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THE DIFFERENT FACES OF THE URBAN DIGITAL ECONOMY

By Luís de Carvalho
and Willem van Winden*

What will a shopping street look like in 2025, when online shopping continues to show double-digit growth? And what will 3D printing do to factories and logistic companies, when we can 'print' more and more products at home or around the corner?

The digital economy is one of the most pervasive game changers in cities. It creates and destroys, and affects the way cities function in many ways. But what is exactly the digital economy about? How big is it? Which types of transformation is it provoking in urban economies? And, importantly, what can local governments do to cope with the digital transition and foster sustainable urban development?

THE DIGITAL ECONOMY: LARGE BY ANY ACCOUNT

The digital economy results from the diffusion of a wide range of information and telecommunication technologies (IT) across the economy and society.

In a narrow definition, the digital economy equals the ICT and new media industries (software and app development, producers of equipment, digital media, IT infrastructures, etc.). However, over



Source: Freepik

the last decade, it became evident that digital technologies were transforming entire industries such as transportation, health, media, retail and manufacturing. Everywhere, the digital revolution entails new business and innovation models (e.g. European Commission, 2014). Moreover, it is changing our behaviour: the way we work, how we communicate with friends, the way we shop and book holidays, how we listen to music, watch films and TV, how we do our banking, and so on. The list is long.

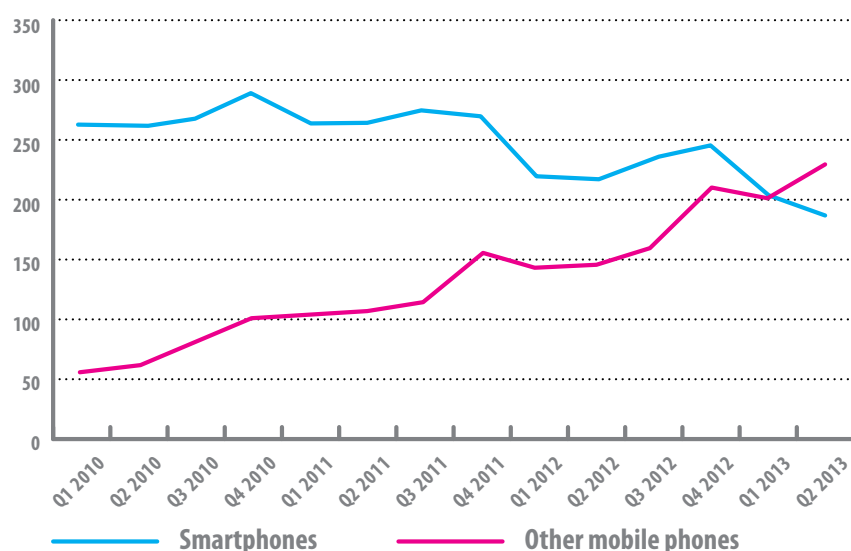
The key trigger, according to OECD (2014), is the mobile broadband revolution. Through smart phones the internet was democratised. Three out of four OECD inhabitants have now access to mobile wireless broadband through smartphones or tablets, and growth has been stellar (Figure 1). Those devices are increasingly powerful and inexpensive, and the costs of data storage decreased sharply.

Because it is so pervasive, measuring the digital economy is hard, but some numbers give an indication of its size. The European Commission

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Figure 1. The progress of smartphones, 2010–2013, OECD



Source: adapted from OECD (2014), based on quarterly global shipping trends

economy has been particularly resilient to the crisis in most countries (Figure 2). European app developers have an important market share worldwide, raising more than 40% of the global revenues in the industry (Mulligan and Card, 2014).

