NEW APPROACHES TO SME

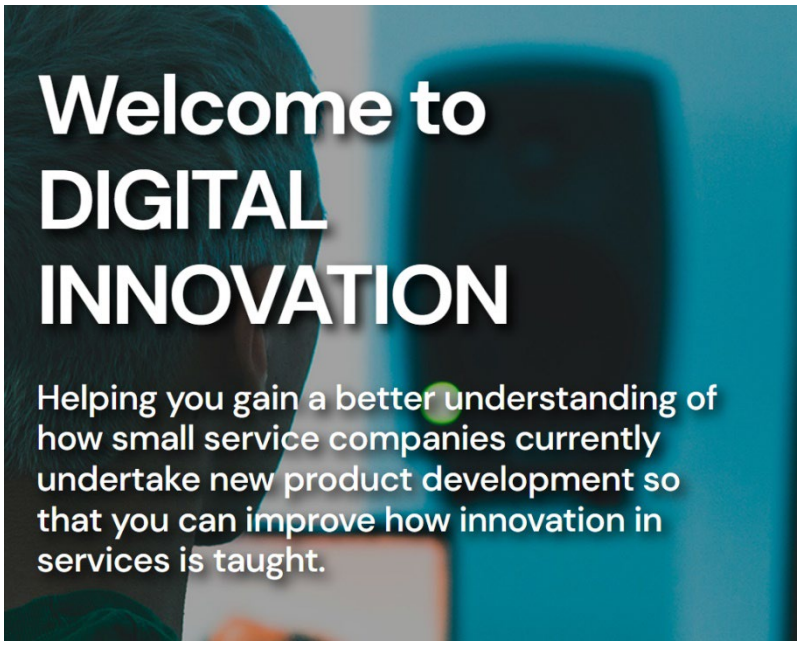
INNOVATING DIGITALLY

SERVICE INNOVATION EDUCATION

Digital Innovation

Problem Based Learning
Open Educational Resources

Co-funded by the
Erasmus+ Programme
of the European Union



Partnership

Amsterdam University of Applied Sciences

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Uniwersytet Szczeciński

eucen

European E-Learning Institute

momentum [educate + innovate]

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Section 1

INTRODUCTION

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Introduction

In the light of new trends such as **digitalization** and **servitization**, staying competitive proves to be a difficult task for many companies. Due to the challenges arising from changes in technology and customer behavior, **companies are asked to constantly innovate** (D'Emidio, Dorton, & Duncan, 2015). In this regard, servitization or service innovation has appeared as a successful way for many companies to overcome the dead-end road of competition (Bouwman & Fielt, Service Innovation and Business Models, 2008). As companies focus more and more on developing services, service innovation has started to gain increasing attention also in research causing the traditional product innovation view to shift towards **a multidimensional service innovation view** (see e.g., Carlborg, Kindström, & Kowalkowski, 2014; Biemans, Griffin, & Moenaert, 2015).

However, the development and designing of new services is **still little researched** and not a lot is known about the process (Bouwman, De Vos, & Haaker, 2008). The knowledge and understanding about how **digital technologies** are being strategically used during the process of service innovation is even more limited (Akaka & Vargo, 2014).

9 months

30 mapped digital tools

25 innovation processes analyzed

26 expert interviews and surveys

The goal is to (1) shine light on the service innovation process and (2) to focus on how and which digital tools can facilitate the innovation process.

CASE EXPLORATION

Smart City Strategy: Amsterdam

HARVARD | BUSINESS | SCHOOL

9-518-092

MARCH 14, 2018

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ALEXANDRA HOUGHTALIN

Smart City Strategy: Amsterdam, Barcelona, and Atlanta

The Smart City Concept

In 2005, the Clinton Foundation challenged Cisco, a leading global technology company, to put its technology to civic use, sparking the modern "smart city" movement. In 2008, the Great Recession prompted wider interest in smart cities as technology companies looked to government stimulus spending to replace corporate revenues lost in the downturn. By the late 2000s, a number of pioneering smart city initiatives had been developed, including in Barcelona and Amsterdam.[10]

Despite its growing popularity, there was no widely accepted definition of what constituted a "smart city." Available definitions focused on the application of digital technologies to improve quality of life, urban services, economic growth, and citizen engagement, while reducing costs, resource use, and environmental degradation. While innovative use of technology was a foundation of smart cities, initiatives also required investments in human capital and promoting behavioral changes.[11]

City governments around the world felt pressure to implement smart city initiatives due to a variety of global realities. The global population had reached nearly 7.6 billion by mid-2017, and was expected to add one billion people by 2030. People around the world were increasingly located in urban areas, characterized by high population density and a concentration of built infrastructure. By 2016, an estimated 55% of the world's population lived in urban areas, which would reach 60% by 2030.[12]

