

The needs, limitations, opportunities and innovations nature represents are a critical component of any type of human endeavour. According to Carayannis et al (2012): 'The quintuple helix model is interdisciplinary and trans-disciplinary at the same time: the complexity of the five-helix structure implies that a full analytical understanding of all helices requires the continuous involvement of the whole disciplinary spectrum, ranging from the natural sciences (because of the natural environment) to the social sciences and humanities (because of society, democracy and the economy). Thus, the goal of the helix-conception is accomplished through the resource of knowledge which produces additional value for society in order to lead in the field of sustainable development."

Indeed, this is also starting to happen in business, for example a beauty company has appointed a director to represent nature on its board, giving the natural world a legal say in its business strategy. *Faith in Nature*, which sells soap and haircare products, as well as household cleaners and shampoo for dogs, says it is the first company in the world to give nature a formal vote on corporate decisions that might affect it. Working with *Lawyers for Nature* and the US-based *Earth Law Center*, as well as a pro bono team of corporate experts at an international law firm, this decision by the Edinburgh-based company taps into a growing global movement to assign nature legal rights (Kaminski, 2022). According to GARN (2022), "**Rather than treating nature as property under the law, rights of nature acknowledges that nature in all its life forms has the right to exist, persist, maintain and regenerate its vital cycles**. And we – the people – have the legal authority and responsibility to enforce these rights on behalf of ecosystems. The ecosystem itself can be named as the injured party, with its own legal standing rights, in cases alleging rights violations." Public governance has the role of ensuring that nature and the environment are also protected and nurtured through legal and regulatory systems.

**Figure 3.** Process of innovation towards the societal-ecological transition




Source: Adapted from UNESCO (2016)

### 4.4.2 From sustainability to resilience to regeneration

Figure 2 has already suggested that, in the aftermath of the COVID-19 pandemic the concept of sustainability needs to be re-interpreted as giving resilience (defined as diversity plus interconnectivity) much greater weight than traditional notions of efficiency. This is also proposed by the WEF (2020) in order to 'build back better'. Economic efficiency has been the prevailing mantra and has increasingly become a short-term goal, whilst economic and societal resilience requires a medium-to longer-term perspective. Resilience actively anticipates and prepare for both likely as well as existential risks to humanity, implying increased finance and effort in the short-term, but demonstrable financial savings and much less effort and pain over the medium- to longer-term. This argument was first put forward in stark economic terms by Stern (2007). Most economies to date, whether developed, developing or emerging, have so far failed to achieve let alone recognise the need to change the balance between efficiency and resilience (see Section 4.1.3.).

The concept of sustainability remains fundamental in the context of sustainable development and the Sustainable Development Goals (SDGs) (United Nations, 2015b) that were designed for "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). There is clearly a time element implied here so earlier concepts of 'sustainability' need re-interpreting, as above, rather than discarding. **Traditional notions of sustainability have tended to imply only keeping what we have through conservation and preservation, rather than what we really need.** This is at least partially due to what we, at the present time, are able to understand as the 'natural state' of the environment that many equate with when they were young or what their parents and grandparents remember through storytelling and reminiscence, rather than going much further back in time.

This is termed the '**shifting baseline syndrome**', i.e. the gradual change in the accepted norms for the condition of the natural environment due to lack of past information or lack of experience of past conditions (Monbiot, 2014). This may be partially an issue of **cognitive dissonance** especially when seen in terms of cultural awareness. Older persons may look back at the idyllic 'natural' environment of their childhood as their baseline. The problem is this environment was already much worse than their grandparents' and forebears' baseline given that each generation shifts its baseline of understanding away from what might otherwise be seen as what is best or what is in fact needed. In many ways, this mirrors a huge challenge as it is clear that much of what is done in the context of public governance is severely constrained by "**this is the way we do things around here**" attitudes which act as an often insurmountable barrier to doing things better, as explored in Section 4.3.2. Clearly such **challenges are just as much psychological and cultural as they are organisational and structural** and are seen very clearly in the dissonance many politicians and other actors exhibit in their attitudes and actions regarding the climate and environment crises. This also implies the need for the current older generation to ensure that the younger and coming generations do not fall into the same trap, but rather understand that **nature should be the first one to thrive in order that human beings can survive**.

There are, however, questions being asked as to whether it is "time to ditch sustainability" and move on to 'resilience' and 'regeneration' rather than re-interpreting sustainability to encompass these new insghts. According to Acaroglu (2022) there are calls for sustainability to be left behind and for a new approach to be adopted. These arguments contend that sustainability is not enough, that it is only about "doing less harm" or getting simplistic efficiency gains. Others say it's problematic because for years, companies have been doing basic Corporate Social Responsibility (CSR) or triple bottom line reporting, and now there is a rise in superficial ESG (Environmental, Social, and Governance) frameworks. There are also criticisms asserting that sustainability is now a 'greenwashing' ploy that has lost its direction and meaning, when it is itself actually proof that people don't understand the science or technical approaches that sustainability entails.

Acaroglu (2022) instead shows that sustainability is the overarching concept that encompasses so many of these ideas. At one end of the spectrum there's harm minimisation and efficiency gain, but at the other end, there's the circular economy, doughnut economics, resilience and regeneration. These are all built on the original framework for rewriting the rules of production and consumption to move to a better future with the intent to not make the same mistakes of the past. Movements build and evolve over time; they are an emergent outcome of the system that they exist within. 'Sustainability' is therefore not just an abstract concept of "doing things better" or "doing less harm." It is a set of scientific approaches and technical skills that have been tried and tested over decades of progressive scientific and creative work to find practical ways of redesigning systems and products to be more ethical, equitable, and in fact sustainable. This has always been about getting to a destination of full systems regeneration and restoration, where humans give back more than they take from the natural world. But this can only be reached along a clearly defined pathway — which is exactly what science-based sustainability offers.

Moving along this spectrum and re-interpreting environmental sustainability as environmental resilience is an important step. In terms of nature and the environment, **resilience governance is about allowing environmental systems and ecosystem services to respond to crises, cope with shocks and stresses and rebound** (Rizzi, 2021). In this context the biosphere is seen as the foundation of the global SDG system through such structures as the Global Biodiversity Framework (GBF), the Sendai Framework for Disaster Risk Reduction 2015-2030, the UN Decade on Ecosystem Restoration 2021-2030. In Europe, environmental resilience governance is being promoted by the EU Strategy on Adaptation to Climate Change 2021 (European Commission, 2021i), and the EU Green Deal Striving for climate-neutrality by 2050. The latter focuses on the policy areas of biodiversity for protecting fragile ecosystems, 'farm to fork' for sustainable food systems, climate neutrality by 2050, eliminating pollution, sustainable mobility, sustainable industry and a cleaner construction sector (European Commission, 2019d).

Regeneration tries to go one step further. Whereas traditional sustainability is about doing things that enable humanity to only keep what it currently has through conservation and preservation, and resilience is about successful coping with and surviving environmental and other shocks that are increasing in regularity and intensity, **regeneration is in principle the attempt to (re)create what is thought to be the ideal state of nature albeit one in which humans can live advanced, enriching and flourishing lives**. Regeneration thus still seeks a compromise and balance between the needs of nature and the needs of people and does not envisage nature completely without humanity, though it does seek to regenerate nature to the maximum extent possible that accommodates human lives in this way. It does so by insisting on the idea that people are inherently a part of, and inseparable from, nature, and not apart from it, thereby representing a marked shift from traditional notions of sustainability.

Some of these concepts become philosophical issues that perhaps go beyond the remit of public governance, although we know from the examination of existing paradigms that this remit has constantly changed and will need to continue to do so, possibly in unexpected ways and perhaps as outlined in these strategic challenges. For example, it might mean that, through democratic processes, public governance should incorporate 'beyond-growth', 'counter-growth', 'no-growth' or even 'de-growth' strategies or other alternatives to the current hegemony of the growth-driven paradigm. However, this will need to come with a reality check as it will always be necessary to present actionable paradigms that might at least help society move in the right direction.

These actional paradigms do exist although are still in their early days of development with very limited real initiatives. For example, using the following definitions. A sustainable society can be seen as one that maintains its life support systems in such a way that draws from the environment over time only as much as the environment can produce in that amount of time, and no more. In contrast, **a regenerative society is one that maintains its life support systems so that its actions of drawing from the environment actually serve to help create more production, more health, more resilience, and more longevity in its**

**ecosystems than otherwise would have been created without the participation of that society as a feature of the ecosystem** (Meyers, 2022).

This potentially provides scope for action, for example through **regenerative design** that is already being deployed. Hernández (2022) is helping private and public organisations to build platform strategies for regeneration that develop strategies for an ecosystem of interconnected actors, who coordinate their activity with a common goal, creating the conditions for the whole to thrive and flourish. Regenerative design, which goes at least one step beyond sustainability, is the term used to describe processes that regenerate damaged ecosystems and can be used in practical settings. The purpose is the same as the purpose of life itself, to create the right conditions for all life to thrive and flourish and is inspired by how living systems work to learn from and imitate them, and thus find solutions to problems that we encounter as humans and that nature has already solved before. As mentioned above, this has also been demonstrated by Bragdon (2016) who showed that many of the most successful companies consciously mimic natural systems to achieve this success.

The regeneration design process is based on a set of principles encompassing: interconnectedness in which relational social beings constantly interact with others and the environment; emergence as the properties or behaviours which emerge only when entities interact in a wider whole; evolution that enables adaption and reorganisation in an environment that continuously evolves; and holism in which systems should be viewed as a whole and where none of them operates independently given they are interdependent and nested in other systems. This approach has been used to successfully develop co-ownership economies using digital technology, smartphones and the internet together with some conjunctural shifts using a wide range of apps and platforms that allow independent workers to be autonomous while co-generating incomes Hernández (2022). An example of regenerative agriculture is given in Section 6.1. Such examples show that public governance has an important role in facilitating the sustainability, resilience and regeneration of nature together with that of society, and that digital technology will be a necessary tool in this.

### 4.4.3 Dynamic systems

Leading on from the role of regeneration in linking people and planet, **complex systems theory** attempts to construct a holistic framework for accommodating these issues. It is the interdisciplinary scientific study of systems, i.e. cohesive groups of interrelated, interdependent components that can be natural or human-made. Every system has causal boundaries, is influenced by its context, defined by its structure, function and role, and expressed through its relations with other systems. A system is "more than the sum of its parts" by expressing synergy or emergent behavior[14]. It has been decisively demonstrated in recent years that complex systems theory is necessary to understand and influence how both human societies and nature behaviour and, especially, how they interrelate and interact with each other. It is thus critical that public governance supports and facilitates this understanding.

However, the system science approach, based on huge arrays of diverse evidence and theory testing, is difficult to comprehend for lay persons, including politicians and decision makers. Thus, good **science communication**, in this field as in any other, is critical. The difficulties this poses are well illustrated by the scientist, James Lovelock, who is most famous, or notorious, for promulgating the 'Gaia' theory that **the Earth is a self-regulating community of biotic and abiotic components**. As a maverick scientist with little early support but much resistance, he independently used experimental evidence and hypothesis testing to demonstrate that living organisms interact with their inorganic surroundings. This is through a synergistic and self-regulating, complex system that helps to maintain and perpetuate the conditions for life, including human life, on the planet. Gaia theory was first conceived in the late 1970s and laid the foundations for Earth system science and a new understanding of the interplay between life, clouds, rocks and the atmosphere (Lovelock, 1979). He also warned, in clearer terms than any of his peers, of the dangers humanity posed to the extraordinary web of relations that make Earth uniquely alive. The Gaia theory was ridiculed when first proposed, both by fellow scientists and many environmentalists, some of whom believed it heralded a "new age nonsense". Today it makes up the basis of much of climate science and is accepted by most scientists and environmentalists (Horton, 2022).

There are many relevant practical applications of dynamic systems relevant for public governance, such as the interactions between food systems and soil ecology as investigated in detail by Monbiot (2022) –s see also Section 6.1. The **interaction of biotic and human-made systems displays classic system**

[14] https://en.wikipedia.org/wiki/Systems_theory

**characteristics, including self-regulation through manifold decision-points that are, in effect, random and that reveal emergent and adaptive characteristics**. Through this self-regulation, the nested systems tend to find equilibrium themselves, but if pushed beyond **critical tipping points** when certain stress thresholds are reached, total system collapse is likely until a new system equilibrium is reached. There is typically no way of returning to the original state even if the causal stresses are reversed, as also shown by related chaos theory. Traditional farming methods are already pushing the soil systems upon which they rely to the point of collapse after which they will no longer be fit for growing food. This threat is similar to the climate tipping points expected to become self-sustaining shifts in the climate system that would lock-in devastating changes, like sea-level rise, even if all emissions ended straightaway. Others include ice sheet melts, and dramatic changes to ocean currents and major forests. The problem is that precise tipping points remain largely unknown – as it, for example, applies to the well-known 1.5°C global heating limit (McKay, 2022).

In complex systems – including human societies – tipping points can occur, in which a small perturbation transforms a system. Crucially, activating one tipping point can increase the likelihood of triggering another at a larger scale, and so on. A possible positive effect is that such upward-scaling tipping cascades could accelerate progress in tackling climate change. For example, in two sectors – light road transport and power – where tipping points have already been triggered by policy interventions at individual nation scales, positive-sum cooperation, between small coalitions of jurisdictions and their policymakers, could lead to global changes in the economy and emissions. The aim of activating **tipping points and tipping cascades** is a particular application of systems thinking. It gives a different starting point for policy to the theory of welfare economics, one that can be useful when the priority is to achieve dynamic rather than allocative efficiency (Sharpe and Lenton, 2021).

Applying similar system theory dynamics to **social and economic systems** can also be useful for public governance purposes. For example, Centola et al (2018) showed that a **critical tipping point threshold was passed when the size of a committed minority reached roughly 25% of the population**. At this point, social conventions suddenly flip. Between 72% and 100% of the people in experiments swung round, destroying apparently stable social norms. This seems to show that "**the power of small groups comes not from their authority or wealth, but from their commitment to the cause**". Wilkelmann et al (2022) explored the possibility that the *Fridays for Future* climate protests could trigger this kind of domino dynamics. In 2019, Greta Thunberg's school strike snowballed into a movement that led to unprecedented electoral results for Green parties in several European nations. Survey data revealed a sharp change of attitudes, as people began to prioritise the environmental crisis. *Fridays for Future* came close, the researchers suggest, to pushing the European political system into a "critical state". It was interrupted by the pandemic, so the tipping has not yet happened (Monbiot, 2022).

A systems approach is being used by the OECD (2020d) to deal with COVID-19 and future shocks as part of its ongoing work attempting to **understand and influence the operation, management and outcomes of various combinations of economic, social and environmental systems**. A sudden shock, like the pandemic, needs to be examined in terms of the response of the whole system to the incentives that individual components face within complex, nested, and interconnected systems. When a relatively stable system that is more or less in equilibrium, such as global supply chains prior to 2020, is hit by sudden and unexpected disruption as the result of an external shock, the way the system recalibrates and self-organises, or a combination of both, is critical to what happens next. Resilience, or the ability to recover and adapt to unexpected threats, has been a focus of specific aspects of understanding these systems and the resulting impacts when disrupted, especially when interconnectivity between systems is one of the structuring and determining features of the modern world, which is becoming ever more complex and dynamic.

In this context, the COVID-19 shock has spurred the OECD to change its traditional understanding of resilience as the capacity to resist downturns and get back to the same situation as before based on an approach to risk assessment focusing primarily upon system hardness and ability to absorb threats before breaking. **The new approach to resilience focuses instead on the ability of a system to anticipate, absorb, recover from, and adapt to a wide array of systemic threats**. This provides a useful new model for governance systems, as well as others, to understand and influence how complex societal and natural systems react and interact during shocks and to help design and plan new public governance approaches for tackling them.

Most systems theory work and application today is only possible using high-speed powerful computing systems and vast amounts of data that feed into modelling and predictive programmes. These are used, for example, in relation to climate change, the operation of the food system, the effects of a pandemic and the governance systems that need to be set up to understand, regulate and address their impacts. Digital technology, and especially AI, is a fundamental tool in these endeavours.

# 5 The opportunities and challenges of digital technology for public governance

Some of the likely digital technology implications of the strategic challenges presented in Section 4 have been indicated, and it is clear that in most cases the full cumulative range from Generation 1.0 to 4.0 will be needed depending on particular tasks and purposes. Some of the strategic challenges and the paradigms and models used to exemplify them will also need to focus heavily on services involving intense human-human relationships often without any visible digital involvement, for example for the preventative and community-based services in Section 4.3, although it is also clear that quite sophisticated technology will typically be needed in the back offices or as supplementary service supports in such cases. However, it is also realised that in all cases there are dangers of data misuse, whether wilful or accidental, especially when non-public sector staff are involved. The issue is what role does current and future technology have in supporting, improving and indeed extending the benefits of such tasks without degrading them.

For all potential strategic challenges and paradigms, including both preventative and community-based services, current Generation 4.0 digital technology, built as it is on previous generations, is likely to be able to provide the necessary support for these types of public governance models that can both save money and improve benefits for users. At the very least, these technologies should provide the means, if not the political and professional incentives, for joining-up silos within and between back-offices and between governance levels even when the user interface does not need much technology. However, the putative Generation 5.0 characteristics, with focus on human-machine hybridity under full human control and which build on Generation 4.0 and previous generations, may be even more suitable for addressing all the strategic challenges identified, as outlined in this section. Vesnic-Alujevic et al (2019) drew similar conclusions when articulating four scenarios of the future of government. They found that technology is perceived as a strong driver by different stakeholders in society but also pointed out that, in addition to the many opportunities it brings, complex ethical and legal issues need to be dealt with by the government, businesses and citizens collaborating (see also European Commission, 2022h). A review of the foresight scenarios is under way (Vesnic-Alujevic et al, forthcoming).

## 5.1 A new relationship between people and technology?

### 5.1.1 Generation 5.0 technologies and services

Elaborations on Web 5.0 just started and the concept remains under development, but there are clear indications of what it is intended to be with labels like 'emotional' or 'sensitive' web. The stated intentions of Generation 5.0 digital technology are to change the public service emphasis from user- to human-centric with a focus on real people and real peoples' lives, so that services fit these lives, rather than the reverse, using a 'whole-of-life' mindset. **The human is as important, if not more important, than the digital and services are not for but with people, given that people expect more 'human touch' through 'digital sanitisation'**, i.e. removing digital where this does not improve peoples' lives. In principle, all tasks will be under full human control with hybrids of human-to-human, human-machine and machine-machine relationships. This involves balancing efficiency with both effectiveness and 'affectiveness', i.e. by capturing peoples' emotions and a focus on emotional intelligence. The goal is to create emotional interactions between computers and humans, but under the full control of humans using algorithms to personalise, search, and improve experience, and to act for, or on behalf of, a person. Some of the technology enhancements in view are full virtual assistants, decentralised web app platforms and APIs to empower people to regain and retain control of their own data and identity and attempting to avoid the opposite dangers of public and/or private surveillance. It is envisaged that digital emotional intelligence will be possible, as will full digital wallets, full social personas, full digital twinning and full VR (the 'metaverse'?). Decentralised web nodes will be available providing decentralised identifiers, digital sovereignty and cryptographic security (Weston 2022, ByBit, 2022, Krøl 2020).

Generation 5.0 is also about whether humans or algorithms will be 'in control' and the many fears, on the one hand, that 'black-box' AI will take over and that humans will lose control, or whether on the other hand that AI and other advanced technologies will be under full human control and provide an increasingly brighter technology-enhanced future. This will result in '**hybrid' services, with various combinations of digital and human depending on the need, especially individual need, and context**. (See also De Nigris et al, 2020, and Manzoni et al, 2022.) None of this is straightforward, however, as outlined below. According to Chantillon (2021) "…the effect that the disruptive digital technologies can have on a particular policy domain can differ,

depending on factors related to the public administration and the context in which a public administration functions. Instead of considering it as a dichotomy, it is therefore more useful to consider this relation between digital and non-digital as a scale: In some instances the transformation will be more digital then in others, and it is most likely not a yes-or-no situation."

### 5.1.2 Industrial revolution 5.0

The concept of successive industrial revolutions, that indicate the wider context of economic development in which **digital technology has become today's general purpose technology underlying and supporting virtually all other technologies and everything in a modern society**, was outlined in Section 2.4. Industrial Revolution 4.0 (4IR) aligns well with Generation 4.0 technology, and now Industrial Revolution 5.0 (5IR) is being proposed alongside Generation 5.0 technology. This is now beginning to be identified as having profound implications for new governance paradigms and models. 5IR should ideally enable the evolution of the modern manufacturing process in order to allow **humans and machines to perform work hand-in-hand, combining the unique cognitive abilities of workers and the accurate technical expertise of, for example, robots to ensure an innovative culture in the workforce**. "This vision recognises the power of industry to achieve societal goals beyond jobs and growth, to become a resilient provider of prosperity, by making production respect the boundaries of our planet and placing the wellbeing of the industry worker at the centre of the production process. It complements the existing Industry 4.0 paradigm by having research and innovation drive the transition to a sustainable, human-centric and resilient European industry. It moves focus from solely shareholder value to stakeholder value, for all concerned" (European Commission, 2021a).

According to the Regenesys Business School (2020), 5IR can be summarised as the combination of humans and machines in the workplace. However, this is vastly oversimplified and does not even begin to explain the magnitude and complexity of the change given that it comes in the context of "**a crisis of trust in technology**." "In the Fifth Industrial Revolution, we're going to have to have… a chief ethical and humane use officer. Are we using these technologies for the good of the world? You can't do business in the Fourth Industrial Revolution without the trust of your employees and your customers and partners." The third and fourth revolutions were hard on humans and hard on the environment. Previous generations had to adapt their lifestyle to what the machines could do. The Fifth Industrial Revolution is different. Human beings are now front and centre in the production process. This source labels 5IR as 'personalised' and 'conscious', and suggests it is (will be) happening in the second decade of the 21st Century and will provide deep, multi-level cooperation between people and machines, for example in robotics (see Duch Brown et al, 2021) .

The above prognoses for both Generation 5.0 technology and the Fifth Industrial Revolution seem to be a radical departure from the state of almost all digital technology currently in widespread use. On the face of it, they appear to be well suited to fully addressing the strategic challenges above, including for human-facing public services. However, as indicated in Section 8.1, it is clear that political, policy, socio-economic and cultural conditions are the strongest determinants of public governance changes, whilst digital technology and data are best seen as necessary but never sufficient tools in this process.

## 5.2 The human-technology relationship in focus

It is already clear that digital technology, as the 21st Century's general purpose technology underlining most if not all other technologies and innovations, needs to be seen as complementing and supporting human activity rather than completely replacing it where this would lead to reduced individual or societal benefit. There is **increasing insecurity regarding the relationship between people and technology, where individuals must learn to cope with the consequences of omnipresent machines and networks of a completely new kind**. How are human values, ethics and wellbeing protected and promoted? What are the philosophical implications of blurring boundaries between the physical, biological and digital spheres, as already apparent in the Fourth Industrial Revolution (WEF, 2016)? **An ethical dimension needs to be introduced** in the exploitation, for example, of big data, artificial intelligence, bio-technologies, as well as the tensions between the citizen's right to privacy and to security systems that can deal with huge threats from massive data collection and analysis as well as routine penetrating surveillance by both tech companies and governments (Zuboff, 2019).

For example, there are numerous examples where AI algorithms can accentuate biased decision-making after being trained on biased or incomplete data, and that this is confounded by the fact that how the algorithm actually reaches its decisions which affect the lives of ordinary people are typically hidden as if in a 'black box'.

(See also Annoni et al, 2018, and De Nigris et al, 2020). For this purpose, a useful policy innovation would be to create some form of **independent intermediary between those who develop and use AI, on the one hand, and the people who are subject to decisions taken by AI on the other**. For example, this might be some sort of digital ombudsmen, independent of the market and government, with the legal power, technical expertise and the resources to investigate complaints about unclear or unfair decisions taken by AI, breaches of data privacy or of data misuse on behalf of those affected. In addition, when AI is being developed it might be useful to include a legal requirement to facilitate opening up the code to scrutiny (Millard, 2020).

