UNDERSTAND, MEASURE & PROMOTE
SERVICE INNOVATION IN LUXEMBOURG

MINISTÈRE DE L'ÉCONOMIE
ET DU COMMERCE EXTÉRIEUR
Observatoire de la compétitivité

UNDERSTAND, MEASURE & PROMOTE SERVICE INNOVATION IN LUXEMBOURG

The "Perspectives de Politique Économique"
series includes reports, studies, research results
or summaries of conferences commanded
by or carried out by employees of the Ministry
of Economy and Foreign Trade or by experts
of associated institutions.

The opinions expressed in these publications
are those of the authors and do not necessarily
correspond with those of the Ministry of
Economy and Foreign Trade.

For any request or suggestion, please contact
the *Observatoire de la Compétitivité*
of the Ministry of Economy and Foreign Trade
of the Grand Duchy of Luxembourg.

Understand, measure & promote service innovation in Luxembourg

Report on the seminar "Understand, measure & promote service innovation in Luxembourg"

October 5th, 2011

Author: Sylvain Cottong, strategybuilders.eu
(Twitter: @sly)

Introduction

The seminar 'Understand, measure & promote service innovation in Luxembourg' took place on October 5th 2011, at the Public Research Center Henry Tudor in Luxembourg following an initiative of Dr. Serge Allegrezza, director of National Institute for Statistics and Economic Studies (STATEC), director of the Directorate General on Competiveness of the Ministry of Economics & Foreign Trade and director of the Observatory on Competiveness.

It was organized under the patronage of the Minister of Economics & Foreign Trade, Jeannot Krecké, with support of the National Agency for the Promotion of Innovation and Research, Luxinnovation, the Observatory on Competiveness, and the National Institute for Statistics and Economic Studies (STATEC).

The aim of the seminar was to investigate the particularity of service innovation (vs. product innovation for ex.). A deep understanding of service innovation is crucial for the Luxembourg economy as it heavily relies on services in terms of GDP.

The seminar brought together academics and experts & public policy makers in service innovation on the one hand, and service professionals and managers on the other hand.

The following points have been discussed:

- How to define innovation / in services?
- What are the specificities of innovation / in services?
- What roles for government: incentives and assessments?
- What role for research and the actors of the national system of innovation?

The present report summarizes the presentations of the different speakers as well the concluding discussions.

It further develops some ideas concerning the reality & the policies of service innovation in Luxembourg, based on the current situation and the insights gained from the seminar and other sources.

The outlook is organized around 4 main questions :

- What are the right measurements & indicators of innovation and especially service innovation, from a macroeconomic and from a microeconomic point of view ?

- Should there be specific public aid schemes for service innovation and what should be the criteria used for selecting projects ?

- What can be done to further promote service innovation ?

- What are the lessons learned specifically for Luxembourg ?

Contents

Part 1:

Summary of the seminar's presentations

Introduction by Mr. Jeannot Krecké, Minister of Economic Affairs and Foreign Trade

In his opening talk, Minister Krecké pointed to some global facts about the service industry and about innovation, in relation to Luxembourg:

- We witness a breathtaking speed of technological development especially in the field of digital transformation and ICT.

- More & more services, including social services are driven by ICT

- In the light of the financial turmoil of recent years, still going on, we have to ask ourselves where the economic system will head us to. Do we need a tax on financial transactions?

- The BRICS countries, as well as other developing countries in the Middle East for example, are multiplying their R&D and innovation efforts and expenditures, whereas 15-20 years ago they were still underdeveloped countries. Thus, the world wide landscape in innovation & R&D has completely changed, and these countries can surpass our western economies in these areas soon.

- In Luxembourg, 76% of GDP comes from services, and they count for 2/3 of our national economic growth.

- Financial services are very important for the Luxembourg economy.

- Financial intermediation services present an enormous potential for innovation.

- But innovation in services must also include after sales service in the manufacturing industry for example, and also other types of business services as well as non-technological innovation in marketing & organization.

- Research that leads to service innovation not only concerns technology, but also for ex. gaining better customer insight to better understand their needs (ethnographic research & social sciences)

- As far as the Luxembourg State aid for research, development and innovation is concerned (based on the law of 5 June 2009 relating to the promotion of research, development and innovation) there has been an increase of 145 % in 2010 of demands submitted by companies. A total of 76 demands have been submitted in 2010, but only 2 of them concerned

service innovation.

- More efforts have to be done to incite service innovation projects in Luxembourg, with regard to the importance of the service sector for the Luxembourg economy.

- In the Luxembourg context, there is a link between service innovation and intellectual property rights (and the specific law in this area).

- More generally, public policy makers and economists face the problem of accurately measuring innovation. Progress has to be done here, as you can't manage what you can't measure.

1. INNOVATION & PERFORMANCE GAP IN SERVICES: Presentation by Professor Faridah Djellal from the university of Lille

Professor Djellal leads research programs on innovation & performance in services, on service geography and on employment in services within the "Centre Lillois d'Etudes Economiques et Sociologiques"

Professor Djellal's presentation dealt with the innovation & performance gap in contemporary service economies, which presents considerable challenges for public policies.

The research she conducted on the innovation-performance relationship outlines a double gap in relation to innovation & performance:

- The **innovation gap** concerns the difference between the real nature of innovation in a specific economy and what the traditional economic indicators for innovation (R&D activities, patents) capture.

- The **performance gap** measures the difference between actual performance and performance measured by traditional economics tools, mainly productivity & growth. The gaps correspond to hidden performance that are invisible to these tools.

Both of these gaps are at the origin of certain paradoxes, which must lead to us to question the validity of some public policies in innovation support schemes.

1.1   General observations

- Today's economies are innovation & knowledge economies
- But also service economies
- However, innovation in services is often unrecognized and underestimated
- The traditional hypothesis: Innovation is a manufacturing business
- However, innovation in services does exist and is quantitatively important and strategically fundamental but invisible to the traditional indicators of innovation (R&D and patents)
- All major economies are tertiary economies for some decades already (from agricultural economies to manufacturing economies to the current service economies)

1.2   Concerns & myths

There is a lot of suspicion formulated towards services in theoretical literature:

Book titles:
- "Manufacturing matters"
- "Too few producers"

Expressions:
- Cost disease
- Pathological services
- Peripheral services
- Dominated, subordinates services
- Third sector (sounds like Third world)
- Solow paradox

Quotes from influent policy makers:
Nicolas Sarkozy: « We need a strong French manufacturing industry…(…). France cannot be only an economy of banks, insurances and services…». (France Info, 16 April 2004).

Dominique Strauss-Kahn: « Our efforts must be focused primarily on production and particularly on industrial production, on the creation of real jobs, jobs that are directly productive... ». (Le Monde, 1998).

6 myths concerning services:

- Myth 1: Services are unproductive
- Myth 2: Services are not capital-intensive
- Myth 3: Productivity in services is low
- Myth 4: The service society is a servant society ("bad job" society)
- Myth 5: Services are not very tradable
- Myth 6: Services are not very innovative

Professor Djellal then outlined some evidence that disproves these myths.

1.3   Service specificities

Services characteristics:

- Intangibility
- Interactivity

- Non stockability
- Heterogeneity

Service specificities	Analytical consequences on innovation : nature and organisation
Product is a fuzzy process	- Difficulty to distinguish between product, process and organisation innovation - Enumerating innovations is difficult - Difficulty to assess innovation economic effects - Difficulty to assess the degree of novelty - Easy imitation - Intangible product or process innovation - Formalisation innovation
Service is interactive	- Importance of certain forms of innovation (tailor-made, ad hoc) - Not compatible with a linear concept of innovation - Consistent with an interactive model of innovation - Client participation to the innovation process - Price fixing problems - Appropriation regimes problems
Absence of property rights	- Appropriation regimes problems
Service sector is heterogeneous	- Product (innovation) forms are variable - Double accounting problems in KIBS

1.4 Hope

Some more recent research puts a different light on services, trying to capture today's microeconomic reality more accurately:

- Convergence: Industrialization vs. servitization
- Everything is service: Goods are only a means of masking service provision
- Rise of "service around the product": Servitze your product
- Manufacturing firms have turned into service firms (IBM, Benetton)
- From selling goods to hiring goods (Rank Xerox photocopiers)
- From manufacturing goods to remanufacturing or refurbishing goods (Caterpillar)
- From goods manufacturers to solutions, functions, experience providers

1.5 The nature of service innovation

There are 4 different approaches of innovation in services:

- **Assimilation**: innovation in goods = innovation in services = introduction of technical systems

- **Differentiation**: focus on specificities
- **Inversion**: active role of KIBS in other sectors' innovations
- **Integration:** similar analysis for both manufacturing and services

from which the integrative approach seems to be closest to the current reality.

The current classification of innovation activities used by most of public policy makers for comparability purposes is defined in the **OCDE Oslo manual** (2005) :

Product innovation (technological)

- Introduction of a good or a service that is new or significantly improved with respect to its characteristics or intended uses.

Process innovation (technological)

- Implementation of a new or significantly improved production or delivery method

Organizational innovations

- New or significantly improved knowledge management systems to better use or exchange information, knowledge and skills within your enterprise

- A major change to the organization of work within your enterprise, such as changes in the management structure or integrating different departments or activities

- New or significant changes in your relations with other firms or public institutions, such as through alliances, partnerships, outsourcing or sub-contracting

Marketing innovations

- Significant changes to the design or packaging of a good or service (Excluding routine/seasonal changes such as clothing fashions)

- New or significantly changed sales or distribution methods, such as internet sales, franchising, direct sales or distribution licenses

The OSLO manual is a good step into the right direction, but some progress is still needed do deal a.o. with the following:

- Non-technological product innovation (for ex a new insurance contract or a new financial product, a new field of expertise in consultancy)

- Non-technological process innovation (methodologies, protocols)

- Ad hoc and tailor-made innovation

- Social innovation

- Innovation in public services

- Innovation in complex packages (business models): new formulas or new concepts (for ex in trade and hostelry).

Today, all sectors of the economy innovate by introducing new services and the % of firms introducing non-technological innovation (organizational & marketing) keeps on growing.

The definition of R&D is not adapted to services

- Frascati Manual: technicist and scientist bias.
- R&D in services is composite: mixing Science & Technology, Humanities & Social Sciences, organizational engineering, etc.
- Humanities & Social Sciences not sufficiently taken into account; organizational engineering not considered at all.

1.6   The determinants of innovation in services ("megatrends")

- Industrialization of services
- Customization
- Technology
- IT-literacy
- Globalization
- Demography (and particularly ageing)
- Deregulation
-

1.7   The processes and modes of organizations of innovation

2 different approaches:

Applying the traditional industrial & linear planning and execution model to services

Applying open innovation models (rapidly gaining importance)

- Chain linked or interactive model (Kline and Rosenberg)

- Several non-programmed or emergent models
    o   Bricolage innovation model
    o   Practice-based model
    o   Ad hoc innovation
    o   Rapid application

- Public-Private Innovation Networks (PPINs)

- Consultant-aided innovation model

- Consumer/user/demand-driven innovation

Illustration: Sources of information used by innovative firms in the service sector, 1998-2000, as a % of total innovative firms
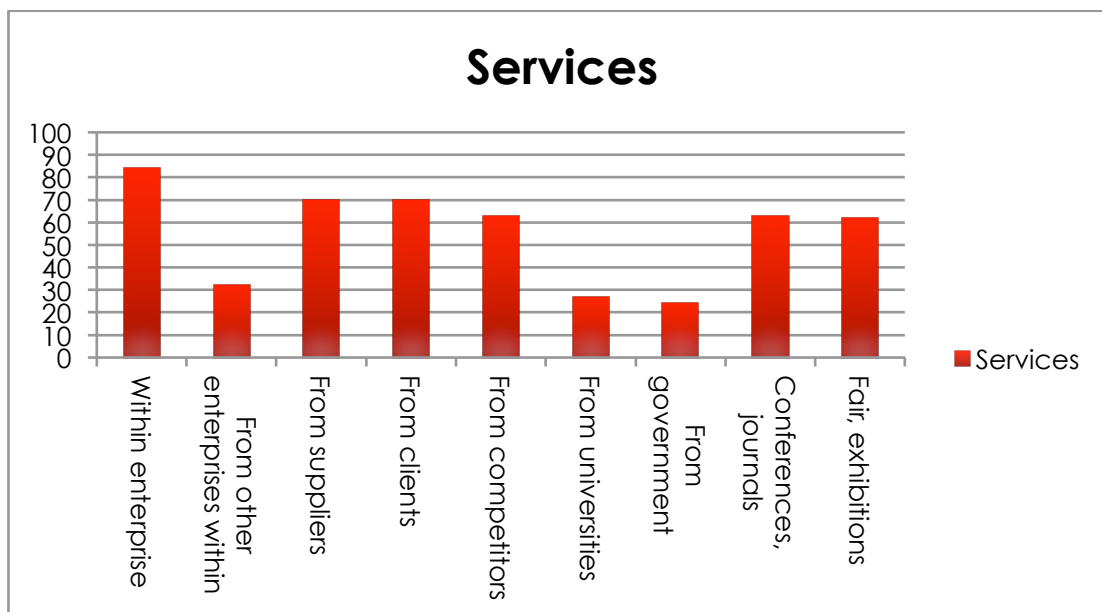
Note: Iceland and Sweden are excluded due to limitations on the quality of the data.

Source: OECD, based on data from Eurostat, CIS3 Survey, 2004.

1.8   Public policy in Service innovation

Current public policies tend be still dominated by a manufacturing and a Science & Technology bias by focusing on public research and industrial sectors, in particular high technology.

- promoting technological innovation (based on scientific and technical R&D and patents appropriation).
- favoring scientific and technological training.

1.9   Some concluding thoughts & recommendations:

In services **3 types of innovation policies** can be implemented:

- Specific policy for services (Demarcation)
- Generalization of industrial policies to services (Assimilation)
- New policies grasping both (Integration).

