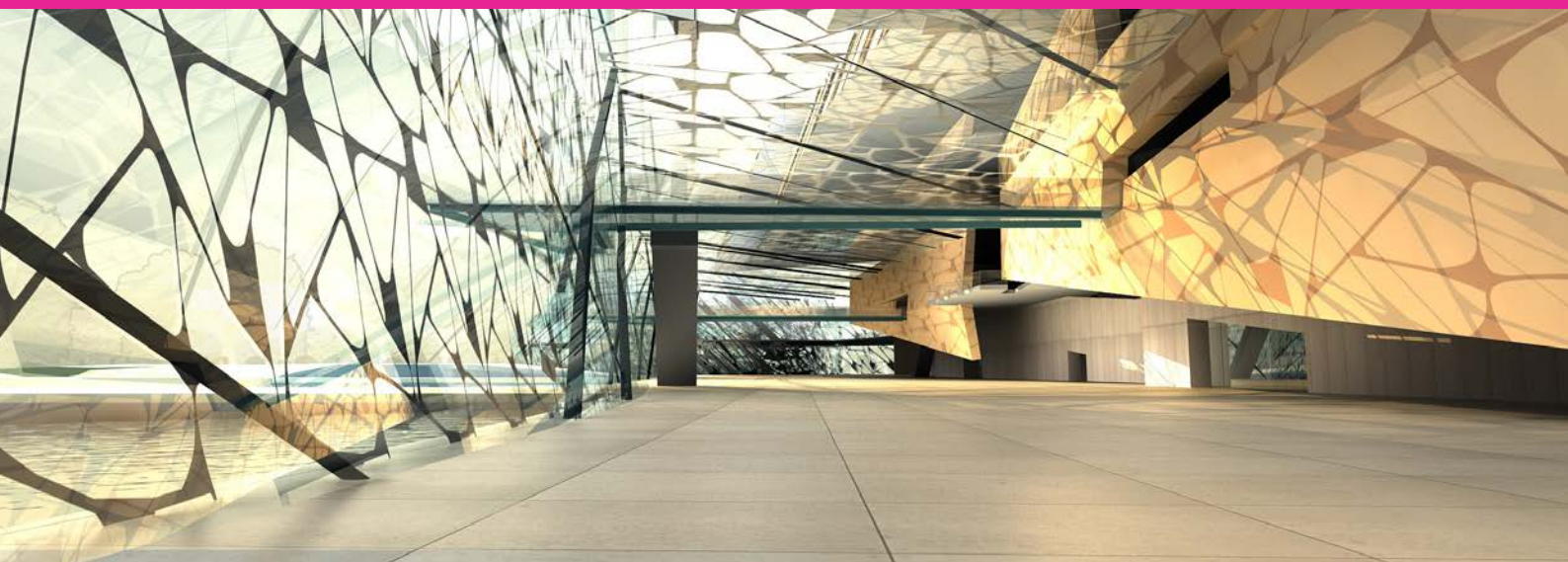# iUrban

inspire
innovate
implement

Innovative city strategies for delivering sustainable competitiveness

Summary report

Euricur
EUROPEAN INSTITUTE FOR COMPARATIVE URBAN RESEARCH

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IHS
Making cities work

Contents

1 Foreword

Fundamental changes such as climate change, technological advances, increasing societal demands, shifting power from national to local levels and the consequences of the 2008 financial crisis are changing the playing field of cities worldwide. While many cities in emerging and advanced economies continue to thrive, it is uncertain whether such growth can be sustained overtime. This is particularly the case as urban development objectives shift from pure wealth creation towards more complex and demanding well-being objectives.

How to sustain a city's growth over time without endangering its foundations (such as economic diversity, people and the environment) is now one of the most relevant urban development challenges. Even when much has to do with external-to-the-city macroeconomic and political developments, cities are not just passive receivers of their external contexts – they can also shape their own development.

The present study provides insight on these issues by analysing in depth a number of innovative urban development strategies aiming at sustaining a city's development and competitive position over time. The overreaching research question is as follows:

How are different cities worldwide fostering sustainable competitiveness: a city's ability to keep balanced growth and development over time while fostering social cohesion and environmental quality?

To this end, through an intensive case study research methodology, we have analysed 24 new generation urban projects in their specific context, deriving lessons for other cities. Beyond looking into the underlying concepts, themes and achievements, a special focus is placed on the enablers that contribute to 'make things happen' (such as partnerships, types of leadership, financial arrangements, communication and agile delivery models). This report synthesises the main lessons from our study and presents a number of choices and actions that urban managers need to consider when undertaking projects grounded in a sustainable competitiveness framework.

The early idea for this project dates back to a joint discussion on the future of European urban policy, initiated by the European Institute for Comparative Urban Research (Euricur), Erasmus University Rotterdam together with the City of Rotterdam and with city officials from Antwerp, Barcelona. Budapest, Dortmund, Dublin and Helsinki, taking place largely during 2011. During 2012, this discussion platform was expanded to transform it into an international comparative study, in partnership with PricewaterhouseCoopers (PwC) and the Institute for Housing and Urban Development Studies (IHS).

On behalf of the Editorial Core Team

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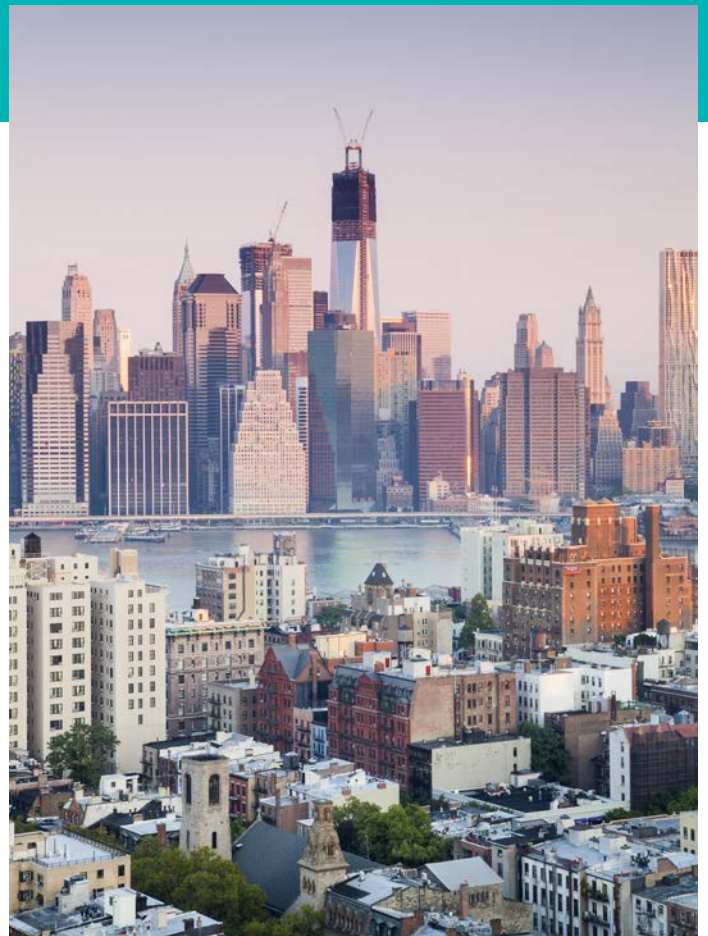*PwC, Cities and Local Government Network, The Netherlands*

2 Summary and key takeaways

Today, cities around the world are seen as the engines for sustainable economic growth. But the playing field for cities is changing dramatically.

Growing societal demands are going hand-in-hand with budgetary restrictions and the need to do 'more with less'. This, in turn increases the importance of executing and implementing strategy effectively and making it happen on the ground.[1]

Achieving the future development of a sustainable and competitive city involves developing an integrated strategic approach.[2] And more than ever before the growth that cities can achieve is strongly linked to their power to address social, environmental and economic issues in a holistic manner, while making the most of future opportunities.[3]

As such, how to keep a city's growth over time without endangering its foundations or 'capitals' (such as economic diversity, people and the environment) is now one of the most relevant urban development challenges. So, what can cities do to nurture *good growth*[4] and *sustainable competitiveness*: a city's ability to keep growing and developing over time while fostering social cohesion and environmental quality?

1   PwC, 2010
2   PwC, 2005; van den Berg et al., 2014
3   PwC, 2011; van den Berg et al. 2014
4   PwC, 2013a

The sustainable competitiveness of cities relies on the quality of the structural building blocks or 'capitals' needed for long-term prosperity; knowledge/intellectual, economic, social, environment and quality of life, infrastructure and accessibility, image and identity and institutional. Capitals change slowly, and result from a mix of historical processes, market forces and multi-level policy interventions, partly in the hands of city councils but also other urban stakeholders. However, the discussion about sustainable competitiveness is not only about the strength of the capitals or whether for instance the economy should be preferred to the environment or society. A key challenge is to find balance and integration between the different capitals over time.

As well as these capitals, a city's management has to develop multiple operational capabilities or 'enablers' to make things happen. These include inspirational leadership, communication, smart management of its finances and the capability to manage key programmes and projects including the development of agile delivery vehicles. And, all of this must also be done in a way that is sustainable and through collaboration and partnering with citizens, the private sector, academia and Non-Governmental Organisations (NGOs).

In this study, we analysed in depth how different types of innovative urban development projects and strategies (in terms of content and process) are contributing to strengthen a city's capitals and to strike new balances between the economic, social and environmental spheres. We also sought to understand the key enablers in each case. For each project and initiative analysed, we asked the following questions:

- How do the strengths and imbalances in a city's capitals influence its vision and the design of new projects?

- What are the key features of the projects, what is innovative about the content and how are they tackling sustainable competitiveness?

- Which enablers have been critical to 'make it happen'?

- What are direct and indirect results of the projects, limitations and challenges ahead?

In the remainder of this summary, we synthesise key finding and takeaways for local governments and city managers in terms of 5Cs: Context, Capabilities, Collaborative Power, Choices and Competences.

Context: megatrends and local specificity

Climate change, shifting sources of economic power, demographic changes and technological advances and the shift from rural to urban — cities across the world share many challenges arising from these megatrends. The same goes for power shifts from national to local levels and the consequences of heightened budgetary restriction. However, on closer inspection, the types of imbalances faced are rather different. While some cities struggle to reignite as growth engines, others fight to curb CO_2 emissions and criminality; while some put citizen involvement first, others require infrastructure as precondition.

All in all, the context and dynamics of each individual city heavily influence the type of vision and strategies put in place to achieve sustainable competitiveness. For example, apparently similar open data initiatives can be nudged by rather different urban challenges and, more importantly, can follow different priorities, such as growth and innovation or transparency.

Local specificity means that even if cities can learn from each other, there is not one single path to sustainable competitiveness. Beyond sometimes simplistic divisions between cities in advanced and developing economies, any attuned intervention targeting sustainable competitiveness in a city should consider a thorough assessment of the evolution of its capitals over time, as well as more recent emerging dynamics.

Context is an important determining factor, but what should a vision (both at the city and project level) look like in a sustainable competitiveness framework? Among others, it should:

- Be able to balance different economic, social and environmental spheres in a holistic fashion, while recognising potential tensions and tradeoffs between them.

- Be flexible enough to cope with change while keeping the direction recognisable.

- Strike a balance between formalisation and 'situational awareness', being grounded on the distinctive features and identity of a place but able to flex with changing events.

- Be an inspiration for the multiple organisations involved in its implementation, beyond the city council's walls.

- Inspire action and risk taking (within limits).

Capabilities in place

Sustainable competitiveness projects require good designs and visions but also sound implementation capabilities. In this study, the capabilities in place are a combination of the structural capitals and the enablers that deliver visions, design and results.

In most of the sustainable competitiveness projects we have researched, success in implementation results from bringing together different organisations' internal capabilities to build on the structural capitals that sustain competitiveness. The more demanding the project involved (whether transformational or transitional), the more important the enablers that are required to make it happen. They become a package deal.

Beyond the role of partnerships (see *collaborative power*), we identified five key enablers in our case studies:

- Distributed leadership — connecting and distributing power among the key stakeholders who need to collaborate to make things happen, both within and outside the public administration;

- Communication, generating advocacy, connecting stakeholders and achieving buy-in as well as promoting the results of projects to wider audiences;

- Smart financial solutions — the ability to mobilise different funding resources and financing mechanisms for concrete projects in a sustained, responsible and flexible way;

- Prioritisation and piloting — strategically prioritising actions and piloting/ prototyping concepts within complex projects prior to wider roll-out;

- Agile delivery vehicles — designing structures to tackle the different urban challenges at stake, combining among others: transparency, accessibility, responsiveness, flexibility and accountability.

Collaborative power

Collaboration is the glue that brings sustainable competitiveness projects together. On many occasions, city councils are not exclusive players but the facilitators of broader collaborations. Indeed, in the most successful projects we analysed, leadership is distributed across multiple organisations, which need to co-operate closely to make sustainable competitiveness visions happen:

• Private sector involvement, ranging from small entrepreneurs to large transnational corporations. Many organisations in the private sector are increasingly ready and willing to invest in their urban environments to the benefit of their core strategies and profit, in a 'shared value' fashion.

• University involvement, including educational and research institutes. The performance of cities increasingly relies on their educational and research backbone, and the other way around as well. Knowledge institutes increasingly see cities as a research subject in its own right, and cities can benefit from their problem-solving capacity.

• Citizen involvement. Involving citizens to the full often results in 'unusual suspects' getting involved, bringing novelty and identifying previously hidden problems and opportunities.

• Not-for-profit involvement. Involving not-for-profits and NGOs proved relevant in many of the projects we analysed, such as in cases where they acted as brokers, with a degree of independence to carry projects through and to encourage the right partnerships.

Collaboration is not easy. However, it is often worth the effort and it is pivotal for the sustainable competitiveness of cities. Good collaboration:

• Requires trust, mutual understanding and flexibility/capacity to try out new approaches

• Allows projects to reach other dimensions and domains

• Contributes to mobilising complementary resources such as knowledge, finance, support and legitimacy

Imagelab / Shutterstock.com

Choices to be made

Project outcomes are the product of the interaction between many stakeholders responding to the challenges that are the focus of any initiative. In the case studies we researched, each involved choosing a thematic focus for the strategy and how to implement it and make the right choices. The key themes in our research included:

- Promoting the development of clusters where the agglomeration of economic activities benefit from each other's presence in many ways, which can help strengthen and diversify a city's economic base.

- Managing urban mobility, as sustainable competitiveness requires excellent accessibility so that transport and mobility become key issues to address.

- Sharing data in the digital city, with new technologies opening up new possibilities for innovation, transparency and the delivery of better urban services.

- Using events as a catalyst of urban transformation and new immaterial types of urban legacy.

- Regenerating and greening cities to improve the quality of the living environment.

- Adapting to climate change to minimise the risk to a city's functioning and attractiveness.

- Enhancing urban security to cope with social imbalances and unrest.

In order to deliver the required outcomes in relation to these themes, there are many dilemmas and trade-offs which need to be considered to make the right choices.

Even if there is no single blueprint for each theme, there are at least six key choices and dilemmas that urban managers should consider when planning for sustainable competitiveness in cities.

- Transformational or transitional initiatives?

- Broader, multi-domain or specialised initiatives?

- Accept sub-optimal results or 'do nothing'?

- Status-quo vs. reform-driven projects?

- Municipal borders or functional urban regions?

- Diversifying partnerships or keeping the project agile?

There are no single or simple answers to the above mentioned trade-offs. Much has to do with the specific city challenges, as well as with the available capabilities in place. Moreover, it can be hard for policymakers to answer such questions alone, as the answers to many of them rely on third party actions. They can be seen as input for discussion among project proponents, and should be asked more than once during the development of sustainable competitiveness projects.

Source picture: Mini World Rotterdam

Competencies for a new type of urban manager

Delivering sustainable urban competitiveness requires a new type of urban manager. Urban management for sustainable competitiveness is a knowledge-intensive activity, in the hands of both elected representatives and executive city staff.

The new urban manager for the 21st century should:

- **Identify, connect to and empower leaders within and outside the organisation** to which leadership can be distributed. Sustainable competitiveness projects require strong and resilient leadership at different levels, in different organisations, both technical and political.

- **Mediate stakeholders with potentially different interests around joint visions,** even when they have different powers, assets and time horizons.

- **Source and legitimise new ways of working in the organisation,** encouraging new approaches outside the comfort zone.

- **Involve unusual suspects** in fully-fledged 'penta-helixes' (citizens, not-for-profits and universities as well as public and private sector organisations) beyond the usual business and policy elite.

- **Pay attention to external catalysts as signals to change of brand identity.** When combined with a city's strengths, needs and possibilities, they can contribute to ignite, if not boost change in different city spheres and capitals.

- **Think about the most appropriate spatial level for interventions.** Functional, not administrative, areas are often more appropriate to tackle sustainable urban competitiveness challenges, and make it easier to involve the stakeholders that matter.

3 Context and urban challenges: setting the scene

Despite globalisation and the opportunities opened by technologies, it is still in cities that new ideas circulate faster and, thus, where new productive combinations tend to emerge first.

Cities have always been engines of growth and development. They boost people's productivity, wealth, innovation, energy efficiency and social mobility.[1] Despite globalisation and the opportunities opened by information and communication technologies, it is still in cities that new ideas circulate faster and, thus, where new productive combinations tend to emerge first. Cities are hotspots for ideas' exchange among skilled individuals. Indeed, over the last few decades, as economies have become more knowledge intensive, the role of cities has clearly increased.[2]

But the playing field for cities is changing dramatically with budgetary restrictions and the need to do 'more with less' increasing the importance of executing and implementing strategy effectively and making things happen on the ground.[3]

Naturally, the potential of cities as growth engines depends on their dimension, economic structure and the ways they are internationally connected.[4] In any case, the economic and innovation role of cities has been amplified over the last two decades.[5] Competitive countries have competitive cities, i.e. cities with the dynamic capacity to grow and develop over time, nurturing new jobs, people and skills[6], as well as attracting those from the outside. As suggested, 'the big cities of today and tomorrow operate in a constant condition of competition. They

1   Glaeser, 2011
2   van den Berg et al., 2005
3   PwC, 2010
4   For example, OECD, 2011; Sassen, 2001
5   McCann, 2008
6   For example, Kitson et. al, 2004; van Winden and Carvalho, 2008

compete for positioning and attractiveness through strategic branding'.[7]

However, the fortune of cities is not perennial: they face cycles of growth and decline.[8] Throughout history, many cities lost the edge they once had – just think of Renaissance's Venice or industrial Detroit. Indeed, sometimes cities face problems to reinvent themselves on new global economic contexts, namely after periods of strong economic specialisation. Their economic structures, management routines and institutions tend to become inflexible and inward-looking.[9] As their innovation drive and position in international labour division slips, the city's future is in jeopardy.[10]

In the medium and long-term, urban competitiveness is driven by a city's capacity to innovate and diversify towards new economic activities.[11] However, social and environmental dimensions are increasingly important for societal progress as well.[12] Social exclusion, poverty, crime and large divides between the haves and have-nots are critical issues in large metropolises as diverse as such as Paris, Rio de Janeiro or Cape Town. These are not only increasingly unacceptable from a moral perspective but, over time, they endanger a city's very economic foundations and attractiveness.[13]

The same goes for pollution, climate and environmental problems, increasingly acute in rapidly growing cities such as Beijing or Shanghai. In the medium and long-run, congestion and pollution negatively impact on a city's quality of life. Hence, social cohesion and environmental quality are no longer luxury alternatives or even 'restrictions' to growth – they are integral to a city's economic development prospects.

The previous challenges have been magnified by a number of currently unfolding megatrends.[13] Climate change, heightened globalisation, technological advances, shifting economic power, demographic change, state rescaling, enhanced concepts of democracy-transparency and the consequences of the 2008 financial crisis are changing the playing field for cities.

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On the one hand, while many cities in emerging economies continue to thrive, it is uncertain whether such growth can be sustained overtime. A pressing challenge is how to decouple growth from environmental dilapidation while making it more inclusive. On the other hand, a key challenge in advanced economies is how to re-ignite growth and create jobs while maintaining social welfare and quality of life.

Even if much of a city's fortune has to do with external-to-the-city macroeconomic and political developments, cities are not just passive receivers of a given context – they can also shape their own development. In summary, a key urban challenge for the next decades is how to improve *sustainable competitiveness*, i.e. a city's ability to keep growing and developing over time while fostering social cohesion and environmental quality.

A key urban challenge for the next decades is how to improve sustainable competitiveness

7   PwC, 2005, p.22
8   van den Berg, 1987
9   Grabher, 1993
10   Storper, 2013

11   Jacobs, 1969; Frenken and Boschma, 2007
12   Pike et. al, 2010
13   Hall and Pfeifer, 2000

4 Capabilities in place

In this study, we have taken as our starting point our analysis of the capabilities that need to be in place to deliver sustainable urban competitiveness. This comprises a combination of the structural capitals that influence and shape the visions for our case studies, together with the enablers need for the design of the projects and to deliver the results and impacts. We set out below the key elements and definitions of both which informed our research.

Capitals for sustainable competitiveness

Ultimately, the sustainable competitiveness of a city relies on a number of structural assets or capitals which change slowly. They result from a mix of historical processes, market forces and multi-level policy interventions. Improving a city's capitals is not solely in the hands of the local government, but they can be influenced by their action.

Altogether, such capitals form the socio-economic structure of a city at a certain moment of time. There are many possible ways of 'clustering' such assets or capitals for analysis.[1] In this study we consider the following:

- Knowledge and intellectual
- Economic
- Social
- Environmental and quality of life (culture and leisure)
- Accessibility and infrastructural
- Reputational
- Institutional

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1   For example: van Winden et.al, 2007; PwC, 2011; Kresl and Singh, 1999

Knowledge and intellectual

Knowledge (along with the economic structure of a city) is the most important capital. It is closely associated with its knowledge infrastructure (e.g. universities, R&D and higher education institutes) and the skills of the working population. There is a strong link between a city's knowledge capital and urban productivity increases.[2] The skills of the working population also reflect a city's economic structure and its capacity to generate new innovative combinations.

Economic

Highly specialised cities face problems to reinvent themselves; however, fully diversifying their industry and economic bases is not the solution. Diversified economies tend to be more resilient to external shocks but they find fewer opportunities for productive recombination. Recent research suggests that, over time, the best performing and innovative local economies are the ones having a diversified yet related mix of economic clusters and activities.[3]

Social

Even in successful urban economies, social problems can persist and hinder further development. For example, cities like Manchester have done remarkably well in changing their economic structure and attracting new residents, but social deprivation and unemployment persists. Thus, social conditions are considered as an important driver of sustainable urban competitiveness e.g. widespread access to housing, basic skills, health and opportunity.[4]

A key issue has to do with the disparities between the haves and have-nots. Social disparities can be related to crime, which decreases a city's attractiveness for new residents and businesses.[5] Moreover, besides the economic rationale, disparities also raise many ethical considerations relating to urban justice, namely since growth doesn't seem to trickle-down so easily into new jobs and opportunities.[6]

Overall, there is a well-known inverted-u relationship between equality and economic performance: over time, too high or too little social equality hinders growth.[7]

Environmental and quality of life

Environment and quality of life, particularly culture and leisure, are also considered important capitals for urban competitiveness, namely for the attraction and retention of talented workers. Evidence gathered illustrates positive relationships between the environmental and amenity endowments of places and their competitiveness.[8]

The underlying logic is that a high premium is now placed on quality of living and that talented workers choose to move or stay based not only on job opportunities but on attributes of the built and natural environment, a rich variety of cultural institutions, cafes, restaurants and advanced consumption opportunities. However, the opposite is also true: from a certain threshold of environmental degradation, a city's attractiveness for the highly skilled is put at risk (even if jobs, consumption and cultural amenities are present).