With such caveats and given that the ITU estimates that over half the total global female population (52%) is still not using digital technology, compared to 42% of all men (ITU, 2019), it is important to undertake pro-active and gender-sensitive national high-quality infrastructure rollout, and adequate funding for more general initiatives, such as the promotion of digital literacy. For example, it is reported that the higher the level of internet and broadband coverage, the higher is internet use even for less educated and less skilled individuals. In addition, **household internet access increases the educational attainment of individuals in a given area, even when internet coverage and GDP per capita are relatively low** (Millard, 2015b). Ensuring internet, mobile and broadband infrastructure availability is necessary, but not sufficient, for more adoption and beneficial use of digital technology. It is also necessary to create appropriate incentives, awareness, reward systems, as well as to support provider and user ecosystems, driven by high levels of cooperation and co-creation, in addition to market competition. In the case of digital technology design, there is a strong trend in some developed countries to move away from technology designed purely for specific disadvantaged groups towards '**inclusion by design**'. Technology for social development works best when technology does not set the whole agenda, and policy and procedures do not try to play catch-up for technology's sake.

Important European policy actions are taking place. The EU's 2018 launch of its GDPR (General Data Protection Regulation) is a major attempt by a public authority to address data protection, data privacy and the transfer of personal data outside the regulation's jurisdictional area. The GDPR's primary aim is to give control to individuals over their personal data and to simplify the regulatory environment for international business by unifying regulation within the EU[15]. (Berti Suman et al, 2020.) The EC's (2021k) **Digital Decade targets for 2030** aim to empower businesses and people in a human-centred, sustainable and more prosperous digital future in line with the Industry 5.0 policy (European Commission, 2021). This proposes a Digital Compass that evolves around four cardinal points: specialist and basic digital skills, digital transformation of businesses, secure and sustainable digital infrastructures, and the digitalisation of public services. The Digital Decade targets also propose rights and principles for digital citizenship.

## 5.3 The misleading notion of 'technological neutrality'

It is often presumed that technology is 'neutral', neither good nor bad, because its impacts are determined by how it is used. For example, **social media has had huge positive impacts on the lives of many**, bringing people together globally, extending an individual's horizons beyond the local and even national, enabling communities, campaigns and democratic movements to form, making both governments and large companies more transparent, and enabling families to keep in touch wherever its members live. On the other hand, **so too has social media's misuse mushroomed**, from trolling and bullying the vulnerable online, allowing pedophiles to share child pornography, to the so-called dark web where illegal and dangerous anti-social transactions take place. The democratic and mind-broadening potential of the web has also come under scrutiny, as more and more people only access material they choose to follow. They increasingly ignore, and even more worryingly, are excluded from, other content, leading to so-called filter-bubbles: the more we use search engines, the more they adapt to only feed us what they deduce we like through sophisticated algorithms (Pariser, 2011).

However, closer scrutiny shows that **technology is far from neutral, given it is designed, rolled out and deployed to serve specific societal interests, whether public, private or civil**, so how this takes place is of crucial interest. There are numerous examples where technical advances have been driven by social needs, such as the Linux free open-source operating system for computers, the M-PESA mobile phone money transfer app in Kenya which allows poor people with no bank account to make secure commercial and family transactions over long distances, and the *FixMyStreet* platform used in many more developed economies. **Most technical advances are however market-driven, aimed to increase profits rather than necessarily**

[15] https://gdpr.eu

**serving the public good**. However, although it is of course true that both goals can be served simultaneouly, much new digital technology is designed to extract market value from individuals and communities rather than increase it. The big Silicon Valley tech companies are flooding the market with their own content, **crowding out local content and languages which could help develop local communities, culture, and companie**s. This is resulting in much local income being sent out of the locality, and even out of the country, rather than supporting local content and enterprise. Neither does international finance often invest in local content and language, so the local context is increasingly neither supported nor even recognised as legitimate (OECD, 2011, and UNCTAD, 2020). This is coupled with the fact that every time we go online we leave digital traces and footprints, which are scooped up by tech companies and sold to advertisers who use their knowledge about our personal lives to personalise advertising. **Each of us, individually, is thus the digital 'product' to be sold to the highest bidder rather than simply the consumer of online services**, in a quite bizarre flip of traditional economic relationships (Zuboff, 2019).

**Governments and regulators often struggle to understand the pace of change, let alone formulate relevant policies**. This prompts the question what technology companies are accountable for and to whom? As technology companies advance, current legal and regulatory frameworks may not address their increasing concentration of power. The rise of digital connectivity also prompts increased cyber-security concerns, for example with the hacking of critical infrastructures such as electricity and transport networks, and the security, ownership and usage of the massive amount of personal data created and shared. (See European Commission, 2022c.)

Although the idea of the '**post-truth society**', 'fake news' and 'fact-free' (political) discourse are not new, their significance enabled by digital technology has reached vastly new heights since 2015. Even though all sides of the debate are guilty of misusing facts, those who attack 'experts' do this much more, for example in the climate change debate. Social media plays a significant role: Facebook, Twitter, Google, etc., say they are working together to try to develop algorithms to filter out false news, 'hate speech' and terrorist propaganda. International organisations have a massive role to play in reinstating the position of facts, evidence and experts in policy debates, but also ensuring they reach **a balance between free speech and freedom on the net, on the one hand, and promoting cyber security and tackling hate speech and deliberate falsification on the other**. Finland provides a successful example of a programme to counter fake news by teaching people how to recognise and confront it (CNN, 2019). This 2014 initiative is one layer of a multi-pronged, cross-sector approach the country is taking to prepare citizens of all ages for the complex digital landscape of today and tomorrow. In March 2018, Finland ranked first out of 35 European countries on media literacy in a study measuring resilience to the post-truth phenomenon. Politicians do of course need passion, commitment and vision, but they cannot succeed if divorced from the facts. (See also Lewandowsky et al, 2020, and Mair et al, 2019.)

## 5.4 Technology out of control?

There are also many current challenges and threats which need to be addressed, partially arising from the digitisation of government, such as **when data and information are mis-used, manipulated or distorted** without any factual or objective basis. In this context, vigilance as well as new forms of security are needed to address questions such as how do we know the data is correct, and are 'black-box' algorithms dangerous when it is not clear how they function? There are also potentially bigger challenges with big data, such as cyber-crime and warfare as well as the creation of the so-called 'dark web' and other subversive developments.

These and related issues are relevant to a re-appraisal of the way our societies are governed. According to Mair et al (2019), complexity, wicked problems, the abundance of information, the pace of change, uncertainty, misinformation, populism, polarisation as well as new governance models and digital technologies are creating the need to change how policy is made. Major issues to confront include (Mair et al, 2019):

- **Misperception and disinformation**: our thinking skills are challenged by today's information environment and make us vulnerable to disinformation. We need to think more about how we think.
- **Collective intelligence**: science can help us re-design the way policymakers work together to take better decisions and prevent policy mistakes.
- **Emotions**: we cannot separate emotion from reason. Better information about citizens' emotions and greater emotional literacy could improve policymaking.

- **Values and identities**: these drive political behaviour but are not properly understood or debated. (See also Scharfbillig et al, 2021 and Section 3.3)
- **Framing, metaphor and narrative**: facts don't speak for themselves. Framing, metaphors and narratives need to be used responsibly if evidence is to be heard and understood.
- **Trust and openness**: the erosion of trust in experts and in government can only be addressed by greater honesty and public deliberation about interests and values.
- **Evidence-informed policy-making**: the principle that policy should be informed by evidence is under serious attack. Politicians, scientists and civil society need to defend this cornerstone of liberal democracy.

# 6 Implications for three example sectors

## 6.1 Food system governance

### 6.1.1 Governing the food system prior to 2020

Starting in 1962, the **EU's Common Agricultural Policy (CAP)** has implemented a system of agricultural subsidies based on the land area farmed and has since undergone several changes to reduce the budget cost (from 73% in 1985 to 37% in 2017) and to consider rural development as part of its aims. However, costs have continued to be criticised as well as the environmental and social effects. Proposals and attempts to modernise the CAP have included social innovations at the local level, from community-supported agriculture schemes and farmers' markets to the creation of local food policy councils and urban food policies. These initiatives are highly promising in terms of sustainability (e.g. reducing environmental impacts and reclaiming value for small-scale farmers/food businesses) and in terms of reconnecting actors (e.g. producers and consumers, citizens and local policymakers) in a way that restores democracy, accountability, and trust in food systems (iPES Food, 2019).

**EU and national policies have, however, been generally ill-equipped to encourage this type of experimentation**. For example, local food system initiatives tend to be small-scale and/or urban-based, often making them ineligible for CAP funding. Where supportive EU policy frameworks do exist (e.g. flexibilities in public procurement and food safety rules to support small-scale farmers), the opportunities are under-communicated, ineffectively implemented at national/local level, or subordinated to competing priorities such as boosting competitiveness in conventional markets. Supporting local experimentation, promoting social innovation, and building sustainable food systems at the territorial scale remain à la carte options rather than obligations for Member States. Though opportunities exist for local and regional actors to share best practices with one another, far fewer are created for EU policymakers to learn and shape EU-level policies and programmes to further support these initiatives on the ground (iPES Food, 2019).

The iPES Food (2019) report therefore proposed a new EU Common Food Policy setting a direction of travel for the whole food system, bringing together the various sectoral policies that affect food production, processing, distribution and consumption, and refocusing all actions on the transition to sustainability. It mapped out a new governance architecture for food systems by reclaiming decision-making processes from powerful lobbies, bringing new actors around the table, shaping policies in more democratic ways, and allowing new priorities and new coalitions of interest to emerge. This was based on four objectives sequenced over the short-, medium- and long-term, and underpinned by new ways of making policies: integrate across policy areas to put an end to conflicting objectives and costly inefficiencies; integrate across governance levels to harness grassroots experimentation and align actions at EU, national, and local levels; ensure governance for transition to overcome short-term thinking and path dependencies in a way that sectoral policies cannot; and introduce democratic decision-making through public participation in policymaking.

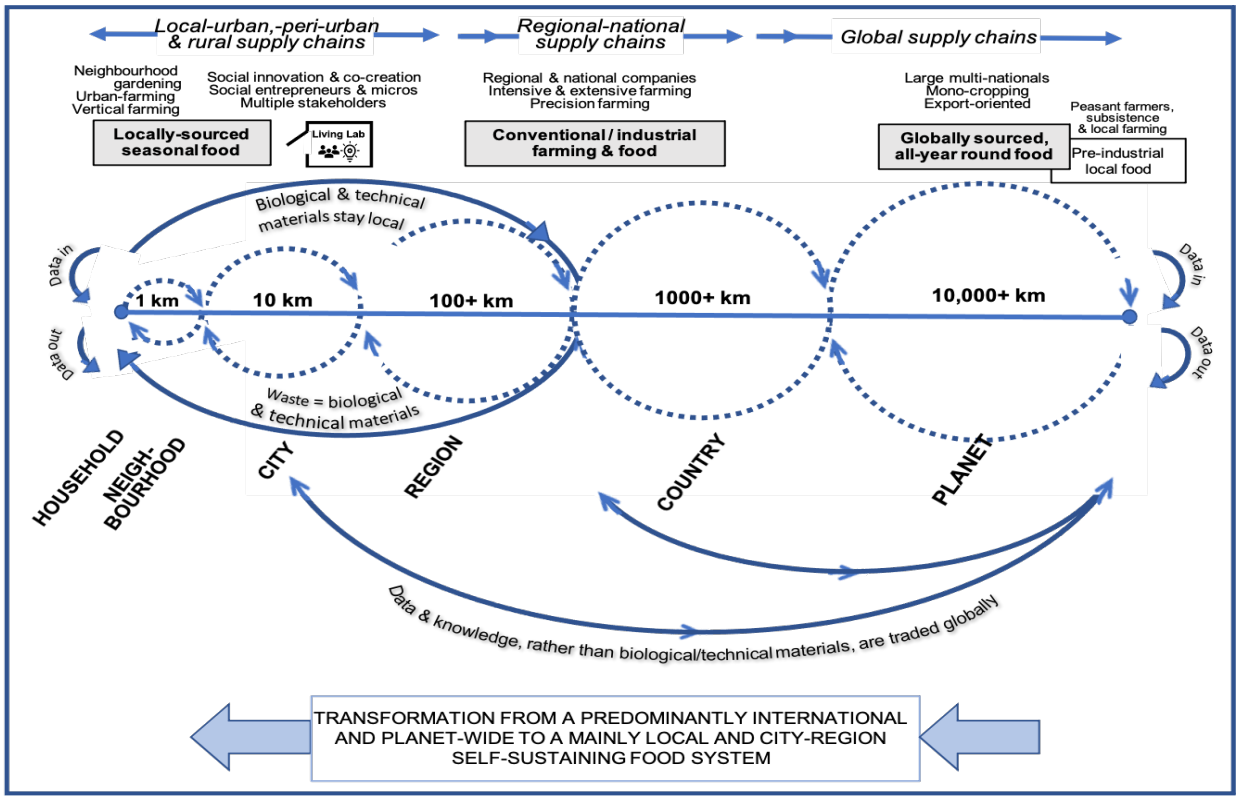
These initiatives were also supported by the emerging concept of local, and particularly **city-region, food systems** as the most suitable scale for improving food availability, quality and environmental benefits, for example through sustainable agri-food strategies, for example through the Milan Urban Food Policy Pact (2018). Building on these developments, Moragues-Faus and Battersby (2021) identify **three core perspectives in urban food governance**: a shift towards systemic focus on local food systems; increased engagement with the complexity of governing the different geographic scales; and a growing focus on the relationships of urban food governance with the broader urban policy agenda. The authors see the need for a stronger conceptualisation of the urban context for food; a clearer definition and articulation of the nature of governance and policy at this level; and a more engaged focus on issues of power and inequities in the urban governance system. Cohen and Ilieva (2021) show how local, as well as national and European level policy makers are

starting to acknowledge that the food system is multidimensional, that social determinants affect diet-related health outcomes, and the need to move away from focusing food programmes and policies narrowly only on food access and nutritional health.

In relation to urban food policy governance, Parsons et al (2021) point to the importance of institutions as policy-structuring forces, the need to rebalance national-local powers and to develop cross-cutting food plans. Clark et al (2021) emphasise the role of **community food infrastructures** and the importance of critical middle infrastructures to connect production with consumption and larger markets, thereby building resilience through intermediate markets. The overall thrust of this focus is about the importance of linking urban food policies with other urban policies, new types of place leadership for example through the anchor institutions and middle infrastructures of community-wealth building and 'new localism' initiatives. Thus, before COVID-19, the boundaries of food governance were already spatially focusing on the local and the city-region scale whilst also simultaneously broadening in policy terms to encompass a much wider range of issues and domains not previously considered within the purview of food policy, such as local labour, housing, and education policies.

Local food system governance involves re-scaling the food system significantly away from the conventional approach and transforming towards more sustainable and resilient food systems with significantly shortened value chains in an increasingly **circular city-regional food cycle**. Figure 4 sketches the overall re-scaling approach that, at its base, deploys circularity principles which look beyond the current 'take, make, and waste' industrial model to design out waste and pollution, keep products and materials in use, and regenerate natural systems. Circularity also boosts local commerce, jobs, social inclusion and more responsive local governance. The household, neighbourhood, city and peri-urban area are nested within the wider regional, national and global food systems. Fundamental questions include what is the hinterland/catchment area required to provide a town or city with its basic needs for nutritious, safe, secure, sustainable local and seasonal food, what the relationships with rural areas, how is this organised and governed? To answer these questions, a transformation is required from a predominantly international and planet-wide system towards a more circular city-region food system that becomes much more self-sustaining and resilient. This implies a substantial shift to the left in Figure 4 with the main emphasis on strong interrelations between the household, neighbourhood, town/city and region. A nexus approach and thinking is thus needed – a city is only as resilient as the surrounding region is in terms of water, energy, food, logistics and natural ecosystems.

**Figure 4**: Re-scaling the food system




Source: Adapted from Diez, et al (2019)

This is the only feasible way in which both biological and technical materials can become part of a circular food ecosystem that is, in practical terms, able to both reduce waste and increase efficiencies along the whole value chain. This shift does not imply that city-regions should or will become cut-off in terms of food from their wider national or international context, or from global interactions and trade. However, the move to the left in Figure 4 needs to be substantial. Unlike biological and technical materials, the figure depicts how **data, knowledge, know-how and learning are traded globally, for example through the sharing of good practices**. These have very low transaction and transportation costs using mainly digital but also in-person contact, so are well suited to very widespread exchange and trading from hyper-local up to global level. Such a transformation can also lead to huge environmental, social and economic benefits making the short-term transformation costs significantly worthwhile in aiming at the desired outcomes and impacts over the medium and longer-term. Moving to much more local food systems will also help to break the extreme dependency of nations (both developed and, importantly, developing countries) on food shipped from distant places. If food production becomes largely distributed, every locality could become much more autonomous, also with the assistance of new technologies like vertical farming, hydroponics and precision farming including precision fermentation (Monbiot, 2022).

### 6.1.2 The shock of COVID-19

The **Farm to Fork Strategy** published in May 2020 (European Commission, 2020b) aims to increase the social, environmental, and economic sustainability of the EU food system, covering all stakeholders (farmers, consumers, retailers, and processors). Since its publication, successive crises, including the COVID-19 pandemic, the war in Ukraine, and a severe drought affecting the whole continent, have underlined the urgent need for a systemic transition of EU food systems to reinforce their resilience and sustainability. On 2 December 2021, a **new CAP was agreed due to run from 2023 to 2027** (European Commission (2021j) designed to secure the future of agriculture and forestry, to achieve the objectives of the **European Green Deal** (European Commission, 2019d) and to pave the way for a fairer, greener and more performance-based CAP. It will seek to ensure a sustainable future for European farmers, provide more targeted support to smaller farms, and allow greater flexibility for EU countries to adapt measures to local conditions.

**Food is arguably our most vital strategic commodity**. It is central to our existence, not just for sustenance and survival but as a huge contributor to our cultural, social and economic lives. The food industry also has huge environmental impacts. So, when food systems of food preparation, consumption and diet are disrupted by large scale social and economic shocks like the financial crisis, COVID-19 and the war in Ukraine, this has huge impacts. Millard (2022) shows that **the majority of European households significantly changed important aspects of their food behaviour during the first wave of the pandemic, many of which are likely to persist into the future**. Across all household types, the pandemic dramatically accelerated the previous slow trend towards more local and seasonal food delivered along short supply chains, a move to smaller independent retail outlets, and much greater food awareness and own growing of food where feasible, large decreases in both food waste and in new types of food and recipes. The transformation of the market system for food, heretofore based on large centralised organisations, long supply chains and ever-increasing globalisation, is being turbo-charged.

However, **the food system is multidimensional and impacts individual households differently, especially in relation to household composition, education, income and geography**, which are themselves closely inter-dependent. Households with children tend to be the largest households with the greatest range of food tastes and needs, so are likely to be the most responsive to food system shocks. They have typically changed their food behaviour much more than other households during the pandemic. Their size often means tighter budgets and this shows in their relatively large reduction of fresh food but also largest increase in comfort food consumption, no doubt because of their children's demand for sugary foods whilst stuck at home during school shutdowns. Households with two or more adults were also relatively responsive to the shock, although these households tend to consist of much older, often retired, people many of whom are living on small incomes and are very concerned about their health and, especially since COVID-19, about the impact of food on this. Both households with children and with two or more adults also generally suffer much more than single households from food vulnerability and stress and this was magnified if the household lost income during the pandemic due to job loss, furloughing or reductions in working hours (Millard et al, 2022; Hristov et al, 2022).

Somewhat similar patterns were seen in relation to the educational level of the household, so that the higher levels are the most resilient and least likely to change their food behaviours during the pandemic. The less educated the household, the more likely it was to decrease fresh food consumption and increase processed

food consumption, although the university educated households did increase their consumption of comfort food more, probably because of their typically higher incomes and easier access to shops. The less educated households also switched less to local producers, used home delivery, unpackaged and organic food much less and engaged less often in enhanced food preparation behaviours, as well as decreasing their food waste the least. It seems likely that awareness of the links between food and health were less clear to these households, a supposition reinforced by their much lower increase in evaluating the overall importance of food. These households were also more likely to revert to foodbanks during the pandemic as well as obtain free food from other sources, a situation reinforced by the fact that many more of them lost income.

Households with children and that lost income during COVID-19 tend also to be those with lower overall household income per person before the pandemic and thus more likely to be fragile at the outset, so the pandemic made their situation relatively much worse. These households also tended to eat less healthily during the pandemic away from fresh food to more processed and sugary foods and alcohol. (Hristov et al, 2022). Overall, **more vulnerable households (however measured) suffered more during the COVID-19 shock**, but this also meant that both their behaviour and awareness around the health-food relationship also improved significantly because they were starting from a much lower base. More affluent households already had relatively high levels of food behaviour and awareness around the health-food relationship and, although this increased during the pandemic, this increase tended to be less given it was starting from a higher level.

So, in many ways, the COVID-19 food shock pushed more vulnerable households to catch-up to some extent with the already relatively high levels of food-health awareness in less vulnerable households, despite the serious difficulties they encountered. Indeed, more vulnerable households also say their changed food behavior is more likely to continue beyond COVID-19 than do less-vulnerable households. This includes, for example, greater increases in shopping with local producers and in more local shops, growing own food, using a wider range of food dishes and recipes, greater use of unpackaged food and much less food waste. Thus, a useful policy guide during this age of turbulence would be to put in place **measures to support the positive food behavioural changes of all households with a specific focus on the more vulnerable households and those with lower incomes**. Vittuari et al (2021) document how recent crises have exposed the fragility of food sovereignty in cities and confirmed the close connection urban dwellers have with food and suggest how citizens would accept and indeed support a transition toward more localised food production systems. They propose the reconstruction and upscaling of such connections using a 'think globally act locally' mind-set, engaging local communities, and making existing and future citizen-led food system initiatives more sustainable to cope growing populations.

In terms of geography, there is a strong tendency for more or less regular changes in food behavior outwards from a country's capital city centre to its rural periphery, i.e. down the metropolitan hierarchy and along the urban-rural continuum. This is directly related to food market conditions and supply logistics that decrease both quantitatively and qualitatively from the centre to the periphery in terms of density, connectivity (including digital connectivity), food availability infrastructure (although there is more own food growing in rural areas due to greater land availability) and power and decision-making (Millard et al, 2022). Thus, **rural areas suffered from greater food challenges than urban areas during the pandemic, even more than can only be ascribed to income levels alone.** This also reflects the need for '**rural proofing**' (see Section 4.2.2). However, there is also an important counter trend with some movement of population out of both the largest, typically capital, cities and from the so-called second-tier, typically older industrial, cities towards smaller cities in or beyond the suburbs and in peri-urban and adjacent rural areas. These smaller cities are also growing in size fed by some rural depopulation as more desirable destinations than the larger cities with their higher rents and living expenses. (See also Section 4.2.2.) As the new growth poles, the smaller cities tend to exhibit much greater social and economic cohesion and often performed better in terms of higher levels of food behaviour and resilience during the pandemic, even when compared to capital cities which often themselves have much more mixed affluent and vulnerable populations.

The importance of the **sustainability of city-region food systems is inevitably linked to the topic of shorter food supply chains**, especially during shocks, and are associated with extensive good practice evidence related, for example, to the re-connection of food producers with consumers (Grando et al 2017), social sustainability (Vittersø et al, 2019), or building transparent food supply chains with the fair distribution of power among actors (Kessari et al, 2020). In addition, short food supply chains are associated with the production of quality and safe food when consumers buy products from local trusted suppliers who are able to guarantee genuine and safe products (Baldi et al 2019). These developments highlight the vulnerability of the present largely globalised agri-food systems as well as societies in the relatively developed world. Matacena et al (2021) see this situation as an opportunity to strengthen the sustainability agenda, e.g. by pursuing the **EU's**

**Farm to Fork strategy** (European Commission, 2020b) and thus enhance the resilience of regional and local food systems and empowering consumers to make informed food choices. Murphy et al (2021) mention the importance of local food supply chains for supplementing the global market and ensuring normal product flow during emergencies, whilst Vidal-Mones et al (2021) propose strengthening independence in the form of support for local and seasonal consumption. McEachern et al (2021) point out that while attention has been "predominantly focused on larger retail multiples, more attention should be paid to small, independent retailers as they possess a broader, more diffuse spatiality and societal impact than that of the immediate locale. Moreover, their local embeddedness and understanding of the needs of the local customer base provide a key source of potentially sustainable competitive advantage" and thus help underpin both urban and community resilience.

