Digital Transformation Monitor

Lisbon’s engines of growth

January 2017
Between 1980 and 2001, Lisbon lost a third of its residents, suffered ruptures of social and territorial cohesion and experienced severe economic and urban transformations. The situation was critical. Yet, thanks to the proactivity and pioneer work of the city leaders, Lisbon did not turn into a sleeping city as one could expect. On the contrary, with the development and implementation of an ambitious strategy aimed at positioning the city as one of the most competitive, innovative and creative cities in Europe, Lisbon is today an energetic city where new business ideas and ventures are blossoming every hour.

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Problem statement

Over the last five years, Lisbon has been designing and actively promoting an entrepreneurial vision, aiming to build local networks and foster the participation of citizens, businesses, universities, public and non-profit organisations in processes to co-create ideas and projects.

From a service-based to a digital economy

Thanks to strong support from public institutions (mainly the city’s municipality), Lisbon has successfully transitioned from a traditional service-based economy to a more digital, open and diversified one (illustrated by the shift from its status as a moderate innovator in 2004-2006 to an innovation follower in 2008-2010 in the Regional Innovation Scoreboard Rankings). This has led to a deeper diversification of entrepreneurship dimensions within the city.

A new urban paradigm

This process has taken place because Lisbon, like other cities in Europe, has sought to achieve a new urban development paradigm able to meet the challenges related to climate change, demographics, energy dependence and social exclusion.

Between 1980 and 2001, Lisbon lost one third of its residents, suffered a breakdown in social and territorial cohesion, and experienced severe economic and urban transformations.

In 1988, a major fire also destroyed part of the centre (now Parque das Nações), which was then rebuilt in the same year during the Expo. By pre-selling every building on this site to both businesses and private buyers, Lisbon’s municipality ensured that the site would not be abandoned after the Expo event.

In this regard, Lisbon’s constant changes and improvements to the quality of its structures have represented a first step in the city’s modernisation process, with the aim of becoming more competitive.

A new focus on innovation from the City council

However, Lisbon’s turning point with its digitalisation process occurred in 2011, with the creation of a Directorate General for Economy and Innovation in Lisbon’s City Council, with Lisbon developing an ambitious strategy aiming to position the city as one of the most competitive, innovative and creative in Europe. To achieve this goal, Lisbon’s digital strategy for the future is based around four key growth drivers:

1. Atlantic Business Hub: strategic initiatives to attract investment;
2. Lisbon Start-up City: Lisbon has already created a friendly and dynamic ecosystem (e.g. Start-up Lisboa, FabLab, Lisbon incubators, Lisbon Entrepreneurial Ecosystem Platform);
3. Integrated Knowledge and Innovation Environment: Lisbon is Portugal’s leading university city and one of the most relevant for R&D and innovation ecosystems internationally;
4. Lisbon Strategic Clusters: identification of key clusters at global level (e.g. financial institutions, tourism, commerce, etc)

Participatory budget funded the city’s start-up incubator

In 2014, Lisbon was the first city in Europe to set aside a EUR 1 million participatory budget for the development of start-up incubator networks in its historic centre (a percentage of the municipal budget was allocated for ideas that were presented and selected by citizens).

In recent years, Lisbon has also become an international platform for the Portuguese economy. The city will host the Web Summit (biggest and most important web and digital technologies event) for the next three years and it was selected as one of the European Entrepreneurial Region (EER) winners in 2015.
Another initiative that makes Lisbon an outstanding case in the field of European smart cities is the creation of Monsanto,360 in the near future, a 7,000 sq.m space that will soon serve as the management and research centre for the city’s entire urban data policy, spanning cybersecurity activities, open data operations and a data centre centralising corporate IT servers.

Concerning new digital opportunities, Lisbon’s vision and mission aim to enhance citizens’ welfare, quality of life and participation.

Open up city database

The municipality of Lisbon is taking into consideration the possibilities offered by the use of public databases to develop a series of open data initiatives. The main one is Open data Lx - in partnership with the Agency for Administrative Modernisation (AMA). This project aims to open up the city of Lisbon’s closed database collections to all citizens.²

The Open Data project’s structural objectives include increasing transparency, strengthening citizens’ participation and promoting innovation and creative economies. For instance, by enabling the use and reuse of open data, local entrepreneurs have been able to create products and services with major potential. One of the initiatives linked to the use of open data is Lisboa Horizontal, an application to guide citizens around the city’s bike paths, with information on tourist and cultural attractions, public spaces and events, which won the Big Smart Cities award in 2015.

