
CONNECTED CITIES: YOUR 256 BILLION EURO DIVIDEND

**HOW INNOVATION IN SERVICES AND MOBILITY
CONTRIBUTES TO THE SUSTAINABILITY OF OUR CITIES**

A HANDBOOK

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YOUR EUR 256 BILLION DIVIDEND

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ACKNOWLEDGEMENTS

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PREFACE

The imperative of innovation

The battleground of international competitiveness in the 21st century is innovation and cities are increasingly viewed as the hubs of innovation, connected one to another and enriching not only their surrounding regions, but their nations. More than half the world's population is now urbanised, with existing cities growing rapidly and entire new cities being constructed to meet the needs of this growing urban population. They are being transformed not only by population growth but also by the transformation towards a knowledge based, service led, and globally networked economy.

The City: A System of Systems

The paradigm shift that began towards the end of the 20th century is on a similar scale to that of the industrial revolution which created the great conurbations of the 19th century. From the City of London to Chennai, Shoreditch to Shanghai, cities are growing, transforming and repositioning themselves as players on a global stage. Cities must respond the demands of the knowledge based economy, while facing the societal and environmental challenges that threaten their own long term sustainability. A sustainable city for the 21st century must not only embrace environmental challenges, it must also address systemic economic and societal issues. An eco-city without entrepreneurship will not maintain its economic vitality, while one that fails to engage all of society as stakeholders in its transformation, will face the consequences of social exclusion. The eco-system for sustainability involves entrepreneurship as much as environmental engineering, the development of social capital as much as the delivery of public services. And a Well Connected City is one where its citizens feel connected at a societal, political and economic

level to their communities, the city's institutions, its firms, and the city itself is connected to other cities. This demands a transformation not only in the nature and quality of public programmes and services that meet all of its citizens' needs, but also a transformation in the urban and technological infrastructure that enables that connectivity.

Once, cities developed at the intersections of trade routes or where geography favoured production and distribution of physical goods, and these advantages were reinforced through economies of scale, and the development of sophisticated communications infrastructure, especially road, rail and air links. But in today's economy, where digital communication networks can sometimes seem more important than rail and road networks, cities have emerged as the command and control centres of international business, and the digital infrastructure they provide is a major influence on their capacity to attract investment and international companies, as well as provide an attractive environment to do business. Mobility is a key attribute of the knowledge based economy. We are mobile, untethered from a fixed workplace, accessing information on the move, making connections that are at once physical, intellectual, and interpersonal, both at work and at play. We deliver services to others and expect to be served anywhere, anytime. And a city, to be competitive, needs to host the infrastructure that enables this mobility as well as deliver its own services in this context – services that promote societal, environmental and economic sustainability.

This handbook explains how cities large and small are exploiting digital technologies to deliver innovative services and enable mobility. The individual case studies show that, through collaboration and knowledge, exchange cities could generate not only a 256 billion euro dividend but also a priceless dividend in terms of sustainability.

A Partnership for Innovation

Living Labs Global have partnered with Design London and the Ecocit Project at Imperial College London to bring you this handbook and share best practice between cities, service providers, strategists and practitioners. Design London is a new centre for interdisciplinary innovation, created by the Royal College of Art and Imperial College in response to the UK Treasury's Cox Review: Creativity in Business. It stirs together technological innovation, creative design and business expertise from its two parent organisations and pioneers new models for design led innovation that contribute at a societal and environmental level. The Ecocit Project is a collaboration between industry and academia, led by Imperial College London, and funded by the EPSRC. Its interdisciplinary research agenda addresses the design of sustainable cities, bringing together environmental engineers, urban designers, economists and social scientists in the quest for knowledge that can inform the development of urban systems for the 21st century.