URBAN IMPACTS OF THE DIGITAL ECONOMY

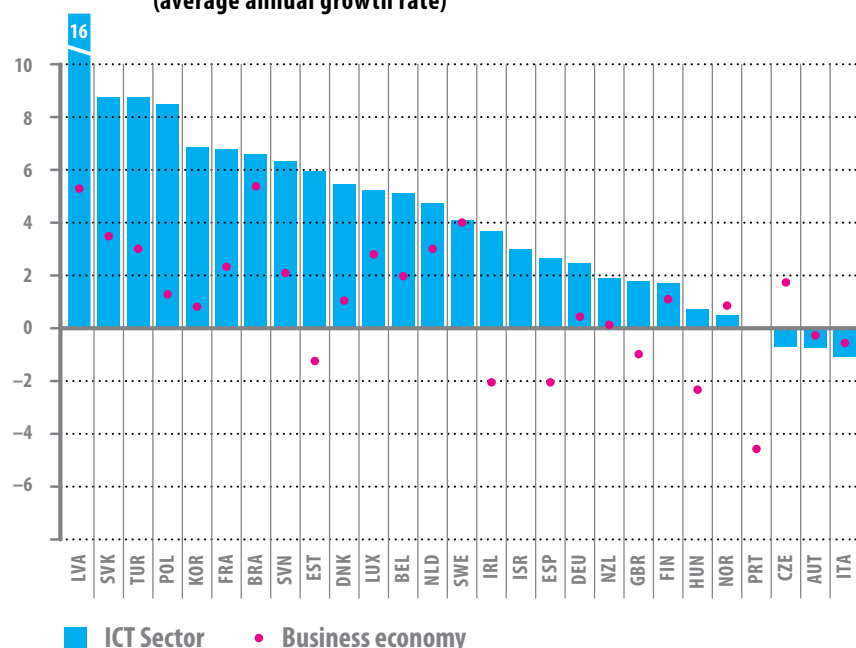
The digital economy is large and growing, but what does it mean for cities?

First of all, the digital economy is a cradle of new entrepreneurship, and much of it is taking place in cities. Places like Stockholm, Berlin, London, Dublin, Warsaw and Barcelona are buzzing with young people creating new digital businesses – often starting with little more than a laptop, a mobile phone and a good idea. Yet, it's not only big and capital cities that benefit: many medium-sized cities have thriving start-up scenes as well. Cities with a technical university are attracting and developing 'tech talent' and embedding digital solutions in older industries. For example, the Italian city of Turin has developed an edge in geo-location digital technologies for car-related industries, even if the lion's share of FIAT production has long since moved overseas.

Digitalisation is also helping to revive urban manufacturing in some design-intensive niches.

There are many start-ups that design and produce small batches of physical products (clothing, furniture, tools, etc.). These are collaboratively shaped through CAD software, often involving users and front line staff and prototyped through 3D printing devices. They are blending traditional crafts with art and ICT, and adopt informal and collaborative styles

Figure 2. Net business population growth between 2009–12 (average annual growth rate)



Source: adapted from OECD (2014)

(2010) estimated that **the IT sector (narrowly speaking) represents almost 5% of the total European economy and 25% of total business R&D expenditure.** A recent study hints that the European 'app economy' has more than a 10 billion in revenues per annum and supports about 800,000 jobs EU-wide (European Commission, 2014). Moreover, the digital



of working. This is known as the ‘maker movement’. In fact, as put by Chris Anderson, one of the movement’s leading voices, “physical products are increasingly just digital information put in physical form by robotic devices [...]; products are becoming little more than intellectual property embodied in commodity materials” (Anderson, 2012, pp. 72).

Demand for ‘traditional’ retail space will decrease in many retail segments, while new online and temporary models (combining physical and web presence) are emerging.

The digital economy is a source of innovation, but also poses challenges to many traditional companies and businesses in cities. Early victims were video rental firms and travel agencies, outcompeted by online business models; online banking replaced the bank offices around the corner. More recently, hotels and taxi businesses have felt the heat of peer-to-peer platforms such as Uber and Airbnb. Major changes

are underway in the retail business – a very important and visible segment of any urban economy. Online sales are showing double-digit growth figures, even in times of recession (in 2013, online retailing in Europe grew by a weighted average of 21%¹), with deep impacts for shopping streets and malls in every city in Europe: **demand for ‘traditional’ retail space will decrease in many retail segments, while new online and temporary models (combining physical and web presence) are emerging.**

In addition, the digital economy is deepening a number of divides in cities. Clearly, not all citizens are benefiting equally. The elderly and the less educated face the highest risks of further exclusion (OECD, 2014). Moreover, employment in the digital economy is quite gender specific; for example, in one study only 9% of EU app developers were female (Mulligan and Card, 2014). At the same time, university graduates often lack the competence to combine knowledge of the technology and programming with arts, design and managerial skills.

