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THE DIGITAL ECONOMY AND THE NEW SOCIAL CONTRACT

CONTENTS

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EXECUTIVE SUMMARY

"The Digital Revolution and the New Social Contract" is a multiannual research project of the Center of the Governance of Change at IE University composed of four work packages addressing the impact of technology and digital developments on existing social structures. This report analyzes the key findings of the eight papers published within the first work package of the project focused on the digital economy. The papers aim to analyze the social impact of the digital economy and the resulting power relations and start drawing preliminary conclusions on how the social contract needs to evolve to respond to the new reality.

The papers are multidisciplinary and diverse in their conception.[1] They combine the analyses of senior and more junior academics from top research centers in the field, such as the Fletcher School at Tufts University, the Humboldt Institute for Internet and Society, the Oxford Internet Institute at the University of Oxford, the Institute for Innovation and Public Purpose at University College London, and the Centre for Digital Governance at the Hertie School, with those of practitioners from the Joint European Disruptive Initiative (JEDI), think tankers from CEPS and the Elcano Royal Institute, and activists from Apadrinaunolivo.org and Asociación por la Resiliencia del Alto Mijares (ARAM).

All authors have a proven trajectory in the areas of the digital economy they covered, and their perspectives provide policymakers with useful insights, and concrete policy recommendations, that enable a better understanding of the socioeconomic consequences that the digital economy is generating, and how to address them.

The papers were written in a context of increasing uncertainty and complexity, which should be added to the existing difficulty of managing the transition toward a digital economy.

> The increased cost of living, geopolitical tensions, and climate change, among others, raise the stakes of getting the digital transition right.

Still, there are opportunities in Europe arising from the decisive bet of the European Commission on a people-centric digital economy, as demonstrated by the EU's industrial strategy, by the legislative initiatives on tech, and by the funds committed to digital investments.

Throughout this report, which summarizes and analyses the main findings, we have categorized the papers into three levels. For each of them, we have identified the main learnings for a possible new social contract, the key implications, and the new questions that have arisen from the research conducted thus far. The levels of analysis are the macro (international political and economic), meso (societal and institutional), and micro (group and individual) level.

THREE MEGA THEMES

Out of the topics and learnings covered in the papers, three mega themes stand out. Firstly, as hinted already, it is important to deconstruct the perception that technology and the digital economy are the solutions to deep social problems.

1 The eight papers can be found under: https://www.ie.edu/cgc/research/new-social-contract-digital-age/

Technology is designed and built on top of institutional structures. The dynamics of these legacy institutions are also part of the causes of a lack of innovation, access to finance, inequality, etc. in our societies. Technology on its own replicates those dynamics, and thus, cannot be the remedy for social problems. It cannot be expected that technology will replace institutions, since it is the product of human design and is, thus, biased; or modify social behavior and trends that are deeply entrenched in our social fabric.

Indeed, technology can reproduce and entrench some of the social injustices of our systems because it requires humans, socialized in the current institutional framework, to invent, design, code, and govern this new technology. Erasing social problems is part of a larger effort that demands trust and legitimacy in the relevant authorities, and institutional and social reform. These are, again, social and political concepts that transcend technology. Consequently, it is wrong to place overly high expectations on technology because they will not be met, and disenchantment will follow.

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Institutions, which have previously not satisfied citizen demands, are now under closer scrutiny and criticism.

Secondly, trends in the digital economy reveal that institutions, which have previously not satisfied citizen demands, are now under closer scrutiny and criticism. Many of the developments in the digital economy, such as blockchain and crypto, aim to replace existing institutions and structures of authority because they failed in the past in the eyes of many. They have lost part of the trust and legitimacy they previously enjoyed, which has partly shifted towards technological solutions to deal with institutional mandates. Institutional disappointment has also favored the rise of polarization and extremism across democratic societies, which makes social cohesion and solidarity harder to articulate. This hinders gathering support for minorities and disconnected communities in our societies. The lesson is clear: technology, under a solutionist mantra, will not do the job; current institutions need to be reformed to gain public trust back. They need to demonstrate they are proactive, agile, and prepared to solve people's problems, especially in times of instability.

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Digital inclusion cannot be the victim of innovation.

Thirdly, digital inclusion cannot be the victim of innovation. Despite the agitated environment, a digital economy that combines innovation and inclusion is possible. Therefore, it should not be argued that there is an inevitable trade-off. On the contrary, societies need to work to find the balance that brings everyone along according to their social particularities and contexts. If inclusion is discarded as a political option or objective, it should be clear that it is not because of technological constraints but due to political decisions.

FOUR GENERAL RECOMMENDATIONS

As a result of the analyses conducted, each paper identified the implications pertaining to the specific topic covered. We encourage the readers of this report to go to the individual papers for more in-depth and detailed analysis and concrete policy recommendations for each of them. Nonetheless, four key broader recommendations are generalizable and can be applied to the treatment of the entire digital economy covered in this work package. This report also details additional recommendations for each level of analysis at the end.

01

Achieving legitimacy through input, throughput, and output in the development of a digital economy.

The first general recommendation is achieving legitimacy through input, throughput, and output in the development of a digital economy. That entails politicizing the technological field and the decisions leading to legislative action. The technological debate should not only have a technical perspective. There should be an open and transparent debate on what are the options on the table, why, and what are the criteria for decision making. Decisions should be evidence-based, but also open to contestation. Gaining legitimacy also means that results need to work for as many people as possible, or at least be somewhat related to the goals decided as part of the inputs of the democratic process.

02

Make multistakeholder collaboration, communication, and engagement the norm.

The second is to make multistakeholder collaboration, communication, and engagement the norm. Building on the previous recommendation, it is not only important to have a political debate on technology, but also to continuously engage with the groups who have the know-how and who will have a pivotal role in policy implementation. This implication differs from the previous one in the fact that not only should there be a politicization of the debates on the digital economy, but also an active engagement of diverse groups in the policy design, policymaking, and policy implementation and delivery process in a coordinated and continuous manner.

There are valuable insights and inputs for policy on the digital economy disseminated across different parts of society. Digitalization is transversal, and multiple agents are affected and can affect how it develops. Structuring the digital economy without listening and testing proposals with entrepreneurs, corporations, academia, civil society, etc. will prove counterproductive, rigid, and ineffective. Therefore, silos between public institutions and departments, the public and private sector, and different private agents must be broken, and formal and informal methods for collaboration put in place. Technology can, of course, be a facilitator in this bridge-building process, if correctly used.

03

Adaptation of the public administration and public institutions to the digital revolution.

The third policy recommendation is the adaptation of the public administration and public institutions to the digital revolution. Better policy formulation in the digital age requires changes in organization and capabilities. To pursue shared goals in the digital economy, the public sector will need to bridge the differences and reluctance of institutions to cooperate in pursuing the same goals. Additionally, the capabilities of the public sector must be updated, regularly revised, and to some extent enhanced, to understand the challenges of the digital economy at each moment. Tasks such as algorithmic inspection may become the rule in the future. This implies that new capacities, skills, and organizational methods will be needed within the public sector to cover the needs of society and remain a trusted actor. The aim should not be a larger or stronger, but a smarter state.

04

Engaged private sector is pivotal in ensuring the success of the digital transition and the new social contract.

Lastly, an engaged private sector is pivotal in ensuring the success of the digital transition and the new social contract. Companies need to actively seek partnerships within the private sector, with the public sector and civil society to identify new opportunities that help address the current flaws of the digital economy. They also should take responsibility in redressing the issues of trust in established public and private institutions by increasing transparency in their regular and digital operations. Public access to anonymized data for evidence-based public policy should be the norm. Furthermore, there should be more focus on their role as social actors and gatekeepers with social responsibilities, and thus help address the needs of the groups who need more support. Overall, a move from shareholder to stakeholder capitalism would be welcomed.

This report already raises some questions about the implications of the digital economy on data. That is why the next work package of this project focuses on data privacy and governance. Furthermore, the authors touch briefly upon the geopolitical implications of the digital economy, especially in the context of increased great power competition and Europe's chances to shape global policies. This will be the topic of the third work package of this project. The answers to all these questions will point to how the new social contract should be orchestrated to adapt to the new reality and social dynamics of the digital economy. Indeed, the articulation of the new digital social contract with concrete policy recommendations will be the content of the fourth and final work package of this project.

INTRODUCTION

Digitalization has produced profound changes to the social structures and agreements that dominated our political systems; in other words, the digital revolution has changed the social contract. The Von der Leyen Commission made clear in its early stages that one of its two key policy priorities was the digital transformation of our economy and society. The European Commission, along with the European Parliament and the European Council, have taken a clear stand on what is the core principle that should dictate the revised (digital) social contract: a people-centric digital society that puts humans at the center of initiatives and reforms, as well as European values and fundamental rights.

The position of the European Commission to prioritize the digital transition makes the work of IE's Center for the Governance of Change especially timely and relevant in advancing the understanding of technology and its impacts on society. That is why over the past 12 months, the project "The Digital Revolution and the New Social Contract" has intended to discover how the digital economy is impacting social and power relations, and what the best practices are in dealing with these disruptions.

We have published eight papers on the different aspects of the digital economy. The aim was to understand the potential implications of digitalization for the social contract. This report intends to synthesize and extract the key insights from the eight papers produced. The papers approach the digital economy at three levels of analysis: macro, meso, and micro. By looking at the digital economy and its implications from these three levels, we provide a more comprehensive and structured picture of the dynamics at a wider political, economic, and international level; at a societal level; and the group and individual level.

The correspondence of papers to each level of analysis, as well as to the interlocutor each paper is addressed to, is the following: [2]

	LEVEL OF ANALYSIS	PAPER	INTERLOCUTOR
	**Macro level:** International political and economic level	Technological foresight	Public sector
		Can the EU Digital Markets Act achieve its goals?	Public and private sector
		Digital inclusion vs innovation momentum[3]	Public sector
	**Meso level:** Societal and institutional level	Is there social value in crypto economics?	Public and private sector
		Public sector artificial intelligence strategies	Public sector
	**Micro level:** Group and individual level	Cultivating resilience in rural areas	Public sector and civil society
		Supporting SMEs in the digital transformation	Public and private sector
		Closing the digital skill gap	Public sector and civil society

2 The eight papers can be found under: https://www.ie.edu/cgc/research/new-social-contract-digital-age/

3 This paper fluctuates between the macro and meso level, because it identifies a wider international political and economic trend, while it deals with the concrete social and institutional decisions made in each country.

Our aim with this report is to identify the main learnings from

1) the different aspects of the digital economy covered in the eight papers,
2) the implications for the social contract, and
3) the key recommendations for policymakers.

For each level of analysis, we map the general learnings inferred and address the specificities of each paper.

CONTEXT

The project kicked off in October 2021. In the months that have spanned since the project began until the writing of this final report, the world has changed a lot. Those changes inevitably impact the way that digitalization rolls out, the meanings of technological developments, and the consequences on social (and global) relations.

Some of the dynamics pointed out in this section had already initiated but were part of a longer-term shift whose complete symptoms and consequences had not manifested or were not fully identified as such. One of them was the return of great power politics. In 2018, the US-China trade war began, and it has not been resolved yet, nor is it likely to end anytime soon. What was initially perceived as a Trump stridency, seems to be in line with bipartisan US foreign policy positions. This geopolitical confrontation has important implications and roots in the technological race.

Another trend related to great power politics was the return of war. Indeed, the world has not been short of wars since the end of World War II. But it was not until February 2022, when the West woke up to the Russian invasion of Ukraine, that the shock was great enough to signify a change in paradigm – in Europe at least. As a result of the war, not only has the perception of global dynamics changed, but material conditions have also altered. This context would have been unbelievable a year ago.

Other recent events only confirm the trend, such as the tensions in the Taiwan Strait after the visit of Nancy Pelosi to the island. The visit has exacerbated the looming possibility of important microchip shortages in case of an open conflict, in an already constrained industry that is pivotal for digitalization. It has also exemplified the trend of digital nationalism seen both in the US and the EU, which aim to re-shore and control the production of digital goods.

These events are coupled with those of the global Covid-19 pandemic outbreak in March 2020. The pandemic pushed for lower globalization and more regionalization of value chains once countries realized that in moments of global distress, global cooperation and dependence are hard to preserve. Furthermore, the pandemic created the momentum to bet even bigger on the green and the digital transitions under the banner of building back better.

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All these changes affect how we theorize and prepare for the future.

In this section, we will analyze the context in which the digital economy is developing through both short and long-term challenges and opportunities.

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Short-term and long-term challenges will have an impact on the development of the global digital economy, as well as on the players involved.

THE CHALLENGES

Many analyses portray the increasingly uncertain context we live in. From the 1990s, the end of history, and the triumph of democracy over authoritarianism, today's world is characterized by realities that we did not expect to see back on stage: war, inflation, great power competition. This new context impacts digitalization and the way it unfolds. Short-term and long-term challenges will have an impact on the development of the global digital economy, as well as on the players involved.

Short-term challenges

In the short-term horizon, there are two main sets of challenges to the development of the digital economy. These arise from
1) the Russian invasion of Ukraine and
2) the twin transition: green and digital.

These challenges, despite not directly related to the digital arena, require short-term attention from the digital ecosystem, since they will impact social conditions and social readiness to participate in the digital revolution.

Firstly, **the invasion of Ukraine** by Russian forces on the 24th of February 2022 made democratic societies realize that democracy and its way of living cannot be taken for granted. The war has had (and still has) terrible consequences for Ukrainians and, in many ways, for the livelihoods of millions of people across the globe. Some of the consequences are a) inflation, b) constraints in energy supplies, c) food insecurity, and d) higher interest rates, with relevant impacts on participation in the digital economy.

As a consequence of the invasion, **inflation** has skyrocketed. In October 2022, the EU annual rate of inflation was 10.7%; 7.7% in the US. The main drivers were energy and food, both unavoidable purchases (Eurostat, 2022; US Bureau of Labor Statistics, 2022). Therefore, inflation impacts more severely and disproportionately the most vulnerable, whose purchasing power and disposable income to participate in the digital economy have dropped.

Simultaneously, the invasion has **constrained energy supplies**, particularly in Europe. Since the early days of the invasion, the EU approved several sanction packages targeting first financial assets and then Russian energy (and other products and services), despite substantial EU energy dependency. Lower Russian energy supplies have only accentuated the pre-existing supply constraints in the energy sector during the pandemic recovery. Consequently, only in the first trimester of 2022, prices of crude oil doubled, coal tripled, and natural gas prices were five times higher than in the same period of 2021 (Ari, et al., 2022).

