

THE ROLE OF LOCAL AUTHORITIES IN THE NEW DIGITAL EUROPE FRAMEWORK. WHAT CAN THEY BRING TO THE TABLE?

*Mirela MĂRCUȚ**

Abstract. *This article analyzes the contribution of local authorities, either cities or regions, to the new EU digital strategy, based on the acknowledgment of the need for strengthened coordination among societal actors for digital transformation. By using document analysis of the new policy documents on Digital Europe, the article postulates that the new digital policy is different from previous endeavors and, as such, more active involvement should be sought from various actors. The article lists two potential pillars in which local authorities contribute, namely either by direct involvement, based on the main ideas from the strategy, or by indirect involvement. The indirect involvement regards the building of trust and the encouragement of citizen participation so as to increase the transparency of digital transformation with ramifications up to the European level.*

Keywords: *EU digital strategy, digital policy, local authorities, cities, smart cities, trust*

1. Introduction

The development of a coordinated digital policy at the European level has been a long time coming. Different Commissions have had different conceptualizations, such as knowledge society, information society, information superhighway, digital single market, but they all shared in common the desire to leverage the socio-economic potential of information and communication technologies. These approaches have progressed along with the overall efforts for further integration, characterized by the entrepreneurship of the Commission and countless negotiations with Member States (Mărcuț 2017). The Digital Single Market Strategy implemented between 2015 and 2020 crystalized all these efforts in a single regulatory framework meant to develop the digital side of the Internal Market, which is the cornerstone of the European project.

All initiatives involved both policy entrepreneurship from the Commission and coordination of various actors at various decision-making levels, depending on the varying competences of the Union and the interests of the Member States. Moreover, other actors have also been involved in different initiatives meant to complement the regulatory framework of the Digital Single Market. For instance, private companies and NGOs have been involved in a coordinated effort to boost digital skills across Europe in the Digital Skills and Jobs Coalition (Digital Jobs and Skills Coalition 2019).

The purpose of this article is to examine the involvement of a different actor, namely local authorities, cities or regions, in the design of the new Digital Europe elaborated by the new Commission that took office at the end of 2019. The reason behind this examination stems from two ideas. Firstly, local authorities have long started

* Assistant Professor, University of Oradea, 1st Universitatii St., Oradea, E-mail: mirelamarcut@uoradea.ro

developing their own smart city strategies that aimed to boost digitization and their visions align in manner with some European ideas (Mărcuț 2020). Secondly, the coordination efforts for this new phase of digital transformation in Europe have intensified, considering the coupling of the systemic challenges of climate change and digitization in the new policy documents. The hypothesis of this article is that cities and regions, i.e. sub-national entities in general, have already contributed on their own to these challenges with their adaptation to these systemic challenges. Having this in mind, this article explores the new policy documents issued by the Commission regarding the new phase of digital policy in the European Union in order to identify the roles envisioned for them by the EU level and ways in which they can directly contribute.

Firstly, the article delves into a brief overview of the new Digital Europe programs based on thorough document analysis. This will provide the backdrop for the extraction of the envisioned roles for sub-national entities, along with other actors. Finally, the article will provide possible avenues for contribution to the digital policy based on their smart city strategies with a short case study on the subject¹. The article focuses on governance aspects, both as regards decision-making and implementation.

2. Overview of new Digital Europe principles

One of the ten political priorities of the Juncker Commission, the Digital Single Market Strategy (DSMS) had been designed for five years with the main purpose of developing a regulatory framework for the harmonization of policies. Its main policy results are the General Data Protection Regulation, the Copyright Directive, or the regulation on the cross-border portability of online content. Overall, the construction of the digital policy was mainly at a European level, boosted by the realization that digital barriers existed between Member States (MS). For instance, customers from one Member State could not order goods from another one and even if they could, they would have higher costs and fees. Other examples of barriers included the lack of portability of online subscriptions to content across borders, whose removal has been dubbed a successful endeavor in the eyes of Europeans (European Commission 2019).

