Digital transformation and SMEs: what regions can do

Introduction

This paper is an introduction to the policy field of digitalisation and digital transformation. It is intended to give a brief overview on facts and trends, to discuss challenges and chances for SMEs, to describe the European Union's (EU) policy in this field and introduce to the role that cities and regions can play to support SMEs in this process.

Several Interreg Europe projects deal with the topic: they are briefly summarised at the end of this paper.

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In the months and years to come, the Policy Learning Platform will highlight specific aspects of digitalisation and digital transformation in separate policy briefs and articles.

1. Digitalisation and digital transformation - facts and trends

Digitalisation is the process of technologically-induced change within all kinds of industries, known as the Internet of Things or Industry 4.0.
Digital transformation is the change associated with the application of digital technology in all aspects of human society (*source: Wikipedia*). It is the "transformation of business and organizational activities, processes, competencies and models to fully leverage the changes and opportunities of a mix of digital technologies and their accelerating impact across society in a strategic and prioritized way, with present and future shifts in mind". (*Source: [i-scoop](#)*)

Digitalisation has often been called the "fourth industrial revolution". The digital transformation of the European economy and public sector is of vital importance to ensure Europe's competitive advantage in the global economy and to deliver growth and jobs:

- Completing the digital single market could raise EU GDP by at least 4%, or around EUR 520 billion at current prices. (Source: European Parliament)

- Single market e-commerce amounts to around EUR 204.5 billion a year (or 1.7% EU GDP). (Source: European Commission)

- In information and communication technology (ICT), 17% of the world's leading innovators come from the EU, compared to 52% who come from the USA. (Source: Bruegel, 2012)

- 6.4 billion connected things will be in use worldwide in 2016, up 30% from 2015, and will reach 20.8 billion by 2020. In 2016, 5.5 million new things will get connected every day. (Source: Gartner, 2016)

The EU still has a strong position in the world in terms of digital transformation. 25 EU countries score higher than the OECD average for ICT indicators, and nine out of the ten nations with the fastest broadband in the world are located in Europe. (*Source: [Digital Leadership Institute](#)*)

However, the differences in broadband speed between European regions are still tremendous and clearly impact the development chances. This effect is called the digital divide (https://ec.europa.eu/digital-single-market/en/news/eu-digital-divide-infographic). Northern and Western Europe generally have a better performance than Southern, Central and Eastern Europe. An analysis done by the World Economic Forum shows that the gap between North-Western Europe and the rest can be seen in all areas the report analysed, for example, market and regulatory conditions, level of ICT uptake, level of usage by citizens, government and companies. The report points out that "the gap in ICT usage across countries is bigger for businesses that for governments" (*Source: Euractiv*).

Companies, in particular SMEs, have often not realised the importance of the digital transformation for their businesses.

2. Challenges and opportunities for SMEs

The European Commission sees the world economy on the brink of a new industrial revolution, driven by information technologies such as the Internet of Things, cloud computing, big data, robotics and 3D printing. These innovations open new chances for industry to become more efficient, to improve processes and to develop innovative products and services. Digital transformation has also created unique marketplace challenges and opportunities. Several studies estimate that digitisation of products and services can add more than EUR110 billion of revenue in Europe in the next five years. (*Source: European Commission*)

Digital transformation offers new business opportunities and can fundamentally change business models**.** But it affects the whole value chain from product development to sales. It requires an enterprise-wide change which is driven by digital technologies. The transformation process must be integrated into every aspect of the company. It should be supported by equally important amendments in culture, leadership, skills and processes. SMEs should pro-actively rethink their core businesses to adapt to the challenges.

The OECD sees important differences in ICT adoption and usage between large and smaller firms, with SMEs facing several barriers to adopting ICTs and digital technologies in their operational activities. In particular, SMEs lag in their adoption of cloud computing and other sophisticated digital technologies. A report prepared for a joint G20 German Presidency/OECD conference states that "the ability of SMEs to swiftly adopt new technologies, to learn by doing, innovate, and optimise their production, is constrained by their small scale, limiting their ability to reap the benefits of the digital economy. It is essential to foster use of more sophisticated digital technologies among SMEs, especially cloud computing, which allows smaller firms to overcome some of the barriers associated with the high-fixed costs of ICT investment" (*Source: OECD report, page 115*).

