Disruptive Technology and the impact on NMCAs

Table of Contents

1. What is disruptive technology?

The term disruptive technology has gained traction over the last decade as authors sought new definitions to describe new expansions, processes and circumstances. All could be summarised through the following examples:

"Advances that will transform life, business, and the global economy."

"A new technology that completely changes the way things are done."

"New ways of doing things that disrupt or overturn the traditional business methods and practices."

"A technology that significantly alters the way that businesses operate."

"Disruptive technology refers to any enhanced or completely new technology that replaces and disrupts an existing technology, rendering it obsolete. It is designed to succeed similar technology that is already in use."

"A disruptive technology overturns a traditional business model, which makes it much harder for an established firm to embrace. He contends that so many new and disruptive technologies have emerged in the last few years that no company is immune to competition." (Cambridge Business English Dictionary)

"A new technology that unexpectedly displaces an established technology." (1995, Prof. Clayton M.)

Whatever definition we consider is the best fitting for our organisation, the recurring themes are of change, transformation, overturning, replacing and altering, as well as new and advanced technology. All provide context for the important work that NMCAs expect as a result of the inevitable digital transformation which continues to accelerate changes.

2. What is disruptive for NMCAs?

To be better prepared for the transition, we need to consider carefully which specific disruptive technology might be used by NMCAs to ensure the continuation of existing operations.

2.1. Drones

Any government or organisation can use an unmanned aerial system or drone to gather data to drive results. For NMCAs, the feasibility of small drone technology is being realised for establishing property rights and cadastral updates. There are also multiple possibilities for agriculture, mapping, monitoring and controlling the urban development.

Since 2014, the call for rules governing the safe, secure and environmentally-friendly development of the drone industry has received strong political support. It is assumed that such development will stimulate employment and technological development within the EU. The proposal for a new modern and flexible EU-wide regulatory framework for drones is expected to be completed in spring 2018.

2.2. Smart cities

A Smart City is defined as: "an urbanized area where multiple sectors cooperate to achieve sustainable outcomes through the analysis of contextual real-time information shared among sector-specific information and operational technology systems."

Many European cities are developing an advanced and integrated Smart Cities concept. The European Innovation Partnership on Smart Cities and Communities (EIP-SCC) is an EU funding instrument that addresses city-specific challenges from different policy fields such as energy, mobility and transport, and ICT.

2.3. Connected cars

Cooperative, connected and automated mobility (CCAM) - also known as connected cars or self-driving cars - and digitisation promise to address the challenges and expectations of the European citizens. The Commission is already massively supporting the development and testing of autonomous vehicles. The digitalisation of the automotive industry is rapidly changing our transport and mobility patterns and is thus becoming crucial to its continued growth and diversity, securing its future sustainability.

2.4. Cloud Computing

The European Cloud Initiative focuses on a European Open Science Cloud: a trusted, open environment for storing, sharing and re-using scientific data and results, and a European Data Infrastructure: a world-class digital infrastructure to securely access, move, share and process data in Europe.

2.5. Big Data

Whether it is geographical information, statistics, weather data, research data, transport data, energy consumption data, or health data, the need to make sense of "Big data" is leading to innovations in technology, development of new tools and new skills.

2.6. Internet of Things

Internet of Things (IoT) represents the next step towards the digitisation of society and economy, where objects and people are interconnected through communication networks and report about their status and/or the surrounding environment. According to a European Commission study, the market value of the IoT in the EU is expected to exceed one trillion euros in 2020.

2.7. 5G

The "fifth generation" of telecommunications systems, or 5G, is a new network technology and infrastructure that will bring the capacities needed to cope with increased growth in the use of communication – especially wireless. It won't just be faster, it will bring new functionalities and applications with high social and economic value.

Europe has taken significant steps to lead global developments towards this strategic technology. Therefore, it is expected that the future 5G infrastructure will serve a wide range of applications and sectors, including professional uses (e.g. assisted driving, eHealth, connected homes, energy management, possibly safety applications, etc.).

2.8. Blockchain

The Blockchain Observatory and Forum recently established by the Commission will highlight key developments of blockchain technology, promote European actors and encourage governments, European industry and citizens to benefit from blockchain opportunities. Blockchain technologies, which store blocks of information that are distributed across the network, are expected to impact digital services and transform business models in a wide range of areas, such as healthcare, insurance, finance, energy, logistics, intellectual property rights management or government services.

Georgia was one of the first countries in the world to pilot Blockchain technology for property registration through a partnership between National Agency of Public Registry (NAPR) under the Ministry of Justice and the BitFury Group. The project enhanced both the security and the transparency of the registration process.

3. Expected impacts

3.1. Overall

Conventionally, public sector bodies have been always labelled as being slow to adjust to changes in technology. In practice, changes such as digitalisation have been accepted, not rejected. Digital became the new normal with many benefits to citizens and businesses, but also generated new problems and policy issues for policy makers who are **still** struggling to respond to these. Meanwhile, new disruptions lay ahead, they are already growing and becoming more beneficial yet present new challenges which might be huge but are, at present largely unknown .

These may change a basic approach to operations in terms of conforming or risk becoming irrelevant. Automation will affect all sectors, even those that rely heavily on human decisions and interactions.

3.2. Structural

Acceptance of disruptive technologies is important, not only for public administrations, but also for citizens/users. It can be very beneficial, but also disrupt the existing landscape of public services and legal procedures and can replace present solutions and processes.

The existing job titles and roles are potentially threatened by digital disruption but how realistic is it to replace human employees with automated systems? Will it simply create new jobs, as automated systems require maintenance security and development? Once new job descriptions are set, organisational structure change will be sophisticated.

3.3. Business

New operational businesses within the public sector should consider offering innovative, automated solutions before ambitious start-ups fill up the space. Being ambitious about outcomes, and flexible on approach helps to encourage innovation. There are possibilities to create new products and services, but also a new model for the use of existing product and services. It requires additional effort to keep up to speed with the pace of innovative technology and business models.

4. How to transit and remain relevant?

Should NMCAs:

- Develop pathways for the introduction of disruptive technologies, while also addressing the societal challenges and contrinution to the 'public good'.
- Take control through educaton, expansion, pushing for funding.
- Consider it as a sign of advancement, as an enabler, rather than block the adoption of disruptive technologies.
- Develop standards, possibly in consultation with private sector, as a public-private partnership might increase in the operating arena.
- Share knowledge with universities and business.
- Participate in EU projects, public consultations and other increasingly available official online tools. E-participating and e-democracy is expanding all over the world. And security, privacy and IPR will continue to be "the issue" ever hardly manage to follow technology developments