An ever-growing ecosystem

Some observations can be made by examining the benefits of the digital transformation in Lisbon. Since 2011, Lisbon has developed a strong and nurturing technological environment. The most evident example is the Lisbon Incubators Network, made up of 16 incubators, 6 start-up accelerators and over 400 start-ups, four Fab Labs (e.g. Fab Lab Lisboa, FabLab EDP), several international and national acceleration programs, more than 38 coworking spaces, as well as a growing community of business angels and venture capitalists.

Smart City projects with a positive impact on the economy

The commitment from the municipal council to foster a dynamic and technological environment through Smart City projects represents a major opportunity for the local entrepreneurship environment. Benefits have included attracting investment (30% of entrepreneurs investing in Lisbon are from abroad), creating jobs (1,500 direct jobs linked to start-ups) and renovating real estate.¹

With regard to the latter, the municipality of Lisbon has decided to pursue its goal of becoming a modern smart city without losing sight of its geographical identity and heritage. From this perspective, a programme related to the requalification of three historic buildings in Lisbon’s downtown area has also been successfully launched in an older part of the city.

"We needed to develop a “smart” infrastructure in the context of the redevelopment of very specific buildings in the historic heart of the city” – Paulo S. de Carvalho, City Municipality

Hackathons pushed by the city

The municipality of Lisbon envisages to organize a series of hackathons, defined as events in which interested people gather to improve or build new digital solutions. Hackathons are great opportunities for citizens to participate in the development and management of new ideas. Two hackathon initiatives have already taken place in the city of Lisbon: IT Hackathon 2015 (an open event for the general public with high visibility and great coverage from the press in Lisbon Congress Centre) and Lisbon Challenge hackathons.
Lisbon’s municipality performs a key facilitator role within the digital ecosystem. Aware of the opportunities and challenges involved with digital start-ups, Lisbon is committed to attracting investors and creating a digital entrepreneur-friendly environment.

Key elements of the digital strategy

Key elements to achieve Lisbon’s digital strategy include: easy access to financial incentives (Lisboa Emprendee and Start-up Lisboa Loan) and an investor-friendly tax benefits system (e.g. Personal Income Tax reduced from 5% to 2.5% and exemption from municipal surcharge tax payment for three years for new businesses set up in Lisbon).

Financial support through Start-up Lisboa

With regard to the former, one of the most significant public-led initiatives for fundraising and investment opportunities is Start-up Lisboa Loan, which is part of the Start-up Lisboa network and offers full financial support (100% of investments) for existing businesses with three or more full financial years, as well as significant financial support (almost 85% of investments) for new businesses or existing businesses with less than three full financial years.

In this case, project promoters will need to contribute to the financing with a minimum “own capital” amount corresponding to 15% of the investment.

Lisbon’s municipality has successfully rolled out more user-friendly start-up procedures (e.g. cost-free registration, quick start-up times) through a series of initiatives such as “Empresa na hora”, enabling new businesses to be set up in a very short time (in just 45 minutes).

Key stakeholders

The city of Lisbon as the creator of the framework conditions

By launching initiatives such as Taguspark (science and technology park) and Start-up Lisboa (Lisbon’s top incubator), the local government aims to put in place the conditions required to form networks and collaborative platforms between local businesses, universities, research organisations, intermediary organisations and residents.

Universities as the main providers of digital talents

Lisbon’s technical universities are behind several initiatives and projects supporting the digital transformation of local businesses and are leading the digital transformation of local businesses.

Examples include UNIDEMI, a research centre hosted by the Department of Mechanical and Industrial Engineering, which is focused on embedding leading-edge scientific knowledge into the business fabric, while UNINOVA has its own Entrepreneurship Office (NOVA entrepreneurship office) aimed at the creation and development of an entrepreneurial ecosystem within the university.

Accelerators and incubators

Since 2010, several accelerators (Lisbon Challenge, Beta Start, NOVA, Beta-I), incubators (Centro de Incubação , Dock 38, EDP Starter, EggNEST SGPS, ESA Business Incubation Centre, Fábrica de Start-ups, INOVISA, LISPOLIS, Madan Parque Start-up, Teclabs, Vodafone LABS) and FabLabs (FabLab Lisboa, FabLab EDP) have been created in Lisbon to support the digital transformation and enable local businesses to acquire and apply digital solutions.