Another consequence of the Russian invasion of Ukraine is **food insecurity**. Ukraine is one of the most important grain producers in the world. The Russian invasion has produced the blockade of thousands of tons of grain on Ukrainian soil, and has destroyed arable land, which will extend the food crisis in the future. The impact will affect the Global South, with FAO estimating the number of additional undernourished in 2022 and 2023 ranging from 8 to 13 million people (2022), and the Global North, with increased pressure on food prices.

In response to rampant inflation, driven by energy and food price increases, central banks have resorted to **interest rate hikes**: the ECB had increased the three main rates by 0.5 percentage points (pp), the UK by

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The growth of the online economy implies, to a certain extent, the replacement of economic activity from the offline to the online world.

0.5 pp by August 2022, and the US had already gone from 0% interest rates at the beginning of the year, to 2.25% in July (ECB, 2022; HM Revenue & Customs, 2022; Country Economy, 2022). Higher interest rates translate into families finding it harder to service their mortgage and debt payments, and SMEs and companies having more difficulties receiving credits and finance to digitalize their businesses.

As mentioned before, the consequences of the invasion of Ukraine (inflation, constraints in energy supplies, food insecurity and interest rate hikes) influence the digital transition because they have a disproportionate impact on the most vulnerable groups. Therefore, those who are disadvantaged have less disposable income available to invest their resources (e.g. acquisition of devices) and time (e.g. training in digital skills) into getting ready for the digital transition. The war thus makes the digital economy progress without everyone on board.

Secondly, the next set of short-term challenges derives from the **twin transitions** the European Union ambitions to lead in. The **green transition** implies important investments to change our production and consumption models in the short term. Despite the quasi-global agreement to limit temperature rise to 1.5° C above preindustrial levels, the IPCC 2022 report reveals that we are far from achieving the goal (IPCC, 2022). New technologies are a key lever to achieving a more environmentally friendly economy. Still, the digital economy requires substantial energy consumption and generates abundant electronic waste. Therefore, environmental considerations are important for the development of the digital economy.

As in the energy transition, the decisions pertaining to the **digital transformation** will be complicated since there will be winners and losers. Digitalization and connectivity have impregnated our daily lives. An example is the number of smartphone subscriptions worldwide, which rose by 70% from 2016 to 2021, reaching almost 6,2 billion smartphone users (Statista, 2022). The International Telecommunication Union (ITU) reports that 63% of the world's population used the Internet in 2021 (2022). The World Bank (2022) estimated in April 2022 that the digital economy represents 15.5% of global GDP, a significant share of the world's economic activity that is growing at ever faster rates each year.

Other estimates indicate that internet traffic in 2022 will exceed the traffic accumulated before 2016. The digital economy and online exchanges are generating enormous amounts of data, which can be monetized and create market value: in 2020, the value of the market for data was around €200 million, €80 million, and €40 million for the United States, the EU and the UK, and Japan, respectively (UNCTAD, 2021).

The growth of the online economy implies, to a certain extent, the replacement of economic activity from the offline to the online world. It also involves the generation of new, unprecedented economic spaces. However, this transition is problematic because it is not equally spread

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Beyond great power competition, globalization has changed how the world operates.

across groups and countries. In terms of gender, the digital economy reflects the gender gap visible in the real world: 62% of men use the internet compared to 57% of women. Similarly, lower-income countries have only 20% of their population online, which means that 80% of their population is excluded. Approximately 3 billion people have never used the internet across the globe (ITU, 2021; World Bank, n.d.).

The increasingly difficult economic situation and unequal participation in the digital economy make digitalization more socially destabilizing. If coupled with the long-term challenges explained below, getting the new social contract right becomes more important and urgent.

Long-term challenges

Previous to the emergence of today's short-term challenges, there were dynamics already at play that not only represented risks to the post-Cold War world order, but where digitalization played (and plays) an important role. The long-term trends here analyzed are 1) the return of big power competition, 2) inequalities in globalization, and 3) the rise of Big Tech.

Since the Global Financial Crisis (GFC), the United States lost some of its international credibility and leadership. China took the opportunity to adopt a more prominent international role. As a result, the US reacted with increased hostility. The 2018 US-China trade war reflected a new context: **big power competition** had returned to the global stage.

One of the "battlefields" for this competition was technology. There is a competitive race over whose companies develop technologies first, and who deploys and operates them. Both China and the US (and the EU) understand that setting technological standards provides a key advantage for those who get there first, an advantage that is sticky and lasts over time. In addition, the potential for dual use of many technologies, and the challenge that Chinese state investment and industrial policy pose to US technological leadership, are reasons that augment US preoccupation.

Big power competition has crystalized, for example, in the case of Huawei and the deployment of its 5G network across the world, which was a major contentious issue for the Trump Administration. In May 2019, Huawei was added to the United States "entity list" of companies subject to trade restrictions (Mullen, 2021). There is another race over who acquires, has access to, controls, and uses data. Proof of this is the reluctance and calls of various policymakers in the United States to ban TikTok due to Chinese access to the private data of US TikTok users (Gregg, 2022).

Beyond great power competition, **globalization** has changed how the world operates. The disappearance of national borders and interconnections of economies

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The increasing awareness across governments and societies of the urge to act and manage changes drives the digital momentum.

created winners and losers, and left people behind: rural areas could not offer the same services and opportunities present in large urban centers, thus becoming depopulated and isolated; SMEs could not compete against multinationals and conglomerates, whose sheer size was a source of advantage; the least educated, at lower income groups or in labor-intensive sectors had difficulties in remaining employed against cheap labor in China and other South-East Asian countries. This disadvantaged position, coupled with an increasingly complex world, made these groups vulnerable to populist and extremist narratives that provide simplistic solutions to wicked problems. This is even truer as the speed of change in the world accelerates, fueled by innovations in the digital domain: artificial intelligence, big data, machine learning, robotics, cryptocurrencies…

Finally, another relevant trend is **the rise of Big Tech**. GAFAM+[4] companies have enjoyed a great concentration of power through favorable network and lock-in effects, and their ability to amass tremendous amounts of data. By July 2021, the five GAFAM companies represented over 20% of the S&P 500. Thus, big tech has become one of the most powerful and influential sectors in the world, while, until recently, remaining out of public and regulatory oversight. The extent of their power is not correctly understood by the broad public and has only now started to receive political attention, especially regarding their practices and entrenched positions in the digital economy.

THE OPPORTUNITY

Despite the many challenges briefly explained above, some opportunities have emerged. The increasing awareness across governments and societies of the urge to act and manage changes drives the digital momentum. One example is industrial policy. Once neglected as interventionist, **industrial policy** is back in the European discourse. In March 2020, the European Commission presented the EU Industrial Strategy, aiming to facilitate the green and digital transitions. These two transitions, beyond being strategic priorities for the Von der Leyen Commission, are two of the most crucial transformations our societies will face in the coming decades (European Commission, 2021).

The strategy identifies six strategic areas, two of which are directly related to the digital economy: semiconductors, and cloud and edge technologies. Furthermore, as part of the "other critical areas", the strategy includes cybersecurity (European Commission, 2021). The strategy showcases the EU's effort to build European strategic autonomy, relying more on regionalization, and production and development of key industries within Europe.

The green and digital transitions are key axes of the economic transformation of European economies in the post-pandemic world. The **Next Generation EU funds** agreed by the Member States in July 2020 aimed to support the economic recovery of the EU while pushing for the necessary investments and reforms that will promote the green and digital transformations. Funding is released to the Member States after national recovery plans were reviewed and approved by EU authorities. These recovery plans must allocate at least 20% of the

4 Google, Apple, Facebook (now Meta), Apple, and similar technology companies who control relevant parts of the digital economy

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Some countries plan to invest amounts way above the required allocation to digitalization projects, such as Bulgaria (59%), Germany and Austria (53%), Ireland and Luxembourg (32%).

funding to the digital transition. Countries are taking the opportunity to digitize their economies and bring more people into the digital economy very seriously. Some of them plan to invest amounts way above the required allocation to digitalization projects, such as Bulgaria (59%), Germany and Austria (53%), Ireland and Luxembourg (32%) (European Commission, n.d.b).

EU regulators are also trying to keep their promise in the digital field. In the last months, there have been important regulatory developments, which is evidence of the Commission's commitment to digitalization. Some of the Commission's proposals and/or texts under negotiation by the trialogue include the Digital Markets Act (DMA), Digital Services Act (DSA), the Data Act, the AI Act, and MiCA (Markets in Crypto-assets).

All these examples, among others, are innovative regulations that intend to protect consumers against the risks of the digital economy without discouraging innovation in their respective sectors. In some cases, like the AI Act, the regulation intends to become the global standard in the field, since the EU is the first major regulator to attempt to legislate AI. The DMA, DSA, and the Data Act, among other goals, try to achieve a level playing field for SMEs who compete against large digital companies and platforms. Beyond that, the DSA also aims to expand value creation through data by making data usable and accessible for more actors across economic sectors. The Data Governance Act facilitates data-sharing, and the AI Act regulates AI applications based on risk categorizations (European Commission, n.d.a; n.d.c; 2022a; 2022b; Meltzer & Tielemans, 2022; Council of the EU, 2022).

The appropriateness of these efforts in their specificity will not be assessed in this report. However, they send a clear signal about the opportunity and willingness to combine citizen protection with innovation, European leadership, and competitiveness.

In this convulse context, the papers in this first work package of the "The Digital Revolution and the New Social Contract" address how the digital economy is impacting the social and political fabric of our societies and propose a series of recommendations on how to best manage this transition.

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The current crises need to be resolved through a change in the institutional and political mindset that prioritizes long-term thinking and ambitions over quick fixes, while being agile enough to deal with the accelerated pace of technological and societal change.

MACRO LEVEL

The macro level of analysis consisted of three papers. The first one, by André Loesekrug-Petri, focuses on the urge for incorporating technology foresight in public policy. The exercise of policy foresight needs to be central (although not centralized) in the new social contract to anticipate and shape the future, and for that it needs to consider the perspectives of public institutions at all levels as well as the knowledge and expertise of businesses and civil society. Foresight should thus be promoted across society and institutions.

The second paper, written by Andrea Renda, is a critical review of the Digital Markets Act (DMA) from the European Union. One of the key points made by Renda is that, despite the innovative ex-ante approach used in the DMA to regulate digital markets, a different approach to policymaking will be needed in the future. Technology should serve as a key instrument for regulators to develop new rules and monitor enforcement (RegTech and/or Suptech). Additionally, regulation should be subject to short-term periodic revision, including the DMA, whose revision is suggested every two years after its entry into force.

Finally, the third paper, by Bhaskar Chakravorti et al. from the Fletcher School, delves into the apparent (but not unavoidable) trade-off between innovation and inclusion that countries need to face. They find that the trade-off is not inevitable and that it depends on political decisions, as evidenced by the case of Germany. Germany showcases high levels of innovation and inclusion and serves as a reference for other countries. The authors suggest that to prevent the trade-off policymakers should promote channeling investments and opportunities to innovations that are inclusive by design. They should also pay special attention to SMEs, whose technology absorption capabilities and the digital skills of their employees will determine their ability to navigate the digital transition.

All of the papers on the macro level address the current digital revolution and the current crisis of legitimacy of our democracies highlighting technology as an important factor in both processes for good and for bad. They all agree that technology alone cannot fix societal problems. The current crises need to be resolved through a change in the institutional and political mindset that prioritizes long-term thinking and ambitions over quick fixes, while being agile enough to deal with the accelerated pace of technological and societal change.

Long-term approaches towards digitalization will require the involvement of multiple stakeholders who can bring diverse perspectives to the table, cooperate between them (private and public partnerships remain key), break concentrations of power if necessary, and implement measures that favor the inclusion of those at the margins through incentives for inclusive innovation and easier access to skills.

MESO LEVEL

At the meso level, this work package covered the emergence of the crypto economy and its potential social value with a paper written by Mark Dempsey et al, and the deployment of AI in the public sector and its multiple risks, authored by Joshua Entsminger from UCL.

Mark Dempsey et al explain how the crypto economy is not producing net social value as of today. Crypto is not living up to its original value propositions of generating more democratic decentralization, blockchain transparency, more trust due to tech automaticity and economic inclusiveness. However, the potential of the crypto economy for new forms of economic, social and technological innovations should not be curtailed. The door is open for regulators to test new types of regulation for the different aspects of the crypto economy through regulatory sandboxes and crypto sprints. Another important point highlighted by the authors is the need for increased scrutiny over systemic blockchains, like Ethereum, on whose technology depends the vast majority of the crypto ecosystem.

The paper by Entsminger covers the public sector's use of AI. One of the main concerns included in the paper is the risk of reducing the in-house capabilities of the public sector by privatizing AI. AI deployment without the necessary in-house means generates additional public value failure, delegitimizes the public sector, and promotes further outsourcing in a downward spiral of public value failure.

Both papers at the meso level also agree that technology is not a one-size-fits-all solution, particularly in social contexts marked by structural asymmetries, and it cannot be either conceived or perceived as such.

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> If there is a crisis of institutional legitimacy, institutions should be reformed to be agile, flexible, accountable, transparent, and inclusive; and political debates and dialogues on the topic should take place on a permanent basis so that policies can improve.

Blindly promoting or categorically fighting technology are not the best approaches.

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Strategic public-private partnerships should be developed to share and openly access data and train individuals in the skills that are the most adequate.

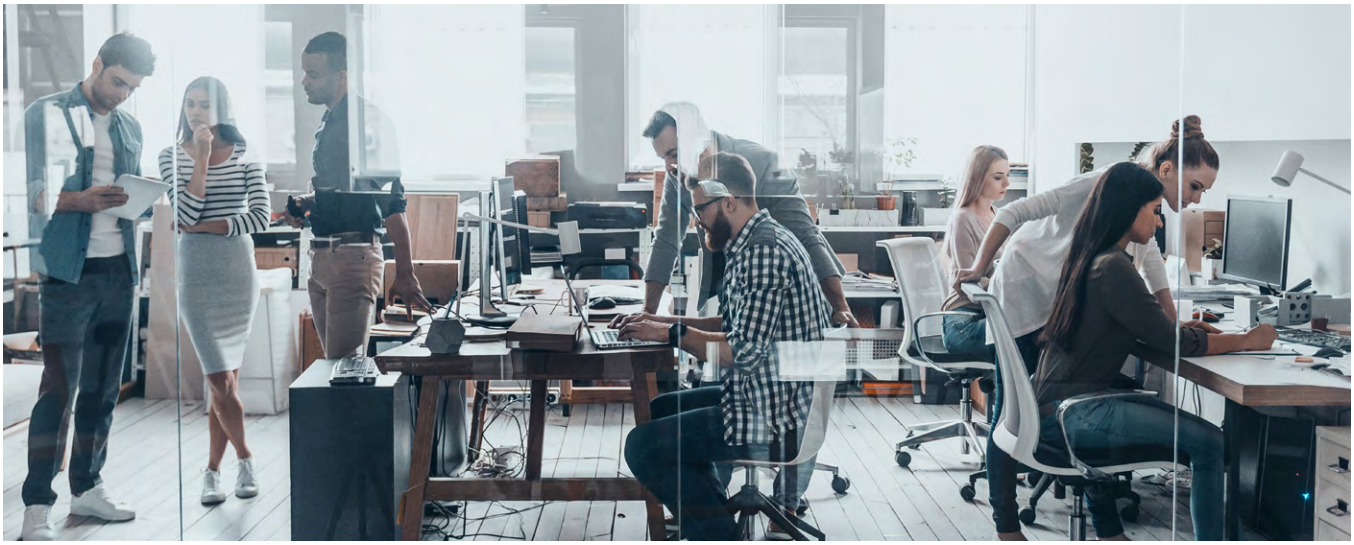
MICRO LEVEL

The lowest level covered here is the micro, which includes papers on rural development through technology written by Alberto Alfonso Pordomingo and Gianluca Tomasello, support for SMEs in the digitalization process by Philip Meier et al, and the improvement of individual digital skills by Fabian Stephany. Their focus was the support of groups who may have more difficulties in the transition toward the digital economy. Their problems stem from deep-rooted inequalities that require interdisciplinary and innovative approaches. The three papers coincide in pointing at digitalization and technology as useful tools for these groups to better navigate the current revolution, but not as ends in themselves.

