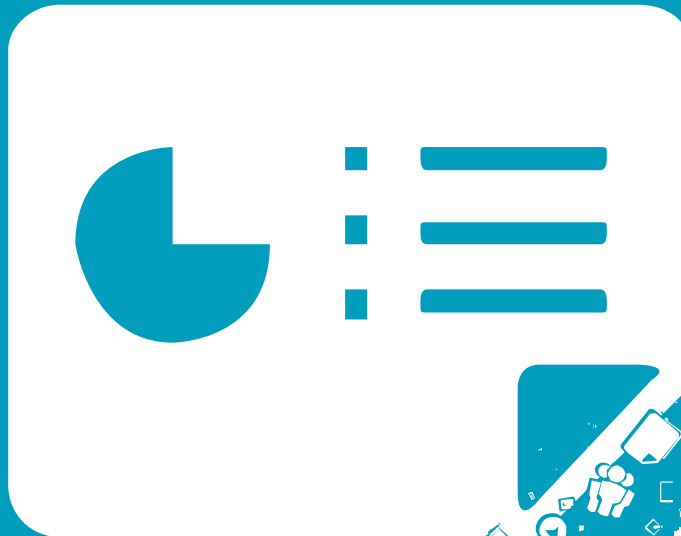


Business Innovation Observatory



Trend report

**Design for innovation,
smart living and innovative
business models; how to
scale-up success?**

March 2014

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Trend report

Design for innovation, smart living and innovative business models;
how to scale-up success?

Business Innovation Observatory
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European Union, March 2014

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1. Executive summary

The objective of the Business Innovation Observatory is to identify and showcase successful and relevant business innovation trends together with drivers and barriers. This second Trend Report identifies some key issues among a number of emerging trends in order to better understand these new innovation practices and how policy can support the scaling-up of the successes.

Three emerging trends have been identified, analysed and presented in 12 relevant case studies (i.e. four case studies under each trend) that will be discussed during the Workshop in Berlin on the 26th of February, 2014. This report highlights the key issues and provides relevant recommendations to tackle those issues that are discussed and agreed with different stakeholders composed of investors, policy makers, industry experts and SMEs during the workshop for boosting the further development of these trends and companies functioning on those areas.

The 3 emerging trends

The three trends of 'Design for Innovation', 'Smart Living', and 'Innovative Business Models for Global Competitiveness' can be labelled as 'Co-designed innovation models', as an overall topic of this report. It refers to the overall trend of user involvement as well as incorporation of design into the innovation process. In addition to the end-user involvement, these new trends are designed and formalised through new innovation models and practices which not only transform the existing 'business models' of the involved companies, but also their 'innovation models'. Additionally, various stakeholders from different sectors are also involved into this innovation life-cycle so that the overall trend is not only about the transformation of a single sector or value chain, but also about designed transformation of the corresponding innovation chains and the social ecosystems we live in.

To illustrate the market potential of the trends: companies in the construction industry expect that more than 60% of their work to be green by 2015; for intelligent homes the number of electricity meters correspond to a potential market of 1 billion connected devices; growth rates for Supply Chain Finance are estimated at 30-40% per year.

The new policy challenge: co-designing policies and framework conditions

The new policy challenge involves the support to co-design activities, the scaling-up, as well as international outreach of successful practices. The recommendations from the case-study companies first of all refer to regulatory issues. The policy gaps and challenges identified in this report call for trend-specific framework conditions since the traditional framework conditions are often not adapted to the new innovation trends, practices and models. The main challenge is in co-designing regulations and framework conditions which support these innovation trends and emerging sectors.

The following recommendations resulted from the workshop:

1. Foster transdisciplinary thinking and collaboration;
2. Improve and speed up the policy learning process;
3. Organise playgrounds where learning by doing, by using, by interacting, and by failing can flourish;
4. Come to improved and harmonised definitions of concepts such as 'design' and 'smart living';
5. Involve in innovation platforms the few that are willing to step into the future;
6. Develop new solutions to funding;
7. Support entrepreneurial discovery;
8. Support market exploration;
9. Create & communicate role models and showcases;
10. Invest in education;
11. Design modern regulations for scaling-up the business innovation trends;
12. Ease access of start-ups to public procurement.



2. Overview of the three trends

The procedure for the identification of new trends and relevant company cases was based on the thorough review of business literature and policy documents in order to identify significant trends with socio-economic relevance.

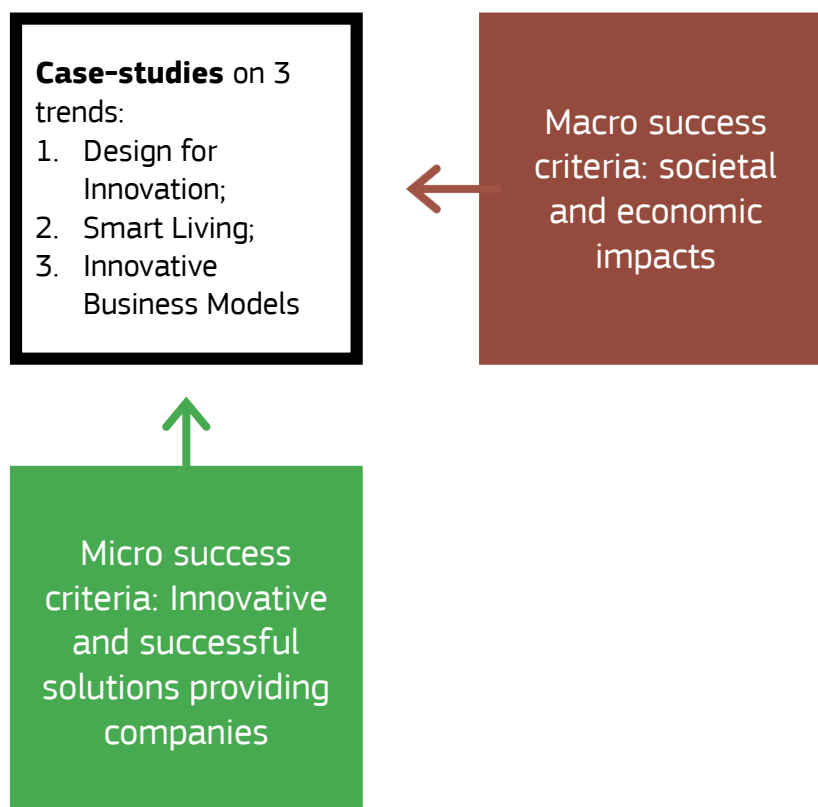
The identification process for trends and case studies involved two different approaches (Figure 1). The first one was a top-down approach in order to identify significant and relevant trends concerning their macro-level socio-economic impact. The process involved a review of business innovation literature and policy documents, an online search for relevant trends in business-innovation along with the consideration of current policy and trends related to this as suggested by the European Commission.

The second bottom-up approach was based on the identification at the micro-level of companies which have

brought innovative solutions (products, services or processes) to the market successfully. A wide range of sources was used including internal and external company databases, news and press releases, awards and contests, and industry reports. Company cases were assessed based on both early success signals (e.g. press reviews, first fund raisings, awards, acquisition by an MNC, and technology transfers) and late success signals (e.g. well performing fund managers, high growth, initial public offerings (IPOs), commercial contracts, and new rounds of fundraising).

Based on the identified trends and the pool of identified company cases, the topics for potential case studies were defined.

Figure 1: The criteria used for the identification of trends and selection of business innovation case studies





2.1. Description of the three trends

The three trends covered by this trend report are listed below and explained in detail in Table 1:

- Design for Innovation;
- Smart Living;
- Innovative Business Models for Global Competitiveness.

Table 1: Description of trends

Trend	Description
Design for Innovation	Design as a tool for innovation has developed rapidly in recent years, resulting in concepts such as strategic design, design management and design thinking. Design is one important driver for innovation enabling companies with a more traditional approach to be enrolled in user-driven innovation processes. Companies that invest in design tend to be more innovative, more profitable resulting in faster growth than those who do not.
Smart Living	Smart Living as a trend includes the integration of innovative and advanced construction materials and processes, along with technology for smarter homes and connected devices that provide users benefits such as remotely controlling their building environments. These advancements aim to make lives easier and more efficient, providing users with higher quality buildings that are more economic and greener. In construction, the trend involves quicker, cheaper, 'greener' and more efficient construction technologies, materials, processes and concepts. Ingenious home products provide improved convenience, comfort, energy efficiency and security. Connected devices for intelligent buildings involve a combination of sensors, actuators, distributed computing power, and wireless communication interacting with user applications and big data.
Innovative Business Models for Global Competitiveness	This trend includes the use of innovative methods for companies to develop their business through the use of ICT and/or social media for internationalisation. In other cases it may refer to the new advanced management methods such as "soft" business models and supply chain finance arrangements.

2.2. Description of case studies and companies

The individual case-studies can briefly be described as follows:

Design for Innovation - Service design as a mean to advance business models

The Service Design is the activity of organising and planning people, infrastructure, communication and material components of a service in order to improve its quality and the interaction between service provider and customers. The relevance of this sector in socio-economic terms relies on continued growth in the European Union's service sector; however, good services are still the exception rather than the rule.

Liberalisation or deregulation of services in many markets increased the use of innovative service solutions, including service design, but the availability of ICT-infrastructure and equipment on the client side still limits the further development of service design.

Company cases: Point (Verifone) (SE); Aeroportos de Portugal (PT); Dispop (US); Expressen (SE).

Design for Innovation - Web-based design services as a new business model in the design world

Web-based design services are the design services offered through the web. Innovative entrepreneurs have developed business models that allow manufacturing in a less capital intensive way, lowering total cost of delivery, and offering clients a higher degree of flexibility. Web-based design services is expected to be beneficial for the environment, as their online tools and processes dramatically reduce the need for travel related to physical meetings between designers and clients. Although it is hard to put a number on the market potential, the socio-economic impact is expected to be significant that can positively influence the future economic growth.

Company cases: Sculpteo (FR); Freedom Of Creation (FI, NL); Fluid Forms (AT); Impossible Creations (UK); Moqups (RO).

Design for Innovation - Co-creation design as a new way of value creation

Co-creation sees the market as a melting pot for discussion between firms and active customers willing to share, combine and renew each other's resources and capabilities in order to create reciprocal added value. It differs from the traditional active firm strategy where consumers have a passive approach with respect to their providing counterpart.



The role of co-creation design processes for the companies in this case study varies. Companies like Heineken and Local Motors organise co-creation for their own benefit. CoContest and Trendsales can be considered facilitators of co-creation, as they deploy their platforms for co-creation in service of others. Local Motors conducts co-creation not only for the production of its own products but also for third parties that could be either companies or individuals. This distinction is important to make, as it also significantly influences the drivers and barriers that those companies face.

Company cases: Trendsales.fi & Kaos (FI); Local Motors (US); Heineken (NL); CoContest (IT).

Design for Innovation - Design for social innovation

Social innovation is the concept of developing new – often disruptive - solutions to meet social goals. Design for social innovation is best characterised by the trend of designing social innovation solutions in an effective way. It stimulates the market adoption of social innovations by specifically taking the end-users into account. Therefore, the impact of social innovation on solving societal challenges is expected to be considerable.

In order to maximise the benefits from the design for social innovation, the public sector needs to step up. Awareness needs to be raised for the trend, both in public and private sector.

Company cases: Raspberry Pi (UK); SNE Architects (DK); Smartstreets (UK); Aldebaran Robotics (FR).

Smart Living – Ingenious home products and solutions

The concept of ingenious home products and solutions refer to innovative home products providing improved convenience, comfort, energy efficiency and security on limited spaces. It is still at a nascent stage and its development relies on critical factors, such as consumer trust, right mix of skills and competences as well as access to finance and removal of administrative barriers for the start-ups.