Based on this backdrop, the change in European leadership in 2019 triggered a rethinking of the digital policy initiatives by the Commission based on the “robust framework” put in place by the DSMS (European Commission 2018). This section aims to extract the main points of this new approach based on a series of policy documents issued by the Commission in 2019, as follows:

- Proposal for Digital Europe Programme 2021-2027 (European Commission 2018)
- Communication on Shaping Europe’s Digital Future (European Commission 2020a)
- The White Paper on Artificial Intelligence (European Commission 2020b)
- EU’s Data Strategy (European Commission 2020c)

The new principles of digital policy in the European Union can be crystallized from these documents and they portray an enforced view on EU-wide efforts for digital transformation. Moreover, they shed a light on the interaction among actors in which local authorities can be involved and in which they can be involved.

The first major change regards **the creation of an investment fund** for digital transformation, entitled Digital Europe, based on a set of fields identified as priorities by

¹ This case study research has been supported by the Deutscher Akademischer Austauschdienst under the framework of a short -term postdoctoral grant between December 2019 and May 2020. This article reproduces only a part of the research.

the European Council, namely artificial intelligence, high-performance computing, cybersecurity and advanced digital skills (European Commission 2018, p. 2). The proposal for Digital Europe is circumscribed within the framework of the next Multiannual Financial Framework and is designed to cover the next programming period as well. Moreover, the proposal for the regulation that would enforce such a funding programme highlights the idea that the proposed investment programme is an EU-wide response to a challenge that cannot be properly tackled Member States individually (European Commission 2018, p. 2). Likewise, in various previous consultations with stakeholders and evaluations of policies, the Commission had concluded that previous funding initiatives, such as Connecting Europe Facility, did not reach the entire scope of digital transformation insofar it only partially addressed current needs and it “could only support the first steps towards EU wide digital transformation”(European Commission 2018, p. 8). Finally, another justification for an investment priority for digital transformation stems from stakeholder consultations, which concluded that there is a need for “a more efficient, less fragmented approach to maximize the benefits of digital transformation to all European citizens and businesses” (European Commission 2018, p. 9). The programme has not been approved yet and it will be included within a post-pandemic EU-wide recovery instrument, but its innovative character still stands, in that it will be the first-ever common public investment fund for digital issues across the European Union. The significance of an investment fund targeting digital priorities directly opens up the involvement of various actors in the governance of digital policies and this brings the discussion to the next feature of digital intervention in the EU.

Digital Innovation Hubs (DIHs) are not necessarily a new construct for the European Union, as they date back to 2016 as a part of the initiative to digitize industry (European Commission 2016a). Their focus is on becoming “one-stop shops that help companies become more competitive with regard to their business/production processes, products or services using digital technologies” (European Commission 2016b). Their main *raison d’être* is that they provide technical expertise and consulting for companies so that they “test before invest” in solutions for digital transformation. As of the Digital Europe proposal, the Commission is aiming to create a network of European Digital Hubs with financing from various financial instruments that would eventually boost the take-up of technologies based on the priorities identified by the Digital Europe programme. As the previous DIH initiatives, this new one, based on the idea of networks, will have both local and European functions, with regions also being able to support them (European Commission 2020d). They coagulate research and business in an effort to boost digital transformation with support from the EU and Member States. The innovation for the Digital Europe Programme is that they have to go through a selection process at EU and Member State level, with the latter having an “essential role” in choosing the hub for the network.

Their connection to the digital policy is clear, considering their focus on bringing digital transformation closer to companies. The governance system behind them showcases the innovative governance mechanisms that are developed within the digital policy of the European Union with various actors coordinating at different levels: European, national, and regional. The priorities areas in which they aim to develop innovative solutions showcase also the complex domains that have to be navigated by the European Union, especially considering that other world powers are much more advanced in some of them, such as China with artificial intelligence.