More specifically, these facilitators offer tech start-ups access to workshops, mentoring sessions to share experiences, good practices, solve problems and empower sustainable businesses. Moreover, by organising several events, Lisbon’s incubator network brings together start-ups, the whole community and potential investors.

Start-up Lisboa

Start-up Lisboa, a private non-profit organisation - developed by Lisbon's Municipality - is Lisbon’s top incubator. By providing entrepreneurs and businesses with office space and a support structure, it maximises their chances of success.

Through mentoring, links to strategic partners, access to angel investors, venture capital or loan funds (with Start-up Loan), Start-up Lisboa provides help with business basics, networking activities, communications and workspaces. Although it was launched only four years ago, Start-up Lisboa has involved more than 65 business mentors and 50 partnerships to date, and helped create 190 start-up companies and 550 new direct jobs.
Beta-I

In terms of accelerators, Beta-I, a non-profit association created in 2010, has received more than 2,700 applications over 3.5 years and accelerated over 430 start-ups, 130 of which are still active. Thanks to its commitment to promoting and accelerating local businesses, Beta-I was recognised in June 2014 as Europe’s leading start-up and entrepreneurship promoter in the European Enterprise Promotion Awards.⁴

Diretor FabLab Lisboa

FAB LAB Lisboa, a fabrication-laboratory based in a local market in Lisbon’s city centre, is part of the Lisbon municipality’s strategy to promote and support local digital entrepreneurship.⁵

In terms of digital manufacturing, it provides a new rapid prototyping lab, serving businesses and giving the city another important tool for innovation. It has been thought out to operate as a “think-tank” where designers, developers, students and other stakeholders come together to develop projects for the local community.

The lab’s capabilities include: 3D printing, CNC milling, circuit production, laser cutting/engraving, precision milling and a vinyl plotter. The FabLab capitalises on its strong links with other production facilities, as well as a network of start-ups.

In addition, the FabLab cooperates with local universities (mainly fine arts and engineering faculties) and schools to offer opportunities for students to learn how to use and leverage the lab’s capabilities. Several initiatives have successfully been rolled out.

For example, Vortex - Interactive Landscape, a project developed under the Masters in Communication Design and New Media at the University of Lisbon’s Faculty of Fine Arts, and Air cargo challenge: iron structure for drones, a project in collaboration with S3A, an organisation that aims to provide IST students with opportunities to put into practice their theoretical knowledge learned in classes.⁶ ⁷

Key initiatives

Internet of Things (IoT)

Portugal is well positioned in relation to the Internet of Things and Lisbon is building its smart city strategy around IoT technologies and data. Local universities (UNINova and FCT-UNL) have been involved in several national and European IoT-related research and industrial projects, and acted as local hosts for IoT-Week’2015.⁸

More specifically, the global Vodafone M2M middleware platform has been developed in Portugal (Lisbon), while the Bosch M2M&IoT was also developed in Portugal (Aveiro). Major Portuguese telecoms operators like Portugal Telecom and ZON Optimus are now strongly pushing their M2M&IoT business areas. As a result, many champion SMEs are developing solutions and building their business in IoT.

Lisbon Challenge

Lisbon Challenge is an ambitious 3 months acceleration program aimed at supporting international tech start-ups in prototype or product phases, looking for a truly innovative and empowering experience.⁹

By selecting top mentoring and providing consistent support for selected start-ups, it aims to offer consistent methods and resources for accelerating start-ups. Highlighting the relevant role played by Lisbon Challenge, many international investors have joined its latest editions (Index Venture, Balderton, Angelist, Seeders, BDMI, Cabiedes, and also some from Portugal (Faber Ventures, Smart Equity and Portugal Ventures).

Key infrastructures

Technology parks

Technology parks are important and relevant infrastructures for the development of Lisbon as a technological and entrepreneurship capital, providing local infrastructures where businesses, universities, research centres and other stakeholders can carry out their activities.

Tagus Park

Tagus Park – Society for development and promotion of Science and Technology Park of the Lisbon area S.A - is a science and technology park located in the municipality of Oeiras, in the Greater Lisbon sub-region.¹⁰

As part of a government initiative, it was set up in 1992 as a private company (Taguspark, S.A.) with mixed capital (44% private and 56% public) representing a total of EUR 21.7 million. It has 16 shareholders from the banking sector (31%), universities and R&D institutions (26%), enterprise sector (17%), local authorities (17%), central government agencies (7%), and other organisations (2%). Until 1999, the managing company’s investments in the park represented around EUR 70 million, while the total amount of investments made over the same period came to around EUR 254 million.

