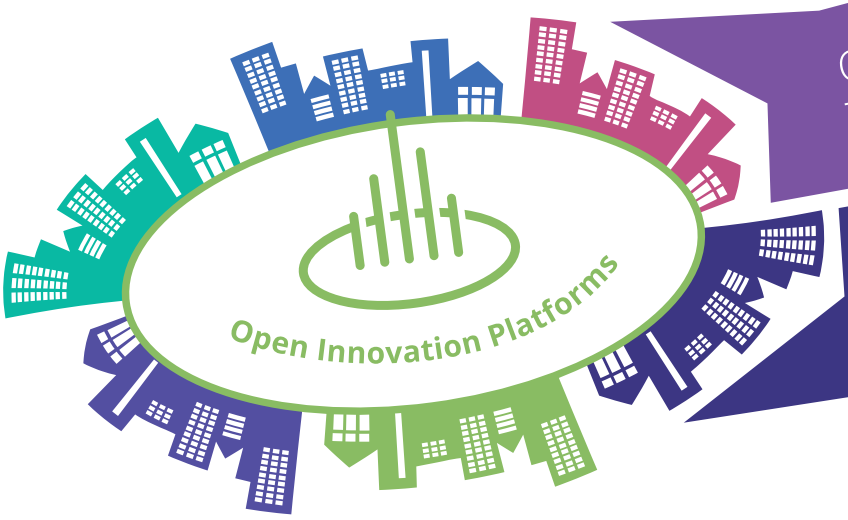


Oulu, Espoo, Helsinki,
Tampere, Turku, Vantaa

6Aika

Open Innovation Platforms
an approach to city development

HANDBOOK
for developers

MIKA RAUNIO
NADJA NORDLING
TAINA KETOLA
JUKKA P. SAARINEN
ANNIINA HEINIKANGAS

European Union
European Regional Development Fund

Leverage from
the EU
2014–2020

6Aika

UNIVERSITY OF TAMPERE

TAMPERE REGION

FOREWORD

This handbook is based on practical experiences in the national 6Cities strategy's (6Aika) Open Innovation Platforms (OIP) spearhead project, which aims to enhance the participatory nature and practical innovation impacts of development work. The activities and concepts as a whole are still taking shape for the needs of urban development, although some individual innovation platforms are already quite advanced. The handbook serves as a guide for platform-based urban development. The key aim of the handbook is to define platform-based development for cities and to offer tools and ideas for more extensive and systematic utilisation of innovation platforms on the national and international level.

The aim of the OIP spearhead project is to build platform management and development competences and thus, also foster the growth and internationalization of SMEs and export of the Smart City related products and services. If it succeeds, platform development will offer Finnish cities the role of pioneers of national and European innovation policy as well as new tools for managing the structural change that is shaking up the information economy.

The OIP handbook is a 'living document', updated and supplemented throughout the 6Cities OIP project in 2015–2018, so that the questions of platform management and measurement are answered with constantly updated information and examples from all six city regions. In its final form, the work or its parts will be refined into a handbook of platform management and measurement that has been tested in practice in collaboration with the key actors of six city regions. The first version focused on platform activities in Tampere. OIP working document 1/2015 'Avoimet innovaatioalustat – Tampere uuden kehittämismallin kasvuympäristönä' ('Open innovation platforms – Tampere as the growth environment of a new development model') (version 1.0) was published on 18 September 2015 and is available online (https://avoimetinnovaatioalustat.wordpress.com). The publication is part of the sub-project work packages of the University of Tampere and the Council of Tampere Region.

Tampere 5/2016

Authors

TABLE OF CONTENTS

1 PLATFORM DEVELOPMENT

1.1 APPROACH AND AIM OF THE HANDBOOK

In urban development work, open innovation platforms strive, for their part, to answer the recent great changes in

- technology (digitalisation)
- economy (sharing economy, platform economy)
- innovation activities (openness, user-orientation)
- urban development (new public governance, participation)

and the requirements for openness, community, entrepreneurship and widespread participation that they emphasise. Open innovation platforms offer an operating model aligned with these social changes for the reform of city services and business development activities.

In this handbook, we strive to define the concept of 'innovation platform' and the role of platforms as a tool of urban development. What is an innovation platform and how is it engaged in urban development? Why is the platform-based operating model an appropriate tool for regional and urban development? How is it built and managed?

The concepts, tools and operating models of platform management must be developed in order to expand the activities and create revenue models for the platforms to maintain long-term activities. Management tools and a comprehensive vision are also needed to recognise the network of often still unstructured platforms and the more extensive ecosystem formed by companies, the public sector and other operators, and to engage in them in an appropriate way.

Platform development is aimed at engaging platforms in the daily organisation of city services and procurement practices. Investment in platform management is aimed at creating Smart City export products and enabling SMEs to grow and expand abroad. If it succeeds, platform development will offer Finnish cities the role of pioneers of national and European innovation policy as well as new tools for managing the structural change that is shaking up the information economy. The aim of the handbook is to support this platform-based urban development and to open the opportunities it brings.

In order to succeed in this, the handbook provides background on the open innovation platform thinking as a phenomenon, defines key concepts and the elements needed to build an innovation platform. The handbook also provides tools for platform management by describing a platform's value creation process as well as defining practices for measurement, impact and the agreement models required by platforms (Appendices). Enhancing the activities of platforms and their engagement with other local actors, or ecosystem, strengthens their role as a new multi-talent of urban development and also opens up an extensive and systematic test environment for implementing next-generation innovation activities.

1.2 THE CITY AS A DEVELOPER

Openness and the platform approach are a good fit for the long-standing trend in public administration, where the

dialogue between different parties and especially with the citizens has been emphasised, and co-operation in service production has increased. The change in cities' service activities has been described as a shift from New Public Management and an emphasis on increased efficiency towards **New Public Governance**. The new approach puts the focus on the relationships of cities with other actors in the public and private sector as well as the greater participation of users or citizens in the production of services. (Laitinen et al. 2013.) The approach highlights community, participation and democracy as well as partnership with business life and universities (Table 1) (Anttiroiko 2010). These are the very elements that platform-based development also supports.

	GOVERNMENT	GOVERNANCE
POWER	Regulation and duress	Development and initiatives
PRIMARY TASK	Enforcement of decisions	Realisation of development goals
TASK AREA	Authority	Developer
ORGANISATION	Hierarchy	Network
ROLE OF GENERAL GOVERNMENT	Executor	Coordinator
PROCESS PERSPECTIVE	Internal government processes	External government processes
CITIZEN	Subject	Active operator
RELATIONSHIP WITH BUSINESS LIFE	Subject of regulation	Partner
RESOURCES	Government organisation	The whole community and environment

TABLE 1. Differences between public governance and government (Anttiroiko 2010)

The platform-based approach is an operating method empowered by the technological revolution and supported by cultural change. In urban development, it is more like a paradigm shift than an individual programme. It can be seen as the **next development stage of conventional cluster policy**; it includes a lot of the same innovation dynamics (competence linking, networking, trust building), goal-setting (m ore business and jobs from innovation activities) and starting points (cluster/platform actors benefit each other). One can also recognise significant differences in respect to cluster development:

- On platforms, activities focus not on the research teams of large companies and universities but rather on small companies and individuals, such as citizens or students.
- Platform orientation (or "platformness") is realised more through the engagement of digitalisation, open innovation and user-orientation in the development of city services and business life, than through building business clusters formed around top products.
- In platform-based activities, the focus is on quick experiments and agile piloting based on open innovation facilitated by platform services, whereas the framework of cluster policy is characterised by multi-year development projects led by large companies and implemented with research institutions and a few corporate partners.

Digitalisation is at the technological core of platform-based development; its application penetrates all fields of business as well as city services and the daily life of individuals. This broadly emphasises the participation of city residents and the themes of urban development. Different start-up programmes, co-creation practices, co-working spaces, user-oriented test environments or digital or physical concepts that enable participation help build a new and participatory innovation environment that facilitates platform-based development. This is also central in the cultural shift in business life, because many companies still find it challenging to utilise user-orientation and open innovation due to a lack of resources or appropriate practices, or a culture that shies away from opening the company's development activities to outsiders. **Platform-based activities chiefly mean the reorganisation of innovation collaboration in the city community.**

The platform-based operating method and more concrete platform services can thus be seen as key tools of digitalised urban development that emphasises participation; they can be used to significantly increase the innovation impact and participatory nature of development. In addition to strengthening open innovation activities and business life, the platform-based reform of the city's own services and operating methods is a significant opportunity. In public procurement, for example, experiments and platforms can be used, and in service development the users can be included in the service design in a brand new way. The use of co-creation makes it possible to offer even more customer-oriented services. Through platforms, the citizens are engaged as an active part of (public) service development.

1.3 DRIVERS OF PLATFORM DEVELOPMENT

The building of a platform should start with a clear objective **– the driver**: Why and for what purpose is the platform needed? In addition to developing contents, we need to ask **why we need a platform-based operating model or external developer party** to create new solutions and/or new business. Why is this city service being opened and what does the market dialogue with the business and research sector strive to achieve? How does the platform guide **the city from being a service provider to being a facilitator of innovative services?** Behind this handbook are the key aims of the 6Cities strategy for developing a platform-based operating model:

1. Improving the abilities of cities' innovation environments to meet the needs of Finnish and international companies and research institutions developing the services of the future.
2. Forming a national operating concept for companies to simplify and clarify the co-creation operating model with the public sector: *'How does urban development work as an innovation platform for companies?'*

The focus of the handbook is on engaging the platform-based approach to urban development broadly also in the physical and operational environment. It expands the utilisation of open data by cities and the perspective of development projects that have opened digital interfaces towards a more comprehensive, platform-based and open approach. Digital interfaces are being built in the 6Cities strategy's Open Data spearhead project in particular, and have been previously developed internationally in, for example, the CitySDK project, which created tools such as the CitySDK Cookbook (Figure 1) to support development.

A comprehensive platform-based operating method can be applied to various situations. The targets of development should be focused but sufficiently broad subject areas. In Tampere, for example, the development of innovation platforms has reflected social megatrends, and it has been applied to the implementation of, for example, the following development entities:

- **New Factory and Demola:** an option for companies' closed innovation activities and rapid development demands of the Internet economy
- **Mediapolis:** digitalisation of media production and strengthening development in the field
- **Ideaklinikka (Idea Clinic):** reducing the costs in the field of health and wellness
- **Kauppi campus**:creating business around medicine and health care
- **Tesoma:** stopping the segregation trend in urban culture
- **ITS (Intelligent Transport Systems) Factory:** business opportunities and public services in intelligent transport
- **TreStart:** rapid structural changes in high-tech industries and the resulting increased unemployment of persons with university-level education
- **SMACC: (Smart Manufacturing and Competence Centre)** strengthening the competence cluster and ecosystem of smart machines and manufacture

(Situational Picture of Innovation in Tampere Region 2015)

FIGURE 1. Operating models that utilise the digital interface and open data of cities have also been built internationally in Europe. (www.citysdk.eu)

2 OPEN INNOVATION PLATFORM

2.1 OPEN INNOVATION

What, then, is an open innovation platform in the context of urban development? On the higher level, an open innovation platform organises different practices of the open innovation process and co-creation in order to create value. The owner and/or facilitator of the platform do not necessarily participate in producing the actual solution or content. The definition is specified through the elements and platform management tools presented in the handbook. The basis of the concept is built on the key phenomena of open innovation and platform economy, which we will briefly describe in this chapter.

Innovation in the most general sense refers to solving a problem and widely adopting the new solution in the form of a product, business model, private or public service or business operations. However, an innovation can also be a new operating method for an organisation; it does not need to be new on a global scale. An innovation can also serve the public sector, for example in the form of a new operating method for the city organisation that increases people's well-being.

Open innovation refers to the opening of the development activities to an outside party. The activities no longer take place in a closed setting within a company or other organisation. Openness can mean giving an idea to a party outside the organisation for further development or including an outside party in the development (such as users, partners). Openness does not mean that the process is always fully open to everyone or that its end product is available to all.

Participation may be restricted to select outside experts or user groups, with agreements signed on the use of the end result. The motive is often creating business from something other than the organisation's core competence. Different forms of co-creation and user-oriented innovation in particular have been highlighted as new practices of more open innovation. Open and user-oriented innovation activities can be implemented using different methods. For example, crowdsourcing, co-creation or living labs include many practices that can be used to involve outside groups in development activities in both digital and physical environments (Box 1).

BOX 1: CONCEPTS CONNECTED TO OPEN AND USER-ORIENTED INNOVATION

USER-ORIENTATION OR DEMOCRATISATION OF INNOVATION ACTIVITIES means that the users of products and services can, to an increasing extent, innovate products and services to meet their needs. The motivation for innovation is often found in enthusiasm for problem-solving. Users also often freely share information about the product or service that they have helped develop. In this, the user voluntarily gives up a part of his or her rights to the product or service, and all interested parties receive a right to the product and to distribute it. From the user's perspective, this way others also get opportunities to improve or suggest improvements for the product or service to everyone's benefit. User-orientation in innovation activities strives to enable users to participate in the innovation process in many different ways or to create operating methods for utilising large masses of data in the analysis of user needs.

LIVING LABS have expanded from the measurement of real user environments using different sensors to cover almost all test activities carried out in real user environments. Especially in urban development, living labs have offered opportunities to implement may kinds of user-oriented and often open innovation activities.

CROWDSOURCING is a business practice that refers to outsourcing the company's innovation activities to the public, which is not necessarily required to possess specialised competence or expertise. Crowdsourcing is an effective practice for collecting user experiences in particular.

CO-CREATION/CO-DESIGN can be loosely defined as setting and solving problems together with the user or customer and company or another service provider in a way that benefits both parties. In co-creation, value creation happens in interaction with the customer and service provider, and the customer's experience (value) depends on how well the dialogue goes.

In discourse, experience value has risen to rival quality and customer service. Ultimately, customers do not buy services or products – they buy the value they produce. Actually, the value produced for the customer and the owners are two sides of the same coin. If the company produces value for customers, in most cases it also increases its own value.

CROWDFUNDING is a form of crowdsourcing in which financing is sought directly from private donors, leaving out the intermediaries between the consumer and producer. The model highlights democratic participation. There are several different types of crowdfunding, and it has been used to fund, for example, start-ups or open source projects. Kickstarter is a well-known crowdfunding service. In Finland, crowdfunding has been famously used by a group of amateur film-makers to produce the film *Iron Sky*, which also attracted international attention.

2.2 PLATFORM ECONOMY

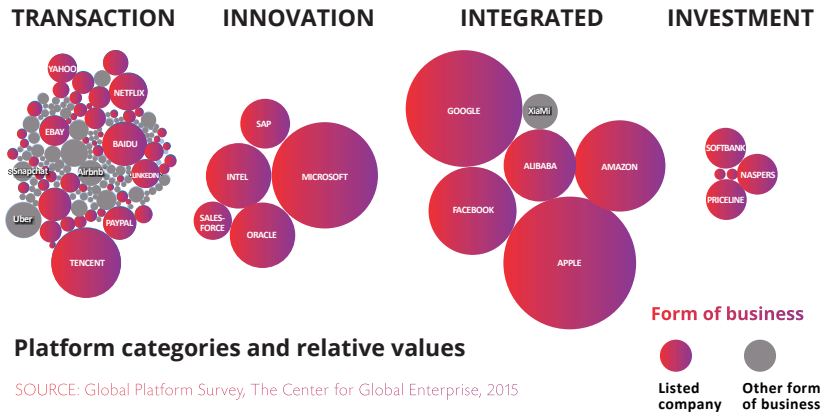
The engine behind the platform discourse is the rapidly emerged platform economy, which changes the logic of the economy and innovation activities. Platformness refers to a business model whose importance has increased thanks to digitalisation and has also been partly redefined. Digitalisation and Internet-based (business) operating models have created a basis for the rapidly growing platform economy (Box 2).

On the platform, opening innovation and development activities to outsiders is a central element of business, or even its core, not a way to occasional spice up development activities. In platform business, the focus is on the participation of a third party in the development activities and/or production of key contents. It is quite a new phenomenon, and there is no established way yet for defining the different business models. A simplistic but practical division can be made between platforms focused on content distribution and utilisation of the external innovation community, or the models that combine them:

- **Intermediary platforms** (two-sided, multi-sided, transaction platform) create value primarily by conveying the products or services of others, bringing together parties that benefit from each other but would otherwise have difficulties finding each other (such as Uber, Alibaba, eBay)
- **Development platforms** (industry, technology, innovation platform) produce a large share of their value by co-creating products and services with other companies in their platform ecosystem (such as Microsoft, Intel, SAP)
- **Integrated platforms** function as intermediaries and also possess a large external developer network that plays a key role in creating the platform's value. (e.g. Google, Facebook, Apple, Amazon). (Gawer 2009; Evans & Gawer 2016; Thomas et al. 2014.)

The Internet (digitalisation) has made it possible for large groups to cost-efficiently participate in innovation activities and producing and using contents. However, technology alone is not enough for change; a cultural shift is also needed. The sharing economy and start-up culture represent key shifts in values and operating methods that enable platforms to have business models that are based on a new kind of community orientation. The core of platform-based activities is not a clearly defined operating concept but a culture where the platform's users create value for each other. **The crucial element is the network effects or how the activities of the platform's users create value for its other users.**

BOX 2: DISRUPTIVE INNOVATION IN THE PLATFORM ECONOMY BREAKS ECONOMIC STRUCTURES



Platform categories and relative values

SOURCE: Global Platform Survey, The Center for Global Enterprise, 2015

By combining the market cap of platform-based companies, we get a value for the platform economy of approximately USD 4,200 billion (Evans & Gawer 2016). It is alarming for Finland and Europe that this rapidly growing economy is mostly based in North America and Asia. In this discourse, a platform has received partly new definitions. Before, for example products whose features were adjusted to create entire product families within a company (such as Sony Walkman) or products built on a shared platform within a delivery chain formed by companies in a business relationship (such as the automotive industry) were defined as platforms. The recent platform economy, which is based on the digital revolution and often, in practice, use of the Internet, differs from them in a fundamental way.

The business logic and value creation of next-generation businesses that operate in a platform-based way emphasise the acceleration of innovation activities by utilising developers from outside the organisation. The network of developers is often referred to as a 'community' or a central part of the ecosystem that creates a significant share of the platform company's value by developing its services or other operations (such as Apple). Developers are often start-ups or prospective start-ups. Another business model is based on the content produced for the platform by users, which also defines its value (such as YouTube, Flickr). In addition to transaction platforms and innovation platforms and their combinations, the platform economy has a group of holding companies and investors that focuses on financing platform-based companies. This indicates the maturation of the platform operating model. (Gawer 2009; Evans & Gawer 2016.)