The current challenges and opportunities faced by the European Union have been presented in the newest communications on Digital Europe on February 19, 2020 and they

illustrate the new phase of digital policy in Europe, considering the fact that “the twin challenge of a green and digital transformation has to go hand-in-hand”(European Commission 2020a, p. 2). With this as a justification, the digital strategy highlights one new principle, namely **European technological sovereignty** that focuses on two main directions, “integrity and resilience of data infrastructure, networks and communications” and a focus on values and the ability to set its own rules (European Commission 2020a, p. 3). These two pillars of sovereignty reinforce each other in a feedback loop in order to “focus on the needs of Europeans and of the European social model” (European Commission 2020a, p. 3). The new principle is based on the idea of more assertiveness of the role of digital player globally, as the Communication states the following: “it needs to be a strong, independent and purposeful digital player in its own right” and highlights the objectives by which it aims to do this:

- Development of technology that works for the people
- A fair and competitive economy
- An open, democratic and sustainable society
- Digital Europe as a global player

The main pillars of this strategy resemble the previous policy initiatives, such as the Digital Single Market project, but the emphasis in this current view is much more on values and on principles, such as **trust and fairness**. Trust is necessary so that citizens can safely use and engage with current technologies, but it is also required as a trademark of the relationship between institutions, private companies, and citizens. Trust is actually the keyword in the Communication on Artificial Intelligence, which accompanies this strategy, entitled: “a European Approach to Excellence and Trust” (European Commission 2020b).

Fairness refers to the respect for values in the digital space, to the development of a digital single market without barriers to entry, but with respect for competition. The main targets of these values regard the domination of Internet platforms across the digital space that make it difficult for other smaller players to enter the digital markets. As such, the digital strategy has put forward a proposal for some form of regulation of platforms in their relation to platform workers, but, most importantly, with regards to fair taxation. **Fairness** with regards to fiscal obligations of major Internet platforms is yet another shift of the EU digital policy from previous initiatives, one that represents an uphill battle with Internet giants and Member States.

Finally, these broad strokes of the new digital policy of the EU all converge to the development of an **assertive** EU in digital policies both within the European space and internationally. To highlight this point of view, the Digital Strategy concludes with the following affirmation: “Europe can own this digital transformation and set the global standards... “It will be a truly European project – a digital society based on European values and European rules – that can truly inspire the rest of the world” (European Commission 2020a, p. 8). The EU approach to artificial intelligence highlights the assertiveness of the EU as a significant player in the race towards AI, but it places this assertiveness within the boundaries of **ethics and human-centered innovation**. For instance, the communication states that a human should be always behind the final decision-making process when AI is concerned (European Commission 2020b). All these features are the foundation for the governance of digital policies and the interaction of actors at various levels needs to take them into consideration both when policies are designed by different actors and when **coordination** is the key interaction, as it is stated in the conclusions of the Communication on the Digital Strategy: “Coordination of efforts between the EU, Member States, regions, civil society and the private sector is key to

achieving this and strengthening European digital leadership”(European Commission 2020a, p. 8). This brings the discussion back to the major actors and their roles in pursuing the digital policy priorities and principles. The next section briefly explains the main roles that institutional actors play in the pursuit of digital leadership.

3. Institutional Actors and Their Roles in Digital Europe

When designing, deciding and implementing public policy, the European Union can be a fully-fledged actor, but it also requires the support of various other actors, depending on the competences that are summoned for various policies. In the case of regulatory policies for the Digital Single Market, the EU requires the support and the acceptance of MS in the process of decision-making. When it comes to social aspects regarding digital technologies, the EU cannot introduce legislation, but it can offer support and collaborates with various actors to boost digital skills, for instance. Whatever the digital challenge, the collaboration of various actors is required, especially considering the systemic change that it can bring about. This section deals with the proclaimed collaboration between various actors to identify the paths that each must follow in the light of this new digital policy structure.

Firstly, the European Union has been slowly, but surely, building its international leadership in this matter, as it is now obvious from the most recent policy documents. The justification for more EU involvement and coordination stems from the acknowledged reality that individual actions by Member States are not sufficient to tackle the societal changes brought about by digital transformation. This assertion is in direct concordance with the principles of subsidiarity and proportionality of the EU that try to maintain the decision-making as close to the citizen as possible, while also stating that the EU actions should be proportional with the challenge at hand. Clearly, digital transformation is one of the two key challenges currently facing the EU. In the case of digital policy, by means of the Commission, the EU has opened up the discussion with relation to the priorities and the overall vision of the EU-wide intervention. The current strategy that has been analyzed in the previous section showcases exactly this idea. Nevertheless, the EU must rely on the Member States mostly to help develop and decide on policies.