Digitalisation generally affects all industries. However, the impact is different. A survey of 2.000 executives done last year showed that media, telecom, consumer financial services, technology and retail are most disrupted by digital. (See more on Harvard Business Review)

3. EU-level initiatives

a) Digital Single Market

The Digital Single Market (DSM) strategy belongs to the 10 priorities of the European Commission and aims to open up digital opportunities for people and business and enhance Europe's position as a world leader in the digital economy.

The European Commission defines a Digital Single Market as "one in which the free movement of persons, services and capital is ensured and where the individuals and businesses can seamlessly access and exercise online activities under conditions of fair competition, and a high level of consumer and personal data protection, irrespective of their nationality or place of residence".

The EU estimates that a DSM can amount EUR 415 billion in additional growth and hundreds of thousands of new jobs. But today the digital market is made up by national (42%) and US-based online services (54%). EU cross-border online services represent only 4% of the total market.

To unlock the potentials of a DSM, the European Commission developed a Digital Single Market Strategy which is built on three pillars:

1. **Access**: better access for consumers and businesses to digital goods and services across Europe;

2. **Environment**: creating the right conditions and a level playing field for digital networks and innovative services to flourish;

3. **Economy & Society**: maximising the growth potential of the digital economy.

   For more information on the Digital Single Market Strategy see the website of the [European Commission](#)

b) Digital transformation

The European Commission has analysed that "currently, EU businesses are not taking full advantage of digitalisation". The level of implementing digital strategies varies from industry to industry, in particular between high-tech and more traditional sectors.

There are four policy areas in which the European Commission sees a need to become more active (*see also the [European Commission's DG GROW](#)*):

- *Big data and digital platforms* are transforming every industry. The data generated by companies and public sector offer opportunities for innovation, new business models, and smart products and services.

- EU industry has a high demand for *digital skills*. To benefit from digitalisation, the widening digital skills gap has to be closed.

- *Cities and regions* are important drivers for the digital transformation in Europe (see point 4).

- *ICT standardisation* as a precondition for the uptake of digital innovations has to secure the openness of ICT markets.

4. Bottom-up implementation of the Digital Single Market

The successful implementation of the Digital Single Market and the digital transformation on a broad scale requires a large commitment and involvement of multiple stakeholders on the regional and local level, which the EU is supporting with different initiatives.

In the following two of them especially relevant to local and regional policy makers are presented.

a) The role of cities and regions[1]

Cities and regions have an important role to play in both the demand and supply side of the market to create an environment that supports the digitalisation processes in the economy and strengthens the competitiveness of SMEs. Digital transformation has an impact on all types of cities and regions. Structurally weak regions have the chance to overcome their weakness and barriers for growth like lack of talents, distance to the economic centres and visibility by actively promoting the digitalisation process.

Cities and regions can contribute to the development of innovative ecosystems by bringing together local resources and stakeholders. Digital transformation needs leadership, an active involvement from policy makers and higher management in both the public and private sectors is key for success. Several initiatives on EU level have been developed to support cities and regions in the transformation.

One important initiative is the "Blueprint for cities and regions as launch-pads for digital transformation", which was developed by the Strategic Policy Forum on Digital Entrepreneurship[2]. The guidebook underlines the strategic role of urban and regional players and the importance of a holistic approach. It identifies four main attributes for an effective strategy:

- "Leadership and collaboration for a smart governance of the local digital ecosystem;

- Digital skills and entrepreneurs to accelerate the digital transformation process;

- Access to data and technologies for applied solutions to local challenges;

- Key Infrastructures and investments for digital launch-pads."[3]

