



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

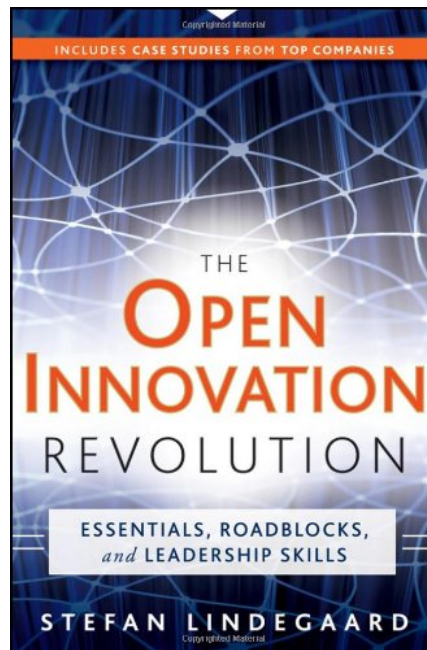
➤ Working with external partners

➤ Buy intellectual property

➤ Sell intellectual property



Open innovation



Open and closed innovation

Contrasting Principles of Closed and Open Innovation

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

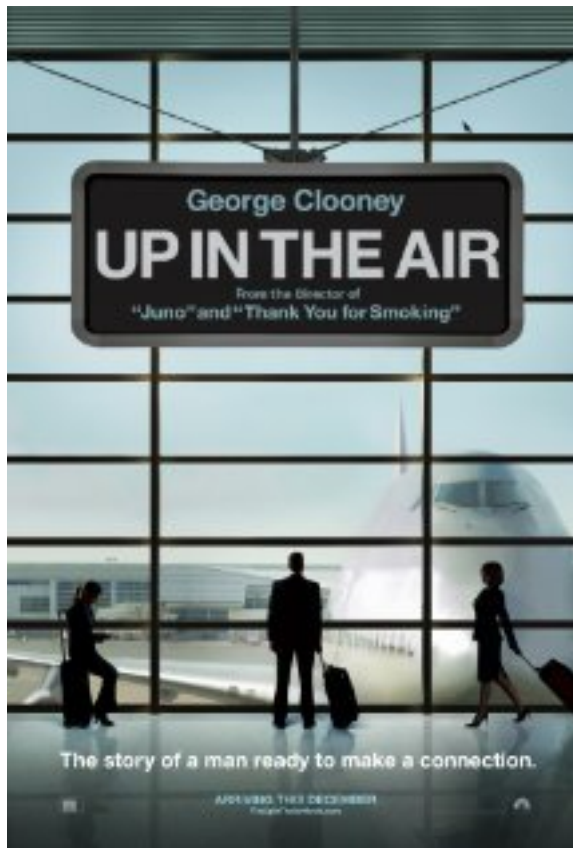


Innovation

- 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



Airline industry/tourism

- 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



Music

- 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



Retailing

- 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

Georgina Voss. The Historical Construction of User Innovation
In: Stephen Flowers and Flis Henwood. Perspectives on User
Innovation. Imperial College Press, 2010



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



User Centricity

- 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.



Problem with seats

- 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?



User centricity

- 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

- 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



The Scandinavian model

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.

N. Bjørn-Andersen and N. Hedberg. Designing Information Systems in an Organizational Perspective, Studies in the Management Sciences Prescriptive Models of Organizations vol 5, 1977, pp. 125- 142



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.**



New Public Management

- User/customer focus includes such ideas as:
 - Treat public service users as customers
 - Let users choose for themselves
 - Example: Medical treatment
 - User satisfaction measurements

For more discussion of NPM as a driver for user centric innovation, see L. L. Langergaard. Understandings of “users” and “innovation” in a public sector context. In J. Sundbo and M. Toivonen (eds). User-based innovation in Services. 2012. Edward Elgar Publishing, Celtenham, pp. 203-226

She also discusses “Network governance” as a new paradigm, which is even more important for innovation.