The second manner in which the EU pushes for certain policies is by designing public investment instruments meant to deliver on the priorities set. The main example is the Digital Europe Programme, which has been analyzed in the previous section as being the first EU-wide investment fund dedicated to digital priorities. Connecting Europe Facility, as well as cohesion and regional development funds also have priorities for digital issues, such as boosting connectivity, digital skills or innovation. Digital Poland Operational Programme is an example of a targeted instrument for one MS sourced from the European Regional Development Fund(Operational Programme Digital Poland 2014).

In this new digital strategy, not only has the EU become more assertive, but it also has also developed the aforementioned principles aimed at guiding the coordination of actors and measures. Member States are tasked with more responsibilities. Even if it was clear before, now more than ever, they must design national strategies to streamline the principles to the national level. They also contribute a great deal to the decision-making process and can heavily influence the policy result, as previous research has shown (Mărcuț 2020). Another responsibility for them is to support the leadership of the EU, as it is stated in the digital strategy: “In geopolitical terms, the EU should leverage its regulatory power, reinforced industrial and technological capabilities, diplomatic strengths and external financial instruments to advance the European approach and shape global

interactions... as agreements reached in international bodies such as the United Nations, the OECD, ISO and the G20, with support from the EU Member States” (European Commission 2020a, p. 7).

The role of the Member States expands also to the development of the network of Digital Innovation Hubs, given that they are tasked directly to designate a national hub to become a part of the European network, as well as to become eligible for limited calls for proposals (European Commission 2020d). In this sense, MS are gatekeepers and are in a controlling position both in the governance and as regards the distribution of public investment funds for Digital Innovation Hubs. The investment role is also another pillar for the involvement of MS in the new Digital Europe strategy. For instance, the European Data Strategy references the need for MS to invest in projects, such as the “High Impact Project on European data spaces and federated cloud infrastructures” (European Commission 2020c, p. 16).

Most importantly, MS should actively engage the initiatives of the European level in their own territories and “develop synergies” with EU programs. Hence, coordination not only refers to an EU-wide agenda setting, but also to the acknowledgment of the fact that MS that they must be more proactive in approaching this new frontier. Gaia-X is a state-led example of a project that is mentioned in the Data Strategy, to highlight the significance of national initiatives that both contribute to national digital policies and to the European goals. Gaia-X is self-described as a “federated data infrastructure for Europe” (Data Infrastructure 2020). Hence, there is acknowledgement of the complementary character of national and European initiatives, without any clear attempt of streamlining them directly to the European level. Coordination is also mentioned in the Communication on Artificial Intelligence, as previous plans for coordination action between the EU and MS have proven to be a proper starting point for a more comprehensive EU policy (European Commission 2020b, p. 4).

The entanglement between responsibilities of MS and the EU stands out in the governance section of the Communication on AI, as cooperation is the key against fragmentation of tools for AI, such as proper certification. Moreover, States need to be supported to “to enable them to fulfil their mandate where AI is used” (European Commission 2020b, p. 24). At the same time, the European level would act as a “forum for a regular exchange of information and best practice, identifying emerging trends, advising on standardization activity as well as on certification”. Most significantly, while the EU facilitates the design and decision-making on legislation, the MS are tasked with implementation and oversight of various mechanisms (European Commission 2020b, p. 24).

The EU digital policy has been focusing on concentrating activity more and more at the upper levels, but in doing so, it has not created a hierarchy of decision-makers. On the contrary, it has maintained the competences of MS and it has opened up the discussion to various stakeholders, be it private companies or sub-national authorities. This is stated in the overall strategy, as follows: “Coordination of efforts between the EU, Member States, regions, civil society and the private sector is key to achieving this and strengthening European digital leadership” (European Commission 2020a, p. 8). This next section will attempt to ask the title question: what do local/regional authorities bring to the table when it comes new Digital Europe?

4. Local/regional authorities in Digital Europe

This section is dedicated to highlight the possible involvement of local/regional authorities in the pursuit of the new Digital Europe strategy. Based on the emphasis that a

wide variety of stakeholders is necessary to contribute to the overall goals of the strategy, sub-national entities can play a significant role in the European technological sovereignty, as well as in the strategy to boost trust and fairness in the relationship with citizens. The section traces both direct and indirect involvement of local/regional authorities as evident from the policy documents that form the current digital strategy.

