User-centric innovation

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About myself

- Professor at Buskerud and Vestfold University College, where I started as Associate Professor in 2002
- Academic background: Information Systems
- Research: Public Sector Innovation, e-Government, e-Participation
- Innovatorium
- Citizen centricity, user centricity, customer centricity, through cc:eGov and NET-EUCEN
Outline

- Innovation
- User centric innovation
- Methodology
- Some cases
- Innovatory
Innovation
Innovation

- New products
- New services
- New processes
- BUT new is not enough
- Value creation
The essence of innovation

- Use a new idea or method to create value

- Value for the user, the organization, the company, the society..
The purpose of innovation

- Better products, services, processes
- What is better?
  - Efficiency / cost reduction
  - Quality
  - Improved functionality
  - Ease of use / user satisfaction
What are the drivers?

- Cost-reduction-driven innovation
  - Public sector
- Research-driven innovation
  - Triple helix
- User-driven innovation
Most innovations fail

And companies that don´t innovate die

[Henry Chesbrough: Open Innovation, Harvard Business School Press]
Innovation

Dimensions

- Closed Innovation
- Open Innovation
  - Working with external partners
  - Buy intellectual property
  - Sell intellectual property
Open innovation
# Open and closed innovation

## Contrasting Principles of Closed and Open Innovation

<table>
<thead>
<tr>
<th>Closed Innovation Principles</th>
<th>Open Innovation Principles</th>
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<tbody>
<tr>
<td>The smart people in our field work for us.</td>
<td>Not all the smart people work for us. We need to work with smart people inside and outside our company.</td>
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<tr>
<td>To profit from R&amp;D, we must discover it, develop it, and ship it ourselves.</td>
<td>External R&amp;D can create significant value; internal R&amp;D is needed to claim some portion of that value.</td>
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<tr>
<td>If we discover it ourselves, we will get it to market first.</td>
<td>We don’t have to originate the research to profit from it.</td>
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<tr>
<td>The company that gets an innovation to market first will win.</td>
<td>Building a better business model is better than getting to market first.</td>
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<tr>
<td>If we create the most and the best ideas in the industry, we will win.</td>
<td>If we make the best use of internal and external ideas, we will win.</td>
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<tr>
<td>We should control our IP, so that our competitors don’t profit from our ideas.</td>
<td>We should profit from others’ use of our IP and we should buy others’ IP whenever it advances our own business model.</td>
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Innovation

- Radical or disruptive innovation
  - Changes the rules in a market

- Incremental innovation
  - Stepwise refinements
Incremental and disruptive innovation

- Example: Business trips
Other good examples

- Airline industry / tourism
- Music
- Retailing
Let the users do more work
  - Buy tickets on Internet

Charge for extras
  - Luggage
  - Priority boarding
  - Food/snacks

Tap into airport revenues (tax-free etc.)

Ryanair
From physical media to downloading/streaming
- Lower cost, more to choose from
- Lower quality, no ownership

No need for a record company contract, publish your music on the Internet
E-Commerce

No need for high cost facilities

From books, videos, music to all products

No time/space constraints
Disruptive innovation

New ways of doing things.

- Sony Walkman
User Innovation (UI)

- When user invent by themselves

- Examples of areas [Voss, 2010]:
  - Scientific Instruments and Machine Tools
  - Medical Instruments
  - Outdoor Sports Consumer Products
  - ICT`s and Digital Products and Tools

- Users that know how to program

User Innovation (UI)

- Modifying existing products
- Making new products and services
- Software: Lotus Notes, report generators
- Music: Take control over the value chain
User Centric Innovation
Isn't user centricity obvious?

Do we not develop products and services to fit the needs and wants and limitations of the users?
NOT ALWAYS!
Norwegian Flirt trains

Picture is from Wikipedia Commons
Problem with seats

- In service production May 2012
- Customers/users started complaining immediately about the seats.
- Too narrow, impossible to work, not comfortable to sit.
December 2012: Initial decision to change the seats

June 2013: Final decision to make changes with a budget

Costs: More than 6 million Euro

The seats are now changed

8 months for delivery
Another example

- Parking meters
- Input card / Take card / Get receipt
- Input card / Get receipt / Take card
- What is wrong in the second interaction?
If users were involved in all stages of (product, process, service) development, the results could be better.