There is a **need for alternative innovation public policies** (Demarcation or Integration) :

- Promote invisible innovations

- Emphasize on innovation and R&D policies specific to services, ie, favor non-technological innovation and R&D

- Support services innovations within manufacturing and agriculture

- Support specific skills needed for non-technological innovation

- All services are concerned, but an emphasis could be put on: KIBS, Proximity services & public services.

2. LESSONS LEARNED FROM INNOVATION SURVEYS IN THE SERVICE INDUSTRY: Presentation by Professor Pierre Mohnen from the school of Business and Economics of Maastricht University

Professor Mohnen's research focuses on applied econometrics in the areas of production, productivity, innovation, innovation policy and development.

His presentation outlined lessons learned from innovation surveys in the service industry. The question addressed was

"Should we treat the service industry providers differently from the manufacturing industry ?

To this purpose, some econometric studies dedicated to the service industry have been analyzed concerning the determinants of innovation, their obstacles and their complementarity, innovation modes and their complementarity, the use of intellectual property rights as well as the impact of innovation on productivity.

Professor Mohnen started by outlining that with market and non-market services counted together, the service sector represents 85,2 of GDP in Luxembourg.

2.1   Innovation indicators

R&D and innovation expenses are considered as **inputs** whereas patents, publications, trademarks, new products, new processes, organizational innovation and marketing innovation are considered as the measure of **output**.

The **definition of R&D** adopted stems from the **Frascati manual**:

"Research and development comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of knowledge to devise new applications."

This definition for example excludes sales promotion & market research activities.

The **costs of innovation** come from R&D, acquisition of disembodied technologies, embodied technologies and other preparations for production.

Trademarks are an important signal for non-technology based innovation like marketing innovation and process innovation.

The **Oslo manual** delivers the definition of innovation output:

- *"A **product innovation** is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics."*

- *"A **process innovation** is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software."*

- *"A **marketing innovation** is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing."*

- *"An **organisational innovation** is the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations."*

Professor Mohnen then presented **several survey results** concerning

- The share of services in business R&D
- Patent activity by sector
- Service related trademarks
- Innovation intensity per sectors

He then drew the following **first conclusions** from these figures:

- The conventional innovation indicators can be applied to services
- Services account for a large and rising share of innovation
- Some service sectors are more innovative than manufacturing sectors
- There are additive effects between different innovation modes (process innovation & marketing innovation for ex.)

2.2 Comparing innovation in services and innovation in manufacturing

- What are the determinants of innovation ?
- What are the effects of innovation on productivity ?
- Are there complementarities in innovation modes ?

Different surveys have been presented to try to find answers to these questions. Professor Mohnen outlined the econometric methods that were used in these surveys.

In summary, the results are:

- **R&D** (as defined in the Frascati manuel) has only an effect on product innovation in manufacturing and no effect in service innovation (Thus, R&D, as defined by the Frascati manual, is not an indicator for service innovation)

- **ICT** is an important enabler for innovation, both in the service and in the manufacturing sector, whereas broadband connectivity tends to have a higher effect on service innovation than on manufacturing innovation.

- **Productivity:** Organizational innovation has the strongest effect on productivity. Product and process innovation only lead to productivity gains when combined with organizational innovation. Innovation has a higher effect on the service industry's productivity than the manufacturing sector's productivity. These results show the importance of taking into account non-technological innovation.

- **Product & process** innovation are **complementary**

- **Process & organizational** innovation are also **complementary**

- **Product and organizational innovation** are **substitutes**

- These results are **consistent for manufacturing and for services**

Prof. Mohnen continued presenting the results of a **survey** on **determinants of innovation in Croation SMEs,** as survey that he was co-authoring: Comparison of service and manufacturing sector.

The model was based on 5 innovation decisions: R&D, new products, new processes, organizational innovation & marketing innovation.

The **conclusions** here are:

- There are differences between the manufacturing and the service sector in innovation determinants

- There are some similarities in the complementarities of innovation modes

Prof. Mohnen also concluded that there is **no need for a different type of surveys for service industries**, unless they focus on a specific industries and sectors.

He finished his presentation by presenting a questionnaire from a **Canadian survey in the construction industry**.

Type of questions asked:

- Business environment and success factors
- Strategies within business (business practices ass well as commercial strategies)
- Human resources within business
- Technology within business (advanced technologies used)

This survey put much more focus on the **soft factors that are supposed to largely influence innovation** but that are not well represented in the Oslo Manual on innovation definition and the Frascati definition on R&D.

This also raised the questions of how to capture the value chains of companies that operate in different industries and on the minimum size a company must have to be able to measure innovation.

3. INNOVATION IN SERVICE SYSTEMS: COMPLEX IT ENABLED SERVICE SYSTEMS IN THE CONTEXT OF NETWORKED ENTERPRISES: Professor Dr. Eric Dubois, visiting professor at the universities of Namur and Luxembourg and head of "Service Science & Innovation" department at the CRP Henry Tudor

Professor Dubois' presentation investigated innovation in service systems & complex IT enabled services developed in the context of networked enterprises, with specific focus on service system engineering and service system design, as these activities offer a high potential level of innovation in terms of customer centricity and organizational agility.

3.1 Introduction

- Service systems are specific types of services, IT enabled and presenting more complexity

- The complexity of Service Systems offers distinct opportunities for innovation, at the product/service level and at organisational level

- Adequate instruments and measures have to be designed and used for managing and controlling these innovations

3.2 What is a service system ?

A **service** (vs a product) is characterised by a.o:

intangibility, co-production/interactivity, simultaneity, heterogeneity, perishability, transferability, cultural specificity and information-intensity.

One of the properties is **customer centricity**, made up by service quality and service experience.

A **service system** is a

- a configuration of people, processes, technology and shared information
- connected through a value proposition

- a dynamic co-creation of value trough the participation in the exchanges with customers and external/internal service systems

An example of a service eco-system are intelligent transport service systems, characterized by the value proposition, technology, information & knowledge, people & skills, processes and partnerships.

Due to the complexity of massively technology based service systems, **customer centricity** (usability) of these services presents a real **challenge**.

3.3   The service system life cyle
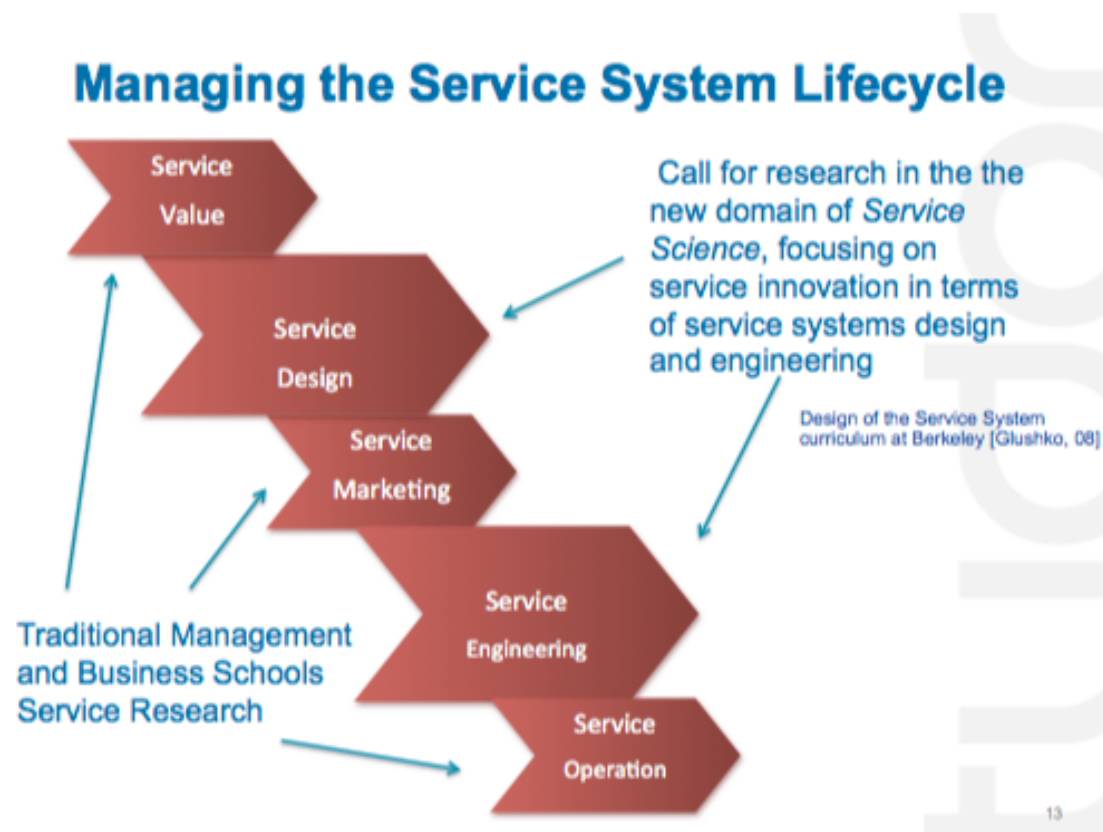
Service Design and Service engineering are the new determinants of innovative services whereas service value, service marketing and service operation are the traditionally known elements of service systems.

The service system lifecycle should work as a loop, capturing feedback from users in service operation to readjust service value and service design, to continuously improve the service experience (**living labs, open innovation**).

Prof. Dubois then outlined 4 innovation criterions in service systems:

Innovation criterion #1: Identify the qualities and measures, which demonstrate the uniqueness of the proposed service system (service quality & service experience)

Innovation criterion #2: What are the mechanisms envisaged for a continuous sustainable customer centric service evolution (open innovation, co-creation, living labs)

Innovation criterion #3: Demonstrate the alignment of resources (people, processes, information, technologies and partnerships) with the service qualities and associated measures. Enterprise architectures (the IT infrastructure supporting and reflecting a service business model) are crucial for effective service systems.

Innovation criterion #4: Governance of innovation through enterprise architecture based portfolio and project management.

3.4 Conclusion

- Development of **TISP**, a template based on a questionnaire for describing a service system innovation idea:
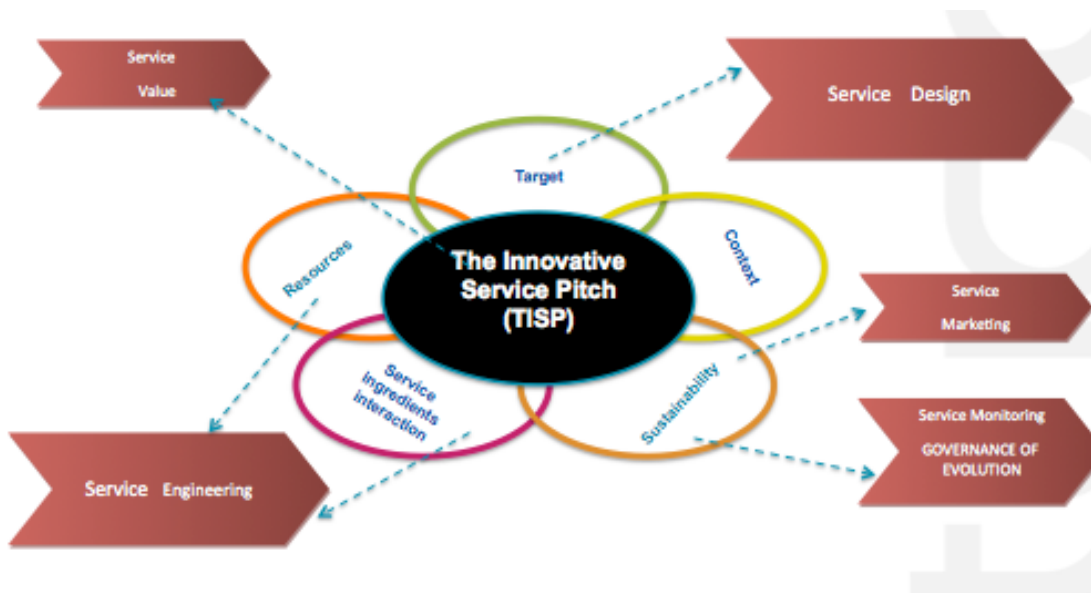
- **ASINE:** Architecture based service innovation in networked enterprises:

Bridges between Enterprise Architecture and Service Systems (Togaf and Archimate standards evolution)

[Greefhorst and Proper, 2011]
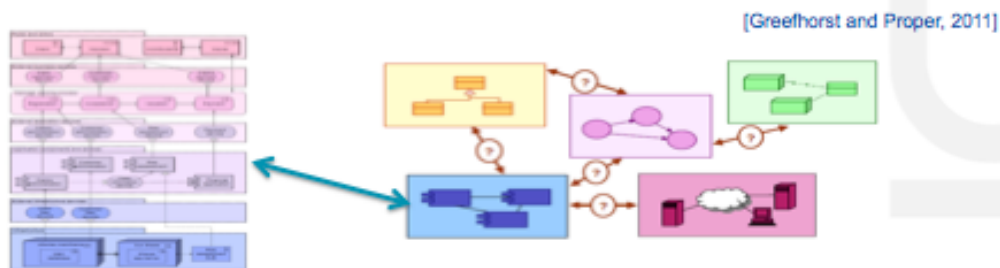
- Needs for **new skills & competences** (combining entrepreneurial skills, design skills & technology skills)

4. SERVICE INNOVATION PROGRAM 'SERVE' AT THE FINNISH TECHNOLOGY AND INNOVATION FOUNDATION: Presentation by Heli Paavola, D.Sc. (Econ) coordinator of Serve and Innovation Foundation and manager at Ramboll Management Consulting

Dr. Heli Paavola's presentation dealt with 'Serve' which is a major innovation program in Finland with a budget of over 220 M€. The program has funded over 200 company R&D projects and 80 academic research projects between 2006 and 2011. She particularly pointed out the funding and evaluation criteria applied by Tekes.

The aim of the serve program is to **challenge Finnish companies to become global forerunners in the customer-centric, knowledge-based service business and promotes development of multidimensional service innovations**.