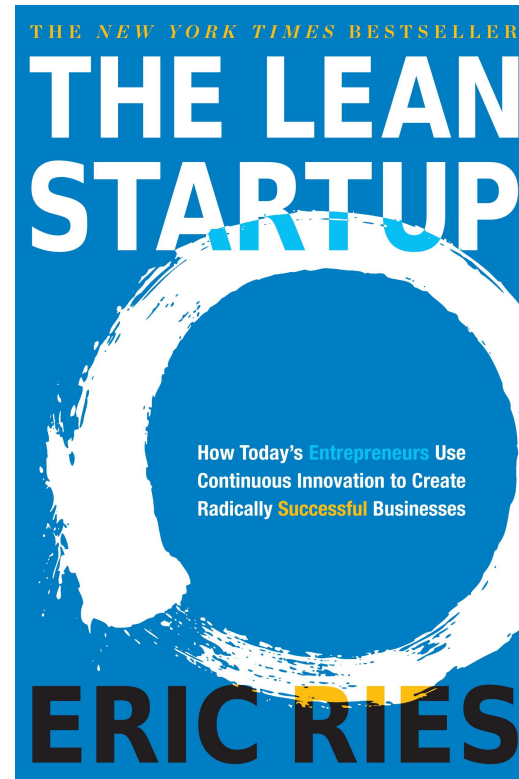
European Union

- 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**

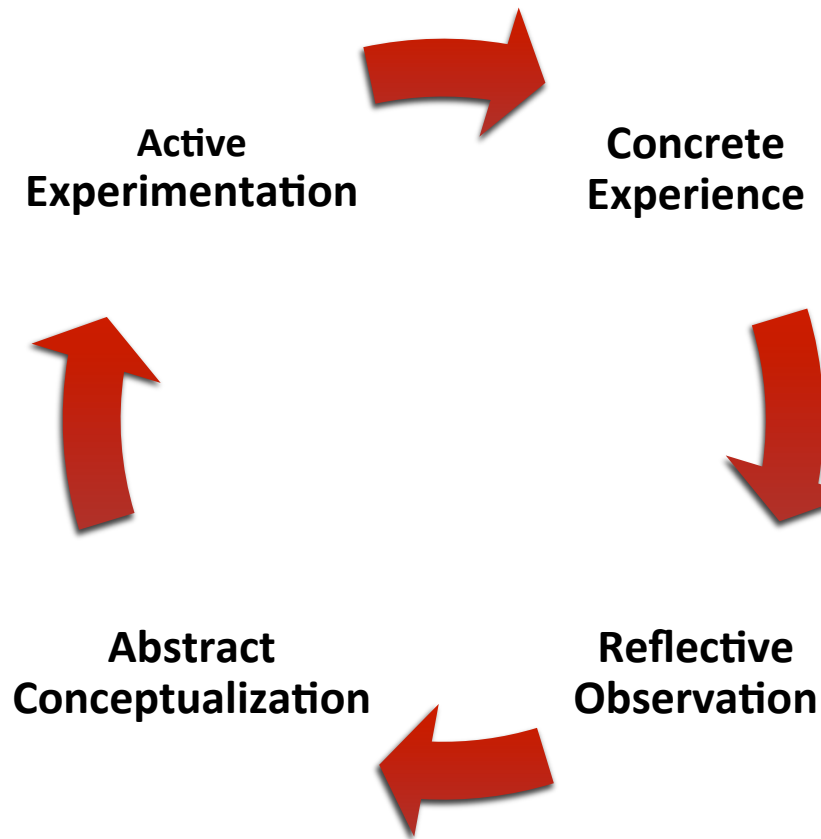


Lean Startup

- 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)

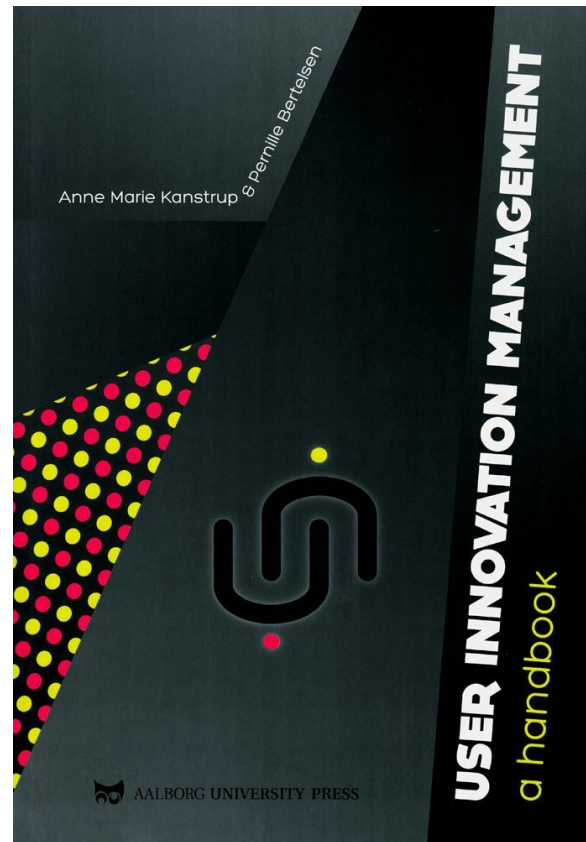


Kolbs Learning Cycle



User Innovation Management (UIM)