### 6.1.3 Food system examples

An example of relatively advanced city-region food governance in practice is the **Milan Urban Food Policy Pact (MUFPP)** supported by the **Urban Agenda for the EU** that focuses on the means of implementation and governance (European Commission, 2022f). The MUFPP is an international agreement among cities committed to develop urban food systems that are sustainable, inclusive, resilient, safe and climate friendly, that provide healthy and affordable food for all, thereby improving food security and nutrition as core requirements for sustainable urbanisation. MUFPP was signed on October 2015 by more than 100 cities from all over the world representing 450 million people. MUFPP cities believe that urban food systems are at the core of sustainable development and a crucial part of the nexus of climate, energy, water and other natural resources, together with social inclusion and equity. The Pact and its framework for action represent a unique platform to support coordinated food policies and foster urban-rural linkages (MUFPP, 2015). In terms of governance, the MUFPP Monitoring Framework (MUFPP, 2018) encourages interdepartmental and cross-sector coordination internal to city governments working to integrate urban food policy considerations into social, economic and environment policies, programmes and initiatives, such as, inter alia, food supply and distribution, social protection, nutrition, equity, food production, education, food safety and waste reduction. Such inter-departmental and cross-sector institutional mechanisms or bodies (food bodies, units or teams), will enhance dialogue and coordination, policy integration, impacts, and efficiency gains by 'breaking down institutional silos'.

Analysis of various successful examples of such coordination mechanisms shows that key government actors include authorities that are responsible for: agriculture, health/nutrition, social protection, economic development, markets, planning, transport, and climate change. It is clear that the mere presence of an inter-departmental / sectoral coordination body will not provide sufficient indications on actual levels of coordination, results-impacts and gains. It is therefore also important to assess the functioning and effectiveness of the coordination body (e.g. is it having regular meetings; does it have sufficient human and financial resources to make sure that the coordination body/mechanism functions; does the coordination mechanism actually result in concrete collaboration initiatives and city policies; are the functioning of the coordination body, its activities, results and impacts monitored to drive analysis of lessons learned and impacts as a basis for further planning and improvements?) Successful examples also highlight that clear and strong institutionalisation of the coordination body/mechanism in the local government structures and budgets reduces the risks that changes in city administration can bring, e.g. shifts in allocation of budgets, and is key to mainstreaming food in municipal policies. Securing the food body and programmes through legislation also makes them more resilient to government changes. In order to gain broader political and public support, transparent information sharing on the roles, activities and achievements of the coordinating body/mechanism is also crucial. (MUFPP, 2018).

At European level in March 2022, just after the start of the Russian invasion of Ukraine, France's President Macro argued for greater food independence in Europe by prioritising productivity over sustainable farming goals in the EU's *Green Deal*. There is clearly a dilemma here between food productivity and security, on the one hand, and food sustainability on the other. Macron presented his five-year programme for independence in a "stronger Europe" where agriculture and industry are crucial. In line with the French 'resilience plan', Macron is proposing **greater "agricultural, industrial and creative independence**". Refocusing on production is Macron's priority, particularly as food security has become a significant challenge due to successive global crises and the "deep food crises" expected to follow. The French president wants to adjust the EU's Farm to Fork strategy, which is based on a world "before the war in Ukraine," as it could result in a "13% reduction in production". "Europe cannot afford to produce less," he said, calling for a review of the Farm to Fork objectives (EURACTIV, 2022a).

## 6.2 Energy system governance

### 6.2.1 Governing the energy system prior to 2020

In 2016, the European Commission published a proposal for a new regulation on the **Governance of the Energy Union** based on five dimensions: decarbonisation, energy security; energy efficiency; an internal energy market; and research, innovation and competitiveness (European Commission, 2016b). The proposal replaces the earlier Monitoring Mechanism Regulation, and requires Member States to adopt National Energy and Climate Plans. These replaced existing separate plans for renewables and efficiency and help streamline related obligations for planning and reporting. Monitoring progress takes place under a new annual cycle in the framework of the Energy Union, which is similar to the European Semester. The proposal puts forward requirements for the content of the plans, including a detailed and binding template for Member States to use. Importantly, it also contains the process for adopting and monitoring national energy objectives on renewable energy deployment and energy efficiency, as Member State contributions to EU level binding targets in these areas. Many of these national plans, as well as many other energy initiatives, were focused on **much more local energy generation and use, implying that many different levels of government would need to work closely together and involve a variety of actors** (Wade et al, 2008). According to Dobravec et al. (2021), "a sustainable energy system based on renewables, energy-efficiency, decentralisation of energy generation and synergies between different sectors requires new energy planning methods and policies. Energy transition and climate change mitigation achievement can no longer be seen only through top-down activities from a national government." **Local and regional governments thus have a crucial role in delivering relevant public policies within a multilevel governance system.**

According to the European Commission (2022b), "**energy communities are citizen-driven energy actions** that contribute to the clean energy transition, advancing energy efficiency within local communities. Energy communities organise collective and citizen-driven energy actions that help pave the way for a clean energy transition, while moving citizens to the fore. They contribute to increasing public acceptance of renewable energy projects and make it easier to attract private investments in the clean energy transition. At the same time, they have the potential to provide direct benefits to citizens by increasing energy efficiency, lowering their electricity bills and creating local job opportunities. By supporting citizen participation, energy communities can help provide flexibility to the electricity system through demand-response and storage. Energy communities offer a means to re-structure energy systems by harnessing energy and allowing citizens to participate actively in the energy transition and thereby enjoy greater benefits." "Energy communities can take any form of legal entity, for instance that of an association, a cooperative, a partnership, a non- profit organisation or a small/medium-sized enterprise. It makes it easier for its citizens, together with other market players, to team up and jointly invest in energy assets. This in turn, helps contribute to a more decarbonised and flexible energy system, as the energy communities can act as one entity and access all suitable energy markets, on a level-playing field with other market actors." (The European Commission's JRC also provides scientific support to the design of energy communities, EU Science Hub, 2022.)

Schmid et al (2020) define community energy as "formal or informal citizen-led initiatives which propose collaborative solutions on a local basis to facilitate the development of sustainable energy technologies". There are many advantages, such as enhancing local acceptance of renewable energy, regional value creation and energy democracy and justice. As a legally constituted form of corporation with democratic membership control, constrained profit distribution, and open membership, energy cooperatives are one of the main governance forms, defined as an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically-controlled enterprise. However, such cooperatives do not function in an institutional void but also require interaction with and the support of governments, especially at the local level, although this itself also takes place in a multi-level governance system. Important issues include the decision-making processes, the implementation of policies, the involvement and participation of public and private actors in the problem-solving process and the ways (local) governments respond to community energy initiatives (Schmid et al, 2020; Schwalb and Walk, 2007).

A key challenge of such (new) types of governance is to balance between the enabling and authoritative modes of governing, and there are calls for a shift in the local governments' roles and responses to the emergence of community energy and claims that new civil initiatives ought to be recognised as "**opportunities for co-creating new formal arrangements that serve the public interest, rather than being merely viewed as 'difficult'**" (Avelino et al, 2014). An important balance needs to be struck between, on the one hand, the public authority's need to engage and to create space for private and community actors that contribute to widespread public value and, on the other hand, preserving the public interest of all citizens given that an energy

cooperative is first and foremost accountable to its members and not to the entire community. In terms of how close the relationship should be between the local authority and the energy co-operative, Hoppe et al (2015) demonstrate that close interaction and a high degree of trust are preconditions for success. In contrast, Frantzeskaki et al (2013) point to examples where the community energy organisation deliberately held back from close contact with the authority as they doubted the benefits of so doing. In start-up initiatives, however, it seems that partnering with the local authority is likely to be crucial for success (Hufen and Koppenjan, 2015), although, at the same time, the authority also needs to be considerate of the energy cooperative's independence, and that a "too pro-active a role [of the state] could produce dependency relations and crowd out civil society activism" (Healey, 2015).

Schmid et al (2020) report on an interesting feature of multi-level governance systems, at least in the context of local energy cooperatives. For example, in the vertical dimension of federalist systems as in Germany and Switzerland, local governments need to adapt to such top-down structures when considering the local context and the space for bottom-up developments by compensating for weaknesses or shortcomings at other levels of government (Ehnert et al, 2018). Schmid et al (2020) "suggest that local governments should be given sufficient financial capacities and autonomy to **strengthen implementation of a decentralised energy transition that involves citizens**. However, they also recognise that municipal structures alone are often insufficient and that superordinate policies, especially national subsidies, remain essential. Hence, policies at the municipal and national levels should take greater account of citizen initiatives, such as energy cooperatives, which exhibit various non-commodifiable advantages relevant to the energy transition." "Federalism works when governments at one level of the system are able to compensate for weaknesses or defects at another level" (Derthick, 2010). However, how this compensation takes place is not pre-determined but depends both on the scope of action provided to them by the federalist system but also on their willingness to act. Schmid et al (2020) note that "national and state governments can incentivise action by entrusting local governments with certain tasks or by supporting and motivating them to pursue their own energy policy", and they can directly shape the activities of civil society organisations, such as community energy cooperatives. In this context, Markantoni (2016) notes that national-level energy policy and regulation directly impact and probably motivate community energy initiatives, for example through incentives for renewal energy development like feed-in tariffs and electricity market regulation.

According to Gohari and Larssæther (2019), lessons from the Zero Village initiative in Bergen, Norway, on sustainable energy planning as a co-creative governance challenge requires different, but interlinked strategies, technologies and policies. This implies **a complex array of overlapping systems that are shaped by diverse actors' interventions and requires conceptualisation of co-creative governance**, and the dynamic interplays between power relations in the face of conflict of interests. It is necessary to go beyond the traditional division of governance network between private, public and academia to investigate the political structure underpinning the functionality of governance. The aim is to understand how different multi-level governance systems deal with the competing interests, asymmetrical power and the mobilisation of resources for goal achievement in the case of Zero Village Bergen. The findings show that, in the governance transition to sustainability, the different actors have needed to exercise power in the context of (shifting) power relations in an interesting illustration of a quadruple helix innovation system in which the knowledge community plays an active part. In the current wave of smart city initiatives, municipalities and universities are increasingly taking part in cross-sectoral partnerships and platforms. This example demonstrates that there is a substantial potential for role conflict between public authorities as guardians of the common interest, and the formal and informal bindings that occur when they form alliances with commercial actors who will also seek to pursue their self-interest. It is thus important to strike the balance between securing democracy and legitimacy of planning through 'due process' and the need for new forms of governance with respect to dealing with pressing energy and climate concerns.

It is, however, also clear that the knowledge community holds the potential of reducing conflict between private and public actors by creating arenas where common narratives can be developed across diverse societal interests over time. In pursuing this role, it is crucial to combine insights into the paradoxes and dilemmas of real-life cases, being aware that preconceived expectations about the role of the knowledge sector in unfolding governance processes may be challenged. As a result, instead of considering decisions as resulting from the intention and interests of independent actors, attention should be paid to the interaction patterns and the ways in which individual actors and organisations evolve over time. Reflecting on the multi-actor model (Avelino & Wittmayer, 2016), it seems that the temporal dimension of the role of actors is not given the focus it deserves. In this regard, the need for developing governance models that better capture the iterative nature of real-life planning processes should be stressed (Gohari and Larssæther, 2019).

### 6.2.2 Europe's energy governance shaken by geo-political conflicts

Pre-Ukraine war challenges facing the EU in the field of energy were already serious, such as increasing import dependency, limited diversification, high and volatile energy prices, growing global energy demand, security risks affecting producing and transit countries, the growing threats of climate change, decarbonisation, slow progress in energy efficiency, challenges posed by the increasing share of renewables, and the need for increased transparency. Objectives were set, including diversification of Europe's energy sources, ensuring energy security through solidarity and cooperation between EU countries, ensuring the functioning of a fully integrated internal energy market through the Energy Union, and enabling the free flow of energy through the EU via adequate infrastructure and without technical or regulatory barriers. In support of these, reductions on dependency on energy imports, cutting emissions, driving jobs and growth, decarbonising the economy and promoting research and innovation are considered essential (European Parliament, 2021b; European Commission, 2015b).

In March 2022, after the invasion, the European Commission proposed **updated plans to make Europe independent from Russian fossil fuels well before 2030, starting with gas**. This includes a series of measures to respond to rising energy prices and to replenish gas stocks for next winter. Europe's *REPowerEU* initiative seeks to diversify gas supplies, speed up the roll-out of renewable gases and replace gas for heating and power. This can reduce EU demand for Russian gas by two thirds before the end of the year. Commission President von der Leyen said: "We must become independent from Russian oil, coal and gas. We simply cannot rely on a supplier who explicitly threatens us." Executive Vice-President for the European Green Deal, Timmermans said: "It is time we tackle our vulnerabilities and rapidly **become more independent in our energy choices**. Let's dash into renewable energy at lightning speed. Renewables are a cheap, clean, and potentially endless source of energy and instead of funding the fossil fuel industry elsewhere, they create jobs here. Putin's war in Ukraine demonstrates the urgency of accelerating our clean energy transition." European Commission (2022e).

At the same time that the current shocks have shown the need for even greater focus on local energy generation and use, especially through citizen-driven energy communities (European Commission, 2022b), Osička and Černochac (2022) point out this implies **more European level intervention in energy as solutions to the crisis require levels of coordination and resource mobilisation that individual member states or private actors cannot provide**. The EU has the resources, knowledge base, and determination to turn the crisis into an opportunity. However, there are also dangers if this is uncoordinated or mismanaged that the European response might make the matters even worse, triggering a political crisis and eventually also a crisis of legitimacy. At global level, the WEF (2022c) proposes five strategies to navigate the shifting frontiers of the energy transition: legally enforce climate targets through domestic policies; **shift energy security planning to a 'just-in-case' rather than the traditional 'just-in-time' model through 'dual diversification'**, i.e. in terms both of diverse partners and diverse sources of supply; de-risk clean energy investments; prioritise equity and justice; and learn from pandemic management to overcome behavioural barriers to energy efficiency. In order to strengthen Europe's overall economic resilience, **Europe's energy challenge also needs to be seen as an economic opportunity** through the *REPowerEU* initiative and to see it as part of the promise to delivery Europe's strategic independence. It must also be linked directly to making labour markets more resilient and strengthening Europe's global leadership on food security (WEF, 2022b).

### 6.2.3 Energy system examples

**Europe's swift transition to a sustainable, low-carbon future will not happen without the engagement and involvement of citizens producing and consuming energy locally**. Communities across Europe are increasingly making, consuming and selling their own energy, a trend the EU sees as vital if the bloc is to meet its climate targets. According to the latest data, 2 million Europeans are now involved in 7,000 local energy communities across the continent, with numbers growing rapidly since EU directives promoting clean energy and energy communities were introduced in 2018 and 2019. The technology is now available to design and install systems to produce, store and trade electricity, as well as control and optimise consumption (Henley, 2022). Highly centralised electricity production and distribution systems on their own will not be able to adequately handle the huge increase in energy demand, so it is necessary to decentralise by producing and consuming more energy locally with sources like solar and wind. There is also a need to boost storage and smart solutions for efficient energy management, all of which means involving ordinary citizens. The EU's *GRETA* project is thus working to define and enable what it has dubbed 'energy citizenship' by facilitating energy transition through active citizen participation. According to *GRETA*, all the research on **peer-to-peer energy**

**sharing models show they are "far more accessible, democratised, collaborative and socially just"** than traditional top-down energy markets. "Fundamentally, they thrive on social interconnectedness among end-users, rather than being based on competing economic self-interests" (GRETA, 2022).

In 2016, the Edinburgh Community Solar Co-operative (ECSC) developed a community project that saw solar PV arrays installed across 24 public buildings owned by the City of Edinburgh Council. The project has been a huge success, with each site producing more than their initial estimated generation in the first year of operation. The electricity generated also provides an income to the cooperative, a proportion of which is allocated to its Community Benefit Fund, which is focused on sustainability and alleviating fuel poverty. Since 2016, ECSC has added six additional sites. At the outset, ESCS aimed to maximise the solar generated electricity at a selection of sites by installing battery storage. The batteries would ensure that more solar generated electricity is used, improving the efficiency of each site, as well as reducing their carbon footprint. The project would also provide grid services to assist the development of a smart local energy system. ECSC has an agreement with the City of Edinburgh for the purchase of any solar generation electricity used on site. The additional storage will generate further income in sales, as well as from the additional supply it will provide to the grid. **All of the additional income generated will go into its community benefit fund**. ECSC received funding from the Scottish Government's Community and Renewable Energy Scheme (CARES) to part pay for the battery installation. In terms of outcomes and achievements, three sites were chosen and a total of 156kWh of battery storage was installed. A full monitoring and evaluation process is currently taking place with expected benefits including more locally generated electricity which will also reduce the electricity imported from the grid, thereby lowering carbon footprints and improving energy efficiency. The batteries will be able to be aggregated with other storage sites to be remotely controlled and could provide services to the national grid that will increase ECSC's revenues. These additional monies will be allocated to the community benefit fund. (Local Energy Scotland, 2022)

## 6.3 Work and employment system governance

### 6.3.1 Governing work and employment prior to 2020

Globally and to an important extent also in Europe, the period since the 1980s up until 2019, exacerbated by the 2017-8 financial crisis, has seen taxation become less progressive and much of politics has increasingly been dominated by money and special interests. Side by side with this, **welfare states in most countries have become less generous with a labour market that has become much more volatile**. Many people began to work in informal, precarious or 'gig' economy jobs, typically based on new digital technology, leading to increasing numbers of the 'working poor' as workers only work and get paid when a customer places an order leading to a poverty trap associated with zero hours contracts. Numerous governments, including some in Europe, have hailed their low unemployment rates as major achievements but have sidestepped the issue of the poor remuneration, quality and security of many of the jobs existing today. (Ortiz-Ospina and Roser, 2016; Millard, 2020.) Prior to the COVID-19 pandemic, there was widespread unease about the predicted staggering impacts of digital technology during the Fourth Industrial Revolution on work and employment. These include (WEF 2016): job loss due to automation (Frey and Osborne 2013); automation replacing not just no- and low-skilled workers but now also managers and professionals; children entering school today can expect to end up in jobs that currently do not exist; and fewer jobs despite similar market values compared to 1990 .

These issues require urgent policy action as **governments have to cover the social and fiscal costs of long-term unemployment and job insecurity** (Misuraca et al, 2018). The temporarily employed also run a higher risk of poverty than permanent workers, mainly due to lower wages. AI and robotics can threaten the quality and remuneration of work, as well as work itself. For example, from the perspective of embracing and promoting gig jobs, outsourcing work and highly flexible labour markets as this maximises efficiencies and reduces costs, websites and artificial intelligence 'chat bots' could replace up to 90% of the UK's central government's administrators, as well as tens of thousands in the health service and doctors' surgeries by 2030 – saving as much as £4bn a year. Even nurses and doctors could fall victim to machines which can outperform humans at some diagnoses, routine surgical procedures, and data collection (Reform Thinktank, 2017).

The UK's Reform Thinktank (2017) argues that public services should become more flexible by embracing a gig economy where workers support themselves through a variety of flexible jobs using online platforms. For "20% of public-sector workers" who "hold strategic, 'cognitive' roles", they will "use data analytics to identify patterns – improving decision-making and allocating workers most efficiently". Such 'contingent labour' platforms could suit hospitals and schools instead of traditional agency models, as well as organisations which experience seasonal peaks in demand such as the tax agencies at the end of the tax year. Although much of this remains

speculation, there will be significant impacts on welfare, jobs and the organisation of work. **The more transactional the job is, the more likely is there to be automation and greater inequality, as automation is fundamentally the substitution of capital for labour**. A 'race to the bottom' may create a growing 'precariat' as an emerging global class with no financial security, job stability or prospect of career progression (Gayle, 2017).

**This disproportionally affects women and girls, as well as other groups who are often excluded in terms of ethnicity, disability, language, education, sexual orientation, etc**. Precarious work is much more prevalent in female employment. (McDowell 2016) This contrasts sharply with the comparative stability of male employment in both blue-collar and white-collar occupations. Coupled with much of women's work traditionally being unpaid, for example in the home, this casts a new light on gendered differences in employment which require a policy response. There are also other societal issues to address, for instance care work is currently largely feminised, badly paid and often emotionally demanding. On the other hand, there may be potential benefits for traditionally female oriented jobs arising from the **increasing importance of such emotional intelligence** in the Fourth and Fifth Industrial Revolutions, as this is something machines are unlikely to be able to do, at least in the short-term.

**Digital divides are directly related to existing socio-economic divides, so that both reinforce each other** (Millard 2015b), and the uneven roll-out and use of digital technology exacerbates these inequalities (Oxfam 2016). This is not a given outcome of the technology, but instead derives from the governance, institutional framework, regulatory, labour market and wider economic system. Europe is also struggling to keep up with the digital revolution with a 2019 survey showing that 43% of the adult population in Europe had limited digital skills, and 37% had no digital skills at all. Meanwhile, young refugees and asylum seekers are experiencing a crisis of their own in Europe, finding it very difficult to integrate socially and in the workplace (European Commission, 2019a).

One of the most influential recent studies recognises that everyone has limited cognitive capacity and time, but the unique disadvantage of the poor and vulnerable is that they are typically pushed to and beyond these limits more than others. Mullainathan and Shafir (2013) show that the poor in any society have precarious structures within which to live and work. They literally expend all their effort simply surviving from day to day or week to week, and do not have sufficient time, energy or cognitive capacity to plan for and invest in their own, their family's or their community's future. **Being poor is literally a full-time and stressful occupation purely directed to survival**. This empirical research shows that, when richer people are put in the same constrained conditions, they react in the same way as the poor and often a lot worse. When any individual's cognitive capacity is strained in the way experienced by most poor people struggling to cope, it is equivalent to driving a car whilst drunk or reducing their IQ by 14%. Most poor people coping with these conditions are, in fact, performing extremely well just by surviving and are far from being lazy, stupid or scroungers. Poor people, more than others in society, typically have to contend with a much more highly complex and unpredictable social and economic environment. Mullainathan and Shafir (2013) undertook their research in the USA and India, respectively examining relative and absolute poverty but reaching similar conclusions in both regarding cognitive capacity and how individuals behave. As noted in Section 4.1.3, McGarvey (2022) looked at relative poverty in the UK and recognised a "proximity gap between the powerful and the powerless as the root cause of many of society's ills."

Any type of innovation can create 'winners' and 'losers', and public governance needs to balance trade-offs between these and different societal interests. For example, sharing platforms supported by digital technology provide many people with a chance to find the flexible work they want, thereby improving their incomes and social contacts. However, for others, where work in the corresponding sectors is the only source of income, it can force them down a road of low pay and poor working conditions, with unpredictable and thus unstable financial prospects. The jobs most at risk are those which require a medium level of qualification. This has been apparent in wage statistics: salaries for medium qualifications are stagnating or growing more slowly than those of low or high qualifications (Frey and Osborne 2013). The middle class feels neglected by politicians and looks increasingly to the political extremes for help. The questions are: where can the new jobs be created? Can they be created as fast as jobs will be destroyed? And, even if they are created sufficiently rapidly, the transition from one job to another without a loss of income and an increase in structural unemployment is difficult.

### 6.3.2 The shock of COVID-19

**Work and employment have arguably experienced the greatest shock and transformation of any aspect of the economy as a result of COVID-19** which has turned many of the pre-pandemic concerns,

outlined above, on their head. However, these probably remain in the background for the longer-term, especially given that **the labour substitution potential of digital technologies is likely increase even further in future**. These technologies have also dramatically changed, probably for the long-term, where and how people and organisations work. Thisse et al (2022) provide evidence that higher rates of teleworking are part of the post-pandemic new normal – a change with uneven effects across the labour force.

According to Edelmann and Millard (2021), **telework is defined as working away from the traditional workplace using digital technology** and includes all kinds of work-related activities outside the employer's premises, although in different countries there are different teleworking practices based on legal constraints, organisational practices and cultural predispositions (Peters et al, 2016). Telework is understood as representing "location-independent, technology-enabled new ways of working" (Messenger and Gschwind, 2016), that leads to the dissolution of traditional spatial, temporal or organisational boundaries of work (Kunze et al, 2020). The International Labour organisation (ILO, 2021c) describes teleworkers as "employees who use ICT tools to perform their work at home or in another location outside of the employers' premises". Teleworking lends itself particularly to those occupations where work can be carried out autonomously, with little direct supervision and where the workers can be managed on the basis of the results they produce.

Vilhelmson and Thulin (2001) distinguish different types of telework: i) full-time at home; ii) commuting-based work undertaken sometimes but not always at home; iii) mobile work performed at a variety of locations other than home or the ordinary place of work so that the worker is able to flexibly move around while still being in real-time communication and able to access the facilities they need, and iv) work in telecentres (shared work-spaces) as alternative, normally suburban-based, locations closer to where the teleworker lives. Møller-Jensen et al, 2008) showed that the two most important factors enabling telework are technology and the way work is organised. Educational level is also important, as is income. In addition, size of residence and availability of a dedicated room are significant, aa are differences in telework take-up with men more likely than women to do so, older people up to 50 years more likely than younger people, and families with two adults and children at home more likely than other household types facilitating a better balance between work and family.