Ingenious home products aim to address key consumer and societal challenges such as: increasing population limiting space to live and work on urban areas; increasing environmental concerns and regulatory pressures; demographic change and ageing population. There is a significant market potential for those companies producing innovative solutions related to those challenges. Technologies catering for increased mobility and social inclusion, as well as increased comfort, quality, aesthetics, ergonomics and energy savings are just example of the solutions provided by the selected companies.

Company cases: Decolabs (BE), El Studija (LT), 3.14 Innovations (FR), Translapi (IT, DE) Orbital Systems (NO).

Smart Living – Smart construction products and processes

Within the context of construction of buildings, the trend can be defined as the growing existence of innovative, quicker, cheaper and more efficient construction technologies, materials, processes and concepts.

These new technologies provide several benefits: reduced costs; lower carbon emissions for constructing, utilising and decommissioning buildings; multiple functions and added value on the materials utilised on buildings; better attributes, qualities and longevity of buildings, as well as improved quality of life for users.

Company cases: World Sensing (ES), Polysolar (UK), Coodo (SI), Ennesys (FR), International Living Future Institute (US).

Smart Living – Advanced building materials

Advanced building materials are a subsector of the construction sector, being one aspect within the full construction value chain. This subsector represents a new generation of construction materials which demonstrate exceptional properties and several added benefits. Through advanced building materials, new technologies are integrated into both residential and commercial buildings and infrastructures to make them smarter, more sustainable, energy efficient and secure, thereby addressing environmental and social challenges globally.

Company cases: Pro-Teg Surfacing (UK), Designenergy (SW), Kebony (NO), Innovative Fire Systems (FR).

Smart Living – Connected devices for intelligent homes

Connected devices are a combination of sensors, actuators, distributed computing power, wireless communication on the hardware side interacting with applications, and big data on the software side. This allows a wide variety of devices to understand their environment and act accordingly by alerting users or controlling devices or even elements such as HVAC within a house.

Company cases: CubeSensor (SL), GreenWave Reality (DK), Green Momit (ES), Koubachi (SW).



Innovative Business Models for Global Competitiveness - New models for direct global market access in ICT

SMEs in the ICT sector are different from other technologies and sectors. Technology is evolving even faster in ICT; new technological opportunities are constantly rising, as the essence of the sector is to remain at the state of the art. Hence, internationalisation is even more crucial for ICT. It is possible for innovation and production in ICT to seize any opportunities around the world. Both can be segmented in different parts of the world without impeding the development of the products or services. The ICT sector offers internationalisation opportunities that many companies are ready to seize to expand their reach around the world.¹ The motives for the firms to internationalise usually include growth and profits, reducing dependence on a single or small number of markets, or previous international experience.

Company cases: Revevol (FR), Goalcontrol (DE), Woorank (BE), Sygic (SK), Store Electronic Systems (FR), Mega (DE, NZ).

Innovative Business Models for Global Competitiveness – Social media for internationalisation

With over 1.73 billion people using social media networks across the world in 2013, the potential value of this trend for companies is huge. As the age category of people using social media is widening with the involvement of older generation, applicability for a much broader product range, and thus companies, becomes of interest.

Key benefits of social media strategies for internationalisation include the huge exposure that company can generate, the relatively low costs associated with it, the possibilities for customer segmentation and targeting it provides and the market insight that can be gained from analysing consumer's online behaviour and interacting with them through social networks.

Company cases: IKIA (SE), Kiosked (IE), Moodyo (ES), Dolar Shave Club (USA).

Innovative Business Models for Global Competitiveness – “Soft” business models

“Soft” companies have a profound effect on the economy. They generate revenue and create jobs, are among the most R&D intensive companies in Europe, create spill overs, increase the efficiency and resource allocation of sectors,

¹ Ecorys, 2009, FWC Sector Competitiveness Studies - Competitiveness of the EU SMEs in the ICT services industry

generate Intellectual Property, and are pivotal in the establishment of “hard” companies.

Furthermore, “soft” companies can serve different purposes during a company's lifecycle. They have been found to be beneficial as a start-up model, a growth-model, as a platform for transitioning into products, and as a mechanism for exploring applications.

Company cases: AudioCure Pharma GmbH (DE), ATEEDA (UK), CTC (IT), SystematiC (NL), Achilles Design (BE).

Innovative Business Models for Global Competitiveness - Supply chain finance

Offering a low-risk profit to financial intermediaries, already several billions of Euros are channelled from buyers to suppliers via Supply Chain Finance arrangements each year. As it is applicable to any sector that involves large companies being supplied by smaller ones, the market potential for Supply Chain Finance is considered to be quite large. A growth-rate of up to 40% per annum is predicted for the coming years, stabilizing to 10% growth in 2020.

Buyers engage in Supply Chain Finance for one of three reasons:

1. To improve their working-capital position by extending their Days Payable Outstanding (DPO);
2. To mitigate risks in their supply chain in relation to strategic suppliers;
3. As a tool in discount negotiations with suppliers.

Company cases: Global Media Company X (Global), Technology Company Y (NL), Global Technology Company Z (Global), Five large banks (EU & Asia).

2.3. Some examples of companies, innovative solutions and success signals

Although there are differences between the three trends and among the case-studies, this report is not aimed at ‘benchmarking’ or ranking of the various trends. The focus is to identify the existence of commonalities among the case-studies and compose business trends, which indeed has been achieved through the similar aspects identified among the case studies. Some of these common aspects originate already from the identification and selection procedure, confirming the quality of the selection procedure adopted. All of the case studies show evidence of success and innovation, as represented through the signals of success collected for each one of them (see Table 2 on page 7). The trends are outlined by the characteristics, products and services of each company selected, as well as by their high macro-level socio-economic potential.



Table 2: Examples of solutions providing companies

Company	Business innovation	Signals of success
Design for Innovation		
Trendsales.fi & Kaos	Two fashion brands, Finland-based Trendsales.fi and the Danish Design brand Kaos (owned by Auluna Leather Company), established a partnership to search for an aspiring young and talented Finnish fashion designer. Trendsales.fi is the Finnish marketplace and subsidiary of the Danish Trendsales.dk which also owns Trendsales.se, Trendsales.no and Trendsales.de.	By using Trendsales web platform, the winner would take part in co-designing a spring jacket collection with Kaos for the Finnish market. Anyone in Finland could participate. The winner, in addition to co-designing the 2012 spring jacket collection, was also paid royalties from the sale of the collection, and had his/her name attached to the collection.
CoContest	CoContest applies Crowdsourcing to interior design: shaping public tenders' logics to interior design needs of homeowners, real estate agencies and contracting companies.	CoContest revolutionises the world of architecture and interior design. CoContest changes today's conventional rules and disrupts the status quo that holds back the new generation of talented and passionate designers.
Raspberry Pi	A charity foundation that designed and currently licences a cheap credit card sized computer to teach children programming skills.	Winner of the Index Award 2013, exceeded expectations by selling over 2 million units to date in November 2013
Aldebaran	The most widely used humanoid robot for academic purposes worldwide	The only European humanoid robot available on the market; shipped over 1300 NAOs in more than 40 countries all over the world. NAO was selected as the official robot for the Standard Platform League of the Robocup.
Aeropuertos de Portugal (ANA)	Design of a passenger Services Strategy, with a suite of value-add services that is helping ANA develop a meaningful and profitable relationship with passengers and build the ANA brand	The annual Airport Service Quality Award (ASQ) for Best Improvement in Europe went to Faro Airport ²
Expressen	Expressen, a Swedish national tabloid newspaper, did a redesign of their mobile experience in order to truly reflect Expressen's brand proposition, "story telling that moves you", to the reader, and delivered a world-class news service to their mobile readers.	The new mobile experience launched in October 2013 and the feedback was overwhelmingly positive. The number of unique visits has risen from 900,000 to almost 1.5 million.
Fluid Forms	Innovative online product-design tools for fluid forms	Fluid Forms started out as a graduation project, then was established at a science park, and now services its customers from the creative district of Graz.
Freedom Of Creation	Online design with 3D printing technologies	Freedom of Creation has conducted several international projects and opened up an online store.
Smart Living		
Decolabs (BE)	Application that virtualises the decoration of home interiors using Augmented Reality.	Over 6,000 downloads, one of the best Augmented Reality (AR) practical case studies for 2013 for the AR Summit.
El Studija (LT)	Boxetti Collection – transformable home furnishings.	Featured in "Ouverture 2012 - Design On/Off". The Boxetti collection has been presented at contemporary interior and architecture events such as the "100% design London" (www.100percentdesign.co.uk).

² <http://www.aci.aero/Airport-Service-Quality/ASQ-Awards/2012-Winners/Best-Improvement/Europe>



Company	Business innovation	Signals of success
Pro-Teq Surfacing (UK)	STARPATH – UV powered pathway	Nominee for the Global Business Excellence Award. Tested in Cambridge Christ's Pieces park.
Designergy (SW)	Solar building materials	Numerous awards and exhibitions.
Kebony (NO)	Kebonization technology of producing sustainable wood	Several awards and introducing the technology in hundreds of buildings across Norway.
CubeSenso (SL)r	Wireless cubes for measuring conditions inside / outside	Awards, exhibitions and media coverage
GreenWave Reality (DK)	Smart Home Services solution	Winner of Nobel Sustainability® Supported Clean Tech Company 2013" award
Coodoo (SI)	Capsule homes	Extensive media coverage, commercial contracts
Polysolar (UK)	Semi-transparent solar panels	Exhibitions and extensive media coverage, commercial contracts
Innovative Business models for Global Competitiveness		
Multimedia Company X	Multimedia sector	The Free Cash Flow increased by 25% and company uses the invoice sums owed to the bank to generate a return on investment of 20%
IKEA	Innovation in marketing (amongst others)	As a result of IKEA's internationalisation strategy, the company's sales in China increased with 23 percent in 2012, and 17% in 2013.
Moodyo	Social shopping	Moodyo won the Tech Media Europe award in February 2011 for its idea. It joined the Mola Incubator from Spanish entrepreneur Enrique Dubois who provided the founders with some interesting advice
Revevol	Deployment, migration and integration of Software as a Service(SaaS) solutions on the cloud	Named "Cool Vendor" by Gartner in 2012 Cool Vendors report in Cloud Services Brokerage Named "Partner of the Year 2012" by Google Enterprise EMEA Customers include leading multinational and universities
Sygic	Automotive navigation systems for mobile telephones	First-ever navigation app for iPhone available on the App Store Top Grossing application on the App Store in 10 countries First real 3D navigation Chosen by to the organizers of the 2012 Summer Olympic Games in London Currently more 30 million unique users Deloitte Fast 500 EMEA chart of the fastest growing IT companies every year since 2008
ATEEDA	Cost reduction in microchip companies even though the complexity of their products is increasing.	EE Times Silicon 60 award winner Received several rounds of venture capital funding.
AudioCure Pharma GmbH	Novel neuropharmaceutical therapies for the prevention and treatment of a range of hearing disorders. In addition to the in-house R&D in this field, services that range from strategic advice and training for new projects to the complete planning, execution and analysis of a full research and development project are being offered.	Backed by venture capital; patented lead components Successful initial financing round with High-Tech-Gründerfonds Research Award from TH Wildau September 2013 Planned clinical trials on ground-breaking drug



2.4. The macro level socio-economic potential of the selected trends

Design for Innovation

In the cases on design for innovation sometimes the 'market' trend is difficult to quantify. However, in the case study of design for social innovation the market potential for "design for innovation" is regarded to be substantial: the social economy includes over 2 million enterprises (i.e. 10% of all European businesses) which employ over 11 million paid employees (the equivalent of 6% of the working 21 population of the EU).

Regarding co-creation design, it is also difficult to provide an unambiguous figure for the market volume of co-creation design activities. This is due to the fact that this theme covers elements of various markets, e.g. the open innovation market and the enterprise crowdsourcing market. Nevertheless, the total market volume for companies facilitating such contests, so called Open Innovation Accelerators, constitutes *€2.7 billion in 2012*. This share is forecasted to grow to *€5.5 billion in 2015*.