Even from the beginning, the communication on the new digital strategy stresses that Europe is strongest when it “acts together and joins forces” with various actors, among them being both regions and municipalities (European Commission 2020a, p. 4). The reasoning for such a partnership stems from the need to develop a bottom-top approach to the coordination of policies, but they can also play a key role in digitization of public administration, as well as building trust in new technologies. Moreover, they can also boost the environment in which small and medium sized enterprises function. On coordination of policies, local and/or regional authorities already have experience with cohesion funds, as regional programmes must be tuned to the long-term European strategies. Similarly, smart city or smart specialization strategies can be tuned to fit the overall European objectives with regards to digital transformation. Moreover, the European digital strategy creates opportunities for these authorities to benefit from public investment based on such instruments as the Digital Innovation Hub framework or the WIFI4EU programme. The significance of regional and/or local authorities in the coordination of policies has been building since the publication of the Digital Single Market strategy, where actually there was no real inclusion of the sub-national authorities in the discussion (Mărcuț 2019).

4.1. Direct involvement highlighted in the strategies

As mentioned before, the involvement of all societal actors in the implementation of the digital strategy stems from the need to tackle the systemic challenges of digital transformation and climate change. The preferred method to do so is the coordination of policies and actors at every level. The overall strategy of new Digital Europe does not mention any concrete lanes on which local/regional authorities should focus, restricting itself to highlight the significance of overall coordination.

The subsequent strategies on data and on artificial intelligence point out certain main directions in which local/regional authorities could be involved directly, but these avenues are not detailed that much in the documents. The strategy on artificial intelligence is split into two pillars, namely the pathways towards an ‘ecosystem of excellence’ and to an ‘ecosystem of trust’. The ‘ecosystem of excellence’ discusses the alignment of regulatory efforts at European, national, and regional levels, as well as the boost in research and innovation that can take place also at a regional level. Universities can play a significant role in this framework, as they are institutions rooted in a local and regional environment with the ability to boost the research on AI and the skilling of specialists in AI (European Commission 2020b, pp. 6–7). Likewise, the Digital Europe Programme, as well as various other financial instruments are potential sources for financing research and innovation initiatives in AI that can start at the regional level and be scaled up (European Commission 2020b).

Most importantly, the ecosystem of excellence also includes a proposal to boost the use of artificial intelligence in the public sector, with particular emphasis on domains, such as healthcare and transport where the technology is mature enough for “large scale deployment” (European Commission 2020b). So far, the proposal is limited to the idea of building sectoral dialogue with healthcare, rural administrations, and public services

operators as the baseline for the development of an ‘Adopt AI Programme’ to support financing for the introduction of AI-based systems. In the meantime, the results of the most recent Digital Society and Economy Index, which also includes the dimension of digital public services, showcase mixed results as regards supply and demand of digital services. 67% of EU citizens submitted public forms online in 2019, while online service completion did indeed rise in 2019. Nevertheless, the level of interconnectedness of public administration that is measured through the ‘pre-filled forms’ indicator shows an overall EU score of 59 out of 100, with great variety between Member States (European Commission 2020e, p. 3). These figures showcase the lack of harmonization in the use of public services at the national level and the take-up of AI solutions could potentially increase these gaps.

Open data is yet another domain analyzed by the Digital Economy and Society Index, showing “broad diversity in the speed of transformation and in the priorities that countries have set” (European Commission 2020e, p. 8). However, open data is a rich source for the development of AI tools, as well as one of the foundations of the new Data strategy issued together with the other policy documents in February 2020. According to the strategy, “Data generated by the public sector as well as the value created should be available for the common good by ensuring, including through preferential access, that these data are used by researchers, other public institutions, SMEs or start-ups” (European Commission 2020c, p. 6). Local and regional authorities are significant players in harnessing public data and using it for local programmes, such as traffic data, and they can harness the power of open data to improve lives of citizens. The data strategy does not particularly emphasize the role of local/regional authorities in the strategy, including them under the umbrella term of ‘public sector’.