Examining the incidence of telework before the 2008 financial crisis and the 2020 pandemic, the ECaTT survey (2000) across all EU10 countries found that 4.5% of the labour force teleworked with over one third of these engaged in mobile telework many of whom would be what are termed today 'gig' economy workers. By 2009, this had risen to 7.5% of the EU-27's employed population, and then up to 11% in 2019, although this figure jumps to 15% if those "who had ever teleworked" from home are included (JRC, 2020). Other data from ILO (2021b) provides 2015 data showing that before COVID-19 13.5% of employees were occasional home teleworkers with 4.8% doing so regularly, and a further 7.3% as mobile teleworkers. Very substantial jumps in all these figures occur during COVID-19, suggesting that **close to 40% of those currently working in the EU began to telework full-time from home as a result of the pandemic** (JRC, 2020). The ILO (2021b) calls this a 'telework tsunami' and provides data that show 34% of workers across the EU-27 exclusively teleworking from home during the pandemic with another 14% doing so partially, making 48% in total.

According to Palomino et al, (2020), the capacity of individuals to work under a lockdown relates to their teleworking capacity given that the pandemic had direct asymmetric effects on the labour market. Only the jobs that can be done from home ('teleworkable') are unimpeded by the lockdown. Some occupations like health care services and food are considered essential so workers are not affected by their capacity to work from home, whilst other economic activities like hospitality are closed under a lockdown and working is not at all possible. In addition, there may also be groups of employees who are less able to benefit from telework, such as those with low levels of education or workers with low skills and other vulnerable populations (Gallonier, 2020; ILO, 2021b; UNDP, 2020). Thus, the type and relative importance of work, together with the availability of good digital infrastructures, determine telework capacity and, on this basis, is highest in northern and western Europe, although the increases during COVID-19 were greatest in southern and eastern Europe as these countries were starting from a much lower base.

The data also show an almost complete shift to full-time teleworking at home during the pandemic, with almost no mobile teleworking by employees who normally have several workplaces. However, there is an increase in exclusively mobile telework mainly by so-called 'gig economy' workers in response to huge demand increases for the home delivery of goods. Considering that before the outbreak, just 15% of the employed population in the EU had ever teleworked according to the JRC (2020), l**arge numbers of workers and employers alike currently face huge challenges in dealing with the sudden shift to telework**. In many EU countries, more than half of the workers who have started working from home since the pandemic had no prior experience with teleworking. If past trends are a guide, the uneven ability to scale up telework could result in widening inequalities across countries, firms, and workers.

Thus, with COVID-19, telework perforce became the normal way of working for much greater numbers of people, However, the impact of telework on work performance and productivity, although much more intense, is in general very similar to findings from 20 years earlier when in its infancy (Edelmann and Millard, 2021). The Global Workplace Analytics (2021) report that **two to three days a week seems to be the 'sweet spot' that allows for a balance of concentrative work (at home) and collaborative work (at the office)**, whilst much earlier Millard (2001) found exactly the same balance. For many, the balance of benefits and disadvantages is in general dependent on the amount of telework. Worker efficiency improves with low levels of telework reaching a 'sweet-spot' where productivity is maximised at intermediate levels. However, efficiency decreases with 'excessive telework' due to negative effects on communication, knowledge flows and managerial oversight, on increasing worker solitude and fusing private and professional life (OECD, 2020e). Specifically, **tacit and emotional knowledge that is critical in many occupations, can be lost if all interaction is digital**.

There is also a similarity between early telework impacts on the environment and those post COVID-19. Paradoxically, teleworkers in an early 2000s' study tended to drive greater distances than non-teleworkers, and thus have a larger environmental footprint. This was because the technology enabled them to be mobile whilst connected and thus able to visit customers, partners and other workplaces much more freely. Non-teleworkers, on the other hand, working in their normal single fixed workplace, often as commuters, were both more likely to regularly use public transport as well as stay in one place whilst working (Millard, 2001). In 2022, study results indicate that Covid-19 could cause a similar rebound effect reversing the supposed positive environmental impacts of working from home, since, even if the number of trips could be reduced, many shifts towards non-sustainable travel modes could occur. The promotion of telework should be combined with measures fostering sustainable travel habits to pave the way towards a future green mobility (Ceccato et al, 2022).

Other similarities between the pre- and post-COVID-19 situation which have public governance implications relate to **telework benefits** for many, such as better compatibility between work and family, more flexibility, more recreation and leisure time, saving costs on commuting, and increased performance and employee satisfaction. Teleworking seems to significantly improve the quality of life of many employees, mainly through stress reduction, and can be seen positively by employees because it "makes them more serene and concentrated" (Gallonier, 2020). Teleworking, which is today more commonly referred to as 'hybrid work' when it is not undertaken full-time, is often seen positively by employees because it can significantly improve life quality and relieve them of sources of stress (Edelmann and Millard, 2021). Because of COVID-19, the number of employees who would like to continue to work in hybrid mode is on the rise, so pressure is on organisations to respond to these demands (Kunze et al, 2020). Identified advantages for organisations are also similar before and during COVID-19, although again more intense, including greater time and cost savings given a reduction in the number of business trips and external meetings, increased employee satisfaction and loyalty, and a larger labour market through the recruitment of staff living further away. Many employers now need smaller offices for hot-desking in less central locations, thus significantly reducing the cost of premises. For these and other reasons, organisations are again showing willingness to experiment with hybrid work to achieve cost savings, with more flexible work schedules, appropriate work tasks and providing adequate equipment (Lavelle, 2020).

Also as documented since the mid-1990s, there are **challenges and difficulties associated with telework** that need to be addressed by organisations, but again these are often now much more intense than previously (Edelmann and Millard, 2021). For example, employees seem not always able to switch off from work, collaboration and communication with colleagues and co-workers can be difficult when not physically together, employees find it hard to separate work and private life, poorly equipped home workplaces may lead to health impairments and psychological problems, and organisations become highly dependent on technical equipment which does not always function well. In addition, there may also be groups of employees who are less able to benefit from telework, such as those with low levels of education or workers with low skills and other vulnerable populations.

It is already clear that the COVID-19 pandemic is leading to a strong upward acceleration in the digitalisation of society (UNDP, 2020), and that hybrid work will become a normal way of working (Lavelle, 2020). Digital transformation can be understood as the organisations' ability to leverage digital technologies in order to respond rapidly to stimuli (LI, 2020), but also to transform organisational strategies, operations and processes. Thus, COVID-19, presents itself as a hugely disruptive transformation of work and employment, providing the opportunity for organisations to rapidly change and digitally transform themselves (Seetharaman, 2020). Comparing how telework has changed pre-, during and post-COVID-19 telework shows the following (Edelmann and Millard 2021):

- **The Pre-COVID-19 era** of telework was technology-driven characterised by a mainly stable labour market but with increasing tech-based and 'gig'-economy work. Organisational change was slow, evolutionary, piecemeal top-down, with incremental innovation and internal and external structural adjustments based on largely predictable responses. During this period, telework was largely voluntary and selective, thus has a low uptake from an average of about 5% in the EU early years to about 11% in 2019. Telework was mainly home-based, though with significant mobile telework (between 1/4 and 1/3 of the total), and its uptake was mainly in highly advantaged demographics and highly specialised job types with others largely left out. There were small scale experimental moves to suburban and rural 'telecentres' and the use of 'hot-desking' in workplaces as some work became more mobile, while commuting and some agglomeration in cities of all sizes largely continued. For public sector organisations, where the sector labour market was often squeezed by austerity and 'lean' government policies, organisational change was slow, pre-meditated, careful, and telework uptake lower than elsewhere, although some catching up with a greater distinction between front- and back-office staff was also seen (Edelmann et al, 2021).
- **The COVID-19 era** of telework was shock-driven, enabled by technology and extreme disruptive innovation. The measures imposed to prevent the spread of COVID meant that very fast, systemic and uncoordinated bottom-up and top-down organisational change was necessary with internal and external structural tipping points based on largely risk reactive responses. The labour market was highly unstable, with up to 40% of workers either unemployed or furloughed. Organisations responded to the pandemic by imposing telework, so that up to half of the working population worked from home full-time. The uptake of telework was seen across most demographics and job types, but it was mainly the highly advantaged who enjoyed the benefits, whilst the disadvantaged often only experienced disadvantages. There were major shutdowns of city and suburban centres and plummeting city centre real-estate values as many commuters were largely confined at home. (See also Section 4.2.2.) Organisations in the public sector also responded by imposing telework on employees, but there was a greater distinction between front- and back-office staff. In terms of organisational change, they became more flexible, reported that digital tools support communication, transparency, faster decision-making and that targets can be achieved just as well as in the office. As more people gained first-hand experiences of telework and for longer periods of time, more intense positive and negative effects were noted. The first signs of digital culture, hybrid teams, digital collaboration were noted, but there was a clear need to adapt regulations and frameworks. The public sector labour market remained relatively stable but grew to some extent as 'bigger' government and many public sector jobs and tasks became recognised as 'essential' (Edelmann et al, 2021).
- **The post-COVID-19 era** of hybrid work can be postulated as exhibiting a combination of multiple societal and technology drivers and enablers as well as ubiquitous innovation. As argued by Perez (2010), radical change is most likely to result from a synergy between technological and organisational innovations, thus organisational change will be continuous systemic, radical and multi-directional, with internal and external structural change based on resilience-seeking responses. The overwhelming majority of the workforce will engage in different combinations of hybrid work which will become the working norm and the term 'telework' will have little meaning. Hybrid work will be part of almost all organisational and digital strategies. The re-shoring of economic activities that started during COVID-19 will accelerate as will the EU's 'open strategic autonomy' strategy. There will be much more spatial mixing of work and non-work activity as both can be combined in situ, with a renewed focus on co-working centres and hot-desking away from very large cities. Deglomeration, that was already apparent before the pandemic, will be significantly strengthened but only in terms of movements of populations from the very large cities (often with the exception of capitals) to smaller cities just beyond the suburbs (which are being termed 'zoom towns'), coupled with some continued rural depopulation but at smaller pace than before. (See also Section 4.2.2.) Public sector organisations, in order to be creative and innovative (George et al, 2020) and able to combine experimentation and innovation with continuity, stability and predictability, will need to develop frameworks and strategies that support the implementation of hybrid work. They will also, in particular, need to re-think management, corporate culture and organisational strategy. As organisations move towards widespread systems thinking, public sector bodies will also see digital collaboration as the norm, making them modern employers, and attractive to the labour market (Edelmann et al, 2021).

Thus, hybrid work uptake is likely to expand across all demographics and job types, but with **the remaining threat of two classes of workers: the advantaged enjoying the benefits, with a large minority of the most disadvantaged who experience mainly disadvantages**. Many of the latter are low paid and insecure workers, including in 'gig' economy jobs, typically obliged to work in poor, crowded and often unhealthy conditions prone to COVID-19 infection. These were precisely those that many employers and governments were applauding as 'essential workers' keeping the economy and society functioning during the pandemic. For

example, people working in the health and care sectors, in transport and maintenance, cleaners and caterers, in retail, food and agricultural workers, as well as drivers and delivery workers (Fleming, 2020; Palomino et al, 2020). This makes sense as these jobs constitute the '**foundation economy**', i.e. the part of the economy that creates and distributes goods and service that are necessary for everyday life. For most of these workers, physical presence is essential so there is less hybridity and they often have little flexibility over the location, timing and extent of their work. In comparison is the class of 'privileged' workers in 'privileged' sectors – finance, business services, consultancy, academia, media and much middle and upper management office work – who can insist on working from home part of the week, with Friday and Monday especially favoured to create a long weekend.

For example, Thisse et al (2022) show that the shift to teleworking in the UK has not been evenly realised across the labour force with a dramatic 400% increase in teleworking for skilled workers, but much more modest increases for unskilled workers. Because skilled workers now spend less time in the centre of very large cities, they consume fewer of the local services provided by unskilled workers. This leads to a destruction of jobs in the local services industry, forcing unskilled workers to move into the manufacturing sector. This decreases wages for unskilled workers but increases wages for skilled workers. Overall, according to Thisse et al (2022), the consequences of tele- and hybrid-working go way beyond productivity gains or losses for firms and workers. **The increase in teleworking is exacerbating urban wage inequalities, the social and physical structures of cities and the cost of housing**. These changes are likely to exacerbate urban inequalities and have a disproportionately negative effect on workers providing local services. Inter-city and long-distance commuting, i.e. not from the suburbs but from smaller cities into the central areas of very large cities coupled with teleworking, is having an impact on cities' finances. Fewer commuters – or workers who commute less often – could significantly decrease the demand for office space and translate into a shrinking local revenue base for these very large cities.

Driven by many of these trends, **work, employment and organisations of all types are changing dramatically across all sectors**. In 2019 the EU unemployment rate was 6.69%, but this rose to 7.05% in 2020 at the height of the pandemic because of the economic slowdown. Governments across Europe implemented furlough schemes that helped to prevent widespread job losses. At the peak of the pandemic in France, Germany, Italy, Spain and the UK, the programmes covered about a third of the workforce and these were not included in unemployment data (EIT, 2021). Now that most furlough schemes are over and COVID-19 restrictions largely lifted, Europe's companies are facing rising costs largely because of the war in Ukraine, as well as the lack of skilled workers which is becoming more acute than ever before. Around 193 million Europeans were pursuing a paid job in the first quarter of 2022, while some 74.5% of those aged 20-64 were in some sort of formal employment – the highest employment rate since Eurostat started publishing it in 2009. The most recent data suggests that the figure has risen further in the second quarter of 2022. At the same time, more than 3% of all available jobs are vacant – more than ever since statistical records of this data started in 2006 – meaning that around six million jobs are not filled across the EU. Correspondingly, the EU's unemployment rate sank to 6.0% in July 2022 – another record low since at least 2001, when Eurostat began compiling this data (EURACTIV, 2022b).

One reason for this combination of untypically low unemployment and high labour shortage is the so-called '**great resignation**' or '**great reshuffle**'. In mid 2022, many workers are thinking about quitting their job in both Europe and the United States. Inflation and the cost-of-living crisis are fuelling people's desire to quit work altogether if they have enough savings or are anyway close to retirement, or find a better paid job. Over four million American workers have quit their jobs since the post-pandemic recovery started in 2021, and this was mirrored on a smaller scale in countries in Europe. In France, the number of resignations reached a record peak in the third quarter of 2021, the highest since 2007. In the UK, the rate of people moving from job to job was at an all time high between October and December 2021. While this was initially ascribed to a cultural change in the way workers approached their work-life balance following the pandemic and increased burnout, **workers' motivations seem to have fundamentally changed in reaction to ongoing economic crises**. According to a recent survey, one in five respondents said they are likely to change employers in the next 12 months, with the majority of those seeking to switch jobs for a better salary. More than a third plan to ask their employer for a pay rise, whilst the percentage was even higher in the tech sector, where this applied to 44% of workers (Euronews, 2022).

**Views about new hybrid work are mixed but most are relatively positive if it is well organised**. According to WEF (2022e), after the 'great resignation' comes the '**great renegotiation**' with hybrid work here to stay. More than four out of five survey respondents who worked in hybrid models over the past two years prefer retaining them. When organisations are plagued by burnout, mental-health issues, and record numbers

of employees leaving their jobs, leaders who see in-person work as a return to normality must confront just how strongly employees appreciate flexible work models. More than two out of three employees who prefer hybrid models say they are likely to look for other opportunities if asked to return fully on-site. **But hybrid work has the potential to create an unequal playing field if not done well**. Employers must prioritise inclusion practices: work-life support, team building, and mutual respect. Marginalised groups are more likely to prefer a hybrid work model and are more likely to leave if not available (WEF, 2022e). A hybrid working model is also critical to attract a diverse workforce, e.g. working parents and women who have primary family care responsibilities, people with physical or mental health conditions, and those with housing problems due to the rising cost of living near their office (WEF, 2022f).

However, **there can also be inequitable outcomes if hybrid work is not implemented well**. For young people at the start of their working lives, not being in an office will probably entail two kinds of disadvantage: being cut adrift from the collective workplace experiences that allow people to find their professional feet, and not having the domestic space to do their work effectively (Harris, 2022). There is also clear evidence of how traditional gender roles affect home working. In American research, 79% of men said they experienced "positive work effectiveness" at home, compared with only 37% of women. Whoever you are, moreover, there is a good chance that working from home will have increased your working hours. Research during the first global lockdown found that for 3 million remote workers around the world, the average working day had increased by 8.2%, or nearly 50 minutes (McKinsey, 2020). Rather than fixating purely on home working, **policy should focus on flexibility with significant worker control and as agreed with the employer**. Irrespective of where they work, it is important for people to be able to start and finish at times of their own choosing, carve out free time and ensure holidays complement the other aspects of their lives. For all employees, there ought to be both an entitlement to collective representation, and some sort of right to disconnect – to not have to deal with emails, calls and messages outside working hours. This has been adopted in France, Italy and Spain, and is now tentatively supported by the Scottish government for public sector staff (Harris, 2022).

In parallel with these developments, **'social jobs' are also likely to increase** given the historic under-investment in social infrastructures leading to a widespread erosion of social mobility. For those born into low-income families, prospects look bleaker among today's younger generations than in previous years. There is thus great benefit in focusing on **three foundational social institutions – education, healthcare and care** – that can benefit from key investments to re-start the engine of social mobility across economies, filling unmet demand for healthcare and childcare, as well as increasing the quality of education (WEF, 2022d). New distributed work patterns leading to greater spatial mixing of work and non-work activities have the potential to boost the local economy of suburban hubs and smaller cities. Assuming local governments can provide support, for example in the context of community-wealth building' initiatives, local services, 'artisan-based' and sharing and collaborative economy jobs could grow as part of the increasing 'new localism' trends. (See also Section 4.2.3.)

### 6.3.3 Work and employment examples

In addition to the potential of expanding these 'social jobs', other examples of new growing, often local, job creation activities are **social enterprises, employee-owned enterprises, 'worker cooperatives' and 'mutuals'**. (See also Section 7.3.2.7 for many more examples.) These are generally owned by their members who share the profits, are typically democratically controlled, have a small gap between pay levels, and have a wide social purpose. Most are local or regional and can take many forms, ranging from simple grants of shares to highly structured plans. Employee ownership in the US narrows gender and racial wealth gaps and gives employees significantly more wealth than the average worker. Employee-owned companies perform better commercially, but are resisted by banks, lawyers and governments (Rutgers, 2019). Countries with many employee cooperative workers rank low on inequality, high on happiness and high on the UN Social Progress Index (SPI) measuring "accessibility of basic needs, opportunity, and access to knowledge" e.g. New Zealand, France, Norway, Sweden, Denmark and Finland (ILO, 2021a). (See also Section 4.2.3.)

An example is the regional worker cooperative is the Mondragon Co-operative in the Basque Region of Spain with a mission encapsulated in its corporate values: inter-cooperation, grassroots management, corporate social responsibility, innovation, democratic organisation, education and social transformation, etc. Mondragon's activities are divided into four employment areas: finance, industry, retail and knowledge. It currently consists of 95 separate, self-governing cooperatives, around 80,000 people and 14 R&D centres, occupying first place in the Basque business ranking and tenth in Spain. Mondragon is overall highly successful in living up to its principles and competing regionally, nationally and internationally. It has been successful in creating a democratic, sustainable, and secure living environment for its members and, although it may not be the perfect

utopia many envision (e.g. there is a lack of emphasis on environmental impacts), there is room for growth and change (Tang, 2019). Its governance strikes an important balance between the need for democratic decision-making and managerial discretion, otherwise the critical difference to a private corporation is that the purpose of the firm is to benefit its members rather than its shareholders (Bamburg, 2017).

At the national level, **the Scandinavian 'flexi-curity' model** provides examples of labour market governance and a way to address the 'conditionality' problem for employment support that successfully increases the benefits for all labour market partners. The focus shifts from having and keeping a particular job, to being employable and relatively easily able to obtain a good job if the existing one is lost. On the one hand, this gives significant flexibility for employers by allowing them to hire and fire relatively easily. On the other hand, it also provides good security for employees by strong labour market support through relatively high unemployment and re-training benefits, as well as proactive interventions from government, employers and trades unions working together. Current social policy experimentation is also addressing **the issue of 'conditionality'**. For example, in the labour market context to obtain unemployment benefit, the unemployed need to prove they are actively seeking work, thereby requiring significant form filling, costly administration and time. The debate about the effectiveness of conditionality feeds into the debate about the value and effectiveness of the so-called **'universal basic income' (UBI)** as an unconditional payment, sufficient for a very basic but still comfortable living, made to all adults regardless of whom they are or their labour market status. Results in 2020 from a two-year Finnish study show that UBI under certain conditions can improve the mental wellbeing, confidence, life satisfaction and the civil engagement of citizens, as well as have a mild positive effect on employment by those of working age who were not initially working (Millard, 2020; Henley, 2020; Kangas, et al, 2021; Hasdell, 2020).

Examples of **hybrid digitally-supported work** based on the improved productivity that can be achieved, there are also examples of employers reducing the length of the working week. The CEO of WANdisco, a data acquisition company, reports that a move to a largely home-based four-day working week for employees during the pandemic had already allowed much higher productivity. This means that the work that was once being done in five days was now easily covered and it is expected that even greater levels of productivity and a boost to staff wellbeing will materialise in future. While Friday will be the default day off, workers will have the flexibility to choose an alternative day. Employees' salaries are not affected by the changes. Most company staff are now continuing to work from home with zero staff attrition rates, and this will continue (Financial Times, 2020).

Also fully enabled by digital technology, the **freelancing platform**, Upwork (Upwork, 2002), has the slogan "how work should work -- forget the old rules. You can have the best people, right now, right here." The platform's aim is to pioneer "a better way of working, help businesses find more flexibility and connect talent with more opportunities." Upwork is one of the most popular freelance marketplaces that connects millions of employers and independent contractors from all over the world. But there are both pros and cons with such platforms that have governance implications. For example, there is a clash between US freelancers and those from countries with much lower costs of living, giving rise to two major problems: the insurmountable entry barrier for new freelancers and dumping. This has led to freelancers with higher professional skills to leave the platform as they do not want to compete with the less qualified contractors who can win work by bidding much lower rates, which has caused an overall decrease of the Upwork job success rate and quality. Upwork reviews are filled with the unfortunate stories written by former customers who have been scammed, due to the fact that freelancers only have to go through basic verifications which don't include any background checks or vetting procedures. This leaves every employer questioning "Is Upwork safe, or are there better options?" (Lemon, 2022).

There has also been a rise in so-called '**digital nomads**' as remote workers, including self-employed individuals, freelancers, and employees, who may travel domestically or overseas, with the internet keeping them connected to jobs, co-workers, and clients. According to Forbes (2022), the digital nomad lifestyle has been on the rise for years, but once COVOD-19 hit, its popularity exploded. In 2021 the number of digital nomads in the U.S. was 15.5 million, and by 2025 there could be 35.7 million Americans or 22% of the workforce working as remote workers. Although some digital nomads work illegally for companies in other countries without travelling there and getting an official work permit, many countries now offer digital nomad visas so registered individuals can do so legally. In Europe, these include Portugal, Croatia, the Czech Republic, Estonia, Germany, Hungary, Greece, Iceland, Italy, Malta, Romania, Spain, and Norway. Such visas grant residency rights to foreigners to work for out-of-country employers for, on average six months to two years. For example, the Portugal Digital Nomad Visa enables non-EU and non-EEA remote workers who are employed by foreign companies based outside of Portugal to relocate and start working remotely whilst residing in Portugal, provided they make four times the national minimum wage (Global Citizen Solutions, 2022). For the countries and employers concerned, the benefit

is attracting extra tax revenue and potentially particular talent and expertise with limited bureaucracy. For the digital nomads they can reside in a country without paying normal tax, for example in Portugal no taxes on foreign income, 20% tax on income earned in Portugal compared to standard Portuguese income tax rates of up to 48%, and social contributions 10% which is considerably less than the standard rate. There are also moves at the EU level to improve **social security and coordination regulations for cross-border teleworkers**, digital nomads, highly mobile and posted workers (European Commission (2022f). However, there can be downsides with digital nomadism, for example those earning North European wages and living in the cheaper south can drive out locals who can no longer afford to live in areas favoured by 'anywhere workers'.