Alfonso and Tomasello highlight the complexity of the problems rural areas are faced with. That complexity makes technology unable to completely solve their situation of inequality. Rural areas require systems thinking approaches to address their multifaceted challenges. They also need policy design to include rural proofing and rural checks so that the rural population is not negatively impacted by new policies with respect to those residing in cities.

In the case of Philip Meier et al, flexibility should be at the heart of efforts to support the digitalization of SMEs. Policy and program design need to admit their own tailoring to the specific needs of SMEs. This will be more easily achievable if diffusion multipliers trusted by SMEs are included in the process from the beginning. It is also important that resources, capabilities, and skills are built into SMEs. For that, one-off training is not enough.

The last paper, by Stephany, covers upskilling and reskilling efforts. It stresses how individual skills and skill bundles should be evaluated in order to identify what new training paths are the most adequate for each individual based on skill complementarity and labor market demand. For this analysis to be possible, and for the elaboration of more agile and effective education policies, strategic public-private partnerships should be developed to share and openly access data and train individuals in the skills that are the most adequate.



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Democracies are at a turning point where they must begin delineating a new social contract that is suitable for the digital age.

THE NEW (DIGITAL) SOCIAL CONTRACT: REBUILDING LEGITIMACY IN TIMES OF UNCERTAINTY

The unstable situation outlined in the context has led to a crisis of trust in democracies and their institutions. The suboptimal responses to past and ongoing crises, including the Global Financial Crisis, and the lack of political will to address the environmental crisis in most of the world, have eroded democratic and institutional trust. Democracy now needs to raise up to the task by effectively facing the transition toward a digital economy.

The digital revolution must be correctly managed to design a new social contract in accordance with the new social and technological realities. Democracy needs to regain that trust through the legitimacy of both the input, throughput and output that go into its decision-making and digital policymaking. As we will see below, the challenges laid out must be confronted with democratically elected choices.

There needs to be a social compromise on where to go next. Democracy and its institutions need to deliver and meet the needs of the population. Citizens need results, which must be favorable and fair to them. Citizens also need accountable and transparent policymaking processes (Strebel, Kübler, & Marcinkowski, 2018). The challenge is that, to face the digital transition while repairing the crisis of legitimacy, those systems that render positive results today need to be kept in place, those that are good in nature but have some drawbacks need to be tweaked, and new systems to go in the direction that society chooses, need to be developed.

Here there is an important tension to be managed by institutions, which is one of the disadvantages of democracy: the primacy of the short (or medium) term over the long term. In the medium term, it is tempting to prioritize a firm bet on, for instance, achieving a competitive advantage, strong leadership in one aspect of the digital economy, or transforming productive models to better position the economy. However, this needs to be well thought out and planned for the long term, bearing in mind that there are social consequences that must be managed. Innovation produces winners and losers. Thus, technological leadership at all costs, disregarding social conditions and implications is dangerous and even reckless in the long term.

Democracies are at a turning point where they must begin **delineating a new social contract that is suitable for the digital age.** The contract should contemplate citizens as active participants in the digital society, and in turn, citizens should be made adequately knowledgeable of their rights and duties. That entails additional responsibilities and accountability obligations on the side of those private organizations exerting power in the digital world (be them Big Tech firms or other types of businesses and actors). It also means that public administrations need to change their way of working in order to achieve more agile and proactive responses. Transparency should be a key feature of the new digital contract for both public and private actors with a relevant role in digital dynamics. The new digital social contract should offer opportunities to the many and not limit those to some.

These considerations on the new social contract and more will be addressed and explored throughout this report based on the learnings and key insights of the eight papers published in the project "The Digital Revolution and the New Social Contract".

KEY FINDINGS BY LEVEL OF ANALYSIS

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If democratic institutions and processes fail to achieve outcomes that satisfactorily accentuate the benefits and prevent the risks of technology, democracy will be further challenged by populist movements, extremist political groups, *technosolutionism*[5] and, eventually, the appealing alternative of autocracy.

MACRO LEVEL

The papers belonging to the macro level analyze the digital economy and its consequences for international politics and economics. Loesekrug-Pietri focuses on the role of (technology) foresight as a means to address future challenges and be proactive in shaping the future we envision for our societies. Renda assesses the DMA, the European regulation meant to reign in digital gatekeepers and promote market access and competition in digital markets. The third paper is authored by Chakravorti, Chaturvedi and Compton, and provides evidence that the alleged trade-off between innovation and inclusion can be managed through incentives for "inclusive innovation" (social entrepreneurship, entrepreneurship from marginalized communities and minorities in general), investments in digital skills training, and digital capabilities in SMEs. The papers coincide in identifying digitalization as transversal, which requires interdisciplinary approaches to digital policymaking and enforcement, long-term vision (or foresight) and coordination.

This level reveals that there is a crisis of legitimacy and representation in democratic societies. Technology and the digital economy are some of the realms where the crisis is felt. They also co-produce the afore-mentioned lack of legitimacy. Technology poses a particularly complex challenge because 1) it is partly a cause of the problem, 2) it is also partly perceived, and rightly so, as a solution to the crisis of democracy, and 3) as it keeps unfolding, developing and expanding into new aspects of life, it creates new situations that challenge social relations as they are currently organized.

Technology will require some type of institutional and governance framework to work within. If democratic institutions and processes fail to achieve outcomes that satisfactorily accentuate the benefits and prevent the risks of technology, democracy will be further challenged by populist movements, extremist political groups, *technosolutionism*[5] and, eventually, the appealing alternative of autocracy.

Institutions must revisit their roles, mandates, and the methods by which they pursue them. In this revision, a long-term perspective and a change in spirit are necessary. Institutions need to be proactive, not reactive; countries need to take the lead to not only predict what trends and technologies are likely to unfold in the future but also to shape the future according to their values. These values must be politically defined in a process of social contestation.

Technology has obvious political impacts in its use and deployment. The objectives pursued by the use of technology are political, and therefore, societies need to participate in the conversations and debates that lead up to the definition of those objectives. Otherwise, our political regimes will transform themselves into systems governed by the use of technology for whichever ends and in whichever conditions.

For democracy to remain legitimate and effective, actors need to cooperate. The digital world has made individuals connect with others with similar priorities, generating strong relationships amongst themselves, valuable topical knowledge, and the capacity to communicate with, mobilize and persuade those represented. That is why organizations and different institutions (local,

5 *Technosolutionism* is the tendency and urge to solve complex problems through technology or engineered solutions, disregarding the human component in technological design and the social nature of some of the world's most pressing problems

regional, national) need to be taken into account and be involved in the policymaking process: they know better, and they will be responsible for implementation; therefore, their opinion matters, and it should be leveraged for better societal outcomes.

This engagement needs not only to be widespread and become the "norm" in political decision-making; it should be communicated and publicized as such. If multiple, diverse, and representative groups are engaged, citizens need to be aware that there is an ensuing increase in the perception of legitimacy that populations have and the effectiveness of the measures.

One way to ensure legitimacy for democracies is through output, or in other words, delivering satisfactory results. In technology, that can be understood as a technological race for the leadership in innovation and cutting-edge technology to achieve well-being and prosperity. However, the race for innovation may leave some groups excluded, with policymakers and technologists focused on being first, rather than being first together.

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The exclusion and marginalization of certain parts of society in whichever socially transformative process, including in technology, has the potential to cause a backlash. Transitions need to be managed.

Technological foresight: A critical policymaking tool for the 21st century

The key takeaway from the paper by Loesekrug-Pietri, Chairman at JEDI, is that it is critical for democracies to develop foresight capabilities to anticipate and shape the future we want. This is applicable to both technological and general, non-sectorial focused, foresight.

Foresight is the variable determining whether societies are reactive or proactive. It focuses on a key aspect that the political dynamics of the last decade have set aside: long-term thinking. One of the differences between autocratic and democratic governments is that the former are not constrained in their action by electoral cycles that hinder their ability to implement policies whose impact may only manifest in the long term. They do not require quick results from policy to win votes. Consequently, autocracies can more easily implement policies that make their countries better prepared to anticipate and shape the future they want, making their political model look like an attractive alternative.

The shift from short-term to long-term thinking in democratic systems is relevant for technological foresight because autocracies can (autocratically) set a vision for their technological future and design the necessary actions to reach that future vision. Visible examples are Chinese strategic initiatives, such as Made in China 2025, that aim to upgrade China's production to more technologically advanced and value-added sectors. In contrast, the lack of long-term horizons for policymaking in democracies hinders their capacity to anticipate the desirable and possible future of technology, and act accordingly.

Foresight must be incorporated as a capability across institutions because all sectors, industries, and activities

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Policymakers must understand that (technological) foresight has a global component and global cooperation is required to imagine the future of our planet, and additional research in this direction could support their decision-making.

will be affected by potential future disruptions, which come mostly from the technological field. But foresight requires coordination to leverage efforts and synergies across organizations and avoid ineffective and inefficient foresight.

The implications for the social contract come from the fact that the world around us is changing much faster than we expected. Technology is one of the main drivers of such changes. The social contract currently in place was "designed" for a world where transformations were slow, and responses could be adaptive. However, this is no longer the case. We are faced with the need to adapt to this pace of change to retain some agency in shaping the future world.

Agency means that we can decide and act autonomously, that we put forward alternatives, and we choose the preferred outcomes for our future. This is thus not only about protecting the general interest of the population by anticipating future events; at the core of the issue is how we adapt the social contract so that it allows citizens to discuss and *democratically* choose their future based on their values, conception of the world, ideas and aspirations in an increasingly dynamic and fast-paced world.

To perform this change, countries (and international organizations) need to develop foresight capabilities that are central but decentralized, independent, flexible, and, most importantly, relevant. Foresight units need to break organizational and institutional silos, draw from different disciplines and backgrounds, and share insights. Once foresight is produced, the outcomes need to be considered for policymaking, and for that, they need to be robust by using scenario planning, involving civil society, and with frequent updates. In the case of technological foresight, joint efforts that surpass disciplinary silos are the most important, since the implications are transversal and, many times, social.

Another critical issue is the role and responsibility of politicians in this process. There is an obvious crisis of representation and mistrust in institutions. To solve it, it is crucial that politicians and elected officials develop an understanding of the major challenges and demonstrate it.

There are two complementary issues to the topic of the paper that deserve additional study. The first is, who participates in the foresight development process? Moving forward, the role of diversity should be emphasized in the research on foresight participants. The more diverse the backgrounds and profiles of those who sit at the "foresight table", the better the result of the foresight exercise, because the experiences of those involved will better enrich the exercise.

The second issue is the global future. The paper explains the conditions for successful foresight at the national and European levels. However, there are challenges, such as climate change, which have a global nature. Policymakers must understand that (technological) foresight has a global component and global cooperation is required to imagine the future of our planet, and additional research in this direction could support their decision-making.

Can the EU Digital Markets Act achieve its goals?

Andrea Renda's paper discusses the main characteristics of the EU Digital Markets Act (DMA). This legislation hides the ambition to create a competitive and sustainable digital economy. EU regulators understand that this is achieved if gatekeeper companies follow online rules similar to those already existing in other markets and for other types of companies. The essence is simple: digital gatekeepers need to compete fairly and comply with the same rules that others have. Throughout the paper, we learn that antitrust enforcement has done very little, until now, to erode the market power of gatekeepers. Therefore, there is a need to change from an ex-post to an ex-ante approach that will prevent in advance uncompetitive behaviors by the largest market players.

Since its emergence, the predominant discourse regarding the online world and the digital economy was that regulation was not needed, self-regulation would suffice. However, the need for intervention in digital markets has become obvious and widely acknowledged in several countries beyond the EU, such as the United States, China, the United Kingdom, and Japan. Some of these countries are the historical champions of deregulation. Thus, it is significant that there is such a shift in the predisposition to *organize* digital markets.

One of the core implications of regulating digital markets, which applies to the reformulation of the new social contract, is the need to have new capabilities incorporated into institutions. Algorithmic inspection is a task public officials are not used doing or may not even know how to perform. Still, it is a crucial activity to ensure and monitor compliance by digital companies. Therefore, institutions will need to strengthen their technical capabilities and talent according to the new requirements of today's and tomorrow's digital context. Otherwise, institutions and their employees will lose further legitimacy due to an inability to understand and, thus, regulate and enforce regulation on new realities.

Another implication (and learning) for the new social contract is that a more flexible, adaptative, and evolutive approach is needed to regulation. The well-known catchphrase that refers to the uselessness of government regulation because by the time regulation is in place technology has already advanced and made novel regulation obsolete, holds truer than ever. Thus, flexibility, revision, and agile adaptation of policies are necessary for effective policymaking in the digital economy. If not, institutions will be unable to service citizen demands, which will cause social discontent.

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Countries need to choose whether to devote comparatively more resources to foster the ecosystem that allows for innovations to be born, or to all groups in order to include them in the process of digitalization.

