**THEMATIC FIELD 1:** Digital governance

**JRC RESEARCH AREA DESCRIPTION**

**European societies have transformed immensely** in the recent past due to the rapid adoption of new digital technologies in all aspects of their lives. More specifically, the advances in computing power, availability of data, and new algorithms have led to major breakthroughs in the last decade and they raised the attention to Artificial Intelligence (AI) in general and machine learning (ML) in particular.

However, while the **positive effects** of embracing such disruptive technologies are often emphasised, their potential **negative consequences and risks** on human conditions require that socio-economic, legal and ethical impacts are carefully addressed and anticipated. This raised expectations for governments to play a more prevalent role in the digital society and to ensure that the potential of technology is harnessed, while negative effects are controlled and possibly avoided.

For Digital governance to be effective, **new policies, acts of governance and new collaborative mechanisms between public** administrations**, private actors and citizens are required**. In particular, the **governance of data** in our daily life has become an increasingly important policy issue as more and more innovations are based on large-scale data collections from digital devices. Due to pervasive Internet penetration and real-time accessibility of information and services, contact and relationships between institutions and citizens could be intensified, thereby strengthening democracy and trust in governance systems. Services could be redesigned around latest technologies to make them more citizen-oriented and valuable for society. High-quality – personalised - public services and efficient public administrations could lead to higher welfare and improve the business environment as administrative procedures could be simplified. Especially, businesses operating across European borders will significantly benefit from increased digitalisation of public administrations and services.

Within this context, the combination of emerging technologies and paradigms such as Artificial Intelligence, Internet of Things, Edge computing, and Distributed Ledger Systems (DLTs) such as Block-chain, with topic domains such as 'Smartcities' or Application Programming Interfaces (APIs) among others, makes the **governance "with and of" digital technologies crucial for the future of our societies** and is an area of strategic importance and a key driver of economic growth, as it can radically improve the functioning of government and even change the way  in which institutions are designed.

In line with the future research strategy of JRC Directorate B for "Growth & Innovation", in particular the establishment of a "**Knowledge Centre on Artificial Intelligence & Digital Transformation**", and the Commission Priorities "A Europe fit for the Digital Age" and "A new push for European Democracy", the **scope and focus of the research under this Collaborative Doctoral Partnership** includes – but is not limited to - the following topics:

1. *Research on the governance of emerging digital technologies*: AI and data governance and ecosystems, regulatory aspects and standardisation, digital conglomerates and urban digital networks; as well as the adoption, use and impact of Digital Government and Innovative Public Services (e.g. to understand how emerging technologies are used by governments, what the drivers and barriers to adoption and use by businesses and citizens are, including the benefits of integrating open government platforms, open data and APIs in public administrations);

2. *Research on the use and adoption of AI in society*: AI benchmarking initiatives, comparative evaluation and development of approaches for robust, transparent, fair and accountable AI systems, including a focus on ML techniques and considering different application domains, (e.g. Natural Language Processing, Computer Vision, Sound and Music Computing, as well as AI for art and creativity) and sectors (e.g. transport, health, agriculture, energy, social services, government and public administration, etc).

3. *Research on the societal impact of AI and emerging digital technologies*: including research on the ethical, legal, social and economic impact of AI, with a focus on human-centred AI (i.e. human-robot and human-algorithm interaction), AI in decision making processes, AI diversity, impact of AI on labour markets, AI regulation and legislation, certification/standards related to AI, impact of recommender systems, etc.; as well as the impact of digital transformation on governance, with a specific attention on the need to better understand the value and effects of the introduction of digital technologies to improve services to citizens and businesses, as well as the operations of public administrations and policy-making processes, and the

implications for sustainable development in a future-oriented perspective.

Candidates applying for this Collaborative Doctoral Partnership should have a **strong background and prior research experience in one of the related disciplines** (e.g. computer science, engineering, economy, law, cognitive sciences, public sector innovation and electronic governance) and research experience and interest to carry out a PhD on one of the themes mentioned above.

**MAIN POLICY FIELDS**

The Collaborative Doctoral Partnership on Digital governance has a **cross-cutting policy relevance** addressing in particular the following policy priorities of the new Commission:

- Artificial Intelligence and Data governance, including cybersecurity, ethical aspects and human-centric design
- Data ecosystems functioning and the free flow of data between private and public sector among other aspects
- Public sector reform and governance, including cross-border interoperability and Digital Services Act
- Technological sovereignty and the development/strengthening of the European "Industry 4.0"
- Territorial growth and digital urban agenda development, including in particular energy and environment aspects
- Democracy and the rule of law, including the role/involvement of civil society and non-government organisations
- International cooperation and the role of the EU in global governance and the sustainable development goals

**LINKS / URL WEBSITES**

- AI-WATCH
- Big Policy Canvas
- Co-VAL
- DIGITRANSCOPE
- Enlightenment 2.0
- EU Policy Lab – Future of Government
- EU Science Hub - JRC
- HUMAINT
- IESI - ICT-Enabled Social Innovation
- ISA$^2$ Programme (ELISE and IPS Actions)

**LINKS / REFERENCES TO PUBLICATIONS**

- Envisioning Digital Europe 2030: Scenarios for ICT in Future Governance and Policy Modelling, JRC Science for Policy Report, 2010, Misuraca et al, Misuraca Ed.
- ICT-Enabled Social Innovation – Evidence & Perspective, JRC Science for Policy Report, 2017, Misuraca et al
- Artificial Intelligence - A European Perspective, JRC Flagship Report 2018, Annoni et al, Craglia Ed.
- The Future of Government 2030+, JRC Science for Policy Report, 2019, Vesnic Alujevic et al.
- Exploring Digital Government transformation in the EU, JRC Science for Policy Report, 2019, Misuraca Ed.
- The Governance of Data in a Digitally Transformed European Society, Workshop Report, 2019, Micheli et al
- Understanding our political nature: how to put knowledge and reason at the heart of policymaking, JRC Science for Policy Report, 2019, Mair et al.