The value creation of platforms does not occur so much by producing concrete products or services for customers as by enabling outside parties to carry out development activities or interaction. As such, we can separate at least the layers of technology and business; users/developers can participate in shaping both of them. However, the platform business model is not unambiguous, and the big names of platform discourse have slightly different interpretations: Evans and Gawer (2016) link services like Viaplay and Netflix to platforms, whereas Choudary (2013) emphasises the participation of users in content production. According to Choudary, online shops in themselves (such as the shoe shop Zappos) represent the conventional pipe model where the producer provides the consumer with the product. In his interpretation, a platform allows the users to both create and consume the service offered by the platform.

From the perspective of economics, it is largely a question of information asymmetry and correcting the prevailing lack of information in the market: Through platforms, consumers have more information to compare and acquire available products and services, and respectively service providers have more information about customers' needs and channels for reaching more customers. So the platform economy is a significant innovation and business environment, albeit one that is still undergoing a great shift, and the developing industrial Internet and 3D printing will probably continue to change it in the coming years.

2.3 THE SHARING ECONOMY AND START-UP CULTURE

The platform economy was enabled by a cultural shift whose key characteristics are described by the sharing economy, start-up culture and hacker culture. The sharing economy or collaborative consumption has enabled a new growth for intermediary platforms in particular. The concept refers to social and economic systems created with the development of network technology, which enable the sharing and exchange of various ownerships, resources and skills in ways and on scales that used to be impossible. Behind the sharing economy are the following phenomena and development paths, for example:

- The shift from the appreciation of ownership to appreciation of user rights (such as Uber).
- The development of Internet technology as a facilitator of new kinds of social networks, market places between consumers and new business opportunities (such as Zopa).
- Ecology, renouncement of hyperconsumption, thrift and recycling (such as KonMari).

The practices of the sharing economy are typically promoted by individuals, communities of individuals or small enterprises. Individuals can not only use but also produce services within the framework of new technology and communality. This shifts economic power closer to individuals and communities (www.jakamistalous.fi). In the sharing economy, new technology and ethical factors motivate people to act, but usually only if the action also makes sense economically and is sufficiently easy (Hamari et al. 2015).

New types of business models can be considered the source of disruptive innovations. The owner of a platform does not need to own or rent the fixed assets required to provide the service; instead, they need to find the service providers and customers and create a functional mediation service and community trusted by the users. The sharing economy harnesses people's competence and property to be used in a brand new way, especially in the form of intermediary platforms.

The growth of development platforms is strongly linked to the rise of the **start-up culture**, which has spread rapidly. The role of external developers for platforms is often filled by start-ups that build applications on the platform owner's technology. Start-up culture highlights a growth-seeking business model and entrepreneurs' passionate approach to their operations. As a learning environment aimed at entrepreneurship, a start-up environment has sometimes been claimed to be an even better investment for the individual than going to (paid) business school (Colao 2012). The lean start-up operating model emphasises the importance of using market-oriented business ideas that are tested rapidly on the market in seeking growth and the right business model (Ries 2011). With the lean start-up culture, society has also been widely permeated by a **culture of experimentation**, in which agile and quick trials are used to test the workability of new ideas in practice.

The third important culture for the development of the platform economy and especially the platform-based city development, with its values and practices that emphasise openness, is the **hacker culture**. It is largely based on the values and openness of the communities formed around open source. The fact that the open source is free is not necessarily the central idea of the ideology; freedom is. In other words, software and code can be sold as long as the source code is provided with the software and development is not restricted by closed code. More than an economic ideology, it is based on the principle of scientific freedom and sharing knowledge. However, many big companies strive to utilise this sense of community and openness in their business development.

The communities operating around the platform economy thus possess an aligned combination of values where strong ethical values are attached to new technology and the business models derived from them. A strong sense of community and activities across conventional organisational limits as well as ethical values that emphasise the role of the individual are central starting points in platform-based development. The approach does not mean only developing services based on demand; **instead, it includes the aim of changing the operating culture towards more open and participatory development activities.**

2.4 PHYSICAL INTERFACES OF THE PLATFORM ECONOMY

Like many 'smart city' solutions and open data projects of cities, the digital platforms of business life also talk about technological interfaces, such as API (Application Program Interface), and toolkits like SDK (Software Development Kit), which developer communities use to access the code in a specific way in order to create new applications or their components on platforms. However, platform-based activities are not limited to the digital environment and virtual communities but also extend to **the physical environment and everyday activities as well as the communities formed by the people operating within their framework.**

In addition to API, physical open innovation centres or hubs, for example, can offer an interface that enables people to participate in development work. In addition to SDK, they often organise different co-creation concepts based on interaction between people. The aim is usually to build something new or to strengthen an old developer community around some products, companies or technologies. In practice, this means, for example, developer meetings or **'hackathons'**, which strive to engage their participants to (often digital) technology and/or the development of associated services and applications.

Meetings of individual developers, **more systematic operating methods** and even global **permanent physical environments** have also been created to strengthen some platforms. One platform actor is the global Microsoft Innovation Center (MIC) network created by Microsoft. Approximately 100 centres worldwide operate within the framework of cities, universities and development companies. The centres promote the development of local technology and business life and support the development and spreading of the platform, i.e. Microsoft technology and the associated services and applications. The digital tools (SDK) and interfaces (API) provided by Microsoft together with the physical innovation centres and the communities operating in them form the platform orientation of Microsoft as a company and technology. The physical hubs 'ground' the innovation and business operations of the digital economy in the geographic area. (Box 3).

BOX 3. MIC: PHYSICAL NETWORK OF INNOVATION CENTRES AND SDK AS A PLATFORM

Microsoft's virtual technology platforms for application developers have expanded into 'communities of people' in the form of the Microsoft Innovation Center. In Microsoft Innovation Centre concept, local partners have invested in the facilities and facilitators to establish the centre, and Microsoft's investment have mostly been connected to providing the technology and operating concept used. The operating models bring together developers, professionals and students.

Most of the more than 100 centres are located in developing countries. One reason for their success is that the centres are always built to meet local needs and to also serve the local economy. With the centres, Microsoft has had the opportunity to spread its technology to be used by new local economies in developing countries and to strengthen its market position. Local actors also develop Microsoft's technology with digital tools provided by Microsoft through different concepts, which have been customised to serve different needs: for example, co-operation is coordinated with the Partnership Accelerator programme, start-ups are developed using the global Microsoft BizSpark programmes, and skills are improved using the Skills Development programme. For local economies, it is appealing to receive the use of the latest technological solutions, which they perhaps could not access otherwise.

The centres involve students, developers and local businesses in the activities and provide models for co-operation with universities and for building competence. The programmes are highly respected and desirable among students in particular, because the technological competence acquired at the centre often increases the chances of finding employment after graduation.

Microsoft has succeeded at **creating a network effect**; it has managed to engage many representatives of the public sector and universities in its activities, enabling the access of developers, professionals and students to the platform. This in turn attracts companies, which makes the developers even more interested. Microsoft offers the platform access to technology (SDK and API) and various digital guidance tools, but local actors organise the physical facilities and processes and carry the costs.

www.microsoftinnovationcenters.com/

MIC is an example of the engagement of the platform economy into local development activities at the initiative of business life. Although open data and digital platform services play an important role in urban development, in platform-based development initiated by cities in particular, emphasis should also be placed on the **physical City Development Kit (CDK)**, which can be utilised in the development of platform-based activities and their engagement with the local ecosystem.

2.5 CONCEPTUAL DEFINITION OF INNOVATION PLATFORM

Above, we sought a very broad background for the concept of innovation platform from the ongoing shifts in society and the economy. Principally, we sought to avoid engagement with a single trendy concept, and instead highlighted the broader change within which the importance of open innovation activities and the platform business model has grown rapidly. **From the business perspective,** a platform in the simplest sense refers to any operating environment, technology, system, company, product or service, ***whose development and/or content production has been systematically opened up to outside developers and value creation, and whose key aims are the benefit produced by the platform's users to each other and the network effect brought by participation.***

In the context of **urban development,** we can respectively see the entire city as well as its services or actor groups as innovation platforms if a platform model is used in their development. The concept of innovation platform is already widely used in urban development, and it is used to refer to many types of activities realised in the interface of public and private actors (Lehenkari et al. 2015). However, it is often more expedient to view these functions as **tools of platform-based development** that help to turn a city or its sections into an open innovation platform, than as innovation platforms as such.

A **platform service** that organises co-creation can be broken down into three elements inside the platform and their connection to the wider operating environment (FIGURE 2):

- **Open innovation activities that create value outside the platform.** The activities involve creating, together with the platform's users, new solutions, products, services or new business, or testing and developing them in real urban environments using co-creation tools. In addition to the facilitated co-creation process, the service typically includes coordination of activities, making agreements, customer work and marketing.
- A community formed by people, through which the platform engages with the wider ecosystem of actors. The community operating on the platform strives, in varying roles, to define and solve problems. Platforms (often) include actors from public, private and the third sector. It is vital to define the different roles in the community: who is the platform's user or who solves problems on the platform (developers/innovators), who submits problems for solving (consumers), who pays for the platform's end products (customers), and who owns the platform.
- **The physical and/or digital space and time and its connection to the regional and/or international network**, in which the problem-solving process takes place and the community creates value. The environment may be a permanent location or a 'permanent pop-up platform'; an established operating concept that is utilised whenever needed. Many, even hundreds of short-term trials and innovation projects can be realised within the implementation environment in connection to different stages of the innovation process (such as testing, demo workshops and business sparring).

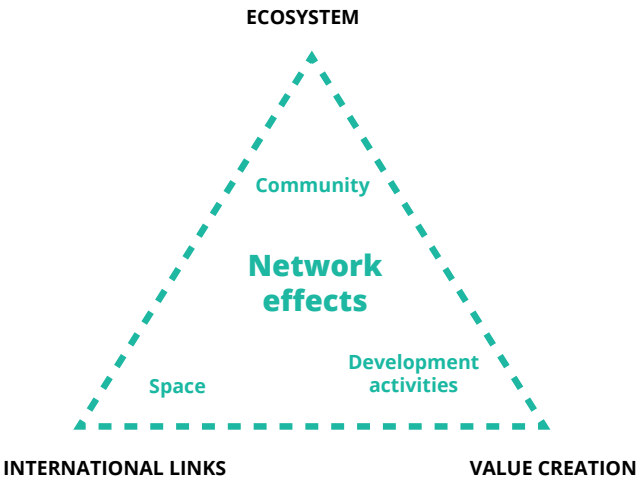


*FIGURE 2. Internal elements of the innovation platform and their external connections as builders of the network effect**

** The division in three of the internal elements was used in the early communications of the OIP project, and has also been used internationally in the CECO project, which observed various creative co-operation environments (Aalto University). See also Lehenkari et al. (2015): Gawer (2009).*

However, only the network effect, in which the platform's users – one or more user groups – create value for each other and make the platform attractive to each other, turns the activities into a functional platform and spreads the culture of working together. The community, space and activities can be **facilitated** in many different ways to support this joint value creation process (Figure 2).

In this handbook, an open innovation platform is defined through these elements and their key characteristics. Openness, innovativeness and platformness are realised within the framework of community, space and activities, which the platform facilitates in order to maximise the benefit created by the platform's users for each other, or the network effect. In the context of urban development, a framework according to Table 2 can be used to recognise and assess an open innovation platform. (See appendices for details.)

The following chapters discuss in detail the key elements of developing a platform: innovation activities and value creation on the platform, the definition of the community and its key roles, and the engagement of the platform with the city space. Finally, we describe the platform-based approach in the context of urban development. Appendices include descriptions of platform development and management.

BOX 4. THE NETWORK EFFECTS ON BUSINESS PLATFORMS

In business life, **intermediary platforms** bring together parties that benefit from each other with exceptional efficiency and/or manage to bring together parties that have not previously been able to recognise or form a mutually beneficial relationship. Users primarily create the key content of the platform and thus the value of the platform to other users depends directly from the number of users and the content they produce. The direct network effect may occur within the same user group or between two user groups:

- When platforms mainly transmit information between users and enable social interaction, the number of users directly increases the platform's value to other users: The value of YouTube would plunge without the cat videos uploaded by other users, or Facebook without friends' profiles, or Twitter without any tweets. Similarly, with concrete services like Uber (taxi services) or Airbnb (home accommodation), the value of the platform increases when new users offer their services to others. The platform's users have a double role as consumers (renter of accommodation or hirer of a taxi) and producers (taxi driver or landlord).
- When a platform relays services between two groups (such as Alibaba), the number of consumers and people creating demand on the platform directly impacts its value to each user group. The more supply there is on a platform, the more interesting it is to consumers, and vice versa – there is a direct network effect.

DEVELOPMENT PLATFORMS facilitate the building of complementary products or services directly on the technology, product or service owned by the platform. The platform owner enables and facilitates between the process developers and customers: the more developers the platform attracts, the better and more versatile the product will be for the user, and the more users the platform attracts, the more interesting it is to developers. This means that, on development platforms, the network effect may be two-way, and the platform's two user groups benefit from each other's activities on the platform, but above all the platform itself directly benefits from the development work focused on it. (Evans & Gawer 2016; Gawer 2009) However, it is import to note that the network effect may also work against the platform. Reverse network effects may take place when for example too may people start using the platform causing the mutually beneficial interaction to turn into disturbing "noise". Therefore, it is important for the platform owners to have some control over the users of the platform. (Choudary 2013.)

	FACILITIES	COMMUNITY	ACTIVITIES
OPENNESS	ACCESS TO DIGITAL OR PHYSICAL SPACE	OPENNESS OF JOINING AND ACCESS	THE CUSTOMER INTERFACE AND ITS PRACTICES
INNOVATIVENESS	ENVIRONMENTS THAT SUPPORT CO-CREATION	CULTURE THAT ENCOURAGES DEVELOPMENT AND PARTICIPATION (incl. agreement and IPR practices) RECOGNISED ROLES OF THE INNOVATOR, CUSTOMER AND FACILITATOR	VALUE CREATION FOR THE PLATFORM'S CUSTOMER AND OTHER USERS THE CO-CREATION PROCESS AND ITS FACILITATION
PLATFORM ORIENTATION	THE PLATFORM AS A PART OF THE REGIONAL AND INTERNATIONAL NETWORK DIGITAL ENVIRONMENT? (How does the platform utilise the digital environment? = SDK ready?	ENGAGEMENT WITH THE PLATFORM AND ITS USE IN COMMUNITY CONSTRUCTION HOW DOES THE PLATFORM'S COMMUNITY SUPPORT ITS ACTIVITIES?	CO-CREATION PROCESS (Is the co-creation process modelled, measurable and scalable?) REVENUE GENERATION MODEL AND VALUE CREATION (Which user benefits the most and pays the platform?) HOW IS THE NETWORK EFFECT REALISED?

TABLE 2. Key characteristics and elements of the innovation platform

3 ACTIVITIES

3.1 TOOLS OF PLATFORM-BASED DEVELOPMENT AND THEIR CATEGORIES

When the need for a platform has been recognised and the development target and drivers have been determined, one must plan how to implement value creation and the network effect. Is the development targeted at city services, urban environment or business life? **In the context of urban development, the city, public services, the urban environment and business life can all be seen as functions that are systematically opened for third parties to develop through different development and service platforms.** Once a target has been identified, we know whether an intermediary platform or development platform is needed. Strategic choices guide how the activities generating added value are organised in practice and who is/are the outside party/parties bringing competence to the platform.

Because development in a city is targeted at many environments and actors, the division into intermediary and development platforms is not the best way to differentiate platforms. A clearer division of platform-based tools can be done based on their innovation goal and operating environment. Platform tools can function fully or partly in the **digital or physical** environment, and they can be aimed at **accelerating the innovation process or creating a new service or brand new business**. Many platforms/development projects may combine digital and physical environments in different ways and offer services connected to creating new business as well as trialling and testing. Based on these two dimensions, we can define four different basic categories of platform services:

- **Digital intermediary (transaction) and development platform services,** for which new services can be created or existing public and private services can be organised in a new way.
- **Innovative procurement (purchases) and start-up programmes,** which are used to create new services and business.
- **Digital crowdsourcing services**, which can be used to develop and test new services or products.
- **Prototype workshops and living labs**, which can be used to develop and experiment new services or products.

3.2 PLATFORMS FOR EXPERIMENTS AND CO-CREATION

Co-creation may be connected to different stages of the innovation process, from the conceptualisation of a new idea in a demonstration workshop, to testing and piloting the service or product in a living lab and all the way to the market test. Because platforms can also be used to develop city services or citizens' ideas, it is better to talk about further processing than just commercialisation. The users of platform may also include other outside parties, such as mentors, investors or other sparring partners bringing their competence to the development activities. Platform-based activities become a systematically functioning process in which the mutual value-creating interaction of the different parties is successfully facilitated.