Nick Leon

Director, Design London

CHAPTER 1 INTRODUCTION

TIME FOR A BREAK THROUGH

MOBILITY, MOBILE TECHNOLOGY AND SERVICE INNOVATION

When Dirk Tangemann, a strategist at a major bank, found himself stuck in traffic again on his way to work, it occurred to him all the cars around him, including his own, had only one passenger. Not only did this make no financial sense, it also caused the traffic jam he found himself in every morning, at a cost of 300 hours per year of his life. And this is where he had the idea to help people share cars – not by setting up a cumbersome web-portal, but a peer-to-peer mobile service with car-sharers earning money by sharing. Three years later in 2009, together with his team, he showcased his first iCarYou prototype at the Living Labs Global Summit in Hamburg, with a launch plan and 94% customer approval (according to market research) in his pocket.

What happens next? If past experience is anything to go by, **an advanced mobility solution like iCarYou will most likely get piloted in a city, and then never reach a major market** beyond its initial deployment. Yet, some would argue that times are different now. For one, users have a different awareness and more intuitive devices to work with. But more importantly, iCarYou has a business model that not only works for iCarYou, but all other actors in its network to deliver the solution. Users save and even earn money, cities reduce carbon emissions, operators bill for data-usage, and iCarYou manages the transactions against a small fee. In short, iCarYou was invented as a business and service proposition, rather than a technology.

What is Mobility? A paradigm shift.

When, in October 2001, NTT DoCoMo launched the first commercial 3G mobile network,¹ citizens around the world were promised a mobile broadband revolution. Prototype devices did not

just offer mobile internet, but promised to change our lives. According to experts, 3G roll out has cost the equivalent of 60 Channel tunnels (or EUR 300bn) this decade alone², making it the single biggest investment in technology by mankind.

Today, we look back to the question “Have mobile services changed our lives?” and the answer is no, by most measures. A traveller arriving at Paris airport today is still more likely to be greeted by an SMS welcoming him to Orange, than lured into the city’s many facets. The elderly are still more likely to be kept in a care home than receive remote assistance in the home of their choice, despite savings of EUR 10.000 a year per patient. Whilst mobile phones succeeded in delivering voice and SMS, mobility, (the delivery of mass-customized digital services in communities), has proven to be an elusive challenge.

In our definition mobility is not the latest ring-tone or twitter client. Mobility solutions are value added services, or solutions, that cannot be delivered by any individual provider. Mobility represents a paradigm shift, in which the user holds the power of choice and determines the value of any given service to their needs. In short, **mobility solutions are measured by their impact on daily life or business in our communities.**

Mobility: the service innovation challenge.

Service innovation is an emerging practice, and is widely accepted today as a high-technology and scientific field as well as a rapid-growth industry. Nothing embodies the opportunities and challenges in this field as strongly as the concept of mobility, where users are moving targets in changing environments. Mobility solutions add high value if they can meet the ever changing conditions of users, emancipated by high penetration rates of handsets and other devices. Such solutions tend to rely on a group of actors in a value-network that is able to adapt services to changing contexts, rather than the static value-chains and traditionally simplistic business models

¹ UMTS World

² TomiAhonen Consulting 2009, based on UMTS Forum, ITU and GSM Association numbers

of the telecommunications industry.

“WHERE ARE THE MOBILE SERVICES THAT CAN/COULD CHANGE OUR DAILY LIVES?” VERIFIED DEMAND WILL FOCUS OUR ATTENTION AND SECURE INVESTMENTS

Service innovation implies that new ideas reach a market. As this handbook will show, the market is no longer a geographic spread, but a network of city-regions able to adopt innovative services. Most crucially, the past decade has shown that traditional forms of market research have served little to assure success for entrepreneurs and investors in mobility. Instead, external conditions (such as regulatory, operator, administration, user and infrastructural perspectives) were often left disregarded rather than managed as an integral resource to achieve a common goal.

Clearly proven demand may therefore be the most important catalyst for partnerships, alliances and other types of value-networks. Demand focuses attention and secures investments. However, demand also needs to be scalable across communities, as individual cities cannot offer a market for technologies big/deep enough to justify major investments in innovations. Hence, it is not only the providers that need to open-up and collaborate, but it is the customers and regulators also – to make it all worth-while.