2   For example, Glaeser, 2011
3   Boschma and Frenken, 2011
4   See also PwC, 2013b

5   van den Berg et al., 2005
6   For example Storper, 2011
7   e.g. Castro and Jensen-Butler, 1997

8   Florida, 2002 and Glaeser, 2011

Accessibility and infrastructural

International access (e.g. easy access to international airports and other infrastructure) is increasingly important for a city's competitiveness: this enables advanced companies to maintain international networks and access knowledge from the outside.[9]

Similarly, the quality of infrastructure – particularly housing, transport and increasingly broadband and other communication technologies – is an essential element to deliver good growth for cities.[10]

Image and identity – reputational

A city's image, brand and perceived identity is also an important (positioning) capital, and one that changes very slowly. The role of a city's image is important to its long-term competitiveness.[11] When choosing a city in which to invest, given limited information and with other things being equal, its perceived image plays an important role.

Urban regeneration strategies, culture and the hosting of large events have been among the most common strategies deployed by cities to change their images to the outside world, but also to improve the self-esteem of its residents.[12] Former industrial cities provide vivid examples of the role of image in competitiveness: just think about the re-imagining of Barcelona and its increased post-Olympic attractiveness.[13]

Institutional

Finally, the capacity of city to bring together stakeholders and get things done in the face of complexity, conflict and change are important factors behind a city's competitiveness over time[14] and take time to change, being heavily influenced by culture and behaviours as opposed to processes and controls. Institutional capital comprises a web of networks and relationships which underpin getting things done: 'the ability to enlist all actors involved and, with their help, to generate new ideas and to develop and implement a policy designed to respond to fundamental developments and create conditions for sustainable development'.[15]

This capacity, which may be distributed (or not) across different stakeholders in a city, is important to improve a city's capitals over time and to mobilise new resources for a city's development.[16] It concerns both the capacity of places to pursue policy integration between different government layers, but also between different stakeholders in a city, e.g. between city council, chamber of commerce, universities and other organisations.

As with all the other capitals, institutional capacity is amenable to change, but has a structural and place-based dimension as well. It has to do with administrative structures, but also with social capital and the cooperation arrangements among stakeholders.[17]

9   PwC, 2012a
10 PwC 2005; 2011
11 Van den Berg and Braun (1999)

12 Richards et al., 2013
13 Smith, 2005
14 Stoker, 1995

15 Van den Berg et al. 1997; PwC 2011
16 Camagni and Capello, 2009
17 For example, Putnam, 2001

Enablers for sustainable competitiveness

Besides these capitals, a city's management has to develop multiple operational capabilities or 'enablers' to make things happen. The structural capitals of a city can to some extent be influenced (steered) by the stakeholders involved in urban management. This is where the enablers come in: how to make that happen? These include inspirational leadership, communications, smart management of its finances and the capability to manage key programmes and projects including the development of agile delivery vehicles.

Leadership can have a critical impact on the execution of strategy and the delivery of outcomes. And leadership does not stop with the person at the very top – it cascades down the levels of the organisation, from the Board to local team leaders.

Other enablers that also appear to be having a positive or very positive impact on making things happen include employee engagement, the quality of internal and external communication, and effective coordination with external providers. In addition, finance and funding play a key role: without this, no project can succeed and this is the most important barrier to success.[18]

Finally, the power of collaboration to make things happen cannot be underestimated. A capability to partner is an essential enabler – with citizens, the private sector, academia and Non-Governmental Organisations (NGOs).

We discuss these enablers in more depth later with specific reference to those that emerged as important for the case studies in our research programme.
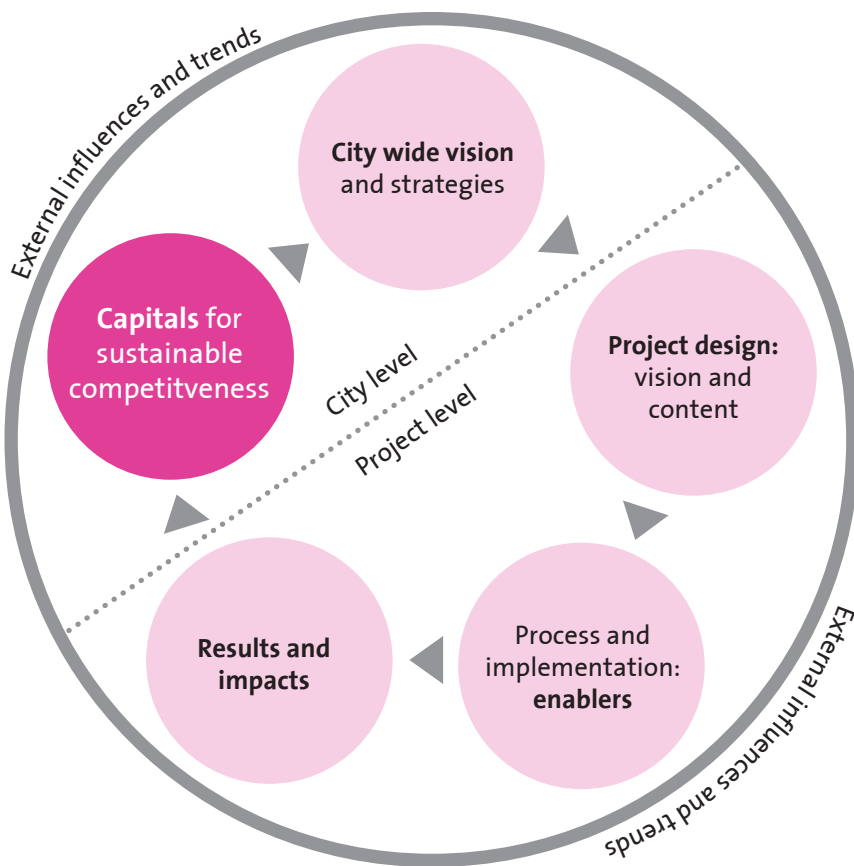
Leadership can have a critical impact on the execution of strategy and the delivery of outcomes. And leadership does not stop with the person at the very top – it cascades down the levels of the organisation.

18   PwC, 2010 and 2011

5 Research framework and methodology

External influences and trends

City wide vision and strategies

Capitals for sustainable competitveness

Project design: vision and content

City level

Project level

Results and impacts

Process and implementation: enablers

External influences and trends

Figure 1: Research Framework

With the previous framework in mind, we have analysed how different types of innovative urban development strategies contribute to strengthen a city's capitals and, ultimately, its sustainable competitiveness. For each project and initiative analysed, we asked the following questions:

- How do the strengths and imbalances in a city's capitals influence a city's vision and the design of new projects?

- What are the project's key features, what is innovative about its content and how is it tackling sustainable competitiveness?

- Which enablers have been critical to make it happen?

- What are direct and indirect results of the project, limitations and challenges ahead?

Hence, in this study we considered two main levels of analysis — city level and project level — and five spheres or dimensions of analysis, feeding back on each other (see Figure 1).

The **city level** – defined at the level of a functional urban region (vs. a single administrative unit) – includes two spheres:

i) The structural context of the city and its recent dynamics – assessed through the *city's capitals for sustainable competitiveness* as set out earlier.

ii) The city's overall development *vision and strategies*, as expressed in plans, documents and stakeholder narratives.

As suggested in Figure 1, the city's capitals are the starting point of the framework. There is a relationship between a city's development strategy and its capitals: different cities face different challenges and imbalances in their capitals, resulting (on average) in differentiated urban development strategies.

Naturally, a city's overall vision and the progress of its capitals are also impacted by external influences and trends (e.g. new stages of globalisation, climate change pressures, macroeconomic context and national policies). All in all, the 'city level' of the framework sets the context to better understand the ways through which different urban development projects and strategies are designed (i.e. their vision and content) and unfold (i.e. how cities manage to implement it).

The **project level** is influenced by the context of the city and includes:

i) The *project design*: its vision and content (including the project's history and rationales, objectives, strategy, concepts and features).

ii) Observable *results and impacts* ascribed to the project (economic, social and environmental).

iii) Implementation features, including the critical *enablers* that deliver visions and results, or, in other words, that contribute to make it happen. In this study we pay special attention to six critical enablers (see section 6): partnerships (e.g. by involving 'unusual suspects'), leadership models; communication; smart financial solutions; prioritisation; and the development of agile delivery vehicles.

As suggested in Figure 1, a project's design and features are influenced by a city's capitals and development vision. Over time, the project's results and impacts feed back to the city's capitals, closing the loop and contributing (to a larger or lesser extent) to a city's sustainable competitiveness.

Case studies

We studied 24 cases of innovative urban development strategies throughout the world, envisioned and designed to improve a city's sustainable competitiveness. Such projects or strategies are strongly embedded in the context of a city and are often deployed in partnership with a number of urban stakeholders. Figure 2 illustrates the wide spatial distribution of the case studies.

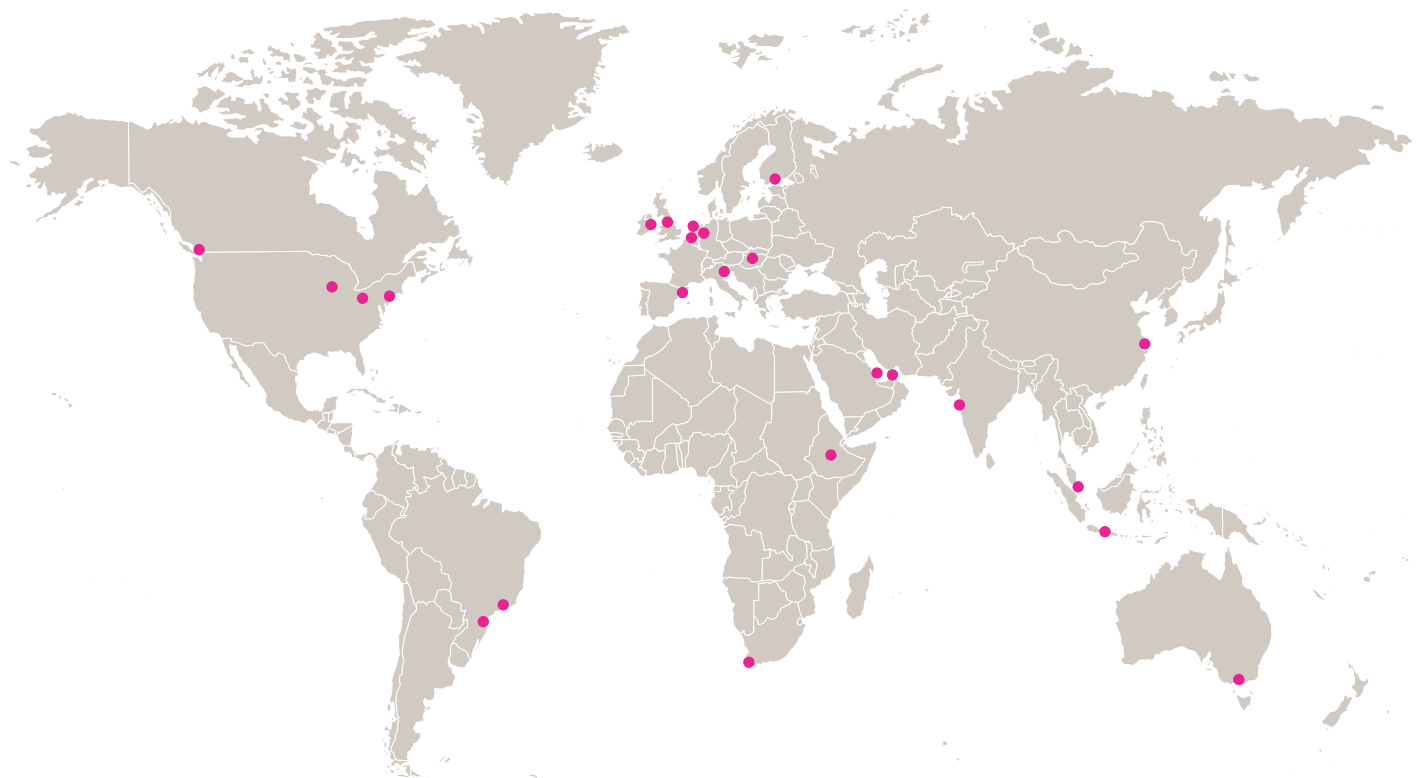Cases were chosen on the basis of two main criteria:

Figure 2: Spatial distribution of the cases

Innovation. The cases had to be innovative, at least in one of two dimensions:

- Content and features e.g. projects whose design and features are new or differentiating vis-à-vis conventional portfolios or urban development strategies.

- Process and implementation e.g. projects whose design and purposes are not necessarily 'new' but whose processes of implementation and enablers revealed innovative features.[1]

Impact potential. The cases had to have strong impact (already revealed or potential) on the city's capitals and urban dynamics. Two types of initiatives are considered:

- Transformational – large-scale programmes, composed of multiple hard and soft projects, aiming to be 'game-changers' of the local economy.

- Transitional – smaller yet path-breaking initiatives, with the aim to pave change towards new ways of doing things in cities.

The case studies touch upon one or more spheres (or dimensions) of our capitals – economic, environmental and social – resulting in different 'families' of projects under analysis (Figure 3). Some projects focus more intensively on one of the spheres, others are more integrated. Nevertheless, to a larger or lesser extent, all the projects/strategies under analysis consider the relationships established with other spheres as an important condition towards sustainable competitiveness.

The case studies were carried out by triangulating a number of research methods and data sources.[2] Quantitative and qualitative information was used to answer the research questions and assess the different building blocks of the research framework. More concretely, they combined:

i) Secondary information, including descriptive statistics, reports, press-releases, industry and government reports and previous studies, among others.

ii) Primary information, collected through face-to-face interviews in each city with elected representatives and city officials, project managers, private sector CEOs, entrepreneurs, universities, NGOs, experts and other relevant stakeholders.

Hundreds of interviews were carried out between March 2012 and February 2014, in the different cities under analysis (Figure 2). Some interviews had more of an ethnographic nature, and were critical to grasp tacit knowledge, unwritten features and enablers associated with the projects. While some projects had been studied before, others are very recent and the background, features and early results were studied for the first time.

Beyond the success stories and narratives, the interviews allowed for a clearer grasp of the challenges, tensions, and limitations in context. Moreover, interviews allowed for the identification of a number of micro-events and enablers with impacts on the development of the projects, which were not obvious at first glance. Finally, in many cases, interviews helped to flesh out development processes and the causal chains beyond the successes (and limitations) of the initiatives.
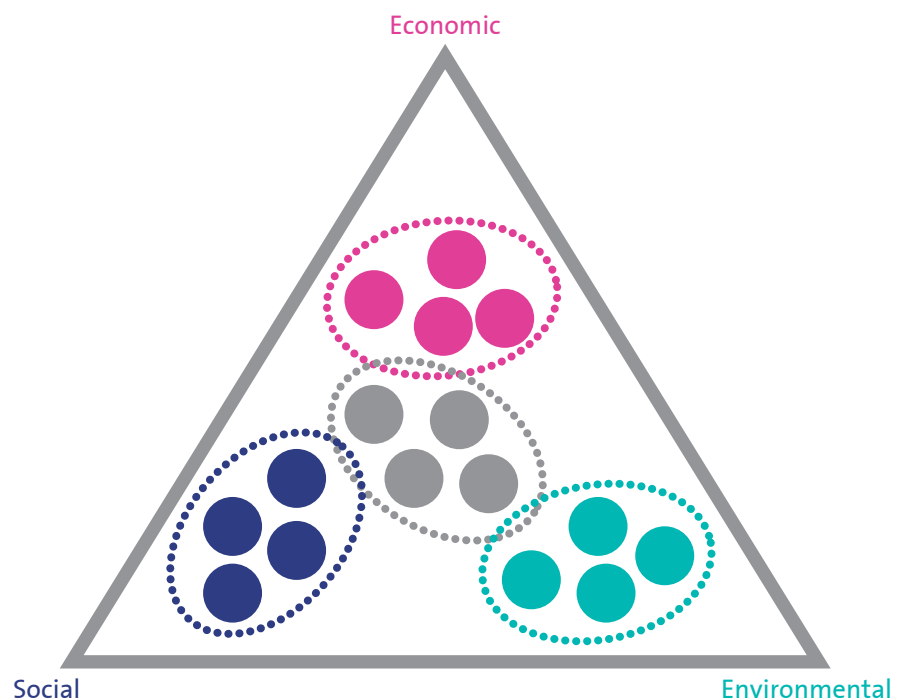

Figure 3: Typologies of initiatives

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1   The fact that projects are 'innovative' does not necessarily mean that they are 100 **percent** successful or have accomplished all of their aims (already).
2   The depth of the full case studies vary, but all of them followed the same research framework

Themes for sustainable competitiveness projects

This section groups a number of key insights from the case studies, organised under holistic themes or families of projects.

We start by describing those with a strong economic aspect: cluster development, urban mobility, sharing data and mega events. We then discuss those with a stronger environmental focus: greening the city and adapting to climate change. The final category focuses on those with a strong social aspect, specifically urban security.

Each theme provides a link with a city's sustainable competitiveness, exploring insightful and illustrative examples from the cases, key features, observable results and challenges ahead. A more detailed summary for each and every case study can be found in the appendix.

Promoting cluster development

As globalisation has intensified, many cities and regions worldwide have embraced the challenge of fostering clusters, i.e. agglomerations of economic activities that benefit from each other's presence (e.g. for sharing resources, matching competences or exchanging knowledge). Clusters have long been recognised as key drivers of the economic competitive advantage of cities and nations. From a sustainable competitiveness perspective, supporting cluster development can be an important strategy to strengthen and/or diversify a city's knowledge and economic base.

Beyond off-the-shelf formulas, promoting clusters requires a number of soft skills to make things really happen when it comes to policy design and implementation, e.g. facilitating effective 'multiple-helix' schemes (between different combinations of companies, universities, government, final users and civil society), nurturing collective intelligence and pooling the required resources for defined projects. Recently, conventional cluster policies (e.g. focusing on one, 'cherry-picked' knowledge sector) have been mutating towards cluster platforms, combining different types of knowledge, from different sectors, around very concrete, sometimes unique local challenges and opportunities.

Many cases in this study are illustrative of the different successes and challenges of promoting cluster development, with rather different social and political contexts such as the INNOPOLIS Programme (Budapest), the process behind the formation of a Water Hub (Singapore), a pottery cluster (Yogyakarta) and the development of a cleantech campus (Rotterdam).

Clusters have long been recognised as key drivers of the economic competitive advantage of cities and nations.

CASE STUDY

CLUSTER POLICIES IN YOGYAKARTA: INCREASING COMPETITIVENESS OF KASONGAN POTTERY CLUSTER

A regional government body (Department of Trade and Industry) in Yogyakarta has integrated a bottom-up cluster programme of the local government with a top-down programme from the State in order to strengthen competitiveness of the Kasogan pottery cluster. As such, it is rather different from the development of other clusters in Indonesia which are developed by a top-down approach.

The programmes focus on the development of an information centre, training of pottery makers (including design, marketing and the use of IT), access to exhibitions, technology transfer (e.g. new heating systems) and new production techniques, and infrastructural works and funding.

So far, the programmes have contributed to increasing the competitiveness of firms in the cluster. Most importantly, the institutional structure around the cluster has improved considerably, with improved networks and trust between the business association, firms, various government layers and the information

centre. Moreover, the programmes have contributed to skills development and better networking of local firms while new products and production technologies have been introduced. The improved institutional arrangements are a major exception to the norm in Indonesia which is challenged with bureaucracy and corruption. The Kasongan cluster can be regarded as one of the most competitive clusters in the country.

RDM CAMPUS ROTTERDAM: A NEW HOTSPOT FOR CLEANTECH

The RDM Campus in Rotterdam – under development in the old premises of RDM, a former large shipbuilding company – was selected as new hotspot for the cleantech cluster, covering the bio based and energy sector, hydraulics and maritime engineering (including offshore), infrastructure and mobility, and construction and integrated area development. One of the ambitions is to put 'open innovation', 'communities of practice' and the 'golden triangle of business, education and research' into practice by putting start-ups, existing firms, and educational and knowledge institutes together in renovated historical industrial buildings. Halls and docks of the former RDM shipyard are targeted as experiment spaces, where students, researchers and firms can build new prototypes. There are programmes to support incubators, and the educational institutes are open for third parties.

Educational institutes have started new educational programmes in cooperation with the private sector. Moreover, the area has attracted several new firms, especially giants from the offshore industry, and Ampelman is a best practice of a start-up firm. The campus concept is replicated in other parts of city and the Stadshavens area suggesting the success of the concept, although for further structural cooperation between firms and educational institutes a change in mindset is required on both sides. This is regarded as a long term process.

This study confirms that promoting cluster development is a long-term effort whose major impacts are difficult to see in the short-run.

This study confirms that promoting cluster development is a long-term effort whose major impacts are difficult to see in the short-run. Moreover this is a policy field in which governments can hardly do it alone and 'multiple-helixes' and partnerships are required, as well as coordinating agencies with the right mix of skills. This is more the case as new generation cluster policies should pose a number of questions towards better tailored initiatives:

- **Knowledge types:** Which types of knowledge activities are involved in the cluster? How does this influence innovation and have the potential to nurture new combinations?

- **Cluster life-cycle:** Which development stage is the cluster facing, and how can cities better tailor their policies?

- **Monitoring and evaluation:** How to monitor over the long term the successes and results of cluster policies?

Managing urban mobility

Over the last decade attention on transport has increased due to higher community expectations and concerns about congestion (traffic and transit), climate change (prevention and adaptation) and project financing (including user charges). To be competitive, cities increasingly need to focus on accessibility and impacts on economic efficiency. Transport efficiency is therefore a key issue for many cities worldwide.

Globalisation of commerce and high-speed travel has also meant that many cities now function in much wider and more dispersed geographies, with some people travelling vast distances in their daily commute. Cities thus face a critical dilemma of needing to increase their internal and external accessibility to remain competitive while reducing the wider societal impacts of private travel options. They also need to ensure that transport networks are resilient and able to cope with system failure (such as those caused by travel demand peaks or extreme weather).

Improving access through new infrastructure, land-use integration, user pricing and better system management is critical for all growing cities.