The **focus** is on

- Retail and wholesale value chains
- Industrial services
- Knowledge-intensive business services (KIBS)
- Service business and service innovation researchers

4.1   Serve's strategic objectives

- Strengthening service business development which renews companies & clusters and enhances global competitive advantage
- Promoting growth and internationalization of service business
- Fostering globally attractive service markets
- Supporting internationally recognized service research and assisting research-related networks

4.2   Serve's actions

- R&D activation and funding
- Knowledge and competence creation: publications, guidebooks, reports, foresights, studies
- Networking: conferences, seminars, workshops, collaboration forums, networking trips
- Participation in public discussion and creation of service culture and mindset in Finland: news, articles, social media etc.

4.3   Dimensions of service innovation

- Service innovation often requires a holistic renewal of business (models)

- Service innovation is a combination of management innovation & customer innovation (customer centricity; the way the customer is served; the experience he gets by using the service)

4.4   Funding alone is not enough

Although funding instruments are similar in services and technology–service vs. product (aid, loan, or a combination of aid and loan), the funding processes are more demanding in service innovation projects (novelty of service innovation is more difficult to analyze and there is a need for more intensive discussion during the application phase).

The Serve program thus aims to act as an active innovation partner for forunner companies. For example:

- Continuous activation working in the field (screening the field)
- Identifying potential forerunner companies
- Opening conversation about service innovation
- Challenging companies to take a leap in the development
- Coaching in the project planning and application phase

4.5   How service innovation projects are evaluated at Tekes

- The innovative service concept is a new or a significantly improved service that
    - can be systematically reproduced
    - makes use of some technology or other systematic methods
    - is new to the market and not just new for a particular company
    - brings value both to service provider and client/customer

- The development of the innovative service concepts
    - Has to include a clear degree of risk
    - And is systematically organized in project form

- Funding criteria to all Tekes programs
    - Impact of funding is significant
    - Novelty value of developed solution is sufficient

- o Development work is organized convincingly in the form of a project; company has sufficient resources to carry it out and has no tax debt
- o Also the use of technology in projects is analyzed

- Specific criteria for large companies´ projects
  - o Project needs to be connected to strategic renewal of the company
  - o More strict requirements regarding e.g. subcontracting in the project, overall impact of the project and impact of Tekes-funding

4.6 The more specific model & criteria applied to Service Innovation project by Tekes

Copyright © Tekes

4.7 The criteria in the form of questions asked to project owners

Identifying service innovation forerunners 1/4

How have you identified customer needs in this project/service? How are your customers, end-users, network partners and personnel involved in the service development in this project?

Dimensions of service innovation forerunner form a basis for discussion between Tekes´ experts evaluating service innovation project and between Tekes´ experts and applying company

Points are used as a parellel for decision making (e.g. forerunner project 32-24 points, strong project 23-16 points) and are constantly analyzed

What is the impact of this developed service on your turnover within 5 years?

Business growth potential and internationalisation

Customer centrism and customer-drivenness of innovation

Newness or uniqueness of the solution

How and to what extent is your service different from competitive solutions domestically and internationally?

Service orientation of the business and service dominant organization culture

To what extent your organizational culture, operations and your service concept reflects service orientation?

Out-of-the-box: challenging traditional business models and breaking the traditional industry barriers

How and to what extent does your business model in this service concept or your codes of conduct and thought differ from traditional business models or ways thinking or doing business in this sector?

Use of networks and partnerships to create unique value for the customer

How and to what extent this service concept is based on utilization of networks and partnerships?

Proactiveness and agility

On which current or future trends or weak signals your service concept is based?

Tekes

© Copyright Tekes 10/2009   Copyright © Tekes

The following questions (from the above illustration) are investigated in detail:

How have you identified customer needs in this project/service? How are your customers, end-users, and network partners involved in the service development in this project?

1=Solution is based on superficial customer and user understanding or justifiable assumptions on customer and user needs

4=Service concept is based on multifaceted, deep customer understanding including profound market experience and both quantitative and qualitative research activity. Customers, users, network partners and personnel are actively involved as development partners in different phases of development process. Corporate culture supports open innovation.

How and to what extent is your service different from competitive solutions domestically and internationally?

1=Solution is regionally new and competitive and directed to current markets

4=Solution is internationally new, unique or superior. Solution is based on value innovation and creates new markets beyond current competition.

How and to what extent does your business model in this service concept or your codes of conduct and thought differ from traditional business models or ways thinking or doing business in this sector?

1=Project reflects potential to renew traditional business models through basic, incremental, step-by-step-development

4=Project reflects strategic rethinking of traditional modes of business in the sector. Internationally new ways of doing business in the sector are developed in the project, and potentially this affects the whole sector, and leads to sectorial transformation

On which current or future trends or weak signals you service concept is based?

1=Solution is based on understanding megatrends of current markets and involves low level of risk

4=Solution is high-risk and based substantially on long term future prospects, weak signals in the market, and creation of new, emerging markets

How and to what extent this service concept is based on utilization of networks and partnerships?

1=Utilization of networks plays marginal role in the solution

4=Utilization of networks has major strategic role in the solution

To what extent your organizational culture, operations and your service concept reflect manufacturing and product orientation or service orientation?

•1=Organization operates in product or manufacturing logic although project is focused on development of service concepts or solutions

•4=Service or intangible values have a significant role in the solution. Solution is based on service-dominant mind-set or creation of service-dominant organization culture or mind-set is in significant role in the project

What is the impact of this developed solution on your turnover?

•1=Marginal, e.g. 0-15% within 5 years
•4=Significant, e.g. over 50% of turnover or over 10 M€ turnover within 5 years

5. CONTRIBUTORS TO THE GROWTH OF THE UK'S KNOWLEDGE INTENSIVE SERVICE INDUSTRY & OUTLINE OF A POSSIBLE EU STRATEGY: Presentation by Allan Mayo, UK's Department for Business Services Policy Unit & actively engaged also in European Policy Networks.

His presentation focused on the factors which have contributed to the growth of the UK's knowledge intensive services, particularly professional and business services, and then considers how the EU could develop a strategy towards service innovation.

5.1 Some macroeconomic evidence on services in the UK

Allan Mayo started illustrating that the UK is no exception and that the service sector there counts for a large part of GDP like in other developed western economies, especially financial & business services.

Investment in intangibles assets largely surpassed investment in tangible assets in the recent years.

Also, the **investment in innovation inputs each like design, organizational innovation, training & skills development and software development surpassed investment in R&D.**

According to Allan Mayo, the UK also partly managed the crisis with intensive efforts in service innovation. The UK **not only exports high amounts of diverse KIBS**, it also **has an extensive network of service innovation consultancies** that not only work locally but also **export their work.** In parallel, it also has an **ever-increasing proportion of active workforce being employed in KIBS**.

He also outlined that **service innovation is not R&D intensive** (the way R&D is defined in the **Frascati manual**). On the other hand, **customer-centricity is very important in service innovation**, and that the most promising service innovations are **transformative services**.

"Services are transformative when they disrupt traditional channels to market, business processes and models, to enhance significantly

customer experience in a way which impacts upon the value chain as a whole."

Also, the public sector, facing multiple difficult challenges as in any other western economies is increasingly important in the service landscape and there is also a **lot of demand & activity for service innovation in the public sector.**

One of the UK's pillars to foster service innovation especially in KIBS is its **extensive network of world-class business schools**. **ICT** and the high adoption and availability of **high-speed network connections** are another driver here, and ICT is less in important in manufacturing for example. The fast pace of the development of Internet technologies from web 1.0 to Web 2.0 and soon Web 3.0, Web 4.0…does its part as well.

5.2   Difference between Europe & the US

Mr. Mayo then pointed the audience to the fact that **Europe lacks behind the US in productivity gains in the service sector** especially in local services and to a lesser extent also in business services and professional/financial services as illustrated by a study from the EU and Mc Kinsey.

5.3   Areas of transformative services

Allan Mayo then touched on a few examples and areas where **transformative services** play an important role:

- the media, IT & entertainment industry (i.e. the Apple ecosystem)
- Urban development, architecture & sustainability
- Aging population and healthcare service systems (Telecare, telehealth & home automation)
- Traffic & intelligent transport systems
- Smart cities

adding that the relative increase in service consumption is highest in case of revenue increases.

Market requirements (consumer expectation & needs, customer centricity) as well as **societal challenges** are thus the 2 big drivers for service innovation.

Put the right way, **infrastructure** (i.e. ICT), **people & skills, market frameworks** (regulatory environments..etc) and a **wider interpretation of R&D** including design

research, market studies & more generally the humanities all positively influence innovation in services.

5.4 UK Policy priorities for service innovation

- Infrastructure
- Finance for Growth
- Eliminate Regulatory Barriers/Red Tape
- Trade: Barriers and Opportunities
- People: Skills/Diversity/Immigration
- Public Service Reform and Open Data
- Demonstrators and Research

Recommendations: IPs & Demonstrators

- Large scale, linked demonstrators, which identify:
    o Infrastructure and new technology requirements
    o The need for specific (interoperable) standards
    o Opportunities for service transformation
    o Barriers to progress
    o Skills needs

- In the following areas:
    o Industrial areas in transition
    o Smart Cities
    o Dynamic regions
    o Sustainable co-ordinated transport

Raising awareness

- European Service Innovation Centre
    ▪ Provide a powerful evidence base for business, policy makers and other stakeholders
    ▪ Foresight studies

- Disseminate widely
    ▪ Interactive, networked approach with stakeholders
    ▪ Global vision

Recommendations: Dedicated Programmes

- Service Gazelles Programme
- Marie Curie: €770 m. in 2011
- Programmes to strengthen links between service and manufacturing firms

6 FUNDING OPPORTUNITIES AT THE NATIONAL RESEARCH FUND (Luxembourg) IN SERVICE INNOVATION RESEARCH PROJECTS: Presentation by Mrs. Andreea Monnat, Phd in Computer Science and Program Manager at FNR (Fonds National de Recherche – Luxembourg)

Mrs. Monnat's presentation was about funding opportunities in service innovation research projects and private-public partnerships.

Mrs. Monnat started illustrating how the FNR supports researchers all along their career. She then presented the **major areas where FNR supports research projects**:

- Innovation in Services
- Sustainable Resource Management in Luxembourg
- Identities, Diversity and Integration
- Labor Market, Educational Requirements and Social Protection
- New Functional and Intelligent Material and Surface, and New Sensing Applications
- Biomedical Research

6.1 Objectives of the FNR CORE program

- Raise the scientific quality of Luxembourg's public research by funding projects in the identified priority domains

- Build a pool of knowledge and expertise: generation of peer reviewed scientific publications; training of doctoral students and advancement of the researchers; advancement of the research group in view of international visibility and critical mass

6.2 Innovation in services in particular

The area of more particular interest here, **innovation in services**, has the following **subdomains**:

- Business Service Design
- Development and Performance of the Financial System
- Information Security and Trust Management
- High Performance Telecommunication Networks

The budget available in 2011 for IS projects is 4,5 Mio EUR. All together, 24 research projects in Service Innovation are financed by FNR with a total volume of 8.5 Mio EUR.

6.3   The 4 subdomains in more detail

Information Security and Trust Management

Description	Research issues	In particular, services for
"Transversal" research domain (ICT experts, users of security solutions, business law researchers and public decision makers) of central and ever-growing importance	• Trust, Information Security and Risk Management including social and behavioral aspects • Identity and Privacy Management, including Digital Rights Management • Critical Infrastructure; Protection including reliability and resilience • Legal Framework for Trust	• businesses • citizens, • e-government • and e-health applications

Performance & Development of Financial Systems

Description	Research issues
High importance to maintain the international competitive position of Luxembourg as financial market place.	• Client advice, financial education and culture, private agent behavior • Distribution of financial products, development of new innovative products and solutions • Optimization and structuring of the fiscal and regulatory environment, financial stability • European harmonization/EU directives and competition between different financial centers • Monitoring of production and productivity of financial services

Business Service Design

Description	Research issues	Different levels of granularity
Multidisciplinary field that seeks to bring together knowledge from different areas in order to improve the service industry's operations, performance and **innovation.**	• Efficiency and flexibility of Business Services • Seamless service architecture including adaptability and interoperability • Optimization and structuring of the legal and fiscal environment of the service sector • Business service regulation compliance	• Business related e-services and public e-services • (e-government, e-administration, e-health and e-learning)

High Performance Telecommunication Networks and Multimedia

Description	Research issues	In particular
Essential factor of innovation in the service sector and high economic impact	• Development of new innovative satellite-based services and applications, • Development of IP based applications within the services sector • Analysis and improvement of infrastructure quality.	• Communication speed, time delays (latency), capacities • Network security • Virtual networks • Rational use of energy

6.4 Eligibility criteria for applicants

Formal requirements:

- Collaboration between a private company in Luxembourg and a public research institution/university in Luxembourg or abroad
- Agreement specifying the role and contribution of each partner in the research project (IPR issues, financial issues, PhD supervision, candidate training, etc.)
- Private company involved either as host institution or as collaborating institution
- Accreditation (Agrément) by the Ministry of Economic Affairs, certifying their R&D activities in Luxembourg

6.5 Selection criteria for projects

Criteria	Subcriteria	Weight
Coherence with program theme		
Scientific Quality/ Original. of project	Appropriateness of Approach Innovativeness of idea	**Very high**
Quality and efficiency of project plan	Feasibility and efficiency of project plan Competence and expertise of applicant team	**High**
Dissemination and valorization of the research results	Intended short term outcomes Intended long term impacts	**Medium**

6.6 Benefits, motivations & challenges in Private-Public-Partnerships

FOR COMPANIES	
Benefits/Motivations	**Challenges**
• fast access to academic knowledge and cutting-edge research • joint development of innovative projects with the potential to increase the company's competitiveness • cost-effective training of potential future employees • gain of experience for future national or EU-funded PPP projects	• identify the right partners who value industry R&D • finding research projects which match industry needs and academic standards • reaching agreements(financial, confidentiality, IP rights, …) • attracting qualified candidates able to work simultaneously in industry and university environments • available time, internal management and bureaucracy • supervision requirements

FOR THE PUBLIC RESEARCH INSTITUTION

Benefits/Motivations	Challenges
• incorporation of industry input within university research	• raising **awareness** of the potential of university R&D to industry
• promotion of the concepts of innovation and entrepreneurship within the institution; awareness of the commercial valorization potential of research	• c.f. challenges for company (right project, agreements, qualified candidate)
• technology transfer; translation of scientific knowledge into patented processes and products	
• gain of experience for future national or EU-funded PPP projects	

7 PUBLIC AID SCHEMES FOR LUXEMBOURGISH COMPANIES BY THE MINISTRY OF ECONOMICS AND FOREIGN TRADE: Presentation by Mr. Marc Ferring, currently in charge of the "National financing and aid to startups" at Luxinnovation, the national agency for innovation, research promotion in Luxembourg.