Renda identifies some next steps focusing on the DMA and its enforcement, which can be somewhat applicable to the new social contract as a whole. First, there should be a special unit in the European Commission to coordinate DMA implementation. Second, the special unit should coordinate with other Boards supervising other digital acts, like the AI Board, the Data Governance Board, etc. Thirdly, the EU should move to a principles-based approach to identify the list of practices that are prohibited; otherwise, the list will always be outdated, and new versions will need to be approved with outstanding (and impractical) agility. Fourthly, early evaluation of regulation and enforcement results is necessary to check for effectiveness and unintended consequences. Lastly, it is important for the EU to consult and negotiate the terms of its digital market in alignment with the US. The US is still the EU's most important international partner in a myriad of issues, ranging from trade to security, values, etc. Consequently, and particularly after the years of strained EU-US relations during the Trump presidency, bonds such as the Trade and Technology Council (TTC) must be strengthened. Another implication highlighted by Renda is the design of more sophisticated, technology-enabled forms of regulation and supervision in the future (RegTech and SupTech).

An important question that Renda briefly notes, despite not being the focus of the paper, is how the DMA is going to impact or become a model for other countries or institutions. How is the DMA going to transform digital markets on a global scale? Renda argues that it will likely not generate a "Brussels effect". Therefore, additional research should focus on why or what should be needed for change abroad to happen. How can that change be stimulated? These are questions that need to be addressed in the future for effective digital regulation.

Digital inclusion vs innovation momentum: Is there a trade-off? And must economies choose?

The learnings from this paper blur the difference between the macro and meso levels of analysis. Chakravoriti, Shankar Chaturvedi and Compton, from the Fletcher School, start by exploring a possible trade-off in advanced, Digital North[6] countries between two elements of the digitalization process: innovation and/or social inclusion. They discover that the relationship is driven by a trade-off between inputs to the innovation process (investment capital, ease of access to risk capital, ease for startups to emerge and scale…) and inclusion (understood as the parity in digital access and literacy between a country's richest and poorest). This means that countries need to choose whether to devote comparatively more resources to foster the ecosystem that allows for innovations to be born, or to all groups in order to include them in the process of digitalization.

The apparent trade-off has its intricacies because betting on innovation means there is potential for international leadership in key technologies, products, services, and processes, but at the risk of leaving groups behind, which can lead to a political and social backlash. Those at risk in the processes of innovation tend to be low-skilled, unqualified groups, smaller companies, and regions that did not create the structures and networks necessary to adapt to more innovative economies and frameworks.

6 Digital North countries are defined by the authors as the top 1/3 most advanced digital economies in the world out of the 90 economies analyzed in their Digital Intelligence Index

Similarly, if inclusion is favored, there will be a more egalitarian society where different groups have relatively similar possibilities of participating in the new digital economy, but that economy itself will be less developed and more dependent on others' innovations.

The authors choose five case studies to investigate the existence of the innovation vs inclusion trade-off and illustrate how different countries have chosen to navigate it.

The case studies are organized into three groups:

1) Firstly, countries that are at the crossroads between innovation momentum and inclusion (the United Kingdom and Spain). These are at a tipping point where they need to decide whether to lean to one side or the other of the apparent trade-off.

2) Secondly, countries that have taken clear policy stances towards innovation at the expense of social inclusion (South Korea) and the opposite (New Zealand).

3) Thirdly, a country that showcases high performance in innovation and inclusion: Germany.

The case of Germany shows that an inevitable trade-off does not exist and that countries can navigate the complexities of innovation and inclusion with successful results in both areas. This requires important political will, legislative effort, and a deep understanding of the country's social and economic particularities.

It is important to highlight the case of New Zealand. The country changed its strategy between 2015 and 2019 when its prior focus on innovation shifted towards a more inclusive digital society. This case reaffirms that the trade-off is not a matter of inevitable technical-social dynamics, but of political priorities.

The implications of the findings for a new social contract reveal that societies need to define what is the appropriate and acceptable speed of change for the digitalization of their economies and labor markets according to their values and societal priorities. This is a deliberate, political decision on where in the continuums of innovation and inclusion societies want to locate themselves.

It is also important to note that there is a cycle of poverty and exclusion of disconnected communities which needs to be broken. The poorest have worse access to education and digital infrastructure than those with higher incomes. Digital skills and digital equipment are vital to access jobs in the digital economy that could offer economic compensation and opportunities to rise out of the lower income groups.

Eventually, a political decision is needed; otherwise, those who are underrepresented in decision making from the start will forever remain in that position. Redistributive policies become more important than ever to pre and restructure who can rise and thrive in the new digital economy, and who remains absent from the circles where opportunities are offered.

The authors of the paper point out some additional implications of their findings.

Firstly, since input momentum is the most important driver of the studied trade-off, incentives should be structured to promote inclusion through the activities of the participants in the *inputs* momentum ecosystem. For example, incentives for entrepreneurs to target their innovations towards those at the margins, and for investment capital to flow towards ventures that are inclusive by design.

Secondly, countries should invest in equitable and affordable skills training. This was part of the policy choices that Germany, the epitome of balanced innovation and inclusion, made to pursue the digitalization of its economy.

Lastly, policymakers should ensure that SMEs and their employees have the digital resources to compete in global markets. SMEs, which are at the heart of most European economies, should be given the tools and opportunities to absorb digital capabilities to be better positioned and participate in the digital economy.

Based on the findings of this paper, the following research steps should involve the analyses of the policies from countries that manage to be innovative without leaving disadvantaged minorities behind. Understanding whether those policies and initiatives are "exportable" and generalizable is important.

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There needs to be more attention on what policies will allow countries to speed up inclusion (training, collaboration tools, etc.) so that groups have a lower probability of being excluded during the digital transition, and on the variables that will determine inclusive digital policy effectiveness for each country.

MESO LEVEL

The next level, meso, refers to the aspects of the digital economy that impact institutions and societies. The first paper, by Dempsey, Oliver and Otero, describes several aspects of the crypto economy (cryptocurrencies, stablecoins, NFTs, DeFi, etc.) and assesses their net social value.

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It finds that the crypto economy, which emerged largely as a response to the void in institutional trust resulting from previous crises, is unable to fulfill yet its original social value propositions regarding decentralization, transparency, trust, and economic inclusion. It cannot substitute social institutions to solve institutional failure and/or social problems.

In the second paper, Entsminger delves into the possibility of public sector deployment of AI solutions. He identifies several challenges for AI in the public sector regarding public value provision. Such challenges include the need for a common definition of public value, technical capabilities within the public sector, and the danger of reproducing or favoring dysfunctional dynamics already present in society and in the digital economy (rent-extracting behavior, structural inequalities, dual-use technologies, etc.).

The key learning is, thus, that trust in the current institutions is fraying. This is due primarily to past failures to respond to citizen needs. This lack of confidence leads to the emergence of new narratives that aim to replace current institutions with purely technical solutions. For example, cryptocurrencies and the ecosystems built around them rise out of the lack of confidence in governments, central banks, financial regulators, and the banking system, whose lack of oversight and discipline provoked massive bailouts during the Global Financial Crisis. It should be noted that the lack of trust in institutions, in this case, applies both to the public and the private sector.

New narratives and alternatives are somewhat positive because they emit clear signals on where there is a gap between democratic and institutional expectations against performance, where reforms are needed, and in what direction. Still, trust in institutions cannot be replaced through technology only and as previously mentioned in the macro framework, social problems cannot be solved by technology.

On the contrary, solutions can be enabled through technology, but there is a deeper political and social relationship underneath (which is damaged if the issue arises in the first place) that needs to be fixed as such. If attempts to solve social problems are exclusively technological, the risks are disappointment and disenchantment with 1) the technological solutions due to the unmet promises of the new narratives; 2) the existing institutions because they created the conditions for those *false* solutions and narratives to arise; 3) and again with the mainstream institutions because they did not prevent the disruptions provoked by technological solutions, which exacerbated some of the existing problems.

What is evident from the papers on the crypto economy and AI deployment in the public sector (and the paper on the innovation and inclusion trade-off from the macro level) is that societies need agile institutions in their functioning and in their responses. Problems are increasingly complex, and technology poses new questions whose answers need to be faster than before,

due to their rapid pace of development. Therefore, agile, transparent, and inclusive institutions are needed to face conventional problems, new contexts, and the challenges of technology accommodation and regulation.

Another common theme with the macro narrative is the need to hold technology accountable and to inspect technology carefully. Technology is used to achieve certain goals based on specific values, which need to be politically, socially, and collectively identified for technology to be deployed in socially acceptable ways.

Similarly, there is an additional discussion on the political definition of the acceptable social parameters for technology solutions: for whom, by whom, who benefits, who is excluded, who has a better opportunity to adapt, who is more likely to adapt worse or who will need more support in the process. There is a long etcetera of similar questions. Societies need to decide whether technological advancement and leadership per se are sufficiently supported goals, or if it needs to be technology for the advancement of all.

Is there social value in crypto economics?

Dempsey, Oliver and Otero look into the crypto economy and whether it favors the creation of net social value. The crypto economy was born to democratize finance. Its value proposition is structured along four core ideas: democratization through decentralization, transparency through open access, trust by avoiding human discretion, and economic inclusiveness.

Crypto, as defined by its proponents, is not merely a technological solution; technology is only the tool that operationalizes and executes the deep ideological and political project behind crypto. Crypto proposes changes to the social structures and governance models of money and finance. The value proposition of crypto is, thus, appealing and clear.

The authors analyze different aspects of the crypto economy, including the type of assets, the technology used, validation mechanisms, and governance models. They find that the value proposition advocated by crypto adepts is not supported or accompanied by sufficient evidence to back the claim that this is an inclusive revolution that solves the lack of trust in financial institutions. Additionally, the authors note that any social system is hardly replaceable by technology, which becomes political once its uses are politically decided and have political consequences.

Consequently, the paper concludes that, despite its attractive claims, the ability of the crypto economy to provide net social value creation is limited due to the extent of the negative externalities crypto produces: environmental harm (especially when using proof-of-work protocols), centralization of decision-making and validation in a few hands, methods to obscure transparency, concentration of activity in a few platforms

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The problems of the crypto economy cannot be tackled through the individual action of some countries; this is an international industry that completely disregards national frontiers for its operations.

or blockchain, theft and other illegal activities, indebtedness of participants due to lack of financial education. This conclusion is based on the state of the crypto economy thus far, which does not entail that net social value will not be created in the future with more development and reform of the crypto economy.

The paper addresses the issue of the crypto economy as a technology experiment to transform the current social contract, since it seems to have failed. This failure generates mistrust in institutions and, in this case, in the highly unpopular financial system. Therefore, societies need to revise their social contract and the relationship between society at large (and, particularly, between voters in democracies) and the rules and institutions that govern their daily lives. As pointed out earlier, when technology and the ensuing social innovations are not properly accommodated and regulated, the risks of their unmet promises will exacerbate the problems societies already face.

The main implications highlighted by the paper are three. The first coincides with some of the findings of the papers included in the project, which is the need for regulators to fulfill their role in an agile manner. For that, sandboxes and crypto sprints are positioned to be good regulatory tools that allow governments to test regulation in controlled environments and better understand industry dynamics while promoting innovation.

The second implication is related to one of crypto's most pressing externalities. The environmental impact of technology and the crypto economy cannot be overlooked. This should be a priority for regulators when designing their policies on the crypto ecosystem. The digital transition is taking place in parallel to the green transition, which implies that the digital process cannot overlook its environmental consequences and footprint. The case of crypto is outstanding, requiring not only enormous amounts of electricity to perform basic transactions but also equipment that cannot be repurposed and becomes obsolete after a short period. Therefore, crypto also generates important digital waste, although it is also true that the recent move from proof of work (PoW) to proof of stake (PoS) validations by blockchains like Ethereum is a positive development. Regulators should take this into account and differentiate between technologies and their respective environmental impacts when regulating the crypto economy.

The third implication, which stems from the transnational nature of crypto (and of its externalities) is that governments should pursue a formal agreement on the global coordination of the crypto economy and its regulatory framework, with the Financial Stability Board (FSB) having an important role to play here. The problems of the crypto economy cannot be tackled through the individual action of some countries; this is an international industry that completely disregards national frontiers for its operations. Consequently, action needs to be globally coordinated, which requires enormous political will and coordination.

It is important to acknowledge that the crypto economy has grown enough to be impossible to ignore. It poses systemic risks in case of failure, financial panics, and contagion to the offline world. Some of the dynamics in crypto have led to risky concentrations of crypto products and services in one single blockchain: Ethereum. Regulators should acknowledge the risk of concentration and work to ensure the continuity of services in systemic blockchains to avoid financial collapses in the crypto economy.

In terms of interesting areas of additional consideration for the future, the paper mainly paves the way for research on enhancements for global cooperation, the relationship of concentration and technocracy in the crypto economy, and private sector transparency. Another open space for inquiry is the social value that blockchain can bring in aspects like the creation of the web3 dimension.

The paper highlights the need to make a collective effort to agree on a global coordinated framework for crypto economics. However, the breadth of the crypto space might make aiming for global regulation too ambitious. The crypto economy poses numerous challenges, and crypto regulation is already hard to achieve at the national and EU level. Therefore, there should be an effort to prioritize a set of issues where global action is the most urgent. Furthermore, different countries might have different calculations of the net social value of crypto economics due to their country's particularities. More study should go into understanding different perspectives on crypto by other players, aligning positions, and developing convincing arguments for global cooperation.

As highlighted above, crypto governance is subject to strong concentration dynamics. Crypto does not equally distribute power over the governance of the network nor over rewards, as the examples in the paper demonstrate. Furthermore, many networks display technocratic decision-making in the event of disagreements that are relevant to the overall functioning of the blockchain. This is fundamentally contrary to the urge to reach political agreements over the role of the crypto economy. Consequently, there should be more research on potential ways to break the concentration cycle in the blockchain.

Finally, the last issue deserving more attention is private sector responsibility. As noted above, it is not only public institutions that have lost public trust, but also private institutions, such as those participating in the financial system. One of the reasons why crypto is preferred over the traditional financial system is the perceived sense of higher transparency. Even though the paper demonstrates this is not the case, banks (both commercial and investment banks, as well as other financial institutions) should see in the crypto economy a warning signal that encourages them to increase transparency in their operations. Therefore, potential reforms to the traditional financial system, their transparency, and communication strategies, while preserving security over corporate strategy and operations should be looked into to regain public trust.

Public sector artificial intelligence strategies: Considerations for a public value approach

In this paper, Entsminger discusses how the public sector can create public value through Artificial Intelligence (AI). This is a clear example of the importance of commonly agreed definitions to structure strategies and actions around collective frameworks. In this case, the prevalent definition of social value will determine what considerations are more relevant for the design and implementation of AI in the public sector. The author argues that this is particularly relevant because it impacts the perceptions about government failure and the risk of public value failure, which in turn affects voter decision-making in elections. Once again, the definition of public value and public failure needs to be agreed upon collectively and be subject to a public debate.