Several other important governance implications of hybrid and digital nomad work include **skyrocketing cyber risk** due to the rapid shift to remote work during the pandemic and the increased automation of business processes. While it may have been evident that home-working environments wouldn't necessarily replicate the more sophisticated security of an office environment, it wasn't clear that more individuals would be susceptible to phishing attacks while working away from offices. Nor did many predict the level of increase in cybercriminal activity. Responsibilities in relation to remote and flexible working conditions are also much less clear. Even with standards for remote working environments, employers will have less control over the myriad different set-ups, creating a higher likelihood for more work-related injuries and greater workers' compensation claims. Also, **working anywhere could increase risk of non-compliance with labour and tax laws**. Gaps in insurance and benefits coverage for both employers and employees could also increase, particularly without well-defined protocols, controls and management resources (WEF, 2022g).

# 7 Rethinking European public governance to meet new strategic challenges

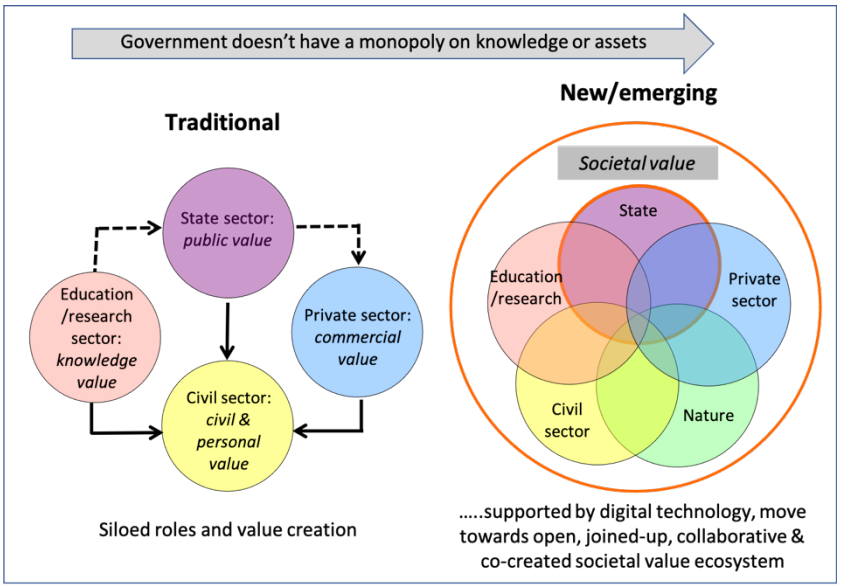
Together with the role of digital technology in Section 5, this Section 7 focuses on the **good governance public values likely to be needed to successfully contribute to addressing the strategic challenges** in Section 4 and the examples provided in Section 6. However, Section 7 does not purport to be exhaustive, definitive or fully cohesive. Rather, it is offered as work in progress in exploring good governance values going forward that are additional to those identified for the period 1945-2019 in Table 3 (Column C) in Section 3.3.

## 7.1 Societal governance of human society enabled by nature's life-support systems

The whole point of public governance is that it is the fair, just and balanced governance of the whole of human society as enabled by nature's life-support systems. Recasting 'public' governance as 'societal' governance that is dependent upon nature thus might be a useful way more broadly and usefully to change the governance mindset needed to meet the new strategic challenges, some of which are suggested in Section 4. Such a mindset nudge has long been presaged, for example by Koolman (2003) who examined the question of different modes and orders of governance as patterns of societal governance. While 'Modern Governance' was still strongly 'government-oriented', there is benefit in broadening the perspective so that it looks at governance as societal, with public as well as non-public 'governors' participating. "While their roles may differ between societal levels and from sector to sector, the essence of the argument is that **governance of modern societies is a mix of all kinds of governing activities and structures**....These mixes can be seen as 'answers' of those societies to changing governing demands....in which public as well as private actors aim at solving societal problems or create societal opportunities, aim at the care for the societal institutions within which these governing activities take place, and phrasing the principles according to which these activities are carried out." (Koolman, 2003)

Indeed, it is the case that it is only the government (i.e. the state) that has the mandate and powers to take such a societal level perspective, especially over at least the medium-term where trade-offs and interactions are present between actors. However, although the government has much of the knowledge and many of the assets to take the lead in societal governance, it certainly does not have a monopoly, especially in particular contexts, as the other quadruple helix actors also have significant responsibility and ability to create their own specific value (see Figure 5). For example, a 'lean' governance paradigm (see Section 3.1) might indeed save some money in a narrow context over the short-term, but this could lead to overall loss of public value and thus additional costs on society in the longer term, if other actors are not able to produce the value needed in the context of a hamstrung public sector. Examples include environmental degradation, social and economic inequalities and in mainstream services like health, care and education, and these would be false economies indeed.

**Figure 5**: Changing models of delivering public services and public value: from siloed to an 'ecosystem' approach




Source: Author.

Figure 5 also illustrates the need to move away from the traditional prevailing mode of governance, characterised by siloed roles and value creation with limited synergy between quadruple helix actors, on the left. Instead, we need to adopt a new and emerging ecosystem of joined-up, collaborative and co-creative quintuple helix actors that can optimise the synergy between them to maximise societal value, on the right. It is clear that in some circumstances some specific actors and even large groups of actors will find some of their 'value' reduced or compromised, at least in the short term, because of government activity aiming to maximise societal value overall. Such value 'loss' by one actor will typically be counterbalanced by value 'gain' accruing to a different actor, and often takes place when societal inequality is relatively large so there is both more to lose and more to gain. Indeed, **it is one of the prime tasks of the government, which no other actor has, to minimise, ameliorate and/or compensate for such value loss, if possible and desirable, by balancing trade-offs in the wider societal interest**. Change often disadvantages some and advantages other actors when inequality is significant, but there are also many examples of win-win-win situations especially when inequality is low at the outset. In all cases, however, government needs to distinguish between the unfair 'vested' interests of one group against the fair benefits of another group, normally by adopting a societal value perspective. (Millard, 2015a)

In this context, there at least four types of role and relationship that the government needs to exercise, only made viable through the application of digital data and technology:

- **Facilitate and orchestrate**: arbitrate, coordinate, regulate, mediate, partner, support, etc., noting that government is not just another actor as it does have a special set of roles, and often needs to lead because of its democratic mandate. It takes account of and balances all interests in society, it cannot choose its users, it needs to ensure the quality of provisions and decisions, and it may need to be the supplier of last resort.
- **Provide tools for collaboration and co-creation**: government is often seen as 'outsourcing' its responsibilities to users, e.g. through online 'self-services', so it needs to mitigate the 'burden' on users to (co) create, and to provide users with guidelines, incentives, supports, advice, networks, ecosystems, etc., that themselves do not add to the administrative burden.
- **Manage assets**: Identify legitimate and available assets across society and help to orchestrate and deploy these (often in collaboration with asset owners) to create societal value. Unused assets may be considered as 'wasted' assets when their use does not damage social, economic and/or environmental sustainability.
- **Ensure sustainable and balanced societal value**. Only government can ensure this where all segments of society benefit and where trade-offs are seen as fair and proportionate. Only government provides longer term stability and continuity which other actors cannot do, and this is necessary to enable people and communities to live stable lives, as well as for the market to have confidence that unpredictable governance changes will not upset their own innovation and investment decisions.

Important issues arise from such '**balanced societal value**', given that, although government does not have a monopoly on societal value creation, it does have the prime role in ensuring that societal value is created , and that the relevant public services are reaching those that actually need them. All actors are potentially seen as a resource with knowledge and assets to contribute in creating societal value but their interests may need to be balanced, or traded-off, where these are incompatible with others, and this is primarily the role of government, both in the short and long term. Thus, there is a societal governance requirement not to sacrifice the long- for the short-term, and to be transparent about this perhaps with the help of 'quick wins' exploiting 'low-hanging fruit' in the short-term providing these do not damage the long-term. There are also a number of risks when operationalising these roles and responsibilities, including:

- Loss of control and blurred accountability, for example, of services: Who is providing a public service on a platform? Who owns this service? Who is responsible and accountable for the service and for providing the platform? Who benefits from the service? Does it reach those in need? etc.
- Quality standards more difficult to determine and maintain with many co-creative active designers and suppliers of services. Who defines the quality standards for the services and for the platforms? Who needs to assess the quality? When does the quality of a service or platform have to be (re-)assessed? Who is responsible to react in case of a service or platform not meeting the quality criteria? How? etc.
- Putting too much faith in using open government data and big data generally: How representative is a given data set? What are the known and the potential biases? How to avoid misuse through lack of competence, deliberate misuse (i.e. corruption), etc.
- Need a common sense test for algorithm-driven decisions and policies How to avoid the 'black box' syndrome. How to assess the transparency of algorithms and their use? How to ensure ethical use of existing algorithms? etc.
- Put 'hard data' in the context of 'soft data' like values, ethics and responsibility, necessary to build trust through transparency. How to set 'hard data' into cultural context? Who to communicate about the findings and embedded uncertainties? How to take account of reactions from citizens? etc.

There is a need to **step up the focus on experimentation** in this new age of turbulence, and to **be more accepting of 'failure'**. However, 'failure' is only valuable when, it is small and early, not late and big as happened to the financial system in 2008, and when there are built in innovation, learning and experimental systems (see Section 7.3.2 below). It is also important that the process of experimentation uses sound scientific approaches (see Mair et al, 2019) and is legal, ethical and non-exploitative. Good examples of such experimentation for new forms of governance are found in the International Research Society for Public Management (2022).

## 7.2 Re-orientating public value and public values from 2020 onward

As defined earlier in this document in Section 2.3, the following distinction between 'public values' and 'public value' is made:

- The **public values of good governance** (taking the definition used by the European Commission, 2017) refer to how public value is created – thus public values can be seen as the 'means' of creating public value. This Section 7, together with the role of digital technology in Section 5, attempts to sketch the main public values likely to be needed to successfully contribute to addressing the strategic challenges in Section 4.
- **Public value** (taking the definition proposed by Kelly et al, 2002) refers to the actual benefits derived from public governance that accrue to all quintuple helix actors – thus public value can be seen as the 'ends' or the purposes of public governance. If and when the strategic challenges in Section 4 are successfully addressed, this will create new types of public value, i.e. real benefits for society.

Table 3 in Section 3.3 enumerates both the cumulative public values and public value that the selected public governance paradigms appear to have delivered up until 2019. All nine of the European Commission (2017) good governance values summarised in Table 3, column C, were achieved to some extent, although further work will always be needed. In addition, **it is proposed to add open governance, sustainability governance, and locality/community governance as public values where at least partial progress has been made up to 2019**. From 2020 onwards new types of good governance public values will be needed to be built on top of those already identified and as summarised in this Section 7.

In terms of public value benefits, these are summarised in Table 3, column D, for the period up to 2019. According to Kelly et al (2002), these are mainly at two levels, i.e. first, "services that provide the vehicle for delivering public value through actual service encounters for users or clients and the distribution of fairness, equity and associated values for citizens". The second level is "outcomes that commonly overlap with services but should be considered separately as they encompass much higher order aspirations such as national security, poverty reduction, public health, etc.", to which different combinations of services collectively contribute depending on the political and policy context. (Specific public service examples are also given in Table 2.) From 2020 onwards, public value benefits created will be derived directly from any success in addressing the strategic challenges identified in Section 4, i.e. to be able to live with turbulence and to maximise the benefits and minimise the downsides of changing geographies, of hybrid human-centred relationships and of people-planet systems. Much more evidence on the period up to 2019 is provided in the accompanying the state-of-art report.

## 7.3 A new European societal contract for delivering public value

As the basis for a **European social contract** – or perhaps better described as a **societal contract** as it needs to go far beyond only the 'social' sphere – for delivering public value through good governance values, there has been a cumulative development in European public sector reform. The following two sub-sections examine the pre- and post-pandemic situation.

### 7.3.1 Good governance public values prior to 2020

In 2019, Vesnic Alujevic and Scapolo (2019) outlined the contours of what they termed a new social contract by exploring a rethink according to the needs of today's society, what elements need to be adjusted to deliver value and good to people and society, what values are needed to improve society, and how a new sense of responsibility can be obtained. Their report identified nine policy options and actions that should form the basis for this new contract that are here further elaborated including from other pre-2020 sources:

#### *7.3.1.1 Democracy and power relations*

There is a need to diversify power structures, create clear strategies towards full adoption of open government and deploy digital governance. The European Commission encapsulated its approach to open government in 2013 with its 'vision for public services' (European Commission, 2013b). This was followed in 2018 through an 'open governance framework' (European Commission, 2018), resting on the rule of law, consisting of open data, open service and open process where each of these three interlocking components is open by default:

- **Open data**, both from government itself as well as other actors where appropriate (e.g. crowd-sourced data), suitably aggregated so individuals and organisations cannot be identified and making this readily available in machine-readable formats, is essential for facilitating collaboration, co-creation and policy making. A barrier is that for many users this requires new capacities, skills and incentives, so government needs to provide much more support and many more incentives.
- **Open service**, through co-creation with service users, for example to design and deliver highly personalised services rather than one-size-fits-all common services. The use of alerts, invitations, prompts, as well as typical life events, user profiles and locations, are all steps towards full personalisation.
- **Open process** ensures that all legitimate actors are able to participate in the policies, decisions and arrangements of the public sector as long as this participation is itself open and enhances public value.

#### *7.3.1.2 Participatory culture and deliberation*

There is a need to include citizens in informed deliberation and decision-making, use citizen engagement to co-create solutions not just react to them, and build a better skilled and equipped public administration with appropriate resources. Gouillart and Hallett (2015) outlined a series of five steps for co-creation in government in order to open up the public sector value chain to citizens, frontline employees, and other stakeholders:

- **Identify** target communities. Select communities whose members will take part in that effort.
- **Build engagement platforms**. Provide targeted communities with physical spaces, virtual platforms or a combination of both, where community members can engage with each other.
- **Foster interactions among stakeholders**. Participants use the new engagement platform (or platforms) to enable new kinds of relationships.

— **Enable new experiences**. Ensure that new interactions lead to valuable experiences for all stakeholders –experiences that intrinsically improve the quality of their lives.

— **Assess new value**. Verify that the sponsoring organisation has generated new value-measurable economic value, in particular-as a result of its effort. (The idea here is that an organisation should be able to compute a return on the investment made in its co-creation project.)

#### *7.3.1.3 Political trust*

There is a need to develop new participatory governance mechanisms along with publicly funded EU public service media and contribute to raising the trust of citizens through better inclusion and the creation of the European public sphere. Basic to political trust is that the government is trustworthy which ultimately derives from an **ethical culture, transparency and accountability**. Transparency involves the right and access to information, for example in relation to budgets and procurement; and accountability refers to checks and balances such as answerability, responsiveness and integrity. Transparency also leads to accountability through mechanisms and tools that make it clear what a government should do and how well it is doing it at all levels. Both can be promoted by 'freedom of information' legislation that also allows questions to be asked and responses provided within a specified time period. Although such freedoms can be mis-used, they contribute directly to trust in government as well as to better governance in the longer term. There is a need to achieve a balance between transparency and privacy not just for users but also for politicians and civil servants who need adequate private space for decision-brainstorming before decisions once made are publicised together with full transparent disclosure of the decision logic and the sources used in making the decision.

#### *7.3.1.4 Regulation*

There is a need to develop technology regulation based on European values with a supranational approach, to include human rights that also reflect the present and future and to avoid the digital divide between citizens who can use technology and those who don't. Regulation is also necessary in terms of technology standards, service levels and quality and to ensure level playing fields that are clear, stable and predictable in order to promote investment and job creation.

#### *7.3.1.5 Public-private relationship*

It is necessary to increase collaboration between the public and the private sectors to face both future technology and public service challenges and to open more interactive spaces for the exchange of ideas and expertise. In most countries the public sector is normally the biggest and most powerful actor, but does not have a monopoly on resources, the ability to innovate or on delivering public services, although it does often have the prime role in ensuring that such services are made available. Civil society and the commercial sector also possess increased capacities, tools and willingness to participate alongside the public sector in addressing societal challenges ranging from the local to the global Public service outcomes are thus determined by the interplay between decision makers in the public sector, often cooperating with civil society and private companies, as well as closely listening to, and co-creating with, users. Such collaboration rests on the notion that the 'government's core is the people' and the ethos of 'government for and by the people' (European Commission, 2001).

#### *7.3.1.6 Public services*

Focus should be on redesign according to the needs of, and accessibility by, all citizens, to overcome inequalities in service access through co-creation with citizens and to deploy new technologies for the improvement of certain services under the condition that the state protects citizens' private data. An emerging imperative is thus to co-create value in public service delivery through public-private partnerships as well as public-civil and public-citizen partnerships. **Principles for digital public services** are user centricity, trustworthiness and security, inclusion and accessibility, interoperability, openness and transparency and innovative culture (European Commission, 2016a). Barcevičius et al (2019) find that the public services most impacted by digital technology include the application of physical robots (a very specific digital technology) in elderly care (a very specific service), healthcare and long-term care more generally, public safety and security, and smart city services.

#### *7.3.1.7 Education and literacy*

There is a need to ensure a better fit with the needs of citizens and job markets in the future, to link digital data literacy to a better understanding of the digital environment, to link policy and media literacy to a better understanding of policy processes and inclusion in civil and informed debates, and to ensure futures literacy contributes to more resilient societies. **Digital divides**, for example in terms of gender, education and ethnicity, need to be tackled. However, research also shows that the higher the level of internet and broadband coverage, the higher is internet use even for less educated and less skilled individuals. In addition, household internet access increases the educational attainment of individuals in a given area, even when internet coverage and GDP per capita are relatively low (Millard, 2015b). Ensuring internet, mobile and broadband infrastructure availability is necessary, but not sufficient, for more adoption and beneficial use of digital technology. It is also necessary to create appropriate incentives, awareness, reward systems, as well as support provider and user ecosystems, driven by high levels of cooperation and co-creation, in addition to market competition. In the case of digital technology design, there is a strong trend in some developed countries to move away from technology designed purely for specific disadvantaged groups towards '**inclusion by design**'.

#### *7.3.1.8 Big data and artificial intelligence (AI)*

To maximise the use and value of big data and AI, it is necessary to develop stronger legal, ethical and standards frameworks and new policy perspectives, to focus policy-making on the public value of technologies, to ensure that digital companies comply with new European and national laws, and develop participatory technology that is more socially robust. See Sections 5.2, 5.3 and 5.4 above.

#### *7.3.1.9 Redesign and new skills for public administration*

There is a need to redesign and constantly re-evaluate the skills needed in public administration, to develop more creative and innovative solutions adapted to challenges and ensure that **agile forms of working** lead to positive outcomes and benefits for citizens (e.g. greater efficiency, better focus on citizens' needs and the faster identification of challenges and response to changes). The development of capable cadres of civil servants is key to effective public governance including digital public services. Traditionally, a focus on middle management has been key, but this layer is tending to reduce in size under budgetary pressure so **focus should also be on the quality of mainstream public servants, especially those in frontline service-interface positions**. They need to be empowered, just as much as the users of public services, through appropriate training, applications and processes. This will also serve to promote creativity, experimentation and innovation in a continuous search for improvement. In this context, digital is becoming an increasingly essential tool in service provision, so public servant skills training in this area is also critical. The JRC's provision of competence frameworks for policymakers and researchers working on public policy is a useful support in this (Schwendinger et al, 2022.)

### 7.3.2 Good governance public values from 2020 onward

Given the pivotal historical cleavage point Europe has been experiencing since 2020 as it becomes firmly embedded in the new age of turbulence, **a new societal contract is needed that combines being radical and realistic and is firmly aimed at Europe's changed situation**. The OECD (2020f) has responded to COVID-19 by developing evidence-based policy responses that are similar to, but build on and go further than, Vesnic Alujevic and Scapolo (2019) given the new situation. These might also constitute an upgraded good governance values blueprint for crises more generally, and are here further elaborated including from other relevant sources:

#### *7.3.2.1 Democracy and power relations*

The pandemic and the other crises currently being experienced, including the current geo-political clashes between the so-called democracies and autocracies, have re-opened the discussion both about what democracy really is and how can it be operationalised. "**Open democracy** envisions what true government by mass leadership could look like."(Nathan Heller, New Yorker[16]) What does a new model of democracy look like that opens up power to ordinary citizens and strengthens inclusiveness, responsiveness, and accountability in modern

[16] https://press.princeton.edu/books/paperback/9780691212395/open-democracy

societies? How can we organise multi-level democracy in Europe? On the one hand, there is – and indeed a strong – need for very local democracy and governance, whilst on the other hand, we need citizen voices at regional, national and EU levels as well. This is not primarily a question of technology, though technology plays a critical role, for example by using AI, blockchain, etc., but is even more a question of political will, civil society co-creation, organisational efficiency, transparency and offline action coupled with open behavioural science to get people involved. We should not put all our democratic eggs in the technology basket. There is a strong need **blended/hybrid democracy**, for example as proposed by Hélène Landemore in her 2020 book "open democracy" and the need to go far beyond traditional representative democracy by creating new institutions that allow ordinary citizens to "take (back) power" Landemore (2020). Heller (2020) talks about the **future of democracy as "politics without politicians"** and uses Landemore's quote that "if government is for the people, why can't the people do the governing?".

Monbiot (2019) has called for '**political rewilding**' through '**radical trust**' in which government trusts people rather than only expecting that people should trust government, as is the normal approach to trust. In an analogy with the rewilding of nature, attempts to control politics from the top inevitably fail leading to vulnerability and breakdown, given that both nature and politics are highly complex and such control is always too simplistic, coercive and damaging. In all systems, complexity tends to be resilient, while simplicity tends to be fragile. Keeping nature in a state of arrested development in which most of its natural processes and its keystone species are missing makes it highly susceptible to climate breakdown and invasive species. But rewilding – allowing dynamic, spontaneous organisation to reassert itself – can result in a sudden flourishing, often in completely unexpected ways, with a great improvement in resilience. Monbiot (2019) argues that the same applies to politics. Mainstream politics, controlled by centralised party machines, has sought to reduce the phenomenal complexity of human society into a simple, linear model that can be controlled from the centre. The political and economic systems it creates are simultaneously highly unstable, lacking in dynamism and susceptible to collapse. They become vulnerable to the toxic, invasive forces of ethno-nationalism and supremacism. But localisation, especially down to cities, towns and communities, can be part of a concerted political rewilding process in which a thousand flowers can bloom, as shown in many examples in Sections 4.2.3 and 4.3.2, as well as in in the accompanying the state-of-art report. Clearly, central coordination, law-making, regulation and standardisation are important in providing a framework in which this can happen, underlining again the governance challenge of achieving the appropriate balance in a specific context.

Additional examples perhaps illustrate the possibilities. **Citizens' assemblies** are a form of deliberative democracy: processes through which citizens can engage in open, respectful and informed discussion and debate with their peers on a given issue, informed by expert evidence, facts, and possible solutions. A typical citizens' assembly is made up of a representative group of around 50 to 200 citizens, who are chosen at random from the general public, like a jury. The selection of members is normally stratified to ensure that participants are as representative as possible of the general population according to certain criteria – usually gender, age, ethnicity, geographical location, and social background. Members of the assembly normally meet over a number of weekends – from two weekends to twelve or more – to learn about, deliberate upon, and make recommendations in relation to a particular issue or set of issues. This is typically supplemented by online digital material and discussion. The topics debated by an assembly are generally set by government or parliament, though members can sometimes choose their own agenda (Electoral Reform Society, 2019).

Nesta (2019b) contends that '**mass involvement**' in shaping the future can move beyond citizen assemblies. There are currently two damaging trends hindering mass involvement in solving current and future societal challenges: first fatalism which assumes that ordinary people are powerless in shaping their future and, second, so-called 'elite futurism' usually emanating from business, big government and 'experts'. Although experts are definitely needed, these barriers can be countered by "opening up and democratising the future". There are many tools available which can make it easier to forge a consensus on actions now that may have a big impact in the long run. There are many methods for mobilising far larger numbers of people in thinking about the future – rather than relying just on professionals and experts, though the latter are absolutely still necessary, but not with a monopoly on power and voice. For a long time, participatory futures methods relied on group workshops, interviews, and in-person discussions, in much the same way that many public engagement exercises still do in the physical world. In recent years, however, this has begun to change. At the same time, digital technologies are expanding the reach of futures exercises enabling more and diverse citizens to play, create and participate virtually in future worlds. This is generating ideas and sharing information involving new players such as artists, designers, game makers, writers and psychologists. Over the last decade, this has led to an explosion of new ways of thinking about or experiencing the future, a phenomena that can be described as 'mutant futures' because of the combination of approaches involved that can currently be grouped into five categories: play, immerse, sense, create and deliberate (Nesta, 2019b).