The total market volume for crowdsourcing platforms (based on gross revenues) was *\$375.70 million in 2011*, constituting a *growth of 74.7%* compared to 2010.

New solutions through Design for innovation are believed to have the potential to make a major difference to society. The economic crisis has had a profound effect on the European economy, with public sector debts towering in the glooming aftermath of the needed stimulus packages. Moreover, productivity trends for public services are noted to be weak and the long term effects of demographics and climate change present challenges for Europe as a whole.

Social innovation is regarded as one of the key trends that have the potential to provide efficient and effective solutions to these challenges.

First of all, design for social innovation can create new and untapped product markets for companies. As it has been argued in this case study, a combination of innovative social design and innovative social solutions, paired with social *embeddedness*, creates new product markets.

Then, social innovation also helps companies to increase product placement opportunities in existing markets. Social benefits of products can catapult innovations to success by reaching out to a larger end-user base.

Regarding co-creation design, it can lead to better, quicker and less risky innovations that are beneficial to customers and companies. This includes direct innovation outcomes, like:

- Increased speed to market;

- Lower cost, resulting in increased profits for companies and/or reduced sales prices for customers;
- Increased product quality, resulting in increased sales for a company and greater customer satisfaction;
- Reduced risk of innovation efforts not meeting customer needs.

Smart Living

For **Smart Construction Products** and processes, the global growth of residential construction is expected to be 5.6% between 2010-2015 and 4.4% between 2015-2020. The expansion is expected to be somewhat slower in Europe, especially in the Western bloc. The residential sector currently corresponds to approximately 43% of the total construction output in Europe. Smart construction products and processes provide several benefits: reduced costs; lower carbon emissions for constructing, utilising and decommissioning buildings; multiple functions and added value on the materials utilised on buildings; better attributes, qualities and longevity of buildings and improved quality of life for users.

Concerning **Advanced Building Materials**, the construction sector has strategic importance in Europe as the largest single economic activity offering highest number of employment in Europe with almost 20 million direct jobs. According to a survey led by McGraw-Hill Construction, a research firm, 51% of companies related to the construction industry expect more than 60% of their work to be green by 2015. The growth potential of companies specialised in advanced building materials will be mainly boosted by this new emerging context. The global awareness on environment is growing across the world, especially in industrialised countries where consumers aspire to improve their living conditions whilst also limiting negative impacts on the environment. Further, implementing, into both households and commercial buildings, conducive solutions for energy and cost saving is becoming a crucial focus, given the energy price increases across Europe over the last two years.

Ingenious Home Products is still a rather nascent market covering several industries such as home furnishings, home design and home appliances. The global home furnishings market is forecast to reach €508 billion by 2015. The industrial design and the interior home design constitute the second largest part (44%) of the entire industry. Also, for home appliances market there is a strong potential: the value of global demand has been estimated to almost €440 million by 2013.

The potential market of the connected devices is much bigger than the billions of mobile Internet devices. In terms of units, it could potentially reach the 1.5 trillion devices around the world. But in this fast evolving market, where



new technology blossoms each day, it is difficult to determine a precise figure.

Focusing on **Intelligent Homes**, these will contain multiple and diverse connected devices such as appliances, sensors, and displays. The connected devices will concern a range of fields, from automation to security to medical monitoring. The size of the market is also tremendous. For example, there are currently 1 billion electricity meters in the world, which corresponds already to a potential market of 1 billion connected devices.

Innovative business models for global competitiveness

For the **new models for direct global market access in ICT**, the market potential of the ICT sector in EU, according to Eurostat, reached € 470 billion in 2009. This corresponded to 4.0% of EU GDP, a percentage that proved unchanging in the last years. In 2009, ICT Services is largely responsible for the ICT value added share. With 91.9% or € 432 billion, it represented 3.7% of EU GDP. Meanwhile, the decrease of ICT manufacturing drove this category to amount to 8.1% of (€ 38 billion), which is only 0.3% of EU GDP.

3. Framing the common stories: a synthesis

Before turning to the specific drivers (in chapter 4) and the policy challenges (in chapter 5) this chapter provides a short overall synthesis of the case-study trends, based on the commonalities.

As an overall topic of this report the three trends of 'Design for Innovation', 'Smart Living', and 'Innovative Business Models for Global Competitiveness' can be labelled as: 'Co-designing innovation models'. It refers to the overall trend observed among the case studies of involving users into an interactive innovation process. The users can be consumers (end-users), other companies, other sectors and even the public sector. Together with the users the organisation of their joint innovation process is designed and formalised in new innovation models and practices which not only transform the business models of the involved companies, but also their 'innovation models'. Moreover, with the involvement of end-users and various actors and sectors the overall trend is not only about transforming a single sector or value chain, but also about designed transformation of the concerning innovation chains or the social systems we live in.

Another common element of the case-studies and the concerning companies is the importance of service innovation, which is a relevant source for increasing value added in any sector or industry. Given the continuing growth

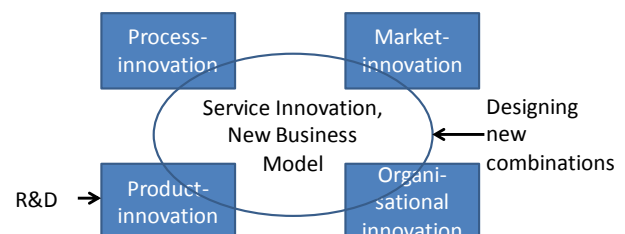
Social media for internationalisation market potential, from the case study, is hard to quantify. Its impact is too broad and numerous to describe the market potential of social media strategies for internationalisation in terms of revenues, profits or costs savings. Social media can be used for internationalising basically any business model in towards nearly all international markets, and is often used in combination with conventional marketing instruments.

As for **"Soft" business models**, the only existing attempt in the literature aimed to quantify the overall contribution is available in the region of East of England. Based on selected individually held companies in the region, it has been estimated that "soft" companies contributed over 435 million pound in revenues in 2008, employing over 3,525 people in the region.

Currently, already several billions of Euros are transferred between buyers and suppliers through **Supply Chain Finance** arrangements. Growth rates of Supply Chain Finance are estimated at 30-40% per year, and the market is predicted to continue to grow by 20-30% annually by 2015, and by 10% in 2020.

of the service sector in Europe, designing services has become an important innovation activity. Product designers also create additional value with intangible experiences, e.g. aesthetic or user-friendly aspects of goods. However, service design also relates to the design of various interactions between the service provider and user. Service design is therefore to be seen as a means to advance business models which may transform whole value chains (Figure 2). While product innovations often start with insights from R&D, service innovations often start with insights from users.

Figure 2: Advancing business models through service innovation



Many case studies are addressing organisational changes which are based on a strategy to interact with the users. This interaction with users (which can be users in the public or business sector, but also citizens as end-users) is an important source of innovation.



The transformation of the interactions in the value chain and innovation system is enabled by ICT (Figure 3), and especially the ICT which is used for social communication (between people), but for instance also for communication between devices in intelligent homes.

Many of the innovative service solutions provided by the case study companies are used in other sectors. Co-design therefore also refers to the cross-sector cooperation in the concerning innovation processes. The construction sector is in this respect located at a cross-road of various sectors and value chains.

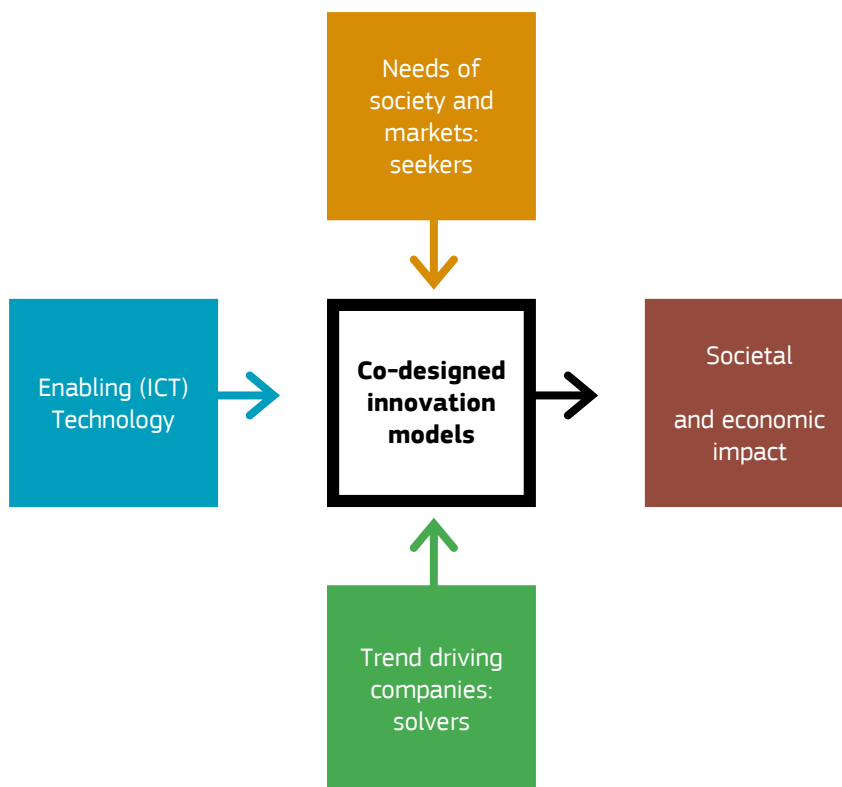
A common driver for many of the case-study trends concerns the opportunities provided by societal challenges: including environmental challenges, globalisation, economic crisis and demographic change.

A common recommendation from the showcased companies refers first of all to regulatory issues, since legislation is often a main obstacle for the transformative power of the trends.

The overall trend of 'co-designing innovation models' also refers to the role of policy makers, for instance in co-designing trend-specific regulations and framework conditions with the involved parties.

Another important policy instrument is setting up platforms which bring together solvers and users, various sectors and trend-specific actors representing the framework conditions (e.g. banks, education institutes, IP-specialists, and policy makers).

Figure 3: Framing the basic story from common elements among trends





4. Key innovation drivers and obstacles

In order to propose applicable policy options for scaling-up the successes of the trends, it is important to understand the various drivers and barriers faced by the trend-driving companies and their clients.

4.1. Drivers

Among the drivers identified in the 12 cases studies (Table 3) the most significant ones are:

- The growth of services; untapped demand; scale and scope of market potential;
- Growing awareness among consumers and companies, trend towards testing out innovative approaches
- Developments of ICT in particular internet infrastructure, cloud computing, digital convergence, and mobile networks;
- Opportunities provided by societal and environmental challenges: globalisation, economic crisis, demographic change, ageing population, increased urbanisation; industrial areas to be reshaped; the motivation of 'doing good'; integration of public and private demand.
- Green agenda and the drive for more energy efficient solutions, in particular within the construction sector;
- Internationalisation, as local markets are often saturated or lack the strength to support growth;
- Open innovation, redefining the boundaries of organisations and transformation of value chains; untapped user centric market potential;
- The increasing importance of novel financing methods such as Supply Chain Finance, Customer-funded R&D, micro-credit, crowd funding etc. to counter the difficulties to access finance;
- Availability of a creative, flexible and skilled workforce;
- Entrepreneurs and their ideas; Presence of 'rule-brakers' among policy makers;
- R&D infrastructure, such as clusters, and effective institutional framework that benefits education and research.