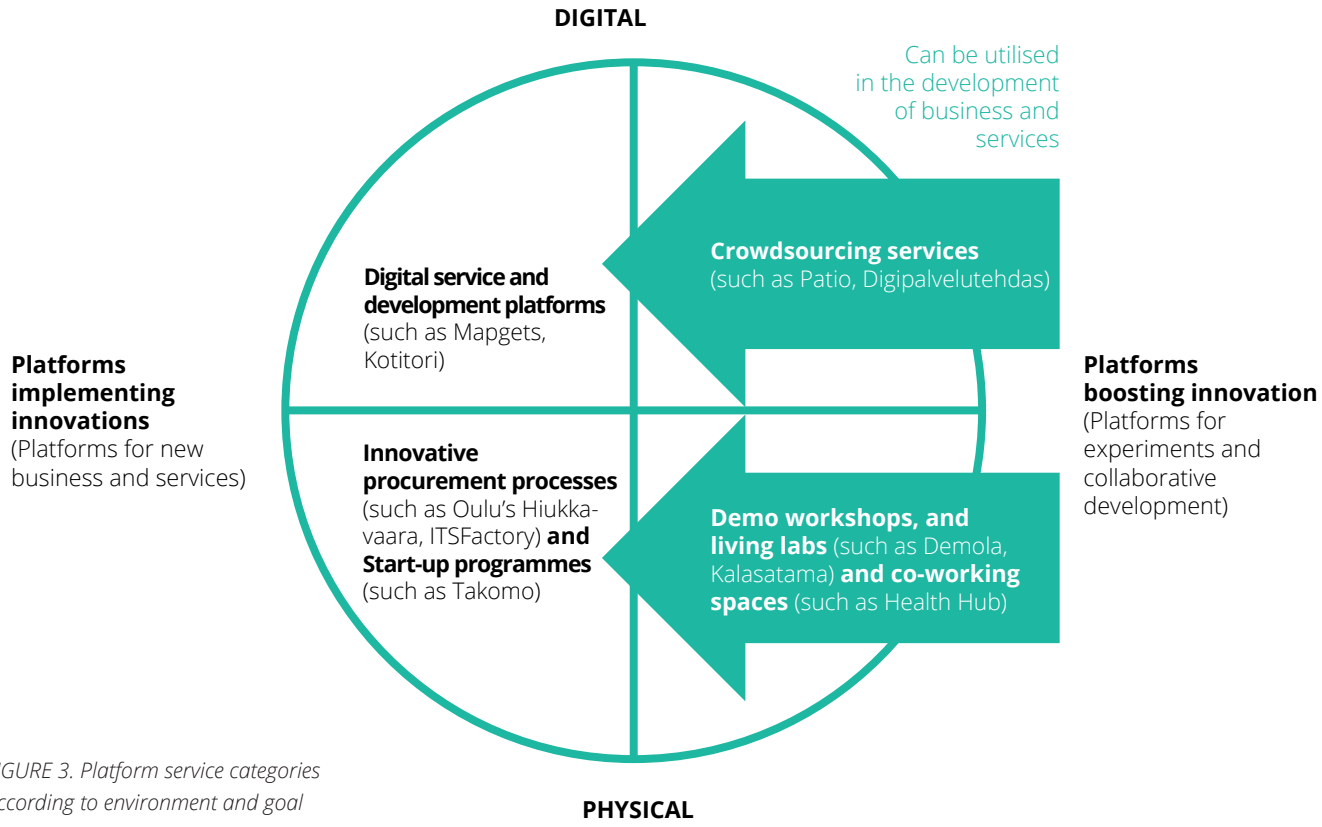


FIGURE 3. Platform service categories according to environment and goal

- **Prototype or demonstration workshops** solve problems set to them using a defined and facilitated co-creation process, striving to produce a solution whose shape or completeness has been agreed in advance on some level (such as Demola, Tampere and Oulu).
- **Living labs** offer help with product testing in real-life test environments in which end users actively participate (cf. laboratories). Companies, the public sector and citizens work together, creating and experimenting new services, business ideas and technologies. Living labs serve as a shared arena for users and product designers, bringing needs and wishes closer to the practical design work (such as Kalasatama, Helsinki).
- **Co-working spaces** do not involve an actual co-creation process, but the selection of participants and shared themes are aimed at creating collisions and finding new solutions for the challenges of the participants (such as the HealthHUB, Tampere)
- **Digital crowdsourcing tools** can be used to solve different issues independently within the framework of a selected target group, or in combination with physical workshops and co-creation (such as Patio, Oulu).

The platform-based co-creation process can thus be constructed in many ways on a development experiment or pilot environment, as is being done in Kalasatama in Helsinki or OULLabs in Oulu (Boxes 5 and 6). It is not possible to describe all methods of co-creation and further processing here, but it is essential to think of the most appropriate tool or toolkit for each situation.

The tools can be viewed as individual digital and/or operational services that support platform orientation, from which more extensive toolkits can be put together for the needs of each urban development challenge.

BOX 5: MAKING KALASATAMA HELSINKI'S SMART CITY DISTRICT

Kalasatama in Helsinki is being built into a new work and residential area, where a new kind of smart city development is being experimented. The Smart Kalasatama project was launched in autumn 2013 with the aim of making Kalasatama a model district for smart urban infrastructure and services, Helsinki's Smart City district. The district is being developed flexibly through agile piloting together with the residents, companies, the city and other actors.

Kalasatama will offer homes for approximately 20,000 people as well as 8,000 jobs. The district will be completed in the early 2030s; approximately 2,000 people live there now.

The aim is for Kalasatama to provide a low-threshold trial area with an emphasis on service design, user-orientation and co-design in which city residents are enabled to participate. The living lab in Kalasatama comprises the district itself, the co-operation networks that operate there and the co-creation facilities in the district. Start-ups, residents, SMEs and educational institutes are all encouraged to participate in the new and innovative experiments along with large developers, such as construction companies and the city. The use of the living lab is supported with a programme of agile piloting in which small sums of funding are distributed to companies and communities for product development and pilots.

In addition, the district is also developing the principles of sustainable development, energy behaviour and waste reuse as well as an intelligent network and associated solutions, such as an electric car network and energy storage.

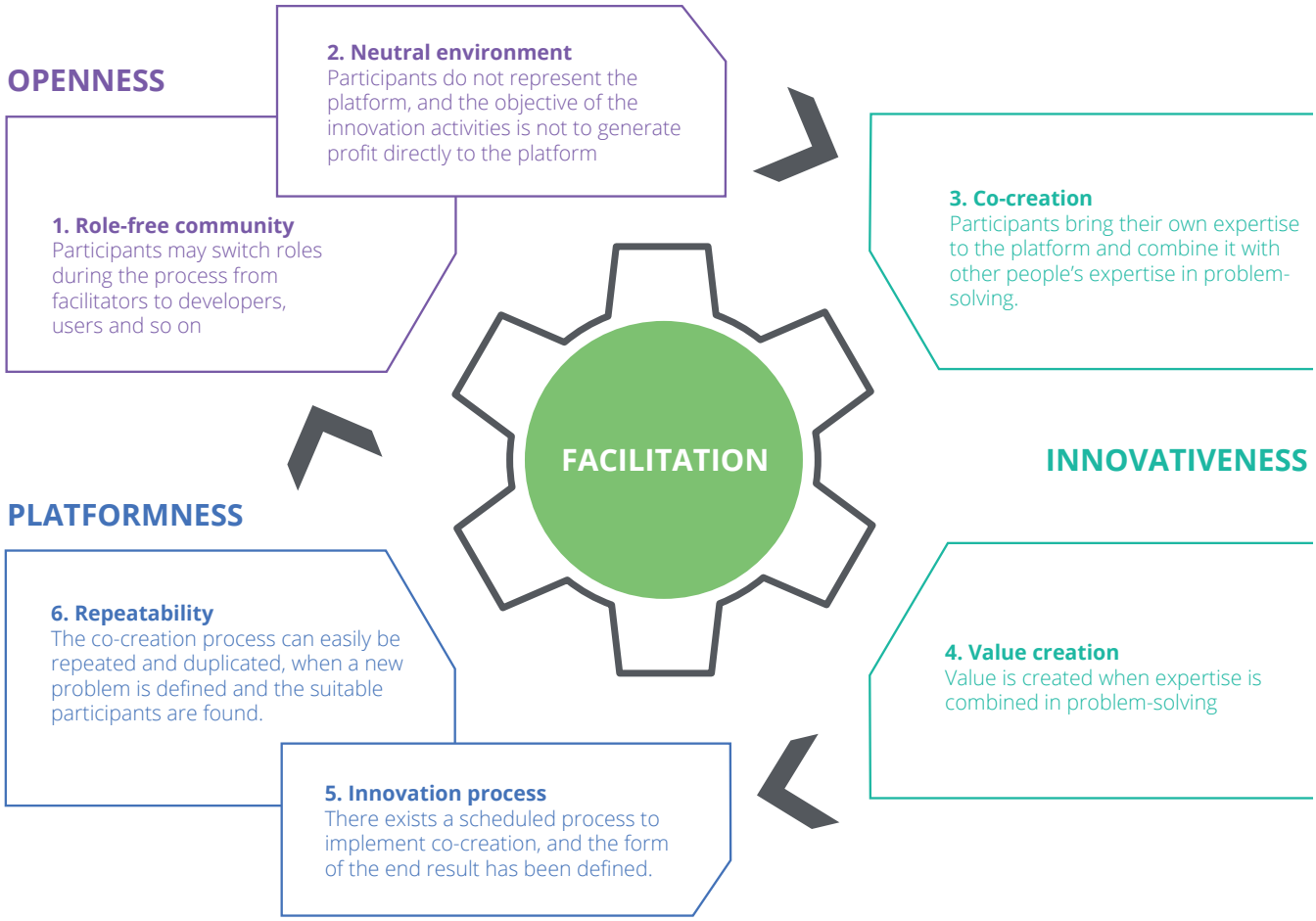
(learn more: see fiksukalasatama.fi)

Co-creation can be done in different environments and in different ways. In practice, however, we can recognise six different elements whose contents and roles in the process should be defined (Figure 4):

1. **Multirole community,** which includes the persons who define the problem as well as those who solve it. The users and other outside actors serve in the role of the developer, and conventional producer-consumer roles are faded out in the process. (The platform orientation and openness of the community are emphasised)
2. **A neutral environment** in which people operate. This highlights the openness of the operating environment; as a rule, activities do not take place behind closed doors in the laboratory of one company or actor, but instead several actors are served in a shared space. (The openness and innovativeness of the space are emphasised)
3. **Co-creation** refers to setting problems and solving them together in a way that benefits all parties. In such cases, the roles of the customer, problem-solvers and other members of the community should be recognised and defined; who participates in the process and in what way, and how are they motivated to participate? (The openness and innovativeness of the activities are emphasised)
4. **Value creation** in the development process has been analysed and recognised; how working together increases the value of the target of activities and how the parties benefit from the process. (The innovativeness and platform orientation of the activities are emphasised)
5. **Innovation process** has been defined and scheduled within the framework of platform-based activities to at least some extent, so that the customer can recognise it. The beginning of the process and its milestones, interaction methods, end and form of outcome must be specified. (The innovativeness and platform orientation of the activities are emphasised) (Box 7.)
6. **Repeatability** is a key element of the platform-based operating model; scalability is possible if there is enough demand and demand can be created. Repeatability means that new problems to be solved can be constantly or repeatedly brought to the platform. However, the co-creation process itself should also be repeatable in another environment. (The platform orientation and openness of the activities are emphasised)

Facilitation refers to the organisation of these three stages. It is a vital part of the competence of platform operators and the value-creation capability of the platform. Proper platform orientation is realised if the added value created by the platform service's users to each other constantly attracts new and return customers and other users to the environments. The value of innovative, pioneering companies and communities is not static but created in activities that have no end point. (see Ruckenstein 2011.)

FIGURE 4. Phases of the co-creation process



BOX 6: OULLABS – PATIO: CROWDSOURCING AND URBAN DEVELOPMENT

PATIO is an online tool of OULLabs for collecting user experience data. PATIO is an online forum where users can participate in the development of products and services and give feedback. PATIO was launched in 2008 as a part of the City of Oulu's project 'Tulevaisuuden palveluyhteiskunta' ('Service society of the future', ERDF 2008–2011), aimed at developing the public sector services of Northern Finland and the Oulu Region. Today, it is managed by OULLabs, with a small core team running the activities. In addition, an extensive network of specialists is available.

PATIO has over 800 registered users and has been used for over 100 projects ranging from testing to commercialisation. Typically, Patio is used to conduct surveys, organise discussions or collect journal experiences. The functions can also be used concurrently. The starting price of a PATIO project is less than €1,000, which gets you 10 users for two weeks. Users can also be reached through the database after the survey and invited to participate in different testing events after the completion of online stages. Patio also offers facilities for testing events. In addition to PATIO, the services of OULLabs also include the Cave, a 3D virtual laboratory that is often used side by side with PATIO. Cave can be used for different kinds of 3D modelling.

PATIO has been used in the planning of the Hiukkavaara district in Oulu, for example, collecting residents' development ideas through the PATIO forum. A test group of respondents was also put together and given the opportunity to evaluate the city of the future in the Cave 3D virtual environment of Oulu University of Applied Sciences. Urban development is a good example of the opportunities of PATIO in the sense that it has been done on many different occasions and in many different stages: whenever the city has had new, slightly more advanced plans, users have been re-engaged to assess them. This has made it possible to reach the same users who responded in the previous round.

The users/test groups receive a small reward for their participation (such as a gift certificate or cinema ticket), but that does not seem to be their motive for participating. If anything, the greatest incentive to participate seems to be interest in helping develop a new product or service. There is an active group among PATIO users who often participate in testing. The active PATIO users also provide customers with professional feedback, which makes them valuable in the eyes of the customer.

www.patiolla.fi

BOX 7. VINCIT OY AND 'GOOGLE GLASS FOR TRAFFIC WARDEN' SMART GLASS APPLICATION

A well-defined innovative output and its transfer beyond the platform is the key aim of co-creation. The Google Glass for Traffic Warden project was carried out together with Demola and software company Vincit Oy. The project was chosen as the best Demola project of autumn 2014. In spring 2015, the City of Tampere started piloting the application. There are plans to start a company to develop and spread the concept. The project was also named the best project of 2015 by Project Management Association Finland. The association described the smart glass project as small in size but significant in impact.

The Google Smart Glass application automatically recognises the licence plates of parked vehicles and uses them to check EasyPark and ParkMan payments. The application also generates a report on each parking violation and automatically saves the address data and a photo of the vehicle, for example. The application sends the data in real time to the Helka system and customer service. The smart glass application replaces the current hand terminals of traffic wardens as well as the mobile applications used to check mobile payments: It frees the hands of traffic wardens, improves work ergonomics and increases efficiency.

(https://www.vincit.fi/ http://www.tut.fi/fi/tietoa-yliopistosta)

Things to consider when planning co-creation:

- Communications: launching projects, implementation and packaging of results
- Agreement models, ownership of results and IPR management models
- Financing models
- Participation models: how and how intensively do the bringers of innovation ideas participate in the process?
- Schedule models
- Implementation methods
- Reward models: activating people, enabling participation and motivation
- Technology transfer models: such as start-up or corporate
- Commercialisation models

3.3 PLATFORMS FOR NEW BUSINESS AND SERVICES

Innovative procurement are a key tool for generating innovation activities in cities thanks to their economic potential. They have a clear analogy with platform-based development because they engage an outside party in the development done in the city (or on the platform), in which the platform owner, or the city, plays an important guiding role. Innovative procurement procedures can be examined from different perspectives:

- Creating new models for procuring services and products from the market and enhancing co-operation between the public sector and companies in order to increase the impact of procurements and create new business opportunities for companies.
- The procurement of R&D&I projects creates new products or services for the market.
- Procurement agreements that encourage innovations contain terms that give suppliers incentives to continuously improve and develop the services or products (such as a result-based agreement models where the supplier's fee is tied to the implementation method rather than to the result).
- Procurement as a tool for innovation policy actively strives to develop the companies' business according to the innovation policy goals set. (PML 2015)

There are different models available for innovative procurement, and cities have utilised them in different ways (Figure 5). However, the rules for public procurement are strictly regulated by law, so it is more a question of innovative negotiation processes and elements linked to procurement than themselves. Innovation in procurement per se is reflected in whether the purchase concerns a strictly defined product or an end result, and how the negotiation procedure is organised. A city's platform-based experiment and development environment can be used as a part of innovative procurement processes in the development of new and especially user-oriented solutions.

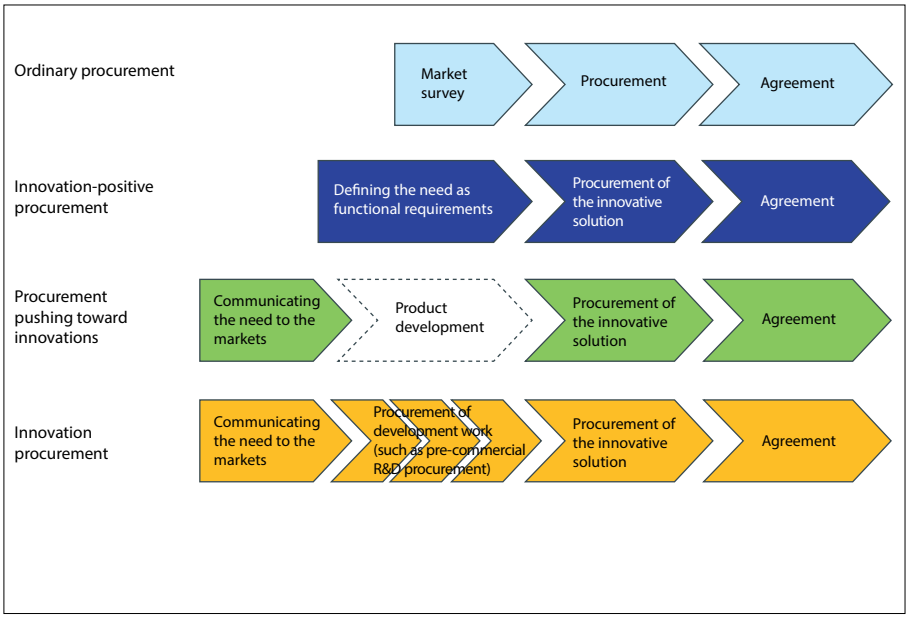
The actual platform-based element (network effect) in connection to the procurement process itself can be recognised from the following:

- The city gains better services or solutions for the urban environment through innovative procurement procedures, which induces to use innovative processes for procurement more often.
- The companies offering solutions find the development process so attractive that they are more active in seeking to supply solutions for innovative procurement process than to the traditional ones.

The network effect can also be reinforced by creating an interface for public innovative procurement that is shared by the major cities and recognized by the key customer companies. For companies or other service providers, the attraction factor should lie in developing their own products in co-operation with cities and receiving reference projects for international export, and not just selling a product or service.

Accelerators and start-up programmes provide assistance with developing a company's business model and turning ideas into business. Business incubators and accelerators are conventional activities that have been organised by private companies as well as public or semi-public actors. Offering companies support with launching their business in different forms is at the core of their activities: they may provide business premises, capital, coaching, general services, marketing support, business development services, networks or expert help. In platform-based services, the creation of a community of start-up companies is emphasised; its support may be a key resource to its members. Mentors, financiers and other experts may also be an important part of the community. In fact, the staunchest support for activities may come from the community itself and its peer support. The facilitation of the co-creation process between members is possible, and in practice the activities are close to (or a part of) the activities of the experiment and development environments described above; however, here they have been differentiated based on

FIGURE 5. The innovative procurement model of VTT Technical Research Centre of Finland has been utilised in Oulu (Valovirta 2013)



the goal-setting of the activities. Nevertheless, depending on the programme, the goal is not always a completed growth company rather than supporting its development during a specific development stage, which makes definition somewhat difficult.

Things to consider when planning activities:

- Finding start-up companies, coaching them and recognising commercial value
- Supporting the community spirit
- Is the service subject to a charge or a part of public services?
- Is the service focused on a specific field (such as the game industry)?
- How has moving between different platforms been organised and visualised?

The development of digital services is at the core of platform-based activities in business life, and effort has also been made to strengthen it in the development of public sector services. Even though a platform-based service is not necessarily connected to innovation activities, it is a vital part of using the platform-based approach in the context of urban development. Platform services can also be seen as an innovative activity through new service concepts and their influence that guides service development.