Entsminger draws attention to six challenges that societies face in the deployment of AI for public value creation. The first set of challenges relates to capacity. The potential for public value creation through AI strategies within the public sector is dependent on the capabilities and competencies of the individuals integrating the public sector. If they lack the necessary expertise to deploy AI successfully, public sector legitimacy will be questioned. Additionally, AI use in public sector activities can be perceived as a way to obtain efficiency gains, or even to outsource public sector tasks. Therefore, a discussion is necessary on what type of tasks can and/or should be performed through AI and what level of *outsourcing* through AI is desirable.

The second challenge refers to the political economy of AI. There is an unequal distribution of AI competencies and capabilities throughout the world, but also within each country. This gives some actors (be they companies or states) an advantage over others due to the relevance of economies of scale in the realms of data and algorithms. Beyond an open conversation over what is the distribution of the resources devoted to AI, the distribution of the benefits of AI, and the tolerated level of inequality in each society, digital economic rents need to be addressed. These refer to the value that actors extract from individuals without improving the product features they offer. Thus, a market failure arises, unfairly favoring those who are already well-positioned in the AI and data space. Considering the existence of this extractive dynamic, states also need to assess whether they directly or indirectly support them through their procurement, data access, and investment decisions.

Public AI strategies need to bear in mind structural inequalities, the third challenge, in digitalization and digital technologies. There is abundant research and documentation on the differences in accessing technology due to financial, infrastructural, and other access constraints that substantiate the divide between groups with and without access. However, there needs to be a deeper understanding and carefulness on how the use of AI can further embed, amplify, and extend social inequities.

The three remaining challenges refer to the dual use, non-market and epistemic challenges. The dual use challenge concerns the assumption of AI technologies being used exclusively by benevolent state actors that go through the appropriate checks and balances that ensure a benevolent use of AI. Nonetheless, China proves this is not always the case. The non-market challenge refers to the importance of understanding how ownership and access to data, data creation, infrastructure, etc. is organized, since these factors determine outcomes. And lastly, the epistemic challenge relates to knowledge and information. Those who own and control relevant AI capabilities and data sets have outstanding information about individuals and groups to the extent that behavioral predictions can be made.

At this level, there is an important asymmetry between those with AI capabilities and those without. The extent to which that "social information asymmetry" is allowed to grow needs to be socially determined.

The implications of this paper coincide with those of other papers in that they highlight the relevance of the commonly-agreed definitions and the rules of the game, and on the importance of pooling resources and expertise via constant collaboration.

The implications include:

- Establishing and framing a public value framework for public sector AI development and deployment. There needs to be a defined playground, an agreed set of rules and definitions that social groups can use to understand each other and evaluate what are the best strategies or whether strategies work or not.
- Developing a codification system for the existing public sector AI database. That allows for the understanding of what value and mission are pursued by AI implementation.
- Constantly evaluating the market to identify when the public sector may be subsidizing a rent-extractive AI industry.
- Assessing the capabilities of the administration where AI solutions will be deployed to ensure that it is prepared to appropriately deploy those solutions. The reasons, means, and outcomes of deployment need to be reasonable.
- Creating EU level collaboration fora on AI from both a technical and social perspective to understand, identify and share insights on new and existing public value creation models and opportunities.
- Addressing sustainability needs. As in crypto, the AI industry is highly carbon intensive and has similar problems with high-performant, highly specific, and quickly obsolete equipment.

Entsminger points at several areas for further research. Two of them refer to the private sector and were explicitly mentioned in the paper but require more emphasis due to their relevance. Companies have the expertise, ownership and capabilities to build and deploy AI solutions in sensitive use cases, such as in the public sector. However, institutions need to make sure that contracts are not structured in a way that benefits large companies and crowds out smaller players despite having AI solutions that might be more in line with public value creation. Additionally, institutions need to find ways to prevent rent-extractive dynamics and market failures in AI, both in public and private sector contexts.

Two other areas for study are related to communication. Firstly, with citizens. Ultimately, this paper, as well as others in the work package, argue for political agreements on public value and AI deployment. These are highly complex discussions that combine theoretical and academic concepts (forms of public value creation under different public value frameworks) with technical concepts (AI solutions and respective pros and cons). Therefore, they need to be narrowed down for the citizen to make informed decisions.

Secondly, to businesses, who are responsible for AI development and need to understand the implications of said debates.

Lastly, as AI is introduced in the public sector, technical skills should be as well. More research is needed to understand how the transition towards new technical requirements and capabilities in the public sector should be managed.

MICRO LEVEL

The third and final level is micro. The paper on the rural environment, authored by Alfonso and Tomasello, aims to provide a methodology for rural areas to attract talent, innovation, and social entrepreneurship to sparsely populated areas, and empower the local population. The authors argue that rural areas face a multifaceted problem that requires financial, social, regulatory, and technical support to remain vibrant and a viable alternative to cities.

On a more granular level, the paper authored by Meier, Köhn, Wolf and Gerling explain their experience in *Gemeinsam Digital*, a public project for the digitalization of SMEs in Germany. They stress the relevance of flexibility in the design of programs, the personalization of content to the needs of each region and SME, and the need to build legitimacy for programs from project design.

The last paper, by Stephany, tackles the issue of the inability of educational systems to keep up with the skills demanded by the labor market. The author explores the potential for personalized learning paths based on previously acquired and the most rewarded skills in the market. This would be possible if large online labor platforms provided access to data to the public sector.

There is a clear convergence of the three papers on the topic of inclusion. They address the situations of groups who are more likely to be left out of the digital economy. These groups represent large portions of the population (and economic activity).

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Thus, the main takeaway at this level of analysis is straightforward as it goes back to the paper on the innovation and inclusion trade-off: inclusion is crucial.

Digitalization offers new opportunities for several groups, such as rural populations, SMEs, and individual workers; but it also creates new risks of leaving those groups further behind if they are not correctly supported in the transition toward the digital economy.

Digitalization, as it has been already noted earlier, also connects, reproduces, and accentuates the wicked problems present in our systems. Therefore, solutions related to digitalization need to be multifaceted and go beyond purely digital solutions.

Furthermore, solutions need to be holistic and embrace multistakeholder cooperation and co-creation/development of solutions. For legitimacy purposes, it is important to not only address the issues of excluded (or at risk of exclusion) groups when deciding to not leave anyone behind; they need representation in the development of solutions so that their concerns are deeply understood and correctly addressed. Their leadership and empowerment must be embraced.

To that end, digitalization itself should be a lever to achieve improved outcomes in supporting groups at risk in their transition toward a digital economy. A clear example is found in online data and the upskilling and reskilling of the labor force. The internet stores vast amounts of real-time information on what are the most demanded skills in the market, where there are skills shortages, and which skills are better rewarded. Consequently, we need to be flexible in how we manage digitalization to leverage the information that exists for

the public good without invading the privacy and rightful data ownership of companies and individuals.

In the last years, we have seen the rise of narratives and rhetoric that appeal to those who have been left behind by dynamics such as digitalization and globalization. These dynamics need to work for all groups to be a true force for good. Otherwise, extremist, populist, and anti-globalization movements will take the chance and increase in relevance by basing their rhetoric on the new cleavages and grievances suffered by those who have not been included in the digital transition via a flawed social contract.

Cultivating resilience in rural areas: An awakening strategy

Alfonso and Tomasella delve into rural areas, which have been increasingly neglected in the last decades. They have become depopulated, with larger and larger numbers of their population moving to cities; their infrastructure remains poorer than in urban areas, particularly in terms of connectivity, which has proven to be crucial in the digital economy. Rural areas are currently unprepared to adapt themselves, compete and attract population in this new economic context. However, they still have assets (tangible and intangible) that could be of great value if correctly repurposed. There are methodologies to allow for inclusive digitalization in all areas at the micro level, and rural areas have untapped potential that could give them a second chance in promoting economic activity, population growth, entrepreneurship, and social innovation through the creation of networks and spaces for digital collaboration.

The rural problem is multi-faceted, and the difficulties of rural areas to participate in the digital economy are only one of the symptoms. Therefore, initiatives to promote the digital economy in rural areas must consider the broader context and how issues link with each other. Solutions need to touch upon various topics, from finance to more favorable regulation, educational programs, technical expertise, the connection amongst rural villages to share experiences and best practices, etc., and not limit themselves to digital-only programs. Once again, the notion of technology as an insufficient solution per se to social issues proves to be problematic, as already explored in other papers.

The authors identify four key challenges in rural areas that need to be urgently addressed:

1) the lack of collaborative and coordination frameworks that promote strong connections between local stakeholders for local change;
2) the lack of perennial activities that encourage a sticky urban exodus towards rural areas in the medium to long-term;
3) the difficulties of remoteness and depopulation, which include lack of adequate access to basic services such as health care, public transport or connectivity;
4) low sense of community, with stakeholders acting in silos.

As a response to the above-mentioned challenges, and based on prior experiences in rural programs, the authors propose the Rural Awakening Centres methodology, a specific methodology to make rural areas attractive for young families, young professionals, and entrepreneurs who want to locate their professional projects in rural areas and cannot do so due to the lack of infrastructure, finance, regulatory and social conditions.

The methodology includes a set of initiatives organized around six work packages that address the challenges previously discussed:

- **Work package 1:** create the space for brainstorming and collective generation of ideas for local projects with a positive impact
- **Work package 2:** promote remote work in rural areas through co-working spaces that will also allow the testing of the projects conceived in WP1
- **Work package 3:** host digital nomads and people at risk of social exclusion through agreements with local public administration, and create linked, inclusive communities
- **Work package 4:** train new local entrepreneurs and the existing productive sector in digital skills
- **Work package 5:** create Territorial Intelligence Units that can provide Rural Awakening Centres with the necessary technical assistance and capabilities for project development
- **Work package 6:** set up Smart Village offices that later integrate Smart Village Networks and support the strategy, involvement of local actors, transfer of knowledge, and attraction of funding to rural areas for project development

The policy implications that follow from the challenges of rural areas and the suitability of the above-mentioned framework are built around the four types of policy barriers that exist in sparsely populated areas: social, financial, regulatory, and technical barriers. The implications touch upon varied topics precisely because rural areas face a complex situation of disadvantage that can only be addressed through a decided, interdisciplinary effort.

The social implications of the findings include the need for active policies to change the narrative and framing of rural areas, and the creation of online and offline spaces that favor the exchange of knowledge and ideas on technology, environmental, social, and technical developments. Regarding finance, the authors point at positive discrimination of micro-companies in rural areas, special fiscal areas, and other economic incentives for corporations to implement remote working policies in rural areas. Regulatory implications relate to repurposing abandoned properties in rural areas, as well as “rural proofing” and the “rural check” of policies, including digital and technology policies, to ameliorate the regulatory barriers identified. Finally, technical barriers imply the need for funding to offset the development imbalances in comparison to urban areas, technical assistance, and incentives for universities and corporations to test their ideas for rural development in their nearby rural environments.

The paper uncovers some research spaces that deserve greater attention in the relationship between rural areas and digitalization. One of these spaces is generational demographic differences. There should be an increased focus on the generational divide in rural areas and whether the frameworks used for rural development and digitalization are generationally aware. Policymakers and researchers should investigate how different methodologies and policies fit the needs of the elderly, who represent the largest population group in rural areas. The elderly need improved access to public services that are currently quasi-absent in their regions. Digitalization in rural areas needs to be tailored to their needs and level of digital literacy. Therefore, additional consideration should be given to addressing the generational divide in rural areas and the opportunities offered to the elderly to participate in the digital economy.

It is important that the measures and policies adopted from now onwards on the digital economy and the construction of the new social contract bear demography and the elderly in mind to adapt to their needs and, in this case, ensure success in revitalizing rural areas.

Supporting SMEs in the digital transformation: Reflections on a flagship support program in Germany

Just as rural areas are among the losers of globalization and digitalization, Meier, Köhn, Wolf and Gerling from the Humboldt Institute for Internet and Society address the issues of Small and Medium-sized Enterprises (SMEs), who have lost to large multinationals and international conglomerates.

Companies face two types of challenges when dealing with digitalization. Firstly, new competitors, who may come from different sectors and countries and were not a threat in the competitive landscape before digitalization. Secondly, the transformations of the digital transition itself, which involve developing new skills and competencies, but also revisiting the corporate strategy, organizational structure, culture, etc. In the case of SMEs, these challenges are accentuated by the lack of capabilities: they not only lack an understanding of digital technologies and how they can put them to use, but they do not fully understand how to adapt their business models to the new digital landscape and their digital offerings.

Throughout this paper, the authors describe a five-year program, Gemeinsam Digital, funded by the Ministry for Economic Affairs and Energy (BMWi) of Germany. The program aims to inform and train SMEs in the Berlin/Brandenburg area. The authors point at the need to sensitize policymakers about the problems that digitalization poses to SMEs and sensitize SMEs on how important it is for them to adapt to the new environment of the digital economy and the new ways of working. The paper's originality is that it not only describes the learnings of the project but also issues recommendations for future funding calls and programs so that policymakers

can refine their calls and award funding to the projects that are most in line with the reality of SMEs.

The paper describes **five key takeaways** from the program development that are helpful for the design, call and implementation of similar programs in the future:

1. SMEs differ enormously in demands and capabilities. Due to their varying size, the diversity of their employees, business models, and sectors. Therefore, the contents and formats of any SME sensitivity, information, and training program need to be flexible to adapt to the needs of the specific target group.
2. SMEs are constrained in their time and resources. Consequently, programs must be designed in a way that barriers to entry are very low, and the takeaways are relatively easy to implement so that impact can be identified early in the process.
3. When targeting SMEs to join the program, the content and the way of approaching the public of interest must be specific to each group. Massive calls to action will likely not generate the desired outcomes, despite reaching many more SMEs.
4. There is a trade-off between one-off training and continuous learning programs. The former is more convenient to SMEs since it is easier to incorporate into their employees' tight schedules. The latter allows for better incorporation of learning into routines and for change in obsolete working frameworks. There is an additional trade-off between the required personalization to effectively cater to SMEs' demands, and the time and effort it implies to program researchers and teams.
5. There are difficulties in performing evaluation and scientific learning at the same time as the specific activities of programs take place. Funding calls may require detailed evaluation and scientific data to assess project effectiveness. However, there is a tension between what project execution needs in terms of agility, personalization, and timelines, and program evaluation and scientific requirements, which require quality and in-depth data, standardization, and lower flexibility in program development. Consequently, it is difficult to extract the desired data (especially with the desired quality and depth) during the program.

From the key takeaways briefly summarized above, the researchers have identified **five implications stemming for SME digitalization programs**, but also for future public funding calls.