Chemist by education Mr. Ferring is also the national contact point for the intergovernmental initiative EUREKA.

Mrs. Ferring presented the **public aid schemes proposed to Luxembourgish companies by the Ministry of Economics and Foreign Trade** in application of the law of June 5th, 2009 relating to the promotion of research, development & innovation. He more particularly presented the schemes that **allow to direct financing of innovation in/of services** as well as those that help preparing such innovation activities:

- Process & organizational innovation in services
- *R&D projects or programs*
- *Technical feasibility studies*
- *Consulting & supporting services in innovation*
- *"Minimis" measures*

7.1 Aid schemes applicable in service innovation in more detail

Process & organizational innovation in services

Who can benefit ?	All companies established in Luxembourg. Large enterprises must collaborate with at least one small or medium-sized company.
Scope of the aid	"**Organisational innovation**" involves the implementation of a new organizational method in the business practices, at the workplace or in the external relations of the enterprise "**Process innovation**" consists of the implementation of a new or significantly improved production or distribution method

Conditions	• organizational innovation must be related to the use and exploitation of Information and Communication Technologies (ICT) ; • the project or program must be managed by an identified and qualified project manager, and the • costs of the project or program must be budgeted ; • the project or program must lead to the development of a standard or a business model; • methodology or concept that can be systematically reproduced ; • the innovation must be a novelty or a significant improvement on the state-of-the-art in the relevant sector within the European Union ; • the project or program must involve a genuine risk of failure.
What can be funded ?	The eligible costs include : • personnel expenses ; • costs for the use of instruments, equipment, machines, tools, installations, land and buildings ; • materials and other consumables ; • subcontracting costs ; • overhead expenses ; • any other type of costs directly associated with the project. In the case of an organizational innovation, only the costs associated with the use and exploitation of ICT are eligible.
Aid height	• 15% of the eligible costs for large enterprises ; • 25% of the eligible costs for medium-sized enterprises; • 35% of the eligible costs for small enterprises.

R & D projects or programs

Who can benefit ?	All enterprises and private research organizations established in Luxembourg are eligible.
Scope of the aid	Three types of R&D are eligible : • Experimental development: an activity aimed at developing new, modified or improved products, processes, services, methods or organization models (including the creation of prototypes). • Industrial research : research aimed at acquiring

	new, not yet commercially exploitable knowledge with the aim of allowing new products, processes, services, methods or organization models to be created (possibly during a subsequent experimental development). • Fundamental research: an activity aimed at broadening the innovative nature of the project ;
Conditions	• technological risks proving the R&D nature of the project ; • the economic potential (except for fundamental research) ; • the enterprise's financial capacity in relation to the size of the project.
What can be funded ?	Eligible expenses include the following costs in so far as they are directly associated with the R&D project or program : • personnel expenses ; • costs for the use of instruments, equipment, machines, tools, installations, land and buildings ; • materials and other consumables ; • subcontracting expenses ; • overhead expenses ; • any other type of cost directly associated with the project.

Technical feasibility studies

Who can benefit ?	All enterprises and private research organizations established in Luxembourg are eligible.
Scope of the aid	This relates to a study conducted prior to an R&D project or program in order to determine the technical feasibility of the project or program. This type of study must permit an identification of the technological risks, the advantages of a product compared to competing products, or an assessment of the potential of a technology for the development of a new application. The study's conclusions must allow a decision to be made on the launch of an R&D project or program.
Conditions	• the innovative nature of the project ; • technological risks proving the R&D nature of the project ; • the economic potential (except for fundamental research) ;

	• the enterprise's financial capacity in relation to the size of the project.
What can be funded ?	The eligible costs are the same as those for R&D projects or programs, i.e. costs directly associated with the technical feasibility study :
	• personnel expenses ;
	• costs for the use of instruments, equipment, machines, tools, installations, land and buildings ;
	• materials and other consumables ;
	• subcontracting expenses ;
	• overhead expenses ;
	• any other type of costs directly associated with the study.
Aid height	The maximum allowable aid intensities vary according to the type of study.

	• For a study prior to an industrial research activity :
	  o 75% of the eligible costs for Small and Medium-sized Enterprises (SMEs)1 ;
	  o 65% of the eligible costs for large enterprises.
	• For a study prior to an experimental development activity :
	  o 50% of the eligible costs for SMEs ;
	  o 40% of the eligible costs for large enterprises.

Innovation advisory services & innovation support services

Who can benefit ?	This aid is reserved for SMEs and private research organizations (meeting the SME criteria) established in Luxembourg.
Scope of the aid	This scheme encourages Small and Medium-sized Enterprises (SMEs) to make use of external services in order to initiate and support their innovation activities.
What can be funded ?	The external services relating to innovation advisory services and innovation support services are eligible. The following costs are eligible for aid : For innovation advisory services:

|	
	• Costs associated with management consulting, technological assistance, technology monitoring • and technology transfer services, consultancy for the acquisition, protection and trade of technical • intellectual property rights and for licensing agreements, and consultancy on the use of technical standards. For innovation support services : • The costs for the temporary use of premises, databanks, technical libraries and laboratories, the costs associated with market studies, quality studies, testing and certification.
Aid height	The maximum intensity of the aid corresponds to 75% of the eligible costs (and potentially up to 100% if the expert is certified). The terms and conditions for granting this approval are specified in a Grand-Ducal Regulation. The aid is limited to € 200,000 over 3 years.

"De minimis" measures

Who can benefit ?	All enterprises and private research organizations established in Luxembourg are eligible.
Scope of the aid	The Ministers may apply discretionary capped aid measures, called "de minimis", to enable enterprises and private research organizations to benefit from public funding if these entities are not eligible for a specific aid scheme defined by the Law due to their size or in view of other criteria.
What can be funded ?	• The eligible costs correspond to the expenses eligible for the relevant aid schemes defined by the Law.
Aid height	In accordance with the provisions of European Commission Regulation No. 1998 / 2006, the total gross amount of the "de minimis" aid may not, per private enterprise or private research organisation, exceed the limit allowed by this Regulation or by the regulations that may subsequently replace it. This amount is currently set at € 200,000 per period of 3 fiscal years.

8. SERVICE INNOVATION STATISTICS & PRODUCTIVITY IN SERVICES: Presentation by Dr. Serge Allegrezza, initiator of the seminar & director of the National Institute for Statistics and Economic Studies (STATEC), director of the Directorate General on Competiveness of the Ministry of Economics & Foreign Trade and director of the Observatory on Competiveness.

(Note: Due to time constraints, this presentation wasn't presented at the seminar but we integrate its main findings into the present report)

Dr. Allegrezza's presentation outlined some findings based on an international comparison of Eurostat data on innovation and R&D, on the national survey on innovation (2008) and on productivity in services (LuxKlems).

In Luxembourg, 63% of the companies innovate in industry and 65% of them in services.   Except for orgnaizational innovation, the proportion of innovative companies in both sectors is very similar :
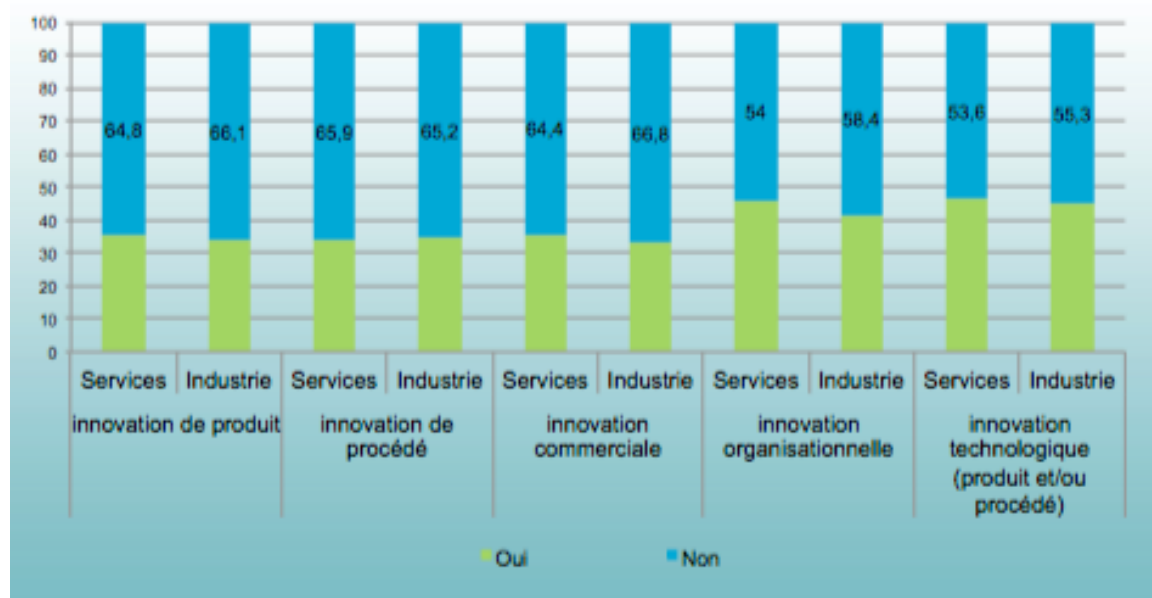
In product innovation,the Nordic Countries (DK 50% and FI 60%) largely outperform Luxembourg which also stays behind it's direct neighbors (DE, FR, BE)

In service innovation, Luxembourg companies outperform Germany and Denmark but stay behind France and Belgium:

Innovation de produit/service dans les services
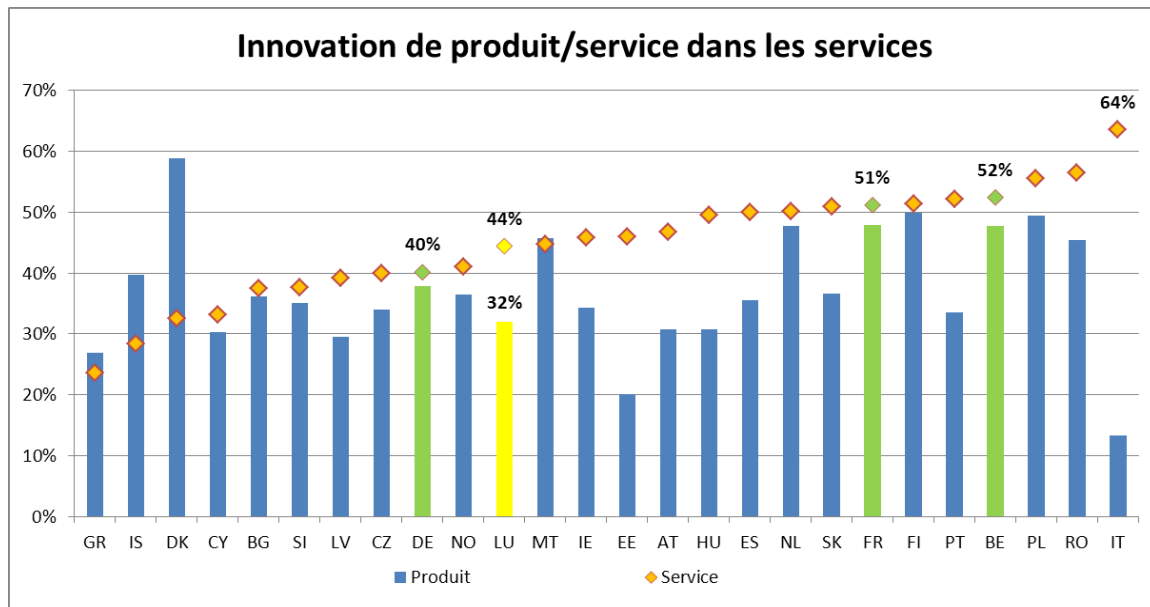
Considering technological innovation in services and in products together, and compared to their relatively high R&D expenses, Luxembourg companies are outperformed by their neighbors (DE, FR, BE):
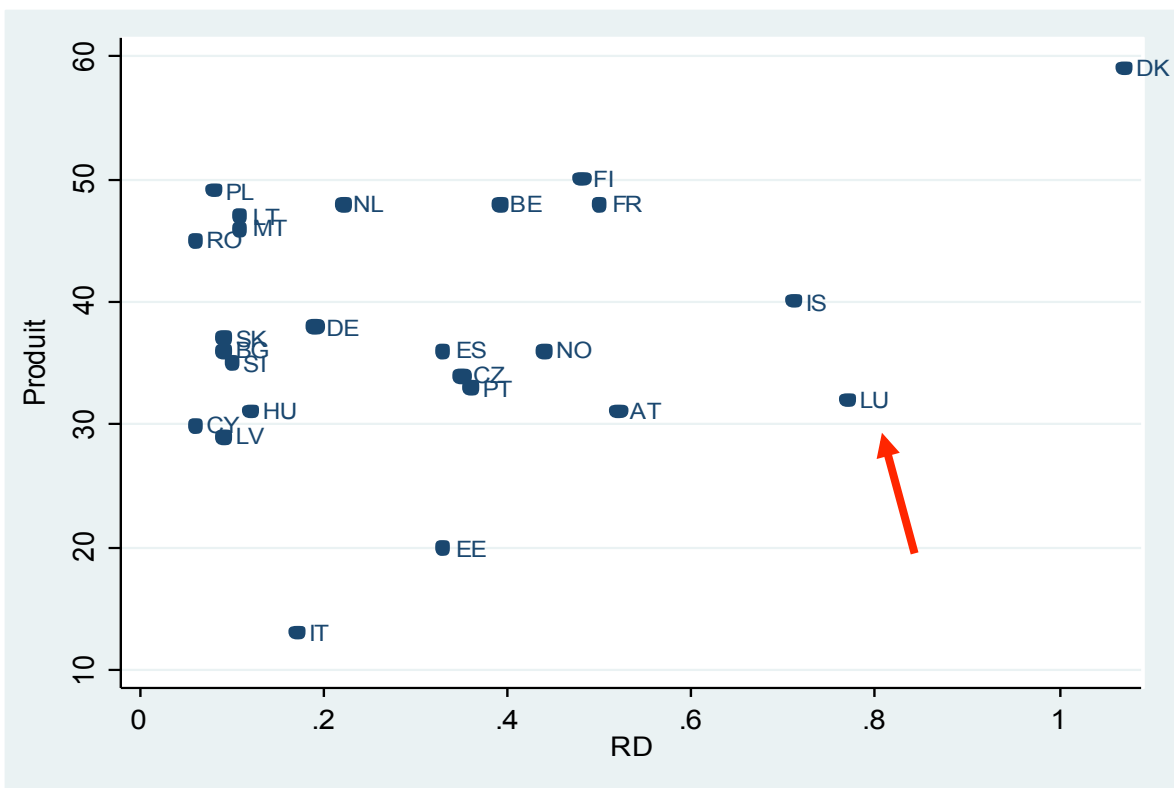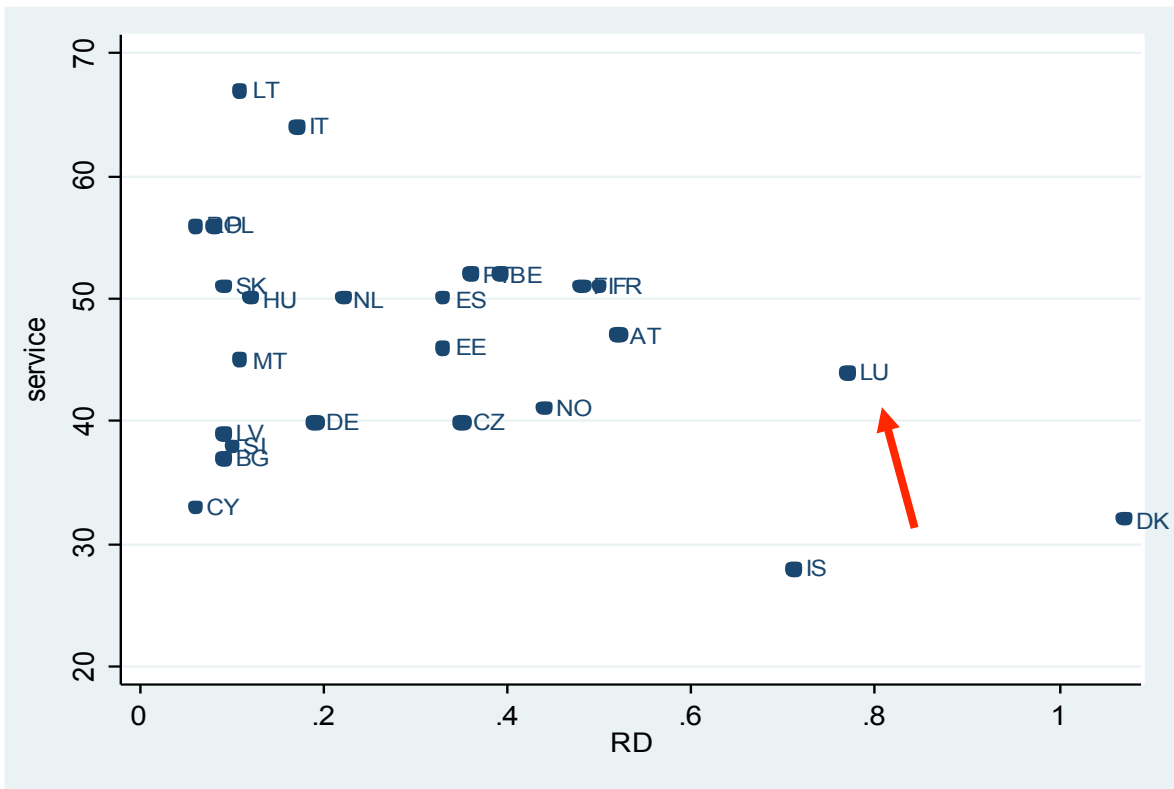
Adoption of service innovation in Luxembourg:

Adoption de l'innovation dans les services
(en %)

- ■ G - Commerce, réparation d'auto et moto
- ■ H - Transport et entreposage
- ■ J - Information et communication
- ■ K - Activités financières et d'assurance
- ■ M - Activités spécialisées, scientifiques et techniques
- ■ Ensemble des services
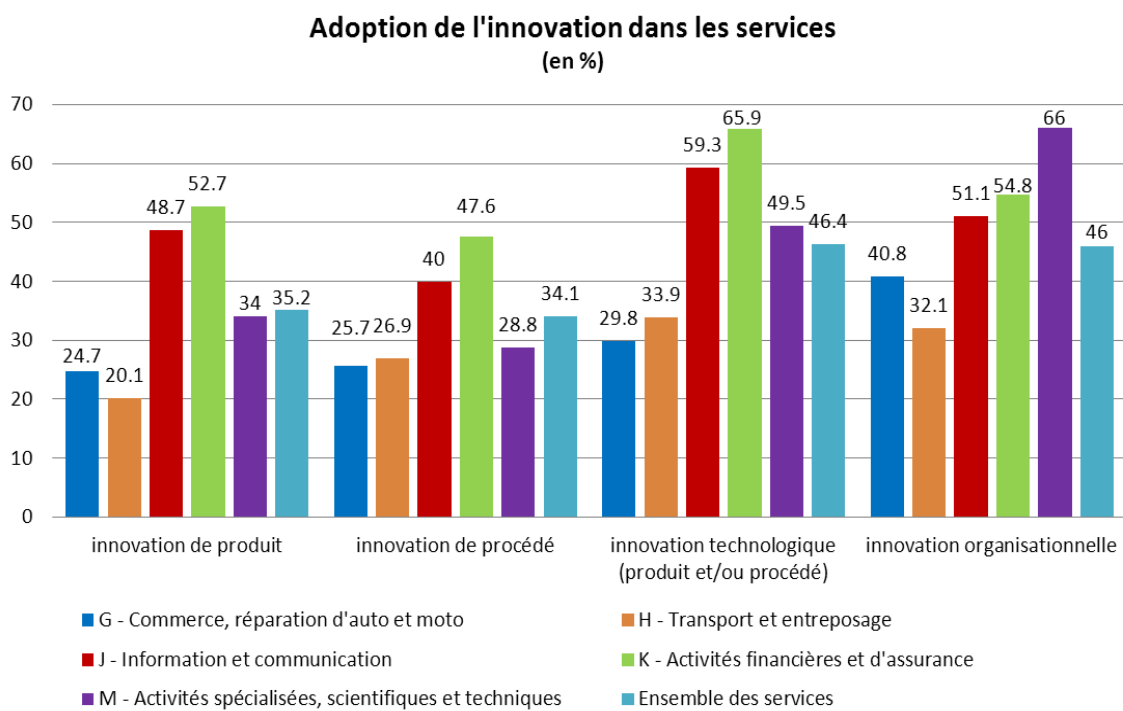
Adoption of service innovation compared to company size:

Adoption de l'innovation dans les services selon la taille de l'entreprise
(en %)

- ■ 10-19
- ■ 20-49
- ■ 50-99
- ■ >100
- ■ Ensemble
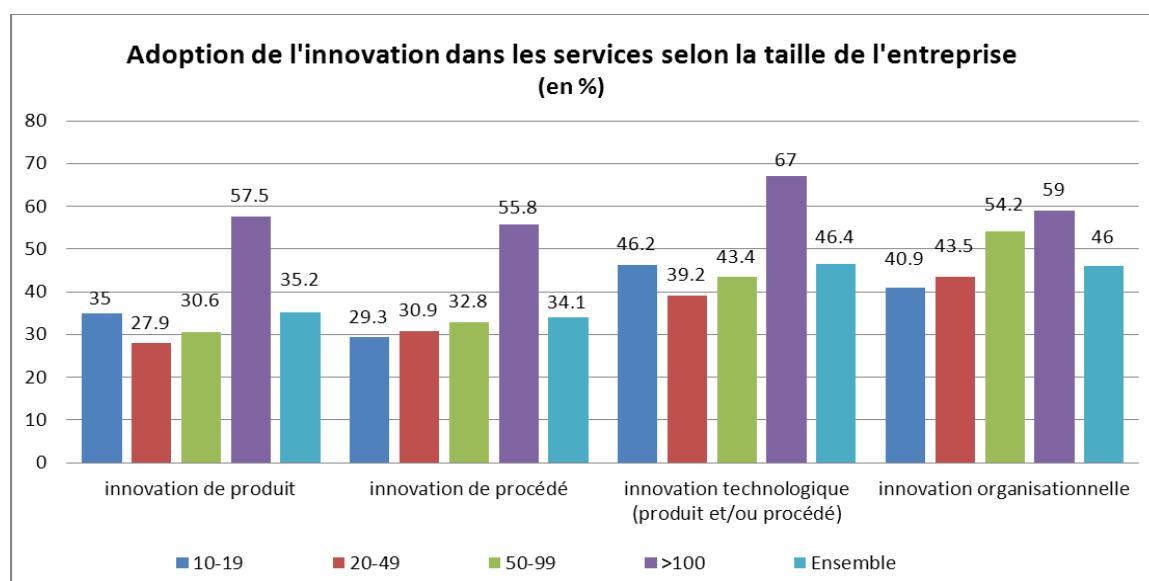
The findings also show that ¾ of product, service & process innovation in Luxembourg companies is done internally and that service companies prefer to protect their innovations by strategic means (secrecy, complexity of the design, advance in time compared to competitors) rather than by formal means (trademarks, patens, copyright..etc).

9. Presentation of 3 cases studies in service innovation by Luxembourg based companies.

Sylvain Cottong from strategybuilders.eu, economist & consultant in innovation management & business strategy animated the panel.

9.1 Lindlab SA: The evolution of the software enabled sales process support over more than 20 years

The presentation was given by M. Venant Krier, the CEO of Lindab SA (www.lindab.com), based in Diekirch. Formerly known as Astron Buildings, Lindab SA sells & builds preengeered industrial & commercial buildings.

Mr. Krier, assisted by Lindab's software development partner, showed how they continuously added more features to the software that helps their sales people calculate the total costs of a building, simulate some compliance issues as well as streamlethe design process of the buildings.

Development phases	Features
1980-1988: First pricing program on a HP calculator	
1988-1991: DOS program	• Data was transferred via dial-in connection • Expensive & time consuming • After weeks of manual & computer assisted calculations, the final proposal came out
1991: First graphical version	• Local input without dial-in connection • Showed a rough plan of the projected building
1998-Today	• 1998 - CYPRION 6.1- First Windows version compliant

- 1999- Link with technical manual
- 2002- Connection through the internet
- 2004- Link with CAD system (Allplan) / Link with Extranet
- 2005- Link with DIAL (Lighting program)
- 2009- Link with Epass (Heat loss program)

Today, Lindlab's software tool for proposal calculation:

- Draws a rough plan of the building to be built based on various dimensions & parameters provided by the client
- Is linked to the technical manual
- Connects via the Internet to head-offices
- Inputs the data in Lindab's CAD system for further detailing
- Simulates different lighting conditions/requirements for the building
- Simulates heat-loss based on various criteria (necessary for the client's compliance obligations)
- Calculates the price

The panel concluded that his case study is **a combination of an incremental process & marketing innovation**.

It actually hugely **increased productivity of the proposal generation process** for Lindab & it creates **additional value for the potential customer** who can quickly see how his building will look like, make various simulations on lightning & heating conditions (for compliance purposes)and know the price immediately.

9.2   JILBEE: The evolution of the e-learning content generation process for customer's of JILBEE's e-learning online platform

Founded only in 2008, JILBEE (www.jilbee.com) quickly got a reasonable market success with its platform for hosting online academies. Jilbee serves many different clients for their internal e-learning purposes.

JILBEE also creates and edits different type of content for their clients: scripts, storyboards, music, text, video, images, voice animations..etc. With growing success, the process for creating the content for increasing number of simultaneous clients turned out to be inefficient and not scalable.

JILBEE then decided to start a new innovation project aimed at

"Creating a lightweight, flexible and scalable processes and supporting IT Infrastructure and software for the massively distributed production of educational multimedia content"

The new IT solution will organize and distribute content creation in much more efficient & automated way.

JILBEE's advantages:

- Supplier selection from all over the world (-> good value for money)¨
- Global supplier base providing a deep supply of skills
- A more efficient, stable & scalable content production process
- Low fixed costs

The panel concluded that his case study is **a process innovation paired with management innovation & business model innovation.**

Although not disruptive in terms of innovation, this project provides JILBEE with radical improvement of their production process as well a widening of their business model. It will hugely **increase productivity of the content generation process** for JILBEE & it creates **additional value for customers** who can be served more quickly, with better quality & and more types of content.

9.3   Mobey: Building a mobile payment system with an innovative business model

Mobey (www.mobey.net) has been founded by Luxembourg based professionals from the finance industry and is an easy to set up and manage mobile payment system where you can pay by smartphone & QR code scanning at merchants that adhere to the system.