Platforms can work in many different ways. They may be services based on an intermediary platform, organising services that are the statutory responsibility of the city in a new way (such as the Kotitori Information Office for Elderly People, Tampere), or based on a development platform, increasing the comfort of city residents and the business opportunities of companies (such as Mapgets, Oulu). The development of digital services often also extends to development meetings in the physical environment (Oulu hackathons) or co-creation (Kotitori Information Office for Elderly People and the city) depending on the nature of the platform (Boxes 8 and 9.) Digital interfaces are being opened technically, and agreement practices and the usability of data are also being improved in many other projects and networks in different ways. The interfaces may be built, for example, by networks operating on university/company interfaces (such as ITS Factory, Tampere) or companies that own the platform's technology (such as FCG Mapgets).

A key part of the development of digital platform services is the open data produced by the city, which also enables the innovation activities on the platform. Open data is offered to companies to use with the aim of creating new services and business in the city region. Open interfaces (API) and tools (SDK) for utilising digital data have been developed in several projects aimed at increasing compatibility and the usability of data in general from the perspective of business operations. (Box 10.)

The difference from a digital crowdsourcing service is the direct targeting of these activities at increasing city services and/or business; they strive to create concrete service or business activities on the 'city platform' instead of testing and product development. To balance the great opportunities in digital platforms, implementation also involves challenges, such as service usability, building of business models and users' willingness to use the service.

BOX 8. KOTITORI.FI DIGITAL SERVICE PLATFORM OF TAMPERE HOME SERVICES BRINGS TOGETHER SERVICE PROVIDERS AND USERS

The KOTITORI Information Office for Elderly People is a 'service integrator' that does not produce home services itself but rather acquires them from a service provider network for the end users of the service; elderly Tampere residents who live at home and have reduced occupational capacity or a risk thereof. The platform is owned by a consortium of three private companies from different fields (expert agency, IT, eHealth services). The goal is better service quality for the end user (easier and faster access to services) as well as improved cost-effectiveness in service production. According to the assessments available, the platform has been quite successful at achieving these goals.

The core of the platform is an easy channel for acquiring all services (public and private) in one place. In practice, the platform:

- is responsible for home services under the population responsibility principle for an area with approximately 400 customers and for organising support services and quality control for home services throughout the city (such as grocery and cleaning services)
- provides customer counselling and guidance as well as service needs assessment in co-operation with the city's own service units
- develops home services and processes in co-operation with the city and private service providers
- conveys to customers privately funded services in addition to the home services that the city is responsible for organising.

The activities of the platform are measured systematically, and its quality indicators influence the earnings of the platform service. The Information Office for Elderly People also has a physical location where people can familiarise themselves with devices that improve living at home, safety and occupational capacity in practice. *(Hämäläinen 2012: www.tampereenkotitori.fi)*

BOX 9. MAPGETS APPLICATION PLATFORM AS AN URBAN DEVELOPMENT TOOL IN OULU

Mapgets is an open virtual platform (3D city model) for offering and developing city services as well as private sector services and creating new business opportunities for establishing individual services or companies. The Mapgets environment serves application developers, various data producers, service providers and consumers. Mapgets specialises in constructed or existing environments – locations – and the applications are built on data where location is essential. The ownership of Mapgets was transferred to FCG City Portal Ltd (Finnish Consulting Group) during the service commercialisation phase.

The aim of Mapgets is to promote digitalisation and application development as a way to increase productivity. The city opens its own data to the technology platform, and application developers can utilise it to produce their own services and create business. Mapgets offers a place for developing and publishing applications.

From the perspective of urban development, the purpose of the Mapgets application platform is to provide the city with open-interface services connected to geographic information or 3D. The aim is to create a developer community that will independently produce services for the platform without the city ordering them. The platform can offer services to city residents and develop B2B services. From the perspective of the City of Oulu, having Mapgets maintained by a commercial operator is a good thing. If the service were the city's responsibility, it would have to be in charge of development and maintenance as well as product marketing, and the service might not amount to more than a place with map information about the city's own activities. At the moment, Mapgets is used in some cities in Finland, but the real goal is the international market.

https://mapgets.com/

BOX 10. DEVELOPMENT OF DIGITAL INTERFACES IN CITIES

Open data means public data materials that are available to citizens, communities and companies free of charge and have been formatted so that they can be used in service software development, for example.

Helsinki participated in the European CitySDK projects, in which interfaces were harmonised in order to enable developers in different countries to use data and develop new services. The project put together a toolkit for the development of digital city services as well as a 'cookbook' for developers (www.citysdk.eu). One function developed during the project was the 'Metro Fiksaa' service, which citizens can use to report issues that need fixing to the City of Helsinki.

In Tampere, on the other hand, the Open Data Tampere Region project opened dozens of data sets and interfaces and regularly organised developer meetings for utilising them. The opening of data and development of interfaces continues in many projects in different cities. Service development and the utilisation of open data has typically taken advantage of national (such as apps4Finland/OpenFinlandChallenge since 2009) and targeted local innovation competitions (such as Apps4Pirkanmaa).

3.4 LEARNING ON PLATFORMS – CULTURAL SHIFT AND EDUCATION

It is expedient to connect the activities of platforms to learning in one way or another in order to pass on the practices of the new operating culture. Learning as the basic function of platforms is also vitally important to their users. Learning refers to the learning of organisations participating in co-creation as well as a new kind of studies or practical training connected to degrees. 'Learning-by-doing' should be a built-in function of platforms (Box 11). A platform can also be used as a learning tool in management of change when the organisation is looking for new, more open operating models. The experience-based learning process provides a profound vision of the direction of development. An easily approachable and light co-creation process can also help companies open up and accelerate their own innovation activities and thus function as cultural converters within the companies.

Learning is not always tied to an educational institute, but close connections to higher education should be formed if possible. Learning and officially merited ECTS credits are a combination that encourages students to participate and be inspired by the services offered by the platform. When the platform and educational organisation work together, they should sign an official agreement to make it easier for students to join the platform activities. That way, they can also rest assured that activities on the platform can be accredited as a part of educational activities and they can receive official ECTS credits for them.

The educational institutes are typically universities or universities of applied sciences. Course practicals, project work or parts of dissertations may offer a natural way to leverage co-operation with a platform. Learning and education may comprise different areas, such as technical science, media production, business economics, entrepreneurship, leadership or social sciences. The learning may also be targeted at residents or companies operating on the platform, for example. These processes should be planned as a part of the platform's activities.

Things to consider when planning learning and education:

- A new way to learn (new kind of practical training in or for working life)
- Not tied to an educational institute (for example, a bureaucrat learning new things in a city district development project)
- Formally linking the teaching of universities to innovation activities
- Organising demonstration lessons by unemployed professionals
- Activating teachers of educational institutes into innovation activities
- Including international students through active engagement
- A way to earn ECTS credits – a part of a study module
- Using experimental learning methods
- Enabling practical learning – agreements with educational institutes – ensuring teaching quality
- Different areas: technical science, media production, business economics, entrepreneurship, leadership, social sciences
- Examples: Demola, Design Factory – Aalto, Mediapolis – TAMK

BOX 11: DEMOLA AS A PRACTICAL LEARNING ENVIRONMENT, NEW FACTORY, TAMPERE

Demola Tampere in the Finlayson area of Tampere is an open innovation operating environment where students of the local higher education institutes (Tampere University of Technology, University of Tampere and Tampere University of Applied Sciences) carry out development projects as a part of their studies in close co-operation with companies. Demola was developed to be an agile model for co-operation and innovation without unnecessary bureaucracy. The model has proved an efficient way to carry out innovation activities that combine different educational institutes and companies.

Demola's licensing model is well-suited to activities where a prototype or demonstration is needed in a field that is not fully within the company's core operations and where the implementation requires multidisciplinary competence. The party who commissions the project provides the idea, and independent, multidisciplinary student teams start developing solutions around it. Often, the aim is to develop software and digital services, but there is also other development work, such as service concept design.

The activities are maintained by New Factory Ltd. The local higher education institutes and INew Factory Ltd run the daily operations of Demola. There are four or five facilitators. The funding of Demola (Tampere) consists of a share funded by the City of Tampere, the shares of the three higher education institutes and the licensing shares paid by the participating companies/project partners. What is interesting about the model is that it serves as a frontrunner of the joint education of the three higher education institutes of Tampere, which the 'T3 process' strives to advance by merging the three into a single university.

The benefits of the Demola method to companies include the open innovation model and the associated co-operation with universities and companies, which is creatively connected to the 'best talents' in Tampere. In projects, companies can implement and evaluate service solutions in an agile way. This gives companies the opportunity to flexibly demonstrate and test, in an open innovation environment, ideas that they might otherwise not have the resources to trial and develop. Public sector actors can also develop their activities in Demola projects. The benefits of the Demola model to universities and other higher education institutes include a new kind of teaching and learning environment as well as new co-operation opportunities between degree programmes, universities and other higher education institutes. Demola projects involve a need for research and development that is based on actual demand, and they offer co-operation opportunities with companies and initiatives for research.

http://tampere.demola.net/

4 COMMUNITY

4.1 ROLES IN THE COMMUNITY

The activities of the platform highlight new economic logics, such as the community spirit in the start-up culture and benefits shared between individuals in the sharing economy. On the micro level, community spirit may show, for example, in co-operation between developers, which is not charged for. One of the key challenges of organising platform-based activities, however, lies in also recognising the roles of the community's actors from the perspective of concrete value creation. (Choudary 2013; Haigu 2014.) Indeed, we must determine what motivates users to participate in development and especially what motivates customers to pay for the end product. In the development work of cities, services are often free for users or subsidised, but determining the customer helps in the building of the platform and adjusting it to operations that may be maintained with their own revenue generation model.

A platform needs a community in order to function, but it is a good idea to define already during the building phase the key roles of the community's actors or users: **producers or developers, consumers, customers and owners.** Producers, consumers and customers are literally roles – in practice, a producer, consumer or customer can be a person or an organisation. However, it is important to recognise the essential characteristics of the roles:

- **the developer** (or innovator or producer) creates supply or meets demand
- **the consumer** creates demand or consumes the supply
- **the customer** pays the platform for services rendered
- **the owner** establishes the platform and finances the platform's activities/launch
- **the facilitator and manager** are responsible for the platform's daily activities and development.

The strategic choices of the platform are defined by questions, such as who is the consumer who creates demand or uses the platform to open innovation activities and solve problems with an outside party. What is/are the group(s) of outside developers that create supply and come to the platform to solve problems together with the parties who pose the problems? How does the platform bring together these groups, and who should pay for this service? It is not always easy to define the role of the customer, but it should be thought about in the early stages of building the platform. Often, however, the customer (or lack of customers) may only be revealed at a later date when the platform activities are already under way. A typical challenge of platforms that is connected to building the community is the chicken-or-egg dilemma: without users, a platform creates no value, so how to attract the first consumers or producers of the service? It is through the people and organisations operating on the platform that it **engages with the wider ecosystem**, within which the operations will grow and develop or die out.

4.2 DEVELOPER OR INNOVATOR'S PERSPECTIVE

On platforms, individuals and companies get to participate in developing and customising products and services that interest them. The developers or the 'community of innovators'

define the competence that the platform can offer. The role of the developer can be filled by:

- **citizens** who want to participate in developing their area
- **students** at innovation workshops, where they gain valuable experience with practical innovation work and build connections to working life
- **companies** that utilise digital or co-creation environments or living labs in application, product or service development
- **companies or consortiums** that participate in urban development through innovative procurement processes.

The roles of developers and factors that motivate participation must always be analysed separately for each platform, however. The motive for participation may be in the process or the end product of the development process. The role of the developer as a (paying) customer is dictated by how much the developer benefits from the development and end product. In such cases, IPR matters and the ownership of the end product, for example, are important. Regarding motivation, it is good to remember that there is often a strong desire to work together, and the increase of the developer's own competence and ability in particular is important; money or ECTS credits alone might not motivate for the best performance possible. The real motives of participants spur better results in development work and are an important part of building the developer community.

4.3 CONSUMER PERSPECTIVE

As a rule, using the platform's services – consumption – involves the opportunity to participate in the open innovation process or the platform's content production in some form. The motives for participating are bigger than acquiring a single solution and may vary greatly. From these motives, the platform owner should strive to form a clear image in order to evaluate the demand for the service planned for the platform. **The perspective of consumption does not directly indicate who should pay for the service, but it can be used to determine groups that create demand for the platform.** The parties offering solutions on the platform may be the same as the consumers of the service who create demand.

The motives of consumers for using the platform's services can be examined from the perspectives of different user groups, for example. For companies, it is always challenging to open the innovation process. However, it can be made easier with a clear and functional open innovation service concept, which can be acquired on reliable and neutral soil. The speed and affordability of innovation projects compared to conventional project-based development may also motivate companies to participate (Figure 6). Start-ups may try to build momentum or even be created on platforms and develop in the environment they offer. Experts, on the other hand, can develop their competence and networks on platforms. (Figure 7.)

4.4 CUSTOMER PERSPECTIVE

From the perspective of the platform, the customer is always the party that pays the platform owner for the service. A platform may have a clear group of consumers to whom the service is offered, but it is harder to determine who the customer is (Box 12). For example, companies can use testbeds or development environments to collect valuable information and manufacture more innovative or suitable products for the market. Companies seek activities that produce concrete innovation benefits and profit. Companies or research institutions that produce testing and trial platforms benefit the more widely the test service is used.

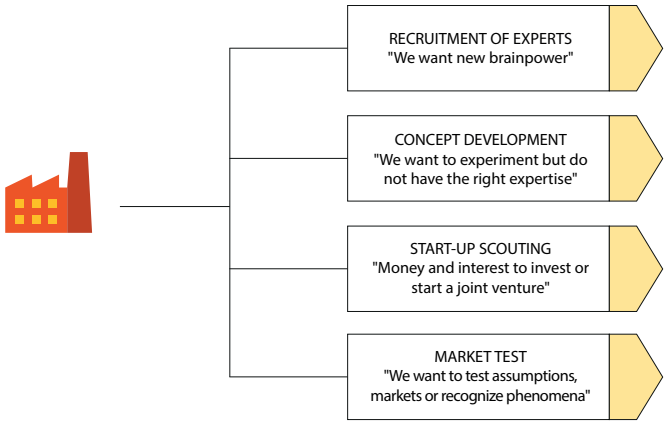


FIGURE 6. Companies' motives for using the platform's services.

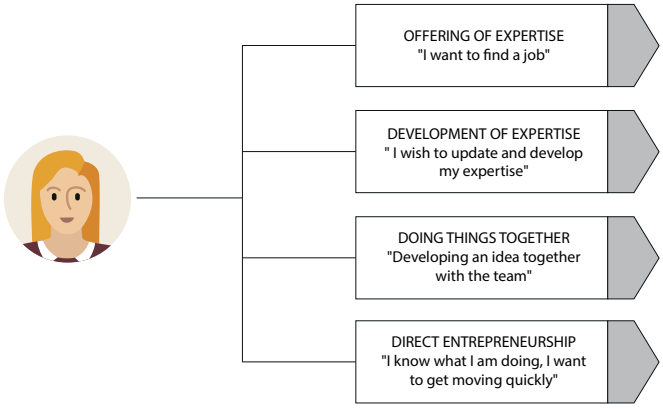


FIGURE 7. Individuals' motives for using the platform's services.

Therefore, the benefit is divided between the provider of the test environment and the companies that use it, and the platform-based service can be facilitated by a development company owned by the city or another semi-public actor. In that case, the identity of the paying customer is not fully clear.

Determining the customer may also be difficult on co-creation platforms. In the simplified sense, the paying customer is the party who benefits the most from the development. Gaining companies or other parties as paying customers requires careful productisation and, when it succeeds, it moves the activities close to or fully on the market. In that case, the platform owner may be a development company or private service provider, for example.

BOX 12: PAYING CUSTOMER OF THE PLATFORM: BUSINESS LIFE PERSPECTIVE

In business life, a large number of users or even a successful network effect does not necessarily translate into successful business operations from the platform owner's perspective.

- When platforms mostly convey information between users (**intermediary platform**) and enable social interaction, users do not necessarily pay anything for using the platform. Among services like YouTube, Twitter or Facebook with hundreds of millions of users, mostly only Facebook has managed to do profitable business, and even then only by selling advertising space. Huge user numbers raise the value of the company or service, but it is difficult to generate earnings from the service itself.
- If a service clearly brings together two user groups, such as the producers and users of content (such as Netflix or Viaplay), the platform may do profitable business with a significantly lower customer volume.
- When platforms convey the concrete services of users, the users pay the service provider who in turn pays a share of the profit to the platform. This type of intermediary platforms function within the framework of the users' physical property and competence, such as Uber (taxi services) and Airbnb (accommodation) The platform's users, then, are consumers (renter of accommodation or hirer of a taxi) and producers (landlord or taxi driver) as well as customers of the platform. This operation has been turned into profitable platform-based business models.
- When the facilitator owns a platform that is being developed (**development platform**) and the developer benefits from the environment or technology, the platform owner may charge the developer directly. This despite the fact that the platform also benefits from the complementary new services and often also controls the quality and content of new services by rejecting/approving the services introduced within the framework of the platform. So, the platform owner may charge a share (such as Apple 30%) of the profit from the customer, whose new application generates for its maker, and charges various (often modest) fees for use of the development environment.

The value of the content conveyed by the platform also impacts the quantity of the compensation paid by the customer (such as a 10-second cat video vs. weekend accommodation) and the users' expectation of receiving a free or paid service. Similarly, the relationship between the platform owner and its user also has an impact: Is the platform just an intermediary or a target of development? In case of development platforms, the platform must be believable from the perspective of the customer (developer) in order for them to be willing to pay for its use or spend time on developing the environment. **To determine the paying customer, it is important to recognise who benefits most from the encounter** and what is the reason for the platform's existence. On intermediary platforms, the party that benefits more from using the platform often pays the majority or all the costs, and development platforms may charge various fees from the developers using the platform. (Table A.)

INTERMEDIARY PLATFORM	MAY PAY ANOTHER USER GROUP (DOES NOT PAY PLATFORM)	SELLS TO ANOTHER USER GROUP /END USER (PAYS PLATFORM)
Advertisement-based media (magazines, FB, Google)	Users	Advertisers
Trade centres (Alibaba, eBay)	Buyers	Vendors
Payment systems (Visa, American Express)	Users	Traders
Video game consoles	Users	Game developers
DEVELOPMENT PLATFORMS		
Technology platforms (Windows, iPhone, Google)	End users	Application developers
Product platforms (Gore-Tex)	Buyers	Licence producers, Vendors

(Sources: Suarez & Kirtley 2012; Haigu 2014; Evans & Gawer 2016) Table A. Platforms' paying customers and revenue generation models in business life

It is clear that the definitions of the customers of digital business cannot be directly translated to the needs of urban development, but they illustrate the key operating principles of platform-based activities. Gratuitousness may be justified in the public sector if, for example, the platform produces more cost-effective and/or better quality of public services. In urban development, the different business models for platforms can be applied, for example, as follows:

- A city service or environment that is seen as a development platform is built by outside developers through innovative procurement. The end product is realised under the careful control of the platform (commissioning party).
- For a digital development platform (such as Mapgets) on which city services are developed, the control is looser and the form of the service is freer.
- Demonstration workshops and livings labs do not interfere with the form of the content at all; the actors are allowed to test and co-create their products fully independently. As such, the business model and role of the customer vary based on the platform's operating principles. (Figure 8.)