Table 3: Main drivers of the trends

Trends	Drivers
Design for Innovation	
Service design as a means to advance business models	<p>The biggest driver of the demand for service design is derived from the growth of the service economy. Globalisation of services is one of the biggest drivers for further uptake of service design. This driver is related to the growth of service economies.</p> <p>Manufacturing or product-oriented firms have transformed themselves into predominantly service-providing companies. This transformation of manufacturing firms into service providers is part of a shift in the comparative advantage of advanced economies (China).</p> <p>Technological change is another big driver for organisations to adopt and use service design in order to advance their business models. Technology developments, including cloud computing, digital convergence, and mobile networks are leading to changes for all organisations by enabling more frequent connections between customers and organisations, and between customers and others.</p> <p>A third driver for the use of service design by companies is the development that boundaries of organisations are redefined as they open up to design and co-production.</p>
Design for social innovation	<p>A strong vision of "doing good" is trickled down to the whole organisation and companies interviewed. This vision of "doing good" motivates the employees to come up with extraordinary solutions.</p> <p>The social impact and survival of design for social innovation companies are both highly influenced by the size of the community they are able to reach. It is therefore crucial that they start building a community as quickly as they can in the business process.</p> <p>Another key success factors for social innovation design companies is to have a strong marketing approach. This is also strongly linked to reaching a large community at an early stage. To maximise the impact of social innovations, this type of companies tend to look for the highest adoption rate on the market they can achieve. A strong marketing campaign is crucial.</p> <p>Successful design is unmistakably connected to creativity. Creativity in the entire set of business operations is a common trait among the company cases.</p>



Trends	Drivers
Co-creation design as a new way of value creation	<p>Competition is driving the adoption of co-creation practices because it allows a company to be distinctive. Technology, particularly web-based ones, empowers consumers to establish a well-informed perspective on a company's offering, by providing them better access to information. The same technology also allows consumers to create a crowd or community without having to be together physically.</p> <p>Online community building is a capacity that conventional companies do not have readily available. A co-creation facilitator with an existing online platform and community can be a valuable collaboration partner and driver for industry players that want to focus on their core business, while at the same time engage in co-creation initiatives.</p>
Web-based design a new business model in the design world	<p>Access to finance is a very important critical success factor for the past and future development plans of the entrepreneurs featured in this case study. Personal savings, build up from money set aside from less-satisfying daytime jobs, seed capital through business angels and bank loans have been the most common ways to raise funds for the companies in their start-up phases.</p> <p>Web-based design-service companies rely on both the availability of high-quality technological infrastructure and the presence of an institutional framework that benefits education and research.</p> <p>The geographic clustering of creative enterprises in a specific district, or the refurbishment of an old factory or warehouse to provide office space and ateliers, can allow these creative entrepreneurs to interact with one-another in a manner that inspires them and allows them to spot synergies.</p>
Smart Living	
Smart Construction Products and Processes	<p>The main drivers for the emergence of the smart construction trend can be considered fourfold. The first factor is naturally economical, exacerbated by the economic crisis. Market demands for better, stronger, smarter and cheaper solutions are another aspect. The environmental aspect, which has been driving possibly the largest share of innovation within this industry, is another push for the trend. Finally, regulation across Europe and worldwide brings in new requirements for this industry and increases the market awareness and demand for related solutions.</p>
Advanced building materials	<p>Strategic objectives of Europe2020 Strategy, i.e. smart growth, sustainable growth and inclusive growth.</p> <p>Growing competitive pressure.</p> <p>Environmental challenges and increased environmental awareness.</p> <p>Increasing urbanisation.</p> <p>Global crisis, which hit the construction sector.</p> <p>Rising costs of energy.</p>
Ingenious home products and solutions	<p>Ageing population and increasing dependency ratio.</p> <p>Increase in the global population and limited living space.</p> <p>Increased awareness of environmental issues and willingness to save energy.</p> <p>Intensified labour mobility.</p>
Connected devices for intelligent homes	<p>The size of connected devices is shrinking; their power is increasing while their prices decrease.</p> <p>Quality of available workforce.</p> <p>Big support for connected devices in Europe.</p>
Innovative Business Models	
New models for direct global market access in ICT	<p>Sales Growth, companies express the will to increase their sales.</p> <p>Internationalisation is a major objective for shareholders, as it increases the value of a company.</p> <p>Skilled workforce is a key success factor if an innovative start-up.</p> <p>Reaching critical mass allows achieving economies of scale.</p> <p>Easy regulatory barriers. Internationalising a product is relatively simple for ICT companies compared to other sectors.</p> <p>Client request for solutions abroad. State of mind of innovative companies must be to evangelise the world.</p> <p>Local markets are saturated. Market saturation helps to comprehend why companies want to grow abroad.</p>
Social Media for Internationalisation	<p>Shift towards a technology-heavy driven sales model can be identified.</p> <p>Social media marketing easily facilitates all sorts of customer segmentation and targeting that facilitate internationalisation.</p> <p>There are changes in the consumer buying process, which drive internationalisation</p> <p>The rapidly expanding social network audiences in the emerging markets of Asia-Pacific, the Middle East and Africa will be huge drivers of social media user growth.</p> <p>Successful social media campaigns can rely on word-of-mouth, not heavy funding, to be successful</p> <p>Developments that make internet infrastructure and mobile telephony accessible to more and more people are driving the potential of social media marketing for internationalisation</p>
"Soft" business models	<p>Customer-funded R&D contracts can catapult "soft" companies into success.</p> <p>Soft Companies use combination of private and public funding.</p> <p>Customer-funded R&D is an important stable source of income and allows companies to carry out the research they want under contract of an external party.</p> <p>Intellectual Property is key for "soft" companies to spin-out radically new innovations.</p> <p>Flexibility and motivation of employees are key drivers of innovation</p>



Trends	Drivers
Supply Chain Finance	<p>Both buyers and suppliers experience increasing financial pressure and difficulty in accessing finance. They are increasingly willing to move beyond traditional financing methods and engage in novel financing methods such as Supply Chain Finance.</p> <p>Speed and accuracy are important aspects of a Supply Chain Finance arrangement. Buyers or banks offer extensive help to suppliers to improve invoice quality, or even introduce self-billing to the invoicing process.</p> <p>Buyers involved in Supply Chain Finance in general prefer banks to play the role of financial intermediaries.</p> <p>The experience a bank has with Supply Chain Finance even counts for more than the experience that the buyer has with the bank.</p>

4.2. Obstacles faced by trend-driving companies and their clients

In this chapter we focus on the identified challenges faced by trend-driving companies and to some extent by their clients. The most significant obstacles identified in the case studies (Table 4) are:

- Legislation and regulatory issues; either a lack of standardisation and harmonisation or too bureaucratic, too old and too strict regulations;
- Lack of specific public support adapted to the innovative companies' needs; Insufficient support for internationalisation; for service innovation, for innovative solutions and business models;
- Difficulties in dealing with rigid habits and perceptions of users and clients;
- Difficulties to access finance due to novel requirements related to their business models which are not (fully) understood by investors;
- Difficult market uptake given consumers' unwillingness to face additional complexity, costs, or risks, or lack of awareness of existing solutions and their benefits;

- Difficulties in managing and protection of IP: across borders; for protecting service design; and in customer-funded R&D consortia;
- Difficulties in collaborating and developing partnerships, crucial for SMEs to co-design innovations, go to market or internationalise;
- Scarcity and high cost of creative and skilled labour.

The workshop participants further emphasized:

- The fragmentation of markets;
- Scepticism and lack of openness of existing corporate players (as partners, customers or investors);
- Lack of awareness and understanding of the concepts of 'design' and 'Smart-Living';
- The European focus on technological invention and scientific discovery, while lacking an entrepreneurial and risk-taking mind-set that is needed to test and try-out (entrepreneurial discovery and market exploration);
- Difficult access to first clients, and public procurement procedures for SMEs.

Table 4: Obstacles faced by companies and their clients

Trends	Obstacles
Design for Innovation	
Service design as a means to advance business models	<p>The use of service design can be much greater if new service development and delivery is formalised in organisations.</p> <p>It is hard to value and finance intangible service assets. Most services invest little in traditional R&D, while they generally spend on training, technology and intangible assets, like design, organisational change and marketing. These kinds of expenditures are generally not very well reflected in business statements and therefore limit the capacity of service companies to access to private finance or government support.</p> <p>One possible show-stopper is a perceived lack of intellectual property protection of service designs. Services are generally perceived as difficult to protect, in particular for non-technology-intensive services and for their intangible assets.</p> <p>Underperforming service industries with limited links to the research and innovation system create an obstacle for the renewal of service industries.</p>
Design for social innovation	<p>Access to finance is one of the most critical success factors for the past and future development plans of the firms interviewed for this case study. However, raising start-up capital turned out to be somewhat a challenge for some of the companies, given the concept of the business they are running.</p> <p>Up-scaling for social innovation companies is challenging as some of the companies not necessarily pursue profits, margins tend to be low.</p> <p>One of the key barriers to uptake is the need for these solutions to "prove" themselves. Scepticism on the market is one of the biggest enemies of these innovative solutions, possibly preventing soaring market uptake.</p>



Trends	Obstacles
Co-creation design as a new way of value creation	The amount of funding available for setting-up a co-creation platform or individual contest significantly impacts the number of co-creators that participate in the co-creation process. Merging consumer preferences with a company's goals can be a barrier to co-creation Legal issues may hinder more efficient ways of communication between the EU and third countries. Similar issues are experienced for copyright legislation and tax declarations.
Web-based design a new business model in the design world	Web-based design entrepreneurs point out that government bureaucracy can be a serious hindrance to them. Entrepreneurs get frustrated when governments on the one hand adopts policy arrangements designed to help innovative start-ups financially and other wise, yet on the other hand implements these policies in a way that makes it very difficult for entrepreneurs to understand them without third-party assistance and that severely limits the accessibility of these policy programmes for precisely the people it targets.
Smart Living	
Smart Construction Products and Processes	Some of the drivers for the trend can also function as barriers for the adoption. Regulation and the economic landscape, for example, have this two facet characteristic. Scepticism towards new technologies, risk avoidance by builders and users, low investments in the sector, weak public support to the trend and potential impact on employment are further obstacles
Advanced building materials	Lack of EU standardisation in the sector, with different national standards for constructions and materials. Difficulties in reaching international markets. Lack of funding. Administrative burden related to IP.
Ingenious home products and solutions	Client awareness and perception of the products as it means switching users' habits. Perceived complexity of such products. Products perceived as designed for luxury housing and expensive. Lack of support for companies developing disruptive innovations.
Connected devices for intelligent homes	Lack of standards and open protocol. Problems with finding right workforce. Privacy issues and ownership of the data. Access to finance.
Innovative Business Models for Global Competitiveness	
New models for direct global market access in ICT	Attracting and retaining talents are constant challenges of recruiters. Single Market ineffectiveness. VAT regulations prevent from ICT business related opportunities. According to interviewed, there is a lack of European state of mind and nosiness culture. The lack of a successful digital single market impairs the speed at which companies go international. High labour costs for skilled IT professionals. Lack of financing for Internationalisation engenders more risks to entering a country's market.
Social media for Internationalisation	Accessing Chinese market force companies to use alternatives to other Social Networks, as these SN are all censored International data security and privacy regulations are barriers. VAT regulations differ from various countries.
"Soft" business models	Customer-funded R&D can be difficult to acquire and requires companies to market their expertise and services in a highly competitive environment. Imposing high administrative burdens of applying for EU funding. Managing Intellectual Property is challenging for soft business models. Applying for fund in a Consortium, forces "soft" companies to give up their Intellectual Property
Supply chain finance	Hard time delivering on Supply Chain Finance promises without the technological underpinning of electronic invoicing and standardized business reporting systems. Both buyers and suppliers experience increasing financial pressure and difficulty in accessing finance. The win-win-win aspect of Supply Chain Finance does not always appear immediately apparent to suppliers. Several legal and accounting complexities: due to invoice price changing during the approval process, and the payment terms for the buyer extending beyond what is allowed following the EU directive on combatting late payment in commercial transactions. The invoice value channelled through the Supply Chain Finance arrangement can grow to the extent that individual financial intermediaries are no longer willing to finance the arrangement by themselves. This can introduce a risk wherein the buyer might want to terminate the arrangement, but cannot do so in any practical matter.