WHAT HAVE CITIES BEEN DOING?

Local IT-tech communities rarely look for local government support: they are largely self-organised and thrive on informal networks (Carvalho et al., 2014). These communities often have high levels of usage of local cafés, bars, and clubs. The social dimension of the networks is all part of the scene. All this means that in general, local governments have little control on the digital economy: it evolves, whether we like it or not. So, what type of intervention from the city’s side makes sense? Here we explore three options: **the support to city app contests and open data policies, the development of digital and creative quarters and the set up of digital brokers and intermediaries.**

An increasingly popular strategy is to engage with the local tech scene (IT companies, tech enthusiasts) to address urban problems and challenges using new digital technologies. For example, cities organise app contests and ‘hackathons’, events in which software developers and others collaborate intensively. Some cities open up access to municipal datasets, and line up researchers, users, city departments and entrepreneurs to do something useful with it – see the story on Dublin in this publication. A European reference in this field is Helsinki². Here, the city Council established a ‘default’ open data policy, making every bit of information produced by the City Council freely released (unless stated otherwise). The city does this to increase transparency but also to encourage entrepreneurs to solve urban problems through digital solutions. Some examples are related with health and ageing, such as apps to make it easier for the elderly or disabled to walk through the city. To this effect, the City Council teams up with Forum Virium, an arm’s length organisation that establishes a bridge with companies and entrepreneurs.

Another popular dish on the policy menu is to create hotspots and incubators for new digital firms, where they may receive all sorts of support – financial, administrative, business networks – to set and scale up their venture. Some of these spaces are endowed with so-called FabLabs – fabrication laboratories where entrepreneurs can physically test and prototype new digitally designed products. Some cities go beyond the building, and develop an entire urban quarter as a hotbed of digital entrepreneurship (van Winden et al., 2012). A good example is the IT

¹ <http://www.retailresearch.org/onlineretailing.php>

² <http://www.hri.fi/en/>



City Katrinebjerg'. This neighbourhood in Aarhus, partner in the URBACT REDIS network³, is located close to the university and is home to several IT research institutes, leading IT firms and an incubator. Supported by the city council, the stakeholders are developing and branding the area as an innovation district for IT and digital activity. Naturally, many digital hotspots emerge organically without much policy intervention (e.g. due to accidental contingencies and low rents), like London's 'Silicon Roundabout'. But even here local governments

can have important roles – such as by jointly marketing the encouraging diversity in land uses.

Some cities made the choice to put the development of digital skills more central in their approach. Triple helix partners in the Slovakian city of Košice, partner in the URBACT CREATIVE SPIN⁴ network, founded 'IT VALLEY', an organisation with the primary objective to improve IT and digital skills, which are critical to sustain the development of these growing industries in the city. It set up an IT academy (with

BOX 1. MANCHESTER'S DIGITAL STRATEGY: SOME ILLUSTRATIVE INITIATIVES

Rolling out super-fast broadband and digital test-bedding

'The corridor' project involves installing high-capacity, open access Wi-Fi infrastructure along Oxford Street – an area that concentrates many Higher Education and R&D institutions, medical facilities, companies, etc. The aim is to provide a digital backbone that supports the test bedding of new businesses and digital solutions, e.g. through the deployment of living labs, data exchange among citizens, etc.

Digital skills and training

In partnership with schools, education institutions and private parties, a 'digital skills strategy' is being defined that supports different educational pathways, apprentice opportunities, etc. Among others, there is a partnership between the City Council and the city's universities for the organisation of the 'Digital Skills Summit' – a forum for digital and graduate hiring and training workshops. Another initiative is the GO ON Manchester, which intends to teach digital skills to the population at large using voluntary 'digital champions' as tutors. It is a follow-up of a similar national initiative and of the IT-inclusion work championed by Manchester Digital Development Agency (MDDA) over the past years. It has been carried out together with the Regeneration unit at the City Council, libraries and other external parties from the community-voluntary sector.

Empowering local tech and digital communities

The 'Mad Lab' provides working space for community groups interested in diverse types of digital innovations, or as put by the organisers, a place for "geeks, artists, designers, illustrators, hackers, innovators and idle dreamers". It opened up in 2009, in Manchester's Northern Quarter, with the support of a small start-up grant from the UK Government. By that time, MDDA was one of the official supporters officially recommending and 'legitimizing' Mad Lab so that it could formally apply for the tender.