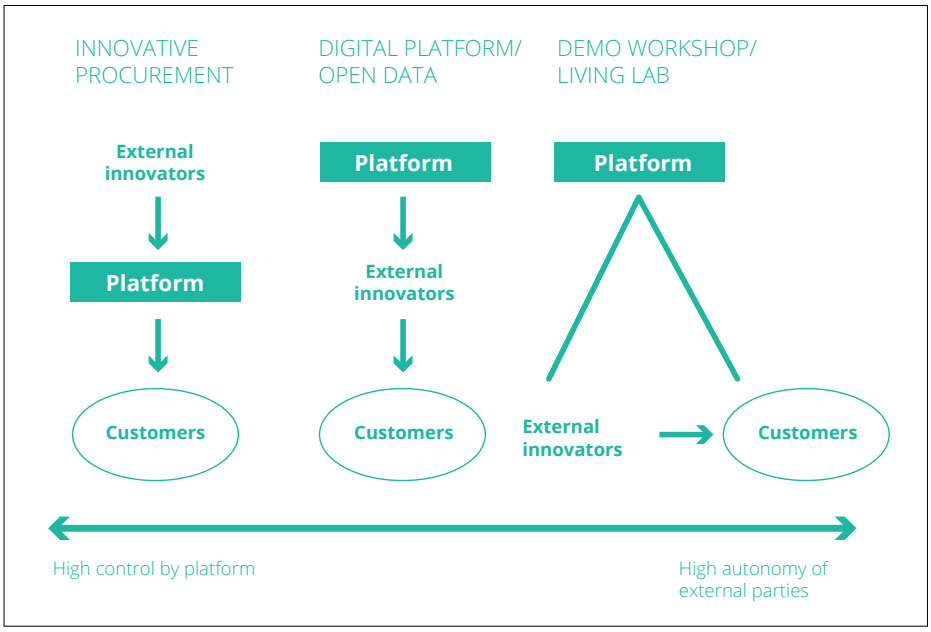


Figure 8. Platform business models and scale of developer freedom (adapted from Boudreau & Lakhani 2009.)

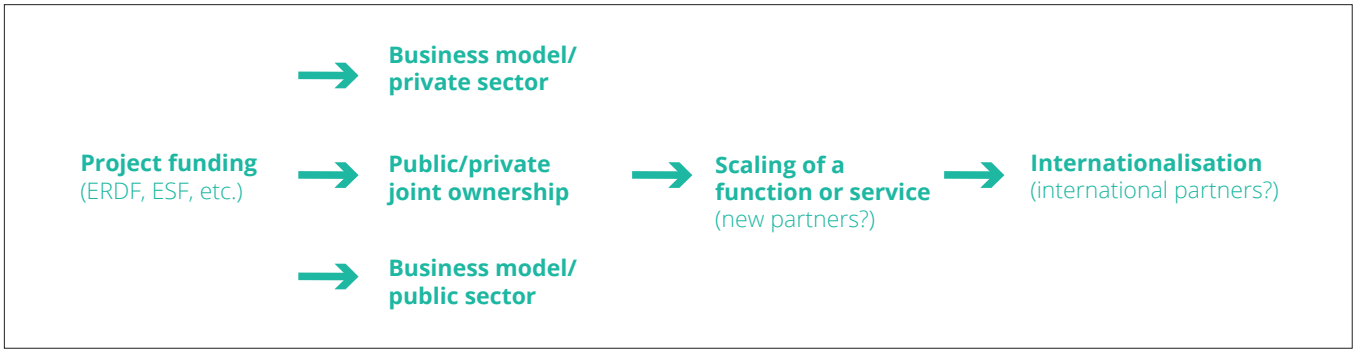
4.5 OWNER PERSPECTIVE

Cities and the higher education institutes or development companies owned by them are typical platform launchers and owners in urban development. Platforms offer many potential benefits for these actors in developing the innovation environment and providing services as well as new (student-oriented) ways to organise co-operation between companies, universities and the public sector, provide services for city residents and offer open innovation practices for the use of business life. Although the parties listed above may justifiably serve as platform owners, in many other cases platform activities may also be organised by private and market-oriented actors. Platforms that the accelerate open innovation activities and co-creation of companies, in particular, can well be seen as a part of the offering of advanced consulting houses or companies that provide facility services. Thus, the ownership of a platform may be located in the interface between the market and public sector as well as fully in the private or public sector. **It is the role of the platform owner to facilitate (or organise the facilitation of) the activities and define their goal: Why does the platform exist?**

The interprofessionalism of platform activities is also reflected in the roles of the owner. The owner's role may be focused in various ways, for example on the management of physical facilities, ownership of the technological environment or the co-creation process. What is essential in the building of the platform is recognising who owns the platform or its central functions, and how they guide the definition of the platform's goal, its development and attracting users. We can also ask whether the platform's key communities have an 'owner'.

The building of open innovation platforms is connected to the changed nature of cities' service activities. Service development is often done in a project-oriented way, and many services are produced in the interface between public and private (such as municipal companies, joint ventures, partnership, service vouchers, etc.). Based on its 'business model', platform activities probably fall on this exact interface, but they may shift towards a permanent public or market-based model depending on the content of the platform function at the time. However, it is important to recognise how things move from project funding to a business model, and who then owns the platform or its different elements. The service can possibly be scaled nationally and also strive for the international market, in which case new partners are also probably needed to expand operations. (Figure 9.) It is essential to think about the roles of the owners for the time after project funding, as well as any options for scalability and internationalisation.

FIGURE 9. Platform development and changes in ownership from the project to the international market.



4.6 OPERATIVE PLATFORM MANAGEMENT: MANAGERS AND FACILITATORS

When the platform's users and customers, the other key members of the community as well as their roles are clear, we must determine who will facilitate the platform and develop the community. The minimum requirement for managing a crowdsourcing, demonstration or start-up environment, which are typical for urban development, is usually two facilitators; one to take care of the day-to-day business and engaging the platform with its external community – ecosystem – and one to focus on realising the platform's mission and on the members of the community operating on the platform. So, there must be one facilitator to run the day-to-day routines and one visionary manager. Starting day-to-day routines and practical operations requires systematic work, and scant resources must be focused strictly on executing the core process.

Typically, taking the first steps of the infrastructure and platform takes at least 2 or 3 months from the basic funding decision. Platforms are not built in a day. In case of a platform solution for an industrial party, the quality requirements may be very strict depending on the brand presentation and the target level set for the operations.

Managing an open innovation platform requires the ability to inspire the creativity of all the participants. Building trust is a key goal in the open and communal operating model. Everyone is responsible for their own actions and trusts others to do the same. The overall responsibility, however, rests with the manager. The community's ability to innovate improves when the manager is able to recognise and remove structural obstacles to innovation (Rajaniemi 2010).

Platform management requires both **management** and **facilitation**. The manager and facilitator do not necessarily have to be separate people, and roles may be flexibly exchanged. The essential thing is for the key actions of management and facilitation to be defined and organised.

Facilitation is a typical way to manage open and platform-based activities. The activities primarily involve the planning and executing group processes, which emphasises enabling people to participate and motivating them. The facilitator does not focus on contents but instead helps the group achieve its goal. Facilitation focuses on the process and how people work together when producing contents.

Management is needed by the platform's operative managers to take care of the customers and day-to-day administrative tasks as well as develop and maintain functional interfaces. Customer organisations, critical mass, agreements, communications and the measurement and development of activities are a part of operative management, which does not necessarily differ from the management practices of other organisations. However, the building of trust with customers and other stakeholders in the context of open innovation activities cannot be overemphasised.

It is important that the management and facilitation strengthen the community or communities of the platform. Community is one of the characteristics of a platform: it shows on the platform as activities that help others and as community spirit. In practice, it means not charging a monetary reward for helping others, for example; help is based on reciprocity. Thus, facilitation refers to combining the building of a community and organisation of the process. The facilitator and community builder:

- is content-neutral yet results-oriented
- uses appropriate methods and tools
- understands what advances the work of the group and individuals
- promotes participation
- encourages consensus-based decision-making where needed
- ensures recording of results
- manages the space and atmosphere at events
- manages conflicts and difference
- gives and requests feedback
- is an enabler and team servant by role.

The facilitator does not need to be an expert in all fields, but rather an enabler of the innovation platform's added value. Facilitation requires interpersonal skills and the ability to pose constructive questions to the group in order to guide work forward as well as the ability to summarise the group's suggestions and decisions. All these are learned by doing. The most important thing is the attitude that the group is the best authority to brainstorm ideas for its activities, produce different solutions and assess its work. (Summa and Tuominen 2009.)

A sense of community can be supported with different team and networking meetings. In a smoothly functioning community, the actors know each other and feel that they can trust each other. The sense of community can also be taken into consideration in the platform's agreement models: a specific percentage of working hours is pledged for helping others, or the parties agree on confidentiality on the work premises. Naturally, confidentiality may just be a part of the community's rules and good practice, but it can also be emphasised through agreement.

In the management of the community, the key thing is the building of agreements and different IPR solutions for the community. They help define the division of benefit or the value produced on the platform between the different parties. Agreements differ greatly between platforms and may be connected to different complexes of issues (see Appendix 4). The platform may also function without heavy agreement procedures, but that must be considered carefully on a case-by-case basis, and practices may change over the platform's life cycle (Box 13).

Things to consider when planning management and community building:

- How to recognise the key stakeholders for different roles?
- Where to find the manager and facilitator, and who pays their wage?
- Are there shared digital tools to help with management?
- How are activities assessed and/or measured?
- What services are offered in the space? (mentoring, workshops, IPR guidance, etc.)
- Is the sense of community already considered in the platform joining agreements?
- Who belongs to the community and are they engaged to participate?
- How is the sense of community supported?

BOX 13: OULU'S TAKOMO SUPPORTS THE SENSE OF COMMUNITY ALREADY IN THE PLATFORM JOINING AGREEMENTS

Oulun Yritystakomo Ltd (Takomo) provides an open innovation environment to brainstorm new business concepts in the Oulu Region. The idea is to support activities aimed at the business operations or business development of companies/communities/individuals. Takomo provides its members with facilities, support and expertise. At the moment, the operations are run by three full-time employees. Takomo has been funded by BusinessOulu since 2010.

The process of Takomo (which means 'smithy' or 'forge' in Finnish) starts with joint innovation – called glowing – followed by forging and finally tempering. Tempering refers to the phase where a company is established. The appropriate daily rhythm for the process was found through testing. The process length is not standard for all participants, but it always includes the same work phases.

Takomo has forged a strong community. Only those who are most suitable at heart are chosen for the activities. In practice, it means that all who are eager and ready to commit to the common rules and customers get to participate. This is also a requirement of the joining agreement:

'The Actor is expected to respect every inventor of an idea or invention as the idea's owner, and to maintain an atmosphere of trust and openness between all the Actors involved in the activities. – The Actor undertakes to participate in Takomo's activities actively and according to the rules. The activities include the Takomo meeting, joining the Takomo forum (discussion group), active participation in idea projects and accomplishment of visible results, and familiarising oneself with TuoteStart (ProductStart) consulting and the opportunities it brings.'

When it was first established, Takomo was driven by structural change as Nokia laid off people. At first, many members of Takomo were in fact previous Nokia employees, but today they include experts from many different fields. The activities have also expanded to cover other areas:

- employment portal duunaamo.fi,
- matchmaking events, and
- courses on topics like 'From printed intelligence to innovation activities' and 'From healthcare to business'.

www.yritystakomo.fi/in-english/

5 SPACE

Piirros: Raquel Benmerguí, kuva: Susanna Lyly

5.1 PLATFORM SERVICE INFRASTRUCTURE

The implementation environment used by an open innovation platform and communities can be organised in many different ways depending on the identities of the parties whose participation is sought, and how it is planned to enable their participation in the innovation process. In this handbook, platforms are divided based on their infrastructure into three different implementation environments: physical, digital and 'pop-up' environments. The platform's purpose of use defines the appropriate implementation environment(s).

Permanent physical environments. Open innovation platforms operating in physical spaces can offer a permanent space for the community, whose activities are regulated by an organised innovation process. Without an organised innovation process, the space could be described as co-working spaces, for example. When designing physical spaces, one can consider the **role of community and creative work** in the activities from the beginning (Nenonen et al. 2015). In this case, it is possible to explore different space solutions that promote a sense of community and creative interaction, such as 'big rooms' (Box 14) or the use of space by innovative companies like Google. **Permanent physical spaces offer a framework for working together and, above all, a recognisable and open home base for the community or communities that form around the platform.**

Digital environments. Digitally operating platforms typically offer a technology environment for co-creation or a forum as a crowdsourcing tool. The technology environment can also be opened for application developers so that they can create new services and business on the platform. The services do not necessarily have any kind of business relationship with the city but receive, for example, access to open data produced by cities and tools to utilise the data and develop services. So, the activities of a developer community operating on the platform is facilitated by various open API interfaces and the toolkit provided for software development (Software Development Kit/SDK). In digital environments, developers can both develop and commercialise their services. The shared forum and other virtual spaces enabling social interaction strengthen the building of the community.

Pop-up platforms refer to co-creation competitions or other events (such as Game Jam, Hackathon, innovation contests) organised in changing spaces (physical or digital). Often, however, these events are coordinated by the platform owner with processes modelled for different parties. So even if the environment is not permanent, it may use permanent-natured operating models to organise the co-creation. In practice, in the context of urban development for example, different events can be organised using a specific participatory concept, such as the Charette method, or digital platforms can be marketed by organising developer events based on the hackathon model.

Platforms operating in different environments offer open innovation organisation tools targeted at different target groups, with a fixed built-in facilitated co-creation process. These are built in different ways for each platform. The recognition of these environments is always closely connected to the goals of the platform and the starting phase of the process, but the refining of the agreement and utilisation practices connected to their use may take a long time and change during different phases of the platform's life cycle.

The nature of the spaces depends on the activities of the platform, and has an impact on its community, but the activities and community are also structured by spaces that are continuously

or occasionally used. The co-creation concepts of platform services operating in permanent spaces can be brought to new locations pop-up style, and special technological environments can also be offered for the use of more than one platform service.

In platform space solutions, it is also advisable to determine the available technological opportunities in which the development takes place or which can be utilised in development work. Start-up or students groups may only need a space for working together with desks and meeting rooms, whereas platforms with special technology requirements (such as 5G, chemical industry test processes: Box 15) require substantial expertise and special technological environments within the framework of platforms. Studio or laboratory environments, 3D visualisation or living labs placed in the city environment can also be utilised in the platform activities. The available environments and contractual solutions related to their use are a part of organising the platform's space use.

BOX 14. CO-CREATION IN PHYSICAL FACILITIES: CO-WORKING AND BIG ROOM WORK

The work of today is well represented by co-working spaces and Big Room work. Co-working spaces refer to communal work environments that members of the space can use to work. Characteristically, the people working in the space are not employed by the same organisation. Among Finnish platform actors, the concept is utilised by, for example, Demola, Takomo, HealthHUB and Kampusareena.

Rent can be charged for workspaces, or they can be offered to, for example, start-ups free of charge or for a nominal fee (such as Takomo, Startup Program). The meaning of community and peer support is emphasised in co-working spaces. Members of the community advise and help each other in the name of the community, not for compensation in money. The activities of the community are supported by a modelled co-creation process guided by the platform's facilitators.

Co-working spaces can be carefully designed facilities, such as Kampusareena (especially Kampusklubi), or an old factory hall with second-hand furnishings, such as Demola. Both of them also serve as examples of Big Room work, which refers to the assembly of different parties in the same big room to ponder on and design the different options for implementing a project. In Big Room work, the designers are not meant to just design the best designs of the field, but instead to discuss factors influencing several parties with the assembled group. So, Big Room brings together a relevant team of actors, whose set-up the 'rough work' is based on. In Big Room, the aim is to get designers to work together with other groups and find the best possible solutions for the project being discussed. The model is used at Kampusareena, for example.

Co-working and Big Room spaces can also be created pop-up style. One example of pop-up is the various Game Jam events, where a group of game developers gets together in the same space for a day or a weekend to develop games. Big Room development can also be done pop-up style by equipping an open space with things like whiteboards that people can freely fill with ideas. The model is used in city development, for example.

BOX 15. SMART CHEMISTRY PARK

Smart Chemistry Park in Raisio is a chemical industry hub built for the needs of companies, bringing together industry, higher education institutes and the public sector. The operations of Smart Chemistry Park are developed by Turku Science Park Ltd, a public development agency, and made possible by the cities of Turku and Raisio. The activities are focused on bringing together the key people working in different organisations and supporting the chemical industry.

The aim is to support the growth of small companies and lower the threshold to start business operations in the chemical industry by providing networks, infrastructure and test equipment, peer support from other companies and knowledge of the field. From the perspective of the companies, thanks to a shared location, the activities enable the sharing of resources and infrastructure, which reduces costs. The concept is based on the fact that, in the chemical industry, the initial investments are expensive and make it difficult to start business operations.

There are currently 11 companies working in the facilities, but 30 companies are actively involved in the activities. Higher education institutes participate in the activities through joint research projects that solve the chemical and technological challenges of the companies. The academic research information of the university is put to practice by transporting it through the activities of the university of applied sciences. The activities of Smart Chemistry Park are designed to be primarily self-supporting; they mostly run on company money.

http://smartchemistrypark.com/en/

Things to consider when planning infrastructure:

- Where can the platform's goal and operating format be implemented: Is the operating environment physical, digital or pop-up, is it a concept or does it require special technological abilities or physical facilities?
- Rent or browser maintenance fees
- Protecting secret information – information security
- For which phase of the innovation process is the environment meant to provide support? (brainstorming, development, testing, commercialisation)
- Enabling trials in technology and test environments
- Who has access to the infrastructure? (Is the online forum open to all? Is everyone allowed to access the physical location?)

5.2 REGIONAL NETWORK OF PLATFORMS

The platform's regional space solution is connected to its laboratory or technology environments as well as its engagement with the network of the other platforms operating in the area. It is expedient to define the roles between platforms and their co-operation opportunities in a systematic way. In practice, we can describe **the co-creation concepts, test and/or technology environments used by each platform in its activities, as well as how and on what terms these resources are made available to other platform actors or their customers (Figure 10).**

In practice, the platform's activities can be linked to other platform actors by, for example, offering **co-creation services for the use of other platforms (**such as Demola in Tampere city centre on the Kampusareena of Tampere University of Technology) or by offering technology environments or living labs to other platforms. The definition of the activities depends on the relationships between platforms and on their operating models, but it is advisable to also make the division of labour and the co-operation between the platforms visible to the customers and users.