This is the main topic of this lecture: How to do innovation in a user centric way.
User centricity is not obvious!

How to achieve user centricity?

Learning from the users

Involve users in development of products and services
The Origins of User Centricity
The Scandinavian model

- Scandinavian model of system development
- Long tradition of involving users in the development process
- 1975 Agreement between the Confederation of Norwegian Enterprise (NAF, later NHO) and the Norwegian Confederation of Trade Unions
- 1975 Agreement between the Government and their employees.
The Scandinavian Model

- Users were the employees, not the public.
- Unions played an important part.
Benefits of users involvement:

- Improving the knowledge upon which systems are built,
- Enabling people to develop realistic expectations, and reducing resistance to change, and
- Increasing workplace democracy by giving the members of an organization the right to participate in decisions that are likely to affect their work.

New Public Management

- UK, New Zealand, Australia, Scandinavia.
- Basic idea: Use principles from private sector in public sector.
  - Autonomous units. Competition.
  - Professional management (more space for managers).
  - Indirect control (goals, results, measurements, reports).
  - User/customer focus.
User/customer focus includes such ideas as:

- Treat public service users as customers
- Let users choose for themselves
- Example: Medical treatment
- User satisfaction measurements


She also discusses “Network governance” as a new paradigm, which is even more important for innovation.
The European Union put focus on Citizen Centric services during the UK Presidency in 2005.

Ministerial Conference in Manchester, UK: “During 2006 and 2007, Member States will, through the European Public Administration Network, exchange experiences in developing policies which are inclusive by design, for example, in citizen-centric service delivery or the use of multi-channel architectures”

Several projects initiated:
- cc:eGov
- OneStopGov
- NET-EUCEN
Lean Startup Methodology

- Eric Ries
- Startups as a learning process
- Based on Lean methodology
- Experiment and validate
User Centric Innovation
User Centric Innovation

- User innovation is not user centric innovation
- User centric innovation is when users are involved in the innovation process, preferably in all stages of the service/product lifecycle.
User Centric Innovation

- Systematic collection of user input
- Collaboration, participation
- Users may be co-creators of the service
- Adding their wishes and expectations
- But also their competence

Mindset
Lean Startup

- Key point: Validated learning
- Startups exist to learn how to build a sustainable business
- Scientifically validated learning through frequent experiments where vision is tested
  - Minimum viable product
- Build-Measure-Learn (feedback loop)
Kolbs Learning Cycle

Concrete Experience → Reflective Observation → Abstract Conceptualization → Active Experimentation → Concrete Experience
User Innovation Management (UIM)

A.M. Kanstrup & P. Bertelsen
Aalborg University, Denmark
User Innovation Management (UIM)

- Involve users early and throughout the design processes (in contrast to being testers of designers’ ideas at the ends of the design processes).

- Create space for users to point out directions for designs (in contrast to walking on a path already cleared by designers).

- Manage users innovation process (in contrast to manage own innovation process).
User Innovation Management (UIM)

Innovation as a learning process

Designers

Towards practice of use

Towards practice of design

Users
NET-EUCEN

- EU funded thematic network with focus on user-driven services
- Actively involve users in service design and delivery
- Draw on expertise, views and perspectives of service users to complement the skills and input of service professionals
- User-driven services go beyond typical user consultation or user representation.
- Public service staff and users working together to determine what services to provide, and how.
NET-EUCEN

- NET-EUCEN definition of user centric: Fulfillment of three stages of user involvement:

- (1) User involvement in the design stage. The users are involved in development of ideas and concepts. Focus is on needs and requirements of the users, not technological constraints.
(2) User involvement in the development and implementation stages. Users are engaged in the initial implementation of the service in order to evaluate its features. Mock-ups and prototypes are used to continuously check that the service is aligned with user wishes and requirements. The aim of the user involvement is to improve the service and to optimize the outcome of the development and implementation.
(3) User involvement in the deployment and running stages. Users validate the service through testing of flexibility and interoperability. Test results are used to improve and customize service according to changes in political, economic or social environment.
Indicators to measure user involvement in the lifecycle of a service

Three stages

Indicators for each stage
User Centric Innovation

- User involvement in all phases of development
- User involvement should be sufficient, not superficial
- Who are the users?
  - Policy level (user organizations speaks for all)
  - System level (some users speak for the rest)
    - Selection
    - Lead users (see note)
  - Individual level (the user speak for him/herself)
    - Customization
Case: Welfare Technology
In Norway, municipalities are responsible for care.