Filipe Matos Frazao / Shutterstock.com

CASE STUDY

CURITIBA'S INTEGRATED BUS RAPID TRANSPORT (BRT) NETWORK

Curitiba's famous BRT network is already 40 years old but it continues to rejuvenate, inspiring many other cities worldwide. Given the city's limited financial resources to implement an extensive metro network at the time, it developed a 'metro-like' solution using an integrated, specially designed and high capacity bus system, organised through structural axes, in large scale, fully dedicated lanes, and smaller bus feeders, called 'metronization of the bus'.

In Curitiba social, economic, transport and spatial planning became closely integrated, creating a strategic framework for urban management which enables sound and effective policy. For example:

- The strict zoning around the main transport corridors makes public transport the best way to travel in Curitiba avoiding the typical problems related to urban sprawl.

- The 'social fare' system (a single fare for the whole length of the public transport network) leads to a cross subsidy from the rich to the poor.

- The recently deigned 'green line', transforming a former federal road into an urban avenue in which buses run on 100 percent biofuels, combining land use, transport, environmental and social policy in a single project.

Over time, the system provided an important contribution to the city's sustainable competitiveness. Eighty percent of travellers use the express or direct bus services. While the population has tripled since 1970, traffic has declined by 30 percent. The ticket value for the BRT system is one of the most expensive in Brazil. However, because of the reduced levels of car ownership, Curitibanos spend only about 10 percent of their income on travel on average, a figure which is much below the Brazilian average. Moreover, compared to eight other Brazilian cities of its size, Curitiba uses about 30 percent less fuel per capita resulting in one of the lowest rates of ambient air pollution in the country.

1   Carvalho et al., 2012

MELBOURNE'S CENTRAL BUSINESS DISTRICT REINVENTION

Until the mid 1980's economic forces of decentralisation to suburban office parks were hollowing out Melbourne's central business district (CBD). Now the world's most livable city three years running, Melbourne provides valuable lessons for any city seeking to reinvigorate their downtown core. The municipality and State government recognised that significant change was required and enacted a number of policies that reaffirmed the primacy of the CBD and programs to reinvigorate the area.

The Postcode 3000 project stimulated CBD apartment development where previously all apartments attracted social stigma. Melbourne also focused on how to best use the space available in a dense CBD environment. Copenhagen-style bicycle lanes have been installed on several key access routes. In the CBD alone, 40 accessible platform tram stops have been installed bring the world's largest tram network into the 21st century. Bus lanes have been provided on the two key bus routes and one of the five CBD railway stations has been completely rebuilt. High quality pedestrian environments were made a priority with new paving and wider footpaths. For example in the last 30 years:

- Over 35 hectares of road asphalt has been converted to pedestrian use
- Eight hectares of new parkland have been created
- More than 20 shared traffic zones have been declared
- A 1,100 meter long pedestrian/transit mall has been built
- Nine new pedestrian bridges over the Yarra River and railway tracks have been built

The result has been a significant change in activity levels in the CBD, with 36,000 new residents (from a base of less than 700). Average daily visitation to the CBD has reached 800,000 visitors, public transport use has more than doubled, cyclist and pedestrian activity has exceeded all expectations and average car travel times have remained relatively stable.

The number of outdoor dining areas in the CBD has grown from just two to more than 600. Many are located in one of the 230 CBD laneways. This makes Melbourne a wonder to explore with new experiences and unknown treasures just waiting for intrepid travellers to hunt them down. The economic result has been a strengthening service based economy focused on high amenity and quality urban space that is now synonymous with the world's most livable city.

Balancing the travel needs of all citizens and visitors to achieve optimal economic output is one of the most complex challenges facing any city.

In addition transport is a highly contentious topic on which almost everyone has an opinion (though often one based on their own experience rather than a complete set of information). Some cities are developing innovative approaches to dealing with transport issues and using evidence and research to educate the public.

Accessibility (to education, employment and services) that powers city economies, and ever increasing mobility within cities simply generates longer travel times and increased congestion. Managing mobility to achieve optimal accessibility becomes the main aim.

Balancing the travel needs of all citizens and visitors to achieve desired economic, social and environmental outcomes' is one of the most complex challenges facing any city. Importantly our case studies recognise that no two cities could ever have exactly the same transport problem, but there are many lessons that an agile city can translate to meet their own specific context.

Cities are about people coming together in a place where there is easier access to employment and quality of life or 'generational changing' opportunities (education, employment and interaction with others). Great cities have transport networks that provide for these opportunities in a most efficient manner (for users, government and the wider community).

For example, New York has successfully closed sections of Broadway in the *Greenlight for Midtown* project which yielded significant improvements in travel time, congestion, pedestrian activity and safety. Melbourne's *Places for People* project has taken a more granular approach to converting its 230 central business district (CBD) lane ways into pedestrian friendly spaces that encourage exploration and increase economic activity. Curitiba provides perhaps one of the longest running and best examples, with its *Expresso* bus rapid transit network (including land use planning integration) which continues to reinvent itself.

Significant challenges to improving access in cities include:

- **Gaining consensus on holistic plan priorities:** How do we engage the community to improve expectations and understanding related to transport system priorities?

- **Funding infrastructure from debt constrained budgets:** Given many transport projects provide significant benefits to future generations, should we be so concerned about debt incurred by transport infrastructure projects today which yield benefits in future?

- **Rigorous evaluation of options:** How are decisions made based on sound analysis and research across all mode and policy options rather than political whims?

Cities are about people coming together in a place where there is easier access to employment and life or generational changing opportunities.

Sharing data in the digital city

The convergence of digital technologies – e.g. diffusion of smart personal devices, data-sharing platforms, ubiquitous and cloud computing – is opening up new possibilities for the delivery of urban services while creating economic and innovation opportunities in cities. Hence, many cities are increasingly nurturing open data strategies, i.e. making local data on services (e.g. water and transport flows, planning, the built environment, parking and waste collection) freely available to wider audiences, such as businesses, researchers, entrepreneurs and citizens at large.

Opening city data can contribute to a city's sustainable competitiveness in multiple ways, namely:

- By *increasing democratic participation, accountability and transparency.* With more (and more transparent) information about the city's local government actions and provisions, public decision making becomes more accountable and citizens have enhanced possibilities (and incentives) to be actively involved in urban affairs.

- By *spurring innovation and new business opportunities.* The wide access to city data makes it possible to bring together companies, researchers and entrepreneurs who have jointly involved in solving concrete city problems, in an 'open innovation' fashion. With open data, a city's challenges can involve everybody in finding a solution. Many new technology solutions and urban 'apps' are being developed with open city data, leading to new monetisation opportunities, exports and local economic diversification.

- By *improving a city's service provision.* Ultimately, open data – and the new solutions developed from it – contribute to challenge old provision models and the ways urban services (e.g. water, electricity, public transport) are delivered to deliver more efficient solutions.

The open data movement is still in the early stages, but is already delivering results in cities, as documented in the case studies of Dublin or Helsinki. In other cities, such as Manchester, open data initiatives are increasingly intertwined with new generation 'smart city' and umbrella-like digital strategies.

Our study suggests that implementing open data initiatives in cities is not without its challenges and requires a number of key enablers: distributed leadership, prioritisation, choosing the right metropolitan scale while involving private companies, grassroots movements and selecting agile brokers within the municipal administration.

CASE STUDY

HELSINKI REGION INFOSHARE

The Helsinki Region Infoshare (HRI) was launched in 2011, inspired by the pioneer open data catalogue of Washington DC. Helsinki Region Infoshare has been designed and managed by the City (Helsinki Urban Facts) and Forum Virium Helsinki (a public-private platform involving several private companies). HRI nurtures a network of data owners who maintain and release public data in a common platform, following common standards. The prime objective is to increase transparency and excellence in city governance, but also to involve users in co-creating better services and solutions for the city, benefiting from data that was previously closed or was difficult access (e.g. planning and the built environment, transport, waste and city statistics).

In order to steer involvement and increase awareness, a number of 'app development' contests have been promoted, some examples of which are:

- An application called Blindsquare to help people with visual disabilities to move in the city (based on data on the urban environment).

- An application to directly pay for parking in the city, now also connected with the city's transport company (Single Click parking).

In June 2013 the European Commission awarded HRI with the European Prize for Innovation in Public Administration.

DUBLIN'S DUBLINKED

The idea to develop an open data initiative in Dublin (Dublinked) dates from 2009, when the city heavily felt the impacts of the 2008 financial crisis. Beyond transparency, Dublinked was conceived to create new local business and innovation opportunities and to attract new transnational companies interested in urban technology.

It combines a number of features: the release of data from the City Council and other service providers in the region along with manifold community building and network enhancing initiatives (e.g. data visualisation events, data workshops and app contests). Beyond 'easy' data sets, Dublinked is testing the release of large, real-time flows data (e.g. traffic and water

flows) and associated business models. So far, among the development of manifold applications for smart phones, new communities of IT innovator have emerged and the City Council has developed better standardisation routines and data releasing procedures.

Dublinked is managed by a partnership between four City Councils in Dublin's region, a university (National University of Ireland Maynooth) and it is closely supported by a major technology provider which has recently opened a 200 jobs 'smart city R&D centre' in Dublin. This organisation model for Dublinked has ensured wide and equitable access to the data, the agility to carry out the initiative through the administration's bureaucracy and the presence of political checks-and-balances for the initiative.

*littleny / Shutterstock.com

Some of the ongoing challenges are:

- **Cultural challenges and vested interests:** How to convince city officials to share their data and become more exposed to public scrutiny? How to get outside the 'comfort zone' to develop new business models for traditional public service delivery?

- **Scaling up challenges:** How to keep open data releases up to the raising expectations of users?

- **Technical challenges:** How to deal with technical challenges in a cost-effective manner (standardisation and big data streams)?

- **Legal and privacy challenges:** How to ensure enough privacy and to challenge unfit laws and regulations?

- **Social equity issues:** how to ensure that open data is not widening the gap between the rich and poor in participative processes?

Our study suggests that implementing open data initiatives in cities is not without its challenges and requires a number of key enablers.

Using events for new urban legacies

The hosting of large-scale sports and cultural events has long been used by cities as a catalyst of urban transformation. The quintessential example is the case of the 1992 Summer Olympics in Barcelona, which provided strong momentum to the vision of the Mayor Pasqual Maragall. The event speeded up a number of public and private investments (e.g. in transport, hotels, new urban areas), propelling growth and enhancing the image and attractiveness of the city.

Nevertheless, to each success there are many examples of over investment in 'white elephants' such as (too) big stadia. Moreover, the long-term legacies of such events have been questioned on many fronts, e.g. for displacing former communities to build new 'flashy' areas and for overheating the urban and national economy (leading to 'hangover effects').

In this study, we analysed what new host cities have learned and how they are using forthcoming large events to change their competitive position from today in Rio de Janeiro (World Cup 2014 / Olympics 2016) and Doha/Qatar (World Cup 2022). In both cases:

- The notion of 'legacy' increasingly cuts across local planning efforts and there is a clear ambition to link the required investments with long term urban competitiveness determinants (economic, social and physical). For example, in Qatar, a challenge is on how to achieve the highest possible synergies between the event and the formal National Vision for 2030.

- There is an increasingly strong local and international scrutiny on the preparation efforts, with public opinion demanding new ways to plan and organise events and their legacies. Examples are recent protests concerning the very high investments (in Rio) and the international claims of human rights violation in Qatar. In Rio, some previously planned initiatives have been scaled down, but still only on the fringe of the largest investments.

Other cities in this study are working to reap softer, innovative legacies from hosting other types of international events (such as the World Design Capital or the Mobile World Capital). As the planned legacies become less focused on heavy infrastructure, our cases suggest that combining bottom-up approaches with distributed sources of leadership is fundamental: it contributes to give clear guidance while empowering unusual suspects, tapping on local (sometimes hidden) sources of knowledge and imagination. Examples of such new urban legacies are:

- Nurturing new forms of urban governance and user involvement through design methods (e.g. Helsinki)

- Connecting local innovation ecosystems to global 'pipelines' (e.g. Barcelona)

CASE STUDY

WORLD DESIGN CAPITAL HELSINKI

The concept of a 'design-driven' city was introduced by Helsinki and four neighbouring municipalities in their joint bid for the third edition of World Design Capital (2012). The idea was to use the event as a catalyst to nurture new participatory forms of urban governance and development, involving businesses, knowledge institutions and citizens through 'design-think' philosophies (e.g. usability) and tools.

For such an inspiring vision, the City successfully consulted with more than 150 experts, thus taking advantage of the existing Finnish knowledge and expertise on design and user involvement. Moreover, citizens were invited to participate in the development of the one-year event's programme from the very beginning. The open tender and the concept of an open bid book provoked initiatives of 'new kids on the block' with fresh ideas on how to apply design in everyday life (e. g. home care for the elderly and new public participation platforms).

Recent studies suggest that more than half of the projects would not have been realised without WDC Helsinki 2012, or at least not in the same manner, contributing to the permeation of design thinking further into businesses, policy-making and urban development.

CASE STUDY

BARCELONA'S WORLD MOBILE CAPITAL

Supported by a strong coalition of high-level stakeholders – the City, the State, National Government, Fira (Barcelona trade fair organiser) and a major telecoms company – Barcelona gained the right to be Mobile World Capital (MWC) for seven consecutive years (2012–2018) from GSMA, the association that represents mobile operators worldwide. The Mobile World Capital is a comprehensive initiative that not only entails an annual conference, but also an annual festival, a permanent visitor centre and – most importantly – an ongoing economic development and innovation programme.

Through MWC, Barcelona envisions connecting local IT companies and SMEs with global IT providers in order to boost the city's innovation ecosystem. A specific programme to do this, connected with the MWC, is the Mobile World Hub, to be based in the well-known 22@district. The Mobile World Hub programme is giving rise to different competence centres around different IT and mobile solutions.

One example is the mSchools programme (also referred to as mEducation). This programme has been developed in close cooperation with GSMA and the Catalan government and aims to lower dropout rates and ultimately prepare students to deal with, and create, businesses in today's digital world. GSMA will invest €2.5m in this programme. Another is the mWallet, aiming to develop new IT applications and smart services for virtual payment through smart phones, or the mSmart City, aiming to integrate urban services through IT.

The cases analysed provide good examples of how to devise new types of event legacies, involving different players and making sure that the event contributes to the sustainable competitiveness of its host city. This is a growing concern of the international organisations behind the event in this respect (e.g. Olympic Committee; World Design Capital), but cities have to play a key role here.

To sum up, some key challenges – to which our cases provide some answers – are:

- **Towards socially inclusive legacies:** How to devise more lasting and socially inclusive legacies, beyond oversized infrastructure, seasonal job creation and income trickle-down?

- **Organisation models:** Which types of legacy agencies and organising structures are a fit with different types of events?

- **Community involvement:** How can different communities be involved to the full before, during and after the event?

- **Communication:** How can cities better communicate the less visible yet long-term benefits of events?

Cities in this study are working to reap softer, innovative legacies from hosting other types of international events, such as the World Design Capital or the Mobile World Capital.

ANTWERP'S PARK RAILWAY NORTH: 'A GARDEN FOR THE NEIGHBOURHOOD, A PARK FOR THE CITY'

The Park Railway North project (involving more than €40 million public investment) focused on the conversion of an abandoned inner-city railway yard into an 18 hectare (ha) urban park and a 6 ha commercial zone. The park now connects deprived districts that used to be isolated by the yard.

Apart from a new highly visited amenity, Park Railway North has brought a number of innovations for the city. First, the traditional approach of planning (waiting for private initiatives to approve or disapprove) was replaced by integrated proactive municipal planning. It was the first large development scheme successfully carried out by the city itself. Other innovations were empowering local organising capacity by the establishment of autonomous municipal development companies that can act in an entrepreneurial way, strong citizen participation, leading to broad public and social support, and a keen communication strategy to keep the momentum during the eight years implementation period. Displacement – a feared consequence of gentrification – has been limited.

But despite the upgrading of the quality of living, the index of deprivation showed in 2010 that the neighbourhoods around the new park still remain amongst the most deprived. Complementary measures are still needed to achieve a more balanced community.

Regenerating and greening the city

In order to attract and retain knowledge-intensive activities, people and skills, many cities have been working hard to green their city and improve the quality of the living environment. As manufacturing has declined in many cities (particularly in Europe), the most transformational initiatives focused on the regeneration of old and deprived city districts (city centres, waterfronts, railway and industrial estates), creating better access, cleaning the physical environment and providing the conditions for private investments in new quality housing. Hence, the rationale has often been to tackle sustainable competitiveness by providing better infrastructure, amenities and nudging image change.

Contrary to sectoral initiatives, a key feature of such projects is that they tend to envisage integrated approaches – linking economic, social and physical dimensions altogether in more holistic solutions. Therefore, they require the development of new and organisational skills and partnership models within the city administration and beyond, namely to lever the necessary competences and financial resources to make it happen.

In summary, examples from the cases in our study (e.g. Antwerp (Park Railway North), Dortmund (Phoenix Project), New York (High Line) and Rotterdam (RDM Campus)) are illustrative of the increasing attention paid to the link between environmental quality, the living environment, economic development and sustainable competitiveness. There is considerable experience in North America and Europe of how to carry on such projects – and the associated challenges – which constitute valuable lessons for other cities.

Some key issues that remain are:

- **Social remits:** Beyond the physical and economic payoffs, how to avoid too much gentrification and broaden the effective social remit of these projects?

- **Temporary uses:** How to cater for temporary uses in the area during the (often) long period of project development?

- **Financial solutions:** How to develop more flexible financial solutions that can cater for market swings during the project development period?

In order to attract and retain knowledge-intensive activities, people and skills, many cities have been working hard to green their city and improve the quality of the living environment.

CASE STUDY

DORTMUND'S PHOENIX PROJECT

In Dortmund, the ambitious Phoenix project helped to clean former steel plants to enable the development of new amenities, residential areas and knowledge locations, integrating them in the urban fabric. Phoenix can be regarded as a best practice example of integrated brownfield redevelopment. The transformation process from closed industrial areas into a location for the 'New Dortmund' overall went smoothly and most of the initial development goals have been met.

The new Phoenix area is well integrated in the larger economic strategy and is complementary to other major locations of the city (e.g. the Technology Park Dortmund). In addition, the industrial heritage gives the site a specific character, although it continues to be a challenge to find investors needed to convert these historical assets into other functions.

Overall, the Phoenix project has important positive effects in terms of environmental and economical development. However, integrated social development seems to be harder to realise. Housing in Phoenix East is mainly targeted to the higher segments and the revitalisation of the (more deprived) Hörde district has been slow.

Urban strategies have been shifting from pure environmental agendas towards more encompassing and demanding strategies of 'climate adaptation' and 'climate proofing'

Adapting to climate change

Climate change has been an important game-changer in local policy agendas in recent years. Urban strategies have been shifting from pure environmental agendas towards more encompassing and demanding strategies of 'climate adaptation' and 'climate proofing'. Overall, such strategies don't aim to radically change the status quo or the basic energy frameworks of cities and nations, but to make sure that ongoing climate change processes don't jeopardise the city's functioning or its attractiveness for businesses and citizens. Moreover, a large number of 'green deals' have been pursued with an eye to safeguard the city while creating new business, innovation and export opportunities.

In this study we analysed how two leading cities, with radically different socio-economic contexts – Venice and Shanghai – are dealing with this overwhelming challenge while creating new business opportunities.

CASE STUDY

MOSE PROJECT IN VENICE

In Venice, the key sustainable competitiveness challenge is to make sure that rising sea levels do not jeopardise the city's heritage and tourism activities whilst facilitating the operation of port activities and the environmental maintenance of the lagoon. This has involved massive investments in the so called MOSE project, an innovative sea defence system that can close the lagoon via mobile gates in the three inlets that give access to the Adriatic Sea.

The development of MOSE is a long-term, engineering-driven project. So far, through MOSE development, Venice has been consolidating world-level expertise in water management and hydraulics. Over time, the MOSE system may also function as a major demonstration project that can help to further develop business tourism, support education and business opportunities.

To date, the leadership of the project by the Venice Water Authority (VWA; part of the Italian Ministry for Infrastructure and Transport) has been contested by other stakeholders, who perceive it as being too dominant and in conflict with other interests (e.g. of the city and non-governmental organisations). In order to minimise the tensions and make the project evolve, the intermediation of the UNESCO office as an independent, external player has been pivotal.

CASE STUDY

TRAIN-THE-TRAINERS: ENERGY EFFICIENCY IN SHANGHAI'S BUILDINGS

As the local economy expands and thousands of rural migrants enter the city every day, Shanghai faces an acute sustainable urbanisation challenge: how to make sure that new buildings are cost effective, fast to build and energy efficient all at the same time? Fully 'green buildings' cannot be rolled out in the short to medium-run. In the meantime, CO_2 emissions keep soaring, endangering Shanghai's attractiveness for highly qualified individuals and foreign companies, and the city faces energy safety concerns.

The train-the-trainers initiative (launched in 2009) is supported by the EU aid programme SWITCH-Asia. It is led by the EU Chamber of Commerce in China, in close partnership with Tongji University and the Swedish Environmental Research Institute. It consists of providing training courses – for professionals and policy makers involved in the local construction industry – on how to increase energy efficiency in buildings through easy to roll out techniques, materials and new mindsets, contextualised for the local context

(e.g. thermal insulation techniques). The idea is that the trained professionals will train their colleagues and collaborators in the same manner, diffusing the knowledge.

The programme has already benefited more than 1200 professionals from construction SMEs in Shanghai region and surveyed companies report that their reputation in the market shares has increased after the course. Moreover, the programme nudged new energy-efficiency standards in Shanghai, designed by Tongji University for the City Council (e.g. the types of materials and tools that can be used for insulation). Currently, after the formal completion of the programme, the demand for more training is soaring and a permanent centre has been founded by Tongji University.

Climate change is naturally a global issue, but our cases show that many acute challenges and some solutions can be better visualised in cities. Moreover, they highlight the relevance of involving unusual suspects and not-for-profit mediators in project design, as well as the need to prioritise solutions to tackle urgent issues. Acting on climate change is a long term agenda for cities, but one that will largely influence their sustainable competitiveness.

Some further challenges to consider are:

- **Challenging the status quo:** How to devise initiatives that go beyond the status-quo and pave the way to more reformist climate solutions (e.g. new energy sources; behavioural change)?

- **Uncertainty:** How to sustain the piloting of these more risky (yet potentially more promising) solutions over time?

- **Combining different types of initiatives:** How to balance large scale (infrastructural) interventions e.g. to protect from flood, with smaller, extended ones e.g. train-the-trainers?

RIO DE JANEIRO'S UPPS – PACIFYING POLICE UNITS

Rio's pacifying approach contrasts to the traditional 'slum clearance programmes' seen in Africa and elsewhere. Introduced in 2009, the UPP programme has been hailed as transformational in reducing violence, cutting crime and increasing security in Rio's slums (favelas). The UPP, delivered by the State government of Rio de Janeiro, aims at reclaiming territories controlled by gangs of drug dealers and private militias. UPP Social, a follow-up programme delivered by the Municipal government, seeks to re-integrate residents of pacified favelas back into the city's economic and social fabric through coordination of, and improved access to, public and private services.