On a regional basis, it is expedient to also define the relationships between platforms, co-operation opportunities and division of labour, and to evaluate the impact of the entire platform network on the innovation activities of the city and area. Engagement with the ecosystem (customers, developers, partners, owners) should also be recognised on the level of the platform network in addition to the individual network level.

Linking to the platform network and the wider ecosystem may also mean paths, for example transferring an idea developed on the platform to the start-up programme of another platform in the area or in another city, or even outside platforms and into a national accelerator programme (such as VIGO).

5.3 NATIONAL NETWORK AND SCALABILITY

It is often expedient to define the relationship of the platform to internationalisation and its potential role as a part of an international network and wider ecosystem, and to prepare an **internationalisation strategy**, if needed. Examples of key questions: Can the platform's own operating model be scaled up internationally, or is it better to operate on national the level or engage with the international ecosystem through other actors? Can international companies be induced to utilise a platform within the framework of a test environment operating in a city? Is there an international market for a digital platform? Can communities from abroad be engaged in its development? For example, Denmark's *MindLab*, which uses prototype and test environments to solve political and public-sector issues, is expanding its activities to an innovation laboratory in Brazil (mind-lab.dk).

Internationalisation poses challenges for the perspective of urban development, or how to target the benefits of platform-based activities strictly at the city region or its close surroundings. On the other hand, it opens opportunities for real innovation benefits in the building of an international developer community as well as selling services to the international market. In international marketing, platforms can join forces regionally and internationally in order to increase their visibility and create a uniform message for selected forums.

Tampere's Demola model, for example, has already spread to several countries. The model provides the platform with a revenue generation model and new opportunities that are important for innovation activities. The operating model is based on a functional business model as well as a uniform digital operating concept within whose framework local actors can facilitate the platform service concept in different parts of the world and create a local community around it. The network's shared digital platform also provides opportunities for overall management, communications and continuous development (Figure 11). The concept contents have been updated to meet the needs of internationalisation for local actors as well as export activities targeted at the country; the different phases of the platform's life cycle also require the concept to be updated in terms of content.

From the perspective of internationalisation and networking, we can ponder on the following:

- Can the platforms form a network?
- How should the activities be organised?
- How does the platform engage with the ecosystem of companies, higher education institutes and research institutions?
- What is the platforms' relationship with the citizens and the rest of the environment?
- In what ways could the platforms operate internationally?
- How are the platforms' services offered to the international market? What is offered and who to?
- Are the efforts to build the platform's developer or innovator environment to be international, and how is it done?
- Is it expedient for the platform to try and establish branches abroad, or should the primary goal be tempting customers to the existing service? Do we attach to a wider international network or networks, through which we increase the network effect?

FIGURE 11 (right). Internationalisation of the Demola network from 2008

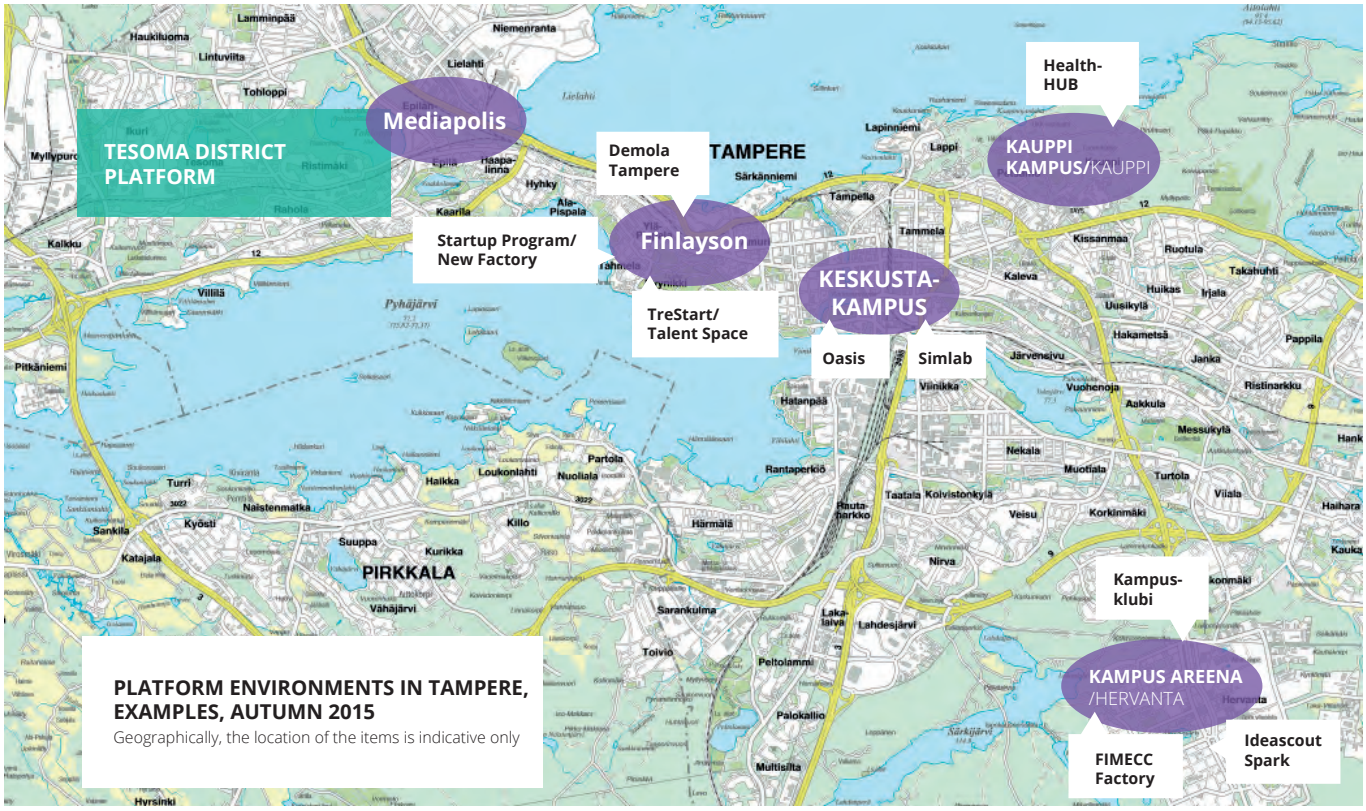


FIGURE 10 (down). Platforms and their environments in Tampere in 2015. (Source: Situational Picture of Innovation in Tampere Region 2015).

6 PLATFORMS AS OPEN INTERFACES OF DEVELOPMENT

['CITY DEVELOPMENT KIT (CDK)']

The approach can be seen as the next step towards planning an intelligent, participatory city that offers diverse value-creation platforms for the users of the city space. Platforms do not operate solely as supports and experiment environments for companies; they are also an important tool in the participatory development of cities. Platforms open extensive opportunities to participate in city space development to citizens, companies, universities as well as other members of the city community and users of the city space. The city functions as a platform which, through platform-based practices, can harness competence and knowledge of the city community or outside actors to be used in development. For the platform-based activities, it is essential for the participants to feel that they receive a significant benefit in return. Platform users produce added value to each other by participating. A successful platform creates a network effect in which users feel that they have received such a significant value in return for working together with others that they come back to the platform. In practice, this may mean that the city's purchasing department and companies performing urban construction return to innovative procurement processes more often within the framework of public procurement, or the student group of a demonstration workshop and companies that offer projects to the workshop participate in the platform activities again and again, or something in between. Thus, the development work taking place on platforms should reward the participants and offer different user groups concrete opportunities to influence things regardless of whether the development involves business life, city services or the environment.

The city environment (public services, built-up environment, business life) can be seen as a target of development, which we want to improve with the participation of members of the city community (companies, citizens, educational institutes, associations, etc.) or outside parties (companies, experts, etc.), whose contribution is relevant for the development process and its end result. Platform tools help engage competence in the development process and create value for both parties. The appropriate tools for each City Development Kit are selected from among the platform tools depending on the target of development. There are several different kits according to development needs, and they open the projects and processes connected to development of the city environment to various parties. The placement of different possible kits as an open interface of city environment development for companies and other actors is illustrated below (Figure 12).

The city may utilise different platform tools in the implementation of wider development projects or strategies as it enables the participation of outside parties in value creation and innovation as a part of the process. For the development of an intelligent transport strategy or urban development, for example, different tools can be selected for the kit.

- The development of intelligent transport requires digital development platforms, interfaces and agreement models for using data, innovative procurement processes for building a new kind of transport infrastructure, and demonstration workshops or living lab environments for conducting trials. (such as ITS Factory)
- In urban development, the likely platform tools might include innovative procurement processes connected to construction, crowdsourcing services for analysing user experiences, and start-up competitions and co-creation concepts for the development of individual targets (such as Box 16/Tesoma).

EXAMPLE TOOLKITS

CDK1: Toolkit for renewing university-company-city cooperation

CDK2: Toolkit for urban development

CDK3: Toolkit for implementing the smart transport strategy

CDK4: Toolkit for tourism development

CDK5: Toolkit for creating growth companies

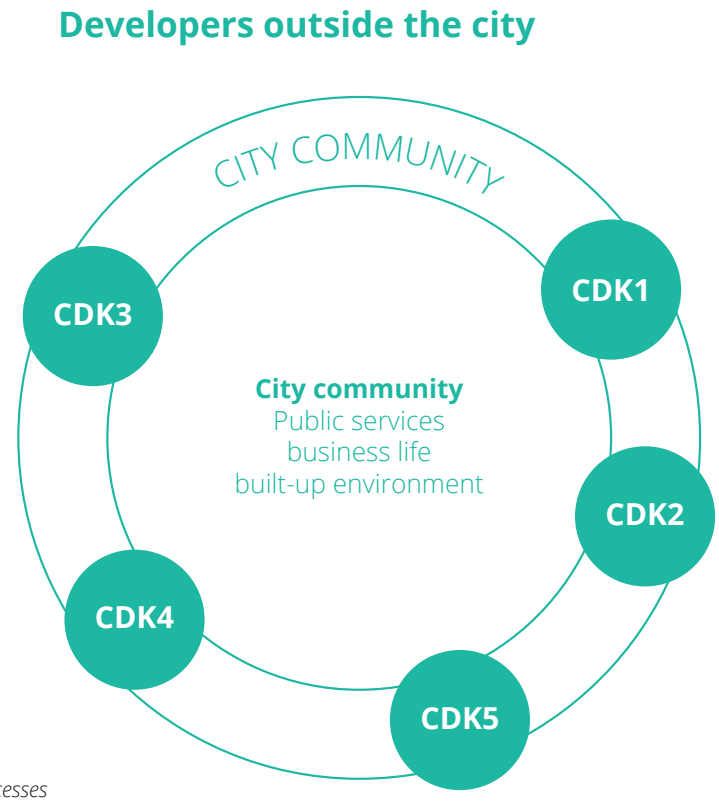


FIGURE 12. Example platform toolkits for different development processes open the city development action to outside developers

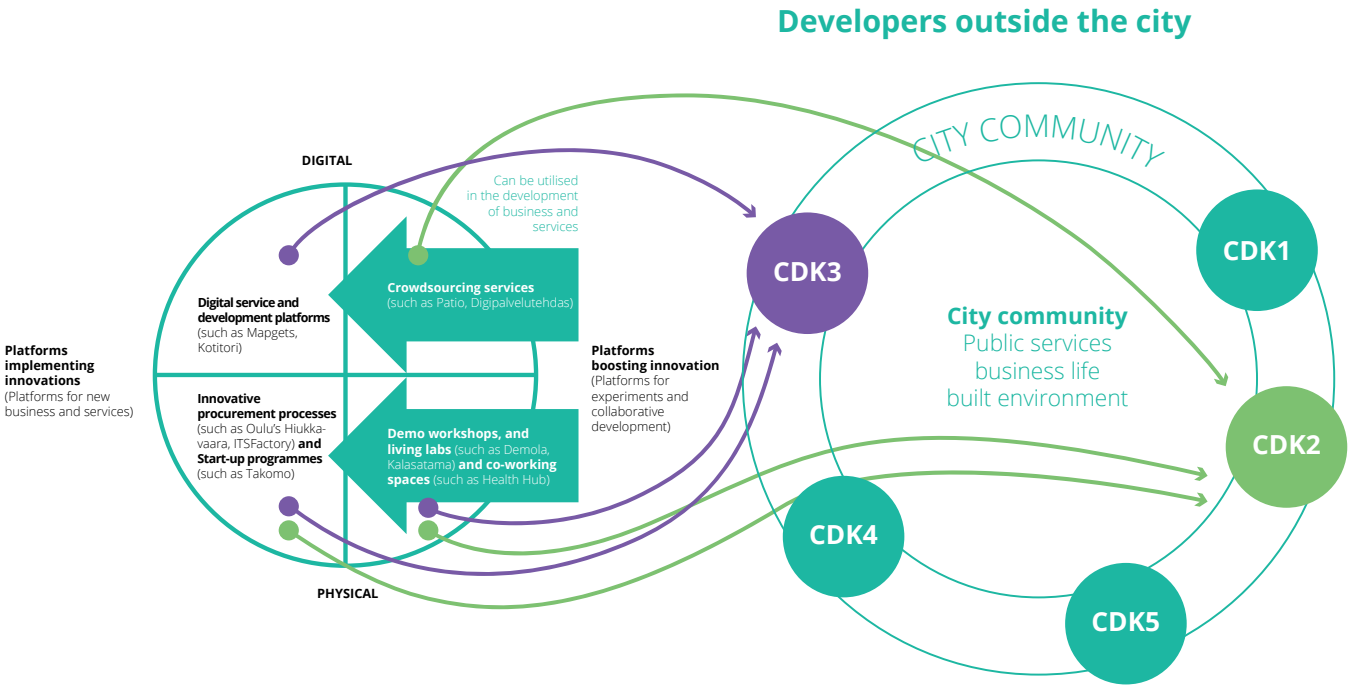


FIGURE 13. The smart transport strategy kit (CDK3) and urban development kit (CDK2) are selected from the platform tool selection offered by the city in partly different ways (example)

In practice and in long development processes, the selection may be much more diverse, but the examples illustrate how platform tools can be put together in the City Development Kit as needed. The essential thing is for the kit to include physical and/or digital tools that help attach the most vital competence and user experience to the development. A kit with physical and digital tools can be named according to the practice of digital services as the 'City Development Kit/CDK', whose contents vary based on the target of development (Figure 13).

An open innovation platform is not so much an individual co-creation service as an approach to urban development that systematically strives to open the city environment, its services and business life to different realisations of co-creation and open innovation. Transferring the logic of platform tools to urban development on a wide scale turns the city into an open innovation platform.

Drawing: Raquel Benmergui, photo: Susanna Lyly

BOX 16: TESOMA DISTRICT CO-CREATION KIT ('CDK 2')

Tesoma is a district in Western Tampere. Its core is formed by a residential area built in the 1960s and 1970s, but the entire service area contains a wide range of building stock. Almost 20,000 people live in the district, which has been built over several decades. The number is expected to rise by approximately 6,000 residents through complementary buidling.

The Tesoma district of Tampere has been made a development platform for services and city planning, facilitating various innovative experiments that improve the district's well-being and vitality as well as the dialogue and participation of the residents, service users, service providers and other actors. The development is a part of the Oma Tesoma project programme. Oma Tesoma is a cross-administrative and comprehensive project based on the partnership and co-operation of many different parties.

The development of Tesoma is based on resident orientation and working together. One model aimed at supporting participation and co-creation is the Koklaamo innovation platform being created in Tesoma. Koklaamo is an operating model that supports the co-creation of innovative solutions and the quick and agile experimenting of proposed solutions. Koklaamo focuses especially on creating new everyday services and supporting the development of intelligent solutions for the renewed district. The operating model is aimed at supporting the innovation activities of companies and the creation of new solutions, but also at inspiring the entire city community to adopt a stronger role and take responsibility for the construction of the district's overall well-being and vitality.

In addition to Koklaamo, Tesoma has also tested an idea competition for companies and the building of an innovation and experiment environment linked to a land assignment competition, and created a crowdfunding model connected to urban development.

7 SUMMARY

Key messages of the handbook:

- Platform orientation is an operating principle arising from a profound social change; it is not the latest buzzword of management manuals that will change next year.
- The platform-based approach strives to utilise digitalisation as well as the knowledge and competence of people and organisations as a part of innovation and development activities more carefully and extensively than before.
- In urban development, digital solutions have been sought and open data utilised for a long time already, but this handbook also highlights the wider connectivity of the phenomenon to the physical and operational platform environments of city development and innovation activities.
- The physical and digital environments are entwined phenomena that cannot be separated in the development activities of cities. The goal is to form an overall picture of this field of platform-based development, its basic elements and tools, so that we can rise to its challenges in a more concrete and comprehensive way than before.
- The platform-based tools described in the handbook can be seen to function as digital and physical interfaces that enable the participation of different 'user groups' in development. Visible interfaces – the knowledge of how to participate in development activities through the platform – are a significant part of the structure of a platform-based city.
- An open innovation platform is not so much an individual co-creation service as an approach to urban development that systematically strives to open the urban environment, its services and business life to be developed by third parties. **Transferring the logic of platform tools to urban development on a wide scale turns the city into an open innovation platform.**

A platform in the simplest sense refers to any operating environment, technology, system, product or service***, whose development has been systematically opened up to outside developers and value creation, and whose key aims are the benefit produced by the platform's users to each other and the network effect brought by participation.***

In the context of **urban development,** we can thus see the entire city as well as its services or actor groups as innovation platforms if a platform model is used in their development. The concept of innovation platform is already widely used, and it is used to refer to many types of activities realised in the interface of public and private actors. However, it is often more expedient to view these functions as **tools of platform-based development** that help to turn a city or its sections into an open innovation platform, than as innovation platforms as such.

In order to launch a **platform service** that organises co-creation, we can simplify its three internal basic elements and their connection to the wider environment into three entities (Figure 14):

- **Open innovation activities that create value for the platform's users.** The activities involve creating, together with the platform's users, new solutions, products, services or new business, or testing and developing them in real urban environments using co-creation tools.
- **A community of people, through which the platform engages with the wider ecosystem.** It is vital to define the different roles in the community: who is the platform's user or who solves problems on the platform (developers/innovators), who submits problems for solving (consumers), who pays for the platform's end products (customers), and who owns the platform.
- **The physical and/or digital space and time and its connection to the regional and/or international network,** in which the defined problem-solving process takes place and the community creates value.

However, only the network effect, in which the platform's users – one or more user groups – create value for each other and make the platform attractive to each other, turns the activities into a functional platform and spreads the culture of working together. The community, space and activities can be **facilitated** in many different ways to support this joint value creation process.