A.M. Kanstrup & P. Bertelsen
Aalborg University, Denmark



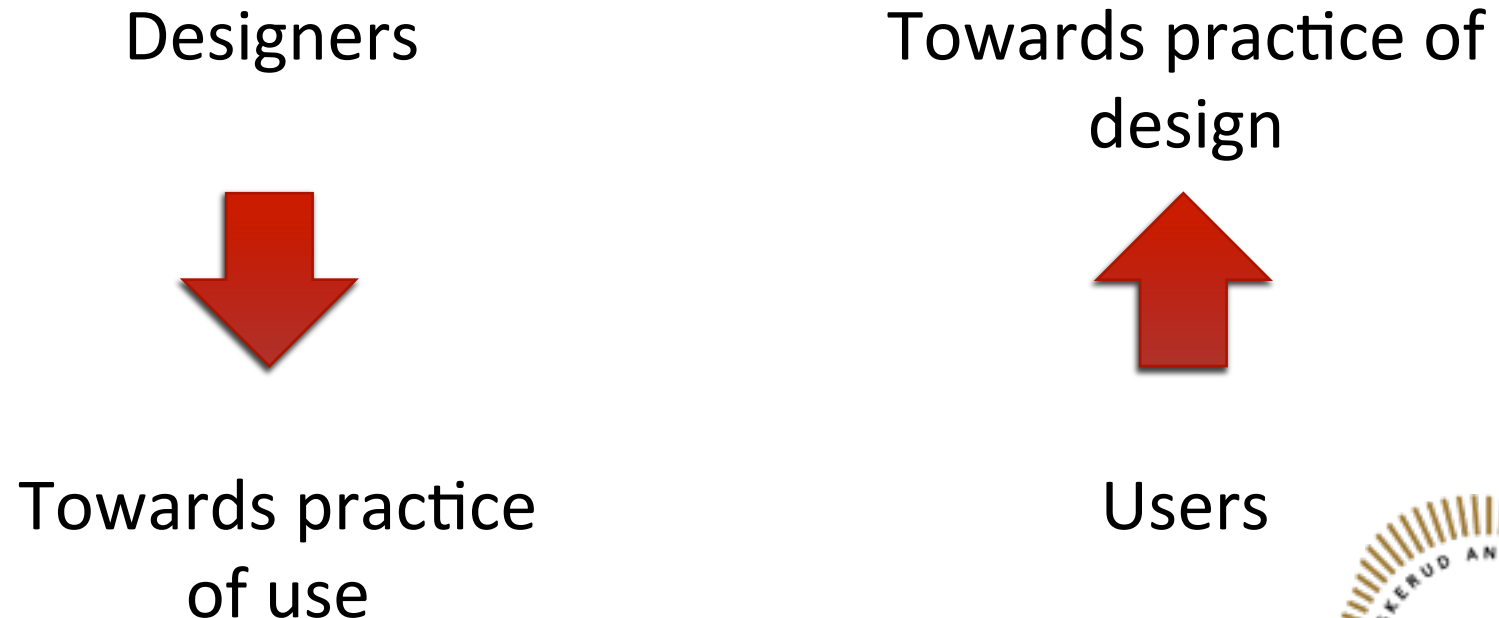
User Innovation Management (UIM)

- 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



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.



NET-EUCEN

- (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.