Today, the park hosts several research and development labs, innovative start-ups and business incubators in a range of fields such as information technologies (e.g. Portugal Telecom), telecommunications, electronics, biotechnologies and fine chemistry. Recently, Novartis has also set up its headquarters in the park.

LISPOLIS

LISPOLIS is Lisbon’s leading science and technology park. It is a benchmark for setting up innovative and technological companies and promotes cooperation between businesses, organisations and scientific and technological entities.¹¹
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Obstacles

Lack of political will and creativity
Although Lisbon is now successfully innovating in areas such as open urban data, the political will and creativity at local level is still not strong enough. There are calls for a European framework to be set up harmonising the platforms and promoting exchanges of good ideas and best practices between big cities.

Low rate of cooperation between universities and SMEs
Notwithstanding the city's potential in terms of growth, investment and research, Lisbon, compared with other Portuguese cities, still faces insufficient cooperation between universities and private SMEs, as well as a reluctance to apply innovative business models.

Change in procurement procedures
Further obstacles are linked to the regulatory difficulties facing the city and the national government with the adoption of the Directive on Public Procurement (Directive 2014/24/EU). For instance, SMEs are often discouraged by tough procedures and a lack of information.

The Portuguese government aims to meet the deadline for the transposition, but, like other countries in Europe, it has not yet determined whether this implementation will involve an in-depth review of the Public Contracts Code, consequently complicating and amending the current procedures.

Lessons Learnt

Long-term strategy and a clear vision
The main lesson learnt from the case of Lisbon is the role played by the municipality in positioning the city as one of the most competitive, innovative and creative cities in Europe.

By setting up a specific office (Directorate general for Economy and Innovation at Lisbon City Council) in 2011, Lisbon’s municipality has demonstrated its awareness of the great opportunities opened up by the digitalisation process for the city, especially with regard to entrepreneurship and working habits and attitudes.

Following a clearly defined vision aimed at strengthening the links between anticipating challenges and opportunities and promoting the internationalisation of Lisbon’s competitive capabilities, the municipality has developed a long-term strategy based on a holistic and forward-looking approach.

The role of universities: providing the right skills to enable the digital transformation
Coordinated by Lisbon’s municipality, citizens, universities and local SMEs are all being engaged in the city’s modernisation process.

The presence of several Fab Labs, incubators, accelerators in the downtown area has demonstrated not only the commitment shown by local authorities to enhancing the digital entrepreneurship environment, but also the desire to rehabilitate real estate in the downtown sector.

Challenges in terms of digital entrepreneurship attractiveness
Notwithstanding the city's commitment to positioning itself as one of the most competitive and innovative cities in Europe, there are still many challenges ahead in order to keep growing in terms of digital entrepreneurship attractiveness. Lisbon’s municipality should take into consideration the role of education in the digital transformation, with regard to the reorganisation of schools and universities, as well as their relationships and cooperation with SMEs.

Moreover, through a process to gradually remove existing barriers (Procurement Standards and Resistance to Adoption of New Business Models), public procurement should be more accessible for (small) digital entrepreneurs - and provide full access to open government data.

Since the digital transformation has improved in recent years, Lisbon municipality’s future challenges will concern not only accessibility to digital services, but also citizen trust and engagement in the digitalisation process. For instance, without a proper level of investment in education and training in technology and digitalisation, there is quite a high risk of reducing the effectiveness and impact of the digital transformation that is underway.

SMEs and financial institutions involved in the city’s innovation process

The continuous changes taking place, together with the limited availability of public financial resources, require private SMEs, venture capitalists and local financial institutions to be more involved in the city’s innovation process.
Cooperation between universities and entrepreneurs

Despite the presence of over 100,000 highly trained students attending scientific universities and possible future owners or workers in digital start-up companies, there is still insufficient cooperation between universities and the entrepreneurial sector.

Improving these synergies is important to ensure that knowledge transfers can take place and lead to the commercialisation of innovations and the creation of business opportunities for entrepreneurs. This call for local entrepreneurs aims to efficiently and proactively manage and mentor start-ups and turn ideas into real added-value.

Shared awareness of digital transformation needs

The Lisbon municipality’s long-term strategy will take into consideration the need to generate a shared awareness of the digital transformation. This would encourage a higher level of participation and commitment from SMEs, venture capital firms and digital companies and would create a more nurturing and favourable digital entrepreneurship environment.