To date, the UPP programme has generally been regarded as a major success, not only due to evident crime reduction, but also due to the spill over socioeconomic development effects (e.g. education rate improvements, new business and access to public services). The UPP programme has attracted millions of dollars in donations and there are plans to expand the programme beyond the city of Rio de Janeiro to other parts of Brazil.

Enhancing urban security

Cities are places of great economic prosperity, but also of sharp social imbalances and wide gaps between the haves and have-nots. In the large cities of emerging economies, this situation is being amplified as a result of massive rural-urban migrations. Also in Europe and North America, many cities have witnessed events and situations of social unrest. It is commonly accepted that tackling these issues requires integrated and long term policies (combining social, economic and physical interventions), but the ways to make it happen are much more controversial.

Safety from crime and the perception of security are widely acknowledged as important locational factors. They impact on the investments and location decisions of people and companies. The image of many cities is also closely linked with the perception of safety (or the lack of it), affecting their sustainable competitiveness.

In this study we zoomed in on two innovative, security-enhancing strategies:

- The Pacifying Police Units – UPP (operating at different slums in Rio de Janeiro)

- The Central City Improvement District – CCID – in Cape Town's Central Business District (CBD).

Different as they are, a general assessment and comparison of the two cases reveals that both have been remarkably effective in reducing crime and violence in their intervention areas, secured overall societal support from local residents and businesses and contributed to attract new activities and businesses to the areas and to increase real estate prices.

However, the cases also reveal some major hindrances and challenges that should not be ignored. In Rio, some interviewees question the real social inclusion potential of the UPPs.

Moreover, both in Rio and Cape Town, there is evidence that crime has been increasing in other sub-urban areas of both cities. Hence, some remaining open challenges are:

- **Inclusion:** How to go from reducing crime towards fostering true social inclusion? Which mixes of public and private interventions are necessary?

- **Tackling metropolitan displacement:** How to increase the sustainability and effectiveness of the initiatives from a metropolitan perspective?

The cases also reveal some major hindrances and challenges that should not be ignored.

CASE STUDY

CAPE TOWN'S CENTRAL CITY IMPROVEMENT DISTRICT (CCID)

The term 'City Improvement District' refers to a specific geographic area – broadly speaking Cape Town's CBD – an area with very high levels of crime and violence during the 1990s. Since 2000, the mandate of the Central City Improvement District (CCID) is to ensure that the city's CBD is safe and secure, the environment is well managed, social issues are addressed and the CBD is promoted. The CCID was formed by property owners in the area, and it provides top-up services to those of the City of Cape Town and the South African Police Service, funded by a levy contribution from property owners in the area (e.g. policing, cleansing).

CCID became an internationally acclaimed model of urban security partnership, supported by the City Council. Through the efforts of the CCID, Cape Town's CBD has enjoyed rapid regeneration over the last decade. The CCID's managing agent is the Cape Town Partnership, a collaboration of the public and private sectors working together to develop and promote Cape Town's Central City. The central focus of the partnership is still on security and surveillance (50 percent of the budget) and cleansing (21 percent), but the need to focus more on social issues had been acknowledged, namely as drug-related crime has been increasing in the area.

meunierd / Shutterstock.com
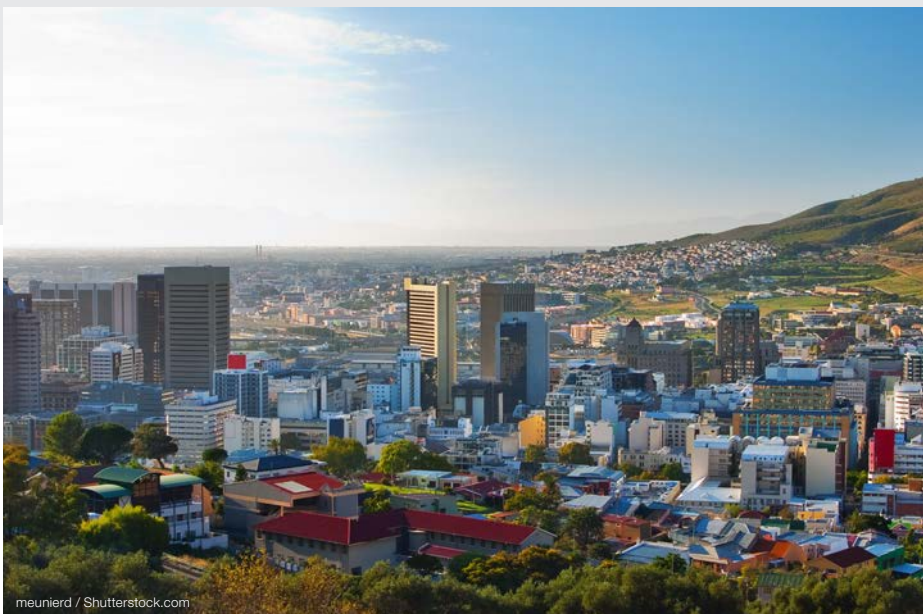
Wrap up

The sustainable competitiveness of cities requires integrated actions linking threats and imbalances with concrete actions and (sometimes hidden) opportunities in other fields. In this vein, the projects explored in this study are representative of what many cities around the world are doing to balance economic development with environmental and social spheres, from multiple angles.

We found that project outcomes are the product of the interaction between many stakeholders responding to the challenges that are the focus of any initiative. In the case studies we researched, each involved choosing a thematic focus for the strategy and how to implement it and make the right choices in order to deliver the required outcomes.

In turn, this required many different forms of partnership between the public and private sector, but also academia and unusual suspects including citizens and NGOs. Collaboration, rather than competition, is the key competence required. Leaders also emerged, not one but many distributed across this 'penta helix' of organisations and individuals, with a clear focus on the outcomes desired and the priorities for action. Different types of delivery vehicle were also needed to organise resources and attract funding and financing for the projects.

In the next section, we discuss in more detail the organisational capabilities and critical enablers for these projects.

Questions to think about:

- What are the most pressing trends imposing sustainable competitiveness challenges in your city?

- Which new opportunities are emerging with those trends? Which external catalysts can help to tackle the associated challenges?

- How can your projects be augmented to simultaneously tackle economic, social and environmental spheres in an effective way?

- Which unintended effects may emerge and how can they be minimised?

- What are the opportunities that arise for commercialising spinoff activities?

7 Key enablers: the power of collaboration

The more demanding a project's strategies – i.e. with new and more complex economic, social and environmental objectives – the more the enablers that are needed to make it happen. In this study, we paid attention to six critical types of enablers linking visions with results (Figure 4):

- Partnerships (private, citizen, university and not-for-profit involvement)
- Distributed leadership
- Communication
- Smart financial solutions
- Prioritisation
- Agile delivery vehicles

As suggested in Figure 4, good partnerships proved to be the critical enabler in our case studies, anchoring and influencing the quality of the other five. Without collaboration through good partnerships, it is difficult to 'enable the other enablers'. Moreover, the enablers can be made operational independently, but are more powerful when brought together as package deal, namely for more demanding sustainable competitiveness projects – whether transitional or transformational.
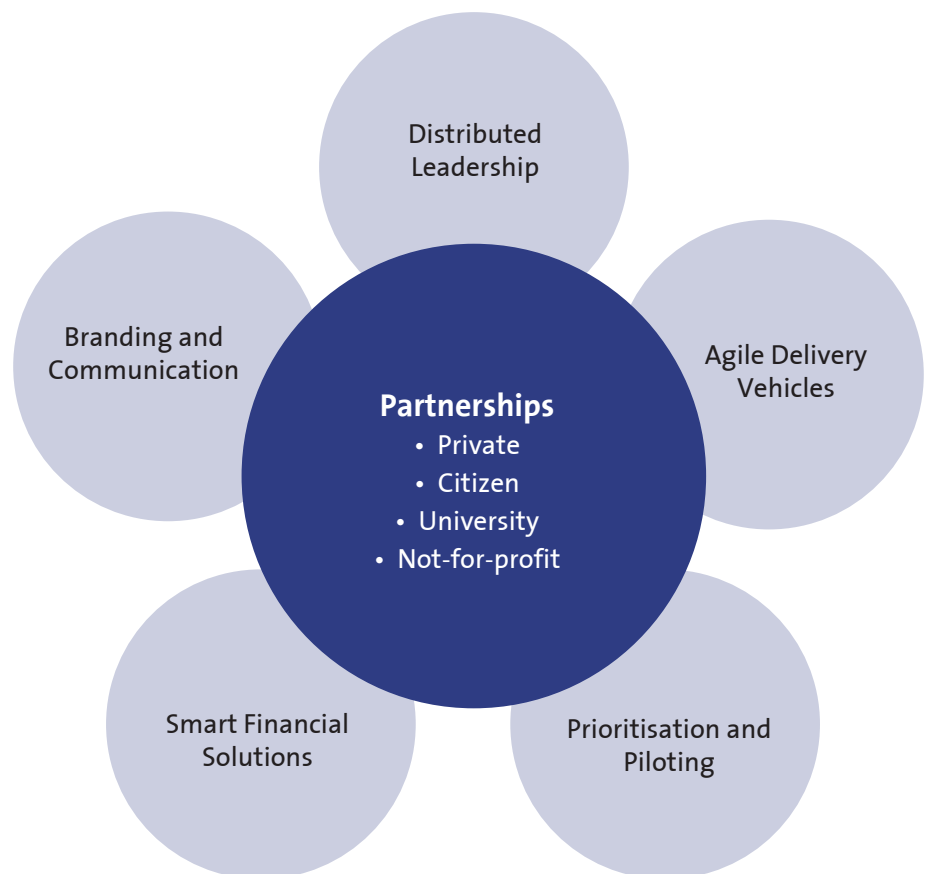

Figure 4: Enablers to make it happen

Partnerships

As societal demands grow and become more complex, the resources required to tackle them (e.g. knowledge, finance and legitimacy) are increasingly spread out across many different stakeholders. City development and urban management are good examples in that respect – hence the growing relevance of partnerships and 'co-production' in urban affairs. Partnerships are time consuming (e.g. to align objectives and interests) but offer better guarantees of more sustainable outcomes, namely when 'birds of different feathers' are involved.[1] The power of the right partnerships can be hardly overestimated.

In our projects, we identified four key types of partnerships and stakeholder engagement beyond the (local) administration structures – private, citizen, university and other not-for-profit involvement. They varied in depth, breadth and quality. In some of the more demanding initiatives, all the stakeholders come together in penta-helix governance configurations (Figure 5).

Moreover, most of the partnerships in the analysed projects did not start overnight. The successful ones tend to involve stakeholders that knew each other before and are grounded in trust, proximity and mutual understanding, as well as in the necessary flexibility and experimentation to test their feasibility.

LESSON

Good partnerships bring in additional knowledge and expertise, financial resources and legitimacy. Yet they take time and effort to mature. Trust, mutual understanding and experimentation are what make them tick.
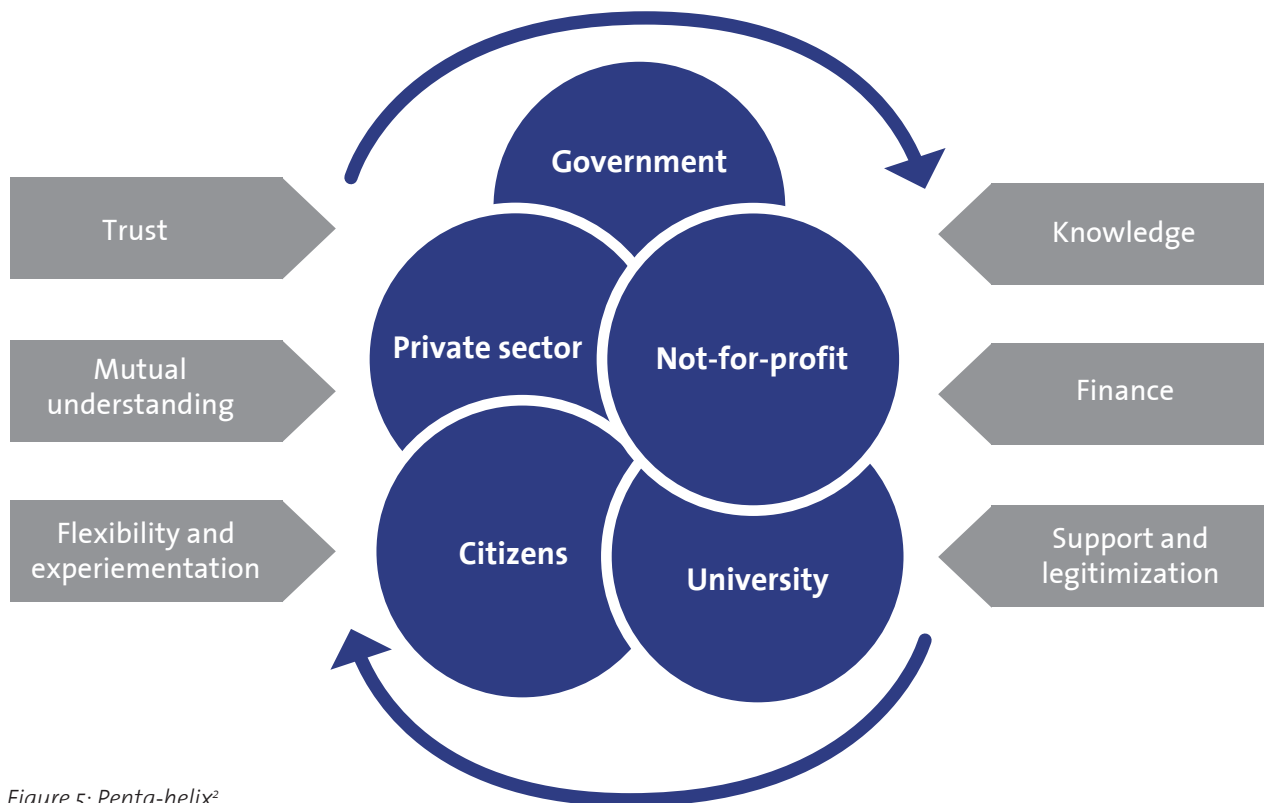

Figure 5: Penta-helix[2]

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1   van den Berg et. al, 1997

2   PwC, 2013a

Private involvement

Traditionally, there is a strong mistrust about the involvement of corporations and private parties in urban development affairs. The arguments are manifold:[3]

- Private sector organisations tend to have shorter term horizons and higher pressure for immediate results, which can be incompatible with urban development strategies.

- Evidence shows that local industrial elites and 'old boys' networks can steer policy agendas in their own interest, and appropriate pubic resources in the process.

- Private sector parties tend to cherry pick their involvement only in the most profitable urban issues.

The above arguments and threats should not be ignored, but should also not be taken at face value. As suggested by other studies,[4] we found that the involvement of private companies has been pivotal for the success of many of the projects under analysis, in many fields and not only in developed but also in emerging economies. Many leading corporations that showed up in this study increasingly look at cities and local communities as part of their long-term competitive environment and are willing to invest in them.

This is more the case with companies that increasingly embrace 'shared value' approaches. i.e. 'policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates'.[5] Creating shared value is not about the peripheral concerns of the company (e.g. as with corporate social responsibility), but moves directly to the core of its strategy, being integral to competing and making profits.

- In **Dublin**, the technology provider strongly contributed to the launch and implementation of Dublinked, not only with a 'self-interested eye' to the data for their own R&D but also to diffuse the value of open data in Dublin's society. This involved early cooperation with the City Council to signal which data could have higher relevance (water, energy and transport) while Dublin's City Council made sure that there would be no privileged treatment, making data available on an open platform. Moreover,

support to Dublinked is provided (with time and expertise rather than cash) on technical issues such as publishing standards or the requirements for publishing dynamic data. Since open data is such a new field in cities, both the city and corporation are jointly learning about how to take it forward.

- In **Melbourne**, the shift to increasing residential development in the Central Business District (CBD) came from a shared public and private burning platform when the office market slumped significantly. Government and the private sector were willing to make concessions to enable conversion of old office space into residential space to occur efficiently and rapidly. This reduced the glut of office space and increased the activity and diversity of service available in the CBD. The program removed significant risks facing developers and gave the private sector confidence to develop new housing styles that were previously untested in the Melbourne market.

- In **Rio de Janeiro**, beyond donations, a number of private companies are contributing to the city's recent slums pacifying scheme. One example comes from the energy distributor LIGHT, which is championing an initiative to exchange recyclable waste by cheaper/free energy to households in pacified slums. LIGHT is interested in decreasing energy theft and

increasing the citizen's engagement with the company, but in the process the local community gains better energy access and protects the environment, amplifying the effects of the pacification initiatives.

- In **Singapore**, when its reclaimed water technology ('NEWater') was still in its infancy, the country's national water agency Public Utilities Board (PUB) took the lead in developing Singapore's first NEWater plants to help private companies address the level of technological risk associated with NEWater. In turn, this kick-started collaboration among global and local water companies to implement various technologies at NEWater plants and by working with PUB onsite, the private sector was able to gain confidence in the new technologies as well as build capability in operating a NEWater plant. This subsequently paved the way for private sector participation in NEWater supply via a PPP approach, and served to encourage innovation in the private sector to further reclaimed water technologies, thus facilitating the long-term development of the local water industry. The case of Singapore highlights how closely involving the private sector in the city's own innovation efforts can serve to be a win-win situation for all, not least the city's own development and sustainable competitive advantage.

3   e.g. van Winden, 2013   4   van den Berg et. al, 2004   5   Porter and Kramer, 2011

Citizen involvement

The role of citizen participation in urban affairs has long been emphasised but is frequently forgotten. In some instances it is confused with tokenism, e.g. informing or consulting citizens about decisions already taken, for example to avoid an initiative being blocked by protests.[6]

Citizen involvement assumes deeper levels of participation, e.g. through effective partnerships, decision making and implementation responsibilities and power delegation. Such partnerships are usually relevant because they allow empowerment of unusual and unexpected 'suspects', bring in novelty, the viewpoints of the users and identify previously hidden problems and opportunities.

- In **Helsinki**, the vision for the World Design Capital Helsinki emerged out of several discussions with the civil society (and not top-down from within the City Council). Moreover, the initiatives of the World Design Capital were all implemented by users, and emerged from a fully open bidding process. Citizens and the civil society had the chance and the power to propose and organise the types of initiatives to be carried out. The proposals were curated by the organising committee, but the overwhelming majority was accepted.

- In **Antwerp** citizen participation has been a vital factor for the realisation of the park project. Residents – represented by a small but very influential team, keen in lobbying – were very outspoken about a new function for the abandoned railway yard: a green lung and nothing else. During the implementation period participation became more refined on details of the project. Several parts were changed to meet the citizen's desires (like conservation of railway buildings and providing water elements).

University[7] involvement

Besides their key educational mission, universities are often perceived as ivory towers, the opposite of the needs of many cities that have to deal with fast change. However, this image is not entirely true – over the last decade, many universities, educational and research institutes have been closely engaged with local and regional authorities to change their urban and regional economies.[8] Many universities increasingly consider 'societal engagement' as part of their mission. Moreover, universities are important sources of knowledge and often can act as independent brokers, mediators and facilitators in urban development projects. Universities can provide the social legitimation for more innovative or controversial initiatives.

In our study we came across the involvement of university-related stakeholders in manifold initiatives. Especially in economies with a strong central planning tradition, universities are highly respected players and have stronger knowledge and competences vis-à-vis local companies, making them invaluable partners.

- In **Budapest**, the INNOPOLIS (cluster) programme is initiated and managed by universities, who set up knowledge transfer centres to support start-ups and spin-offs, in a country with very low entrepreneurship and innovation policy tradition.

- In **Pittsburgh**, the role of the Carnegie-Mellon University and the University of Pittsburgh have been pivotal as engines of change and economic revitalisation. Some of the new economic sectors in which the city's economy has diversified over the last decades – Robots, computers, health care and medical technology – are closely linked to investments and research emanating from these universities. To be sure, other public and private actors have been supporting the city's economic resurgence, but the direction and energy have been closely linked with the city's universities.

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- In **Rotterdam**, the concept of the RDM Campus as place to link education, research and business is initiated and managed by a university of applied science and a school on the vocational level. These schools are the first tenants on the former shipyard and are taking the lead in the redevelopment process, besides the Port Authority (the landlord of the area) and a housing agency.

LESSON

The role of universities in the sustainable competitiveness of cities is central. Besides their core educational and research missions, universities and knowledge institutes are increasing key partners (if not engines) of urban development projects. Their expertise and respected role in society are invaluable to support experimentation and legitimise some of the most innovative approaches.

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7   In this report, we use university as short hand for the variety of higher education and research institutes.

8   Goddart and Vallance, 2013

Good projects without good leaders can easily fail. In the literature, leadership is often associated with visionary and charismatic leaders that drive initiatives through the many obstacles on the way.

Not-for-profit involvement

Finally, our cases illustrate the relevance of involving not-for-profit organisations. In many cases they proved pivotal as brokers, with enough degree of independence to carry projects through and to nudge the right partnerships. Some not for profits have a clear territorial nexus, others are global organisations operating through 'subsidiaries' in different cities.

- In **Venice**, the UNESCO Office that was opened in Venice after the big flood in 1966 was challenged with the task to protect and maintain the city. Nowadays, the office acts as a neutral platform organisation that is 'feeding' academic and societal debates on various issues, such as sustainable tourism, cultural heritage, and still the original core topic of protecting and preserving the historical city and the lagoon. The office has a large network of experts and brings them to Venice as discussion partners, or the other way around, exporting insights from Venice to other places.

- In **Shanghai**, the European Union Chamber of Commerce in China (EUCCC) acts as a competent broker to link European and Chinese companies and government officials. It led and boosted the train-the-trainers initiative by linking European and Chinese knowledge institutions and by bridging cultural boundaries.

LESSON

Partnerships bring the skills and resources needed to target sustainable competitiveness objectives in cities. Yet a key challenge is to engage an optimal number of stakeholders (including unusual suspects) while keeping projects agile enough to cope with unexpected change.

Leadership

Leadership has long been considered a critical element in urban development strategies.[9] Good projects without good leaders can easily fail. In the literature, leadership is often associated with visionary and charismatic leaders that drive initiatives through the many obstacles on the way.

However, that is not the whole story. In urban management and development, leadership is increasingly understood as a distributed capacity beyond hierarchical relationships.[10] Also in our study, the most remarkable examples of leadership involve the capacity of the ones in charge to effectively distribute their power. In those situations, it becomes difficult to differentiate a single leader as this capacity is spread among individuals who exert their different types of power (e.g. institutional, technical, boundary spanning and financial), in different ways but aligned to a common purpose. As it is usually said, 'success has many parents'.