NET-EUCEN

- 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



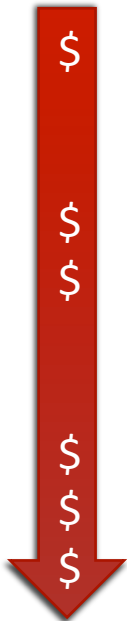
Case: Welfare Technology



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

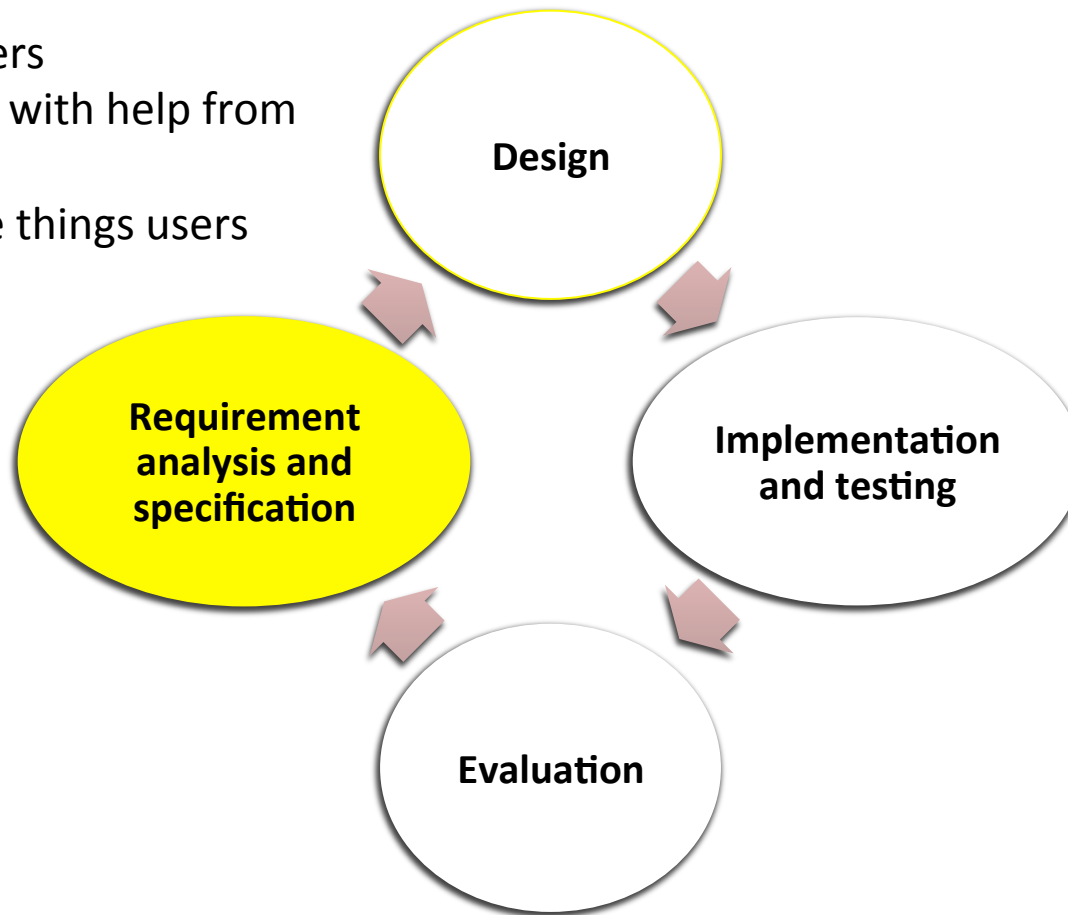
- List all risks (unprioritized, brainstorming)
- Assign weights to each risk factor
- Assign probability to each risk factor
- Multiply weight with probability
- Use these numbers to prioritize



User involvement

Requirement analysis and specification

- 1) Identify the users
- 2) Build scenarios with help from the users
- 3) Use cases – the things users will do..