As explained by one of its managers, "[...] in the beginning it was very much about geeky and male groups [e.g. Sci-Fi group; Google groups] but now there are more diverse ones such as woman programmer groups [...]. Some groups are diversifying into more cross-sector platforms, bringing people with related interests together, from different backgrounds". One of such groups that started in Mad Lab was the Manchester Open Data Group. Mad Lab provided room for experimentation and for the prototyping of solutions. The first open data 'hackathons' took place there, with the support of the City Council and MDDA. As an MDDA representative puts it, "[the Mad Lab] is not the place that many city officials would come in the first place".

³ <http://urbact.eu/redis>

⁴ <http://urbact.eu/creative-spin>



the support of the German company T-systems), to develop new education programmes, curricula, job fairs, internships and dual education concepts, to make sure that the labour supply can fit the growing industry demands over time. It works on all levels (university, secondary and even grammar school).

Moreover, as the urban digital economy is a multi-faceted challenge, some cities have been developing comprehensive digital agendas and have set up unconventional, intermediary organisations that are better able to do the job in an integrated way. Manchester (UK) is a reference in this field and created the Manchester Digital Development Agency (MDDA), a publicly owned organisation that coordinates and enthusiastically champions the city's wide-ranging Digital Strategy. It aims to put in place super-fast broadband in some city areas (to facilitate new digital businesses and experimentation), increase city-wide IT literacy and enhance connections between several local stakeholders and communities in this field (see Box 1, with some concrete examples).

CHALLENGES AHEAD

The different faces of the urban digital economy are becoming increasingly evident in cities, and local government should keep exploring ways to deal with it. In our workstream, we identified three broad types of challenges for local governments in this field: **planning, regulation and intelligence**.

First, from the **planning** side, cities should consider how to plan and develop new co-working spaces (beyond conventional incubators) that effectively fit the changing needs of digital entrepreneurs – e.g. new types of soft services and facilities, synergy management tools, etc. Moreover, urban planners will have to think about how to develop more resilient spaces to cope with the changing nature of the digital economy – which, as suggested, is having implications on the demand for commercial business space. One problem is that as run down areas of the city start to become cool creative quarters, the resulting gentrification of the housing market starts to eliminate the land use diversity and economic vitality that were the original attraction. Cities need to protect the mixed use economic diversity of these areas using their planning powers in new ways. Second, the digital economy is putting pressure on

regulatory frameworks. New collaborative platforms such as Uber and Airbnb challenge current legislation in transport and hospitality industries. Cities need to make sure that the public interest is taken care of, without blocking digital innovation and change.

Third, cities can use their own purchasing power to stimulate the digital economy. But the new techniques of coproduction, hackathons, etc. raise particular issues in the complex regulatory world of procurement. Here, cities need to find new ways to allow experimentation and innovation prior to committing to final purchases, and without giving privileged advantage to particular companies (see also the story on Dublinked in this publication). This will be important to facilitate the development and scaling up of new IT-digital solutions in cities and to support new start-ups in this space.

Fourth, to make the right choices, cities and local governments will be in need of ever more **intelligence** (see article on 'economic intelligence for cities' in this publication). Because of the proliferation of digital content and data production by individuals and organisations in cities (e.g. through sensors, mobile phones, electricity meters and transport journeys), local governments have to find new ways to make sense and deal with (big) data which is increasingly available in real time. Moreover, micro businesses and informal communities will become increasingly relevant for innovation and new business development, which are not as easy to spot as large companies or R&D institutes (Carvalho, 2014). And what will happen to city marketing and branding as social feeds about a city grow exponentially without control of local governments? The URBACT CITYLOGO⁵ network has been conducting exploratory work on these issues, focusing on branding for both inward investment and tourism through social media.

All in all, the new 'digital skin' of cities (Rabari and Storper, 2014) brings considerable opportunities and challenges to cities and local governments. It will permeate cities of very different sizes and economic specialisations. Businesses, planning models and regulations will change, opening a whole new playing field for local governments. Likewise, this means that civil servants need to become also much more digital-oriented than in the past. ●

⁵ <http://urbact.eu/citylogo>