5. Policy challenges: co-designing framework conditions and promoting wider uptake

The trends call for certain adjustment of existing policy support and framework conditions. In this section, firstly the existing policies are addressed. This is followed by discussing the policy gaps (what is missing or lacking) and the policy challenges in promoting further up-take of the trends.

5.1. Existing policies: R&D and incubation support

A special focus is given to regional and national innovation policy frameworks. The interviewed firms benefited most from:

1. Existing public funding at national or EU level, notably those aimed at SMEs and for R&D.
2. R&D tax incentives.
3. Services provided by innovation support structures such as incubators, clusters, science parks, etc.
4. Partnerships, networking and support for collaboration with large companies.
5. Co-design platforms and co-creation initiatives.

Most existing policy support the case-study companies benefited from refer to R&D support and incubation support. Support for co-design, service innovation, internationalisation, marketing, innovative business models, partnership- and platform- based transformation of value chains, seems less developed.

Most innovation policy instruments are oriented to product innovations; 'or service innovation' is often added between brackets, but product innovation differs from service innovation. One of the differences is that with service innovations (and new business models) it is hardly possible to separate between process-innovation, organisational innovation and market innovation. R&D support is less relevant than for product innovation.

5.2. Policy gap/challenges: smart regulation and targeted co-designed support

The main policy challenges identified in the case-studies (see Table 5 on page 17) are:

1. Simplify regulatory framework, reduce regulatory burden and reduce disparities in standards and regulations between countries;
2. Develop systemic, co-designed approaches to support partnerships, to advance emerging sectors and business models and to promote the wider up-take of trends;
3. Simplify access to public financing and procurement; and support/facilitate the access to novel financing methods such as Supply Chain Finance, Customer-funded R&D, micro-credit, crowd funding, etc.
4. Existing EU legislation is not adapted to the emerging specific needs of the concerning sectors; enforcement of the updated Public Procurement Directive;
5. Better information about how existing public support schemes can address specific needs of innovative companies;
6. Encourage and simplify use of IP mechanisms;
7. Increase public support for collaboration and skills.

The policy gaps and challenges raised by participants of the workshop confirmed the above issues, and in addition the following policy gaps and policy challenges were mentioned:

- Lack of tailored and incentivised public demonstrators;
- Lacking vision on the appropriate framework conditions and needs of the companies in the emerging field of Smart Living;
- Difficult access to complementary knowledge, to business intelligence and services for market knowledge;
- Lacking policies to increase skills, attract talent and bring in professionals into the smart application domains.

*"The market for quality mobile homes could grow faster if regulation was harmonised across Europe."
— coodo (Case-study on Smart construction products and processes)*



Table 5: Case-study policy challenges

Trends, case-study	Policy challenges
Design for Innovation	
Service design as a means to advance business models	Service design takes place across many different industries, which means that there is no one common formula for successful service innovation policy development. A policy approach is very challenging because it should take that into account and focus on a more sector neutral approach of policy instruments.
Design for social innovation	The Small Business Innovation Research programme (SBIR), designed in the United States, may provide inspiration for a simplification in the public financing procedures. However, the already existing equivalent tools appear to be less successful than their US. Therefore the challenge is to find the best policy mix of public policy that better suit to the innovative SMEs.
Co-creation design as a new way of value creation	Polymakers can play a crucial role in stimulating the acquirement of public funding for co-creation based business models. Since venture capital is the main manner of financing for these types of business. This form of funding, however, is also associated with decreased sovereignty for the start-up and chances of decreased motivation amongst founders. Therefore the strong need of public funds should be satisfied.
Web-based design a new business model in the design world	Improving public awareness of the offerings of web-based design companies is important, as consumers cannot look for or interact with something they do not know exists. Implementation of the Small Business Act can reduce the bureaucratic burden that web-based design entrepreneurs experience.
Smart Living	
Smart Construction Products and Processes	Harmonisation of regulatory requirements for construction. Improvement and harmonisation of rules for professional recognition within the EU. Support for collaboration, integration and development of skills. - following the enforcement of the updated Public Procurement Directive Better access to finance.
Advanced building materials	harmonise regulation at the European level Simplifying regulatory requirements in Europe. Strengthening single market rules and implementation. Introducing transparent certification system of building materials. Supporting partnerships. Reducing administrative burden. Strengthening the existing IPR support mechanisms.
Ingenious home products and solutions	Providing substantial support for start-ups, mainly in the access to finance. Developing tools to connect companies and organisations. Promoting collaboration between research institutions, design intensive industries and the design sector. Simplifying IP procedures. Better access to finance for designers. Introducing governmental activities aimed at promoting disruptive innovations (for example, show apartments) European and national subsidy programmes. Development of European technology and innovation centres offering design services to industry and public sector. Encouraging companies to involve students in the creation and innovation process. Developing crowd-funding platforms.
Connected devices for intelligent homes	Market support measures. Incentives for SMEs and start-ups (lower taxes or tax rebate) Support in the internationalisation. Better communication of EU funding possibilities. Simplified access to the right information.
Innovative Business Models for Global Competitiveness	
Supply chain finance	Address potential risk introduced by Supply Chain Finance arrangements concerning the termination of the arrangement. Simplify the EU Directive on combating late payment. While companies try to increase their DPO by paying the financial intermediary as late as possible, they violate the directive when it states that payment terms should be maximized at thirty or in some cases at sixty days.
Social Media for Internationalisation	Standardise data security and privacy legislations. Standardise national taxation systems and simplification of tax requirements for involving customers in Omni-channel retailing. Decrease bureaucracy associated with secure online and international transactions
New models for direct global market access in ICT	Improve access to finance for ICT sector in internationalisation. Stimulate cheap qualified labour through young professional programmes. Simplify VAT burdens. The Internet is a global platform, where clients can come from all over the world. Improve the implementation of the Small Business Act with regards to breaking business trade borders.

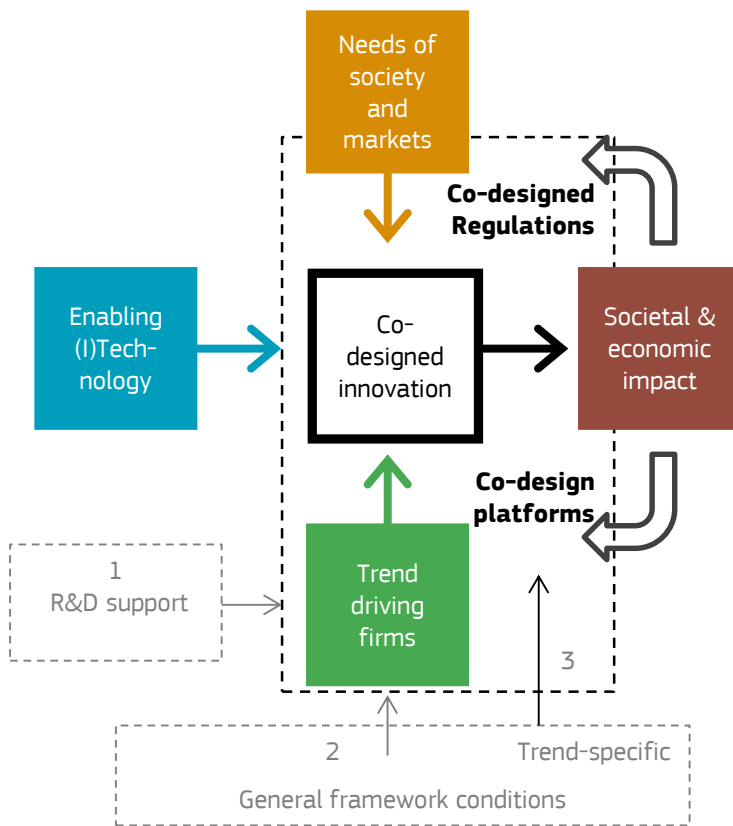


"Soft" business models	Improve government procurement in customer-funded R&D contracts. Simplify the application process for the EU Framework Programmes. Facilitating access to information and support on managing Intellectual Property rights. Awareness rising of the IPR helpdesk and SME corners.
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We can conclude that in many cases the main challenge revolves around the need for smart, up-to-date and harmonised regulation, and better trend-specific framework conditions and policies. Addressing these challenges calls for coordinated involvement of many parties, since the appropriate policy decisions can't be made top-down by

policy-makers in isolation, without interaction and exchange of policy ideas with other partners in the ecosystem. The policy challenges call for joint re-thinking, designing, prototyping and testing of better policy solutions: they call for co-designing of policies (Figure 5).

Figure 5: Bringing policy into the picture: promoting a wider uptake of the trends with co-designed framework conditions



6. Confronting the emerging story with policy literature and good policy practices

6.1. Co-designing innovation systems and policies

The trends as analysed in the previous chapters, call for a more active and strategic participation of policy makers in supporting and scaling-up of these successful and relevant trends. In line with the overall topic of this report, policy makers should more actively join as partners in 'co-designing innovation'. Not only through public procurement or demonstration projects, but also by **co-designing regulations and framework conditions** which support these innovation trends and emerging sectors.

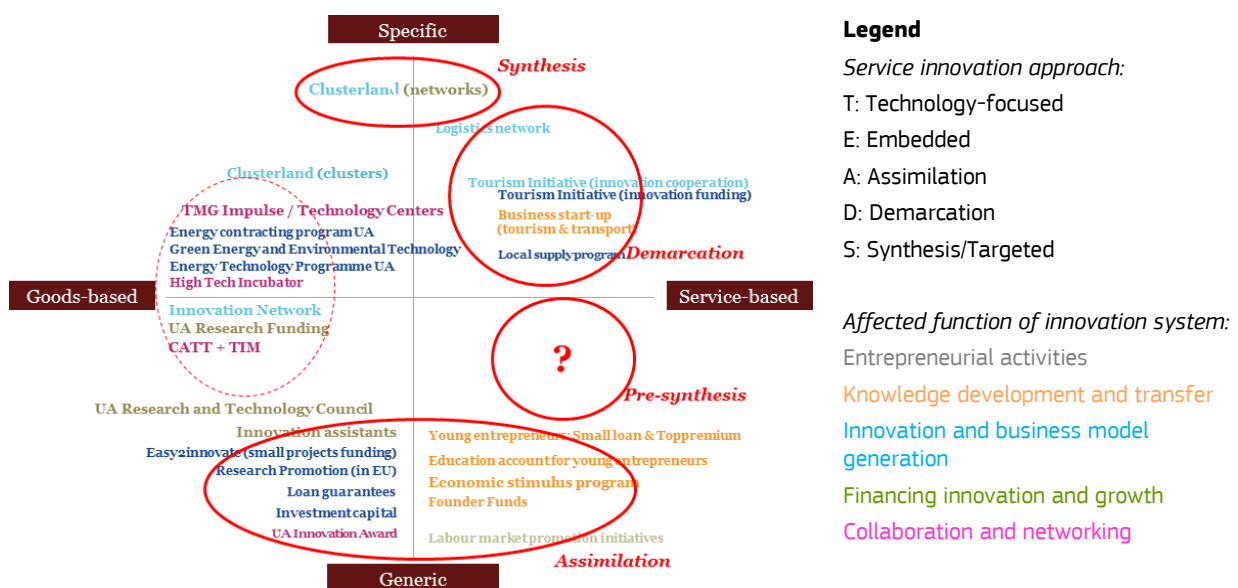
The policy gaps and challenges identified in this report call for trend-specific framework conditions since the traditional framework conditions are often not adapted to the new innovation trends, practices and models. Besides some complaints about general framework conditions, case study companies have mentioned several framework conditions or existing innovation policies which do not match the trend specific situation. For instance, many framework conditions such as the availability of funding, human resources, IP regulation, R&D and innovation support and incubation services are originally designed for product innovation in manufacturing industries, but to some extent the innovation trends discussed in this report call for a re-designed transformation of those conditions: notably a design that is

adapted to the characteristics of service innovation, Smart Living and innovative business models.