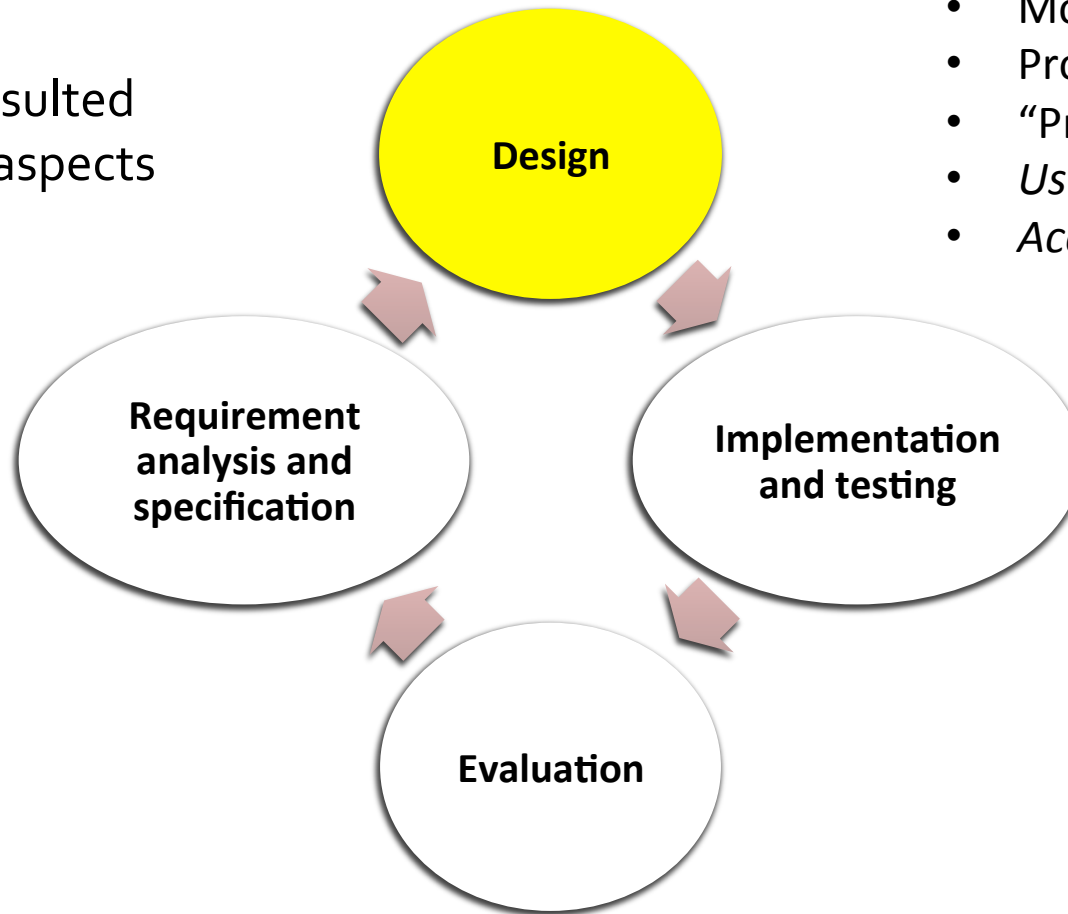
- Interviews
- Focus groups
- Observation
- Mock-ups