Their platform also allows e-ticketing and mobile marketing actions & campaigns.

The innovation hear clearly lies in the way the founders of Mobey built their business model: They were first looking for a critical mass of Luxembourg based business and also public institutions that agreed on using the system once it will be built.

In terms of business model innovation, this was somehow a crowdfunding approach via presale agreements for future service provisions.

Furthermore, the system:

- is very easy & secure to set up for the end user who is in full control of his money (via a chargeable online account)

- easy to manage for adhering businesses
- cheaper than for traditional intermediary payment systems as there is no specific terminal required for the business; the whole process happens in the cloud whiteout transmitting sensitive data and is hosted in highly secured datacenters that comply to banking standards (PSF certified).
- the system can evolve with future technologies (NFC & RFID)

The panel concluded that this project was clearly **a business model innovation** paired with **process innovation**.

Mobey secured their business model by selling their service upfront thereby lowering risk. **End-users & merchants** will benefit from a hassle free new payment system at competitive fees.

Part 2:

Conclusions & lessons for service innovation in Luxembourg

10. What is innovation ?

There are many different ways of defining innovation, but they all share in common the idea of creating something new that creates value, i.e :

"Innovation is the transformation of knowledge and ideas into a benefit, which may be for commercial use or for the public good; the benefit may be new or improved products, processes or services."

This means that innovation needs some type of inputs to create some type of outputs, the outputs being increased productivity on existing processes or new business, growth and market shares due to a completely new or much improved product, service or process.

Innovation is high on the agenda of companies, public services and policy makers these days. 'Innovate or die', is the new business mantra. The reasons are multiple:

- Globalization and increased competition (increased competition by BRICS states for ex)
- Saturated markets
- More demanding customers
- New environmental and societal challenges
- Pace of technological progress
- Etc.

Governments therefore have a big interest in fostering innovation, as it is the basis for continued and future economic prosperity and most of the developed countries but also of the BRICS[1] states have public policy schemes for fostering innovation in their respective economies.

10.1 Complexity of innovation

Innovation is a complex concept that is not straightforward to capture and measure in an unambiguous way.

---

[1] See for ex : China Set to Transform from Manufacturing Powerhouse to Innovation Engine in Next Five Years http://www.marketwatch.com/story/china-set-to-transform-from-manufacturing-powerhouse-to-innovation-engine-in-next-five-years-2011-11-08

But as you can't manage what you can't measure, economists and public policy makers need to define some standardized way of measuring and looking at innovation.

The current state of the art is the OECD Oslo manual (1995) that defines & classifies innovation as follows:

- *"A **product innovation** is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics."*

- *"A **process innovation** is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software."*

- *"A **marketing innovation** is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing."*

- *"An **organisational innovation** is the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations."*

10.2   Characteristics of services

Services have long been neglected as a playground for innovation. A lot of suspicion & myths have been formulated by leaders & thinkers even up to recent times (see section 1.2) although it is of common sense that our western economies gradually became service economies for some decades already with an average of at least 70 % (excluding non-market services) of GDP's being made up by services.

Also, there are some fundamental differences between services & goods;

Services are:

- Intangible
- Interactive/co-produced
- Non-stockable
- Heterogeneous
- Non-perishable
- Non-transferable
- Culturally specific

- Information intensive
- Systems/processes

10.3   Service-dominant logic

Recent marketing related microeconomic literature also propagates a paradigm shift in the way economic value is considered:

One of the catalysts for this shift was the publication of an award-winning article by Professors Stephen Vargo and Robert Lusch in a 2004 edition of *Journal of Marketing* entitled "Evolving to a New Dominant Logic for Marketing[2]".

They define service-dominant logic as follows:

	Foundational Premise	**Explanation & Comment**
FP1	Service is the fundamental basis of exchange.	The application of operant resources (knowledge and skills), "service," as defined in S-D logic, is the basis for all exchange. Service is exchanged for service.
FP2	Indirect exchange masks the fundamental basis of exchange.	Because service is provided through complex combinations of goods, money, and institutions, the service basis of exchange is not always apparent.
FP3	Goods are a distribution mechanism for service provision.	Goods (both durable and non-durable) derive their value through use – the service they provide.
FP4	Operant resources are the fundamental source of competitive advantage.	The comparative ability to cause desired change drives competition.
FP5	All economies are service economies.	Service (singular) is only now becoming more apparent with increased specialization and outsourcing.
FP6	The customer is always a cocreator of value.	Implies value creation is interactional.

---

[2] http://courses.ischool.berkeley.edu/i210/f07/readings/VargoLusch.pdf

FP7	The enterprise cannot deliver value, but only offer value propositions.	Enterprises can offer their applied resources for value creation and collaboratively (interactively) create value following acceptance of value propositions, but can not create and/or deliver value independently.
FP8	A service-centered view is inherently customer oriented and relational	Because service is defined in terms of customer-determined benefit and co-created it is inherently customer oriented and relational.
FP9	All social and economic actors are resource integrators.	Implies the context of value creation is networks of networks (resource integrators).
FP10	Value is always uniquely and phenomenologicaly determined by the beneficiary	Value is idiosyncratic, experiential, contextual, and meaning laden.

Source: http://en.wikipedia.org/wiki/Service_dominant_logic_%28marketing%29

This model seems well aligned with the perceived shape of contemporary economies in general:

- Service economies
- Experience economies
- Function economies
- Usage economies
- Etc.

The fundamental difference between this model and the traditional industrial economy model is that in Service-Dominant logic, value is defined outside-in, meaning by what customers, "the market" is attaching as a value to a specific service provision vs. the inside-out value model of industrial economics, where value is considered as the sum of the functional inputs necessary to create the output and where the value is exchanged only at the moment of the transaction.

Practically, today most consumers value the experience provided by a service or good in addition to the efficiency to get their jobs done with the purchased solution.

This already illustrates that measuring innovation in services is not a straightforward exercise.

10.4 Megatrends in service innovation

Looking in more detail at what is happening in our developed economies in terms of service innovation including the drivers of service innovation, we see trends like:

- **Servitization of products** or the rise of service around the product: additional services, renting a product instead of buying it, remanufacturing or refurbishing..etc
- Manufacturing firms **turning into service firms** (IBM for ex)
- **Complex service-systems:** The technological revolution and especially the rise of the Internet as a distributed communication & transaction platform allows for much more complex service systems including service solutions that address yet unmet needs[3]. We see a rapid emergence of new innovative service systems in areas like:
    - o **Intelligent transport systems**
    - o **Home & building automation**
    - o **Smart cities**
    - o **Telemedicine & home care**
    - o **Public sector & social innovation**
    - o **Local & regional services**
    - o **Product service-systems[4]**
- **Open services & multisided markets** (for. ex app stores in media, IT & entertainment)
- New business models in service creation like **crowdfundig, crowdsourcing and collaborative & shared consumption**
- More and more **data driven business processes** (for. ex in marketing)
- More need for **KIBS** in a complex world
- …etc

---

[3] See for ex: 'The for technologies you need' by Adam Richardson, Harvard Business Review**:** blogs.hbr.org/cs/2011/09/the_four_technologies_you_need.html

[4] Like Nike+ or Zipcar for example where different technologies are combined (microprocessors, sensors, GPS, cloud databases & applications, wireless connectivity & GPS) to provide additional services around the product. This trend will continue and probably explode with the widespread & cheap deployment of RFID chips, NFC enabled smartphones…etc ("Internet of Things", see for ex. http://www.alexandra.dk/uk/services/Publications/Documents/IoT_Comic_Book.pdf) allowing for many new types of innovative services within the next 10 years that we even not think about today.

The drivers of this mega trend are quite obvious:

- Technological progress
- Industrialization of services
- Globalization and increased competition
- Deregulation
- Abundance of young creatives & digital natives (but gathering in creative hotspots around the world such ass California, Berlin, Amsterdam, Copenhagen, London, thus unevenly distributing talent across geographical areas[5])
- Aging population
- Personalization (of products & services)
- Urban, social & environmental challenges
- Size of world population
- Declining public budgets facing an increased demand for quality public service & healthcare by citizens
- Ubiquitous hyperconnectedness

10.5 Measuring innovation in services

The question then is how service innovation can be measured within the traditional manufacturing model of innovation.

According to the Oslo manual the **inputs** of innovation are

- innovation expenses
- & R&D

whereas the **outputs** are

- patents,
- publications,
- trademarks,
- new products,
- new processes,
- organizational innovation
- and marketing innovation

---

[5] See for ex Richard Florida's thesis on « The rise of the creative class » :
http://www.gurusoftware.com/GuruNet/Social/RiseoftheCreativeClassSummary.htm

But there are several reasons & indicators that his model is not entirely reproducing the reality of service innovation:

1. The definition of R&D, as stated in the Frascati manual seems to be too technicist & too scientist to be applied to the type of R&D typically more relevant in service innovation like market research, commercial ethnography and other customer insight methods, although these methods all stem from social sciences like sociology, psychology, ethnography and anthropology. The big tech companies like Microsoft or Xerox for example, have had anthropologist departments for over 10 years now already, and it is these departments that play an essential role in new production/service development or improvement of the existing.

2. The model is mainly built on inside-out criteria, meaning that the outputs are outputs in the view of the company and not at not necessary valuable outputs in the eyes of the customer, although it is the customer who decides whether the output will create new growth or not. More inside-out criteria are needed here to better reflect marker realities.

3. Most service innovations are the result of fuzzy spaghetti[6] like process where the innovation is a combination of different types of innovation modes (as defined by the Oslo manual) and where it is not always clear what the relative importance of each innovation mode is. Sometimes it's even difficult to recognize and value innovation. The result is often a business model innovation. [7]

4. Thus, services are not compatible with a linear concept of innovation

---

[6] See for example Prof. John Bessants recent presentation « Managing knowledge spagetti » that he gave at the Luxembourg innovation masterclass 2011 : http://www.innovation.public.lu/fr/actualites/2011/10/masterclass-report/managing-knowledge-spaghetti.pdf & http://www.innovation.public.lu/fr/actualites/2011/10/masterclass-report/index.html http://www.luxinnovation.lu/site/content/FR/400/C9034/

[7] Recent business model canvass (see for example Alexander Osterwalder's "Business Model Canvas") are increasingly used as strategic planning tools and cover all the innovation modes defined by the Oslo manual, by taking a 360° view on the business model. See http://www.businessmodelgeneration.com/canvas

5. IBM for example is considering all their innovations as business model innovation.

6. Patents and R&D, the traditional indicators of innovation in manufacturing are not measured in service innovation (there are only few patents in services and market research is not considered as R&D)

7. It is difficult to assess the novelty of a service as a whole and services can be easily imitated

8. Service innovation is felt to be quantitatively important and strategically fundamental but often invisible by these indicators

9. Factually, we are service economies for some decades already

10. These indicators also fail to measure performance gains other than the traditional performance indicators productivity & growth (excluding for ex. social or environmental performance gains).

11. Beyond business model innovation, they also exclude non-technological product innovation, non-technological process innovation, ad-hoc & tailor-made innovation, public service innovation and social innovation ("win-win-win")

12. They don't capture open innovation very well, if at all, whereas open innovation is becoming probably the single most innovation model (due to the impressive capabilities of the Internet as a distributed communication & crowdsourcing platform) fitting well within the new social business model[8]

---

[8] See for. ex 'Improving Enterprise Collaboration: What Do Social Business Approaches Offer?' http://www.ebizq.net/blogs/enterprise/2011/05/improving_enterprise_collabora.php & 'A manifesto for social business' http://www.customerthink.com/blog/a_manifesto_for_social_business

11.   Innovation policies and selection criteria

The different speakers at the seminar didn't totally agree on what the best public policy in supporting innovation should be in the light oft these insights.

Whereas Prof. Mohnen came to the conclusion that the traditional innovation indicators can be applied to service innovation to some extent (as for example trademarks can be an indicator of service innovation), Prof. Dejlall rather claimed a new model for service innovation. Dr. Allegrezza also outlined, based on his survey findings, that service innovators prefer to protect their innovations by strategic means (secrecy, complexity of the design, advance in time compared to competitors) rather than by formal means (trademarks, patents, copyright..etc), which again is hard to measure by traditional indicators.

The differences in criteria applied by the service innovation program 'Serve' at the Finnish technology and innovation foundation Tekes, the UK department for Business Services Policy Unit, Luxinnovation or FNR for service innovation funding also reflects a certain heterogeneity which is sign of non-consensus and new model seeking.

This raised the question whether there is a need for dedicated service innovation schemes.

Professor Djelall identified 3 types of innovation policies:

- Specific policy for services (**Demarcation**)
- Generalization of industrial policies to services (**Assimilation**)
- New policies grasping both (**Integration**)

concluding that demarcation or integration would be the best choices.

'Demarcation' is probably better suited for markets where there is still a need to promote the understanding of service innovation, new business models, complex service-systems, customer centricity & service mindset..etc whereas in markets that are more mature 'integration' is probably the better model. Alan Mayo for example mentioned that the Dutch discontinued their specific service innovation scheme after some time. Is that a sign for a market having become mature enough for service innovation?

11.1 Confronting the criteria

Let's make the exercise of confronting all the different selection & evaluation criteria for service innovation funding (they optimally should identify the service innovation projects with the highest potential value) presented by the different speakers in their different contexts:

Professor Djellal:

- Promote invisible innovations

- Emphasize on innovation and R&D policies specific to services, ie, favor non-technological innovation and R&D

- Support services innovations within manufacturing and agriculture

- Support specific skills needed for non-technological innovation

- All services are concerned, but an emphasis could be put on: KIBS, Proximity services & public services.