One of the difficulties in studies and literature on such new innovation trends is that also the traditional definitions, statistics and indicators are often not appropriate. For instance: Smart Living is not captured as a sector by any bureau of statistics and the Community Innovation Survey (CIS) does not include a question on new business models or social innovation. Concerning design there is a discussion whether this should be seen as part of R&D or not. The four types of innovation defined by Schumpeter (product/service innovation, process innovation, organisational innovation, and market innovation) are still the basis for separate questions on each of these four innovations. However, this distinction made in the CIS, does not capture very well the fact that concerning service design and development of new business models involves new combinations of these four, which are often very hard to separate from each other. Similar difficulties exist for innovation agencies which have to evaluate applications for R&D subsidies.

The European Service Innovation Centre provides insights on the transformative power of service innovations in demonstrator regions, but the reports also show that policy makers in many regions have to adjust their policy mix by co-designing more specific but systemic initiatives (Figure 4).

Figure 4: The policy mix of Upper Austria along the dimensions of goods-services and generic-specific³



³ ESIC European Service Innovation Centre; Summary Assessment of Upper Austria (2014)



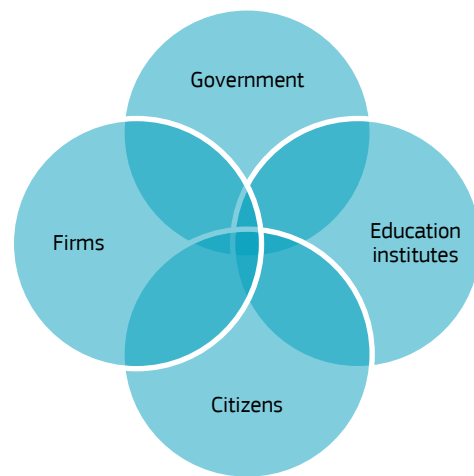
What studies using CIS data did learn was that company clients are a major source of innovation. For Lundvall⁴ this interactive learning between users and producers was central in developing the concept of innovation systems, which has been widely adopted by innovation policy makers. The importance of learning by doing, learning by using and learning by interacting was also emphasized by Von Hippel⁵, who already stressed the importance of end-users as a source of innovation in 1976, and developed the concepts of user-innovation and 'lead-users'. The Lead Market Initiative of the EU⁶ draws on these insights, and the most recent European Innovation Partnerships are good policy examples of co-designing innovation initiatives.

The need for co-designed innovation strategies is also emphasised in the concept of Smart Specialisation Strategies. Choosing the fields of regional specialisation should not be done top-down by policy-makers, but in a joint entrepreneurial discovery process based on interaction with companies and other stakeholders. Also for the design of policy instruments and appropriate framework conditions interaction among stakeholders is essential⁷. Cooke (2007)⁸ and Asheim et al. (2013)⁹ refer to co-designing of innovation strategies and systems in terms of 'constructing regional advantage'.

For many years three groups of stakeholders have been regarded as valuable partners in co-design for innovation. Collaborations between government, firms and education institutes are labelled as the triple helix of innovation, but as derived from the case studies citizens have become a valuable partner as well (Figure 6).

In co-designing innovation the role of citizens is not limited to expressing what they need or seek. Especially in the case of social innovation citizens may also contribute to the design and implementation of solutions.

Figure 5: Stakeholders in co-designing societal innovation systems and initiatives: beyond the triple helix



6.2. Good policy practices

From various sources (the case-studies, desk-research and the workshop) some good policy practices have been identified.

A good practice mentioned in one of the case studies concerns **web-design contests**, where calls for new designs are put on-line, which is an opportunity for inexperienced graduates to come up with the winning design, get rewarded, and build up experience.

The Innovation Union announced European Innovation Partnerships (EIPs) which are designed to mobilise actors across the innovation cycle and across sectors around an overarching target in order to speed up innovative solutions to societal challenges. From the EIP on Smart Cities and Communities EIP (SCC)¹⁰ (see Figure 6 on page 21) the concept of Lighthouse projects seem a relevant policy practice.

Lighthouse projects should offer solutions to the broad range of geographical, spatial and demographic characteristics of European cities. They should encompass a project design phase where different building blocks would be selected; an integration phase where these would be combined, and in many cases also integrated with legacy infrastructure and systems, for demonstration and validation at a scale that is sufficient to enable systemic change in applications which are not yet commercial. This should be followed by a review phase to assess performance and transferability. Industry led consortia are expected to be strongly committed to the use of open standards to facilitate interoperability across systems and to making all relevant data accessible and as widely available as possible".

⁴ Lundvall, B. A., eds. (1992). National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning.

⁵ Von Hippel, E. (1976). The dominant role of users in the scientific instrument innovation process. See also F. Gault & E. A. Von Hippel (2009), The Prevalence of User Innovation and Free Innovation Transfers Implications for Statistical Indicators and Innovation Policy.

⁶ European Commission (2009). "Lead Market Initiative for Europe. Mid-term progress report".

⁷ Nauwelaers, C., & Wintjes, R. (2002). Innovating SMEs and regions: The need for policy intelligence and interactive policies. *Technology Analysis & Strategic Management*, 14(2), 201-215.

⁸ Cooke, P. (2007). To construct regional advantage from innovation systems first build policy platforms. *European Planning Studies*, 15(2), 179-194

⁹ Asheim, B., M. Bugge, L. Coenen & S. Herstad (2013), What Does Evolutionary Economic Geography Bring To The Policy Table? Reconceptualising regional innovation systems.

¹⁰ EU communication Smart Cities and Communities- European Innovation Partnership C(2012) 4701 ; Bussels (2012)

Figure 6: Priority areas of the Strategic Implementation Plan of the European Innovation Partnership on Smart Cities and Communities (2013)



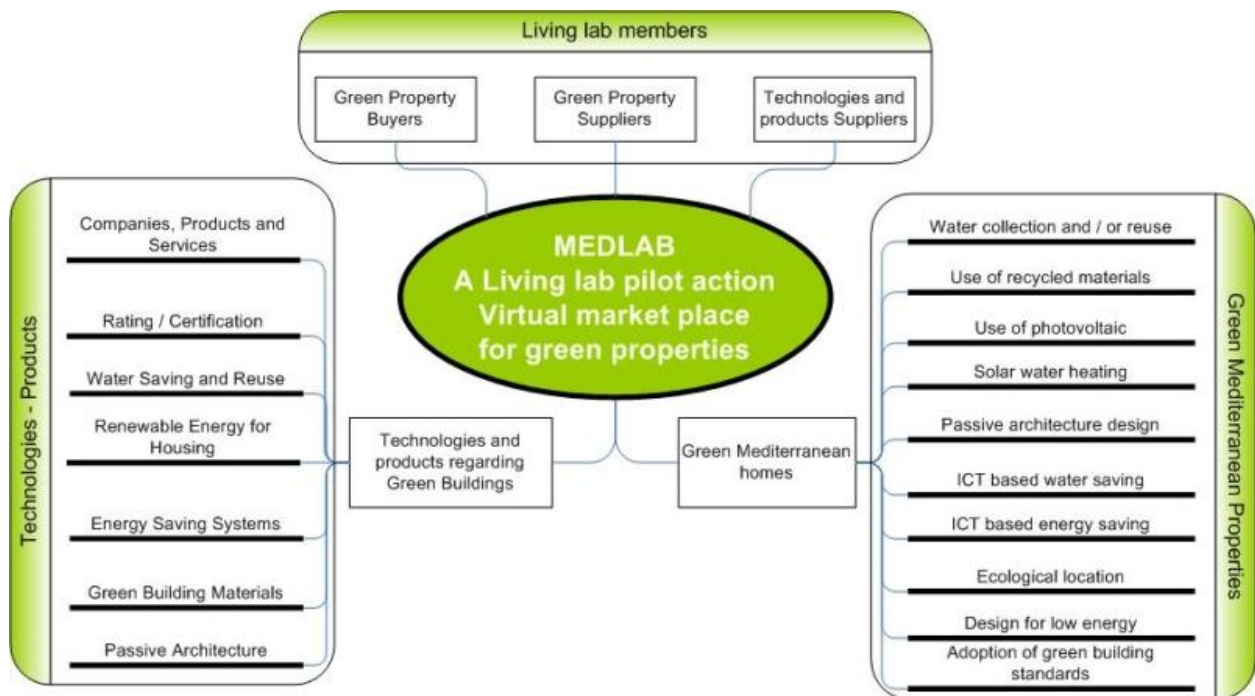
One of the existing policy projects is the **Service Business Acceleration Programme**: an initiative to help manufacturing firms becoming more service-oriented, an element which is also included in the LimburgMakers programme. In 2012, the Service Business Acceleration programme published the roadmap Services Business, a collaborative effort from local manufacturing firms and development agencies in the three Southern provinces of the Netherlands. The roadmap ends with inspiring examples and lists the regional agencies that can assist in finding relevant expertise as well as financial resources.

The **Service Science Factory (SSF)** is an existing initiative of Maastricht University and also has a subsidiary at the RWTH in the boarder-region of Aachen. The SSF can be described as an innovative place where students, researchers and professionals work in a ‘pressure-cooker’ environment on developing new or improving existing services. It offers companies, governmental entities or other organisations the possibility to present their problems to dedicated project teams and - after six to eight weeks - receive a working solution: a complete service or its prototype. SSF is sector-neutral as its staff and students support service innovation and service design in any sector and at the intersection of sectors. Currently this initiative seems to focus on needs and challenges in the business sector. This concept could be further developed as a tool to promote social innovation and public sector innovation, by having multidisciplinary teams trying to come up with solutions to local/regional societal challenges or needs/problems of local/regional governments or public sectors. Such a demand-side approach could also

be developed thematically, and for addressing: design, public sector innovation, social innovation, big (open) data, and for promoting the uptake of new business models.

The **Living Lab “ICT for Smart Cities and Green Buildings”** is a pilot of the MEDLAB project managed by the Region of Central Macedonia (see Figure 7 on page 22). It focuses on the development of innovative products and services by SMEs in the ICT, city planning and real estate industry. The objective of the pilot is to create: a Living Lab for ICT, Smart Cities and Green Buildings; and a virtual marketplace for the promotion of green property and related ICT solutions and services of Mediterranean regions of France, Italy, Greece and Cyprus towards global markets.

The mission of the **Sustainable Construction Living Lab** in Portugal is to contribute to mainstreaming sustainable construction. The Network comprises the relevant Stakeholders of the construction sector and engages them in the tasks of defining robust sustainable construction solutions, defining incentives in favour of mainstreaming good practices and lobbying for these to be implemented. The Sustainable Construction Living Lab is a network transversely representative of the construction sector, gradually integrating representatives of all relevant national and international Stakeholders: the European Institutions, Local Authorities, Utilities, Financial and Insurance Institutions, Real Estate Promoters and Agents, the Design Team, Contractors, Suppliers of sustainable construction solutions, the Building Owners and Users.

Figure 7: Living Lab “ICT for Smart Cities and Green Buildings”


Source: <http://www.intelspace.eu/greenmed/livinglab>

The **Knowledgeland Social Innovation Safari** is a one-week programme in which 30 participants (selected volunteers, mostly young professionals) from diverse backgrounds work together on complex issues for public and social organisations in Amsterdam. “The best solutions to complex issues are solved by teams as diverse as possible. For one week the perfect social innovation think tank is created. Imagine the thinking power of designers, consultants, social workers, entrepreneurs: all together”. This programme is a learning-by-doing programme for social innovators, “while solving problems they learn about social design and co-creation”. Together with all stakeholders the best ideas that come up during the week are prototyped. In 2012 the six complex challenges in the field of education, diversity, democracy, culture, elderly care, and sustainability were articulated by for instance the City of Amsterdam, district East; Two high schools for children with special needs; Salvation Army, Goodwillcentra Amsterdam; and City Theatre.