Care is provided at appropriate level;

- Patient lives at home, visits doctor when needed
  - Personal home care
    - Residential care centres
      - Nursing homes (24x7)
New challenges for the municipalities

- Citizens live longer
  - More complex medical conditions

- Shortage of manpower
  - Problems of recruitment

- High expectations of the welfare society to provide professional care

- Increased costs
Welfare technology

- Citizens prefer to stay at home if they feel safe

- Welfare technology examples
  - Sensors
  - Devices
  - Alarms
Experiences so far

- Technology is immature
- Many developments, but also many failures
- Often focus on technology

- We need user validation in real world settings

Will talk more about this later!
METHODOLOGY
Methodology

- Use risk planning, risk based approach
- Observe real users in real situations in a real environment
- Validate all phases with real users
- Make systems to receive user feedback.
A risk based approach

- List all risks (unprioritized, brainstorming)
- Assign weights to each risk factor
- Assign probability to each risk factor
- Multiply weight with probability
- Use these numbers to prioritize
1) Identify the users
2) Build scenarios with help from the users
3) Use cases – the things users will do.

- Interviews
- Focus groups
- Observation
- Mock-ups
Users are consulted on all design aspects.

- Mock-ups
- Prototypes
- “Proof of concept”
- Usability testing
- Accessibility testing
User involvement

Implementation and testing

- Testing product with real users
- Alpha/Beta releases

- User perception
- User behavior

Requirement analysis and specification

Evaluation

Design

Implementation and testing
User involvement

Evaluation

- User feedback
- User surveys
- Interviews
- Analysis of use

Frequently monitor the users and how they use the product.
For a discussion of more techniques used to involve users, see

K.L. Jansen and B. Dankbaar. Proactive Involvement of Consumers in Innovation: Selecting Appropriate Techniques

In: Stephen Flowers and Flis Henwood. Perspectives on User Innovation

Imperial College Press, 2010
Some case studies
Case studies

- The following projects are innovation projects
- Users were involved in all stages of development
Aim: To bridge the gap between the specialists and medical personnel working in the first line.

The specialist hospital for rehabilitation.

Content
- Directory of facilities and services
- Video lectures
- Discussion forum
Project was completed, but the hospital became part of a merger.

The new ICT unit would take over, and we received a lot of positive comments.

Since then, nothing has happened.

So the project was a failure, due to organizational and political environment.
Webcasting
Webcasting project

- Webcasts of local government meetings
- Rationale: Transparent government
- User requirements:
  - No extra personnel!
  - Inexpensive
  - Cross-indexing / integration
Webcasting of local council meetings

- The rationale for webcasting is to extend the possibility for citizens to follow the proceedings of local council meetings, and thereby increase the public awareness of the political decision making process.

- By providing archiving of meetings, it is possible for citizens to watch local council meetings independent of time and distance.
Technical solution

Internet

Media Server and database

Encoder (low cost PC)

Low cost video camera

Encoder (low cost PC)

Low cost video camera

Encoder (low cost PC)

Low cost video camera

Software to start/stop encoders

Council secretary PC

HBV
Technical solution
Technical solution
Sustainable innovation

- [www.aventia.no](http://www.aventia.no)

- Project has shown sustainability. The company eXss (later Aventia) was started by two of my students and have now been in business for several years.