The potential of cities as platforms is based on their ability to create a network effect by achieving a significant number of users within the framework of their own city community (citizens, companies, educational institutes, etc.) and large (innovative) procurements. The key opportunity of platforms is the systematic engagement of the entire city community and parties outside the city as a part of the city's development in clearly facilitated processes.

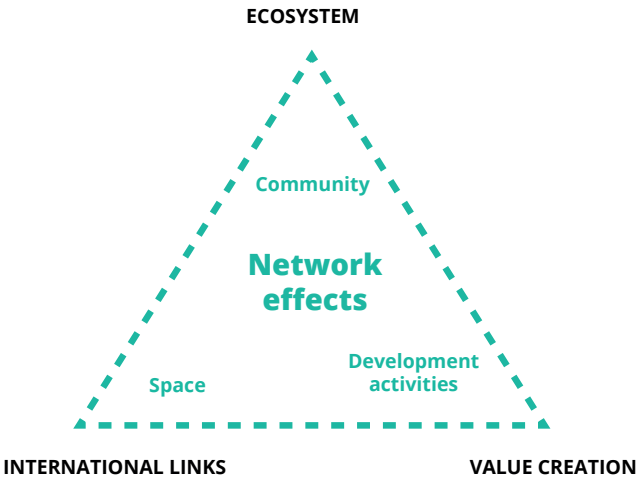


FIGURE 14. Internal elements of the innovation platform and their external connections as builders of the network effect

A typical problem in development activities is that very few platform services that enable platform-based development are a part of fairly permanent and systematic development activities. A particular challenge lies in the systematic engagement of platform services – innovative procurement processes, demonstration workshops, innovation competitions et cetera – **in urban development,** and making this interface visible to platform users, innovators and customers: **creating a platform-based development entity on city level.** This requires changes to operating principles and breaking down the silos formed by conventional organisational structures. However, the 6Cities project has already demonstrated that the competence and motivation for change exists, so conquering the challenge is a part of an ongoing process.

APPENDICES: MANAGEMENT AND DEVELOPMENT TOOLS

The following appendices present the tools that have been/will be developed during the project for the development and management of open innovation platforms. The handbook and the management and development tools will be developed as the project progresses, including their testing and customisation along with digitalisation, if appropriate. The development of management tools also requires for the role of the open innovation platform to be defined as a part of the urban development, which was done above. The first part of the handbook puts the management and measurement tools in the right context.

The tools presented here were developed based on interviews of approximately 30 platform actors, meetings with OIP project managers and their feedback and five three-phase profiling pilots in Tampere (Startup Program and HealthHUB) and Oulu (Mapgets, Patio and VIRPA). Information and comments have also been collected at 'OIP jams' targeted at platform actors in Tampere (June 2015, November 2015 and March 2016), which had approximately 60 participants from Tampere and other 6Aika cities.

The platform management tools presented here are partly generic so that they can be applied widely in different environments. They are primarily focused on the management and measurement of physical environments; they can also be applied to fully digital environments. Indeed, every platform service or platform entity should utilise the tools where applicable, and the essential thing for the whole is finding common indicators. Due to the emphasis of the OIP project and the material collected, the tools are primarily focused on the management of physical and digital trial environments, whereas innovative procurement and actual digital platform services require applied or separate management tools in many respects.

I) OPERATIVE PLATFORM MEASUREMENT

Operative platform measurement helps evaluate the status of an innovation platform's activities. Next, we present (1) a platform profiling tool designed to support operative measurement, aimed at evaluating the status of the platform's activities internally and externally; (2) a model of indicators for the platform's operative activities to help visualise what, at least, should be measured in the platform's activities; and (3) self-evaluation of an open innovation platform and a model framework for operative measurement to help visualise the activities of an open innovation platform through its basic elements: community, space and activities.

I. Profiling tool

The aim of profiling is to help the platform find the strengths, good practices and targets of development in its activities. It is meant to help evaluate the internal state of the platform's activities and to function as its self-reflection tool in order to increase internal understanding. In profiling, a team of experts gathers information about the platform's activities, and the platform itself is actively involved throughout the process. The aim is to gain a clear picture of the activities and state of the platform by observing it through its basic elements (Figure 15).

Goal: The goal of platform profiling is to map the platform's operating principles, characteristics, appropriate measurement practices and motives, and to provide for the platform a tool for self-reflection and development of activities. It also serves as a tool for the area's platform developers.

For whom: Suitable for platforms in various stages of development. The interactive process may evoke development needs on an established platform or provide support for the orientation of the preliminary forms of a platform that is still shaping up.

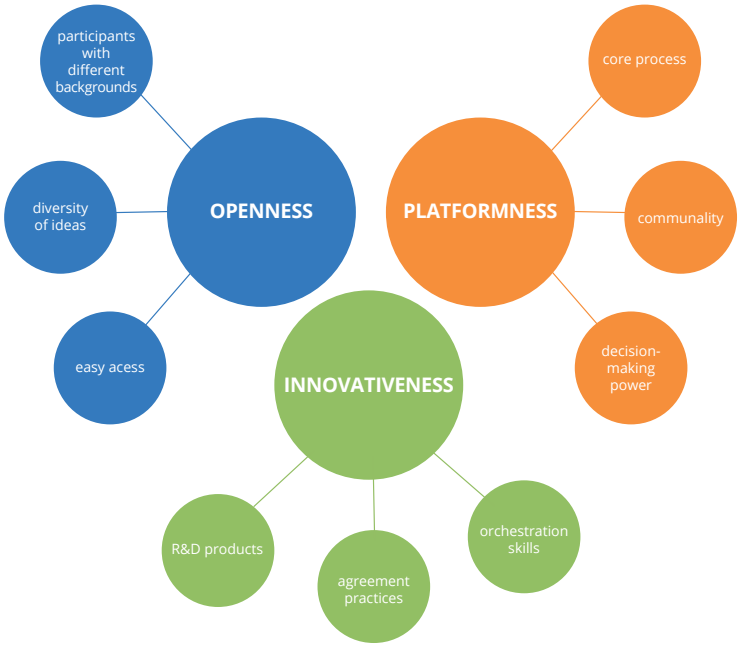


FIGURE 15. Basic elements of profiling

Model: An interactive modelled evaluation process aided with a profiling tool. The profiling team is assembled on a case-by-case basis.

Motives: Supports the analysis of the dimensions and maturities of platform orientation ('platform development discussion'). Embeds platform orientation and functions as a tool to increase information. Supports the development of operative measurement.

Platform profiling is an interactive and structured process that is based on the platform's will to improve, mutual trust between the parties and increasing information.

The platform undertakes to participate in profiling team meetings and data collection with its work input. The profiling materials include strategies, visions and collected operative performance data.

The profiling team has 3 or 4 members who are interested in platform development. The role of the profiler requires trust, and the team must be acceptable to the organiser and the platform being profiled. Profiling must not cause conflicts of interest. Participation in the work of the profiling team also facilitates the building of a pool of experts around platform development.

The end result of profiling is an evaluation of the status of the platform's activities based on the observations of the profiling team, and proposals for further analysis of the development of the platform.

The profiling process has seven stages (Figure 16):

1. The platform enrolls for profiling
2. Negotiations on the execution of the profiling
3. Assembling a team
4. Discussion between platform and team
5. The team's profiling work
6. The platform gets information on results
7. The platform's feedback to the team

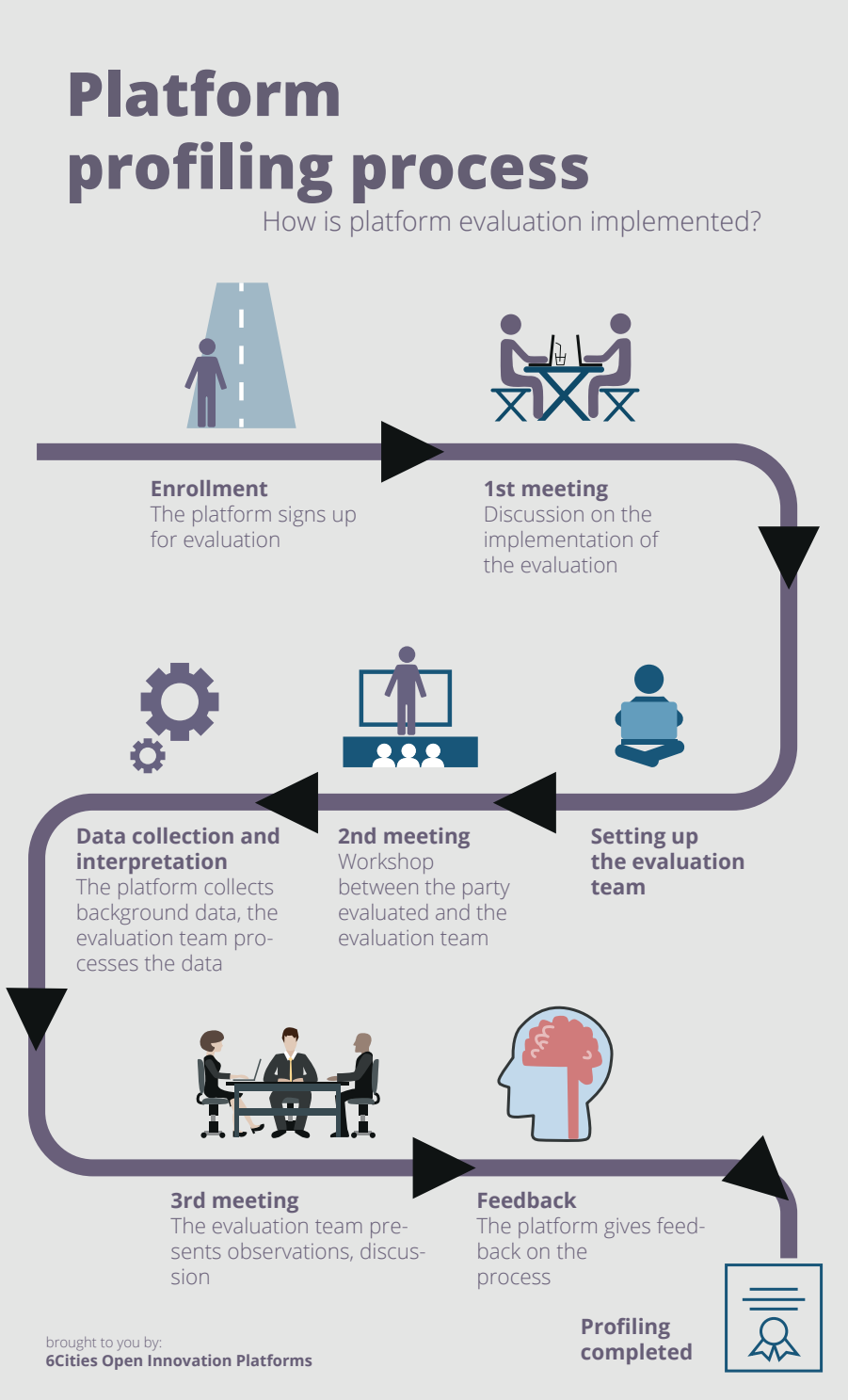


Figure 16. Platform profiling process.
https://magic.piktochart.com/output/10031221-untitled-infographic

II. Indicators of operative platform activities

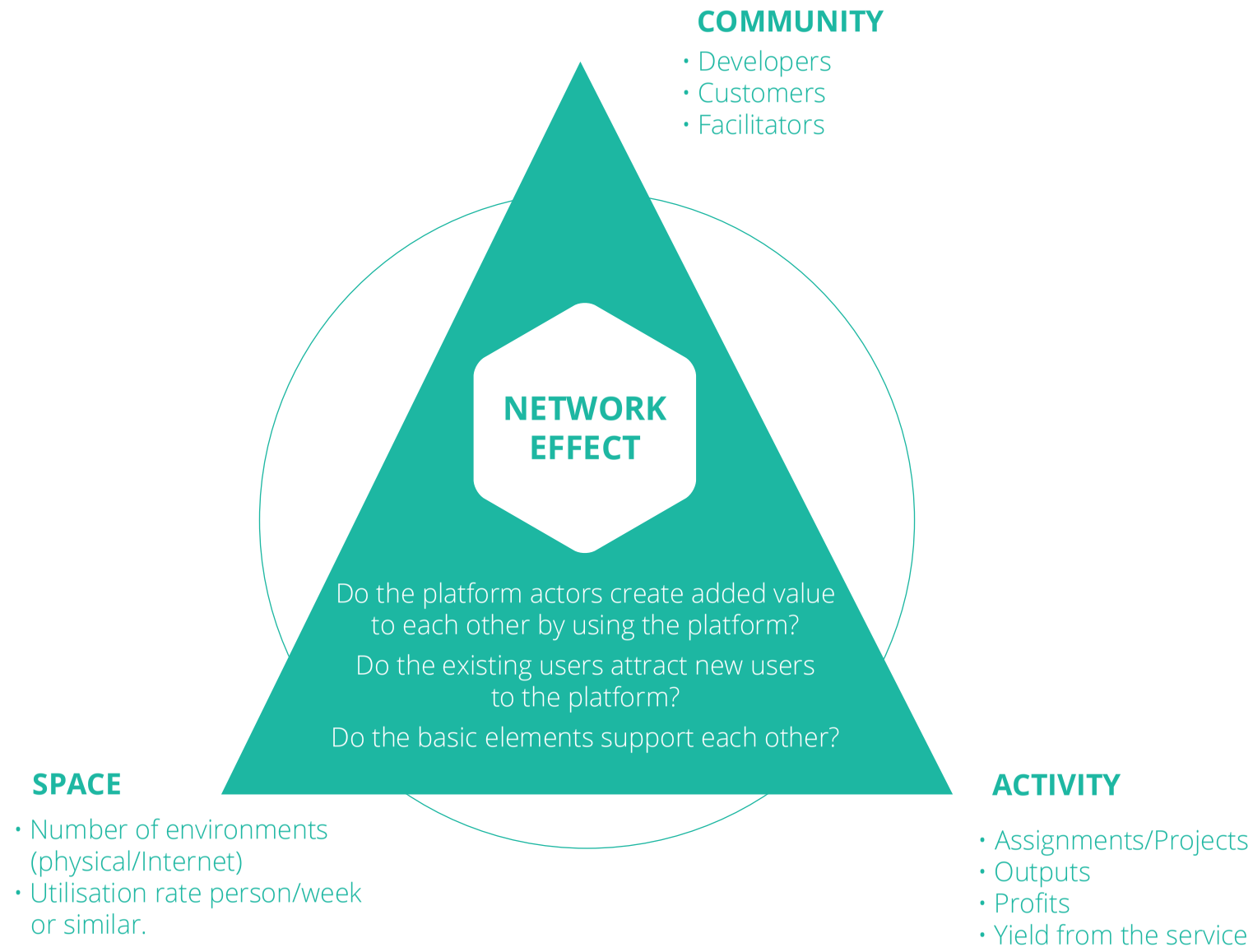
In platform activities, measurement should focus on key elements, whose importance may vary between platforms (Figure 17). The model presented here emphasises quantitative indicators but, based on profiling and analysis, qualitative indicators are also clearly needed; we will strive to develop them during the next phase.

It would be expedient to incorporate at least the following factors presented in the figure in the indicators of each actor producing platform services.

III. Open innovation platform self-evaluation and model framework for operative measurement

The model framework for a platform's operative measurement provides a framework for the management of the platform's different features (Table 3). The model framework is a platform management tool that helps observe the state

Figure 17. The platform's key elements and their indicators.



of the platform's activities. The model framework functions on the platform as a self-reflection and development tool that highlights the information mapped by the model The model is used to collect basic information about the platform, and strategic development needs can be specified for the determination of the state of activities.

II) STRATEGIC IMPACT ASSESSMENT MODEL

The collection of operative information also provides key data for impact assessment. The strategic impact assessment model strives to find the factors that can be used to assess the platform's ROI (return on investment) value. Impact may include, for example, the following indicators: creation of start-ups, quality of innovations, employment of participants, improvement of efficiency, quantity and quality of participatory development, blurring of barriers between organisations, recognition and utilisation of new partners, acceleration of urban development and increase of innovation effects.

The impact of innovation platforms has been assessed as a part of a wider situational picture of innovation by the Council of Tampere Region. The process and assessment model can also be transferred to other areas.

The situational picture of innovation is a joint process aimed at providing current information on regional innovation activities. Innovation platforms are assessed both separately and as a part of a greater whole.

The knowledge base of the situational picture is put together from open data and materials followed by the region's innovation actors themselves. Furthermore, the situational picture process is aimed at filling holes in strategically significant information. The process of creating the situational picture of innovation starts with the collection of the knowledge base (Figure 18). Key phases of knowledge base collection:

1. recognition of significant information;
2. mapping the information available as open data or through partners;
3. recognition of information blind spots; and
4. influencing national or local actors to cover the blind spots.

	FACILITIES	COMMUNITY	ACTIVITIES
BASIC INDICATORS	• Number of environments (physical/digital) • Space utilisation rate (e.g. people/week)	• Developers (number of participants in problem-solving/development process) • Facilitators • Customers (new/return)	• Assignments (projects, trials, teams, services, events) • Outputs (completed outputs; demonstrations, concepts, licences, new companies, POC, patents, brands) • Costs • Profits from services
SUPPLEMENTARY INDICATORS	• Furniture movement • Furniture utilisation rate (chair indicators) • Spaces shared with other actors • Agreements on the use of shared spaces • Website and web tool counters, media hits, door counters	• Number of active members in the network • User numbers (e.g. visitors on the platform, at events) • Number of user groups (companies, students, etc.) • Feedback surveys • Number of social media channels used to build the community • Social media analytics: publications in different channels/discussion/ amount of visibility • Number of applications, etc.	• Joint customer relationships or projects with other platforms • Using other actors in projects (% of projects) • Shared interfaces formed with other actors • Process/project length • Process scalability • Funding by source: compensation paid for innovation outputs ('private money'), rental income, service maintenance fees, etc. • Newsletter circulation • Coffee consumption, etc.

TABLE 3. Model framework for platform self-assessment and measurement.

The information is interpreted as observations made based on the materials and in interpretation workshops. The process is reported on regularly, and information is openly distributed through web tools The process is repeated regularly.

Different methods and tools can be used to visualise strategic impact to help visualise the platform's impact better in the long term (Figure 19). It is also possible to create digital tools for the visualisation; this will be reviewed in the next stage of development work.

III) MATURITY ASSESSMENT MODEL

Platforms are constantly created and developed. The vitality of some platforms increases while some platforms close down. The platform maturity assessment model helps visualise the platform's life cycle and provides the platform's developers and stakeholders with answers for the following fundamental questions regarding platform activities:

- How do we get the platform going, and how and under what circumstances should a function be closed down or transferred?
- Have the platform's operating principles already become established?
- Is activity on the platform rising or falling?
- Which revenue generation models work and are sustainable?