Concluding this section, the quick overview of the strategic documents with regards to digital policy of the EU nominate sub-national authorities as key players in the overall coordination of policies, but the direct involvement of the local level is not explicitly stated or emphasized, leaving room for potential analyses on the indirect involvement of local authorities to the European digital strategy.

4.2. Indirect involvement

The first point of contact that citizens have with the local administration is at the local level. The manner in which cities and/or regions manage digital transformation can potentially impact citizens’ relations with technology in general and, as such, local authorities can contribute indirectly to the new digital strategy by boosting trust in technology, as well as contributing to the elevation of digital skills.

The second pillar of the White Paper on Artificial Intelligence regards the construction of an ‘ecosystem of trust’ in the construction of a European AI. Trust-building is targeted through the organization of an EU-wide regulatory framework and the inclusion of a series of principles in the construction of the AI. Ethical concerns are, of course, one of the most significant challenges in AI and they need to be assumed by all actors interested in development and deployment of such solutions.

At a local level, smart city strategies represent solutions for modernization of cities, but a key component of digital transformation in an urban environment must be citizen participation and ensuring that local authorities have the consent and the trust of citizens for such projects (Castelnovo et al. 2015). On-going research on the topic reveals that citizen participation must be actively sought out by local administration, considering

that the citizens have fears regarding digital technologies, either in terms of digital skills or in terms of security (Mirela Mărcuț 2020).

With a proper framework, local authorities, namely cities in this case study, can establish a climate to trust between citizens and technologies, thus indirectly contributing to the establishment of both an ecosystem of excellence and one of trust at the European level. This indirect involvement is emphasized within a case study of the Digital City Darmstadt project and the underlying principles of the digital transformation. Darmstadt is a university city, being focus on science and technology as a part of the postwar reconstruction (Darmstadt 2019). The Digital City project has aimed to add another layer to the profile of the city with targeted efforts on various levels, from education to security and data infrastructure (Darmstadt Digitalstadt 2018). What is especially relevant for this analysis regards two key aspects, the involvement of citizens and the existence of an ethical code. The governance of the project includes an ethical advisory board made up of technology experts, politicians, people from academia and the civil society (Digitalstadt Darmstadt 2019). Their main result is the elaboration of an ethics code, which, although not mandatory, has been assumed by the local administration as the foundation for the development of smart city solutions.

The ethical guidelines are the following:

- **Commitment to the common good** – digitization should target a social and/or ecological improvement in the urban area and this should be done as economically and efficiently as possible
- **Democratic control** – digitization must be under the control of the local assemblies and in accordance to existing regulations. No new power structure can be constructed
- **Responsibility and transparency** – public democratic bodies must maintain their responsibility and not automatic process will be introduced to replace them. Additionally, all automatic processes will be disclosed to the public and explain in a manner in which citizens can understand
- **Sovereignty of the city and the citizens** – “dependency on products and companies should be avoided”
- **Data protection** – “Personal data may be collected and passed on as little as possible. Personal data may not be sold”
- **Publication of data** – open data must be made available to the public in a user-friendly form
- **Sustainability of technology** – the consequences of the use of technology must be examined from the very beginning. Digitization projects must be developed having in mind the current and future generations alike
- **Security of the infrastructure** – all digital city projects must take into account vulnerability of systems and require functional security (Digitalstadt Darmstadt 2019)

These principles highlight the need for democratic control, transparency and sovereignty of citizens in much of the same manner in which the strategies of the European Union emphasize the need for human-centered AI, as well as the ethical use of open data with respect for privacy and security. Indirect involvement in the form of smart city strategies relate here to a matter of principle rather than concrete actions. Nevertheless, transparency at the local level can boost citizens’ trust both in the technology and in the administration. However, the case of Darmstadt does not make a connection with the European Union approach towards technology, which would prove to be fruitful especially considering the emphasis they put on citizen participation and consultation on various projects, as well as the actual involvement of citizens in the

consultations, which have taken place both online and offline in an effort towards inclusiveness. The mix between ethical principles and citizen participation has contributed to a more sustainable effort towards digital transformation, as it has been evident from the on-site research.

This short case study emphasizes that a more direct connection between cities and the European Union as regards digital transformation could contribute to the awareness of benefits and challenges of technologies, as well to a possible boost in trust both for technology and for institutional actors.