1. Programs need to be flexible and adaptable. SMEs are widely different, and their gaps and baseline situations diverge, which needs to be taken into account in project development and execution.
2. Programs must be highly practical and tailored, to cater to the demands of SMEs.
3. Programs also need to build legitimacy in advance. The authors propose to incorporate organizations that aggregate SMEs, that generate trust among the targeted audience, and involve participants from the design phase since they are the most knowledgeable about the challenges they face.
4. Resources must be built and developed within SMEs, and transformation driven from within. Otherwise, there will not be any lasting impact. This is also why pedagogy on the reasons why programs and changes proposed are relevant is crucial to ensure SME internal commitment.

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The lack of adequate correspondence between the skills of citizens and the skills demanded by employers drives the imbalance between labor demand and supply.

5. Scientific research must be designed as a core element of the project from the outset. This means that the scientific requirements and data extraction processes need to be highly coordinated and in line with program execution timings and demands.

It is important to note that the implications that stem out from the learnings and findings go back to the issue of legitimacy. In this case, the legitimacy of the program should not be perceived as distant from the needs and context of SMEs, but specifically addressed to SME concerns. As we have seen across this report, legitimacy (including digital legitimacy) is pivotal, which means that it must be built through every angle and policy action.

The authors outline the activities comprised in Gemeinsam Digital. The second activity is SME-start-up collaboration. The idea behind this is that startups are typically much more exposed to technology developments and would be able to share best practices and knowledge with SMEs, as well as create partnerships for the future. Moving forward, there should be more research on how to foster SME-start-up collaboration in digitalization so that needs, capabilities, and goals are aligned.

Closing the digital skill gap: The potential of online platform data for active labor market policies

Stephany's paper has to do with the individual: the skills that each worker has, and how more skills can be added to a person's skill set with lower effort but higher competitive reward. There are important labor market mismatches between supply and demand. That is why we see unemployment while there is a labor shortage in many sectors of the economy in general, and the digital economy in particular.

The lack of adequate correspondence between the skills of citizens and the skills demanded by employers drives the imbalance between labor demand and supply. The issue is particularly worrisome in the context of task automation, with more tasks performed by machines, who in turn replace workers due to efficiency gains. Those whose skills become obsolete in a rapidly changing world, and who lacked the anticipation to reskill and upskill themselves, become excluded due to the unforeseen changes in skills demanded. National education systems are too slow to adapt formal training programs in time to labor market needs. Therefore, there are questions about what type of training will effectively upgrade the skills of people and what skills are the most suitable for upskilling due to their lower likelihood of automation.

Stephany argues that there needs to be targeted reskilling programs based on previously acquired skills and sectors. Studies have shown that there are sets of adjacent and complementary skills which are more likely to be demanded in different sectors/job types. Hence, reskilling should not be performed without an underlying logic but based on the existing skills that a worker has, the adjacent skills, and market demands.

This requires attention to individual cases and skill bundles. For that, there needs to be accessible, near-real-time data that can be leveraged for the matchmaking of the individual skills and skill bundles demanded in the labor market, and the skills that seem less likely to be automatable. Additionally, real-time data will allow for the update of taxonomies, so that workers, education providers, and employers can speak the same language, and effectively satisfy each other's needs.

The need for tailored training results in two key implications. The first is the adaptation of educational programs and perspectives on education to a more flexible, personalized approach. Reskilling institutions should be able to provide workers with specific advice on which skills are the most sensible for them to acquire based on labor market trends and demand. That is why new taxonomies for skills should be improved so that learning recommendations are in line with actual demand.

The second implication is regulatory adaptation. In particular, the paper talks about the new Data Act. Online labor platforms (OLPs), social media sites specialized in professional connections, and job vacancy sites, have the best information on what skills are the most demanded. Therefore, access to data by public institutions and other agencies specialized in the reskilling of workers is key to empower effective and tailored upskilling and reskilling programs. The EU Data Act does not enable access and use of this data, which is generated and stored by private companies and limits the viability of training in the terms we have discussed. Consequently, the author proposes an amendment of the Data Act to allow for access to data when platforms are not willing to share the data that will be used for the public interest. The spirit of this recommendation is again to leverage the data that is generated in the digital economy and put it at the service of the population. The paper deals briefly with topics that should receive more attention in the future. The findings on complementary skills training are based on the available information from freelance workers. These represent a small subset of workers. Therefore, there should be more research conducted to verify that skill complementarity is the appropriate rationale guiding upskilling and reskilling of workers in other types of working

Additionally, more study is needed to understand the adequate formats for upskilling and reskilling training, and the necessary adaptations to training depending on
a) career and educational stage, and
b) industry.

The potential authorities or institutions responsible for those trainings (be they within the public sector, the private sector or a mix of both) should also be clarified.

A final topic for further research involves exploring additional frameworks for cooperation in data sharing between the public and private sectors.

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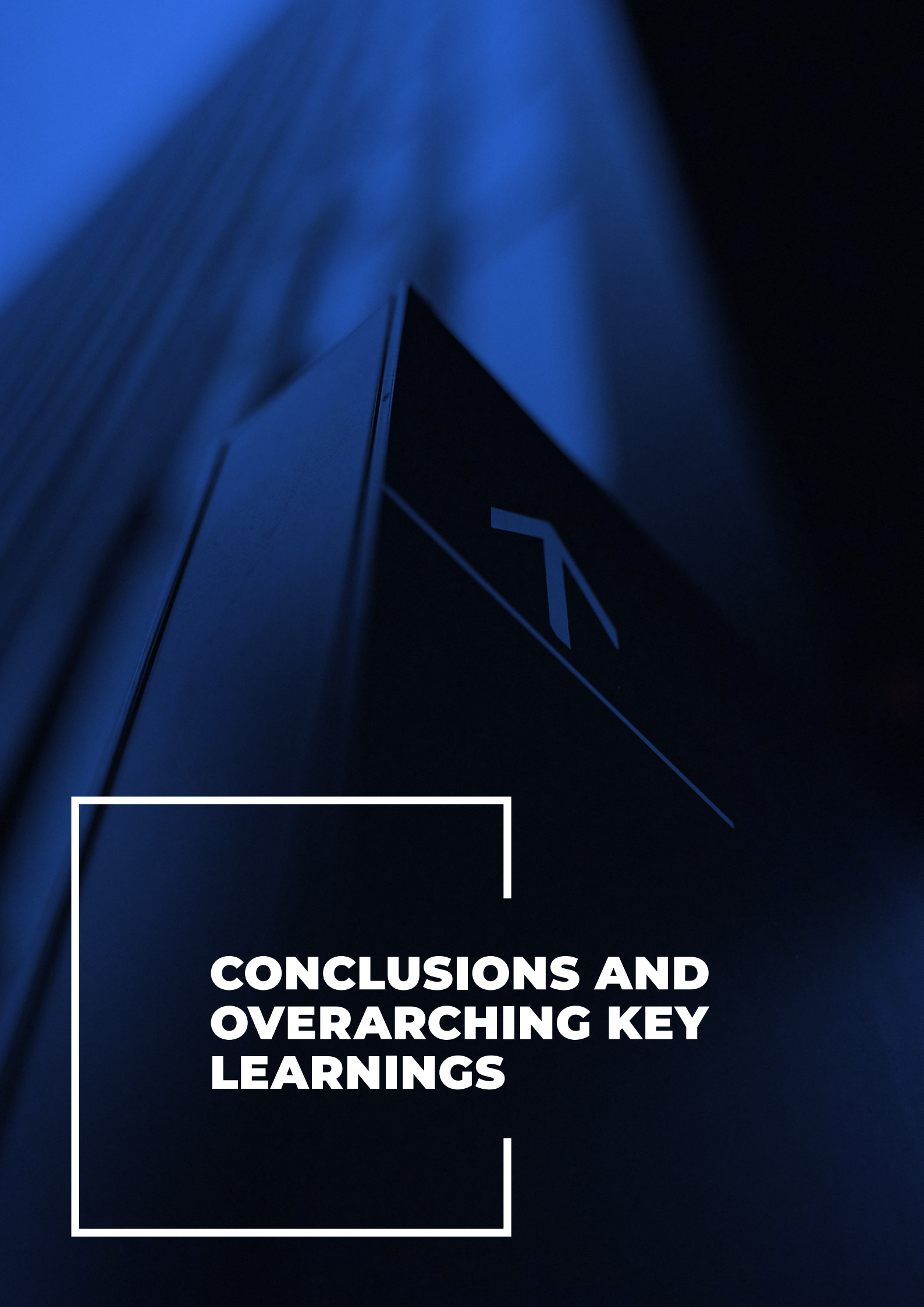
The aim would be to go beyond regulatory change, as proposed in the paper, to achieve smooth and timely information flows that facilitate upskilling and reskilling.



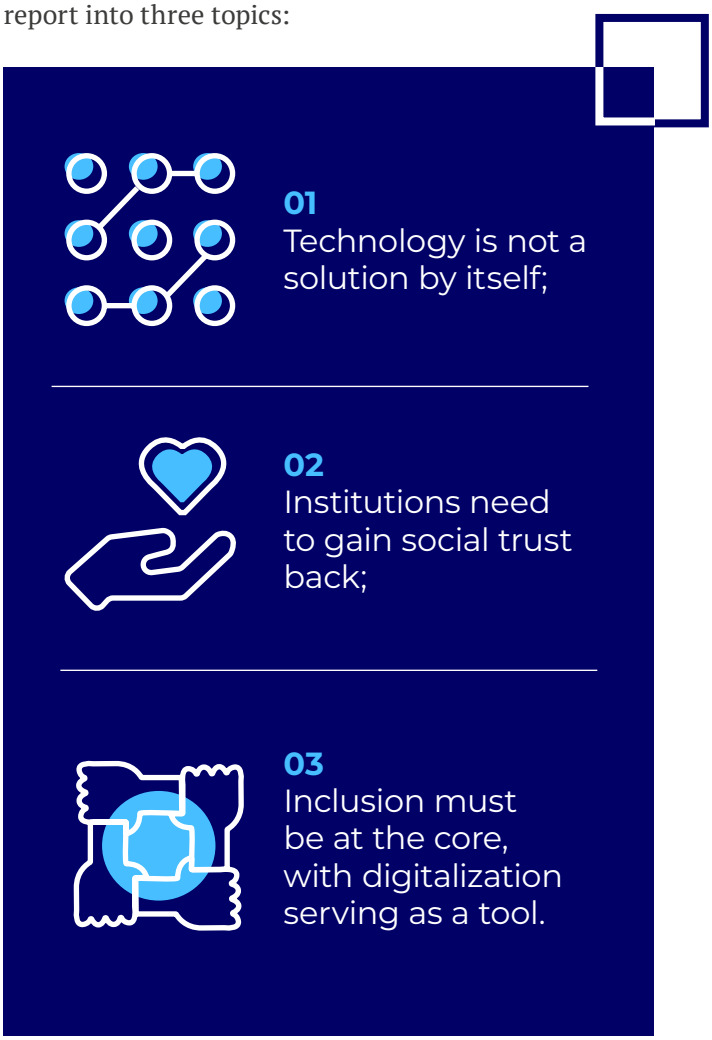
CONCLUSIONS AND OVERARCHING KEY LEARNINGS

Many declare that the digital economy (and digitalization and technology overall) will bring prosperity, progress, and modernity for all. Technology opens up the possibility for new narratives while many place their hopes on technology to solve pre-existing, deeply entrenched problems. Nevertheless, these promises on the future of technology and society are sometimes hard to keep, and disillusionment is hard to manage once expectations are not met.

The digital economy accentuates the challenges we are facing today. It puts more stress on those who are already at risk and at the margins. The transformations that a transition towards a digital economy implies are not always easy to handle by disconnected communities, who are already affected by other challenging realities. The digital economy is also expensive, especially in 2022, when energy prices have soared, and are often absorbed by the individual.

This report synthesized the key learnings from the eight papers in the first work package of the project "The Digital Revolution and the New Social Contract" directed and coordinated by the Center for the Governance of Change at IE University but developed with a number of academics, think tankers, and practitioners specialized in the digital economy. The papers covered several areas of the digital economy and uncovered its potential impact on the new social contract.

Beyond the learnings in each paper, which have been extensively discussed in the sections above, we have summarized and structured the key insights of this report into three topics:



Technology is often understood as the solution to any problem. Its transformative economic and social potential is immense, but technology does not exist in a vacuum: it should be understood as part of a broader context that includes political, social, and institutional dynamics. Neglecting this context many times leads to technology amplifying existing social problems and/or creating new ones.

Social problems cannot be solved through technology alone because they are rooted on deeper structures. Technology does not change the underlying conditions that created a certain need in the first place. Inequality, marginalization, or institutional failure are not solved with technological and engineered responses because they are built on top of the same flawed foundations. Basic conditions for the success of digital and technological solutions that will lead to more prosperity, such as access to technology or technological education, are still conditioned by the socioeconomic status of the individuals who are supposed to benefit from them. Consequently, it cannot be expected to remedy a social problem through a technical solution that does not address the root causes of societal failure.

Furthermore, technology creates social problems of its own. As learned throughout the papers, technology generates new social, economic, and political dynamics that arise from its application and widespread deployment. As a result, the distribution of access, benefits, and power generated by technology is not equal for everyone in society.

For technology to be a useful tool, **institutions** need to structure the mechanisms that allow technology to reach everyone and touch upon the levers that will lead to social improvement. For that to happen effectively, institutions need to first regain the trust lost due to past failures in the management of crises and in meeting the expectations of citizens. This entails reaching the difficult balance between the best solution from a technical perspective, and the best solution from a social perspective that is in line with the needs and demands of the population. Policy disconnect from society leads to discontent and mistrust, as demonstrated in the technocratic approaches to the 2008, 2010, and 2012 European crises.

Trust needs to be built by

a) showing that institutions call upon the many groups who have valuable knowledge on what needs to be done,

b) coordinating the relevant stakeholders whose actions can have an impact, and

c) delivering the results that lead to better outcomes for everyone and not just a few. Consequently, institutions need to be active in policymaking and in implementing the necessary internal changes to address the challenges and opportunities of the digital economy. The public sector should be agile in identifying risks and trends, and in coming up with effective responses.

The last pivotal insight from the papers is that **inclusion** is at the core of the discussion of what should institutions achieve in managing the digital economy. What the authors of the papers have called for is to move towards a digital economy together. To that end, digitalization is a useful tool (not an end by itself). Digitalization should be the lever that accompanies and supports the sectors that face the most difficulties along with other measures. The problems faced by disconnected communities are wicked and multifaceted. There is no quick fix for them. Therefore, it should be very well understood when, how, for whom, and by whom is technology used. Otherwise, technology will fail to meet the high (and sometimes disproportionate) expectations placed on it.

RECOMMENDATIONS FOR THE NEW SOCIAL CONTRACT

The previous section highlighted the three pivotal conclusions that apply to all the areas analyzed in the digital economy. These conclusions stem from the insights and learnings of the eight papers produced. In line with them, four core recommendations for the digital economy and the new social contract follow.