A handbook based on experience and frustration.

Scalability, or better the absence of it, is the dirty little secret of the market for mobility. Markets for services are neither open nor transparent, usually suffering from national regulation, protectionism and lack of transparency. The market for digital services in cities suffers in much the same way, only here it is not national markets but municipal borders where services are continually re-invented. Innovators do not reap the benefits: roaming-free tourism services have not been exported from Stockholm; nor have mobile parking solutions found open markets outside Estonia.

This handbook tells the story of immense opportunity, markets valued at billions of Euros annually, customers demanding more services, and an absence of dominant players. Living Labs Global have several business and public leaders at the forefront to share their experiences, their insights, the evolution of their technologies and business models over time. The learning provided by these experiences is rationalised into a set of guiding principles and methodologies for practitioners of in service innovation in cities.

Collectively, this handbook represents the work of Living Labs Global, a non-profit association of companies, research institutes and cities with a common mission to provide a better environment for service innovation in metropolitan areas. Living Labs Global seeks to create a market for mobility, in which service innovations meet clearly articulated demand.

A time for break-throughs.

Since 2001, after more than 8 years, the mobility industry may have reached a turning point. Convergence of technologies, accessibility and penetration of devices, combined with consolidation in the less complex segments of the market have created a favourable constellation for a break-through. The wider adoption of mobility solutions still hinges on our ability to better align visions, measures and methods across many sectors. However, new actors are now entering the market, replacing earlier generations of telecommunications experts and engineers with a broader range of backgrounds, service and business concepts.

Ice-breakers are needed to show the viability and value of mobility solutions, and prove that solutions can be scaled across regions. But unlike Mobile 2.0 or other high-growth technology fields, the markets for service innovation in cities is more challenging. Too many actors are involved to replicate solutions across communities, and parts of the value-network have to be recreated each time. Yet - the skill of managing a network of actors and bringing a solution to the customer may emerge as the core competence in a market that has been neglected due to its complexity.

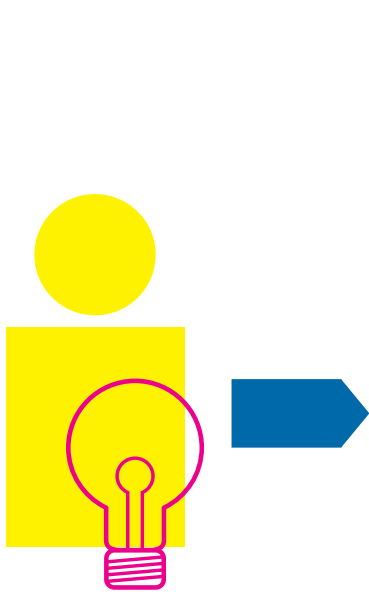


**WELCOME TO THE MARKET
FOR MOBILITY.**

ENTERING THE MARKET FOR MOBILITY

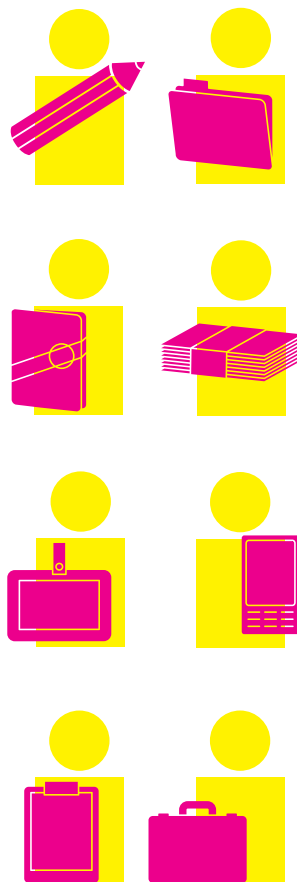
THE CONCEPT

Your idea for innovation
in mobility.