Demola and other innovation platforms in Tampere

Although Tampere is one of the most R&D intensive regions in Europe, the Council of the Tampere region in Finland, has shifted from traditional R&D driven cluster policies to innovation platforms for multi-disciplinary, collaborative-innovation and demonstration. Innovation platforms, combining people, processes and facilities, provide a new method of funnelling the flow of innovation in a sustainable way. The key factors in the platforms, include communities, talents and global ecosystem orchestrators as drivers,

creation of attractive environments for co-creation (‘trying out new stuff’) and speeding-up going-to-market, capacity building and systemic projects, as well as demand pull instead of technology push. The platform concept is based on the following, guiding principles: Create new combinations of knowledge (tapping into young talent); Move faster - from an idea (kick-off) to prototype (pitch) in just 4 months; Make it easily affordable to start but huge financial support is not necessary. The Demola platform brings together companies with real cases or problems to be solved, multidisciplinary teams of students and university staff. The platforms have achieved encouraging results: 535 innovation projects responding to problems, challenges and needs arising from real life; 2500+ innovation community members and 170 partner companies; 100+ start-ups; 500+ jobs; €18m funding for start-ups and innovators. The Demola network currently covers Finland, Hungary, Latvia, Lithuania, Slovenia and Sweden and further expansion is expected.

The **Social Entrepreneurship Academy** in Munich pools the competencies and resources of the four Munich-based universities in the field of social entrepreneurship. As a co-investor, the BMW Foundation has supported the establishment of the academy. The main aim of the Academy is to make the concept of social entrepreneurship more widely known and to increase the popularity and social acceptance of social entrepreneurship. The SE Academy offers a training programme for students and professionals and provides specific support to social business start-ups. They also organise the Idea Garage, a social entrepreneurship weekend in Munich. The Idea Garage is a



platform for start-up ideas from the field of Social & Sustainable Entrepreneurship. People can learn in what way social start-ups differ from conventional ones. Social entrepreneurs can put their idea to the test in a competition and find co-founders or investors, and get inspired from others.

The Co-Design Pressure Cooker® is a tool developed by Syntens to stimulate collaboration between SMEs and designers. During a Design Pressure Cooker, an entrepreneur and a designer are teamed up to find a solution to a question the entrepreneur is struggling with. In one day, the couples develop prototypes, sketches, and/or drawings for innovations. These can be used as input for the actual development of these innovations. The methodology of the Design Pressure Cooker is evaluated and has proven successful. SMEs usually are not aware of how they can benefit from using design in their products or services. For a relatively small amount of money, they get the chance to experience what designers can do for them.

Enable Berlin is an open-design platform where creatives from various backgrounds meet to: solve challenges together; research, develop and apply collaborative methodologies; share skills, knowledge and insights; and enable locals to take action. Enable Berlin organises creative sessions, during which a group of designers, artists, theorists, entrepreneurs, public sector, etc., collectively reflect on a specific problem. Through those events they come up with creative solutions to social and commercial challenges.

The **T3 Espoo Innovation Garden** is described¹¹ as a hub for creating together, uniting science, art and economy (the three T's). The T3 initiative brought together all the key players throughout the society, the public and private sector. Local companies, research institutions, Aalto University, the City, culture and art institutions, residents and individuals make a dynamic innovation entity.

Examples of horizontal transfer of policies between regions or between countries

A relevant example of a horizontal transfer between regions is the diffusion of the concept of Living Labs, which are relevant policy instruments for promoting co-creation in smart Living and design.

The Sharing Experience Europe (SEE) Platform is one of the six projects of the 1st Action Plan of the **European Design Innovation Initiative**. The aim of the **SEE platform** is to accelerate the integration of design into innovation policies and programmes across Europe by exchanging best practice between design and innovation actors, involving a large number of authorities across Europe.

¹¹ See: http://www.espool.fi/en-US/Jobs_and_enterprise/T3__Innovation_Garden

Example of vertical transfer of policies between regional/national and EU policy level

An example of a top-down, vertical transfer of a policy format is the EU **directive on public procurement**. It is actually not a transfer of a policy but rather a suggested design of the policy instrument concerning pre-commercial procurement, that is the procurement of R&D. Innovation policy instruments such as **living-labs** have benefitted from local, bottom-up developments which have more recently diffused thanks to the top-down call for **Smart Specialisation Strategies**.

Examples of joined policy efforts from different policy domains

Since many of the trends involve multiple sectors and policy domains it is important to coordinate policy efforts and share policy lessons among relevant stakeholders.

Several innovation schemes on procurement, partnerships and **platforms** (e.g. concerning Smart Living or Smart cities) are **funded by various ministries** from different policy domains. Each of them will have domain specific objectives, e.g. concerning safety, competitiveness or energy efficiency. Horizontal co-design is then needed to come to solutions which are serving multiple objectives in society in the long run (e.g. economic and environmental objectives)

The **European Innovation Partnerships** are an example of the involvement of various DGs from the European Commission.

Various innovation policy designs have also diffused from one policy domain to the other, most notably between the various domains within innovation policy, e.g. between eco-innovation and social innovation.

Figure 8: Bauhaus Museum of Design in Berlin





7. Policy recommendations

This chapter provides recommendations at various policy levels with the aim of promoting the three trends addressed in this report. After summarising the recommendations from the case studies per trend, a second paragraph synthesises the recommendations that resulted from the workshop.

7.1. Recommendations from the case studies per trend

We first draw on the recommendations provided by the people interviewed in the case studies (See Annex table B for a compilation). The need for new policy models does not mean that all existing policy measures become obsolete. We therefore also make suggestions on possible changes, e.g. by specifying which policy design features could be added to the existing instruments. The Public Procurement Directive, for example, has been modernised. There is a need to ensure a uniform implementation of the new rules in Member States.

Smart living

For smart construction products and processes, the harmonisation of rules and directives governing the construction industry should be pursued further.

In the area of advanced materials, companies need to face a complex regulatory framework, with different standards and regulations between various countries. Ways to improve the situation for the enterprises of the sector should be explored, notably by strengthening the Single Market rules and their implementation, in particular for those regulations affecting access to EU markets and the uniform implementation by all Member States.

Also policies for training, support to job creation and employment should be better focus on the particular needs of the sector. Measures that would encourage the take-up of the new advanced materials in construction could also be envisaged, such as tax subsidies (reduced rates) for the introduction of advanced materials

For connected devices, regulations about the privacy and the security of data may have to be further adapted.

While for ingenious home products, there is a need for actions and support measures which would specifically support the needs of this sector. Notably ensure timely and uniform enforcement of the Construction Products Regulation, which entered into force in 2013, and provides a

harmonised framework for the provision of construction materials around Europe.

The European rules for professional recognition also need further addressing. This includes the number of years of qualifications and the knowledge necessary to form a sector professional. The revised professional qualification Directive and associated communications urge Member States to review and modernise their own internal rules for regulated professions. This is particularly relevant for smart construction, given that engineering and architecture are regulated professions.

Another important aspect is the development of skills in the sector to advance the smarter aspect of construction. Knowledge management and a training mindset needs to be encourage from school level already, and sector organisations need to be integrated into the process, formulating solutions.

Design for innovation

Considering Design for social innovation, the need for the EU to look for simplifications in the public financing innovative companies is one priority. To this aim, the Small Business Innovation Research programme (SBIR), as designed in the United States, may provide inspiration. Several SBIR equivalents exist in Europe. However, the European equivalents are reported to be less successful than their US counterpart. The SBIR-type programmes offer a mechanism that can potentially be used to contract innovative companies to design solutions for societal challenges, by setting clear goals and targets from a public side, but letting a private party find a solution.

Regarding co-creation design and its EU-wide benefits, policy makers should consider promoting this form of consumer-company cooperation with non-EU countries. This can for instance be done by providing companies tax exemptions for costs they incurred as a result of co-creation activities. National governments in Chile and Brazil are attracting foreign start-ups to their countries and markets by facilitating incubator programmes with public funds. The start-up Brazil and Chile programmes are ideal for attracting co-creation facilitator companies like CoContest, as these types of businesses do not require an HQ in a specific country. These existing policies could be transferred in the European context in order to favour consumers and users.



Innovative business models

Regarding Supply Chain Finance, policy gaps could be addressed by encouraging e-invoicing in public procurement and by reviewing the EU directive on combating late payment in commercial transactions.

Improving the overall access to finance of SMEs and start-ups could decrease the relative importance of the Supply Chain Finance arrangements and subsequently decrease the potential risks it is associated with.

Social Media for Internationalisation - Harmonisation of international regulation could improve customer safety and prevent (un)intended infringement by companies.

7.2. Synthesis of recommendations resulting from the workshop

Foster transdisciplinary thinking and collaboration (1)

Since the markets are fragmented and the contributions to innovations come from many different sources, it is important to bring the various parties together and improve the access to complementary knowledge. Several examples were mentioned:

- Bring engineers and designers together;
- Create synergies between design and smart living;
- Have technical universities, art schools and business schools work together and learn students to understand each other (as is for instance done at Alto University in Finland – fostering interdisciplinary education for innovation);
- A good team behind a successful investor needs to be diverse, because they manage risk by portfolio;
- Since the relevant collaboration is cross-sectoral, “we do not need sector oriented programmes”.
- “We need to connect the more settled enterprises with entrepreneurs; let them adopt a start-up, match start-ups with pensioned CEOs or old school management”.
- The diversity of Europe is the new business model, but we haven’t aligned our incentives. We need to align those to spur innovation and internationalisation.
- Give good incentives to traditional industries, and not only ‘high-tech’ or new sectors.

Improve and speed up the policy learning process (2)

According to the workshop participants, most of the policy making of today is for yesterday. The time-lag is 10-15 years. In order to promote and benefit from innovation the speed in policy learning has to be increased, and the rhythm and timing in policy making and scaling-up becomes essential. Related recommendations are:

- Re-think old paradigms such as the impact of IP protection on innovation;
- Enable bottom-up policy prototyping;
- Zoom out and zoom in from the big picture in policy making, to help regional authorities to design the best regulations;
- Stimulate policy experimentation and prototyping, bottom up, with new hybrid constructs.
- Refine policy evaluations and impact assessments in order to speed up policy learning, and communicate and showcase-success.
- If you do policy making too quickly, you get a lot of counter forces.

Organise playgrounds where learning by doing, by using, by interacting, and by failing can flourish (3)

This recommendation concerns environments which promote:

- The exchange of ideas and possibilities;
- A second chance culture (e.g., through funding opportunities, education);
- ‘Rule- and habit-breaking behaviour;
- Testing of ideas at Kickstarter-like platforms;
- Platforms that promote PPP’s and hybrid forms of public-private prototyping;
- Platforms for addressing societal challenges from a construction and Smart Living standpoint..

Come to improved and harmonised definitions of concepts such as ‘design’ and ‘smart living’ (4)

It is important to work towards a common language and clear interpretation among various stakeholders in order to communicate and understand each other. E.g. Can investors understand the language of policy makers and the issues at



hand? Harmonised definitions are also important for measuring: e.g. to assess risks, measure return on investment in design and smart living, and to measure policy impact and identify good practice. A concrete idea is to create an index for design – who does best, which city will be incentivized?

Involve in innovation platforms the few that are willing to step into the future (5)

Involving those who merely defend the past and their vested interest does not serve future oriented innovation platforms. In order to come to a shared vision, to combine appropriate capabilities, to come to decisions and implementation, it is important to aggregate stakeholders with leadership and an entrepreneurial mind-set. Two more concrete policy recommendations in this respect are:

- Use early stage government funds via foundations to collect and support early stage ideas;
- Appoint Futurizing Teams for Societal Innovation Experimentation.