As urban populations rose, cities were disproportionate contributors to major global problems such as environmental sustainability and poor health, and inequality. Cities accounted for approximately 75% of the world's energy use and over 70% of carbon dioxide emissions. Around 1 billion people globally lived in urban slums with inadequate access to sanitation, clean water, and health care. In developed countries, urban areas saw a higher occurrence of chronic diseases such as obesity, diabetes, and poor mental health, due to factors like difficulty accessing healthy food or space to exercise.[13] Every city also faced challenges that were unique to its economic, political, geographic, demographic, cultural, or other contexts. For example, natural disasters was a high risk for over 55% of large cities.[14]

While urbanization presented many challenges, cities were also hubs of social and economic activity and hotbeds for innovation, due to the close proximity of many diverse people, firms, universities, and other institutions. Large cities alone made up 55% of all economic output.[15]

By 2016, the count of smart city initiatives worldwide varied widely, but was likely in the low hundreds.[16] The smart city concept had been particularly embraced in Europe, where the European Union had funded smart city efforts and established an organization in 2013 to develop a blueprint for replicating proven smart city strategies. In the U.S., a federal Smart Cities Initiative was launched in 2015 that promised hundreds of millions of dollars in funding.

In Asia, high growth supported the development of a number of "greenfield" smart cities that were built from the ground up. The most prominent example was Songdo, South Korea, a $35 billion public-private partnership to build a new city on reclaimed marshland about an hour outside of Seoul, near the existing international airport. The city was designed to eliminate the need for cars, prioritizing mass transit. All buildings were connected to a central operating system and could be controlled remotely. A pneumatic tube system collected trash, eliminating trash trucks. Songdo produced a third less greenhouse gasses compared to another city of its size. By 2017, there were 100,000 residents living in Songdo and 70,000 commuters, far fewer people than the city was built to accommodate.[17]

While actual results of smart city initiatives remained to be seen, a number of reports had predicted major impacts. Juniper Research estimated that smart city efforts would result in energy savings of $17 billion per year by 2019, and McKinsey Global Institute estimated that cities could save up to $1.7 trillion per year by deploying digital systems on a large scale. Meanwhile, technology companies such as Cisco and IBM were projected to generate a cumulative $175 billion in smart city revenues by 2023.[18]

Amsterdam Smart City

The City of Amsterdam

Amsterdam was the capital and principal economic center of the Netherlands. With nearly 840,000 citizens residing in its 85 square miles, Amsterdam was the country's most populous city and one of the most diverse cities in Europe. Amsterdam was connected to the North Sea by the Amstel River that ran through it. Much of the city resided below sea level, and an elaborate network of canals and over 1,200 bridges divided the inner city.[19] Due to its low elevation, flooding was an ever-present threat. However, the Netherlands had developed the most advanced flood protection system in the world.

City planning since the 1960s had focused on reducing automobile use. Public transportation consisted of a metro, tram, bus, and ferry system. Amsterdam was known for its biking culture, with about 500 kilometers of bike paths and roughly one-third of journeys made by bicycle. Meanwhile, about 30% of cars in Amsterdam were used less than once a week. The government discouraged transportation by car through measures such as steep parking fees.

Car Sharing Main Figures in the Netherlands and Amsterdam

1. In the Netherlands, for car sharers, an average reduction of 1,600 car kilometres per year was found, compared to before they started sharing. This resulted in a reduction of 250 kilograms of CO2 (PBI, 2015).

	Kg CO_2 per year
Change in car kilometres	-250
Change in mode of transport	160
Change in car ownership	-85 to -175
Total	**-175 to -265**

Table 1 Change in annual CO2 emissions due to changed car ownership and car use

2. The number of shared cars is increasing mainly due to growing attention for the environment and the fight against congestion on the roads.
3. Cars are stationary about 90 percent of the time.
4. Owning your own car is expensive. An average Dutch family pays between €3,500 and €7,500 annually (depending on size) for a car (inspection, maintenance, fuel, etc.).
5. There are currently 369 shared cars per 100,000 inhabitants in the Netherlands.
6. In 2020, the Netherlands had 730,000 people making use of shared cars, according to CROW. That is a 42% increase compared to 2019 — when there were still 515,000 users.
7. The municipality of Amsterdam leads with more than 11 thousand shared cars.
8. From 2030, petrol and diesel cars will no longer be allowed to enter Amsterdam. That's the major takeaway of the 'Actieplan Schone Lucht' (Clean Air Action Plan).