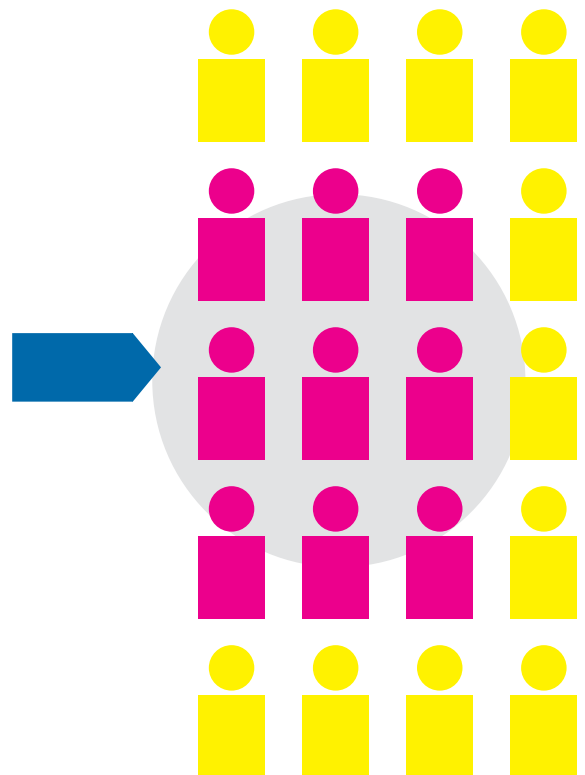
MOTIVATING THE ACTORS

Key people you need on board
to move forward.



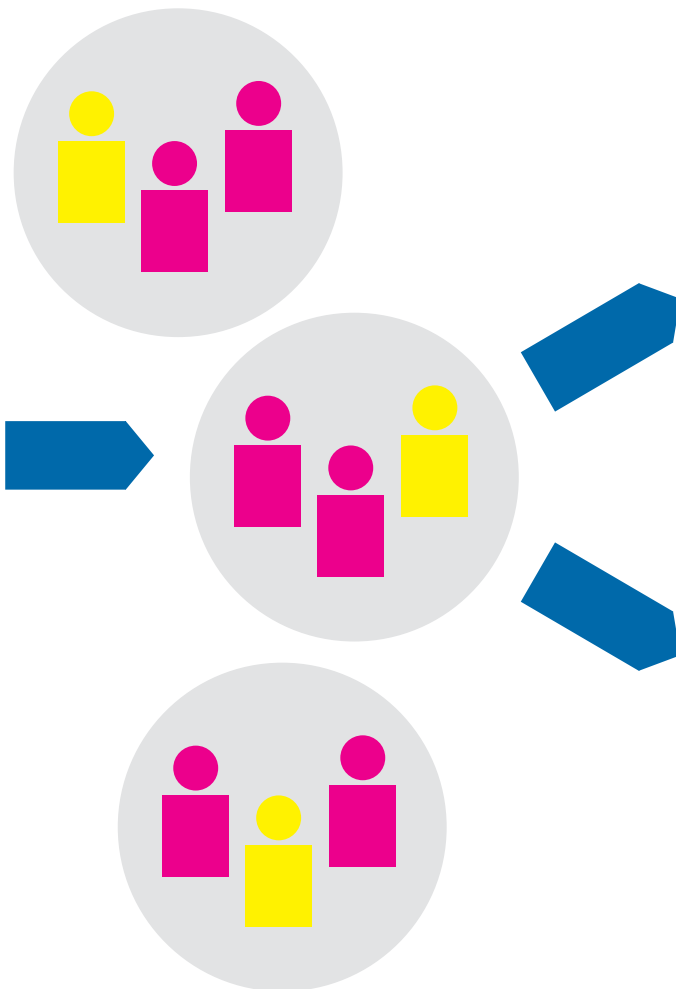
THE PILOT

Testing the impact of your
solution in one area.



EARLY MARKET

Deploy your tested idea in markets that are open and share your goals.



ROLL-OUT

International roll-out into other markets – but adapting to each.