Professor Mohnen (example of the type of questions asked in a Canadian study in the construction sector):

- Business environment and success factors

- Strategies within business (business practices ass well as commercial strategies)

- Human resources within business

- Technology within business (advanced technologies used)

Professor Dubois outlined 4 innovation criteria in service innovation:

- **Innovation criterion #1:** Identify the qualities and measures, which demonstrate the uniqueness of the proposed service system (service quality & service experience)

- **Innovation criterion #2:** What are the mechanisms envisaged for a continuous sustainable customer centric service evolution (open innovation, co-creation, living labs)

- **Innovation criterion #3:** Demonstrate the alignment of resources (people, processes, information, technologies and partnerships) with the service qualities and associated measures. Enterprise architectures (the IT infrastructure supporting and reflecting a service business model) are crucial for effective service systems.

- **Innovation criterion #4:** Governance of innovation through enterprise architecture based portfolio and project management.

Criteria used by Tekes in Finland:

The **focus** is on

- Retail and wholesale value chains
- Industrial services
- Knowledge-intensive business services (KIBS)
- Service business and service innovation researchers

In general:

- The innovative service concept is a new or a significantly improved service that
    - can be systematically reproduced
    - makes use of some technology or other systematic methods
    - is new to the market and not just new for a particular company
    - brings value both to service provider and client/customer

- The development of the innovative service concepts
    - Has to include a clear degree of risk
    - And is systematically organized in project form

- Funding criteria to all Tekes programs
    - Impact of funding is significant
    - Novelty value of developed solution is sufficient
    - Development work is organized convincingly in the form of a project; company has sufficient resources to carry it out and has no tax debt
    - Also the use of technology in projects is analyzed

- Specific criteria for large companies´ projects
    - Project needs to be connected to strategic renewal of the company
    - More strict requirements regarding e.g. subcontracting in the project, overall impact of the project and impact of Tekes-funding

More specifically in the form of questions asked:

How have you identified customer needs in this project/service? How are your customers, end-users, and network partners involved in the service development in this project?

1=Solution is based on superficial customer and user understanding or justifiable assumptions on customer and user needs

4=Service concept is based on multifaceted, deep customer understanding including profound market experience and both quantitative and qualitative research activity. Customers, users, network partners and personnel are actively involved as development partners in different phases of development process. Corporate culture supports open innovation.

How and to what extent is your service different from competitive solutions domestically and internationally?

1=Solution is regionally new and competitive and directed to current markets

4=Solution is internationally new, unique or superior. Solution is based on value innovation and creates new markets beyond current competition.

How and to what extent does your business model in this service concept or your codes of conduct and thought differ from traditional business models or ways thinking or doing business in this sector?

1=Project reflects potential to renew traditional business models through basic, incremental, step-by-step-development

4=Project reflects strategic rethinking of traditional modes of business in the sector. Internationally new ways of doing business in the sector are developed in the project, and potentially this affects the whole sector, and leads to sectorial transformation

On which current or future trends or weak signals you service concept is based?

1=Solution is based on understanding megatrends of current markets and involves low level of risk

4=Solution is high-risk and based substantially on long term future prospects, weak signals in the market, and creation of new, emerging markets

How and to what extent this service concept is based on utilization of networks and partnerships?

1=Utilization of networks plays marginal role in the solution

4=Utilization of networks has major strategic role in the solution

To what extent your organizational culture, operations and your service concept reflect manufacturing and product orientation or service orientation?

•1=Organization operates in product or manufacturing logic although project is focused on development of service concepts or solutions
•4=Service or intangible values have a significant role in the solution. Solution is based on service-dominant mind-set or creation of service-dominant organization culture or mind-set is in significant role in the project

What is the impact of this developed solution on your turnover?

•1=Marginal, e.g. 0-15% within 5 years
•4=Significant, e.g. over 50% of turnover or over 10 M€ turnover within 5 years

Alan Mayo on the UK Policy priorities for service innovation:

- Infrastructure
- Finance for Growth
- Eliminate Regulatory Barriers/Red Tape
- Trade: Barriers and Opportunities
- People: Skills/Diversity/Immigration
- Public Service Reform and Open Data
- Demonstrators and Research
- Transformative services
    o the media, IT & entertainment industry (i.e. the Apple ecosystem)
    o Urban development, architecture & sustainability
    o Aging population and healthcare service systems (Telecare, telehealth & home automation)
    o Traffic & intelligent transport systems
    o Smart cities

According to Alan Mayo, **market requirements** (consumer expectation & needs, customer centricity) as well as **societal challenges** are thus the 2 big drivers for service innovation.

Put the right way, **infrastructure** (i.e. ICT), **people & skills, market frameworks** (regulatory environments..etc) and a **wider interpretation of R&D** including design research, market studies & more generally the humanities all positively influence innovation in services.

Criteria at FNR for service innovation funding

- Business Service Design
- Development and Performance of the Financial System
- Information Security and Trust Management
- High Performance Telecommunication Networks

Criteria	Subcriteria	Weight
Coherence with program theme		
Scientific Quality/ Original. of project	Appropriateness of Approach Innovativeness of idea	**Very high**
Quality and efficiency of project plan	Feasibility and efficiency of project plan Competence and expertise of applicant team	**High**
Dissemination and valorization of the research results	Intended short term outcomes Intended long term impacts	**Medium**

Luxinnovation/Ministry of Economics

Process & organizational innovation in services	
What ?	Conditions
"**Organisational innovation**" involves the implementation of a new organizational method in the business practices, at the workplace or in the external relations of the enterprise "**Process innovation**" consists of the implementation of a new or significantly improved production or distribution method	• organizational innovation must be related to the use and exploitation of Information and Communication Technologies (ICT) ; • the project or program must be managed by an identified and qualified project manager, and the • costs of the project or program must be budgeted ; • the project or program must lead to the development of a standard or a business model; • methodology or concept that can be systematically reproduced ; • the innovation must be a novelty or a significant improvement on the state-of-the-art in the relevant sector within the European Union ; • the project or program must involve a genuine risk of failure.

R & D projects or programs	
What ?	Conditions
Three types of R&D are eligible : • Experimental development: an activity aimed at developing new, modified or improved products, processes, services, methods or organization models (including the creation of prototypes). • Industrial research : research aimed at acquiring new, not yet commercially exploitable knowledge with the aim of allowing new products, processes, services, methods or organization models to be created (possibly during a subsequent experimental development). • Fundamental research: an activity aimed at broadening the innovative nature of the project ;	• technological risks proving the R&D nature of the project ; • the economic potential (except for fundamental research) ; • the enterprise's financial capacity in relation to the size of the project.

Technical feasibility studies	
What ?	Conditions
This relates to a study conducted prior to an R&D project or program in order to determine the technical feasibility of the project or program. This type of study must permit an identification of the technological risks, the advantages of a product compared to competing products, or an assessment of the potential of a technology for the development of a new application. The study's conclusions must allow a decision to be made on the launch of an R&D project or program.	• the innovative nature of the project ; • technological risks proving the R&D nature of the project ; • the economic potential (except for fundamental research) ; • the enterprise's financial capacity in relation to the size of the project.

Innovation advisory services & innovation support services	
What ?	Conditions
This scheme encourages Small and Medium-sized Enterprises (SMEs) to make use of external services in order to initiate and support their innovation activities.	The external services relating to innovation advisory services and innovation support services are eligible. The following costs are eligible for aid : For innovation advisory services: • Costs associated with management consulting, technological assistance, technology monitoring • and technology transfer services, consultancy for the acquisition, protection and trade of technical • intellectual property rights and for licensing agreements, and consultancy on the use of technical standards. For innovation support services : • The costs for the temporary use of premises, databanks, technical libraries and laboratories, the costs associated with market studies, quality studies, testing and certification.

'De minimis' measures	
What ?	Conditions
The Ministers may apply discretionary capped aid measures, called "de minimis", to enable enterprises and private research organizations to benefit from public funding if these entities are not eligible for a specific aid scheme defined by the Law due to their size or in view of other criteria.	• The eligible costs correspond to the expenses eligible for the relevant aid schemes defined by the Law.

By looking at this jungle of criteria, **several conclusions can be drawn**:

- They can be classified in different categories but are heterogeneous as a whole.

- The categories can have different spaces like inside-out (organization centric) and out-side in (customer-centric) criteria, location & culture dependent criteria, market driven criteria and "accounting" criteria, legal criteria, traditional Oslo Manual criteria….etc.

- It would be an obvious exercise, with all that information at hand to classify all these criteria along the different category spaces and also confront them with innovation modes, inputs & outputs….etc. The resulting compilation could then be tested against the assumptions made & if conclusive, serve as an improved model for innovation measurement.

But apart from these more theoretical and accounting perspectives, there is evidence & consensus on some common trends.

11.2 Preliminary conclusions

1. ICT & broadband connectivity play an important role in service innovation, especially in digital services and complex service systems that are characterized by technology, information & knowledge, people & skills, processes & partnerships.[9]

---

[9] Excerpts from a recent artice published in Mc Kinsey Quarterly on « The second economy » : « So we can say that another economy—a second economy—of all of these digitized business processes conversing, executing, and triggering further actions is silently forming alongside the physical economy….. Now this second, digital economy isn't producing anything tangible. It's not making my bed in a hotel, or bringing me orange juice in the morning. But it is running an awful lot of the economy. It's helping architects design buildings, it's tracking sales and inventory, getting goods from here to there, executing trades and banking operations, controlling manufacturing equipment, making design calculations, billing clients, navigating aircraft, helping diagnose patients, and guiding laparoscopic surgeries. »
https://www.mckinseyquarterly.com/Strategy/Growth/The_second_economy_2853

This will also have huge implications on the labor market : Many service backoffice jobs that are still done today by people (inluding academic grades) will disapear in th near future as they will be automized by complex service-systems with the Internet acting more and more like the operating system of society and the economy.

2. Additional technologies like wireless connectivity, microprocessors, different type of sensors, GPS, cloud services, RFID & NFC are also important service innovation boosters

3. There is a rising demand & need for transformative services (Healthcare innovation, Homecare, Smart Cities, Intelligent transport systems.....)

4. Customer centricity and the corresponding market research and ethnographical studies play a major role in service innovation. They should therefore be fully considered as R&D expenses. [10]

5. Service innovation can be invisible and often happens in a complex interplay of different innovation modes potentially resulting in some kind of business model innovation

6. New types of "social" business models emerge out of the Internet revolution, implying new markets, different organization modes & communication cultures in companies, internally & externally[11], thus fundamentally challenging large parts of the traditional industrial management models.[12]

---

[10] The American Customer Satisfaction Index ACSI (http://www.theacsi.org/) measures customer satisfaction of US companies. The top scoring companies there generally outperform the average US company in terms of sales, growth and share value. Also, it is not surprising that companies like Google, Apple & Cocoa Cola are found at the top of ACSI as they are known for providing their customers with good overall experiences and to have a positive brand reputation. If we assume that successful service innovation translates into growth & sales that can only be sustainable if customers are satisfied, then customer satisfaction, acquisition & loyalty as well as customer centricity of the value proposition could be considered as an indicator of innovation.

[11] In other words, we are moving away from vertically integrated industries, command & control hierarchies & information stacks to partnership models happening in many simultaneous (open) value networks, flattened hierarchies (that enable every employee to act as an entrepreneur within the company) and information flows: The value is in the flows and not in the stacks anymore.

This also provides some evidence that social capital is adding to the traditional economic resource inputs like financial capital, human resources & natural resources. Having customer communities and partner networks is a condition today to create & exchange value. Look for example at the increasing waiting lines at mobile phone shops (as they are distributers of social connectivity in form of the enabling devices) and the decreasing waiting lines at banks. Or the rising share value of major tech companies that operate in the "social" & "experience" business and the falling share values of financial institutions…

[12] See for example the 'lean startup » movement http://en.wikipedia.org/wiki/Lean_Startup and the related « Learning organization » concept http://en.wikipedia.org/wiki/Learning_organization

Image Credit: Dion Hinchcliffe. 2010 (cc)(by)(o)

7. The growing importance of open innovation (that can have different forms, see section 1.7) which raises the question on how measuring open innovation ?

8. Servitization of products (in the manufacturing & agricultural industries) is a high growth area; so is the model of hiring products instead of buying them

9. There is increasing need & demand for public sector innovation and social innovation

10. Developing service innovation in partner networks is also a rising trend (i.e. API's in Web services

11. New types of markets like the apps stores and platform eco-systems are created that ask for new innovative services & service business models (mullti-sided markets and open service models)[13]

12. The rights skills, knowledge & competences (and the ability to be part of knowledge flows) are major ingredients for service innovation[14], resulting in complex economic ecosystems[15]

---

[13] See for ex 'Managing the Maze of Multisided Markets' http://www.strategy-business.com/article/03301?gko=16442 & 'The future of pricing and revenue models' http://www.palgrave-journals.com/rpm/journal/v9/n3/full/rpm201011a.html

[14] In its manifesto, the « New Club of Paris » speaks in this context of a new paradigm : The « economy of the intangibles » and claims to develop new systems that better account for intellectual & immaterial capital : http://new-club-of-paris.org/mission/ http://en.wikipedia.org/wiki/New_Club_of_Paris/

[15] See for ex Veran Allee's groundbraking work on value network analysis : http://en.wikipedia.org/wiki/Value_network_analysis

11.3. How to promote service innovation ?

Most speakers agreed that funding is not enough to support service innovation.

First & foremost, there is a need to understand the deep transformation that our economies are undergoing at the crossroads of technology, business models, value foundation systems, organization & transaction modes as well as communication modes, that are all influencing the new type of services that appear in the "economy of the intangibles". Without a deep understanding of this process, which has implications on almost every aspect of the industrial area's management models, successful service innovation is rather difficult.

Along with financial aid, public policy in (service) innovation should therefore:

1. Sensibilize on the subjects like changing business models & economic paradigms & the consequences on traditional management models and innovation activities

2. Sensibilize on the complex nature of service-systems and the importance of service engineering

3. Sensibilize on service mindset, customer centricity and the tools & methods available to develop innovative service solutions, like service design & design research[16]

---

[16] Service design & user experience design & customer experience management are rather young disciplines that have raised a lot of attention in recent years by companies and the public sector alike. UX design deals with understanding human needs and designing customer centered digital applications & interfaces that are also valuable for business and service design deals with the same type of interactions but including all the touchpoints between a service provider and it's users and not only the digital ones.