5. Conclusion

The purpose of this article has been to contextualize the new European digital strategy that emphasizes the consolidation of coordination efforts of every societal actors. In this sense, local/regional authorities are mentioned as significant players in the new digital strategy, but few direct avenues for involvement are suggested for them. In the absence of more details on their direct involvement, this article has aimed to offer possible avenues for direct involvement by local authorities in the implementation of the digital strategy by using one key concept from these strategies, namely trust-building. By showcasing the environment of trust-building in the city of Darmstadt, this article has sought an answer to the original question: what can they bring to the table? The case study emphasizes the existence of ethical guidelines and citizen participation as possible answers.

BIBLIOGRAPHY

- Castelnovo W, Misuraca G, Savoldelli A (2015) Smart Cities Governance: The Need for a Holistic Approach to Assessing Urban Participatory Policy Making. *Soc Sci Comput Rev* 34:724–739. <https://doi.org/10.1177/0894439315611103>
- Darmstadt (2019) Stadtporträt: Darmstadt. <https://www.darmstadt.de/standort/stadtportraet>. Accessed 6 Apr 2020
- Darmstadt Digitalstadt (2018) Digitalstadt Projekte. <https://dabei.digitalstadt-darmstadt.de/digitalstadt/de/flexPrjList/51535>. Accessed 10 May 2020
- Data Infrastructure (2020) Gaia-X. <https://www.data-infrastructure.eu/GAIAX/Navigation/EN/Home/home.html>. Accessed 12 Jun 2020
- Digital Jobs and Skills Coalition (2019) Pledge Viewer. <https://pledgeviewer.eu/>. Accessed 18 Aug 2019
- Digitalstadt Darmstadt (2019) Beiräte. <https://www.digitalstadt-darmstadt.de/digitalstadt-darmstadt/beiraete/>. Accessed 16 Apr 2020
- European Commission (2019) Flash Barometer 477a. Report. Accessing content online and cross border portability of online content services
- European Commission (2018) Proposal for a Regulation of the European Parliament and of the Council establishing the Digital Europe Programme for the period 2021-2017
- European Commission (2020a) Communication. Shaping Europe's Digital Future. https://ec.europa.eu/info/sites/info/files/communication-shaping-europes-digital-future-feb2020_en_4.pdf. Accessed 8 Jun 2020
- European Commission (2020b) White Paper - on Artificial Intelligence - a European Approach to Excellence and Trust
- European Commission (2020c) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A European Strategy for Data. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0066&from=EN>. Accessed 8 Jun 2020

- European Commission (2016a) Communication from the Commission to the European Council, the European Economic and Social Committee and the Committee of the Regions. Digitising European Industry. Reaping the full benefits of a Digital Single Market
- European Commission (2016b) Digital Innovation Hubs (DIHs) in Europe. <https://ec.europa.eu/digital-single-market/en/digital-innovation-hubs>. Accessed 9 Jun 2020
- European Commission (2020d) Shaping the future of European Digital Innovation Hubs – Workshop Reports. <https://ec.europa.eu/digital-single-market/en/news/shaping-future-european-digital-innovation-hubs-workshop-reports>. Accessed 9 Jun 2020
- European Commission (2020e) Digital Public Services. <https://ec.europa.eu/digital-single-market/en/digital-public-services-scoreboard>. Accessed 15 Jun 2020
- Mărcuț M (2017) *Crystalizing the EU Digital Policy. An Exploration into the Digital Single Market*. Springer, Cham
- Mărcuț M (2020) *The Governance of Digital Policies: Towards a New Competence in the European Union*. Palgrave Pivot
- Mărcuț M (2019) *Local and Regional Authorities: Enablers or Bystanders in the Digital Single Market*. 6:16
- Mirela Mărcuț (2020) *Comparative Analysis of Smart/Digital Cities. Lessons from Germany, Opportunities for Romania*
- Operational Programme Digital Poland (2014) *Operational Programme Digital Poland 2014-2020*
- Stolton S (2020) Commission mulls digital tax to fund Europe's multi-billion-euro recovery. Euractiv. Accessed 15 June 2020