New techniques are making it easier than ever for governments to draw on the knowledge and expertise of those outside of government to improve planning, policymaking and implementation of government programmes. **Collective intelligence** is a new term to describe something which is in some respects old, but in other respects changing dramatically thanks to advances in digital technology. It refers to the ability of large groups - a community, region, city or nation - to think and act intelligently in a way that amounts to more than the sum of their parts. It encompasses other movements - from open data to civic tech - but links them to the broader question of how governments make decisions on our behalf. An analysis of global collective intelligence initiatives finds that activities fall into four broad categories supported by new digital tools: better understanding of facts and experiences; better development of options and ideas; better, more inclusive decision-making; and better oversight of what is done from monitoring corruption to scrutinising budgets (Nesta (2017). Another high value example is the POLIS software pioneered in Taiwan that focuses on finding consensus rather than division between citizens on public policy issues (see Section 4.3.3).

#### *7.3.2.2 Trust and trustworthiness*

A new paradigm of public trust is needed based on high levels of integrity, fairness and openness in institutions and on government's competence, i.e. its responsiveness and reliability in delivering public services and anticipating new needs as they arise especially in crisis situations. Hale (2022) contends that **trust between people – even more than in government or institutions – is key to limiting damage in a pandemic**, as shown by the Oxford COVID-19 Government Response Tracker. In 2019, the Global Health Security Index published a report ranking countries on their preparedness for pandemics. The US scored highest, followed by the UK. Two years later, both countries rank among those with the greatest loss of life per capita from COVID-19. A large part of the answer is trust, but this is not mainly about trust in governments or institutions, but rather how much people think they can trust other citizens whom they don't already know, i.e. societal trust. Trust in other people is so important because many aspects of fighting a pandemic – such as social distancing – require collective action.

It is also important to rethink trust in the age of digitisation given there is some belief that trust will become obsolete with the advancement of technology. Blockchain, the internet of things (IoT), cloud computing, and machine learning differ significantly from earlier generations of technologies in their enhanced capacity to make decisions autonomously and act 'smartly' while also enabling unprecedented interconnections between humans and machines and interoperability among a wide range of different technologies. Trust remains a central facet in acting as a lubricant for collaboration, but **digital technology does change trust** in terms of what form organisational trust takes, how it is produced, and who needs to be trusted.

First, **trust is becoming much more impersonal** given that in many, though by no means all, contexts, there is a radical shift away from conventional interpersonal collaboration in which the identity of the other party provides a focal point for initiating or sustaining a trusting relationship. An increasing number of transactions occur with individuals we never meet in person or have only an indirect tie to. For example, in the blockchain where no party can unilaterally change information, participants do not need to trust the integrity of their partner, but they do need to believe in the reliability and thus the trustworthiness of the blockchain system.

Second, **the way trust develops is changing**. While, traditionally, trust has mainly emerged from past and expected future interactions between collaborating parties, it is now more closely tied to the characteristics of the entity being trusted which can render it trustworthy or not. For example, machine learning algorithms, which have been widely employed in such industries as insurance to ascribe trust scores to people based on their social categories. At the same time, trust also becomes more institution-based, now being created through technological systems. Protocols and code-based algorithms establish unambiguous rules and create specific expectations for transactions. Third, there is a shift in who needs to be trusted. Despite trust being more impersonal, there remains a need to trust certain human actors, although the targets of such personal trust shift from the other party in the transaction to three sets of entities. There is a need to trust i) the entities that designed the system (e.g., developers) not to introduce loopholes or personal biases, whether intentionally or unintentionally: ii) individuals and organisations who provide data and information for the algorithms; and iii) data holders—those who aggregate, analyse, and profit from the information they control—to not abuse the data or violate privacy agreements (attributed to Lumineau et al, 2022.) In other words, how can these entities appear as trustworthy by their users and how can they live up to this in practice?

#### *7.3.2.3 Risk governance and crisis management*

Risk governance and crisis management is needed for critical infrastructure, scientific advice and anticipating future shocks. **One of the biggest obstacles is legacy and the resistance to change** and this applies both

to the technological and human dimensions. The entrenchment of a **'risk adverse culture**' and 'business as usual procedures' remains strong within government at all levels, creating an inherent barrier to the introduction of new processes, products, services and methods. A culture of 'open innovation' amongst civil servants should be encouraged, ensuring a cultural mindset that is flexible, adaptable and responsive to user feedback. Although **some 'bureaucracy' is necessary**, for example to ensure decisions are made according to statutory and other rules, greater discretion is also needed. This should be based on big data, user feedback, open engagement, common sense, as well as ethical principles, and should take place transparently and openly to allow scrutiny by society at large. (See also public sector innovation, experimentation and learning below.)

#### *7.3.2.4 Regulation*

New ways of looking at regulation are needed, for example in terms of regulatory quality, joined-up regulation, removing administrative barriers and risk-based regulation using AI. According to the World Bank (2017), **Risk-Based Regulation (RBR)** should be introduced in order to achieve public policy objectives by targeting activities that pose the highest risk to the public well-being, and in turn lowers burdens for a variety of lower-risk sectors and firms. However, a different and perhaps complementary approach is taken by Hidvegi et al (2021) who contend, using AI as an example and based on consultation with numerous civil society and other actors, that regulation should be based on **human rights** rather than risk assessments.

#### *7.3.2.5 Public sector innovation, experimentation and learning*

COVID-19 is seen as a catalyst for government transformation. According to Cottam (2022), in this century the need is for imagination, for creative team-based abilities, for spiritual enquiry and above all to acquire the capability for learning that can underpin both rich lives and strong communities with new forms of economy at their heart. Learning from previous technology revolutions, and drawing on work by Perez (2010), each of the four quadruple group of human actors needs a new cadre to bring about transition (Cottam, 2022):

- **The state (public sector)**: a new generation of leaders who will dare to forge new alliances and design new frameworks.
- **New industrialists (private sector)**: business leaders who, walking in the footsteps of enlightened forbearers, will challenge their peers believing that a new era is only possible with the design of new social systems and in particular new norms for labour.
- **Organic intellectuals**: those who can produce new ideas inspiring global imaginations in all disciplines (educational and research/knowledge institutions).
- **Organised civil society**: artists, movement makers, labour unions, activists, those who bring creativity and above all lived experience.

According to Cottam (2022), **the state is critical as the prime mover**, able to lay out the framework, the guidelines for investment and the principles that must govern a collective project such as transition. The impasse we see in the current age of turbulence is rooted in the state's own imprisonment in industrial structures and mindsets. But this transition cannot be imposed from the top: it will be rooted in new forms of horizontal institutions and relationships. This means **the local state** should play a critical role and is starting to become more active and claim for itself greater agency and power. Despite the lack of financial resources and often a lack of access to networks, those in the local state understand local realities.

However, much of the dynamism in localities comes, not from a formalised and relatively stable local state institution, though this is absolutely essential, but from the greater informality of communities, groups, citizens and movements that transcend formal boundaries The relative transient and fluid nature of the latter is also absolutely essential but there needs to be much better and heightened awareness, recognition, mutual learning and co-creation between the more formal and informal, in which digital interconnectivity also plays a critical role, similar to the relationship between agency and structure (see Section 7.4 below). Both **tacit (uncodified) and explicit (codified) knowledge** are together powerful combinations for learning, identifying good practices of successful transformations, and thereby for widespread co-creation, replication, scaling and knowledge sharing.

A good example of this is the reciprocal relationship between federal and local government structures, on the one hand, and with less formalised local civil cooperatives and activities in governing local energy systems on the other, as outlined in Section 6.2.1. Indeed, such co-creation is necessary to recognise and move beyond the cognitive barriers imposed by the '**shifting baseline syndrome**' (see Section 4.4.2). As demonstrated by Monbiot (2014), this describes resistance to change in the accepted norms about how we see and do things

and may be partially an issue of cognitive dissonance around the cultures of doing. In this sense, some of these concepts become philosophical issues that perhaps go beyond the remit of public governance, although we know from the examination of existing paradigms that this remit has constantly changed and will need to continue to do so, possibly in unexpected ways and perhaps as outlined in the strategic challenges in Section 4.

Many established persons and institutions often suffer from a shifting baseline syndrome when they fall back upon the notion of **"this is the way we have always done things around here"**. This may work if it provides some stability, continuity and predictability (see Section 7.4.2.2), but is likely not to work at all when confronted by massive shocks as currently being seen and, indeed, may do more damage than provide any benefit. Such cognitive dissonance often persists in spite of ready knowledge and understanding of empirical evidence about what works and what does not. It may require the influx of a younger generation or the intrusion of a massive societal shock to shift the baseline. On the other hand, there may be good reason not to follow the example of many in Silicon Valley who attempt to "move fast and break things". A better motto would be **"move fast and restore those things that demonstrably work and repair those things that don't"**, though this clearly does not have the same memorable clang. So, **balancing the need for governance stability with the need for governance flexibility, agility and innovation is, perhaps, the most difficult governance task of all** (Millard, 2015a).

#### *7.3.2.6 Behaviour, values, principles and culture*

It is important to build behaviours and cultures across the whole public sector conducive to responsible leadership, professionalism and the values of integrity, transparency and accountability. In turn, these principles need to rest on the rule of law, justice, respect for human rights, and the security of both persons and property. In terms of policy-making, Mair et al, 2019) recognise that advances in behavioural, decision and social sciences demonstrate that **humans are not purely rational beings** and that understanding and accounting for this brings new insights into political behaviour which also helps address some of the current crises of democracy. Ethical behaviours can be promoted through a **code of ethics** incorporating principles like transparency, non-violence, resilience, participation, solidarity, identity and innovation. This should help to create values of commitment to serve the public and to counter adversarial attitudes by public servants to citizens. Corruption and lack of accountability lead to bad governance and typically contribute to a vicious cycle involving de-motivated public administrations, and a lack of willingness and of capacity to innovate and modernise public services. In terms of open government, transparency and co-creation there can also be a (perceived) risk of losing power by empowering others. However, when others are empowered, this itself requires a need for balancing between the role of public administration to serve the others (and reducing the public governance burden for them) as compared to asking them to be part of development and delivery thereby putting an extra burden on them. It is clear that not all public services neither can nor should require co-creation given this is resource intensive so should be restricted to those challenges where additional actors are needed and desirable.

An example of this is **citizen science** which uses co-creation approaches between citizens (the general public) and scientists deploying bona fide scientific processes through an open and inclusive approach. The aim is to empower and enable citizens to support and be part of the exploration, shaping and development of the different aspects of scientific activities that use scientific methods and results to meet societal challenges (ECSA, 2021). Citizen science can range from the short-term collection of data to the intensive use of leisure time to delve deeper into a research topic together with scientists and/or other volunteers, to ask questions, and to get involved in some or all phases of the research process (ECSA, 2020). It can both accelerate and produce new scientific knowledge; it can help decision-makers monitor the implementation and regulatory compliance of their policies; it can increase public involvement and understanding of science and help citizens feel that they also own these policies; and it can enable faster evidence-informed reactions to events and the exploitation of new opportunities through new sources of both quantitative and qualitative knowledge (Shanley et al, 2019; Schade et al, 2020). Citizens can often reach parts of the real-world evidence base that are otherwise very difficult to reach, for example with better territorial and fine-grained data coverage. This will simultaneously increase their own scientific awareness and capabilities as well as improve the science and its contribution to better evidence-based outcomes and impacts. An important point is that citizens can determine themselves when, where and how much they wish to be involved.

#### *7.3.2.7 New innovation frameworks and mission strategies*

Collaboration, diversity and a range of voices, skills, competencies and resources, form the basics of successful innovation. In order to meet the challenge of the EU's 2021-27 policy programmes (European Commission, 2021e) and the UN's 2030 Agenda for Sustainable Development (United Nations, 2015b), new forms of

innovation, beyond but building on digital technology and top-down driven innovation, are required. For example, a new approach is **open innovation** that is designed to ensure that all can be involved, where there are no supposed monopolies of innovation talent and potential, and where the solutions become owned by as many people as possible which results in greater acceptance, trust and impact, such as through co-creation. The innate innovativeness and activism of civil society, communities and citizens as the ultimate beneficiaries of innovation, need to be liberated. Just as greater democratisation and participation are needed at the local level through increased devolution and decentralisation, it is important to re-invigorate active localism and entrepreneurship in villages, towns, cities and regions. Prosperity and inclusion thrive when the state genuinely hands power to local people, local entrepreneurs and local organisations.

Every locality needs to innovate and implement its own strategy based on its own needs, capacity and resources, systematically enabled and supported by the state through setting up **local open innovation and entrepreneurship hubs** where these do not already exist. These will provide opportunities and incentives for the full range of innovative activities, ranging from community projects, social innovation and entrepreneurship, through repair cafés, small scale manufacture and fab-labs, to fully commercial start-ups and high tech activities. In order to serve the local social and business communities, partnerships could be established as locally appropriate together with local anchor institutions like libraries, educational institutions and commercial training and apprenticeship facilities. Acting as open innovation labs these can assist everyone who has a good idea or needs to get advice. The local focus could also aim to identify champions and network good practices by sharing experiences and scaling as widely as possible. Regional clusters can be established, or further supported and extended where these exist.

Experimentation and evidence show, for example, that publicly owned local anchor institutions (see Section 4.2.3), including activist local councils, as well as local educational and health organisations, underpin long-lasting prosperity. Furthermore, this can be greatly assisted by regional cooperative banks attuned to local conditions and providing low interest loans to facilitate investment in the area. The state's role is to provide an enabling framework of policies, regulation, incentives and funding for these local initiatives. One primary aim could be to retain and reinvest as much as possible of the wealth created locally back into the local economy and society through community wealth building that sees these institutions buying as much as possible from local businesses and organisations. Other innovative examples include experimenting with and supporting local basic income schemes and supporting employee-owned enterprises. It might also be useful to enable and encourage inclusive and transparent complementary local currency or token systems that are fully voluntary and additional in order to complement, not replace, traditional currencies in order to avoid financial lock-in.

The role of the state includes strategies and regulation that focuses on mainstreaming of public investment and public procurement to prioritise green and especially local solutions and that gives the public interest a direct and formal role in innovation and industry. Adopting a **'mission-driven' strategic approach**, as advocated by Mazzucato (2019) and as part of the Horizon Europe Research and Innovation Programme (European Commission, 2021l), was first used successfully by President Kennedy to get to the moon in the 1960s. A mission defines the overall strategic direction and clearly lays out the beneficial impacts of innovation and the economy, without tightly regulating how this is done. This involves a **three-step 'tight-loose-tight' approach**: first establish clear ambitious but realistic goals, such as a net-zero carbon neutral economy by 2035; second open the field for any innovations attempting to meet these goals, as long as they are ethical, non-exploitative and legal; and third tightly assess and evaluate their actual impacts in order to adapt, learn lessons and improve.

Government policy and regulation, supported by mission-driven public procurement, could equally focus on public and environmental goods as well as private and commercial goods. It is necessary to find the right balance between these goods, often seen as being in competition, and seek win-win rather than win-lose trade-offs. The government remains the largest actor in the economy since they have the largest purse, which was in clear evidence during the pandemic, so it could nudge and direct economic growth towards mission-specific ends through its spending, active intervention and framework-setting.

#### *7.3.2.8 Public and governance management and integrity*

Both executive capacity (in terms of steering capability, implementation and institutional learning) and executive accountability (participatory competencies) need to be expanded to ensure **longer-term resilience-based planning, preparation and prevention**. New resilience-enhancing structural reforms for improving the quality of public services and getting back on the path of sustainable and inclusive growth can contribute to the EU's recovery from the COVID-19 crisis. The European Commission is providing tailor-made and technical Structural Reform Support to help EU countries design and implement reforms as part of their efforts to support

job creation and sustainable growth (European Commission, 2022j). Governance integrity is also important for curtailing corruption and ensuring open transparent reporting of budgets and of public management, green budgeting, budgetary oversight and independent fiscal institutions. This includes the need to focus on countering illicit trade, trafficking, counterfeiting and fake products and services. It is also important to focus more intensely on infrastructure and public procurement, including through transparent inventories and open processes.

#### *7.3.2.9 Future proofing*

According to Moffitt (2022), from 2020 there is a need to augment planned change and innovation, which has been the norm since about the 1950s and characterised by consumerism, automation, entrepreneurship and commercialisation. A shift is needed to 'future-proofing' in order to tackle the new age of *VUCA*, i.e. where **the world is volatile, uncertain, complex and ambiguous**. The author terms this as 'Change 5.0' influenced by the growing importance of scenario planning, intrapreneurship, agility, co-creation, new business models, ecosystems, circular economy, augmented intelligence, Industry 4.0, and growth hacking. The 'Change 5.0' model needs to respond to *VUCA* with what Moffitt (2022) terms *TANCES*, i.e. technology, agility, need (customer), cross-industry, expectations {culture} and societal (challenge). This is mainly a business perspective, but also has relevance for societal governance and the specific role of the government actor as it recognises the dramatic changes and challenges of the new age of turbulence *(VUCA)* and also offers a response (*TANCES*). Clearly, one of the signal roles of the government actor in societal governance is to adopt an approach something like *TANCES*, whilst also balancing this with a strong commitment to continuity, stability and predictability (see Section 7.4.2.2). **The government actor has a much more complex set of tasks than business actors**. Part of its role is to provide a societal governance framework in which relevant business and economic activities could readily adopt *TANCES*, as long as this provides value for society as a whole, in order to respond to *VUCA*. One way in which government can do this is by adopting a 'mission-driven' strategic approach as discussed in Section 7.3.2.7.

#### *7.3.2.10 Policy coherence, co-ordination, alignment and evaluation*

Policy coherence, co-ordination, alignment and evaluation are required for joined-up resilient and regenerative responses. This will also need to use, for example, KPIs in policy performance and policy outcomes aligned with the three substantive SDG pillars: economic, environmental and social, as well as domestic action taken by governments sensitive to international responsibilities. An interesting recent example in New Zealand, that is not widely rolled out, is making government rules and legislation machine-consumable for tracking public value impacts. This enables much **more accurate predictions of how a proposed new policy will affect the total constellation of existing laws and thus create public value** in society at large at very low cost. Government is empowered to avoid implementing policies that subsequently will be shown to be either counter-productive and/or overall more damaging than beneficial. This involves breaking down the law into its component parts using digital code to show as accurately as possible what is likely to happen to whom under which conditions. Thus, law-making proposals can be queried before being finalised at much greater speed and at much lower cost. For example, if a proposed law in one entity involves some people losing their jobs they will need to received benefits from another entity and this in turn is likely to have other knock-on effects elsewhere. Thus, different policy scenarios and their overall public value impacts can be examined in advance in terms of their benefits and downsides for the public sector as a whole, as well as for wider society, and the proposed law adjusted accordingly. In addition, making machine-consumable government rules available to other actors, such as citizens and businesses, could also greatly increase transparency, responsiveness, accountability and overall public value. (New Zealand Government, 2018). Fundamental aspects of all these efforts should include always aligning and validating policies with the needs of, and opportunities provided by, nature (see Section 4.4.1), as well as breaking down silos (see Section 7.4.4). The JRC's provision of **competence frameworks** for policymakers and researchers working on public policy is also a useful support in this (Schwendinger et al, 2022.)

## 7.4 Common features and framework conditions

### 7.4.1 It is the mix that matters

Some important issues arise from examining the progression of public governance paradigms and their use of digital technology. First, it is the mix that matters; any given system of governance will have varying effects depending on its context, so the need for diverse inputs is paramount while acknowledging that institutions are not a panacea for societal challenges. Second, participation and dialogue need to be given much greater priority

in a governance approach, i.e., even when experts are setting policy, dialogue needs to take place with all actors, especially those who are the direct targets of the policy. Participation is not just a normative goal but is also a means to greater efficiency and more effective outcomes, and will help to overcome overly simplistic and normative thinking. Third, developing the parameters of governance is often limited by formalised approaches; in reality, social terms and categories (such as, elections, class and democracy) are inherently 'fuzzy' without natural boundaries, and this makes analysis complex and difficult (Bevir, 2013).

Public governance usually refers to one or both of two related topics: state institutions and service delivery. Since 'governance' became a policy agenda, the main approaches to it have been dominated by formal theories derived from economics and sociology: (a) economic theories generally focus on micro-level and suggest markets are efficient ways of securing equilibrium; and (b) sociological theories generally stress mid-level contexts, describe new times, and promote networks and partnerships as responses to those times. The danger, however, is that much of the discourse has become overly descriptive as well as too keen to see cause and effect relationships. It is important to **beware of so-called 'causes'** as these are often in direct conflict with concrete human activity and experience. For example, the sociological theories of governance sometimes encourage essentialist views of organisations, markets and networks, for example that networks are always innovative and that markets are always efficient. Such posits may not always hold as they are only contingent generalisations at best, as well as being over simplistic and often lull policy makers into thinking in terms of certainties of outcomes that are far from guaranteed. Concepts like markets and networks are only heuristic ideal types, not found in reality in pure form. Instead, governance paradigms should recognise the importance of 'concrete human activity' and real 'human lives' (Bevir, 2013).

The multi-level governance of the EU (see Section 7.4.3) and the complex and varied socio-economic and cultural histories of European nations, coupled with their diverse and often volatile political realities, has led to the public governance paradigms sketched in Figure 1 building on each other, layer by layer. This is not a linear progression where one replaces the other but represents a process of partial overlapping, sedimentation and co-evolution over time in which all paradigms still have relevance and impact today, although some are dominant and others less significant. In this context, it is the precise mix that matters in each context, time and place.

### 7.4.2 Finding balance

According to Vibert (2001), coherence is about identifying the qualities that make a system of government a good one. Coherence is basically concerned with achieving a series of balances between competing interests and requirements: between simplicity and complexity, between stability and change, and between structure and agency, as well as the rights and responsibilities each actor has in these contexts. Finding balance is especially important in the possible emergence of a third generation of the EU's multi-level governance system by supplementing the many public governance mixes that already perform well, but also moving towards various forms of 'generative public governance' (see Section 7.4.3). Finding balance can also draw upon **negotiation theory** based on decision analysis, behavioural decision-making, game theory and negotiation analysis. Negotiation is a strategic discussion that resolves an issue in a way that both parties find acceptable. Individuals should make separate, interactive decisions; and negotiation analysis considers how groups of reasonably informed individuals should and could make joint, collaborative decisions. Such theories are interleaved and should be approached from a synthetic perspective.

#### *7.4.2.1 Balancing simplicity with complexity*

**The public sector is unavoidably complex**. It confronts a range of complex dilemmas, needs to fulfil complex tasks in a myriad of complex circumstances in relation to many different actors, and it has to steer towards complex and often contradictory policy goals. This means it can often become obtuse and unintelligible to citizens, as well as to civil servants themselves. Despite this complexity, **simplicity is also necessary, particularly in the 'front-office'**, i.e. the public interface. An ideal balance may be to allow complexity in the 'back-office' whilst building simplicity in the 'front-office', but in other situations such a balance may not be possible. According to Vibert (2001) simple government structures are needed to ensure the political and market choice systems properly complement each other. Simplicity makes it easier to identify what is important and what is not important, and also makes government more understandable to people.

There are **both benefits and dis-benefits of simplicity and complexity**. Can people trust something they cannot understand? Simplicity can be seen as part of the ethos of open, transparent and accessible government, particularly if this helps to ensure that the legislation, rules and regulation governing a given public service or value is sufficiently simple and understandable for most actors to appreciate and exploit. A society governed

fully or mainly by a legal and regulatory framework which is obtuse, hidden or can only be understood and wielded by experts, could be argued to be profoundly undemocratic, which is a possible danger of New Public Management. There can sometimes also be a challenge for the EU is not appearing as a 'bubble in Brussels' where many EU institutions are based, but should rather be seen as more than the sum of its parts (all citizens, member states, regions, businesses, overarching institutions, etc.) The COVID-19 crisis has sharpened awareness of the EU and most people want more. Three out of four respondents across all countries say they have heard, seen or read about EU measures to respond, and around half (52%) of those who know about EU action in this crisis say they are not satisfied with the measures taken so far. There is a strong call for more EU competences and a more robustly coordinated EU response whilst there is dissatisfaction expressed by a majority about the lack of solidarity between Member States in fighting the pandemic: 57% are unhappy with the current state of solidarity, including 22% who are 'not at all' satisfied (European Parliament, 2020).