These are general recommendations that do not necessarily imply specific regulatory transformation, but a change in mindset for future policymaking: **legitimacy, multistakeholder collaboration, public sector transformation, and an engaged private sector.** In addition to the broader recommendations, specific recommendations for each level of analysis are also provided below.

It is important to note that many of the efforts outlined in this section must be coordinated at the local, regional, national, and international levels. The digital economy is a reality that needs to be owned by as many people as possible, and consequently be adapted to the priorities and preferences of our liberal democratic economies and societies. If we do not do so, other alternatives that seem to be delivering better results, despite the differences in values, will become more attractive and replace our societal value proposition.

Legitimacy

The current crisis of trust and legitimacy in many institutions requires a reboot for policymakers to go back to the basics of democracy to craft a new social contract. Quoting Abraham Lincoln, the objective is to preserve the notion of a "government (…) by the people, for the people".

"Government by the people" means that the individuals and (organized) civil society need to participate in democratic processes, which include elections, but also access to information and political debate. As mentioned mainly by the papers belonging to the macro and meso levels of this work package (including the paper on technology foresight, the crypto economy, and AI for the public sector), there needs to be political, open and transparent debates over the ends and goals of our societies.

Particularly, the debates should cover the ends and means by which we approach the digital transition and the digital economy.

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> In other words, the technological debate should become not only technical but also political.

It should result in collective political agreements achieved with the participation of multiple stakeholders, all with different views, who can draw from their previous experience, knowledge, and social priorities. Stakeholders should also be identifiable by the population to allow for democratic accountability.

Government for the people" refers to intent, but also processes and results. In this case, to a transition to a digital economy that takes everyone (or at least most people) into account (in other words, an inclusive digital economy) and is loyal to the political, socially defined goals of the digital economy. This is in line with the people-centric approach proposed by the European Commission.

In terms of outcomes, "government for the people" means that the results of the decision and policymaking process need to be effective to achieve the goals that were previously agreed upon for the future digital economy. Innovations come with disparities, and if these are unaddressed, they fuel distrust.

Hence, if legitimacy is not brought back to center stage, there is potential for backlash and social unrest for those who feel left out of the decision-making process and do not enjoy the benefits of the digital economy. This will be a field ripe for polarization, simplistic discourse, scapegoats, and divisiveness.

Multistakeholder collaboration

The multiple challenges societies face require collaboration. The digital economy is no exception. There needs to be a large-scale collaborative effort amongst groups, social and economic sectors, disciplines, public and private actors, institutions, teams, etc. This means that silos must be broken down for joint action.

As we have seen in the papers, multistakeholder involvement in the design of regulations, programs, and opportunities is key for initiatives. Otherwise, they will not fit the needs of the intended beneficiaries and will not be built on the best understanding of the issues at hand. This recommendation implies that not only should the technological debate be political, but that it must be a continuous process of engagement with other parts of society. It must trigger new ways of working on social problems across the board.

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> Collaboration implies coordinating actions to achieve common goals and interests along the policymaking and implementation cycle.

Collaboration, thus, applies to public-private, public-public, and private-private coordination. These are groups that have in-house valuable knowledge and experience on the digital economy from their own perspective. Coordination and information-sharing amongst them are pivotal for a successful digital transition where investments are correctly targeted towards the sectors that need them the most, policy reforms are in line with the actual situation of the industry, foresight and policy planning can be developed according to the prospects of industries, etc.

This new way of approaching the challenge of (digital) policymaking will create a strong institutional and social fabric for interconnection and understanding.

The public sector needs to be exemplary in this regard. As a first internal step, public sector institutions and departments need to devise (and even institutionalize) in-house collaboration instruments and methodologies for coordinated action, insight sharing from and with each agent, and collective responses to the challenges at hand. The next step, which should ideally be taken in parallel, would be to develop similar mechanisms externally for public-private outreach. The engagement should include businesses, civil society groups, and all the relevant actors involved in and/or affected by the digital economy. Collaboration should, thus, become the norm to face the new digital economy and the defining feature of the new social contract, and it should go beyond early consultation.

Public sector transformation

For legitimacy to be regained and collaboration to be possible, the public sector needs to be operationally capable of accommodating the digital transformation.

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Thus, a change in mindset in the public sector is required around two areas: flexibility and revision.

Flexibility includes several aspects that a renewed public sector should comply with. Firstly, agility in regulation. Policy design needs to be drafted closer to the ground, sometimes through experimentation. This holds especially true for the topics that are not sufficiently developed and where quick action is needed to protect, for instance, consumers and fair competition without discouraging innovation. Considering the fast-paced environment of digitalization and technology, regulation cannot be rigid; otherwise, it will be quickly outdated. Therefore, policy design requires flexibility in the way that policy is structured and addresses problems.

Flexibility also refers to policy evaluation and revision. There should be constant scrutiny of policy implementation, impact, and effectiveness/appropriateness of enforcement mechanisms. This recommendation aims to avoid favoring "perverse" dynamics in the digital economy, which counter the intended objectives of regulation and give an advantage to the wrong players.

Lastly, flexibility also means designing policies that are ready to admit tailored adjustments according to the situation of each suitable recipient. For example, as was the case in the paper on SMEs by Meier et al, program design and funding calls for digitalization initiatives need to consider the different needs of the expected beneficiaries. SMEs and individuals have profoundly different contexts that condition their expectations for programs addressed to them. Those need to be flexible and adaptable, ready to be tailored to the final recipients.

The second aspect of public sector transformation is revision, which refers to a thorough assessment of the suitability of today's public sector composition, organizational structure, and technical capabilities to meet the challenges of the digital economy and today's world. Renda and Entsminger have pointed out in their respective papers the need for better technical skills at the public sector level to properly design and enforce policy. Consequently, the public sector needs to be constantly revised and reformed to meet expectations.

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The challenges of digitalization require a responsible private sector that actively engages with society's demands for a legitimate, shared, and inclusive digital economy.

Engaged private sector

The fourth and last general recommendation is an engaged private sector. The challenges of digitalization require a **responsible private sector** that actively engages with society's demands for a legitimate, shared, and inclusive digital economy. Private sector initiative needs to transcend (although not lose sight of) private-private cooperation and be much more intertwined with public initiatives and institutions. Private companies and civil society have a key role in the digital transition and the configuration of the social contract. Therefore, new avenues of cooperation between the public and private sectors should be devised, formally or informally, beyond regulatory change to create and leverage synergies and build agile and effective initiatives together.

The private sector should also examine the root causes leading to the crisis of the current social contract and assume their corresponding part of the responsibility. This applies to both technology and non-technology-based companies. The private sector has contributed to the context leading up to a legitimacy gap and lack of trust in institutions. The best example is found in the traditional financial system and its players, whose role in the Global Financial Crisis defeated the trust that the population had placed in them. On the other hand, private companies have neglected parts of society, such as the rural population, whose access to digital services is severely unequal with respect to urban areas. Hence, companies should take the necessary measures to regain the trust of the public and/or seriously integrate Environmental, Social, and Governance factors at the core of their operations and strategies from a digitalization perspective.

Lastly, companies need to take responsibility for their deployment of digital technology. This means that businesses cannot rely on technological complexity as a justification for their practices. Actively pursued transparency should be the norm in companies with regards to their digital policies and operations. Indeed, this is especially important for those businesses whose sheer size, sectorial activity and market dominance place them as shapers and gatekeepers of the digital economy and, by default, the digital society.

All in all, this means that the private sector should be more aware of their social responsibility and role as nuclear agents in social dynamics. Renewed social commitment should be more ingrained and integrated into private activity. This will initially require incentives from the public sector, but large players should initiate that commitment on their own. Their long-term viability will depend on sustaining and providing the population with adequate social conditions in the digital economy.

Recommendations by level of analysis

Beyond the general recommendations just laid out, there are specific recommendations for each level of analysis that can be highlighted.

— Macro recommendations: long-term thinking, political responsibility, and support to adapt to the pace of change

At the macro level, there are three main recommendations to be highlighted. The first is the need to **think long-term** and overcome short-termism in democratic policymaking and narratives. The multiple structural crises that characterize our time require longer horizons for satisfactory results. Foresight needs to be central, but not centralized.

Consequently, foresight is needed to prioritize desired outcomes, understand future challenges, and design tools to accommodate changes. Politicians should change their strategies in the face of populism and perverse dynamics that invite them to follow suit. Policymakers should also be able to acknowledge the need to modify and adjust policy over time (regulatory sandboxes can be useful here) because the digital environment is constantly changing and solutions that were adequate for a certain context will not be so in the future. Thus, policymakers need to conduct careful and timely monitoring of policy impacts and be ready to react quickly.

A second recommendation, linked to the need for long-term thinking, refers to **political responsibility.** Democracies need their political representatives to develop a comprehensive understanding of the many challenges our societies face, including the digital transition. That understanding needs to be communicated and imbued into new political narratives of compromise, unity, and responsiveness to social needs. There needs to be also a strong commitment to mitigate as much as possible public failure. This implies that "solutionism", based on technological fetishism, without understanding the deeper problems, needs to be avoided.

The last recommendation at the macro level relates to providing support to **cushion the speed of global change.** As stated above, world changes like digitalization happen fast, while adaptive social transformations and corrections are slower. However, there are short-term consequences of change that need to be addressed right away. Therefore, while societies articulate what are the desired characteristics of the new digital social contract, we need to develop mechanisms that cushion temporary shifts and imbalances until everyone is fully on track in the digitalization process. This implies, for instance, supporting entrepreneurs from minority communities, invest in private ventures that are inclusive by design and prioritize the digital skills of the workforce of the SMEs which generate most of the employment.

— Meso recommendations: sustainability, technological accountability, and offline-online equivalence

The main recommendations of the papers at the meso level, beyond those stated in the general recommendations are also threefold. Firstly, **sustainability.** The digital economy is, so far, highly energy intensive. It is set to remain on a path of notable energy demand unless technological breakthroughs allow for substantial energy efficiency gains. The digital economy also produces large amounts of digital waste, contributing to the pollution and depletion of the environment.

Digitalization cannot trump the sustainability of our planet. Since the climate, energy and digital transition go hand in hand, sustainability needs to remain a core defining feature of the new social contract. Therefore, institutions should promote investments in R&D to improve the energy efficiency of existing technologies, develop new technologies that are more environmentally sensitive, and set targets for the reduction of energy consumption in the digital economy.

Secondly, technology needs to be held **accountable.** Reliance on algorithms, code, cryptography, and artificial intelligence, among others, cannot lead to the complete outsourcing of our responsibilities to technology (and to private firms that dominate it). Technology needs to be impacted and held accountable for the results it produces. Administrations and private companies must understand the processes and results conducted via digital means and explain them. This entails a certain level of technical understanding, for which investments in training and new capabilities at all levels will be needed.

Thirdly, the papers at the meso level suggest that there should be same rules for same activities. The **rules that apply in offline activities should also apply online.** This is true in a number of cases. For example, in the regulation of crypto, which should obey the same rules as similar financial service providers; in the prevention of rent-extractive public procurement in AI; in the regulation against quasi-monopolistic practices; in fighting criminal activities and tax evasion, and in the strong monitoring of digital service providers with the potential to cause systemic risks.

Micro recommendations: recipients at the center, tailored approaches, open access, and change in narratives

The recommendations for the micro level of analysis goes back to inclusion. Vulnerable populations see their situation of disadvantage accentuated by a mostly unregulated digital economy. To ensure social cohesion, not only should inclusion be a key consideration, but the **affected groups should be at the center.** They should be empowered to take on the necessary changes and drive them from within, voice their own needs and challenges, and adapt established frameworks to their specific situations. Inclusive digitalization means not forgetting about those who are further behind and who do not play a relevant role in the digital economy just yet, such as the elderly, minorities and others underrepresented in decision-making.

A more human or person-centered digital transformation also means that public policy in support of the lagging behind needs to be more **tailored in its approach.** Programs supporting the digitalization of SMEs, for example, need to be industry and even firm-specific if possible. This is key to identifying the specific needs, the trusted intermediaries that can help in this digitalization process, and above all in building resources within the SMEs. One-off trainings do not work. The same logic is valid for the development of rural areas, where both a complex-system-thinking but also a tailor-made approach is needed to yield the full potential of every single region. For that, the technical assistance provided by local or nearby universities and research centers is key.

Open access to the immense pools of data of digital platforms could also be extremely beneficial for the majority of the population. This is certainly valid in trying to understand what kind of working skills are now demanded by employers and find the appropriate matches, but also in the generation of public policies that might address the current mismatches in the labor market.

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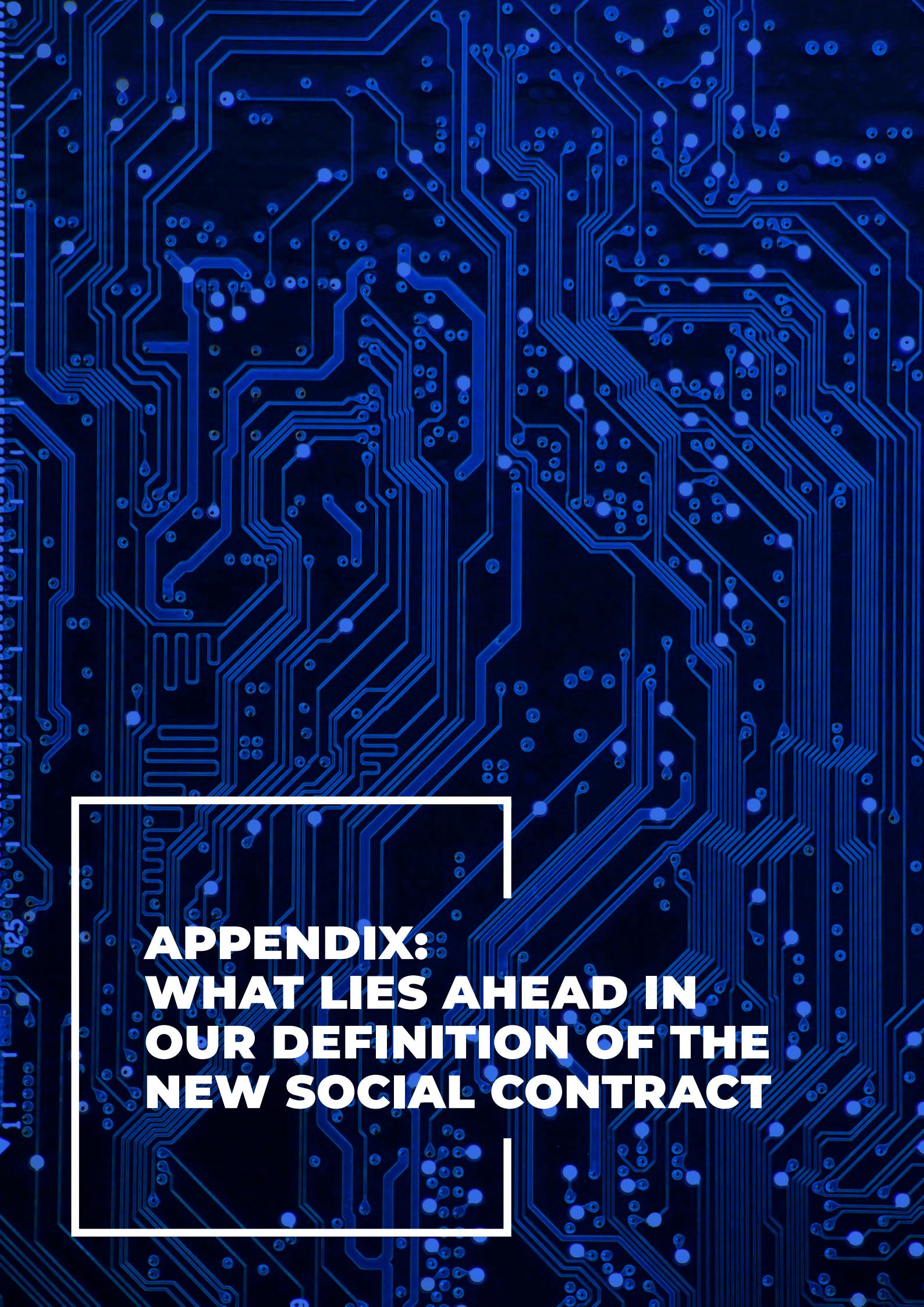
Furthermore, open access to anonymized platform data has huge potential for advancements in other public services and goods such as healthcare, public transport, energy efficiency, and bureaucratic processes.