- 64 municipalities (including Oslo/Bergen)

- 4 counties
Common Portal Information Structure
Every municipality has its own portal

Vestfold is densely populated area, five cities close to each other

But citizens live in one, work in another, and use the cultural offerings of the third

Project to establish a common information infrastructure
Collaboration brings better opportunities to use research methods in the design process

- Click analysis
- Search keywords
- Exit interviews
- Usability experts
A group of website managers / editors had regular meetings to discuss common problems:
- Search engine visibility
- Foreign language content (what and how)
- Content improvement
- Social media use
Digital Planning Dialog
The Project

- Grant from Høykom (Norwegian Research Council)

- Partners:
  - 12K
  - Vestfold County Municipality
  - The County Governors’ office,
  - Vestfold University College
  - Norwegian Mapping and Cadastre Authority

- Project organization
Municipal planning is regulated by the Norwegian Planning and Building Act (Planning and Building Act 1985). The stated purpose of this act is to:

- Facilitate coordination of national, county and municipal activity and provide a basis for decisions concerning the use and protection of resources and concerning development and to safeguard aesthetic considerations.

- By means of planning, and through special requirements concerning individual building projects, the Act shall promote a situation where the use of land and the buildings thereon will be of greatest possible benefit to the individual and to society.
The zoning plan gives more details on the utilization of certain geographical areas. In particular, the zoning plan identifies different kinds of land-use:

- Building areas including areas for dwellings with associated facilities, shops, offices, industry, buildings for leisure purposes (leisure cabins with connected outhouses), as well as sites for public (State, county and municipal) buildings with a specified purpose, other buildings of specifically defined use to the general public, hostels and catering establishments, garages and petrol stations.

- Agricultural areas

- Public traffic areas including roads, railways, harbors, airports, parking areas.
The Zoning Plan

- Public outdoor recreation areas, including parks and areas used for play and sport.
- Danger areas, including installations which may represent hazard to the public, e.g. high voltage installations.
- Special areas, including buildings and installations to be preserved based on historical value, green belts in industrial areas, nature conservation areas and many others.
- Common areas including parking areas, playgrounds and other areas common to several properties.
- Areas for renewal
The Plan Hierarchy

Municipal master plan

- Land-use plan
- Land-use plan
- Land-use plan

Zoning plan
- Building development plan
- Building development plan

Zoning plan
- Building development plan
- Building development plan
The Planning and Building Act identifies different stakeholders that have their right to submit comments on a zoning proposal. Examples of stakeholders are:

- The county government, with a responsibility for coordinating regional planning.
- The county governors’ office has responsibilities regarding environmental issues, agricultural issues, and the preservation of historical valuables.
- The public road administration and the railway administration have responsibilities to take care of future public transport needs.
- Property owners
- Existing users of properties
- Civic organizations
- General public
The scope of the “Digital Planning Dialog” is to improve development of zoning plans by use of information and communication technology.

The development of zoning plans is a complex process which includes high amounts of document interchange between stakeholders and the municipality.
Integration of systems

Case handling and filing system

Data

Geographic Information System

Customer specified module

Integrated web-based GUI

Data

Web-based access

Information used to populate list of documents, and to show current status

Comments submitted by stakeholders through a dialog box
GIS is used to provide user interface
User interface
Results

- ICT-based application for municipal zone planning.
- The aim of the project is to make the planning process more transparent to all stakeholders, facilitate participation and improve administrative efficiency.
- Digital Planning Dialog is a practical example on integration of e-government application, and uses an innovative user interface including a timeline to show progress of zone plan development.
- The project also includes a democratic dimension
Innovatory
Buskerud and Vestfold University College has established an Innovatory. This is some kind of a laboratory, an arena where stakeholders can meet and innovate.

Opened March 2014
Users and Innovation

- Currently, focus is on welfare/assistive technology
- Vendors and manufacturers are invited to show their products
- Visitors: Both groups and individuals visit
- Students, health care professionals, users
Innovatory
Innovatory
Innovatory
Innovatory
User centricity is about a mindset.

The needs, wants and limitations of users must be recognized.

Users must be part of all stages of development processes.
More information?

- cc:eGov (EU-funded project) produced a series of “Think Papers” in order to raise awareness about citizen centricity.

- You can find these on [http://www.citizencentric.net](http://www.citizencentric.net)

- NET-EUCEN website: [http://www.net-eucen.org](http://www.net-eucen.org)
Thank you for listening!