**Conversely, simplicity may compromise quality and effectiveness**. In the UK, the tax system became much more complex since 1997 but as part of an attempt to make it fairer by targeting the poorest through means-testing and tax credits. Without this complexity, precise targeting could not easily take place so that both rich and poor citizens would, for example, not receive tax breaks. Fairness and efficiency seem to mitigate against simplicity. A similar problem confronts the Danish tax system but has been tackled by most citizens and businesses receiving pre-completed tax returns from government, which they can either accept or correct providing relevant evidence, based on a standardised ID number and government access to relevant personal data from employers and banks, so that complexity has been side-stepped. The tax system is complex, but this does not matter for most citizens and businesses because the government, in effect, calculates their tax for them. Clearly, high trust in government is necessary for acceptance of such a system.

#### *7.4.2.2 Balancing stability with change*

The need for public governance to transform, change, be flexible, innovative and dynamic, and be adaptable, is uncontested. However, **governments have a critical role as the only formal institution which can provide much needed continuity**, predictability, dependability and stability. This is absolutely necessary for individuals, families and communities to lead meaningful and peaceful lives. It is also necessary for business in order to give them a level playing field, and some longer-term certainty about investment and future developments. The stabilising and continuity functions of government should probably be preserved and further developed, even within a strategy of a dynamic and transforming public sector. In other words, some important questions are "what needs to be the stable frame" and "what can become agile and flexible?". Governments are often derided as 'risk averse', but this may be at least partially due the complexity of their tasks (as above) as well the need to ensure a strong measure of stability. Re-evaluating risk and embracing relevant experimentation and innovation are both certainly necessary, especially in turbulent times when governments need to act fast often with limited information. The most prominent risks for politicians are often losing the next election, rather than not achieving longer-term policy goals, a conflict which is significant challenge to democratic governance. (See also Section 7.3.2.)

In balancing stability with change, Agre (2000) makes a **distinction between institutions and organisations**. An institution is a persistent form of relationships among people so is often strongly related to culture and behaviour. Examples include horseracing, the medical system, greeting rituals, the university, the stock market, management consulting, religion, the family, the common law, public institutions and the nation-state. Institutions can vary across history and between different societies, but they are remarkable for their ability to remain relatively unchanged, sometimes for hundreds of years at a time. Institutional persistence is a dis-benefit when the institutions are unjust or inefficient, but it is a benefit when it enables people to predict the future, focus their attention, and compel others to keep their promises. Institutions generally change slowly but can change relatively fast during a profound period of disruption or shock. In contrast, organisations (such as government agencies, non-profits, and civic associations, as well as private companies) tend to be ephemeral and can change very quickly, often without any significant or even obvious cause. For example, there are distinctions between the institution of the university and particular universities as organisations, and between the institution of broadcast journalism and particular news organisations. It is necessary to distinguish between institutions and organisations when unravelling public governance, especially in a turbulent period as well as in the context of digital technology.

#### *7.4.2.3 Balancing structure with agency*

The evidence presented in this report show the need to govern the balance between structure and agency and to recognise and address the duality and interrelationships between them (Millard et al, 2017; McGarvey, 2022):

- **Structure**: the governance and framework structures within which people, families, communities, businesses, as well as institutions and organisations of all types operate that are largely beyond their own immediate control
- **Agency**: the governance support and degrees of freedom for all these actors to both develop and meaningfully deploy their own agency to function successfully within these structures and over which they have, at least partially, a good measure of own control. Agency is also strongly mediated by an individual's or a group's values and identities (Scharfbillig et al, 2021).

The ideal public governance goal should be that structure and agency increase their mutual overlap, so they coincide as closely as possible. However, it is recognised that in practice public governance and other structures (both formal and informal) take longer to adapt and reform than agency demands in response to, for example, crises, shocks, inertia, ingrained cultural practices, vested interests, and even of course corruption, cronyism and paternalism. Thus, public governance needs to address both structure and agency. For example, changing the system to reduce homelessness and unemployment should go hand in hand with helping the homeless or unemployed themselves find accommodation or work. Too many social and economic policies tackle poverty and inequality by only attempting to improve the 'agency' of the poor through training and so-called 'empowerment', instead of also tackling the root causes embedded in societal structures that prevent the poor from making the most of their own efforts (Millard et al, 2017; McGarvey, 2022). Legal and regulatory frameworks need to be conducive to maximising individual and group agency whilst also maximises the creation of public value. These frameworks need to be re-cast to ensure fair distribution of social, economic and environmental rights and benefits that are all too often undermined. Labour market issues are paramount, for example in relation to the burgeoning 'gig' economy, the problems of zero-hours contracts, and ensuring people have stable, simple and predictable structures so they can thrive in both their working and private lives. Policymakers should aim at specific outcomes and impacts and open up for process innovation as long as these processes remain ethical, transparent and legal (Mullainathan and Shafir, 2013; McGarvey, 2022)).

### 7.4.3 New multi-level governance roles

Multi-level governance refers to the way power is spread vertically between many levels of government from the global/European to the local, and horizontally across multiple quasi-government and non-governmental organisations and actors. In the EU's formal constitutional context, this rests upon **various balances between centralisation and decentralisation and especially the subsidiarity principle** that serves to regulate the exercise of the EU's non-exclusive powers. It rules out EU intervention when an issue can be dealt with effectively by Member States themselves at central, regional or local level, so the EU is justified in exercising its powers only when Member States are unable to achieve the objectives of a proposed action satisfactorily and added value can be provided if the action is carried out at the EU level (European Parliament, 2022b). Subsidiarity thus determines the level at which particular governance powers and levers should be exercised which might be decided on a case-by-case basis. There are always strains and tensions in multi-level governance systems as the different actors, constituencies and needs jockey for position and, in most cases, reach compromises, whether politically imposed or widely agreed, for mutual benefit. Sometimes, these can be relatively informal compromises that reflect the different (mostly national-level) cultural traits that administrators, policy- and decision-makers need to take into account. With the dramatic changes and shocks now impacting Europe since 2020 such adjustments become ever more pressing and where digital technology can open new possibilities.

The Periscope Project (2022) conducted empirical and theoretical research into best practice in multi-level governance during pandemics in countries across Europe during Covid-19 from March 2020 to May 2022. Findings were clear, including that **decentralised governance was critical in implementing pandemic policy and compliance** with it, and that **communities and civil society organisations played a key role** in closing the gap between statutory services and community needs, especially for vulnerable groups. This manifested itself in innovative forms of collaboration and mutuality formed at different levels of government, facilitated by favourable legal and financial environments. However, in times of great stress, overall pandemic policies and governance approaches also generated new forms of stigma, exclusion and inequality as well as exacerbating existing forms, whilst scientific evidence played only a mixed role in informing policy making and governance.

These insights show how public governance during turbulent times, and especially multi-level governance, needs to **focus on risk awareness, preparation and preventiveness** – especially when these risks will have massive impacts even if their probability is low. As argued in Section 4.1.3, the **necessary diversity resulting from the importance of decentralised governance structures needs to be linked through the strong**

**interconnectivity** of communication channels and coordination mechanisms. This also requires that civil organisations are empowered and well-funded to advocate for the needs of specific, and especially vulnerable groups. Innovative funding and legal structures need to be in place to allow for rapid redistribution of funds and for important collaborations to be sustained through periods of crisis and beyond. Attention needs to focus both on the structural barriers created by pandemic bureaucracy that exclude certain groups from uptake of, for example, vaccination, economic measures or healthcare, as well as on non-human factors, including a broad engagement with the needs of animals and plant-life and the impact of built environments on health outcomes. Investment in social listening mechanisms that allow governments to understand, adapt and co-design their policies with communities, specifically using qualitative and ethnographic data is also important, as is setting up a broad and diverse evidence base to inform policy making, facilitated by interdisciplinary collaboration among scientific research actors and channelled through strong communication mechanisms (Periscope Project, 2022).

Many instances are already apparent of building between, and linking, multiple governance levels and actors, ensuring that the critical local and community levels are also fully incorporated which has not always been the case. For example, in an analysis of transformative social innovation for sustainable rural community development, Castro-Arceab and Vanclay (2020) formulated the concept of '**bottom-linked governance**' as a multi-level middle-ground that links bottom-up community initiatives and top-down structures. This is where actors from various political levels, geographical scales and industry sectors come together to share decision-making. Community initiatives have the potential to be more widely transformative, but to do this, they need to scale-up from the local social demand level and provoke changes in the governance system at the systemic change level. The authors identify **bridging-role functions** like network enabler, knowledge broker, resource broker, transparency and conflict resolution agent, and shared vision champion.

Such **'middle-ground', 'middle-around' linking roles**, intermediaries and breaking down vertical as well as horizontal silos between governance levels are clearly necessary. However, it is also **important not to increase unnecessary bureaucracy**, i.e. that reduces efficiency without increasing effectiveness, when adding levels or supplementing them with new roles and links. Further, there is a need to recognise that many non-government actors, especially citizens, do not know, do not wish to know and do not differentiate between the different governance levels, except perhaps if specific arrangements cause them problems. Joining-up and providing **an holistic external governance face** is thus very important and where digital technology clearly has an important role to play. There is still a strong top-down dynamic in Europe, and clearly this is important not least for law making, justice, coordination and standard-setting and monitoring, as well as external relations. In contrast, participatory interests promote a bottom-up dynamic even though much is governed by legal and constitutional levers at higher levels. How would data/information-sharing reflect the interactions between different governance levels and how could more efficiency as well as effectiveness be promoted? For example, to what extent is regional governance useful if local aggregations are more fluid and able to respond to collective needs? Who could the actors be to enable that and what are their clearly defined roles?

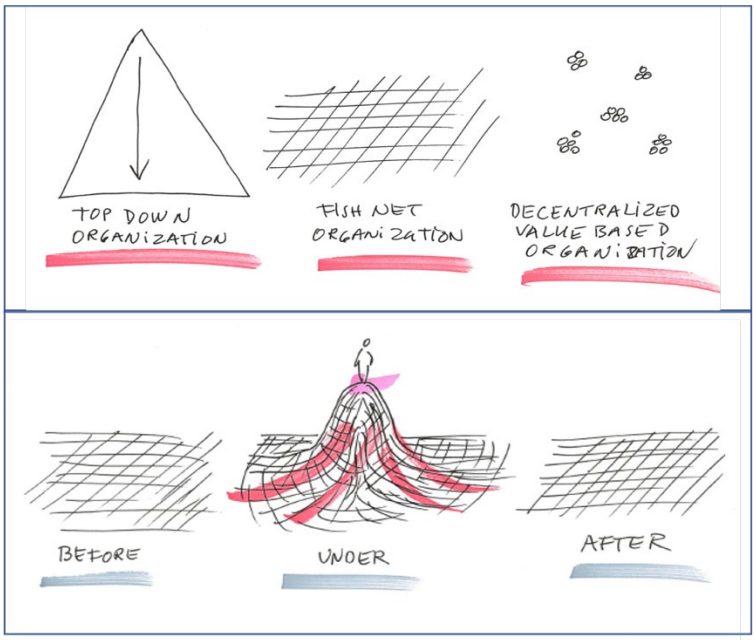
In light of the above considerations and especially in the context of the new 'age of turbulence', it would be opportune that the EU reconfigures both its ideas and practices around the most appropriate multi-level governance models now required. This could be seen as a **'third generation' of EU multi-level governance systems**, building on the first and second generations identified by Stephenson (2013). The 'first generation he characterised as the novelty of new governance forms and how they could transform basic institutional structures, while the 'second generation' steered multi-level governance towards new modes of governance and regulation (Conzelmann, 2008). However, the first and second generations both fall short on some of the paradigms highlighted in this report these, so a third generation might be characterised as one that addresses inter- and intra-institutional relationships, suggestions to achieve true transparency, accountability and inclusiveness in the entire system, also by making the most appropriate use of digital technology, ultimately aiming at increased trust between all the actors within the EU and interfacing in the best possible way with those outside.

A third generation of EU multi-level governance might also supplement the many public governance mixes that already perform well, but also move towards various forms of '**generative public governance**', i.e. that are sufficiently flexible and resilient to enable specific emergent governance forms to be created in particular contexts for particular purposes such as unexpected shocks. The main mechanism behind generative public governance is co-creation and, while co-production was originally tied to service production, co-creation has broader applications in the field of public governance and involves a broader range of actors and activities. The co-creation concept both builds on and extends the concept of collaborative governance and enables a strategic turn to a new type of 'generative governance' aimed at solving complex problems by constructing platforms

enabling the formation of arenas for co-creation that bring together a plethora of public and private actors, including citizens, in creative problem-solving processes. In this sense, generative governance envisions the broad-based participation of actors in **the co-creation of emergent and interactive responses to pressing problems and future needs** (Torfing and Ansell, 2021).

This might be illustrated in Figure 6 depicting a relatively flat but **interconnected 'fishnet' organisation of governance** composed of many actors sitting between fully top-down and fully decentralised modes. The 'fishnet' is sensitised to respond rapidly and resiliently to specific challenges in specific contexts, to address these flexibly and then return to a more stable state once a given challenge is dealt with. It is important to stress that such a generative public governance approach is most appropriate in addressing sudden societal shocks and is thus supplementary to governance modes that already perform well in addressing existing and relatively stable challenges.

**Figure 6**. Generative and emergent governance as a 'fishnet organisation'




Source: The author, taken from a presentation by Uffe Elbæk, Denmark, in 2016.

As mentioned above there are dangers in adding additional layers and complexity to public governance systems composed of multiple levels and forms, especially as seen from the perspective of citizens and other actors, so that a joined-up, whole-of-governance external face is definitely required. Such complexity, especially when locally-embedded and nuanced, multiplies the numbers of actors and relationships and potentially adds to the 'silo' problem. As pointed out in Section 4.2.3, however, **it is often at the local level that it is easiest to break down governance silos** and link across actors and sectors given their smaller and shorter interaction and transaction chains and much more shared and fine-grained knowledge, both implicit and explicit, about local conditions and contexts. It is likely that these issues can only be addressed using human-centred digital data and technology that fully enables different mixes of top-down, bottom-up, central, decanter, local, regional, national and EU units. Also critical are both territorial cross-border and cross-sector governance forms which are central to the discussion on interoperability, not just digitally but also organisationally, legally, regulatory and in terms of policy. In a European context, this is likely to be taken further forward by the December 2022 proposal for the **Interoperable Europe Act** to introduce a framework of cooperation between EU Member States and EU Institutions. The aim is to secure the cross-border exchange of data and agree on shared digital solutions, such as open-source software, guidelines and frameworks, and will provide incentives for innovation in the public sector and for ''GovTech" projects, based on public-private partnerships (European Commission, 2022k).

It is clear that it is the precise mix that matters in any given situation, so that co-creative contributions are allowed, supported and empowered to come from anywhere in the system. However, this must focus on the challenges that are best addressed by those actors taking responsibility, possibly as an advanced interpretation of subsidiarity and proportionality, as well as ensuring overall governance coherence rather than a wild west jungle. As also mentioned above, it is critical that any 'third generation' of EU multi-level governance does not

increase unnecessary bureaucracy but addresses inter- and intra-institutional relationships and is better able to achieve true transparency, accountability and inclusiveness in the entire system. The ultimate aim must also be increased trust between all the actors within the EU as well as interfacing in the best possible way with those outside. In this context, it is important to cater for the possible roles of all, including EU and international, actors so that the embedded regimes participate in co-creation in the most productive and inclusive manner possible. Again, this is hardly feasible without the appropriate use of digital technology.

### 7.4.4 Breaking down silos

A recurring theme as public governance paradigms change chronologically is the attempt to break-down the silos between governance levels, between different actors and within a given governance jurisdiction. This is necessary both to increase the number of public values of good governance (see Section 7.3.2) and **move the services that create public value from level 1, which focus largely on only individual benefits, to level 2 outcomes focusing on collective societal benefits** that can more successfully address societal challenges (see Section 2.3). The latter requires user-centric and personalised services that are networked, joined-up and integrated, first possible from about 2000, although success was extremely limited until some benefits were achieved in the context of the politics and policies underpinning the open governance paradigm. More significant success in breaking down silos and achieving level 2 more societal-wide public value first began, however, in the context of the changed politics and policies from about 2015 of the sustainability and especially the locality-community paradigms. Although digital technology innovations play a necessary role in these changes, the sufficient conditions are only forthcoming as the politics and policies change.

Thus, the silo problem remains today as one of the biggest challenges to public value creation and is not directly related to further advances in digital technology, although improvements in digital interoperability are absolutely necessary (see for example European Commission, 2022k). The policies and mindsets needed to move towards the human-centric focus on real people's lives, and on the 'emotional intelligence' promised by the current speculation around Generation 5.0 technology in the context of the 'digital sanitisation' involved in people and machines working together (see Section 5.1), will perhaps be more decisive in realising significant levels 2 and 3 public value.

# 8 Conclusions and recommendations

## 8.1 What are the determinants of changes in public governance

From the above narratives, supplemented by the accompanying state-of-the-art report on existing public governance paradigms, it is clear that **political, policy, socio-economic cultural conditions, especially including societal-wide shocks and crises, are the strongest determinants of public governance changes**. **Digital technology and data, on the other hand, are best seen as necessary but never sufficient tools in this process.** Nonetheless, it is certainly the case that most of the changes in public governance processes are dependent on digital technology in one way or another. Indeed, its role changes and magnifies from merely supportive during Generation 1.0, to enabling during Generation 2.0, then to driving in Generation 3.0 and finally to decisive in Generation 4.0, as summarised in Table 2. However, digital technology itself is largely dependent on these same political and socio-economic conditions with which it has a mutually supportive, reciprocal and complex relationship, so that it is not always possible, or indeed wise, to disentangle them and ascribe clear cause and effect roles to one or the other.

According to the literature review carried out by Barcevičius et al (2019), economic drivers on the demand side feature prominently for successful digital government transformation as the potential efficiency gains are of high importance to the public sector and to the taxpayers. On the supply side, the rapid technological developments and diffusion of electronic devices are identified as important drivers, even though they are not considered sufficient to transform governments on their own. Political, social and cultural factors receive a lot of attention, with a particular focus on the expectations of citizens for more transparency and participation in policy-making. Barcevičius et al (2019) also found that the barriers and preconditions for successful digital government transformation are complex and often not related to digital technology. In fact, the introduction of new technologies by governments is always mediated by organisational, institutional, legal, ethical and social barriers.

Overall, it is evident that all the successive public governance paradigms align to a greater or lesser extent with longer-term political and societal developments and shocks since 1945 (as shown in Table 3), as well as with digital technology developments (as shown in Table 2), especially around pivotal cleavage dates:

**The early 1990s**: The early beginnings of Generation 1.0 largely one-way digital technology use in public governance, supporting the traditional Weberian public governance paradigm, boosting New Public Management and then helping to underpin the Neo-Weberian paradigm.

**About 2000**: It began to be accepted that government could use digital technology and data to be the prime mover in proactively delivering public value benefits to wider society and not just to improve the administrative machinery in the back-office. At this time, digital technology first began to change the shape and workings of public governance, as opposed simply to being used by it. It is probably no coincidence that the 2000 cleavage date coincided with the significant jump from Generation 1.0 to Generation 2.0 technology enabling two-way participation. This facilitated both the networked and public value governance paradigms as two different political philosophies of society arising from the same societal and technological conditions.

**From 2008:** The financial crisis, itself triggered by the use of Generations 1.0 and 2.0 technology in the banking and finance sectors spurring globalisation, gave simultaneous rise to two quite different public governance paradigms. First, lean and austerity governance and, second, a new plethora of governance paradigms and models characterised by open governance. Both were significantly enabled by new Generation 3.0 semantic-based technology but based on quite different political philosophies of society.

**About 2015**: Serious moves began to break down governance silos enabled by the increasing digitisation of both government front- and back-offices. This was in the context of further increasing globalisation with its ensuing economic growth, but scarred by rising inequalities, dissatisfaction and loss of trust in government, coinciding with significant populism and 'post-truth' movements. Both were pushed and pulled by Generation 4.0 distributed and mobile technology. These developments are paired with a significant increase in the availability of data (including personal data) and challenges related to data gathering, capture, access and sharing.

**From 2020**: A new age of more or less continuous crisis, disruption and turbulence seems highly likely. Although the groundwork was arguably laid in the 2008 financial crisis, this was turbo-charged first by the COVID-19 pandemic commencing in 2020, then by the Russian invasion of Ukraine in 2022, as well as the even greater threats posed by the ever increasing environmental and climate crisis. New forms of public governance are undoubtedly required to meet these existential challenges, so it is also imperative that we design and implement more appropriate digital technologies. Whether the putative Generation 5.0 technologies and the Fifth Industrial Revolution, portending dramatically new relationships between humans and machines that aim to put people in control, will suffice remains to be seen (see Section 5.1).

## 8.2 Summary of insights from existing public governance paradigms

It is noteworthy that the types of public governance models and paradigms change in character and increase in variety over time. Chronologically, they change from a small number mainly concerned with process, administration and organisation, drawing their justification from an increasing array of 'good governance' public values, towards a much larger number with a clear public value focus that is directly conceived to address important societal challenges. This switch around the year 2000 coincides exactly with the big uptake by public governance of digital technology starting with Generation 2.0 interactive technology acting as a highly significant enabler, as well as to changing politics and policies.

From 2020, **a step change now seems to be taking place mainly influenced by a series of** turbulences that challenge previously established relationships and have major impacts on the geo-political landscape. These changes seem to be due to: (i) the huge variety of ways different countries and authorities react both politically and organisationally to their churning socio-economic, environmental, cultural and historical situations; (ii) the influence of external factors and crises; and (iii) the increasingly diverse possibilities enabled by innovative digital technology. This is so even in a Europe that has had great success over at least the last 15 years in coordinating and learning across countries, for example through the EU's eGovernment Action Plans (such as European Commission, 2016a), the 2020 Berlin Declaration on digital society and value-based digital government (European Commission, 2020f), the Lisbon Declaration of 2021 on digital democracy with a purpose (Portuguese Presidency, 2021) and the 2022 Strasburg Declaration on the common values and challenges of European Public Administrations underlining an overarching support of open source and interoperability within the public sector (Presidence Francaise, 2022).

### 8.2.1 Digital technology and public governance are intertwined

- Everything is inevitably influenced by digital technology, and it is better to explicitly account for that, than ignoring digital.
- Yet, digital technology and digital data are best seen as necessary but never as sufficient tools for public governance. Their deployment is always mediated by organisational, institutional, legal, ethical and social conditions, as well as challenges such as digital exclusion.
- Considering the many and diverse interrelationships between all actors of public governance, digital data and technologies might be considered at the only possible way to reach transparency, accountability and inclusiveness.
- The complex roles of digital technology and human-technology relations need to take account of how peoples' quality of life, values and ethics are impacted by increasingly omnipresent machines, burgeoning surveillance by both public and private sectors (see, for example, Zuboff 2019), as well as the 'post-truth' society, 'black-box', impenetrable and inevitably biased AI.
- The mix of public governance paradigms in any one place and time, including across multi-governance levels, is an important contextual response to prevailing political, socio-economic and cultural differences. However, these responses and mixes may or may not be successful, so governing this mix is a crucial issue where the deployment of digital technology is necessary.
- To cope with the challenges of our times, we thus need public services that are digital-ready and interoperable by design – across borders, across sectors, and across different levels of administration.
- We are still in an era of understanding the best (context dependent) ways of using digital data and technologies for the public good, and a rich set of diverse experiments still yet to be completed or entirely conducted to complete an entire wave of digital transitions of public governance[17].

### 8.2.2 Public governance evolving features and influencing factors

- Political, policy, socio-economic, environmental, historical and cultural factors, especially societal-wide and often international shocks and crises, are the strongest influences on public governance developments.
- The public governance paradigms sketched in Figure 1 accumulate layer upon layer resulting in a form of sedimentation over time. Each of the nine paradigms identified between 1945 and 2019 (each with one or more models) continue to have relevance today, although the more recent novel and emerging paradigms tend now to be more dominant but perhaps only because collectively they are more numerous.
- These public governance paradigms do not form a linear progression where one replaces the other but represent a process of co-evolution. According to Aristovnik et al (2022) "Due to the constantly changing environment, public governance models have transformed many times, creating differences in public governance practices among public administration institutions, with combinations of contradictory structures and principles that coexist." Differences can also be seen between central and local governments in the same country (e.g. Slovenia), underlining the importance of re-visiting multi-level governance, and to elaborate on possible evolutions of the original approach – especially as applied within the EU (within and across countries; see Section 7.4.3).
- It is the actual 'mix that matters' (Bevir, 2013) The mix of paradigms and models at a specific place and time depends on the context of global, national and local politics, as well as history, culture, socio-economics, environmental factors and the political choices made. This mix may or may not be a successful arrangement, so governing this mix is a crucial issue where the deployment of digital technology is necessary.
- Co-creation, and thus generative and emergent governance paradigms, seem imminent. Both tacit and codified knowledge are a powerful combination for learning, identifying good practices of successful transformations, and thereby for widespread co-creation, replication, scaling and knowledge sharing. At least up to 2020 only promising examples are seen without a truly systemic approach at EU or national levels. It is not yet clear what a balanced approach, which applies representative methodologies to some societal challenges while investing in more participatory approaches in others, might look like. Revisiting

[17] See for example, Kert, Vebrova and Schade (2022).