In some case studies, there are examples of strong leaders who show up more pre-eminently due to their highly concentrated power (Qatar, Dubai or Singapore), but this is much rarer in mature democracies and in places in which local government does not overlap with national government (like in city-states). For example:

- In **Dublin**, Dublinked's leadership is closely associated with Dublin City Council's CEO and his power to champion the (innovative and risky) project within the administration at a time of budget constraints. His leadership was important to ensuring 'connectedness', both outside and inside the City Council and to re-shape the partnership as difficulties emerged (e.g. legal challenges). His leadership was also central to legitimise such an 'out-of-the-box' initiative within the administration, e.g. by 'making sure' that departments would share their data

9   van den Berg et. al, 1997

10   For example, Beer and Clower, 2013

for a fast implementation. Since the project was backed at such a high-level, it could overcome the capture of bureaucratic departments and responsibilities were delegated to a newly created department, with less crystallised routines and interests. This way a group of executive managers (with the right technical and communication skills) could emerge and act as central facilitators within the organisation, driving the process forward.

- In **Chicago**, the leadership of Mayor Richard M. Daley (in office from 1989 until 2011) put competitiveness and global connectivity first and made considerable efforts to enhance the city's cultural institutions – for example, the new Renzo Piano wing of the Art Institute and the Frank Gehry band stand in Millennium Park, and to revitalise neighbourhoods such as Wicker Park, that would be attractive to young professionals, the cohort all cities are desperately trying to attract.

- In **Manchester**, the Digital Strategy relies not in one but in multiple leaders and orchestrators. First, it has been strongly supported by the leader of the political cabinet and the Council's Chief Executive. Second, the Digital Strategy is currently spearheaded by a newly appointed Assistant Chief Executive for 'ICT and Communications', giving it the status of a true 'IT Master Plan'. Third, and most importantly, the Digital Strategy is coordinated and led on a daily basis by MDDA – Manchester Digital Development Agency – whose head has been involved in the development of IT strategies in Manchester since the early beginning in the late 1980s. His role has been essential to assure stability, while simultaneously allowing for smooth transitions and for new variety to permeate the Digital Agenda over time. Moreover, his role is pivotal as a boundary spanner who can connect, bring together and understand the 'languages' of different 'worlds' (public administration, universities, companies, community groups, IT activists, among others).

LESSON

The leadership required to carry out complex urban development strategies requires multiple skills and new types of urban managers. It relies less on single people but on their capacity to connect and distribute power to other stakeholders, within and outside the public administration. Within a sustainable competitiveness framework, leaders should be able to inspire, connect cultures and stakeholders and challenge the status quo while keeping the enthusiasm.

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– the organisation of temporary events to bring people to the site during the regeneration process (e.g. theatre festival, culture nights, arts and industrial history exhibitions);

– the promotion of the area's industrial heritage and landmarks (e.g. a blast furnace); and

– the organisation of field trips for ordinary citizens, in order to brand and promote the location and raise awareness about new uses.

- In **Singapore**, the Singapore International Water Week (SIWW) was launched in 2008 with the aim of sharing initiatives and best practices in water management, and is an annual gathering where public officials, industry leaders, water experts and practitioners from around the world meet to engage in dialogue regarding policies, business solutions, and water technologies. Since its inauguration, it has been growing from strength to strength, with companies and research institutions referring to it as an important platform for networking and exposure. In particular, SIWW 2012 achieved a new record of S$13.6 billion in total value in terms of announcements on projects awarded, tenders, investments and R&D MOUs made at the event.

Communication proved to be an important enabler for different reasons; it is closely linked with the capacity to mobilise partnerships and involve citizens in urban projects and it is important to promote the initiatives outside the city boundaries.

Communication

Communication proved to be an important enabler, for different reasons. First, it is closely linked with the capacity to mobilise partnerships and involve citizens in urban projects whose outcomes are hard to visualise beforehand, contributing to gain advocacy. Second, it is important to promote the initiatives outside the city boundaries, namely when the projects have an international reach.

Two cases in our study are illustrative:

- In **Dortmund**, the Phoenix site was previously separated from the rest of the city fabric by huge walls and considered a 'forbidden area'. Therefore, communication with society was crucial, not only to create awareness, but also to get support for the redevelopment plans. For example, the idea to create a big lake was initially perceived as 'crazy and unrealistic', with a negative media attention. Beyond conventional information centres and brochures, important communication measures to tackle the scepticism were:

LESSON

Good communication is moving to the core of urban development initiatives. Beyond slogans and brochures, there is an increasing need for professional communications functions and source new innovative ways to communicate change in the city.

Smart financial solutions

The projects and strategies in our study, different as they are, range in size from billions (e.g. infrastructure development in Qatar and Dubai) to hundreds of thousands of dollars or euro (e.g. the development of Dublinked open data initiative). One conclusion that can be drawn, perhaps evident and considering the obvious differences in dimension, is that good projects don't necessarily require heavy financing. Moreover, it could also be said that good financial solutions are a necessary but not sufficient condition for success. These results are in line with a previous survey,[11] where we found that finance was the most important barrier hindering the implementation of demanding urban projects, but not the most important enabler.

Having said this, budgets are under strain and finding new ways of financing growth is a very topical issue both in developed and emerging economies. This has been calling for new ways to pool up financial resources, including the development of new legal and institutional frameworks to facilitate access to finance and to make cities attractive to investors.[12]

- In **Manchester**, the Digital Strategy is currently anchored in varied funding schemes, such as European and National funding, combined with small seed money from the City (to leverage innovative projects), volunteer work and the own internal resources of the different stakeholders (including private companies). This combination of sources has been key to leverage different projects in a context of growth financing constrains.

- The city of **Addis Ababa**, after exclusively using its own budget during the first years of the IHDP – Integrated Housing Development Programme (almost 50 percent of the capital expenditure in 2004–05) and with no donor funding, started selling bonds to the Commercial Bank of Ethiopia to finance the programme, including construction costs. The Bank also came to an agreement with the HDPO to provide a loan-service to all condominium beneficiaries, whereby the bank paid 80 percent of the unit price on behalf of the beneficiary at the handover of the property (the beneficiaries paid the 20 percent down payment themselves) and the beneficiary entered into a loan agreement with the bank to pay back this amount subject to interest.

- In **Rio de Janeiro**, new infrastructure and urban operations catalysed by the forthcoming mega-events (e.g. the new waterfront redevelopment called 'Porto Maravilha') are being funded through so-called CEPACs: Certificates of Additional Construction Potential issued by the City. Such certificates are used to (cross) finance building infrastructure through the sale of real estate development rights. This contributes to decrease the public financial burden for the necessary Olympic infrastructure development in exchange for additional building rights (e.g. increase floor area ratio).

LESSON

By combining multiple players, sustainable competitiveness projects open up multiple funding opportunities, but there are also many challenges in coordinating and pooling finance from different sources. Sustainable competitiveness requires sustainable and responsible finance, flexible enough to cope with changing circumstances.

Prioritisation and piloting

By touching upon multiple dimensions simultaneously, sustainable competitiveness projects require strategic thinking for prioritisation and piloting. On the one hand, their ultimate objectives are too complex to be attained with single, short-term initiatives; on the other hand, they require concrete action to start and create momentum to achieve more demanding pursuits. Also for these reasons, piloting solutions before full implementation is central.

Pilots and prototypes allow for early visualisation the solutions and to see what works and what does not. Moreover, pilots support the formation of coalitions of stakeholders and can pave the ground for the legitimisation of initiatives that more strongly challenge the status-quo,[13] both transformational and transitional initiatives. Innovative city councils are capable of incubating new ideas and accelerating their impact through rapid prototyping of demanding solutions.[14]

11   PwC, 2010 and 2011
12   PwC, 2014b

13   Carvalho et al., 2012; Bergek, 2008
14   PwC, 2013a

- In **Dublin**, the launch and early implementation of Dublinked started with the collection and release of less complex datasets, with limited privacy issues, technically easy to deal with, and almost exclusively from the public sector. This helped to generate early enthusiasm and give a good dimension to the data repository, while testing the user's feedback (paving the ground for more demanding stages). Starting with the most complex and controversial pieces would slow down the process and create many blockages from the early beginning. Moreover, it allowed for the early visualisation of what a fully fledged open data city would look like, and contributed to engaging new stakeholders e.g. the transport authority for the release on extra datasets.

- In **Rio de Janeiro,** the slum pacification scheme (UPP) deliberately prioritised a limited number of interventions to start with out of the hundreds of slums in the city. The first slum under intervention was Santa Marta, a smaller one that could act as a pilot and demonstration of the potential of the scheme. Subsequently, UPPs were carried out in Cidade de Deus, one of the biggest in Rio, in order to see how the scheme would work in rather different settings.

- In **Shanghai**, the train-the-trainers initiative refrained from focusing on broad 'energy efficiency' issues to focus on new residential buildings (a very fast growing typology in China). Manufacturing plants and refurbishments were thus kept aside to keep the programme more targeted. Moreover, the initiative focused on easy to roll out techniques instead of visionary 'zero-emission' solutions. The courses are now being rolled up by a permanent structure based at Tongji University.

LESSON

Prioritisation and prototyping proved to be a fundamental enabler. It allows creating momentum, to visualise and engage stakeholders early and to show the business case for demanding, sustainable competitiveness solutions. Innovative cities are capable of incubating new ideas and accelerate their impact through rapid prototyping of ideas and solutions.

Agile delivery vehicles

Several of the projects under analysis required substantial changes in more traditional ways of local government organisation.[15] The silo-oriented mentality of the majority of administrations is challenged by sustainable competitiveness objectives. Many departments within city administrations had to move beyond their comfort zone and entail in new (and risky) endeavours.

In several cases, heavy and bureaucratic structures had to be complemented or replaced by new agile delivery vehicles within the city administration, with the ability to pursue the right partnerships and with the lean structures that allow for fast change, adaptation and more suited services to its 'customers'. Agile local governments are transparent, accessible, responsive, adaptive, effective, efficient and accountable.[16] Many of these features proved particularly important when the project was very innovative and with uncertain results and when multiple partnerships had to be pursued, at multiple levels.

- In **Manchester**, MDDA (Manchester Digital Development Agency) is the City Council's arm's length unit in charge of coordinating the Digital Strategy. The unit is tasked, among others, with organising training initiatives and raising digital awareness, supporting digital-related actions with other stakeholders and innovative IT pilots in the city. For less 'institutional' groups outside the City Council (e.g. social media activists and grassroots organisations), MDDA acts a 'route' to access the City Council and raise awareness for new developments of the digital and IT world. MDDA supports new groups by facilitating their own services but also by providing them legitimacy and visibility within policy spheres.

Moreover, in various cases, specific joint project bureaus have been set up to implement projects in order to prevent frictions between parent organisations with different interests. These bureaus are tasked with activities like daily management, planning, communication and marketing. Some illustrative examples include:

15   PwC, 2012b; 2013a; 2013c
16   PwC, 2012b

- In **Rotterdam**, the Stadshavens strategy is implemented by a project bureau that is owned by the City of Rotterdam and the Port Authority. This 'temporary wedding' is set up to reduce conflicts between urban development (done by the City) and development of the port and industry (Port Authority). Besides via this joint project bureau, conflict of interests between the two parents is further reduced via the so called 'north-south' deal, giving the port authority control about the southern areas of Stadshavens while in the north the City is taking the lead.

- In **Venice**, the transformation process of Arsenale (a former navy base) is done by Arsenale di Venezia s.p.a., an agency that is jointly owned by the City of Venice and the State. Whereas the parents have conflicting interest in other projects, in particularly in the MOSE project, cooperation for the Arsenale is more smoothly among others via the jointly set up development agency.

LESSON

Enhancing agility is a challenge for city administrations, heightened by sustainable competitiveness challenges. Beyond the cost reductions that can be achieved through more efficient solutions, new delivery models and organisations can allow to deliver better services and to rebuild trust between the city administration and its many stakeholders. A key challenge is to increase agility and empower new arm's length organisations while keeping democratic checks and balances on city's projects.

Wrap up

Enablers are the key connectors linking a project's vision with concrete results. The sustainable competitiveness of cities cannot be steered by city administrations alone, and sound partnerships are increasingly relevant to make it happen. This is not to say that the role of city administrations has decreased; on the contrary, they are more important than ever but require a new set of skills and competences, namely to ignite a number of critical enablers.

Questions to think about:

- Which partnerships can bring new resources to sustainable competitiveness projects?

- How can unusual suspects become more involved?

- How can leaders distribute power within and outside organisations?

- How can cities nurture new agile delivery models while keeping checks and balances?

- What can be done to pilot solutions before moving to larger scale implementation?

- How can projects and their expected impacts be better communicated to wider audiences?

8 Choices to be made

The urban development initiatives analysed in this study show that there are few single recipes for sustainable competitiveness.

The urban development initiatives analysed in this study show that there are few single recipes for sustainable competitiveness. Moreover, the context of each city (namely its 'capitals') plays a pivotal role for the success of projects and strategies. Even if there are common challenges, initiatives that made sense for a city in certain moment of time could be unfit for others. All in all, managing cities from a sustainable competitiveness perspective requires a new type of urban manager, who can connect capabilities and resources of several stakeholders and distribute power, but also who can understand nuances in context and make well-informed choices in time and place.

Even if there is not a single blueprint, there are at least six key choices and dilemmas that urban managers should consider when planning for sustainable competitiveness in cities.

- **Transformational or incremental initiatives?** The sustainable competitiveness of cities doesn't necessarily rely on how big or small the projects are. Large transformational initiatives are often acclaimed as game-changers but are not a guarantee of high (or balanced) impact in a city's capitals. Smaller, path-breaking initiatives can be more effective in the medium or long run, namely if they become scalable and pave the way towards new ways of doing things in cities. This is not to say that the sustainable competitiveness of cities doesn't require heavy investments (some of the analysed cases show the opposite, e.g. Venice). However, in many circumstances, a series of small, community-owned projects, can be more (or at least as) effective as 'big-bang' turn-key solutions.

- **Broader, multi-domain or specialised initiatives?** In many occasions, choices have to be made between tackling multiple domains simultaneously or concentrating efforts on a few initiatives and domains. Sustainable competitiveness requires that different capitals are harnessed and evolve in harmony. However, it can be difficult to tackle multiple domains at once and some specialisation is often required. It is important not to lose sight of the big picture and make sure that different capitals are progressing, even if not catalysed within a single initiative. Broad, umbrella-like strategies have advantages (e.g. generating momentum and visibility) but prioritsation of efforts is often necessary.

- **Accept sub-optimal results or 'doing nothing'?** Many of the cases under analysis show limitations in one or more domains. For example, while environmental dimensions are increasingly integrated in economic development strategies (and the other way around), the same is overall less true for social inclusion issues. In other cases, a number of limitations and unintended effects emerged and results are taking more time than expected to unfold. This is partly the result of some project's design, but also of the complexity involved in acting upon urban development from a sustainable competitiveness framework. The 'doing nothing' alternative is however hardly reasonable. In many cases, trial-and-error and experimentation are pivotal to long-term success, namely when more reformist projects and initiatives are being pursued. This involves organisations capable of incubating ideas and delivery models and accelerating their impact (scaling up via rapid prototyping).

- **Status-quo or regulation-busting projects?** On many occasions, urban managers are confronted with the challenge of 'how far' they want (and are ready) to go with their initiatives. While some projects can largely run within established cultural-legal structures, others tend to challenge vested interests, legal frameworks and organisational cultures and propose radically new ways of doing things (e.g. sharing data and user involvement). Risk-return trade-offs need to be equated, bearing in mind that bolder reforms often require challenging established routines.

- **Municipal borders or functional urban regions?** The projects studied vary in spatial scale. Some are implemented within cities (and their administrative borders); others take a clear (and purposeful) supra-municipal dimension. While some sustainable urban competiveness issues call for more contained scales, others operate and make more sense at the level of functional urban regions (e.g. economic development issues). Moreover, some initiatives can be very successful at the neighbourhood or city level but create unsustainable situations in metropolitan regions (e.g. crime displacement). However, choosing the best scale is not only a question of context but of political sensitivity and there are trade-offs involved. While projects at the level of functional urban regions can make it easier to involve the right stakeholders and look at problems from a more integrated perspective, it may also create political and institutional tensions that can also ultimately hamper the initiative's success.

- **Diversifying partnerships or arms length body?** Involving stakeholders proved pivotal to augment sustainable competitiveness projects and to access knowledge, finance and support. However, there are also trade-offs associated. The involvement of too many stakeholders can give rise to rigid structures, making it difficult to keep projects agile and adaptable to changing contexts over time. Moreover, involving too many stakeholders can also generate visions that are too broad, hampering prioritisation and concentration of efforts.

Finally, choices taken do not necessarily need to be once and for all. A key capability of the urban manager under a sustainable competitiveness framework is to be flexible enough to cope with change while keeping the direction recognisable.

9 Actions for the new urban manager

Sustainable competitiveness-oriented projects and strategies in cities have considerable variations. By tackling different types of domains simultaneously and/or by considering longer time horizons, they require heightened organisational capabilities and enablers to make it happen. Moreover, as seen, they entail complex choices and dilemmas and deal with the interests of multiple stakeholders. Yet, there are few other options.

We conclude by pinpointing ten actions that managers of cities need to consider when undertaking these types of project.

1   **Conduct a throughout assessment of the emergent, sometimes hidden dynamics of your city.** Different cities are impacted by the same challenge in different ways, and the visions and rationales for similar initiatives can vary widely. Even if cities and learn from each other, there is no one single path to sustainable competitiveness.

2   **Co-develop a shared vision for the sustainable competitiveness of your city** which takes into consideration the specific context for the city and incorporates the views of the different urban stakeholders. Communicate this vision to the wider stakeholder group, align them around the shared vision and keep them involved throughout the implementation process.

3   **Pay attention to external catalysts as signals of change of brand identity** (e.g. the opportunity to host international events). When combined with a city's strengths, needs and possibilities, they can contribute to ignite if not boost change in different city spheres and capitals (way beyond short-term economic impacts and multipliers).

4   **Strive to move single-domain projects towards multi-domain initiatives** (e.g. from pure economic towards social and environmental aspects). Not every dimension can be linked with one another and there are latent conflicts, but there are many bridges and complementarities to be explored.

5   **Identify potential leaders within and outside your organisation** to which leadership can be distributed. Sustainable competitiveness projects require strong and resilient leadership at different levels, in different organisations, both technical and political. At a closer look, single powerful and omnipotent leaders are very rare.

6   **Involve unusual suspects.** Beyond the business and policy elite, citizens, new entrepreneurs, not-for-profit organisations and other 'new kids on the block' are often central to get fresh ideas and to better recognise the user's perspective and make things happen on the ground.

7   **Think about the most appropriate spatial level for the intervention** (e.g. neighbourhood, city, metropolitan area). Functional, not administrative, areas are often more appropriate to tackle sustainable urban competitiveness challenges, and make it easier to involve the stakeholders that matter.

8   **Clearly identify the capabilities** (technical, expertise, networking, political, institutional) that are likely to be necessary in the medium term. Consider involving other stakeholders from the onset that can add to and complement the core capabilities of your organisation. Universities, private companies, not-for-profits and citizens often have complementary resources vis-à-vis city councils, and are increasingly ready to invest in the cities where they operate.

9   **Look for more agile ways to tackle the different urban challenges** and deliver public services to citizens and business. Clear priorities will need to be set and choices need to be made on where to put your resources to use. Here the challenge is to combine among others: Transparency, accessibility, responsiveness, flexibility and accountability.

10   **Finally, today's new urban manager will need to look for smart financial solutions to make it all happen.** Creating the ability to mobilise new financing mechanisms and different sources of funding for projects will help drive sustainable competitiveness.

Appendix

Cities and projects

Alphabetical by location.

City	Country	Project	Lead author
Addis Ababa	Ethiopia	Integrated Housing Development Programme	Alberto Gianoli
Antwerp	Belgium	Park Railway North	Jan van der Meer
Barcelona	Spain	Mobile World Capital	Alexander Otgaar
Budapest	Hungary	Budapest Innopolis Development Programme	Erwin van Tuijl
Cape Town	South Africa	Central City Improvement District	Seraj Seria
Chicago	United States of America	Combining Old Strenghts with New Soft Amenities	Peter Kresl
Curitiba	Brazil	Bus Rapid Transit System	Sarah Horsfield
Doha	Qatar	2022 FIFA World Cup Qatar™ as a Catalyst for Sustainable Competitiveness	Georgina Heneghan
Dortmund	Germany	Phoenix Project	Erwin van Tuijl
Dubai	United Arab Emirates	Establishing a Global Hub	Grace Moore
Dublin	Ireland	Dublinked	Luis Carvalho
Helsinki	Finland	World Design Capital 2012	Alexander Otgaar
Manchester	England	Manchester's Digital Strategy	Luis Carvalho
Melbourne	Australia	Integration of Central Business District Activity and Transport	Knowles Tivendale
Mumbai	India	Transforming Lives and Livelihoods Through Technology	Rakesh Kaul
New York City	United States of America	PlaNYC	Anaita Kasad
Pittsburgh	United States of America	Emergence of New Economic Specialisations	Peter Kresl
Rio de Janeiro	Brazil	Pacifying Police Units	Sarah Horsfield
Rotterdam	The Netherlands	RDM Campus	Erwin van Tuijl
Shanghai	China	Train-the-trainers for Building's Energy Efficiency	Luis Carvalho
Singapore	Singapore	Water Management: Turning Vulnerability into Opportunity	Sarah Lide
Vancouver	Canada	Vancouver Digital Strategy	Laurie Desautels
Venice	Italy	MOSE and Arsenale Projects	Erwin van Tuijl
Yogyakarta	Indonesia	Kasongan Pottery Cluster	Jan Fransen

Regenerating and Greening the City

Integrated Housing Development Programme

Addis Ababa, 'flower' in Amharic, is the capital of Ethiopia and home to four million inhabitants. After a phase of low urban development and growth, over the last two decades, the city has undergone rapid development. With GDP growth averaging 10.7 percent, Addis is expected to be one of the fastest growing cities in Africa between 2010 and 2020. With the population almost doubling every decade to date, the city has successfully embarked on an ambitious and innovative integrated housing development programme.

Project overview

The Integrated Housing Development Programme, one of Africa's most ambitious urban initiatives to date, was implemented in 2005. Introduced against the background of a massive shortage of low- and middle-income housing, the programme is characterised by its large scale, socially inclusive and integrated approach. A distinctive feature of the initiative was its ambitious incorporation of multiple objectives besides drastically increasing the supply of housing. The programme also targeted the redevelopment and privatisation of public housing, the maintenance of the livelihoods of the poor in the city centre, the promotion of effective use of scarce land and the use of low-cost construction technology. Furthermore, the initiative also sought to facilitate housing finance through simple and affordable payments, stimulate job opportunities by promoting micro and small enterprises and enhance the collaboration between the public and private sectors.

Results and impact

Although the programme has not met all of its original targets, it has nevertheless built a considerable amount of housing units, a significant achievement considering the previously limited capacity of the Ethiopian housing sector. The programme has also significantly increased the number of homeowners that would never otherwise have owned a home within their lifetime, and, in parallel, has benefited the housing market by increasing the supply of owner-occupied housing and rental units. Last but not least, the programme has enhanced the capacity of the construction sector and manufacturing industry (particularly MSEs), and has been a significant generator of employment opportunities in the city. However, despite these benefits, the programme also faced a number of unanticipated challenges. The most pressing of these challenges is the affordability of the units for low-income households, with the rising costs of condominium houses no longer an option for many low-income residents. In addition, there are concerns that the financing approach of the programme is unsustainable in the long term.