SnappCar Figures

1. SnappCar had the most listed cars available for shared car mobility in Amsterdam in 2018. It had around 5,500 cars on offer, which was a lot more than the runner-up, Greenwheels. What seperates SnappCar from the other platforms on this list is that SnappCar offers P2P car sharing, meaning that users rent and drive privately owned cars from other users.
2. Since the start of SnappCar, 67,244 fewer parking spaces are needed. (01-08-2020)
3. SnappCar has 822.235 users! (01-08-2020)
4. SnappCar earns money in two ways: by charging transaction costs (€5.00 per transaction) and a 17.5% commission on the rental amount.
5. Most SnappCar users are in the so-called Generation Y (born after 1980). Generation Y sees the car as a resource. Baby boomers are a bit more skeptical about it and Generation X needs a little more time to get used to the idea.
6. Renting via SnappCar is 30-50% cheaper than renting via a regular car rental company or other car sharing systems.
7. The difference between opting for a shared car and renting from a car rental company is that users do not have to go to the rental company itself, but that there is (almost) always a car near them.

Mobility Information

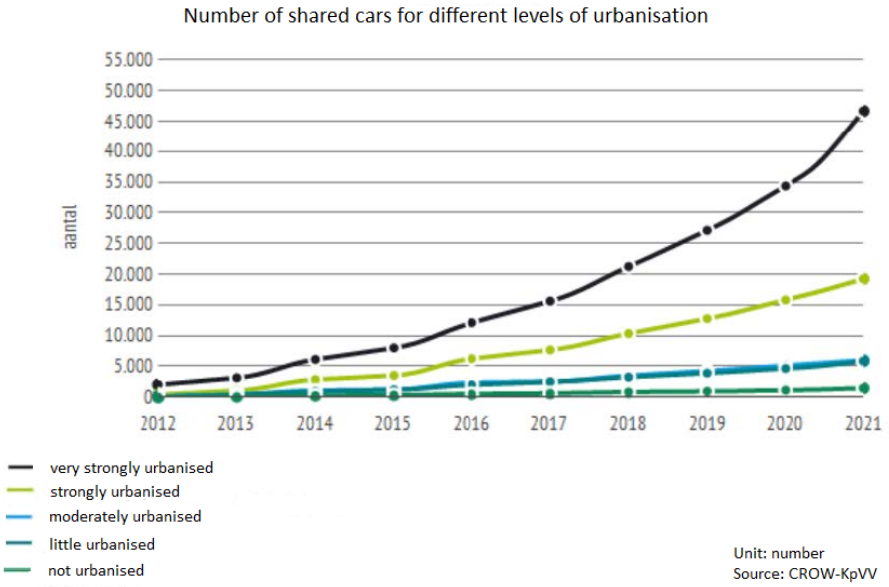

Figure 1 - Car sharing offer according per different urban levels in the Netherlands
The graphs show that the supply is greatest in highly urbanized municipalities. The strongest growth is taking place in the four major cities.