Ansell and Torfing (2021), these deliberations on co-creation might be further divided into co-initiation, co-design, co-implementation and co-evaluation, as a a cyclic approach that departs from the traditional ladder analogy of Arnstein (1969) that tends to imply a hierarchy of activities.

— The most desirable re-balancing of power and responsibilities for future-proof public governance still needs innovation and experimentation so is yet to be found, as explored in Section 7.4.3. This will also require a cultural change within public institutions that tend to be risk averse. These risks are often seen in the short term (for example, but not only, connected to election cycles) but without considering the longer-term risks of not rebalancing power relations, and experimenting with new approaches to public governance.

## 8.3 Overall conclusions

The overall purpose of public governance as addressed in this report is to promote the prosperity, wellbeing and flourishing of all people and all parts of society, as enabled by nature's life-support systems. The focus is on the EU but also with a broader international perspective. The setting is (liberal) democratic systems, with their country, regional and local variations and the EU as the overarching level of governance. In order to promote such flourishing, this report maps both current and near-future societal challenges which are growing in complexity as global, European and more local needs and shocks pile up especially since 2020, and examines the public governance paradigms constructed to tackle these. The report first looks retrospectively in order to better understand why and how public governance across the EU has addressed this overall purpose since 1945 and especially in the last fifteen years since the 2008 economic and financial crisis. It then examines Europe's new strategic challenges in the age of turbulence since 2020, the public value benefits that can accrue if these are successfully addressed, and proposes the main public values needed to make this happen.

There is an immutable number of outstanding features of this succession of public governance approaches:

1. It is clear that successive public governance paradigms, and their constituent models, have cumulatively been determined, as well as partially shaped, by the **prevailing political, socio-economic, environmental and cultural factors**, as well as how they have responded to **societal-wide and international shocks**. This has led to a sedimentation of public governance paradigms where all those identified are either still in play, or potentially and frequently having effects.

2. The creation of **an 'ecosystem' of public governance approaches** often differentially characterises each administration, multi-governance level and combination of government and non-government actors. Over time there has been an increase in the number and type of non-government actors in each ecosystem in directly addressing societal challenges, as well as in power- and role-sharing at all levels.

3. It will **only be possible to govern these ecosystems**, and knit them together across levels and geographies, **by deploying digital technology and data** alongside and in support of human organisations and systems. Digital technology is an essential component in enabling society to actually implement such complex and heterogeneous governance models. Thus, the technology is 100% necessary for understanding both the current status of public governance and how we can successfully grapple with both the current and new societal challenges in order to promote human flourishing, although by itself it is never sufficient.

4. Overall, both the strategic challenges facing public governance from 2020 onward (Section 4) and the example sectors (Section 6) show **very strong trends towards localised relationships and transactions with significant human and physical presence but supported by Generation 5.0 technologies** (Section 5.1.1) **and Industry 5.0** (Section 5.1.2). **At the larger scales**, and especially internationally and globally, **relationships and transactions are becoming relatively more digital than at local scales**. Data from everywhere are increasingly imported into localities to help drive these localised human and physical relationships and transactions. In turn, data from these localities are exported everywhere else to drive scaled digital relationships and transactions, which is then distributed back to localities everywhere. Figure 4 shows this in the food sector.

5. Despite the danger of over-simplification, there does seem to be some **distinction between 'digital 'light' public governance models**, where the technology supports the model and perhaps changes the model but isn't necessary for its basic premise, **and 'digital heavy' models** which could not exist without the technology. There are many examples of both in this report. 'Digital light' examples include many of the local relationships and interactions in localities as mentioned above, such as the preventative public services in Wigan in the UK (see Section 4.3.1) and flexi-security labour market model in Scandinavia (see

Section 6.3.3). 'Digital heavy' examples include POLIS democracy software (see Section 7.3.2.1) and New Zealand's introduction of machine-readable rules and laws (see Section 7.3.2.10).

6. Looking at the impacts of the crises hitting Europe since 2020, including COVID-19 and the war in Ukraine, on the three example sectors (Section 6), **it is relatively easy to trace and describe the pre-crisis and the current crisis situations, but what is unclear are the details of the period starting in 2023**. However, it is certain this will be very different from the pre-crisis situation, so there is no going back to 'normality'. There is instead a claimed 'new normal' characterised by continuous turbulences. At the same time, there is a strong likelihood that many, though not all, of the trends and contours of the near future can already be seen in the current crisis situation, as illustrated for example in the work and employment example in Section 6.3.

7. Looking in more detail at impacts of the crisis-induced turbulence on the three example sectors (Section 6), both **the food and energy sectors sharply accelerated longer-term, but previously relatively weak, trends**. These include a move towards shorter value chains, more local supply and consumption and more de-globalisation and these are becoming an important part of the future ('new normal'?). This is accompanied, however, by increasing activity towards even greater European cooperation. Behaviour and attitudes have generally changed in parallel with these developments. It seems there is some certainty that these trends will continue, probably unabated, assuming the current crises of geo-political turbulence and environmental degradation continue, as appears likely.

   **Work and employment have arguably experienced the greatest shock and transformation of any aspect of the economy as a result of COVID-19** which has turned many of the pre-pandemic concerns like mass unemployment, outlined in Section 6.3.1, on their head. However, these are unlikely to remain a problem in the background for the long-term, especially given that the labour substitution potential of digital technologies is likely to increase even further in near future. There has been very significant work localisation, but mainly through tele- and hybrid-work so economic localisation has only happened to lesser extent. in fact, this is marked more by some de-centralisation of economic activity down the city hierarchy, from very large to smaller cities, whilst there continues to be some centralisation from rural to urban areas generally. The future of work and employment is thus more uncertain than for food and energy and, although behaviour and attitudes have also generally changed in parallel, these seem more unpredictable going forwards. However, for the foreseeable future, these present COVID and war triggered trends seem likely to gather pace, assuming the current crises of geo-political turbulence and environmental degradation continue, as appears likely.

8. In this context there is now much **stronger recognition of the critical role of communities and localities in delivering prosperity and welfare** and thus the importance of giving them much more agency and autonomy, compatible with wider governance structures. Although there are risks of a postcode lottery which need to be addressed, such localisation can contribute massively to resilience through the diversity, interconnectivity and experimentation they foster. The research behind this report has improved understanding of communities of interest and of practice, as well as of how people identify themselves with these communities and how values and their perception change. For example, the change from a purely economically-determined focus to a greater role for social and cultural expectations of being heard, being able to participate, and being able to rely on public institutions. (These issues are examined in more detail in the accompanying report on the community perspective.)

9. It is increasingly accepted that **nature (both organic and non-organic), as the basis of all human existence, is given pride of place in its own right at the decision- and policy-making table, and thereby must be centrally incorporated into all public governance paradigms**. If the helix analogy of societal actors is to have any credibility, it must first move from the triple to the quadruple helix by including community and civil society. Further, it is essential that it also moves to the notion of the quintuple helix with nature as the fifth actor if not, in fact, the policy-making table itself. (See Section 4.4.1.)

10. There is a growing focus on governance paradigms that are **value-based, human-centric, culturally- and behaviourally-sensitive**, that take full account of **variations in values and identities** (Scharfbillig et al, 2021) and that deploy increasingly multi-actor (quintuple helix) approaches.

11. It is also clear that the mix of both individual and ecosystems of public governance paradigms have all displayed **varying degrees of success and failure**. In fact, given the complexity and rapid change of society, this is inevitable and is also seen where, **from the same set of technologies, societal**

**conditions and shocks, different political approaches produce starkly contrasting public governance paradigms and impacts**. Politics and their decisions and policies make all the difference.

12. Despite many setbacks, undoubted 'progress' has been made since 1945 in improving societal prosperity and wellbeing, but this is now being stalled and even reversed by the huge shocks of the past few years for which most governance systems were ill-prepared. **Living with this turbulence and, indeed, still improving prosperity and wellbeing while it continues, requires much awareness and honest learning**. It requires the application of lessons about what works and what does not from both successes and failures which should be dispassionately delivered but have instead often been forgotten or ignored. (McKinsey, 2017)
13. **Despite the significant de-globalisation currently taking place, the world nevertheless continues to become more interconnected**, in fact hyper-connected. This lack of learning is having increasingly detrimental effects over wider and wider areas and contexts, and this threatens to become more damaging in future. Politically-inspired transparency of vision, mission and far-sightedness are valuable ingredients to add to the recipe of learning and experimentation, but political dogma and blindness, of whatever hue, are the greatest threat to both, and thus to prosperity and wellbeing on a healthy planet.
14. Within the setting scoped by the above, this report has especially investigated **the role of digital technology and data**, given that both are unelidable constituents of our daily lives and also have a necessary role in driving change. It is critical that we understand which changes are desirable, which are not, and to provide scientific advice to support the required policy actions to improve prosperity and welfare going forward, despite the surrounding turbulence.

In the light of all the above, one of the important future activities is to learn from the results we already have, to foster a rich set of diverse experiments and to enable uptake and adoption of value-based, human-centric and co-created approaches in contexts where this makes sense.

## 8.4 Recommendations for action and research on present and future European public governance

The recent crises have already set back decades of public governance progress that had earlier, and despite much unevenness, led overall to the greater prosperity, wellbeing and flourishing of most people in most parts of society, and that had begun to make some progress in addressing the vulnerability of nature's life-support systems. At the same time, however, the crises since 2020 also provide opportunities to rethink how public governance and the role of digital technology can assist Europe in getting back on track. **European societies are ready for new ways of thinking and accepting bold policy and public governance changes, but the next five years are critical to redirect the course of development.** We are at a critical juncture to take action if we are to realise a socially just transition towards new paradigms that again increase societal-wide flourishing. This research has identified four strategic challenges that now require urgent public governance action and research, although this is not to imply that there are no other challenges likely to arise (see Section 4):

**Living with turbulence**: Public governance needs to accommodate shocks and crises by moving to more resilient paradigms that move away from traditionally-determined efficiency criteria by anticipating and mitigating turbulence by prioritising diversity and interconnectivity, and reject dogmas through free and informed criticism. . The goal is to be equipped to react better, more nimbly and more timely to unexpected events as well as longer term risks, including environmental breakdown, whilst still providing as much continuity, stability and predictably to society as possible. This should be the case even when it decreases some short-term efficiencies given the clear evidence of the societal damage prevented, including the improved long-term efficiencies that can instead be realised as, ultimately, this is the mandate of public sector governance. There should be increased focus on the EU's values and open strategic autonomy in essential policies, goods and services choice, also through multi-governance levels where beneficial. Cyber threats and other known risks also need continuing focus, as does seeing resilience in social and economic, as well as environmental terms, given these are all intimately interrelated.

**Changing geographies**: Changes to Europe's geo-political position have been turbo-charged by the recent turbulence creating new global realignments that are reshaping the global geo-political landscape economic and security arrangements, and their political manifestations. New EU public governance at all levels needs to draw upon and strengthen the EU's values and principles if these changes are to be successfully addressed. Sub-national level trends include the growing importance of small cities and larger towns within the hinterlands

of very large cities which, sometimes excepting capital cities, are themselves decreasing in importance driven by digital work, learning, shopping, etc. There is also a very strong resurgence of local economies and identities linked to efforts to retain as much as possible of locally-created value within the locality. This is seen, for example, by residents becoming more aware of their locality and community as well as the economic benefits of local production and consumption, with local governments focusing much more on local democracy, partnerships and procurement. Urban, rural and community-level geographies are also changing in directions that both accelerate existing trends and carve out new pathways, especially ones that prioritise decentralisation within strong national and EU structures, in order to ensure just transitions for all wherever they live.

**Hybrid human-centred relationships**: Traditional welfare state public services, first designed in the early post-1945 period, are no longer fit for purpose. The new age of turbulence, coupled with rapidly changing demographics towards greater cultural and ethnic diversity and an increasingly aged population, require public services that prioritise the prevention or slowing of social and economic misfortunes affecting individuals and communities especially manifest at local level and through community-based solutions. Such a shift can be both economically efficient as well as socially beneficial and, especially when meeting the needs of the most vulnerable, requires strong human relationships alongside hybrid service delivery mechanisms to be successful. Resilient structures across all multi-governance levels are necessary to delivery such solutions with a focus on justice, fairness and inclusion by design.

**People-planet systems**: Arguably the greatest challenge that public governance has arises from the scientific facts that climate change, biodiversity loss and other stresses on nature are having profound deleterious impacts on the functions of societies and on the lives of their inhabitants. The needs of a flourishing society are bound together with a flourishing nature, both organic and inorganic, so nature must be centrally incorporated into all public governance paradigms. This should involve moving on, from a concept of sustainability that aims only to keep what we currently have through conversation and preservation, and instead aims to regenerate what we really need. This will also involve public governance that better understands the complex dynamic systems that intricately link human societies with natural systems.

The above strategic challenges, if successfully addressed by public governance, will provide highly significant **public value benefits** across all European societies. As originally identified by Kelly et al (2002), such public value can be evaluated both in terms of level 1 services, focusing largely on only individual benefits, as well as on level 2 outcomes focusing on collective societal benefits that can more successfully address societal challenges (see Section 2.3). In this context, a future focus of research might also address the semantic as well as a difference in practice between what the public 'wants' in terms of benefits compared to what the public 'needs'. 'Wants' clearly reflect the consciously expressed preferences of the public, whether as individuals or collectively, which may be contradictory, unethical or illegal, and tend to be derived bottom-up through expressions of agency. In contrast, 'needs' require some more objective definition of what is necessary for an acceptable standard of living or a good fulfilling life, which implies some structurally imposed decision-making or assessment process that may or may not be democratically driven. A good example of such a needs-based approach are the definitions and distinctions between 'absolute' and 'relative' poverty and how to escape from them (endPoverty, 2023).

This also requires further action and research into the **European public values and principles** as the means necessary to deliver these public value benefits. Over the last few years there has been a great push on value-based governance through, for example, the Berlin Declaration (European Commission, 2020f) that takes the user-centricity principles a step further by strengthening the pioneering role of public administrations in driving a value-based digital transformation of European societies, and on digital rights and principles (European Commission, 2022l) that presents the EU's commitment to a secure, safe and sustainable digital transformation that puts people at the centre, in line with EU core values and fundamental rights. There is a clear need to build on these initiatives in the years to come. In support of this, as outlined in Section 7.3.2, this research has outlined ten key public values necessary for designing the new public governance needed in the age of turbulence and that build on and/or supplement those prior to 2020. These are: democracy and power relations; trust and trustworthiness; risk governance and crisis management; regulation; public sector innovation, experimentation and learning; behaviour, values, principles and culture; new innovation frameworks and mission strategies; public governance management and integrity; future proofing; and policy coherence, coordination, alignment and evaluation. These ten are likely to be insufficient to meet future public governance challenges, so on-going research will also be needed to identify how they should develop in order to optimise European public value and, specifically, address the four main strategic challenges identified above.

Action and research are also critically needed to develop and deploy the 'third generation' of EU multi-level governance systems that might be characterised as one that addresses inter- and intra-institutional

relationships, suggestions to achieve true transparency, accountability and inclusiveness in the entire system, also by making the most appropriate use of digital technology, ultimately aiming at increased trust between all the actors within the EU and interfacing in the best possible way with those outside (see Section 7.4.3). It also specifically moves towards various forms of '**generative public governance'**, i.e. that are sufficiently flexible and resilient to enable specific emergent governance forms to be created in particular contexts for particular purposes such as unexpected shocks The main mechanism behind generative public governance is co-creation that both builds on and extends the concept of collaborative governance and enables a strategic turn aimed at solving complex and sudden problems. However, there are also dangers in adding additional layers and complexity to public governance systems composed of multiple levels and forms, especially as seen from the perspective of citizens and other actors, so that a joined-up, whole-of-governance external face is definitely required. Such complexity, especially when locally-embedded and nuanced, multiplies the numbers of actors and relationships and potentially adds to the 'silo' problem. As pointed out in Section 4.2.3, however, it is often at the local level that it is easiest to break down governance silos and link across actors and sectors given their smaller and shorter interaction and transaction chains and much more shared and fine-grained knowledge, both implicit and explicit, about local conditions and contexts. **None of this is hardly feasible without the appropriate use of digital technology, although the sufficient conditions for this are only forthcoming as the politics and policies change.**

Overall, it is clear that it is the precise mix that matters in any given situation, so that co-creative contributions are allowed, supported and empowered to come from anywhere in the system. However, this must focus on the challenges that are best addressed by those actors taking responsibility, possibly as an advanced interpretation of subsidiarity and proportionality, as well as ensuring overall governance coherence rather than a wild west jungle.

## 8.5 Recommendations for action and research on the ongoing deployment and development of digital technology and data

The research outlined in this report has unambiguously shown that political, policy, socio-economic, environmental, historical and cultural factors, especially societal-wide and often international shocks and crises, are the strongest influences on public governance developments. However, **since the early 1990s such developments have also been decisively shaped and enabled by digital technology and data that have become necessary, but not sufficient conditions for the changes seen**. Moreover, it is clearly the case that the strategic challenges outlined above cannot be successfully addressed without digital technology and that it will not be possible to govern the public governance that now needed without it.

Strong research focus is thus needed on designing **human-centred digital technology** that focuses on real people and real peoples' lives where the human, human-touch and human control are more important than the digital, but where public value can be enhanced by the digital. Digital 'sanitisation', in the sense of audits that reduce or remove the digital where this does not add value but instead increases digital divides, should take place. This should also be the focus even where such reappraisals decrease some short-term efficiencies given the clear evidence of the societal damage prevented, including the improved long-term efficiencies that can be realised. This is how the public sector fulfils its mandate of creating value, through making a balanced, just, lawful human and nature centred contribution to public governance.

Such human-centred (and also human-nature) approaches to digital technology should also be the focus of research into the putative **government Generation 5.0 technologies** (see Section 5.1.1) that cumulatively build on earlier generations. This should progress in parallel with the anticipation of **Industrial Revolution 5.0**, which also cumulatively builds on earlier revolutions, and envisages humans and machines performing work hand-in-hand. Combining the unique cognitive abilities of workers and the accurate technical expertise of, for example, robots can better promote an innovative and productive culture in the workforce (see Section 5.1.2). A specific manifestation of such an interrelationship between the human and the digital is illustrated by the beginning of changes to food systems where the local remains best served by human and physical relationships and transactions, whilst data from these localities is digitally distributed everywhere to drive scaled digital relationships and transactions, which in turn are re-distributed to localities everywhere. This is also an example of increasing food resilience through nature-intrinsic diversity plus interconnectivity (see Section 6.1.1).

Interconnectivity can also be enhanced by research supporting **interoperability by design** across borders, across actors, across organisations and across sectors and, above all, across Europe's multi-governance levels. In a European context, this is likely to be taken further forward by the December 2022 proposal for the **Interoperable Europe Act** to introduce a framework of cooperation between EU Member States and EU

Institutions. The aim is to secure the cross-border exchange of data and agree on shared digital solutions, such as open-source software, guidelines and frameworks, and will provide incentives for innovation in the public sector and for ''GovTech" projects, based on public-private partnerships (European Commission, 2022k). Ongoing research is also needed into understanding the best (context dependent) ways of using digital data and technologies for the governance of society and the public good. This **requires a rich set of diverse experiments** that are ongoing and continuous to ensure that successive digital transitions of public governance support these goals. Data is a key resource in the digital economy, and control over the way it is generated, aggregated, value is extracted and equitably distributed in society is crucial. In particular, the rise of AI and IoT offer new opportunities for policy design, implementation, and assessment, as well as for providing more personalised support to those who need it and for being more participative throughout the policy cycle.

In this context, the **2022 European Data Governance Act**, based on EU values and principles are designed to bring significant benefits to EU citizens and companies by increasing trust in data sharing, strengthening mechanisms to increase data availability and overcoming technical obstacles to the reuse of data (European Commission, 2022a), needs ongoing research. The focus should be on ensuring this initiative can be a powerful engine for innovation and new jobs allowing the EU to ensure that it is at the forefront of the 'second wave of innovation based on data'.

In terms of digital governance, in addition to algorithmic bias, competition/anti-trust, privacy and surveillance, **important values such as human rights, the rule of law, trust and transparency, are critical to guide digital governance**. Ensuring data privacy and countering misinformation is essential for building trust and trustworthiness, and to facilitate technology adoption. In order to democratise digital governance, a multi-actor social dialogue on what the moral and political obligations are, as well as mechanisms to facilitate them, will be crucial to combat both socio-economic and digital inequality. Democratising technology means that the control of technology should ultimately rest with all relevant actors, and that technology should be transparent and held accountable. Digital governance systems will need to deploy tools to address the unequal distribution of income, wealth and control of technologies.

In particular, **Artificial Intelligence (AI) is revolutionising the way we live, work and govern**. There is a need to better forecast possible scenarios of how these technologies could be used, the skills they might require, and the policies and regulatory frameworks needed at the national and international levels. There is a pressing need to ensure transparency, trust and accountability in how technologies and data are managed and used. Opacity in relation to the collection and use of data threaten personal freedoms and individual rights. Algorithmic biases threaten to widen inequalities. Discriminative data collection (unintended or intended) can harm vulnerable populations without access to proper recourse mechanisms. Currently, these mostly take years and are often out of reach of many people, so new independent and effective institutions that directly represent ordinary people subject to AI decisions should be set up, for example in the form of a digital ombudsman. This is important as **AI is qualitatively different from most other technologies as it is often difficult to understand why and how it makes decisions**, even for the developers themselves and certainly by most of those applying it. Technological design can exclude people with limited connectivity or hardware access. These risks call for a transparent and robust regulatory framework with accountability mechanisms that can assess the impact of technology on people over their life cycle.

An indication of how fast AI is developing and how great the potential impact could be, is the launch of the *ChatGPT* in November 2022[18], since upgraded several times and joined by competitors in a global race. By drawing on the vast amounts of data across the internet, so-called 'generative AI' can produce human-like conversations on a wide range of topics by generating text, images, music, speech, code or video that is increasingly difficult to distinguish from that made by humans alone. These developments are *significantly impacting European* society and accelerating the digital transformation of various industries, such as transportation and healthcare. *While the increasing adoption of AI can bring a vast range of potential benefits, it also presents new challenges and risks that need to be addressed*, not least disinformation and misinformation, large scale threats to jobs as we know them, and significantly greater threats arising from data bias that is increasingly difficult to detect. In response, the European Commission (2023) has put forward an ambitious strategy aimed at fostering AI excellence in Europe and ensuring that AI systems are trustworthy and protect the safety and fundamental rights of European citizens. Ongoing research and action in this area are paramount.

[18] https://openai.com/blog/chatgpt

Finally, ***contextual technology assessment*** is necessary prior to adoption (e.g. through sandboxing and experimentation on real world conditions), also by incorporating measures for transparency, for example, periods for public comment, and consulting all relevant actors during the problem framing and development process. Establishing robust procurement procedures for technologies supplied by private corporations for the purpose of public governance can increase trust and accountability by using *specific contractual clauses and audits to address 'black box' proprietary systems*. Inclusive assessment procedures help answer questions such as: "What is the identified problem?", "Is technology the best solution and use of resources?", "Is this technology sustainable?", "Who receives the benefits and who is harmed?", and "What accountability procedures need to be in place to grant its lawful, just, and respectful use in compliance with human and nature rights?".

It is undisputable that digital technologies may transform virtually every process, system and structure of government and of public governance - resulting in redefinition of power, roles, responsibilities, and effect on all aspect of life. Nevertheless, they also create issues and trade-offs that merit careful consideration and preparation before a full-blown change is introduced.

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## List of key abbreviations

| | |
|---|---|
| 1IR | First Industrial Revolution |
| 2IR | Second Industrial Revolution |
| 3IR | Third Industrial Revolution |
| 4IR | Fourth Industrial Revolution |
| 5IR | Fifth Industrial Revolution |
| AI | Artificial Intelligence |
| CWB | Community Wealth Building |
| EC | European Commission |
| IoT | Internet of Things |
| JRC | The European Commission's Joint Research Centre |
| OECD | Organisation for Economic Co-operation and Development |
| SDGs | Sustainable Development Goals |
| UN | United Nations |
| WEF | World Economic Forum |

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