Enablers

The mayor of Addis Ababa, Arkebe Oqubay, was the driving force behind the programme, with his vision and leadership proving a key enabler for the project's execution. The city's administration and the Commercial Bank of Ethiopia also played a critical role in facilitating the creation of a network of co-operating organisations needed to make the project happen. The technical aspects of the construction of condominium housing also proved crucial to the project's success, with newly trained contractors playing an active role in increasing the city's building capacity and the expertise of its construction sector.

Park Railway North

ANTWERP, BELGIUM

Antwerp is Belgium's second largest city with a population of 514,000. Situated in the centre of Europe's economic core area, it is a prominent port city and the motor of the Flemish economy. Its economic power is based on three sectors: the port and maritime cluster (second in Europe), the petrochemical complex (second in the world) and the diamond sector (global trade centre). Like most European port and industrial cities, economic progress – recently trailing behind that of Brussels – has been accompanied by serious social problems including unemployment, polarisation and deprivation.

Project overview

With social problems high on the agenda for Antwerp officials, the Park Spoor Noord project is a key example of the city's urban renewal policy. Previously an abandoned inner-city railway yard, the space is now an 18 hectare urban park (involving more than 40 million euros public investment) and a 6 hectare commercial zone. Once the marshalling site of the Belgian national railway company NMBS, the converted land now connects a number of deprived districts under the vision to create 'a garden for the neighbourhood and a park for the city'. The area now incorporates sporting grounds, playgrounds and restored historic railway buildings that serve a number of public functions. The commercial site is still under development, with a university college campus (for 5,000 students) set to open in 2015 and a large hospital (opening in 2018) expected to be complemented by high rise residential units, a customs office and retail services.

Results and impact

Since its opening in 2009, the park has attracted visitors and Antwerpians from all over the city. As a neighbourhood upgrading initiative, effects appear to be moderately positive. Adjacent neighbourhoods now meet internationally accepted district green criteria, house renovation permissions have risen (with a peak around the park opening), the degree of vacancies have decreased substantially and real estate prices have increased for locations with a view of the park. Displacements – a feared consequence of gentrification – have been limited. However, despite the success of the park as an amenity, it has yet to markedly impact deprivation in adjacent neighbourhoods. Currently, it is not possible to assess the impact of the 40 million euro investment, as by choosing to establish a park, the city council focused more on social, rather than economic, return. However, one clear impact has been the development of increasingly innovative urban planning by city officials. The traditional approach of planning (waiting for private initiatives to approve or disapprove) has been replaced by integrated proactive municipal planning and with the establishment of autonomous municipal development companies, the project has signalled a more entrepreneurial approach to urban regeneration.

Enablers

A combination of factors facilitated the momentum needed to make this project happen over an eight year period. Firstly, the ambition of local government to give priority to urban regeneration was key. Secondly, the project aligned with the 1999 Federal Urban Policy created explicitly for large cities, allowing the project to receive impressive funding from various government levels. Thirdly, citizen participation was also a crucial factor, with residents exerting considerable influence over matters such as the conservation of historic railway buildings. Lastly, local organising capacity was a significant enabler; with an innovative governance structure allowing a multidisciplinary planning team to focus entirely on the project whilst having the autonomy to sign contracts, facilitating the first large scale development scheme carried out by the city itself. Having followed a consistent, proactive approach with a strong link to residents, several other large projects have followed the Park Railway North innovative urban renewal approach.

Using Events for New Urban Legacies

Mobile World Capital

BARCELONA, SPAIN

Barcelona is the capital of the autonomous region of Catalonia, one of Spain's most prosperous and export-oriented regions. An attractive urban location, excellent accessibility and a favourable climate give Barcelona a competitive edge in hosting international meetings and events. The city has a history of using these events – such as the 1992 Olympic Games – to transform the urban fabric and economic structure of the city, with the Mobile World Capital the most recent example.

Project overview

After hosting the Mobile World Congress for several years, Barcelona won the bid to host the Mobile World Capital for seven consecutive years (2012–2018). The seven year 'event' consists of four pillars; the congress, a festival, a permanent exhibition centre and the so called 'Mobile World Hub'. The Hub facilitates cross-sector innovation through a permanent meeting place for businesses in the recently redeveloped 22@ district (a 'bricks-and-mortar' platform), but also through several networks for cooperation (organisational platforms). The aim of initiatives such as mHealth, mWallet and m4all, is to use the city as a living laboratory for creating products that can be exported to the world. Mobile World Capital Barcelona (MWCB) is governed by a foundation which brings together the Ministry of Industry, Energy and Tourism (State), the Catalan government, the City of Barcelona, Fira de Barcelona (the trade fair institution) and GSMA (the association that represents mobile operators worldwide). The foundation is financed by three levels of government and private sponsors such as telephone company Telefónica.

Results and impact

Barcelona has been successful in winning the bid for hosting Mobile World Capital for seven consecutive years, which brings the city significant economic gains. More than 70,000 congress participants generate an annual economic impact of €320 million for the region. The impact of the other three pillars has not yet been fully evaluated, but there are clear indications of a positive impact on the city's sustainable urban competitiveness. The permanent exhibition centre continues to help promote Barcelona and its mobile industries, attracting more than 350,000 visitors (consumers) a year and with the festival (still to be organised), the foundation hopes to target even more consumers. At the end of 2013, several platforms for innovation (part of the Mobile World Hub) were operational, while others are still under construction. To date, arguably the most significant impact of Mobile World Capital has been the enhanced reputation of Barcelona as a place to locate for companies in the ICT and mobile industries. Several companies indicate that they have established in Barcelona, in part, due to the favourable environment offered by the city's status as Mobile World Capital.

Enablers

Three key enablers contributed to the successful implementation of the Mobile World Capital event. Firstly, broad and stable political support strengthened the bid for organising the event and made it easier to implement the comprehensive four-pillar strategy. Secondly, the role of Telefónica should not be underestimated. Although difficult to prove, it is very likely that the company (and its CEO) was pivotal in the selection of Barcelona as host of the event. Barcelona has been able to become the first Mobile World Capital without a strong concentration of companies in 'mobile industries' (apart from Telefónica), but with a relatively strong position in ICT and 22@ as an important hotspot. Thirdly, discussion partners refer to the strong infrastructural capital: the technical facilities needed to host the Mobile World Conference. Barcelona first managed to offer a larger venue for the event than Cannes and a few years later, the city succeeded in finding an even larger venue (Gran Via). Barcelona's strong technical offer undoubtedly played a role in fighting off competition from other candidate cities such as Munich and Milan.

Promoting Cluster Development

Budapest Innopolis Development Programme

Budapest is Hungary's growth engine, with the largest share of the country's population, economic activities and innovation and research facilities. One of the frontrunners in the economic and political transition of Central Europe, the city acts as a sponge for FDI and EU funding and continues to attract large numbers of visitors. Budapest has a strong knowledge base, with a long tradition of basic research and a number of key research institutes, offering a number of opportunities for collaboration across various fields and disciplines.

Project overview

The Budapest Innopolis Development Programme (Innopolis) is an economic development initiative aimed at strengthening the city's knowledge economy. Focused on increasing the competitiveness of local firms via cooperation with knowledge institutes, it consists of three 'poles' ('ITTPole', 'MediPole' and 'EcoPole') based on Budapest's major growth sectors. Funded by the EU, Innopolis is part of a larger national 'pole' programme but is initiated and coordinated by knowledge institutes at the local level, creating a complex governance structure that integrates both bottom and top down approaches. Consequently, the project provides insight into the challenges faced by cities undergoing both economic and political transition, and the major governance challenges related to enhanced interaction between the public and private actors in the context of institutional learning.

Results and impact

To date, the Innopolis programme appears a success. Significantly, the programme's qualitative and indirect results appear to have begun to contribute to the city's competitiveness in the long run. Firstly, new institutes (knowledge transfer offices) have been set up to coordinate and encourage cooperation between universities and private sector firms. Secondly, universities and firms are learning to cooperate and communicate through initiatives such as joint workshops that will hopefully help stakeholders share new ideas and jointly develop new products. Thirdly, the programme has created an environment in which university spin-offs and start-ups can arise and grow. For example, the programme encourages entrepreneurship, the development of local networks and the opportunity to develop and maintain relations with other key clusters abroad (including Silicon Valley). These are arguably major ingredients needed to generate sustainable competitiveness. Although the long term results of the programme have yet to be realised, the project has unveiled some key challenges, namely the need to develop tailor-made programmes for different 'poles' given current discrepancies between the ITTPole and MediPole, serving as an important lesson for other cities looking to set up integrated policy clusters.

Enablers

A critical enabling factor of the Innopolis project is that the programme did not start from scratch, but followed earlier innovation programmes whilst integrating regional strengths, including a strong knowledge base and key growth sectors such as IT, medical science and bio-technology. Related to this, new legalisation and institutes on the state level opened the road for innovation policy necessary to make a programme of this nature happen. Another critical factor has been strong leadership both at the top and bottom levels, facilitating the creation of networks and the sharing of innovative ideas. Finally, the EU cohesion policy has been significant, with the programme set up as a tool to access to EU funding.

Enhancing Urban Security

Central City Improvement District

Cape Town is the capital city of the Western Cape Province and is one of South Africa's most dynamic and diverse cities. Within the capital, the Cape Town Central City plays an important role within the social, cultural and political life of the region and hosts the key sectors of the local economy. Now regarded as one of South Africa's safest cities, only a decade ago the central city district (CBD) was struggling with high levels of crime and gang violence, with many 'high risk, no-go' areas negatively impacting the city's economic growth.

Project overview

Given the problems faced across the city's CBD, The Central City Improvement District (CCID) was launched in November 2000 to address the increasingly negative perception of the city. A collaboration between public and private sector stakeholders working together to develop, promote and manage Cape Town's central city; the CCID's vision is to provide an inclusive, vibrant and sustainable city centre. Driven by the Central City Development Strategy, the public-private partnership has specialised yet integrated focus areas including; safety and security, quality urban management and social development.

Results and impact

The CCID the has played a major role in significantly reducing crime in the Cape Town central city over the past decade and through the combined efforts and partnerships with Government and private stakeholders, the city centre is now positively perceived as a vibrant, tourist attraction. From an economic perspective, the district is viewed increasingly as a business hub, incentivising investment in the district. The CCID has also made a valuable contribution to city's safety and security, demonstrated not only in improved resident satisfaction but during the hosting of the city's mega events. Improved safety has been closely associated with the improved 'brand' of the city, positively enhancing conditions for future economic growth. A clear demonstration of the project's impact, Cape Town's reputation as the cleanest and safest CBD in the country continues to set the standard for other CBD's in South Africa.

Enablers

The success of the CCID is based on a number of key enablers. Firstly, the success of the CCID can be largely attributed to the committed leadership of the organisation, with members remaining passionate about the city as an attractive destination for both residents and visitors alike. Secondly, the CCID's strong network of partnerships and the collaborative effort of the government, property and business owners in the city have enabled the project, from strategy formulation to execution. Thirdly, the CCID has an effective operational structure, a clearly defined business plan and strong performance management measures in place, facilitating effective transparency and accountability. Fourthly, the legislation which allowed for the establishment of the CCID and the funding of its operations, are significant contributing factors to the organisation's success thus far. Without having the supportive, enabling Public Sector legislation in place, the CCID would not have received the support and cooperation of the City of Cape Town Metropolitan Municipality, nor the necessary buy-in from stakeholders. Lastly, the CCID operates an effective communications programme which effectively collects, analyses and distributes CBD information to stakeholders, maintaining a collaborative approach to sustainable development.

Regenerating and Greening the City

Combining Old Strengths with New Soft Amenities

CHICAGO, USA

Chicago is the third largest city in the USA, with 2.7 million inhabitants in the city and 9.5 million in its metropolitan area, Chicagoland. Following a period of heavy de-industrialisation, Chicago is now a major business and cultural hub, largely propelled by professional, scientific and technical services. Like many other resurgent cities in the Great Lakes region, jobs have been increasing in the city centre but declining in outer areas, a consequence of efforts the city has undertaken to make itself attractive to younger, educated workers. One of the nation's best examples of path dependent economic development, Chicago's economic resurgence is grounded on traditional economic strengths and driven forward by active, amenity-enhancing polices, helping to reverse a significant loss in population and unemployment caused by de-industrialisation.

Project overview

Chicago was hit hard by the oil price hikes of the 1970s, with the city's major heavy manufacturing and steel industries almost disappearing as a consequence. Over recent decades, Chicago's response has been to build its economy on the city's key strengths in transportation, finance and manufacturing. A number of efforts have been taken to keep smaller firms and more technologically sophisticated production in the city, ('jobs not real estate') namely a retention policy focused on area-based initiatives, not the subsidising of individual firms focused on maintaining old buildings one-by-one. Moreover, these policies have been complemented with aggressive efforts to make the city attractive, particularly to young, skilled workers, through a major greening initiative, the enhancement of cultural institutions and the facilitation of housing construction, keeping rent and purchase costs low.

Results and impact

Chicago has achieved success in reinvigorating its economy by building on the city's traditional economic strengths, for example its transportation sector now focuses on air and cargo and basic steel has been replaced by patented speciality steel that is competitive world-wide. This has stimulated significant inflows of skilled labour and investment whilst drawing on existing resources, namely knowledge and infrastructure, linking back to the city's traditional economic sectors. Consequently, post industrialisation Chicago has not focused on building a new economy from scratch, but instead on related diversification; adapting skilled labour in the city to align with the direction of its contemporary economy. Moreover, Chicago has simultaneously improved the quality of its living environment and amenities, namely through strong investments in culture cultural institutions, such as the Renzo Wing of the Art Institute and the Frank Gehry band stand in Millenium Park. This has resulted in the further attraction and retention of knowledge-intensive jobs and talent, making the city more amenable to young, skilled workers who continue to drive forward Chicago's post industrialisation resurgence. However, despite these improvements, the city continues to face challenges associated with race relations and access to housing and education.

Enablers

From the 1980s onwards, Mayoral leadership has been key in successfully re-focusing the city's efforts to become a globally connected and competitive city. Focusing on a city's urban amenities – the soft determinants of urban competitiveness – have played a prominent role in enhancing the city's sustainable development. To do so, leadership had to face opposition and adhere to a concrete vision in the face of adversity in a post industrialisation context. Chicago also benefited from a number of crucial enablers that helped to realise the city´s vision, namely established business leadership, skilled labour, excellent universities and strong civic partnerships.

Managing Urban Mobility

Bus Rapid Transit System

CURITIBA, BRAZIL

In the 1960s, Curitiba, the capital city of the state of Parana in Southern Brazil, experienced explosive population growth, with the number of residents trippling between 1940 and 1965. Faced with a rapid influx of internal immigrants attracted to city's fast paced growth, traffic congestion became a serious challenge for the city's urban planners. Now frequently referred to as one of the world's original 'smart mobility cities', Curitiba's Master Plan saw the introduction of a number of innovate urban initiatives that have secured the city's reputation as green and well organised, boasting a renowned quality of life for its still growing resident population.

Project overview

The 'crown jewel' of Curitiba's urban planning model, the Bus Rapid Transit System (BRT) was launched in 1974, the first of its kind to combine the service quality of rail services with the cost savings and flexibility of bus transit. Composed of a hierarchical system of services, minibuses routed through residential neighbourhoods feed passengers to conventional buses on circumferential routes around the central city and inter-district routes. The backbone of the system is the Bus Rapid Transit System itself, operating in dedicated lines across the five main arteries of the city's design. Aligned with the Curitiba Master Plan's goal of reducing traffic whilst providing a convenient and affordable public transit system, the BRT is now complemented by the Integrated Network of Transport that operates across the city under a one fare system.

Results and impact

A key indication of BRT's impressive impact has been the modal shift from automobile to bus travel, effectively accommodating population growth over recent decades. Approximately 1,100 buses make 12,500 trips a day, serving 50 million passengers, a figure 50 times the number of passengers 20 years ago. 80 percent of travelers now use the express or direct bus services and although the population has tripled since 1970, traffic has declined by 30 percent. With regards to environmental impact, efficient public transport networks have been widely applauded. Compared to eight other Brazilian cities of a similar size, Curitiba uses about 30 percent less fuel per capita; resulting in one of the lowest rates of ambient pollution in the country. The impact of the city's BRT system is also clearly evident given the international recognition the initiative has received, for example, in 1996 the United Nations Conference on Human Settlements praised Curitiba as the 'most innovative city in the world'. Similar projects are now replicated by cities around the globe hoping to achieve effective and cost-efficient urban mobility solutions.

Enablers

Curitiba owes its initial success to a visionary and creative leader, Mayor Jaime Lerner, who first introduced the idea of simulating the effect of a metro using the BRT system. Long after Mayor Lerner's tenure as a Mayor and then Governor, Curitiba's approach to integrated urban planning has remained consistent, despite changes in the municipal government's political affiliations. Curitiba's participatory approach to urban planning has also been a key enabler, with a focus on people, a clear sense of purpose and strategic action at the group level always incentivised. Consistent dialogue amongst key stakeholders such as the Instituto de Pesquisa e Planejamento Urbano de Curitiba (Institute of Research and Urban Planning of Curitiba) and the city and council levels has also enabled a practical and realistic approach to integrated, strategic planning. Lastly, a key element of Curitiba's urban development success has been the recognition that urban, environmental and economic development are intrinsically interconnected, an approach that has proved far more successful than the 'correct and clean up' approach applied to most cities urban development challenges.

2022 FIFA World Cup Qatar™ as a Catalyst for Sustainable Competitiveness

DOHA, QATAR

Qatar's administrative, commercial and financial capital, Doha is host to approximately 71 percent of the small Arab nation's entire population, earning its often quoted title 'city-state'. At the forefront of efforts to promote the country's ambitious development agenda, Doha has embarked on a transformational path to becoming an innovative, sustainable 'global city', efforts accelerated by Qatar's winning bid to host the World Cup.

Project overview

As the first Arab nation to host the World Cup, the tournament has been framed as an important catalyst in achieving an enduring urban legacy. The mega sporting event has been aligned with ambitious long-term development goals outlined in the Qatar National Vision 2030 as well as the more immediate objectives of the country's National Development Strategy (2011–2016). The recently renamed Supreme Committee for Delivery and Legacy has been appointed by the Emir of Qatar to directly ensure that the impact of the tournament reaches beyond stadia related infrastructure, securing a sustainable legacy for the entire Qatari population.

Results and impact

Doha's hosting of the sporting mega event is anticipated to have wide reaching impact across the city. Although the 2022 tournament is not to take place for another eight years, impressive urban development plans are already underway, from the construction of innovative, carbon neutral stadia to world class transport networks to be achieved through a series of infrastructure projects including train, rail and metro links. From an economic perspective, the event is expected to stimulate an increasingly diversified economy through enhanced coordination between the private and public sector. Greater participation of the local labour force in an event of this size is also likely to promote local talent in a city dominated by expatriate workers, building the capacity of both individuals and institutions. The event also has the potential to drive softer development targets such as improving the health of a nation that continues to record increasingly alarming obesity and diabetes rates, providing a clear example of the transformational impact mega events can have on a city's wider development agenda.

Enablers

If it weren't for the clear vision and ambition of Qatar's leadership, Doha would not have secured the hosting rights ahead of countries such as the United States and South Korea. To successfully host one of the most important sporting events in the world whilst ensuring an enduring urban legacy for all Qataris, strategic implementation will continue to prove crucial. Strategic initiatives focused on the urban legacy of the event (from social, economic and environmental perspectives) will need to be coordinated across numerous stakeholders if the anticipated impact of the event is to be realised. This will need to be complemented by performance management frameworks which are currently not in wide use across the city's major capital and development projects. Capacity building on an institutional and individual level will also be vital in developing a local, skilled workforce, a key pillar of the Qatar National Vision 2030. From the Supreme Committee for Delivery and Legacy to the ministries outlined in the National Development Strategy, all stakeholders will need to remain committed to the long-term advantages a mega sporting event can bring. Doha is already putting in place the mechanisms that will enable it to deliver an unprecedented infrastructure programme that will have a lasting legacy beyond the 2022 World Cup. However, as the preparations for this complex event progress, the city will need to carefully manage its image to ensure that potentially controversial issues such as construction workers' rights and living conditions do not overshadow the event.

Regenerating and Greening the City

Phoenix Project

DORTMUND, GERMANY

Dortmund is the largest city in the Ruhr area and among the ten largest cities in Germany. The city is currently making progress as it transitions from an industrial economy towards a knowledge intensive, service city. The 'New Dortmund' has continued to develop new growth sectors linked to its strong knowledge base, leveraging other key assets including good accessibility, the availability of brownfield sites for new functions and a pro-active city government. However, the city continues to face challenges associated with the socio-economic legacy of de-industrialisation, including structural unemployment and social polarisation.

Project overview

The Phoenix Project is a large brownfield redevelopment programme that has focused on the transformation of two large, connected industrial sites that were previously isolated from the rest of the city. The location now combines modern industries (on Phoenix West) with housing and leisure amenities (on Phoenix East). In addition, the project has focused on the redevelopment of the run-down working class Hörde district and the environmental and ecological works needed to restore the damage created during the industrial period. The project is led by the City of Dortmund which coordinates the numerous stakeholders involved whilst integrating the project into the city's larger economic strategy (the so-called 'Dortmund Project').

Results and impact

The Phoenix project can be regarded as a best practice example of a complex and integrated brownfield redevelopment project. Overall, the transformation process went smoothly and most of the project's development goals have been met. The project is different from, and therefore complementary to, other major

locations in the city, such as the Technology Park Dortmund. The industrial heritage of Phoenix West gives the site a specific character, although it remains a challenge to find investors needed to convert these historical assets into additional functions. The two competence centres that support technology-orientated firms and start-ups, have already been realised and function well. The initially widely discussed Phoenix See, a large lake on Phoenix East, has turned into a 'pearl for New Dortmund' and contributes positively to a new image of the city and functions as a popular recreational location. Newly created green spaces on both Phoenix West as well as Phoenix East offer additional recreational spaces. The complex water management plan on the Emscher river also appears to be developing according to plan. Finally, new luxury houses, offices and leisure facilities have been constructed, most of which have been sold. Consequently, overall, the Phoenix Project has contributed positively to the sustainable development of the 'New Dortmund', particularly in terms of environmental and economic development. However, the third pillar of sustainability – social development – seems to be harder to realise.

Enablers

The success of the project to date can be attributed to a number of critical success factors. Firstly, the project was based a clear vision and concrete goals that have been jointly set by the city and other stakeholders. These are not only based on global trends (e.g. new growth sectors), but also on local needs and historical local assets (e.g. the combination of historical heritage with high-tech production on Phoenix West). Moreover, leadership at the top and on the ground reduced conflict among stakeholders and kept the machine running, while effective communication strategies created and maintained societal support. Another success factor was the timing of the project; starting in the deep pain of the de-industrialisation that brought various actors together searching for solutions for realising the 'New Dortmund'. Finally, the site is divided into two different parts, and as such, gives access to various funding sources, enabling the use of different specialised developers and consequently, varied functions. As total control is in hands of the city, the different facets of the project are integrated in one plan that in turn, is integrated in the city's wider economic strategy.