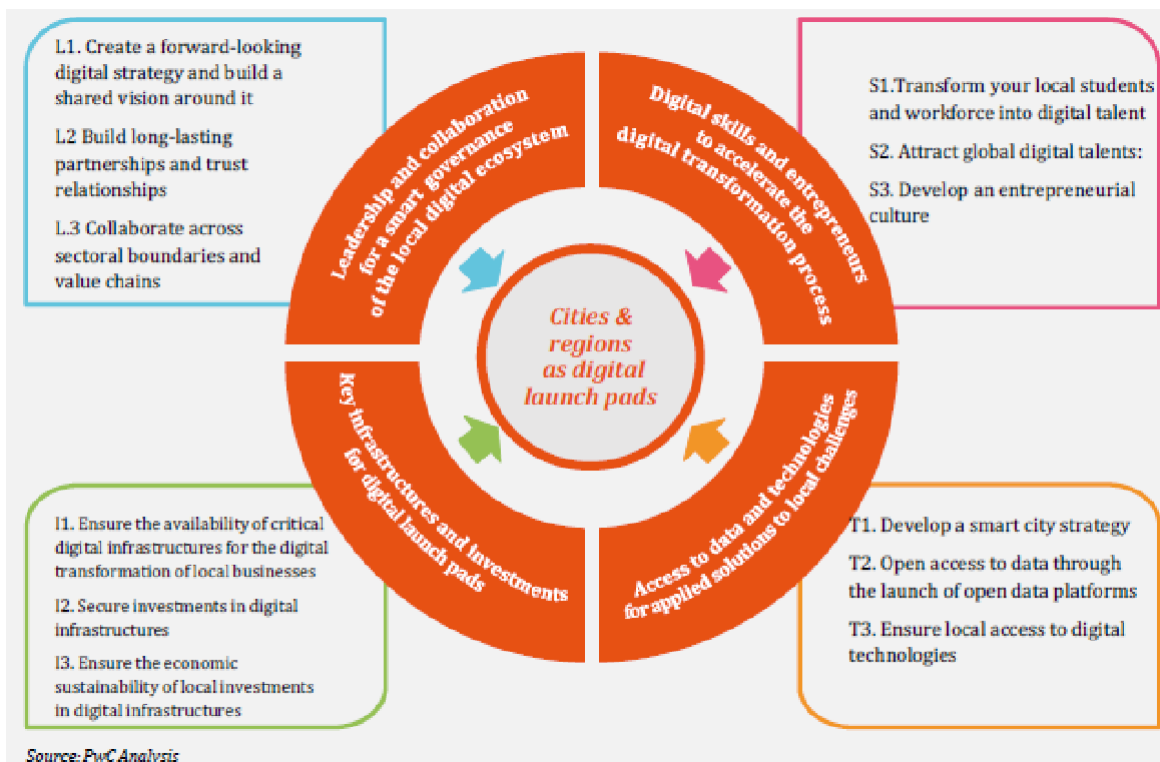
[1]   Source: European Commission's DG GROW

[2]   The forum was set up by the European Commission in 2014 to shape a vision for the digital transformation of European industry.

[3]   http://ec.europa.eu/growth/content/blueprint-cities-and-regions-launch-pads-digital-transformation-0_en, 6 November 2017

The following picture summarises accordingly the success factors for a successful digital transformation process:

L.1. Create a forward-looking digital strategy and build a shared vision around it

L.2 Build long-lasting partnerships and trust relationships

L.3 Collaborate across sectoral boundaries and value chains

S1.Transform your local students and workforce into digital talent

S2. Attract global digital talents:

S3. Develop an entrepreneurial culture

I1. Ensure the availability of critical digital infrastructures for the digital transformation of local businesses

I2. Secure investments in digital infrastructures

I3. Ensure the economic sustainability of local investments in digital infrastructures

T1. Develop a smart city strategy

T2. Open access to data through the launch of open data platforms

T3. Ensure local access to digital technologies

Leadership and collaboration for a smart governance of the local digital ecosystem

Digital skills and entrepreneurs to accelerate the digital transformation process

Key infrastructures and investments for digital launch pads

Access to data and technologies for applied solutions to local challenges

Cities & regions as digital launch pads

Source: PwC Analysis

Source: [Blueprint for cities and regions as launch-pads for digital transformation](#)

By following the recommendations of the blueprint, local and regional players are able to develop a digital strategy and truly help their cities and regions to go digital.