These disciplines have developed their own tools & methods like ethnographic research, customer journey mapping, service blueprints, stakeholder mapping, touchpoint mapping, job mapping, mental models, user scenarios, personas, rapid prototyping, context mapping…etc that are all an application of the much discussed « design thinking » innovation framework and are very helpful tools to succeed in service innovation. Service design also includes service quality monitoring, service recovery plans in case of service failure, customer retention strategies….etc. For more details, see

- 'What is service design ?' http://www.sylvaincottong.com/management-models/what-ist-service-design/

- 'Service design tools & methods' http://www.sylvaincottong.com/tools-methods/service-design-tools-methods/,

(footnote continued)

4. Sensibilize on general innovation management models, tools, software and methods, show case studies.

5. Emphasize on open innovation in all its forms as this "crowdsourded" mode of innovation seems to rapidly gain importance as one of the major new leverages for future growth, also reflecting the changing landscape of business models and market behavior and expectation.

6. In general, create knowledge and competence through publications, guidebooks, reports, foresights, studies and best practice databases.

7. Support networking via conferences, seminars, workshops, collaboration forums, communities and networking trips.

8. Participate in public discussions, promote service culture & service innovation in the news, public debates, articles, forums, social media...etc.

9. Promote invisible innovations

10. Support non-technological innovation and have a wider interpretation of R&D (including market research activities based on social sciences)

11. Promote the skills & competences necessary in the knowledge economy: leadership, creativity, communication skills, ICT literacy but also non-technological skills. Propose more training sessions about these skills.

- 'What is user experience design? An overview of tools & methids' http://uxdesign.smashingmagazine.com/2010/10/05/what-is-user-experience-design-overview-tools-and-resources/,

- 'What is user experience design' http://www.montparnas.com/articles/what-is-user-experience-design/,

- 'Design research methods' http://roschuni.com/wiki/index.php/Design_Research_Methods,

- 'Customer experience management : past,present & future' http://www.customerthink.com/article/customer_experience_management_past_present_future

- 'On design thinkin' http://www.sylvaincottong.com/tools-methods/on-design-thinking/

12. Emphasize on a type of services where a specific economy is best positioned and where there are the biggest needs.

13. Create demonstrators in these chosen areas but also in transformative services as a showcase and inspiration for entrepreneurs & service providers.

14. Support networks & partnerships in service innovation

15. Bring forward standardization of processes & deregulation

16. More generally, better explain the role of innovation actors & public policy schemes

12.   What can be the lessons learned for Luxembourg ?

Luxembourg is quite active in terms of public policy schemes in innovation, via innovation actors like Luxinnovation and research institutions like FNR, the University of Luxembourg & CRP Henry Tudor.

Luxembourg also has extensive **public aid schemes proposed to Luxembourgish companies by the Ministry of Economics and Foreign Trade** in application of the law of June 5th, 2009 relating to the promotion of research, development & innovation. Actors like Luxinnovation & CRP Henry Tudor organize events & training sessions, foster networking & create publications around the issues of innovation and more specifically service innovation. But it also turns out that the interest by companies in service innovation schemes is not where it should be, and that most of the innovation activities happen more in the traditional areas like technology and the manufacturing industries. Further, Dr. Allegrezza outlined in his presentation on the Luxembourg situation that compared to relatively high R&D expenditures by Luxembourguish companies the service innovation level is lower than with its neighbors for ex (DE, FR, BE).

But there is always room for improvement. By considering the current situation in Luxembourg as well as the lessons learned from the seminar and other research, the following propositions can be made:

1. The best type of innovation policy at this point is probably a demarcation policy as there seems to be still a need for sensibilisation in service innovation. The current scheme applied in Luxembourg can be considered as a mix of demarcation & integration.

2. Activities beyond funding itself, such as discussed at section 11 could be further developed on top of the already existing bunch of rather diverse activities. These would allow for a more targeted and multichannel sensibilization & communication with the different target groups.

3. There seems to be no clear focus in priority domains for service innovation. Luxembourg should therefore further define clear priorities in this area (see for example the Finnish & the UK programs discussed earlier)

4. Better define potential business areas of particular interest to Luxembourg (from an opportunities & capabilities point of view): For ex, financial services[17], language & localization services including semantic web services[18], legal services[19], data center & cloud services[20], logistics as well as other selected KIBS.

5. Social innovation & public sector innovation should become another area of priority (also for funding)[21]. Open Data[22] programs can be an additional enabler in this area. Public service innovation and social innovation are becoming as much a factor of competetivity than service innovation within companies & the rest of the economy. We have to do more with less and yet get better in doing so whilst producing efficient, desirable and qualitative outputs. Designing public services that are really needed by citizens and that help solve their problems, by providing them with a good experience while delivering these services are a crucial asset to attract

---

[17] Financial services are of particular importance & interest to the Luxembourg economy. With the crisis, banks & other financial service providers are under increasing pressure to reinvent themselves & develop new products, services & business models as well as ways of dealing with their customers. CRP Henry Tudor already has a specific research program on financial services & there are other instititutions like the Luxembourg School for Finance.

[18] Language & localization services as well as the semantic web are future growth areas in a globalized economy but with local cultural needs. Luxembourg already has competences in this area because of it's international worforce and because of the presence of many multinational companies and european institutions, amongst which the 'European Publishing Office'. There is a potential to capitalize on these resources and foster innovative services in these areas.

[19] Another area where Luxembourg integrates a lot of skills & competences are different types of legal services to international business.

[20] One of the pillars of the current Luxembourg economic policy is to attract content, e-commerce & software providers to host their offerings in Luxembourg based data centers (in combination with favorable IP right policies) Fostering innovation in the way these services are delivered and marketed seems also to be another area of particular interest, also knowing that cloud services will play an ever increasing role as one enabling technology of complex service-systems.

[21] Other European countries like the Scandinavian countries, the UK, and the Netherlands put a lot of emphasis on social innovation & public service innovation for obvious reasons: Shrinking public budgets & multiple, complex challenges, productivity gain potential but also PPP opportunities and new business areas as well as attractiveness, efficiency & competiveness of the country as whole. These areas are of particular importance for Luxembourg with its rapid demographic change and predicted increasing population (cosmopolitan & heterogeneous demographics).

[22] http://en.wikipedia.org/wiki/Open_data

the talented & skilled people & economic actors that our economy needs.

6. Also, the different public actors in service innovation, like the Ministry of Economics, Luxinnovation, FNR, CRP Henry Tudor (SSI department) and the University of Luxembourg could better align their respective policies, programs and selection criteria so as to better reflect the priorities and the specific focus.

7. The selection criteria for funding service innovation projects should be reconsidered and more outside-in criteria, such as market feedback criteria as well as customer centricity of service solutions for example should be integrated. Tekes in Finland does quite a good job in that area, and the exercise of section 11.1 could serve as a basis for recompiling the selection criteria that better fit today's economic & market realities. This could also serve as a basis for defining service innovation input & output measures from a macro-economic point of view.

8. A lot has been said about the importance of different types of transformative services like smart cities, intelligent transport as well as home care & telemedicine for example. Whether these areas should be a priority for Luxembourg needs further investigation as far as capabilities & opportunities are concerned.

9. Finally supporting & creating demonstrators once the policy priorities have been set also seems to be an interesting & potentially effective way of supporting service innovation, but they should be carefully chosen and planned.

Practically, the following next steps and actions should be considered in terms of the Luxembourg service innovation policy:

- **Define strategic priorities in terms of service innovation** as far as Luxembourg's capabilities, opportunities & strategic visions are concerned and create carefully chosen demonstrators of service innovation in these priority areas (private-public partnership?)

  - What are those capabilities, opportunities & strategic visions?

  - What strategic priorities in service innovation schould be deduced from the prior exercice?

  - Which type of demonstrators schould be developed and showcased?

  - Define the public decision makers that schould participiate in that process (without making it a large group), define the objectives, desired outcomes and deadlines as well as how and by whom this process will be moderated.

- **Adapt and align policies & funding selection criteria** between the different public policy actors as well as R&D and educational actors.

  - Adapt the selection criteria for public funding in service innovation by integrating more demand-side criteria & knowledge (from customers & markets) as illustrated for example by the Tekes criteria in Finland but also by other insights of the present report. Then create clusters of criteria, define how to evaluate each project against them, and how to weigh them in the overall decision process in order to create more tangible & 'objective' metrics & KPI's that are able to measure (in numbers) how each project submitted meets the strategic objectives. This will also help to makre better use of existing public funding schemes & laws (In 2010, only 2 service innovation projects were submitted to Luxinnovation...)

  o Bring together the different public policy actors as well as R&D and educational actors (MECE, Luxinnovation, FNR, University of Luxembourg, CRP Henry Tudor..etc) in order to align their different activities and criteria in Service Innovation with the globally defined strategic priorities & decide who is going to do what (where each one is best at, what makes most sense in his area of activity and how each activity complements and amplifies the other in terms of achieving the overall strategic objectives).

- **Create a public service innovation lab** (beyond the "Reforme Administrative" and the "Simplification administrative") to pilot real innovation projects by using more recent public service innovation methodologies much as done by organisations like Mind-Lab[23] in Denmark, La 27e Région[24] in France, Public Services Lab[25] of UK's Nesta or TACSI[26], the Australian Center for Social Innovation. MECE or one of its institutions could be a good starting point and also serve as a pilot project and a demonstrator for other public institutions in Luxembourg.

- **Further develop information, sensibilization and networking activities** and target them more proactively:

  o Create an online portal with case studies of succesful service innovations around the world to illustrate the common patterns of contemporary service innovation. Classify these case studies along different criteria: markets, industries, technlogies used, underlying business models, size of the company...etc

  o Promote the more specific service innovation methodologies like service design, customer experience management and commercial ethnography..etc but also the anatomies of complex service systems. Propose further

---

[23] http://www.mind-lab.dk/en

[24] http://la27eregion.fr/

[25] http://www.nesta.org.uk/areas_of_work/public_services_lab

[26] http://www.tacsi.org.au/

resources to these different subjects (links, books, national & international conferences...etc)

- o add information on the changing microeconomic paradigm of value creation (service-dominant-logic, experience & usage economy..etc), on new business models including social business models like crowdsourcing, freemium, long-tail...etc and on methods to capture immaterial capital and how to capitalize on knowledge creation within learning organizations. Propose further resources to these different subjects (links, books, national & international conferences...etc)

- o Provide incentives for companies to become a member of that portal

- o Include social features meaning that members can rate & discuss case studies, events and methodologies and also propose new additions to these databases themselves.

- o Knowing that today's business innovations more and more happen in partnerships and networks, incite members to post their partner searches on the portal and proactively manage partner matchmaking, also by taking own initiatives. These matchmaking activities could be complemented with physical events, on a national and international level (like for example the EU funding matchmaking days).

- o Promote Internet & cloud based service innovation as we all know that this a major part of the future of our economies and where Europe as a whole lacks far behind the US (We don't have the Googles Facebooks, Apples, Linkedins, Twitters, Microsofts..etc only to mention the biggest ones...)[27].

- o Open up the portal to international partners & members.

---

[27] See for example http://www.youtube.com/watch?v=pkDT2uVUT_Q & http://www.cdu.de/doc/pdfc/120114-Kieler-Erklaerung.pdf (This is not meant to be a political positioning)

Conclusions

After an extensive exercise of understanding the specificities of service innovation, based on academic insights but also on policy practices in different European countries and it's possible implications for Luxembourg policy priorities, some major trends & facts can be outlined:

- The traditional industrial model of innovation & R&D (Oslo manual & Frascati definition) only partially captures service innovation reality and influencers. The traditional model is a rather technist & scientist inside-out model mainly inspired by the manufacturing industries.

- Some countries like Finland and the UK have done some interesting efforts in integrating other type of criteria (like market feedback, customer centricity, national priorities..etc) into their selection criteria for public innovation funding. A deeper analysis and alignment of these criteria could serve as indicators for more realistic macroeconomic models & measurements of innovation and especially service innovation.

- We witness some important paradigm shifts in the globalized & technicist knowledge & service economy: New business models (social business), different ways of creating & measuring value (service-dominant logic, value in use, experience economy, ethnography, rising importance of social sciences in new management models…etc), disruptive new service systems (transformative services), the entering of public & social services into the innovation landscape due to new societal, economical & environmental challenges, open innovation, and increasing evidence that new types of capital need to be accounted for: social capital, immaterial & intellectual capital…etc.

- There is a need for better communicating these challenges & new realities to business decision makers combined with the need of systematic innovation management strategies in a rapidly changing world and rising multi-level complexity. Carefully chosen demonstrators can be an efficient support to these activities.

- Together with more systematic efforts in non-funding innovation policy activities, Luxembourg should align its different public service innovation programs, set priorities in terms of capabilities & opportunities and adapt its selection criteria for service innovation funding based on the insights gained by the present report.

The finish with, consider the following quote by Prof. John Bessant, from Exeter University and invited professor at the Imperial College in London who was recently invited to Luxembourg by Luxinnovation for a series of conferences and seminars, which summarizes well the challenges at stake in terms of service innovation:

"Innovation in services is obviously an important area – after all, around 70% of our economies are made up of services - yet until comparatively recently we were applying models of innovation which originated in the world of manufacturing. That's changing fast and we are now recognizing both the similarities and the differences in service innovation.

Amongst important themes emerging from this area: the key role of demand-side knowledge as an input to innovation; the extent of 'hidden' R&D which goes on in services; the particular challenges of public service innovation, trying to balance risk, reward and reliability in delivery; the role of services as a driver for software innovation; differences in 'front' and 'back office' innovation in services; challenges to service models from the world of emerging markets"