Promoting Cluster Development

Establishing a Global Hub

DUBAI, UAE

Boasting state of the art infrastructure and world-class business opportunities, Dubai is one of the most connected cities in the world. Once a small fishing village before the discovery of oil in 1966, the United Arab Emirates' largest city has established itself as a leading trade and logistics hub, leveraging its geocentric location on the Strait of Hormuz. Recently announced as the host of the 2020 World Expo, Dubai is one of the region's most diversified and vibrant economies, acting as a gateway between East and West.

Project overview

In recent years, Dubai has undertaken a number of ambitious projects to establish itself as a globally recognised trade and logistics hub, adopting an integrated approach to reaching its development goals outlined in the UAE 2021 Vision. Under the Dubai Strategic Plan 2015, trade and logistics are an important facet of the Emirate's growth as it continues to recover from the 2009 financial crisis. The Jebel Ali Port expansion project is a clear commitment to upgrading the city's port capacity, with the Jebel Ali Free Zone Authority continuing to attract leading multinationals. This complements the Dubai Logistics Corridor project launched in 2011, which plans to link sea, air and land trading, streamlining the import, export and re-export process through the Jebel Ali Port and Al Maktoum International airport. To complement both of these two key projects; the Dubai World Central project is committed to establishing Dubai as an 'areotropolis', providing seamless trade and transport connectivity, driving the Dubai Airports Strategic Plan 2020 to make Dubai a global hub for air traffic. This significant investment is anticipated to enhance Dubai's reputation as a tourism hub, with two thirds of the world living within an eight hour flight of the city and the remaining third within a four hour flight.

Results and impact

The impact of Dubai's commitment to trade and logistics excellence has seen the city continue to drive its presence on the global stage. The impact of the Jebel Ali Port expansion project has seen the completed Terminal 2 allow for the simultaneous handling of 15,000 twenty foot equivalent units at one time. In 2012, the port won the prestigious Shipping Port of the Year award, clearly demonstrating the increasingly impressive profile of the city's flagship port project, gains expected to increase with the completion of the Port's

Terminal 3. The port's free-zones have also registered impressive growth, with 454 multinationals joining the Jebel Ali Free Zone in 2012, a 26 percent increase on the previous year and generating approximately US$82 billion, a quarter of Dubai's non-hydrocarbon trade. Dubai's aviation industry also continues to thrive at the world's second busiest airport for international passengers behind London Heathrow in 2012, with Dubai's passenger capacity set to reach 70 million passengers by 2014. Lastly, currently under construction, the Dubai World Central economic zone is expected to cement Dubai's position as world class logistics and trade hub, taking advantage of the Jebel Ali Port, Logistics Corridor and Al Maktoum International Airport, creating unrivalled levels of connectivity, speed and efficiency across this multimodal logistics platform. As the location for the 2020 Dubai Expo, the Dubai World Central project clearly demonstrates the city's resurgence from the 2009 financial crisis as the first nation in the Middle East to host the prestigious event.

Enablers

There's no doubt that leadership has played a fundamental role in Dubai's success. Starting with the visionary decision taken by its first ruler, Sheik Rashid Al Maktoum in the seventies to develop Dubai's port capacity and infrastructure well beyond what the perceived demand was at the time, through to the series of bold decisions taken by Sheik Mohammed Al Maktoum to grow Emirates Airlines to become one of the largest airlines in the world; leadership has been key in transforming the Emirate into a diversified, economic hub. Additionally, Dubai has managed to create an attractive brand to promote itself as an open, tolerant and welcoming place for talent and investment, not only from the MENA region, but from all over the world. Finally, Dubai has developed an agile approach to taking ideas to implementation in considerably shorter periods than its regional counterparts. It is no coincidence that several economic clusters and economic zones in many sectors – albeit not all of them equally successful – have been developed in less than ten years.

Sharing Data in the Digital City

Dublinked

DUBLIN, IRELAND

With roughly 1.3 million inhabitants in its metropolitan area, Dublin is Ireland's capital and largest city, representing 40 percent of the national economy. During the 1990s, the city was the face of the Celtic Tiger phenomenon, during which the Irish Economy grew on average by 6—8 percent annually. Despite the severe economic slump of 2008, the Irish economy has recently started to bounce back. This has been driven by export growth and the continued attractiveness of the city as a destination for foreign direct investment. Roughly two thirds of exports originate from Irish-based foreign companies and more than 50 percent of such companies' headquarters are located in Dublin.

Project overview

Dublinked is an initiative that makes data open to the wider public (businesses, researchers, governments, citizens) concerning public provisions (e.g. water, transport, environment, and planning) in the greater Dublin region. The idea behind the initiative is that when data of such services is open, 'innovative minds' beyond the local government have the opportunity to contribute to sustainable solutions for problems encountered by the city, and develop valuable products and services. Beyond citizen empowerment and transparency, Dublinked's main ambition is to spur economic and technological development in the city, promoting R&D and innovation. Dublinked has been carried out at the metropolitan level (four local authorities of the Dublin region) in partnership with the National University of Ireland Maynooth (NUIM) and with the technical support of a leading global technology company. From an urban policy perspective, Dublinked is a flagship programme for the new generation of 'soft' local economic development initiatives with the vision of forming new communities of innovators and paving the road to economic recovery.

Results and impact

Open data is not a quick win. Requiring shifts in established mind-sets, culture and behaviour, open data initiatives take time to show full potential. Despite this, Dublinked has already been responsible for a number of achievements, namely: i) a large number of apps and urban solutions developed by small companies and entrepreneurs; ii) contribution to the creation of new communities of innovators around open data (assessed by the large number of participants in data-camps, hackathons, workshops etc) iii) the reinforcement of the competitive position of local subsidiaries of leading IT firms vis-à-vis other global R&D departments and headquarters; iv) the strengthening of governance between public authorities and increased awareness of the value of open data and lastly, the contribution towards the formation of new advocacy and policies for the development of an open data movement at the national level.

Enablers

Despite Dublinked's relative infancy, a few critical success factors can be identified. Firstly, the drive of lead firms interested in open data was important in igniting the initiative, demonstrating the relevance of the data and the opportunities it presented for the city. The requirements of such companies helped to set priorities on the most 'valuable' types of data to collect and release. Secondly, the kick-off and efficient implementation of Dublinked largely benefited from the leadership of the City Manager and his senior assistants; focus was not so much on ruling and controlling, but much more about legitimising, nudging, connecting and daring. Thirdly, and related with the previous enabler, was the role of NUIM acting as a neutral independent party between public and private stakeholders, contributing to the solutions of many of the issues and challenges faced during the start-up process. Fourthly, finding and agreeing on the right scale for the initiative (Dublin region) was a strong plus, helping to collect data at the relevant scale for the users, and also to start up with a large and more consistent amount of data. Lastly, the project largely benefited from the operational leadership of the design-thinking unit Studio as the anchor player within Dublin City Council and as the connection with other partners and organisations outside the City Council.

Using Events for New Urban Legacies

World Design Capital 2012

HELSINKI, FINLAND

Helsinki is the largest city, capital, and undisputed economic centre of Finland. The metropolitan area consists of 14 municipalities and accommodates 1.4 million people, almost one-fourth of the country's population. With the region representing one-third of the Finnish economy, the population increased by 17,200 people in 2012. Known as the knowledge and innovation champion of Finland, the city has a 40 percent share of investments in R&D.

Project overview

The city of Helsinki used an event – World Design Capital 2012 (WDC) – to promote the use of design in all aspects of urban development. Design implies the participation and involvement of not only designers but also end-users in the development of products and services that make cities better places to live, and thus add to sustainable competitiveness. WDC 2012 aimed to raise awareness of the role of design in urban development amongst all relevant stakeholders, aligning with the city's 'prosperous metropolis strategy' (2009), in which Helsinki expresses its ambition to develop user-driven innovation environments, create attractive urban areas (that meet the demands of citizens) and provide user-friendly services. The project is an inspiring example of how to use an event for a new type of legacy; a long-lasting transformation in urban management. This has been particularly significant in the context of the Finnish welfare state, where the government has traditionally played a dominant role in urban development, leaving few incentives for private initiatives and involvement. The Helsinki Region Infoshare: an open data initiative, is also clearly related to the openness and user-driven development ambitions of the city.

Results and impact

In a relatively short period of time, the city of Helsinki managed to prepare a winning bid for hosting WDC 2012. Interviews with 150 experts gave input to a strategic framework that evolved in a collaborative way. Moreover, the bid was presented as an 'open book' allowing citizens to suggest activities and events through an open tender. With the concept 'Open city, embedding design in life', Helsinki succeeded in convincing the International Council of Societies of Industrial Design (ICSID) that it was in their interest to choose Helsinki as a host city. By promoting design as a way to improve public services and the functioning of the public sector in general, both the city and ICSID were

exposed to a host of opportunities. WDC 2012 resulted in 551 projects, half of which relate to initiatives that remain in place after the event; with 80 percent resulting from the open tender. Analysis suggests that 52 percent of the projects would not have been implemented without the umbrella programme, demonstrating the impact of the event. Another key impact of the WDC 2012 has been the development of new forms of cooperation within, and between, different sectors that will most likely continue to exist. However, an official evaluation also shows that many goals have not been met yet, indicating there is still a long way ahead in creating what some call a 'design democracy', notably in the delivery of public services.

Enablers

The strategy described above builds on important local assets such as Finland's reputation as a country of designers, strong organising capacity with relatively well-developed relations between government, businesses and knowledge institutions (multi-level governance and triple helix cooperation), and a policy environment that is increasingly susceptible to bottom-up, user-centered initiatives, despite a tradition of government control and top-down planning. Furthermore, the programme responded to a shared sense of urgency regarding the city's competitive position and attractiveness for international knowledge workers. The project builds on previous strategies such as the Innovation Strategy (2005), experiences with earlier events such as the European Capital of Culture (2002) and successful experiments with user-involvement and living labs, for example in the district of Arabianranta. These contextual conditions have facilitated the development of an inspirational vision and effective mobilisation of relevant actors. The concept of an open, design-driven city has been successfully translated in an open bid book which has provoked the initiatives of 'new kids on the block', with fresh ideas on how to apply design in everyday life. It has not been one person alone who has taken the lead in this process, but several individuals from different sectors who have played a crucial role in moving the initiative forward.

Manchester's Digital Strategy

MANCHESTER, ENGLAND

Located in the north-west of England, Manchester was once the cradle of the industrial revolution. In recent decades, Manchester has become a quintessential example of a city in transition from manufacturing towards more knowledge-based industries. Growth has been spearheaded by diversification into areas such as information communication technologies, indicating the progress of the city's digital economy. However, despite progress, a persistent skills mismatch, unemployment, and social exclusion are still heavily felt.

Project overview

The city's Digital Strategy is a transformative roadmap of programmes and projects under the overarching goal of making Manchester one of the world's leading digital cities by 2020. The Digital Strategy is currently championed by the City Council as an umbrella or meta-level strategy, cutting across different domains of Manchester's development policies, including economic attractiveness, skills and employment, social integration, access, and governance. Dating back to 1989, Manchester's digital-related initiatives have been closely linked with the city's regeneration agenda (economic, social, physical). Although city priorities have evolved over time, IT and digital initiatives in Manchester have remained tools to catalyse change. From 2008 onwards, the Digital Strategy has been recognised as a priority in the city's administration, with the symbolic status of a Master Plan. In addition, it aims to position Manchester as a competitive player in the global digital market whilst tackling locally-rooted and persistent socio-economic challenges.

Results and impact

A number of outcomes and results can be linked to the more recent version of Manchester's Digital Strategy: i) the award of an Urban Broadband Fund (£12 million) to roll out superfast and ultrafast broadband with the aim of covering 100 percent of the city; ii) the securing of £1.5 million development funds to stimulate business demand for connectivity in Greater Manchester; iii) the recruitment of 800 volunteers or 'digital champions' for the GO ON Manchester initiative, demonstrating progressive engagement of the population and business parties; iv) increased social connectivity through the facilitation of a free public wi-fi network in public transport hubs; v) several new partnerships across the public and private sector (e.g. Digital skills strategic framework); vi) the establishment of an open data philosophy at the City Council and acceleration of local open data ambitions; vii) improvements in the CRM (customer relationship management) services in the City Council towards increased digitalisation. Moreover, from a 'softer' perspective, the new strategy has contributed to increased awareness concerning the relevance of the 'digital' for Manchester's development prospects. The strategy has also legitimised the role of other organisation-level digital strategies across the city and has united stakeholders around shared visions and development narratives.

Enablers

From the 1990s until recently, Manchester's urban regeneration agenda acted as an incubator, supporting the city's digital strategies to reach a higher degree of maturity. Beyond this, a number of additional factors also emerged as critical enablers. Firstly, the Digital Strategy benefited from the support of stable, leading officials in the City Council. Moreover, the appointment of an assistant chief executive directly responsible for the strategy helped to give the strategy higher 'symbolic status' within the administration. Additionally, the operational leadership of Manchester's Digital Development Agency has been essential in ensuring a smooth transition from the regeneration-driven agenda to the city's new ambitions. This has permeated the strategy with a variety of new digital paradigms whilst acting as a boundary spanner, connecting new organisations and digital innovators to each other and to the Digital Strategy. Secondly, the mobilisation of new partnerships and funding was pivotal. The Digital Strategy is anchored in varied funding schemes, such as European and National funding, combined with small seed money from the City to leverage innovative projects, volunteer work and the own internal resources of the different stakeholders. This combination of sources has been critical in leveraging different projects in a context of increasing financial constraints. Lastly, some of the early achievements of the Digital Strategy relied on the capacity of its promoters to take risks, such as challenging higher level regulations and the involvement of unusual suspects (e.g. community groups) in the implementation of the Strategy.

Managing Urban Mobility

Integration of Central Business District Activity and Transport

In 1986, Melbourne was a city, roughly the size of Mexico City, with a population of 3 million people. Nevertheless, fewer than 700 people lived within the Central Business District's (CBD) 3 square kilometers. Today, over 36,000 residents live in Melbourne's three CBD neighborhoods. Often referred to as the world's most livable city, Melbourne provides valuable lessons for any city seeking to reinvigorate its downtown core.

Project overview

As decentralisation and flight to the suburbs reduced the CBD's daytime population, and large tracts of land lay vacant, Melbourne's urban core was hollowing out. A national recession, significant budget constraints, and a slump in the CBD office market led to a radical program to reinvent Melbourne's CBD. In recent decades, a number of projects and initiatives have focused on how best to use the 'spare' capacity of road space. With over 230 laneways in the CBD, almost all now have at least one café, restaurant, or entertainment venue, increasing the city's appeal as a tourist destination. The overall strategy has deliberately encouraged land owners to think creatively about how they can use space including the laneways at the rear of their properties. The city has also sought to make high quality pedestrian environments a priority in the last 20 years, converting over 35 hectares of road asphalt for pedestrian use. More than 20 shared traffic zones, a 1,100 meter pedestrian mall and an 8 hectare park have also been created in the CBD.

Results and impact

A number of projects over the last 30 years, including the landmark Postcode 3000, Federation Square, Swanston Walk and laneway activation programs have worked towards reversing the trend of decentralisation and integration of business, cultural, and education assets in the most transport-rich environment. Al fresco dining has taken over footpaths, which have been widened into former traffic lanes. In 1983 there were two outdoor cafes and there are now more than 600. Melbourne has become renowned for its laneways, the CBD economy has grown as a result and the average visitor stays additional nights in order to explore more. Travel in the CBD is more efficient, safe, and convenient than ever and the higher density clustering of activity has enabled the greater agglomeration of economies to be achieved. Transport has been integral to much of the change as planners have sought to encourage and prioritise pedestrian activity. Programmes have focused on the most efficient modes – cycling, walking, public transport – coupled with ever increasing residential and employment densities. The density of land use means many trips can be significantly shorter while more economic activity can be sustained in the same geographic area. Coupled with improvements to public transport and cyclist infrastructure, transport efficiency in the CBD has increased significantly.

Enablers

The integration of projects provided consistent, incremental application of specific initiatives aimed at making the CBD more pleasant for people to live, work, and play in. The focus has been on achieving tangible outcomes that break down old stereotypes and reimagine the CBD as the 'place to be'. A number of key enablers can be attributed transformation of the CBD area. Firstly, recognition that pedestrians fuel the CBD economy allowed planners to focus on creating an attractive, stimulating environment to prolong interest and encourage spending. Secondly, personal leadership from individuals at the municipal council, specifically in the areas of urban design and transport, were crucial in making a number of interconnected projects happen. Lastly, rigorous data collection has proved vital in informing debates and shaping solutions to the CBD's urban development needs.

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Sharing Data in the Digital City

Transforming Lives and Livelihoods Through Technology

MUMBAI, INDIA

Mumbai, located on the west coast, is the financial capital of India. With a population density three times that of Shanghai, the complexities of the metropolis are unique in many ways. While the mega-city contributes 33 percent of India's income tax collection, 60 percent of the country's customs duty and 40 percent of foreign trade; the challenges of intense urbanisation in recent decades have taken a toll on the services used by the 12.5 million people residing in the city.

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Project overview

The city's civic body, The Municipal Corporation of Greater Mumbai (MCGM) is India's largest local government body. It oversees the city's public health and hospitals, schools, the maintenance of parks and open spaces, sewage treatment and disposal, cemeteries, the registering of births and deaths, the removal of encroachments, and the registering of markets, shops and establishments. Actively involved in devising development plans and strategies to ensure Mumbai's status as the preferred city in India (for both residents and businesses), the MCGM has initiated a number of strategic, technology led transformation initiatives to accommodate the civic body's increasing workload. MCGM's technology initiatives aim to leverage the power of technology in providing significant and measurable benefits without adding to existing time, resource or budget constraints. Such technology initiatives include innovation in service delivery; improving quality of life and the optimisation of operations through automation, mapping and tracking.

Results and impact

The impact of the city's technology initiatives are wide reaching, with the following a brief indication of the project's success to date. Concerning *innovation in service delivery*, MCGM's services, once rendered through 50+ administrative offices spread across the city, are now delivered through neighbourhood general stores (1000+ delivery points) and an online portal; greatly reducing queue time and transactional costs for citizens. In order to create a thriving business environment and investor friendly ecosystem, MCGM has also created a 'Business Development Cell' to fast track approval process and ease regulatory concerns. With the objective of *improving quality of life*, the Slum Rehabilitation Authority has initiated an extensive Geographic Information System (GIS) based mapping of utilities, education institutions and primary health centres, creating development plans that directly address the needs of the vulnerable sections of society (60 percent of Mumbai's residents live in slums). The MCGM has also embarked on an initiative to implement a comprehensive health care system which has the potential to not only reduce patient wait times, but will enable data sharing across over 400 hospitals and primary care centres. Concerning Mumbai's goal of

optimising operations, MCGM was an early adopter of ERP solutions, with over 70,000 internal users (one of the largest user bodies in the world). Today, development planning for the entire city is performed through 50+ layers of utilities and reference points created over electronic maps. In addition to the optimisation of operations, the data gathered by transaction systems will be leveraged for performing predictive analytics and is likely to result in significantly reduced false benefits claims and prevent tax evasion.

Enablers

With the Indian economy growing at a steady pace, it was the drive to excel and compete with India's other emerging cities which led Mumbai, and MCGM in particular, to improve service delivery and quality of life in order to attract the best talent required to further fuel growth in the city. The drive to change emanated from the top of the organisation with significant contributions coming from employees in the shape of new ideas and the embracing of innovative technology. The technology transformation roadmap developed focuses on adoption of global best practice and leverages locally developed solutions; in many ways representing the culture and rhythm of a bustling and energetic Mumbai.

Regenerating and Greening the City

PlaNYC

NEW YORK, USA

New York City is the most populous city in the US, and is estimated to exceed 9 million people in population by the year 2030. The City of New York consists of five boroughs totalling just over 300 square miles of land, and has a significant impact on the financial, fashion, commerce, media, art, technology and education industries. It is also the world headquarters for the United Nations and has a strong international relations presence. The city has predominantly relied on inherited infrastructure and delayed much needed improvements for most of the second half of the 21st century.

Project overview

In 2007, 25 state agencies united and collectively launched the PlaNYC project to achieve a greater and greener New York City. PlaNYC aims to increase the supply/affordability of housing, ensure accessible green space to residents and tourists, increase air and waterway quality, divert solid waste from landfills, expand transportation choices/reliability, and progress environmental sustainability through decreased greenhouse gas emissions, reduction in energy consumption, and decontamination of the Brownfields. As part of the environmental sustainability initiatives, PlaNYC has enacted a green building legislation equivalent to making a city the size of Oakland carbon neutral, completed over 100 energy efficient retrofits to city-owned buildings, committed $1.5 billion for green infrastructure to aid clean waterways, and has executed regulations to phase out the use of dirty heating fuels. The city plans to continually assess opportunities to further reduce greenhouse gas emissions to reach a reduction of 80 percent by the year 2050. Many of the longer-term plans are still underway, but significant progress has been made.

Results and impact

PlaNYC has successfully launched 97 percent of the 127 initiatives finalized in 2007. Over 64,000 units of housing were created or preserved for New York City residents. In addition, 20+ transit-oriented re-zonings were implemented to provide accessibility to transit for the new housing developments. Over 250,000 more New Yorkers are within a 10 minute walk of a park, and under-utilised spaces have been re-conceptualised into green space. The city boasts drastic emissions reductions in the most frequently used vehicles: 30 percent of the taxi fleet has converted to 'green vehicles'; and launched its first bus rapid transit system. The city has planted over 800,000 of the planned one million trees, and has committed to expanding the Greenstreets program. The Greenstreets program transforms unused road space by planting trees which capture storm water and improve water quality.

Enablers

The city has defined measurable goals and performance metrics to remain accountable and transparent. This accountability has directly contributed to the success of PlaNYC, but another major factor that continues to drive the performance of the program is the involvement of New Yorkers. Supporters at every level are coming together to execute the initiatives. From community-based organisations to individuals, the success is dependent on the recurring involvement of residents. Even neighbours are banding together to create a plan to improve their own city block. Hundreds of groups of people with diverse backgrounds are coming together with one idea in common: they care enough to create change in their neighbourhoods — change that will result in a greener, greater place to call home.

Promoting Cluster Development

Emergence of New Economic Specialisations

PITTSBURGH, USA

Pittsburgh, home to 2.6 million inhabitants in its metropolitan area, is the quintessential former industrial city of the North-American 'Rust Belt'. Following many years of economic decline, a decreasing population and urban decay, the city has undergone a major revitalisation process. Although steel-related activities remain significant, the city has been nurturing new economic specialisations grounded on advanced engineering and medical technologies.