The maturity assessment model can be used on the platform as a self-assessment tool or to support external assessment.

- In self-assessment of maturity, the platform's operators and actors assess their own platform.
- External assessment introduces the perspectives of benchmarking and comparison.
- It is possible to build strategic development plans for the platform based on the assessment.

The assessment model is framed by the three fundamental dimensions of open innovation platforms: openness, innovativeness and platformness (Table 3). Within them, the different functions or capabilities of the platform are analysed based on whether they have been built into the platform's activities. The model recognises three levels: the function is missing, has been started/is incomplete, or is complete/advanced.

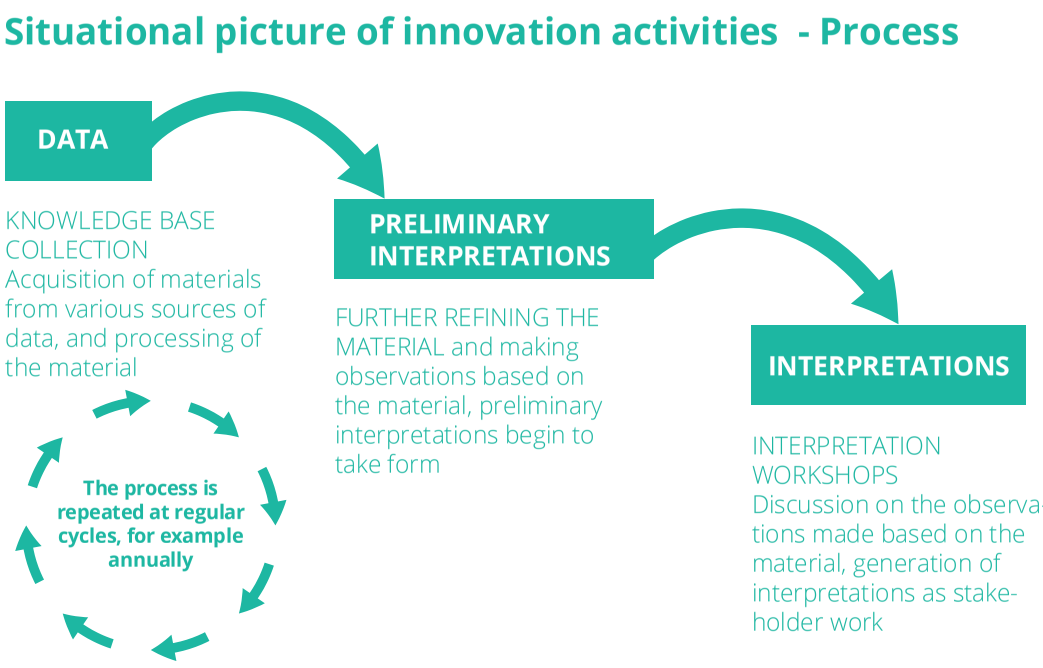


Figure 18. Situational Picture of Innovation – Process. (Source: Council of Tampere Region)

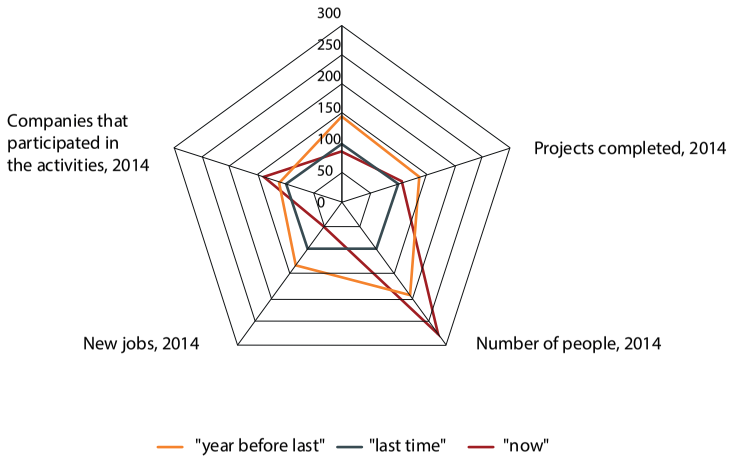


Figure 19. Strategic impact visualisation model for open innovation platforms (Source: Situational Picture of Innovation in Tampere Region 2015)

		MISSING	STARTED–INCOMPLETE	COMPLETE–ADVANCED
OPENNESS	**CUSTOMERS** **Has the customer group been recognised and clearly defined? Who can be a customer of the platform?**	The customer group has not been defined.	The customer group has been recognised, but definition is still incomplete.	The customer group has been clearly defined.
	DEVELOPERS **Has the developer group been recognised and engaged in the platform's activities?**	The platform has no external developers.	The platform has some developers.	The platform has adequate number of developers and their number is rising.
	CUSTOMER INTERFACE **Is there a planned route for customers to the platform, which is recognised by the customers?**	The customer interface is not recognisable.	There is an existing interface, but it is not firmly established.	There is a clear and recognisable route to the platform.
	ENGAGEMENT OF DEVELOPERS WITH THE PLATFORM **Is there a clearly planned and visible route to the platform?**	There is no clear access or route to the platform, and participation in the platform's activities is occasional.	There is a somewhat recognisable route to the platform, but the activities are not firmly established. There is no clear person whom to ask about platform's activities.	There is a recognisable and firmly established route to the platform. Participation is planned and the application project, etc., is clearly planned.
INNOVATIVENESS	**VALUE CREATION FOR THE PLATFORM'S CUSTOMER** **Does the platform offer its customers added value?**	The platform does not offer added value.	The platform occasionally produces added value.	The platform produces added value with established practices.
	AGREEMENT AND IPR PRACTICES **Does the platform have agreements and defined IPR practices?**	No thought has been given to contractual matters.	Thought has been given to contractual matters, but the agreements are not at a level required for the activities.	Agreements documents have been drawn up and their use is established practice.
	THE PLATFORM'S TECHNOLOGY ENVIRONMENT **Does the platform enable the development of a special technology (such as studios, laboratory environments or living labs)?**	No special technological capabilities.	One or a few environments.	The test environment is widely available (national and international).
PLATFORM ORIENTATION	**CO-CREATION PROCESS** **Is the co-creation process modelled, measurable and scalable?**	The platform has no defined process but brings people together.	The development of a platform-based process is in the planning stages.	The co-creation process is scalable and clearly defined.
	REVENUE GENERATION MODEL **What is the platform's revenue generation model?**	The activities are not viable without project-based funding, another organisation or the organisation's basic funding.	Maintained by a few key organisations (such as the city/university) and partial own revenue generation.	The platform has sufficient own revenue generation and it covers the platform's activities.
	INTERNAL DEVELOPMENT OF THE PLATFORM **How does the platform develop its activities?**	The platform has no clear endeavours or direction to develop its operating model.	The platform is developed using random methods.	The platform is developed systematically.
	THE PLATFORM AS A PART OF THE PLATFORM NETWORK **How is the platform connected to other platforms?**	Functions separately from other platforms.	The platform is sporadically connected into the wider platform network.	The platform is systematically connected to other platforms.
	PLATFORM COMMUNITY **Does the community support the platform's activities?**	The platform has no clearly recognisable community.	The platform has a recognisable social group/community.	The platform community supports development activities and provides support without money transactions.
	NETWORK EFFECT **Do the platform's users create value for each other by using the platform? Do the existing users attract new users to the platform?**	The users do not create value for each other.	The users create some value for each other.	The users create value for each other, and the value creation depends on other users.

TABLE 3. Open innovation platform maturity (self-)assessment model

IV) PLATFORM RULES AND MODEL AGREEMENTS

The IPR practices of platforms vary: On some platforms, openness has been considered in the drawing up of the joining agreements and IPR practices; on other platforms, the IPR rules support a closed system. In some cases, the aims may be in conflict and cause difficulties for the functioning of the platform.

Four different operating principles of platforms can be recognised as regards agreements:

1. No agreement: Activities are based on common rules and the platform's culture, not regulated with agreements.
2. Agreement on facilities use or joining the platform as a member/subscriber, etc.
3. Agreement on confidentiality and secrecy regarding activities that take place on the platform
4. Agreement on the use of results created on the platform and their IPR

The platform chooses the most appropriate agreement approach for its activities. Openness and the activities of a platform founded on a shared culture may pose challenges if not all parties are willing to participate in the platform's activities but instead want to use more closed practices or models, in which IPR matters are agreed on separately.

On some platforms, openness can also be seen as a threat to own ideas. On the other hand, it can be seen that the formation of a strong community brings trust in the other actors, easing fears.

Detailed model agreements are not signed here, because agreements must always be drawn up separately for each platform with professional assistance. Instead, the following four points describe the contents of agreement practices on a general level: with what precision are matters agreed on and what, at a minimum, must be considered in drawing up agreements.

1. **Community rules**

The community must have unofficial operating principles and values that are shared and accepted by all: the community culture. This includes customs and practices connected to using shared spaces and materials as well as conventions connected to general conduct and interaction.

In practice, these may include very general customs, such as possibly using English in the community space or not using the shared space as a party venue with friends outside the 'office hours'. The things specified in more detail may include participation in the projects of others and unofficial 'sparring', or at what stage there must be compensation in money or another currency for advice and sparring, and what the general practice of the community is.

In addition to unofficial rules, the community may also have official rules that are agreed on with various agreements, such as a joining agreement or terms of use. By signing the agreement, actors become members of the community and undertake to abide by its terms. This type of agreements can be divided into three groups, which are described below (points 2–4).

2. **Terms of use/Joining agreement**

Terms of use and joining agreements are used to agree on the fundamental principles of the platform environment and the rights and responsibilities of the users/members regarding each other. Agreements are used to agree on the principles and goals of the activities. An agreement may also include the obligation not to disclose to third parties the ideas and thoughts that are discussed or developed within the environment or community.

What is agreed on, at a minimum:

- Agreeing on basic principles and goals of the activities
- Factors in the platform's operating culture, fundamental principles or the member's investment in platform activities can also be specified
- Agreeing on the right to use the space (also digital)
- Agreeing on the price
- Agreeing on how the space is used (rental agreements are also like this)
- Secrecy or confidentiality regarding the platform's activities can be agreed on
- IPR, for example, can be agreed on so that if the owner of an idea forgoes developing it, another party can develop it further

3. **Confidentiality agreement/Secrecy obligation**

It is also possible to specify in more detail in agreements that they focus on secrecy between the contracting parties. These agreements do not necessarily commit the contracting parties as members of the platform community, but they can be used as templates for individual projects between the parties, for example. It must be noted that joining agreements or terms of use may contain some of the same terms.

What is agreed on, at a minimum:

- Agreeing on the information that the agreement applies to (and what it does not apply to)
- Agreeing that the information specified in the agreement cannot be disclosed to third parties: ideas are not, in principle, protected by copyright, but they may be confidential.
- Agreeing on how long the agreement will remain valid after its signing
- Agreeing on the price or gratuitousness: it can be specified, for example, that use of the environment requires active participation
- Agreeing that, for example, IPR belong to the party that has them, regardless of the agreement
- It can also be agreed that if, for example, the owner of an idea forgoes developing it, the owner will allow another party to take it and develop it further

4. **Patent and copyright licensing**

Patent and copyright licensing agreements can be used to agree on partly or fully the same things as terms of use, joining agreements and confidentiality and secrecy agreements. However, they are also used to agree on the determination of IPR. The results of co-operation based on an agreement may include inventions, ideas, concepts, business models, plans, drawings, know-how, works, etc. Effort is made to document the results of co-operation so that, when the co-operation ends, the parties have an understanding of what they mean.

What is agreed on, at a minimum:

- Agreeing on to whom the results of co-operation based on an agreement are transferred.
- Agreeing on what the project results include (reports, inventions, etc.)
- Agreeing on background materials and the associated terms
- For terms of use, the following can be agreed on:
- transfer of rights (such as the right to pass on copyrights and/or right to edit works)
- the right to pay the other parties a lump-sum compensation for the right to the results
- that there will be no lump-sum compensation
- that the parties agree mutually on the use of the results of the co-operation
- that the parties have a free and independent right of use and ownership to the outputs created based on the co-operation
- that the results created as a result of the co-operation will be given to the free use of the parties and third parties (e.g., where will be no confidentiality obligation regarding the results of the co-operation, unless agreed otherwise by the parties)
- The parties can also agree on breach of contract, secrecy, publication of results, responsibilities and limitations of liability, etc.

So, the basic principle of agreements is that platform can choose their way of agreeing on things according to what their activities require, but it is also possible to have unwritten rules (platform culture and general operating principles) as the only framework of the activities. If matters are agreed on, it can be done in many different ways: the parties can agree on open rights to the results of the co-operation, or very specifically on who owns the rights.

Platforms can use all four of the above operating principles in overlap or have unwritten rules and culture, yet use agreements to agree on confidentiality issues. In addition to this, there may also be a joining agreement (which may also include a confidentiality clause) and/or an agreement on patent and copyright licensing. Agreements can also be used for isolated situations or projects.

Every platform must consider for itself what the parties want or do not want to agree on. Agreements should always be drawn up together with a legal professional. That is why this handbook does not contain any model agreements and just describes the different agreement practices presented above.

REFERENCES

Ailisto, H. et al. (2016). *Onko Suomi jäämässä alustatalouden junasta? (Is Finland falling behind in platform economy?)* Article series of Government's analysis, assessment and research activities 19/2016.

Anttiroiko, A–V. (2010). *Luova kaupunkikehittäminen. Kaupunkikonseptit innovatiivisen kaupunkikehittämisen apuna (Creative Urban Development – City Concepts as Support Tools for Innovative Urban Development).* Research Unit for Urban and Regional Development Studies, Sente publications 32/2010, University of Tampere.

Anttiroiko, A.–V. (2009). *Innovaatiot muutoksen lähteenä. Kuntien innovaatiotoiminta kunnallishallinnon muutoksen suuntaajana (Innovations as a source of change. Municipalities' innovation activities as trendsetters of change in municipal governance).* Kunnallistieteellinen aikakauskirja 3.

Boudreau, K. J. and Lakhani, K. R. (2009). *How to manage outside innovation.* MIT Sloan Management Review, vol. 50. No. 4

Choudary, S. P. (2013). *Platform power. Secrets of billion-dollar internet startups.* (http://platformed.info)

Colao, J. (2012). *Eight Reasons Startup Incubators Are Better Than Business School.* Forbes Jan. 12

Evans, P. C. and Gawer, A. (2016). *The rise of the platform enterprise. A Global survey.* The Emerging Platform Economy Series No. 1. The Center for Global Enterprise.

Gawer, A. (Ed.) (2009). *Platforms, markets and innovation.* Edward Elgar.

Gawer, A. and Cusumano, M. (2002). *Platform leadership: How Intel, Microsoft and Cisco drive industry innovation.* Boston; Harvard business school press.

Haigu, A. (2014). *Strategic decisions for multisided platforms.* MIT Sloan Management Review, vol. 55. (2)

Hamari, A., Sjoklint, U. and Ukkonen, A. 2015. *The Sharing Economy: Why People Participate in Collaborative Consumption.* Journal of the Association for Information Science and Technology.

Hannula, O., Irrmann, O. and Paananen, H. (2015). *CECO: International benchmark report.* Collaborative hubs in Montreal and Amsterdam. CECO research project. SimLab, Aalto University.

Hämäläinen, J. (2012). *Kotitori – avain palveluihin. Kannusteet sopimusohjauksessa – case Tampereen Kotitori (Kotitori Information Office for Elderly People – a key to services. Incentives in agreement steering – case Tampere Kotitori).* City of Tampere.

Kautonen, M., Pugh, R. & Raunio, M. (forthcoming) *Transformation of regional innovation policies: from "traditional" to "participatory" models of incubation.* Technium, Wales, and New Factory, Finland, as contrasting cases. European Planning Studies.

Laitinen, I., Harisalo, R. and Stenvall, J. 2013. *Palvelutiede julkisten palvelujen uudistajana: kansainvälinen vertailu (Service science as a reformer of public services: an international comparison).* Tampere University Press.

Lehenkari, J., Pelkonen, A. and Oksanen, J.(2015). *Innovaatioalustat 2015 (Innovation platforms 2015).* Policy brief. MEE reports 45/2015. Ministry of Employment and the Economy.

Nenonen, S., Kärnä, S., Junnonen, S., Tähtinen, S. and Sandström, N. (2015). *How to co-create campus?* Tampere

Prahalad, C.K. and Ramaswamy (2004). *Co-creation experiences: The next practice in value creation.* Journal of Interactive Marketing. Vol. 18 (3).

Rajaniemi, J. (2010). *Organisaatiorakenne ja innovatiivisuus: tutkimus organisaatiorakenteista johtuvista innovatiivisuuden esteistä (Organisational structure and innovativeness: a study on the barriers of innovation resulting from organisational structures).* Tampere University Press, 2010.

Raunio, M., Kautonen, M. and Saarinen, J. P. (2013). *Models for International Innovation Policy : Transnational Channels and Regional Platforms : Fostering Globalizing Innovation Communities in Finland and Abroad.* TaSTI Working Papers: 9. University of Tampere

Ries, E. (2011). *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses.* Crown Business. NY.

Ruckenstein, M., Suikkanen, J., Tamminen, S. (2011). *Unohda innovointi. Keskity arvonluontiin: ihmislähtöisen innovaatiotoiminnan menestystarinoita eli kuinka uudenlaista arvoa synnytetään käytännössä (Forget innovation. Focus on value creation: success stories of human-oriented innovation activities, or how to create a new kind of value in practice).* Sitra, Helsinki: Edita.

Seppälä, T. (et al.) (2015). *"Platform" – Historia, ominaispiirteitä ja määritelmä (The Platform – History, Characteristics, and the Definition).* ETLA Reports, No. 47.

Suarez, F. F. and Kirtley, J. (2012). *Dethroning and established platform.* MIT Sloan Management Review, vol. 53 (4).

Summa, T. and Tuominen, K. (2009). *Fasilitaattorin työkirja. Menetelmiä sujuvaan ryhmätyöskentelyyn (Facilitator's workbook. Methods for smooth group work).* Kepa ry, Miktor.

Thomas, L., Autio, E. and Gann, D. M. (2014). *Architectural leverage: Putting platforms in context.* The Academy of Management Perspectives, vol. 28 (2).

Valovirta, V. (2013). *Julkinen sektori uusien teknologioiden kehittäjänä (The public sector as a developer of new technologies).* Smart Procurement programme kick-off seminar, Finlandia Hall 28 August 2013. Presentation.

Open Innovation Platforms
an approach to city development

ISBN 978-951-590-337-2