The last specific recommendation focuses on the **change in narratives** regarding those groups who need support in the digital transition. They should no longer be victims but empowered agents in the transition. Rural populations, workers whose skills have become outdated, SMEs, the elderly, people with disabilities, etc. need different narratives that accompany policy reform to stop being and feeling marginalized by the public discourse. Not only should they be at the center when discussing and designing solutions to their exclusion, but they should be portrayed and considered as key actors in their own digital inclusion process.



APPENDIX: WHAT LIES AHEAD IN OUR DEFINITION OF THE NEW SOCIAL CONTRACT

The project "The Digital Revolution and the New Social Contract" comprises four different work packages. This report summarizes the main findings of the first package: "Drivers and implications of the digital economy". Despite the ambition of the papers, the breadth of the topics led to some areas being only briefly touched upon while deserving more attention and study in the following packages of the project: "Data governance and privacy in the Digital Age", "Power in the digital area", and "A new social contract".

Data governance and privacy in the Digital Age

The second work package of this four-stage project addresses privacy and data governance. The eight papers covered in this report have clarified that there need to be some basic political agreements on how we want society to work. There is an ongoing discussion in society and policy circles about taking a step back and deeply rethinking our data policies. The pandemic might have accentuated our collective realization as a society of how dependent and vulnerable we are to the desires of companies such as Google and Facebook.

The questions that could be potentially addressed in the next package can be grouped into four categories:

1) the legitimacy of means, ends, and actors involved in data extraction, analysis, and ownership;
2) the role of values and ethics in privacy and data governance;
3) data as a global commodity; and
4) the narratives that brought us here.

In the first category, we should reflect on why (goals), how (means) and who (actors) extracts, processes, and owns our data. Based on those answers we should think about whether those goals, means, and actors are **legitimate** and acceptable. Additionally, it is important to agree on the adequate level of transparency and accountability of those actors to ensure the alignment of the legitimate ends and means with the actual performance.

The second area of focus for the topics of study would be the **ethics and values** in privacy and data governance policies. The digital economy needs to be guided by political and social agreements. One of those agreements should precisely be on the role of values and ethics in privacy and data governance. More specifically, on whether values play a role at all and, in that case, which values are a priority. The prevalence of certain principles over others will shape the definitions and policies governing privacy, competition over data and its use, the role of the state in the protection of citizen privacy, the rein-in of large digital corporations, and the discrimination and biases embedded in AI algorithms, among other topics.

Data may become one of the most important raw materials in the next decades. However, data is not like other **commodities** whose location and applicable jurisdiction are easily identifiable. Commodities tend to be regulated and supervised by different institutional bodies that issue policy recommendations and rulings over what treatment should goods and services receive. Furthermore, it is typically digital, transnational mammoths who are monopolizing the industry of data and its use. Therefore, the question to address is whether the agreements over means, goals, and actors should be reached at a local, regional or global level, and what should be the role of the European Union and the broader multilateral system.

Finally, a reflection on the **narratives** and broader picture that made this debate urgent is needed: the why and the when. We need to understand why and when we skipped all the steps, necessary questions, and debate; why and when we blindly accepted the conditions without considering alternative ways of doing things, and when and why we agreed to give up the right to control our data.

Power in the Digital Era

The digital economy is not spared from geopolitical connotations and impact. The context explained at the beginning of this report makes us think unequivocally about a much more convulse world. Geopolitics is back on stage with great power competition, as made evident by the recent visit of Nancy Pelosi to Taiwan, the ensuing Chinese response, and the Russian invasion of Ukraine in early 2022.

Susan Strange coined the term "structural power" to refer to the power of global leaders to establish the rules of the game all other countries play by (1988). As part of structural power, Strange identified four components:

1) security,
2) production,
3) finance,
4) and knowledge.

Technology deeply influences all of them in one way or another, and we should be able to assess our technology status in each of those components to understand how democratic societies, and the EU, will be impacted by geopolitical competition.

Firstly, in security, the quality and innovation of the technology of a country impact its military capabilities and challenge the security of others. Nowadays, digital technology and security are even more intertwined due to hybrid warfare and cyberspace, new areas of vulnerability and power projection. Therefore, the relationship between the digital revolution, security, and our preparedness to face them should be assessed.

Secondly, technology influences **knowledge power** in that it determines how we create, process, and disseminate information. Technology also impacts whose values and ideas are spread and how, and gives disruptive technology developers reputational gains. Thus, an important area of study to be addressed includes uncovering what is the status of knowledge power projection in the EU through technology and how to advance in this arena.

Thirdly, in production, technology has become the key determinant of competitiveness. Once again, technology standards are relevant because they allow the developer to bias what and how an activity is conducted without external constraints. They also give

first movers a greater chance of becoming the long-term standard. Our technology position determines our dependencies on others, which makes production power an area worthy of more study.

Lastly, financial power. The crypto economy and its new financial ecosystems are the greatest exponents. Whoever leads in developing new models for financial services and incorporates those existing into their systems (while mitigating the numerous risks) will potentially lead in this realm.

Technology is then crucial in global politics. In this context of geopolitical competition and increased conflict, looking at the components of structural power will shed light on what the impact on the digital economy will be and whether there will be a trend towards deglobalization and increasing regionalization of digital ecosystems among like-minded partners.

It is also important to address the changing role of existing actors and how their relationships are likely to vary in a more convulse, digital world. Individuals, the state, and private corporations (especially Big Tech) may interact differently due to increased geopolitical tensions.

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Global competition also has the potential to challenge democratic values and our ability to reach a democratic consensus over the issues mentioned in the papers: the values and goals that the different aspects of the digital economy should pursue, and their order of priority in a geopolitical context.

These aspects should be addressed in the third work package.

A new social contract

As we have seen throughout the eight papers and this report, technology and the digital economy have the potential to transform the social contract, because they create new social conditions and dynamics that are not correctly addressed by the existing arrangements. The digital economy is impacting the society individuals have agreed to participate in, but it is changing without their consent or without their ability to fully grasp how it is changing, why, and what are its implications.

Therefore, the last work package should delineate what the new social contract for the digital age should be like with empowered individuals as the basis. The new social contract needs to involve individuals, groups, and a wide range of stakeholder organizations in a way that is fair, socially representative, and meaningful. How that is achieved requires more research and study.

More research is needed on how policymakers and institutions can empower individuals in the new context, so that they can face fast societal change, without falling into populist dynamics and simplistic solutions to very complex and consequential challenges.

This work package will need to summarize and structure all the above-mentioned questions and their answers. They are pieces of the puzzle that make the new social contract. The contract will establish what is the desired balance between technology and people in societies and what role should each play.

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In the end, the most important crucial issue that this project aims to address is what our future will look like: how do we want to reshape our societies and accommodate digitalization so that democracy could still be a viable, attractive, and effective option at the core of our social contract vis-à-vis techno-authoritarianism?

REFERENCES

— Ari, A., Arregui, N., Black, S., Celasun, O., Iakova, D. A., Mineshima, A., . . . Zhunussova, K. (2022, July 29). *Surging energy prices in Europe in the aftermath of the war: how to support the vulnerable and speed up the transition away from fossil fuels.* Retrieved from IMF: https://www.imf.org/en/Publications/WP/Issues/2022/07/28/Surging-Energy-Prices-in-Europe-in-the-Aftermath-of-the-War-How-to-Support-the-Vulnerable-521457#:~:text=Summary%3A,most%20cases%20they%20are%20regressive

— Council of the EU. (2022, June 30). *Digital finance: agreement reached on European crypto-assets regulation (MiCA).* Retrieved from Consilium Europa: https://www.consilium.europa.eu/en/press/press-releases/2022/06/30/digital-finance-agreement-reached-on-european-crypto-assets-regulation-mica/#:~:text=Background,financial%20stability%20and%20consumer%20protection

— Country Economy. (2022). *US Federal Reserve Bank key rates.* Retrieved from Country Economy: https://countryeconomy.com/key-rates/usa

— European Central Bank (ECB). (2022). *Key ECB interest rates.* Retrieved from ECB: https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html

— European Commission. (2021, May 5). *Communication form the Commission to the European Parliament, the Council, the Europan Economic and Social Committee and the Committee of the Regions Updating hthe 2020 NEw Indsutrial Strategy: building a stronger Single Market for Europe's recovery.* Retrieved from Eur-Lex: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0350

— European Commission. (2022, February 23). *Data Act – Factsheet.* Retrieved from Digital Strategy: https://digital-strategy.ec.europa.eu/en/library/data-act-factsheet

— European Commission. (2022, February 23). *Data Act: Commission proposes measures for a fair and innovative data economy.* Retrieved from European Commission: https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1113

— European Commission. (n.d.). *Competition Policy: Digital Markets Act (DMA).* Retrieved from European Commission: https://competition-policy.ec.europa.eu/sectors/ict/dma_en

— European Commission. (n.d.). *Recovery and Resilience Scoreboard.* Retrieved from European Commission: https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/index.html

— European Commission. (n.d.). *The Digital Services Act: ensuring a safe and accountable online environment.* Retrieved from European Commission: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/digital-services-act-ensuring-safe-and-accountable-online-environment_en

— Eurostat. (2022). *Annual inflation up to 8.6% in the euro area. Brussels: Eurostat.* Retrieved from https://ec.europa.eu/eurostat/documents/2995521/14644638/2-19072022-AP-EN.pdf/fff35147-c9b3-a915-7bf0-b09202bbd130#:~:text=The%20euro%20area%20annual%20inflation,up%20from%208.8%25%20in%20May

— Food and Agriculture Organization of the United Nations (FAO). (2022). *The importance of Ukraine and the Russian Federation for global agricultural markets and the risks associated with the current conflict.* Rome: FAO. Retrieved from https://www.fao.org/fileadmin/user_upload/faoweb/2022/Info-Note-Ukraine-Russian-Federation.pdf

— Gregg, A. (2022, June 29). *FCC commissioner calls on google and Apple to ban TIkTok app. The Washington Post.* Retrieved from https://www.washingtonpost.com/business/2022/06/29/fcc-tiktok-ban-apple-google/

— HM Revenue & Customs. (2022, August 5). *HMRC late payment interest rates to be revised after Bank of England increases base rate.* Retrieved from Gov.uk: https://www.gov.uk/government/news/hmrc-late-payment-interest-rates-to-be-revised-after-bank-of-england-increases-base-rate--6#:~:text=HMRC%20interest%20rates%20for%20late,interest%20rate%20rise%20to%201.75%25.&text=The%20Bank%20of%20England%20Monetary,t

— International Telecommunication Union. (2021, November 29). *Facts and Figures 2021: 2.9 billion people still offline.* Retrieved from International Telecommunication Union: https://www.itu.int/hub/2021/11/facts-and-figures-2021-2-9-billion-people-still-offline/

— International Telecomunication Union (ITU). (2022). *Statistics.* Retrieved from ITU: https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

— IPCC. (2022). *Summary for Policymakers* [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem (eds.)]. Cambridge University Press, Cambridge, UL and New York, Ny, USA. doi:10.1017/9781009325844.001

— Meltzer, J., & Tielemans, A. (2022). *The European Union AI Act. Global Economy and Development at Brookings Institution.* Retrieved from https://www.brookings.edu/wp-content/uploads/2022/05/FCAI-Policy-Brief_Final_060122.pdf

— Mullen, A. (2021, August 29). *China Economy.* Retrieved from South China Morning Post: https://www.scmp.com/economy/china-economy/article/3146489/us-china-trade-war-timeline-key-dates-and-events-july-2018

— Statista. (2022). *Telecommunications.* Retrieved from Statista: https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/

— Strange, S. (1988). Power in the world economy. In S. Strange, *States and markets* (pp. 23-42). Bloomsbury Academic. Retrieved from https://books.google.es/books?id=YkjtEOM5LbkC&pg=PA23&source=gbs_toc_r&cad=3#v=onepage&q&f=false

— Strebel, M. A., Kübler, F., & Marcinkowski, F. (2018). The importance of input and output legitimacy in democratic governance: Evidence from a population-based survey experiment in four West European countries. *European Consortium for Political Research.* doi:10.1111/1475-6765.12293

— The World Bank. (2022, April 20). *Digital Development.* Retrieved from The World Bank: https://www.worldbank.org/en/topic/digitaldevelopment/overview#1

— United Nations Conference on Trade and Development (UNCTAD). (2021). *Digital Economy Report 2021.* Geneva: United Nations. Retrieved from https://unctad.org/system/files/official-document/der2021_en.pdf

— US Bureau of Labor Statistics. (2022). *The Economics Daily.* Retrieved from US Bureau of Labor Statistics: https://www.bls.gov/opub/ted/2022/consumer-prices-up-9-1-percent-over-the-year-ended-june-2022-largest-increase-in-40-years.htm

— World Bank. (n.d.). *World Bank Data.* Retrieved from World Bank: https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=XM

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