Project overview

In the past, Pittsburgh was a corporate headquarters centre for entities such as Gulf Oil, Westinghouse and Alcoa but most of these organisations left the city in the deindustrialisation period that followed the oil price hikes of the 1970s. Faced with labour unrest and increased imports of steel damaging the core of the Pittsburgh economy, decision makers in the city abandoned this past strength and focused on two relatively new sectors – computer science at Carnegie-Mellon University and medical technology and care at the University of Pittsburgh. A number of research projects emanating from both institutions set off a cycle of innovation, investment and expansion that has lasted over 30 years. Consequently, this refocusing of the economy has turned out to be a far sighted and successful vision. Moreover, an important initiative has been the development of retail and urban amenities in several local districts, designed to attract young and skilled workers. Finally, the city has undertaken a long process of moving from the environmental degradation of the steel years to creating a cleaner city, including a recent greening initiative.

Results and impact

Pittsburgh is a successful example of a city driving resurgence by breaking with the past to create a new economy. Despite its industrial legacy – which has been linked with difficulties in attracting and retaining knowledge workers – the city has managed to diversify its economy. Many university projects have been successful in contributing to the establishment of new waves of investment, including start-ups and spin-offs in the fields of robotics, computer science, information security and artificial intelligence. Similar advancements have been made in medical care and its associated technologies. A clear demonstration of the wider reaching impact of the city's new economic focus, Pittsburgh has shifted from 'Big Steel' to so-called 'Eds and Meds' (i.e. higher education and medical services), which are now estimated to account for a very large percentage of the region's high paying jobs. The cultural appeal of the city has also been steadily improving, seen with the establishment of a Cultural District based on Heinz Hall (home of the Pittsburgh symphony) and a number of theatres, galleries and restaurants. Although progress here has been impressive, access continues to be a challenge for city officials.

Enablers

Key to the city's economic strategy that has been implemented over the past four decades has been the high technology specialisation of the two principal universities, as noted above: Carnegie-Mellon is a world class center of computer science, whilst the University of Pittsburgh is a leader in health care and medical technology. Support from other public and private sector actors has been a key enabler, but the direction and energy of the city's two universities cannot be underestimated in turning around Pittsburgh's declining economy. Also enabling the city's successful resurgence has been a coherent and cohesive civic partnership lasting over at least the last century. Furthermore, having been the site of some of the principle actors in 19th century industrial development in the US, Pittsburgh is well endowed with art and history museums, galleries, universities and architecture that followed from their accumulation of wealth and their pride in the city. Currently the institutions that they established (the Heinz Endowments, and, among others, the Richard King Mellon, McCune, Hillman Buhl and Pittsburgh foundations) are migrating from narrow cultural support to initiatives that promote economic and community development, education and workforce development.

Enhancing Urban Security

Pacifying Police Units

Rio de Janiero, Brazil's most famous city, is the country's second largest metropolis. Once the nation's political, cultural and financial hub, the city entered a steep decline following the establishment of the new political capital in Brasilia in 1960. Faced with chronic underinvestment in infrastructure and housing, immigrants arriving to the city from the north-east of Brazil were forced to set up shacks on the hillside – known as favelas. High levels of unemployment, coupled with corruption and loose policing resulted in the take-over of many of these favela communities by drug-traffickers and gangs. The so called 'rotten part' of the police soon became corrupted and an array of rival fractions appeared. The violence of the favelas spread to other areas of the city, leading to alarming rates of crime and homicide across Rio de Janeiro.

Project overview

Introduced in 2009, the Pacifying Police Unit Programme (*Unidades de Policia Pacificadora*) has been hailed as transformational in reducing violence, cutting crime and increasing security in the city's *favelas*. Focused on reclaiming territories controlled by drug dealing gangs, the programme is run by the State government of Rio de Janeiro and forms the backbone of the city's Security Policy (2011–2014). Once pacification has been secured, UPP Social and other urban programmes are delivered by the Municipal Government, seeking to re-integrate residents of the *favelas* through the coordination of, and improved access to, public and private services.

Results and impact

Overall, the implementation of the Programme has had a remarkable effect on the city's *favelas*, with 75 percent of *favela* residents approving the UPPs in 2013. On crime, the units appear to have had a significant impact with reported murders in pacified *favelas* declining by 65 percent between 2008 and 2012 and significant reductions in robberies, car thefts and other crimes reported. Through enabling better access to public services, the programme has also had broader impacts including improving the standardisation of health care provision for *favela* residents. Improvements in school attendance and education have also been reported, with a 28 percent increase in matriculation seen across 15 schools located in UPP communities between 2011 and 2012. However, the programme remains controversial and there have been challenges around convincing many of the city's residents that the UPPs are here to stay

after the Olympics and World Cup events have been and gone. The government has ambitious plans for the further roll-out of the UPP but there is much work to do in extending the UPPs to the rest of the city's communities which are still under the control of drug or militia gangs. The programme has also raised deeper questions about how to achieve true economic and social integration within Rio, tackling some of the deeper inequalities that have existed between residents of the city for so long.

Enablers

Supporting the ambitious roll-out of the UPPs across Rio's *favelas*, a number of critical enablers can be identified. Firstly, the full political alignment of Municipal, State and Federal government in Rio helped to enable greater consensus for change while different parts of government demonstrated that they were able to work effectively together in implementing various parts of the strategy. Secondly, establishing early credibility and momentum of the programme was critical to ensuring its continuation, in comparison with so many earlier government policies that had fallen by the wayside. Here, the ordering of the pacification of the *favelas*, although controversial, was important in getting the media and middle-class on side. Thirdly, investment in capacity building, particularly in the re-training and support provided to UPP policeman was important. The UPP programme required a completely new concept of community policing to work and this required breaking down many hard barriers. Fourthly, the leadership and charisma of key individuals has been crucial in building the trust of various stakeholders who have remained skeptical about the programme at different times. Beltrame, the Security of public safety, had a reputation for fairness and getting things done and was able to get the public on side. At the operational level, the choice of leaders was used to motivate and engage UPP police officers at key periods while at the local level, officers such as Pricilla Arzevedo, were critical to brokering trust between community police and *favela* residents.

Promoting Cluster Development

RDM Campus

Rotterdam has more than 600,000 inhabitants and is the second largest city in The Netherlands. In addition to new growth sectors such as the medical and architecture clusters, the city's port and industrial complex is still a major growth engine of the city's, and even national, economy. Distinguished from other cities by its innovative, new clusters (e.g. cleantech) Rotterdam also faces challenges such as congestion and pollution stemming from the city's port, paired with socio-economic challenges such as a relatively large share of inhabitants with low incomes; a high unemployment rate and a mismatched labour market.

Project overview

Formerly a shipyard, the RDM Campus is a new technology and business space located in the city ports area of Rotterdam. Established with the aim of putting the 'golden triangle of business, education and research' into practice, renovated historical industrial buildings house a combination of start-ups, firms and educational and knowledge institutes. The project also deals with the re-integration of the campus with the village of Heijplaat (constructed 100 years ago for shipyard workers) which continues to face socioeconomic challenges after the closure of the shipyard by providing 'new blood' to an isolated area that is surrounded by industrial and port industries. The project is seen as a 'joint adventure' between major partners, the port authority, two educational institutes and a housing agency, given that they had no experience in integrated mixed-use area development. The project is part of the larger Stadshavens ('City Ports') Development Strategy, in which the Port Authority and City Government are jointly responsible for the long term transition of various port and industrial sites into new urban and port functions until 2040.

Results and impact

To date, the RDM Campus seems to be developing well and has contributed to Rotterdam's competitiveness. The first of the historical buildings have been transformed and now house educational institutes, an incubator centre and a number of firms that make use of the educational facilities and incubator centre Many of them focus on cleantech, one of the new key clusters of the city and port that covers the bio based and energy sectors; hydraulics and maritime engineering, including offshore, infrastructure and mobility; construction and integrated area development. The first educational programmes have also started and joint research pilots have been set up, but more structural cooperation between business and educational institutes will likely be a long term process, requiring a change in working attitude. Finally, the RDM Campus increases the critical mass of the village of Heijplaat and offers new facilities for the inhabitants, including a waterbus connection to the city centre, although further socio-economic integration between the village and the Campus still has a long way to go, also related with the delay of new housing construction in the village caused by financial problems of the housing agency.

Enablers

The successful development of the RDM Campus so far rests on a number of related factors. First, the new campus concept was introduced by visionary leaders of educational institutes who possessed both the skills and patience to create trust among the project partners. Secondly, the project benefits from the organisational and financial power of the owner of the area, the Port Authority, which employs a smart and flexible development approach in the area. By developing 'building-by-building' and 'plot-by-plot', based on the requirements of tenants with a long term contracts, it limits financial risks and creates opportunities to cross-fund general facilities and spaces for tenants with short term contracts (such as incubators). Thirdly, the target fields are 'not too narrow nor too broad', and are based on the history of the area and the profile of the city, but can also be slightly adapted to new opportunities and challenges. For instance, including the growing 'offshore' sector in the key fields of the campus has resulted in a large concentration of offshore firms on the RDM site, in addition to the successful incubator Ampelmann that was 'born and raised' at the former shipyard. The success of Ampelmann has been a major selling point in attracting new businesses to the site. Finally, the project has been supported and managed on various levels (decision making and operational), although organisational and financial changes of the major project partners could potentially bring new challenges in the further development process of the campus.

Adopting to Climate Change

Train-the-trainers for Building's Energy Efficiency

SHANGHAI, CHINA

Located in the delta of the Yangtze River, Shanghai is one of the largest and most dynamic cities in Asia. In 2010, it had 14 million registered residents and a floating population of about 9 million, with rapid economic growth and rising prosperity leading to sizeable migration from the rural hinterland. Over the last decade the building stock in Shanghai has tripled, with rapid urbanisation leading to the development of energy inefficient dwellings, prompting environmental concerns.

Project overview

The 'train-the-trainers' scheme is an adult training programme aimed at disseminating knowledge of how to improve energy efficiency in Shanghai's building stock through easy to implement energy saving techniques and technologies. The scheme focuses on creating economies of scale and diffusing knowledge to a large number of people in a short period of time. Instead of looking at expensive and iconic zero-emission buildings, the programme targets the improvement of the city's ordinary, fast-growing building stock – the units responsible for the lion's share of rising energy consumption and CO_2 emissions. By training professionals from the construction industry and policymakers alike, the scheme contributes to realistically improving the levels of energy efficiency. Launched in 2009, the initiative was partly funded by an EU donor scheme (Switch-Asia) and led by the European Union Chamber of Commerce in Shanghai in close partnership with Tongji University and the Swedish Environmental Research Institute.

Results and impact

The programme has trained more than 1200 professionals to date, from SMEs (covering the whole construction value chain), and policymakers across the large Shanghai region with five different tailor-made Sino-European training modules. Modules combine theory and applications with hands-on practices, a rare feature of Chinese training systems. The scheme has contributed to the setting of higher industry benchmarks and improved the reputation of the companies operating under the scheme. By discussing results in panels, sharing position papers (three annual papers) and publishing research results (for example, materials, policies, standards, etc), policymaking has also influenced the adoption of new construction standards in Shanghai. The scheme is currently being expanded towards a permanent training structure based in Tongji University.

Enablers

The scheme has benefited from close communication between partners and well distributed responsibilities. Four other implementation dimensions stand out. Firstly, a key success factor was the combination of traditional, theoretical knowledge with hands-on practical training, improving the chances that participants gained a proper understanding of the training ('theory-practice sandwich'). Secondly, the scheme illustrates a new nexus of capacity-building schemes within financial aid programmes. Deployed in cities and followed up locally, the scheme strengthened the skills and competence of the individuals that make many small changes every day, contrasting with heavy donor and international investment schemes. Thirdly, the programme benefited from true contextualisation of European policy and the practice of sustainability and green building in China and Shanghai. Beyond training, the scheme involved locally applied research to that effect. Lastly, the involvement of Tongji University was pivotal as a multiplier and a driving force for change. The scheme illustrates the potential of involving universities and research institutes for urban development programmes in large cities, particularly in emerging economies. Besides the knowledge dimension, institutions act as respected players with the capacity to influence policymaking. This was instrumental in designing new regulations of building energy efficiency, which could not be influenced by foreign or western organisations alone.

Promoting Cluster Development

Water Management: Turning Vulnerability into Opportunity

SINGAPORE, SINGAPORE

Water (or the lack thereof) has been a critical issue for Singapore since gaining independence in 1965, with the city-state determined to become truly self-sustainable in this area. However, the unique aspect of Singapore's water management journey has not been its success in nearly reaching complete self-sustainability, but that it has managed to convert this area of vulnerability into opportunity.

Project overview

Singapore's water management strategy must be seen as part of a wider vision to secure the city-state's sustainable competitiveness. Its 'Four National Taps' long-term water supply strategy, coupled with its 'Active, Beautiful, Clean Waters' (ABC Waters) programme, aim to integrate water bodies with the surrounding environment in a holistic way. Focusing beyond enhancing Singapore's water security, these initiatives also play an important role in the nation's economic trajectory and global positioning. While extracting economic value is not an explicitly stated goal of Singapore's water management strategy, the city-state aims to grow the value-added contribution from its water sector from S$0.5 billion in 2003 (0.3 percent of GDP) to S$1.7 billion (0.6 percent of GDP) by 2015, and has invested heavily in R&D and technology as a result.

Results and impact

Singapore's success in strengthening its water supply through comprehensive policies and new water technologies such as water reclamation (NEWater) and desalination to boost its water supply, has gained international recognition, evidenced by PUB (Singapore's National Water Agency) winning the Stockholm Industry Water Award in 2007. Accordingly, the country is increasingly seen as a model of sustainable water management, which has in turn facilitated its positioning as a 'Global Hydrohub' for water technologies. Today, the city-state is home to approximately 130 local and international water companies and 26 research institutes operating in a vibrant ecosystem. Many of these Singapore-based water companies have successfully exported water expertise to key overseas markets such as China and the Middle East, and have secured more than 100 international projects worth more than $10 billion between 2006 and 2010.

Enablers

There are a number of critical factors that have led to Singapore's successful water management strategy as well as leveraging economic value for the nation. Firstly, Singapore's holistic approach to water management has been pragmatic (a matter of survival) but has also focused on using its success to create economic value for the city-state, allowing the city to position itself as a global player in the water industry. Secondly, long-sighted integrated planning and strong coordination between government agencies have made the Four National Taps and ABC Waters programmes possible. This has been consistently linked to a strong common vision and ownership of the role and importance of water to the nation. Thirdly, the government effectively paved the way for innovation through new water technologies (e.g. NEWater) by bearing the initial demand and technological risks, and subsequently easing the transition to privatisation through sharing knowledge and expertise with the private sector. Lastly, by 'putting their money where their mouth is', the government sent strong signals of support for the water sector through significant investment in R&D and technology, demonstrating strong political will to 'make it happen'. Accordingly, city mayors around the world can learn from the city-state's strong and courageous leadership and long-term perspective and from city official's foresight in facilitating, and even driving, the development of unconventional and new technologies in emerging industries.

Sharing Data in the Digital City

Vancouver Digital Strategy

VANCOUVER, CANADA

Vancouver is a coastal seaport city in Western Canada, home to over 600,000 people with roughly 2.4 million inhabitants in the Greater Vancouver area. The city is one of the most dense and ethnically diverse cities in Canada and North America. To maintain its sustainable competitiveness and continue to attract residents and businesses alike, the city envisions enhancing the multidirectional digital connections amongst citizens, employees, businesses and government, providing all urban stakeholders with efficient service delivery.

Project overview

Vancouver has a strengthening reputation as a technology hub, home to an emerging technology sector that places the city in strong position to effectively deliver an innovative digital agenda. The city's Digital Strategy framework aims to unify current city initiatives, support citizen and business engagement and access, promote the expanded use of open data, and transition towards e-Government technologies and infrastructure to drive forward Vancouver's economic and social development. The Digital Strategy rests on four pillars, focusing on initiatives including; a digital road map for city service delivery and citizen engagement, digital infrastructure, economic development in emerging technology and digital sectors, and efforts to drive the city as a digital organization. The city took a collaborative approach to developing the strategy-through the co-sponsorship of the initiative by the Vancouver Public Library and the Vancouver Economic Commission, ensuring the strategy reflects the city's goals related to social and economic responsibility.

Results and impact

One year after the approval of the Digital Strategy by City Council, a Chief Digital Officer (CDO) is in place, mandated to execute the strategy in collaboration with city business units and external partners. As a unifying framework, the strategy and its initiatives have brought decisions regarding the delivery of the city's digital services to a central table, issues including single sign-on and the selection of a mobile-platform for services requests (311). Access to digital infrastructure, including free public Wi-Fi in civic spaces was, and continues to be a controversial facet of the Digital Strategy. The city has completed a pilot programme to deliver public Wi-Fi in key shopping districts, with outdoor spaces next on the agenda, although the city has not made headway on this action from the road map to date. During the development of the Digital Strategy, the city assessed its current level of digital maturity, and as the city executes and evolves its digital roadmap and raises the city's level of digital capabilities; cities across Canada are increasingly looking to learn the Vancouver example.

Enablers

As a starting point for Digital Strategy, Vancouver looked to other leading cities in the digital landscape, (including cities such as Chicago, Manchester and New York) to learn from their digital capabilities, enabling the city's formulation of its own digital roadmap. The city, like many other municipalities across Canada, looks to partnerships to deliver digital infrastructure in public spaces, a key enabler in executing a project of this nature. As an example the city is looking to the digital sector for a partner for the incubator programme. Planners developed the Digital Strategy in collaboration with City Council, executives and staff, industry leaders, and citizens and businesses, drawing on the expertise and experience of a wide range of stakeholders. These stakeholders also include other levels of government, especially with regards to access to broadband for instance. The management the initiative from the City Council side has also been enhanced by the appointment of a CDO from the private sector, helping to drive the professionalism and consistency of the programme in the longer-term.

Adapting to Climate Change

MOSE and Arsenale Projects

VENICE, ITALY

Venice is a unique city, built entirely on water, with its famous lagoon the foundation of the city's key tourism and port activities. Although the city continues to perform well in economic terms, it faces significant challenges as it looks to diversify its economy whilst reducing increasing tension between mass tourism and the local population. Environmental degradation also remains a concern, exacerbated by rising sea levels that continue to require large-scale intervention to protect the city.

Project overview

Venice's Water Authority's (part of the Italian Ministry for Infrastructure and Transport) 'General Plan of Intervention' focuses on activities aimed at safeguarding the city and its lagoon against flooding and includes a number of innovative and ambitious initiatives. The MOSE project is an innovative sea defence system that has been designed to close the lagoon via mobile gates in the three inlets that provide access to the Adriatic Sea. Another project, Arsenale, is a navy complex and former shipyard in the Eastern part of the city (dating back to the 12th century) that has been converted to house new urban functions, including offices, cultural spaces and research facilities whilst serving as the control and maintenance location for the MOSE project. Both projects highlight the challenges faced by Venice in balancing its competitive sustainable development whilst protecting its cultural heritage and famed lagoon.

Results and impact

Despite continuous debate between various stakeholders concerning issues such as costs, bureaucracy, conflicts of interest, and doubts whether the MOSE system is the right solution to protect the city and the lagoon; the General Plan of Intervention shows positive effects that increases Venice's competitiveness, including diversification and upgrading of the economy (e.g. maritime engineering/water management and business tourism as a new growth sectors); new international networks and image improvement. The MOSE system also has the potential to become a major demonstration project that helps to further develop business tourism and support education and business in new fields. The Arsenale project has also been applauded as a key asset, bringing new functions in the historical centre. It already has many new users in the fields of culture and maritime technology and water management, including production as well as R&D functions. Finally, the 'General Plan of Intervention' has stimulated a 'discussion platform' (or 'arena of conflict'), bringing economic, environmental and societal stakeholders together, stimulating new forms of governance across initiatives such as in the Arsenale and the UNESCO Management Plan.

Enablers

The flood of 1966 and rising sea levels prompted the sense of urgency that stimulated the implementation plan and required financial resources to make the 'General Plan of Intervention' happen. Given the importance attached to flooding concerns, the MOSE project has been fully funded, even during the recent economic crisis, with financial resources a key enabling factor for the plan. The Arsenale project (due to it's integration in the General Plan of Intervention and Strategic Plan of the city) has been funded by the State, the City and other sources, demonstrating cross government commitment to the project. The City has been the key driving force behind the project, functioning as the initiator, key planner and coordinator of the project, aside from providing funding. The city's strong role was undoubtedly enabled by a new governance structure facilitated by a law that enabled citizens to directly elect a mayor and give more power to the City Government. Under the first elected Mayor, Massimo Cacciari, many projects were initiated during his five year regime.

Promoting Cluster Development

Kasongan Pottery Cluster

YOGYAKARTA, INDONESIA

Yogyakarta is the capital city of the Yogyakarta special region on the Indonesian island of Java. Indonesia's second most popular tourist destination after Bali, the city has registered relatively inclusive and sustainable economic growth; with the creative industries, tourism, education and light industries forming Yogyakarta's major economic sectors.

Project overview

The Department of Industry, Trade and Cooperation, a regional government body in Yogyakarta, has integrated a bottom-up local government cluster programme with a top-down State programme in order to strengthen competitiveness of the Kasongan pottery cluster. As such, it is rather different from the development of other clusters in Indonesia which are mainly developed by a top-down approach. The programmes focus on the development of an information centre; training of pottery makers (including design; marketing and use of IT); access to exhibitions; technology transfer (e.g. new heating systems) and new production techniques; infrastructural works and funding.

Results and impact

To date, the programmes have contributed to the competitiveness of firms across the pottery cluster. Significantly, the institutional structure supporting the cluster has improved considerably; with enhanced networks and trust between the business association; firms; various government layers and the information centre. Enhanced institutional arrangements have proved a major exception in the Indonesian context, overcoming the widespread challenges of bureaucracy and corruption to become one of the most competitive clusters in the country. The programmes have also contributed to skill development and networking opportunities of local firms, introducing potters to new products and production technologies. Although there is still progress to be made in the development of a sustainable competitive cluster, the collaborative reconstruction of the Kasongan and its firms after the Java earthquake in 2006, has created trust in a country where public-private partnership has often been characterised by corruption, collusion and nepotism.

Enablers

The successful development of the Kasongan cluster rests on four key factors. Firstly, a crucial enabler of the programme has been the steadfast vision of Yogyakarta, framing itself as a city of education, culture and tourism. Secondly, the formal leadership of the Department of Industry, Trade and Cooperation has firmly integrated and managed the local cluster programme alongside the national One Village, One Product programme, allowing for the integration and collaboration services under one roof. A third enabler has been the informal leadership of the largest exporter of the cluster. The company's founder has played a major role in contributing to, and implementing, cluster policies; and can be regarded as a bridge between cluster firms and public institutes, universities and international markets. Lastly, the success of the cluster can also be linked to exporters and international buyers who have given local firms access to global value chains, contributing to the transfer of knowledge and best practices. All of the above however, would not be possible without the enhanced levels of trust that have been established between the public and private sector as the cluster seeks to sustain competitive future growth.

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