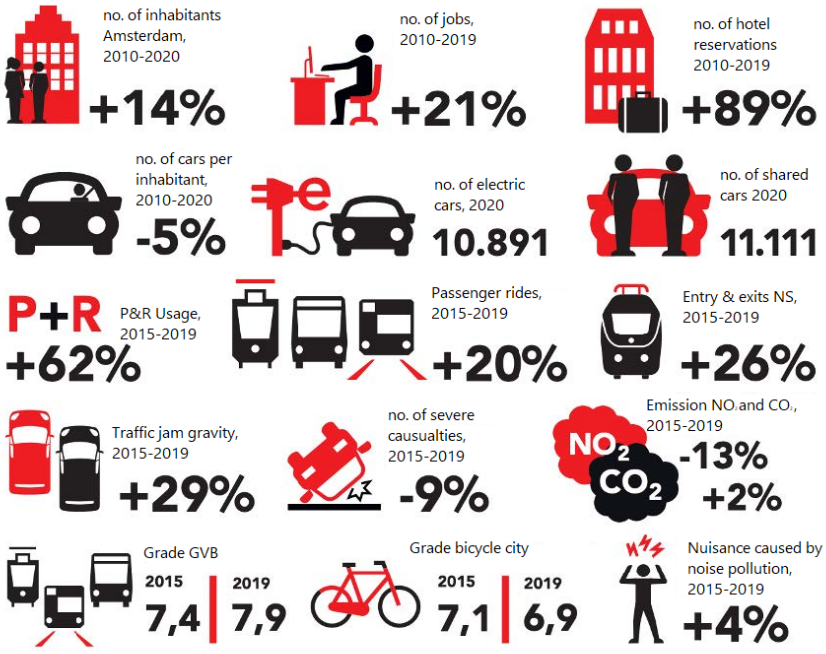

Figure 2 - Mobility numbers in Amsterdam

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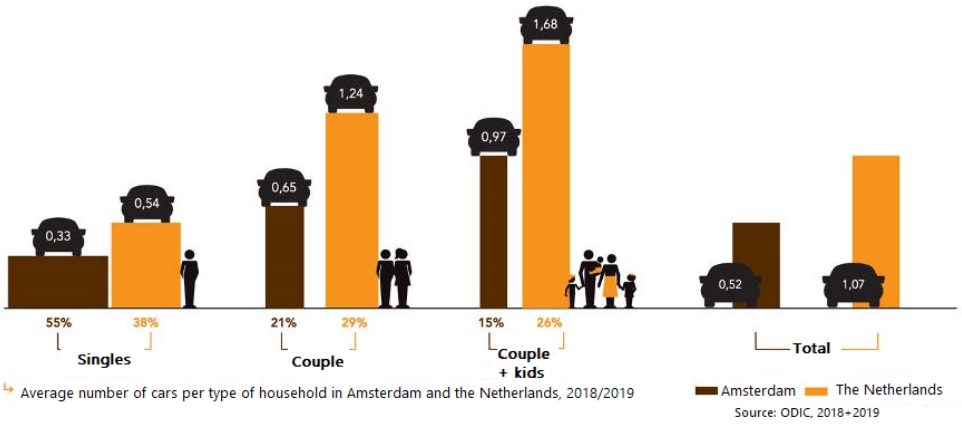
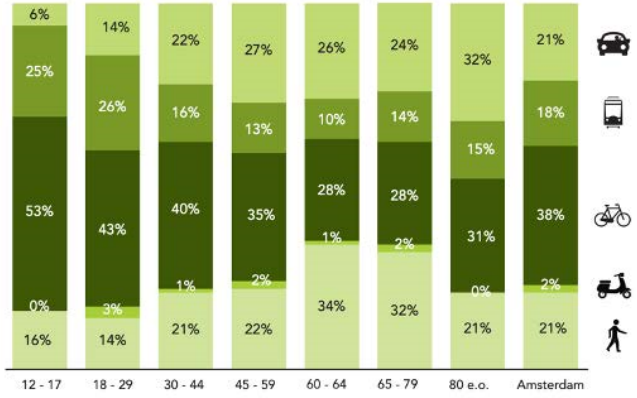


Figure 3 - Car ownership and users in Amsterdam: one single user, two persons user and family with kids user.

Mobility behaviour varies per age group



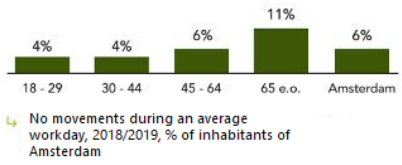
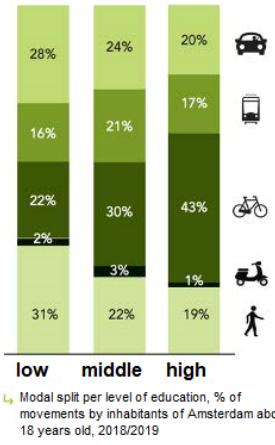


Figure 4 - Type of transportation x Age groups in Amsterdam.

Level of education and travel motive also influence mode of transportation



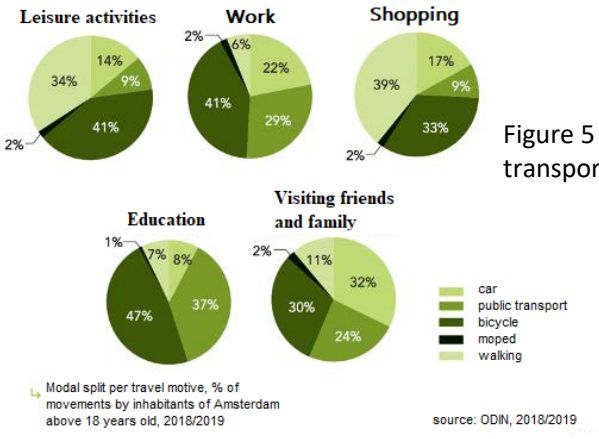


Figure 5 – Travel reasons and types of transportation in Amsterdam

Stage # 0 Preparation

This step includes three main process:

- Read the case: Read Smart City Strategy case and additional information about mobility and SnappCar.
- Investigation of Digital Tools: Investigation of digital tools is related to getting used to the digital tools on https://www.innovatingdigitally.eu/ or https://scanner.innovatingdigitally.eu/.
- Pre-assessment: Fill in the survey: The link of the survey

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