Key Recommendations

To implement a successful digital transformation, Lisbon needs to consider its traditions and economic realities. As a result, local SMEs and financial institutions as well as citizens need to be engaged in the city’s transformation process. By doing this, Lisbon should transform itself without losing sight of its historical identity.

Taking the local economic environment’s traditions on board

Some recommendations can be made based on the learnings for the city of Lisbon. Notwithstanding the presence of several models of FabLabs, accelerators and incubator programmes across Europe, it is crucial to keep in mind the different economic systems that characterise each city.

A highly successful model in a particular economic geographical area is tailored to its specific requirements and might not be suitable for other needs.

More specifically with regard to the city of Lisbon, local traditional economic realities (handcrafts, maritime commerce, tourism, etc.) need to be considered as key elements and strategic clusters in the city’s digitalisation and modernisation process.

Stronger participation of private financial institutions and entrepreneurs

One of the key aspects developed with this case is the high level of participation of public entities in Lisbon’s development as a start-up city (fundraising, infrastructures and fab lab laboratories).

However, a higher rate of participation is required for private financial institutions and entrepreneurs in terms of investment in start-ups and new businesses.

Lisbon’s next challenge will be to promote, through the creation of proper conditions (providing spaces, leading roundtables, etc.), a process for active and participatory partnerships between SMEs, investors and VCs, in order to support sustainable digital urban development.

New digital consciousness

To help build and promote awareness of digital transformation requirements, the city of Lisbon should continue to design and implement digital platforms, encouraging the co-creation of innovation in the city through the participation of all the stakeholders involved (investors, entrepreneurs and start-ups).

In this area, Lisbon is already taking relevant action as part of the Lisbon Crowdfunding Platform. Alongside this, a supportive digital entrepreneurial culture is crucial to the development of digital entrepreneurs, because it improves the image of digital entrepreneurs and promotes their role in society.

To get all citizens involved, Lisbon’s municipality should invest in digital innovation and entrepreneurship education and training for the entire population (some initiatives have already been rolled out for young people, such as the Lisbon Youth Entrepreneurship Program and Study in Lisbon).
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<th>Category</th>
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| **Local government**        | - Keep in mind the different economic systems characterising each city, tailoring specific policy requirements for specific economic geographical areas  
                              - Consider local traditional economic realities as key elements and strategic clusters in the city’s digitalisation and modernisation process  
                              - Support the widespread development of a digital entrepreneurial culture  
                              - Reduce the digital divide by improving levels of digital skills among specific groups, reducing the difficulty of using digital services and improving user experiences  
                              - Invest in open data and open innovation platforms  
                              - Invest in key infrastructures for a business-friendly environment, not only supporting the creation and growth of start-ups, but also rehabilitating the historic city centre and bringing young businesses and their employees in to the downtown area (e.g. Start-up Lisboa) |
| **Universities/Research centres** | - Link universities and R&D institutes with start-ups and SMEs (through channels such as Lisboa Start-up City and Lisbon Youth Entrepreneurship Programme)  
                              - Attract digital talents thanks to competitions and initiatives taking place in the universities  
                              - Generate knowledge spill-overs through interaction between universities and digital events (e.g. UNINOVA and FCT-UNL hosted IoT-Week’2015) |
| **Businesses**              | - Reinterpret the traditional economic environment (tourism, handcrafts, maritime commerce, etc.) through a digital approach and solutions (Internet of Things applied for manufacturing)  
                              - Move from a model of national champions to European hub leaders  
                              - Create links with international players |
| **Clusters**                | - Gain a deep understanding of your businesses  
                              - Inform local stakeholders about the strengths and needs of your businesses  
                              - Organise regular meetings with other clusters and local businesses |
| **Incubators/Accelerators** | - Support the digital transformation and enable local businesses to acquire and apply digital solutions  
                              - Provide support and promote the local economic environment  
                              - Through the creation of proper conditions (providing spaces, leading roundtables, etc.), promote a process for active and participatory partnerships between SMEs and financial stakeholders |
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About the Digital Transformation Monitor

The Digital Transformation Monitor aims to foster the knowledge base on the state of play and evolution of digital transformation in Europe. The site provides a monitoring mechanism to examine key trends in digital transformation. It offers a unique insight into statistics and initiatives to support digital transformation, as well as reports on key industrial and technological opportunities, challenges and policy initiatives related to digital transformation.


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Authors: Laurent Probst, Bertrand Pedersen & Olivia-Kelly Lonkeu, PwC

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