Develop new solutions to funding (6)

There is a lack of specific financing for design, smart living and international business models and especially for innovative SMEs it is difficult to get access to direct EU funding, commercial financing, or to public procurement. Recommendations to enhance the possibilities of new solutions include:

- Support supply chain financing initiatives;
- Ease the access for SMEs to public procurement;
- Make more use of tax benefits as incentive;
- Better regulations for crowd-funding;
- Develop hybrid funding for risk sharing;
- Create a secondary market for SMEs in Europe.

Support entrepreneurial discovery (7)

The innovation process of the three trends is largely based on entrepreneurial discovery, rather than scientific discovery. Entrepreneurs and their ideas are the main drivers behind the three trends. Difficulties encountered by innovative entrepreneurs should be addressed. Induce an entrepreneurial mind-set in Europe. Show children that being an entrepreneur is cool and that everybody should try it.

Support market exploration (8)

Furthermore, the innovation processes are rather based on market exploration, than on scientific exploration for new technologies. The importance of demand-side innovation policies is evident. Support for market exploration and identification of customer value includes providing business intelligence and business innovation services. Information on local conditions in international markets is not necessarily known to SMEs. It calls for:

- “Business Intelligent units” with experts in every field;
- Development of “services for market knowledge” in and out-side the EU, as is for instance done by the European Enterprise Network;
- Allowing companies to spend a part of the conventional R&D and innovation subsidies for market exploration purposes, e.g. for feasibility studies, designing market development plans and for internationalisation initiatives.

Create and communicate role models and showcases (9)

Because there is not enough visibility for the solutions (in smart living, design and innovative business models for globalisation), and because there is a lack of tailored and incentivised public demonstrators, it is recommended to create great examples, e.g. smart houses for testing and demonstrating smart living solutions. Measures should be designed to capture innovative ideas, support prototyping, testing and demonstration and facilitate the process of business and market development. Relevant other sectors should be identified, and good practices should be exchanged.

Invest in education (10)

- Educate people into the what, why and how of the trends;
- Create preferential channels for talented people – visa;
- Design & coding education for everybody;
- Policy for getting professionals into the building sector for training and education.

Modern regulations for scaling-up the business innovation trends (11)

Regulations should be aligned to the business innovation trends. Taxation, laws and regulations could be geared towards innovation and the needs of entrepreneurs. Some examples:



- Lacking regulation is an obstacle for crowd-funding, especially when it comes to equity crowd funding. Involvement of banks could enhance the impact, but crowd funding is often forbidden to banks.
- Smart regulation also involves defining regulation free zones (as controlled 'regulation living labs') where experiments with rule-breaking practices can take place.
- Also the IP protection system is currently not geared towards innovation and should be re-thought as IP protection doesn't open up markets, but rather closes markets.
- A concrete recommendation is to provide tax benefits for those dealing with a start-up.

Ease access of start-ups to public procurement (12)

Start-ups cannot take part in tenders and public procurement policies are hard to digest by start-ups and SMEs. Since the market for smart living and construction is dominated by the public sector, measures facilitating pre-funding & first access to market are very important for the innovating companies in terms of credibility, testing, demonstration and reputation.



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9. Annexes

Table A: Existing policies the companies benefitted from

Trends	
Design for Innovation	
Service design as a means to advance business models	The opportunities offered by the service sector to tap into new areas of business and to create new jobs - in particular through the export of sophisticated services - often have not been exploited enough. However, in recent years many European countries have started to change their thinking in this respect and have taken up the challenge to play an active role in organizing the change towards a society orientated to services. During this process, it has become increasingly clear that services play a crucial role in furthering the development of Europe as a place to live and do business. The economic potential is vastly far from being fully exploited.
Design for social innovation	Existing policies are in some areas already in place. It is therefore worthwhile to fully consider the extent to which these challenges require further policy action. One of the pivotal aspects concerns the financing of (design for) social innovation in Europe. This has not only been identified as a potential barrier in this case study, but also in the existing literature on social innovation.
Co-creation design as a new way of value creation	Most interviewed companies indicate that their co-creation initiative was launched with the aim, amongst others, to generate employment or activate young unemployed people. In all instances these goals were reached. Many unemployed youngsters in for instance Finland and Italy do have the skills, creativity and desire to engage in a challenging assignment within their personal area of interest, but lack the opportunity to do so. Co-creation initiatives provide an ideal, relatively affordable, opportunity for large industry players to activate this group of talented people. Policy measures, especially during recession, aimed at creating opportunities for young talent to voluntarily participate in creative work, are more effective, than forcing unemployed people into certain retraining, education or work programmes
Web-based design a new business model in the design world	A good share of the companies in this case study have benefitted from a science park, university grant, or graduation course that focuses on real-world application.
Smart Living	
Smart Construction Products and Processes	Companies benefitted from incubators support and large business support.
Advanced building materials	Companies benefitted from R&D policies and development of public demonstrators.
Ingenious homes	The interviewed companies benefitted from partnerships and relied mostly on business-to-consumer / business-to-business models.
Connected devices for intelligent homes	Companies benefitted from partnerships and networking.
Innovative Business Models	
Supply Chain Finance	EU Directive on late payment, although it can also create problems.
Social Media Internationalisation	Existing support to SME for internationalisation, although it is largely underused.
"Soft" Business models	Measures that help reduce R&D costs, particularly of R&D personnel, are considered to be highly beneficial by companies. This mainly concerns R&D tax incentives. European funding, however, was labelled as bureaucratic and complex and as a result it is widely underused. The European IPR Helpdesk Public Procurement to a very limited extend Trend could benefit from SBIR like programmes
New models for direct global market access in ICT	Sector benefits from EU support schemes, which however are considered not adapted to the needs

**Table B: Recommendations**

Trends	Recommendations
Design for Innovation	
Service design as a means to advance business models	<p>Build a strong design sector that can offer strategic and service design to the public and private sector.</p> <p>The use of service design within companies depends amongst other upon the available skill set of its employees.</p> <p>A policy approach should take that into account that Service design takes place across many different industries and focus on a more sector neutral approach of policy instruments.</p> <p>Supporting entrepreneurship leading to the creation of start-ups and SMEs that offer service design tools and solutions is desirable and conducive to the business environment of this trend.</p>
Design for social innovation	<p>Europe has a crucial role to play in accelerating the field of social innovation. More specifically, the European Commission is called upon to act as a catalyst to make social innovation happening. This includes all aspects of the process, ranging from stimulating start-ups in the field, facilitating growth of the innovations, and help scaling. The Small Business Innovation Research programme (SBIR), as designed in the United States, may provide inspiration for EU.</p>
Co-creation design as a new way of value creation	<p>Co-creation processes can provide a valuable education experience for young individuals and can provide talented people without a degree better access to businesses and a possible career.</p> <p>Policymakers could consider actively stimulating industry engagement in co-creation processes. This could for instance be done through tax exemptions or breaks for (a share of) co-creation related costs.</p> <p>Policymakers could provide free consulting services to start-ups that want to expand internationally.</p> <p>The need for public funding for co-creation based business models. This is where policymakers could make another valuable contribution.</p>
Web-based design a new business model in the design world	<p>Concerning the role of government, web-based design entrepreneurs feel that start-up companies could do with less taxation, while at the same time could benefit from support for capital expenditure and increased possibilities for start-ups and small companies to obtain European funds in Horizon 2020.</p> <p>Public awareness of the offerings of web-based design companies is important, as consumers cannot look for or interact with something they do not know exists.</p> <p>Implementation of the Small Business Act can reduce the bureaucratic burden that web-based design entrepreneurs experience.</p> <p>Intermediary organisations, whether commercial enterprises or government agencies, can play a welcome role when they help entrepreneur navigate their way through government requirements.</p> <p>Making current programmes more accessible to start-ups, taking more action in accommodating capital investment, and taxing start-ups in a smarter manner.</p>
Smart Living	
Smart Construction Products and Processes	<p>Harmonisations of regulatory requirements.</p> <p>Improvement of rules for professional recognition within the EU.</p> <p>Support for collaboration and integration.</p> <p>Better education programmes for the construction industry.</p> <p>Improving and simplifying public procurement rules.</p> <p>Better access to finance.</p>
Advanced building materials	<p>Regulation on the European level.</p> <p>Introducing transparent certification system of building materials.</p> <p>Supporting partnerships.</p> <p>Reducing administrative burden.</p> <p>Strengthening the existing IPR support mechanisms.</p> <p>Simplifying regulatory requirements in Europe.</p> <p>Strengthening single market rules.</p> <p>Updating universities curricula so that they respond to new societal and environmental challenges.</p> <p>Multiplication of public demonstrators.</p> <p>Supporting companies and start-ups in entering new markets.</p> <p>Development of European collaborative projects and initiatives.</p>
Ingenuous homes	<p>Providing substantial support for start-ups, mainly in the access to finance.</p> <p>Developing tools to connect companies and organisations.</p> <p>Promoting collaboration between research institutions, design intensive industries and the design sector.</p> <p>Simplifying IP procedures.</p> <p>Better access to finance for designers.</p> <p>Introducing governmental activities aimed at promoting disruptive innovations (for example, show apartments)</p> <p>European and national subsidy programmes.</p> <p>Development of European technology and innovation centres offering design services to industry and public sector.</p> <p>Encouraging companies to involve students in the creation and innovation process.</p> <p>Developing crowd-funding platforms.</p>
Connected devices for	Market support measures.



intelligent homes	<p>Incentives for SMEs and start-ups (lower taxes or tax rebate)</p> <p>Support in the internationalisation. Better communication of EU funding possibilities.</p> <p>Simplified access to the right information.</p>
Innovative business models	
New models for direct global market access in ICT	<p>Adapt the EU support to the specificity of ICT sector. Companies have troubles to identify and understand funding mechanism. Also, the EU schemes' transparency could be made clearer, and critical success factors of success for EU funding highlighted.</p> <p>A fully effective Single Market is required. Incentives for early international expansion could provide a boost and a cultural drift for ICT SMEs.</p> <p>VAT and regulations of the Web need more harmonisation across Europe.</p> <p>Data Security and privacy regulations. Despite some improvement in law, regulations still differs in Member States.</p>
Social Media for Internationalisation	<p>The key challenge, related to internationalisation through social media, where policy makers can make a difference is that of disparity in data security and privacy legislation.</p> <p>Regulations that further decrease bureaucracy associated with secure online and international transactions would allow companies to keep transaction costs low, and further drive potential of these business models.</p> <p>Standardisation of national taxation systems and simplification of tax requirements for involving customers in Omni-channel retailing would greatly benefit companies</p> <p>Harmonisation of international regulation could improve customer safety and prevent (un)intended infringement by companies</p>
"Soft" models	<p>Whereas customer-funded R&D contracts are key drivers for "soft" companies, government procurement is virtually absent in the trend.</p> <p>Several programmes, similar to the U.S. Small Business Innovation Research, exist in Europe, however lack of participation from government departments has been noticed.</p> <p>Challenges "soft" companies face in receiving European funding mostly concern the application process for the Framework Programmes.</p> <p>Acquiring customer-funded R&D contracts can be helped through improvement of Public policy.</p> <p>Facilitating access to information and support on managing Intellectual Property rights. Awareness rising of the IPR helpdesk and SME corners.</p>
Supply Chain Finance	<p>The use of e-invoicing could be encouraged throughout the economy, for instance by increasing the use of e-invoicing in public procurement.</p> <p>EU directives related to payment terms could be reviewed to see if unintended legal complications for implementation of Supply Chain Finance can be resolved.</p> <p>The significance of potential risks associated with Supply Chain Finance could be investigated in a government-commissioned study.</p>