b) The pan-European network of Digital Innovation Hubs

The pan-European network of Digital Innovation Hubs is a key European initiative addressing the specific needs of businesses, with the aim to promote "bottom-up digital innovations involving all industrial sectors"[4]:

Digital innovation hubs are defined by the European Commission as "ecosystems that consist of SMEs, large industries, start-ups, researchers, accelerators, and investors. They aim to create the best conditions for long-term business success for all involved."[5]

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[4]   https://ec.europa.eu/digital-single-market/en/digital-innovation-hubs, 6 November 2017
[5]   https://ec.europa.eu/digital-single-market/en/glossary#letter_d, 6 November 2017

They are practically often implemented as a "one-stop-shop providing services to companies in the region through a multi-partner cooperation:

- Access to Specialist Expertise and Infrastructure

- Brokering/matchmaking

- Awareness Creation around Digital Technologies

- Innovation Scouting

- Digital Maturity Assessment.

- Visioning and Strategy Development for Businesses

- Mentoring

- Training

- Access to Funding and Investor Readiness Services"[6]

Cities and regions are often needed as the initiator and possibly the moderator of such ecosystems, helping to create the right environment for the digital transformation to happen.

Several networks and projects are already ongoing, contributing to building up the targeted pan-European network of Digital Innovation Hubs (Digital Innovation Hubs), among others:

- Innovation for Manufacturing SMEs (I4MS) - the initiative promoted by the EC to support the European leadership in manufacturing through the adoption of ICT technologies. The website provides among other a map of such competence centres.

- The thematic smart specialisation platform for industrial modernisation, which provides useful background material and information on upcoming events and calls for proposals as well as a map of Digital Innovation Hubs across Europe.

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[6] Definition used by DG CONNECT

5. Interreg Europe and the digital transformation

Digitalisation is definitely a cross-cutting topic for industrial sectors but also for policy making. It is therefore not surprising that projects dealing with digitalisation have been approved in each of the four Thematic Objectives.

Their approaches are compliant with the initiatives and priorities described here above:

Short name	Full name	Description
ERUDITE **(Research and innovation)**	Enhancing Rural and Urban Digital Innovation Territories	The ERUDITE partners are exploring how to "define **sustainable business models for digital service development** and deployment by involving multiple stakeholders" enabling authorities, business and citizens to exploit the potential of digitalisation and the infrastructure available (e.g. high speed broadband infrastructure). So ERUDITE is basically planning a series of Digital Innovation Hubs or similar initiatives.
SKILLS+ **(SME competitiveness)**	Supporting knowledge capacity in ICT among SME to engage in growth and innovation	SKILLS+ is specifically addressing the **digital skills gap** that especially hampers the development of SMEs in rural areas,
TRINNO **(SME competitiveness)**	Business ecosystem for TRadition and INNOvation	TRINNO – so as ERUDITE – is aiming at developing local business support systems in order to foster **digital innovation** (digital manufacturing, Internet of things, big data, etc.). Their specific focus is on **traditional manufacturing** sectors (fashion, jewellery, handicrafts in general…)
CISMOB **(Low-carbon economy)**	Cooperative information platform for low carbon and sustainable mobility	The CISMOB project is addressing the issue of **urban transport infrastructures** and how the can be made more efficient - especially with respect to environmental matters but also in terms of benefits for the citizens when using low-carbon transports - through the use of information and communication technologies
CD-ETA **(Environment and resource efficiency)**	Collaborative Digitization of Natural and Cultural Heritage	CD-ETA aims at promoting the **standardisation** of digitalisation as an innovative approach to provide a better access for the general public to natural and cultural heritage values as well as a better management for the conservation, promotion and development of natural, cultural and historical heritage.

The Interreg Europe Policy Learning Platform will facilitate exchange between the projects and thematic objectives and discuss possible links and opportunities for cooperation.

Further reading

- [European Commission: shaping the digital market](#)

- [European Commission: A digital compass for decision makers: toolkit on disruptive technologies, impact and areas for action](#)

- [European Commission: the role of cities and regions](#)

- [European Commission: Blueprint for cities and regions as launch pads for digital transformation](#)

- [Business Europe: digital economy](#)

- [OECD report: Key issues for digital transformation in the G20](#)

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