User involvement

Design

Users are consulted
on all design aspects

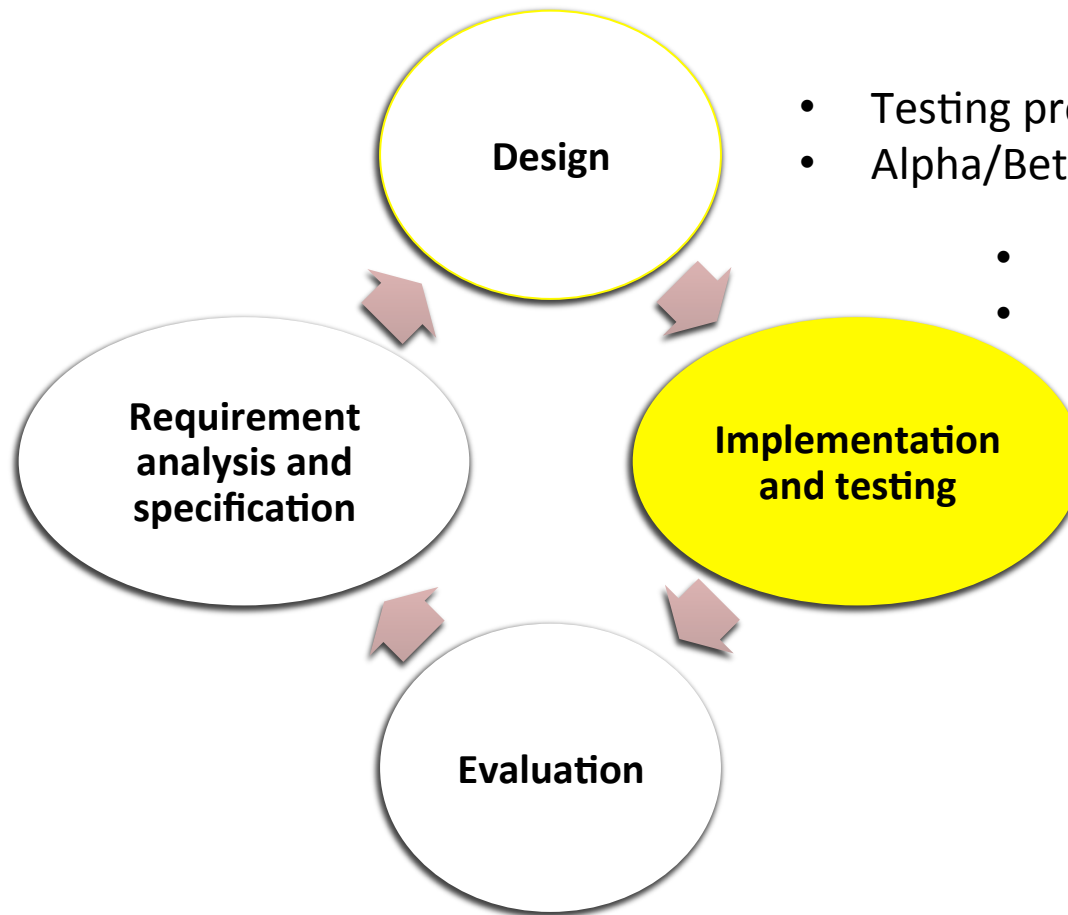


- Mock-ups
- Prototypes
- “Proof of concept”
- *Usability testing*
- *Accessibility testing*



User involvement

Implementation and testing

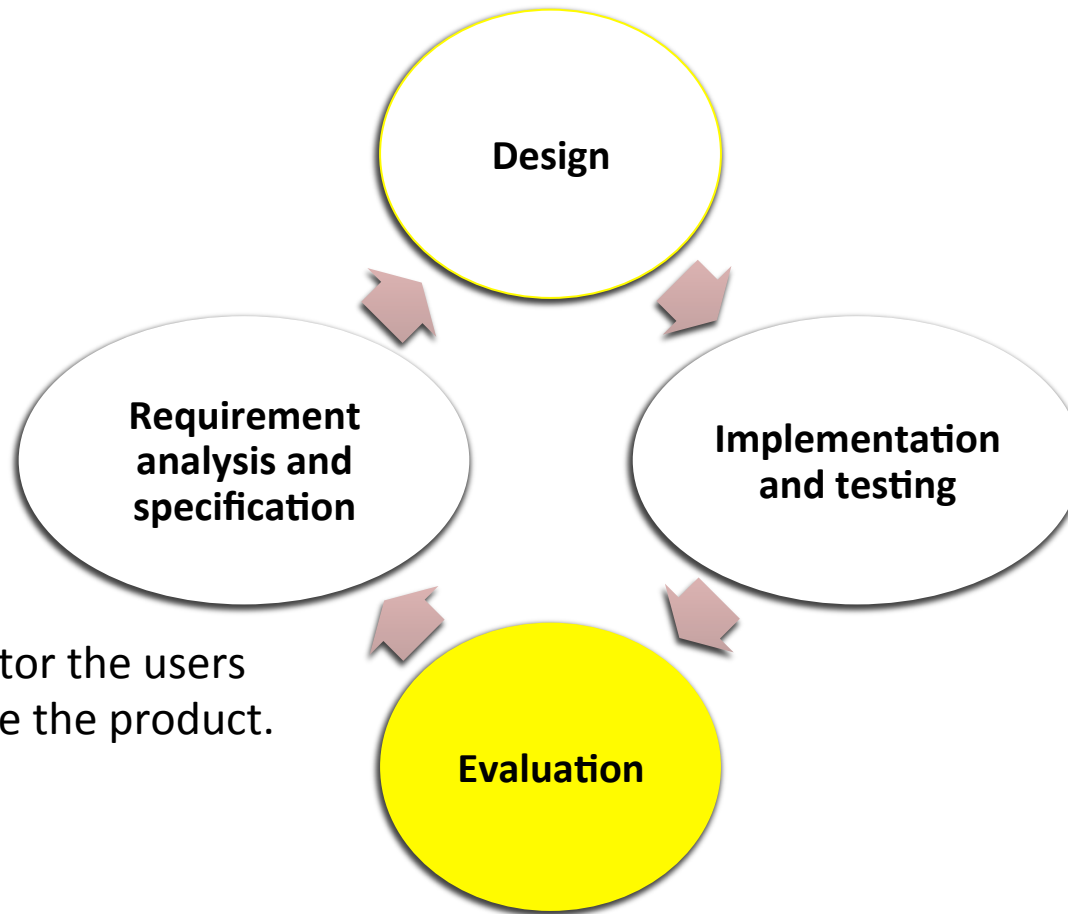


- Testing product with real users
- Alpha/Beta releases
- User perception
- User behavior



User involvement

Evaluation



Frequently monitor the users and how they use the product.

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



Techniques

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



Health information portal

- 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



Health information portal

- 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 personell!
 - Inexpensive
 - Cross indexing / integration

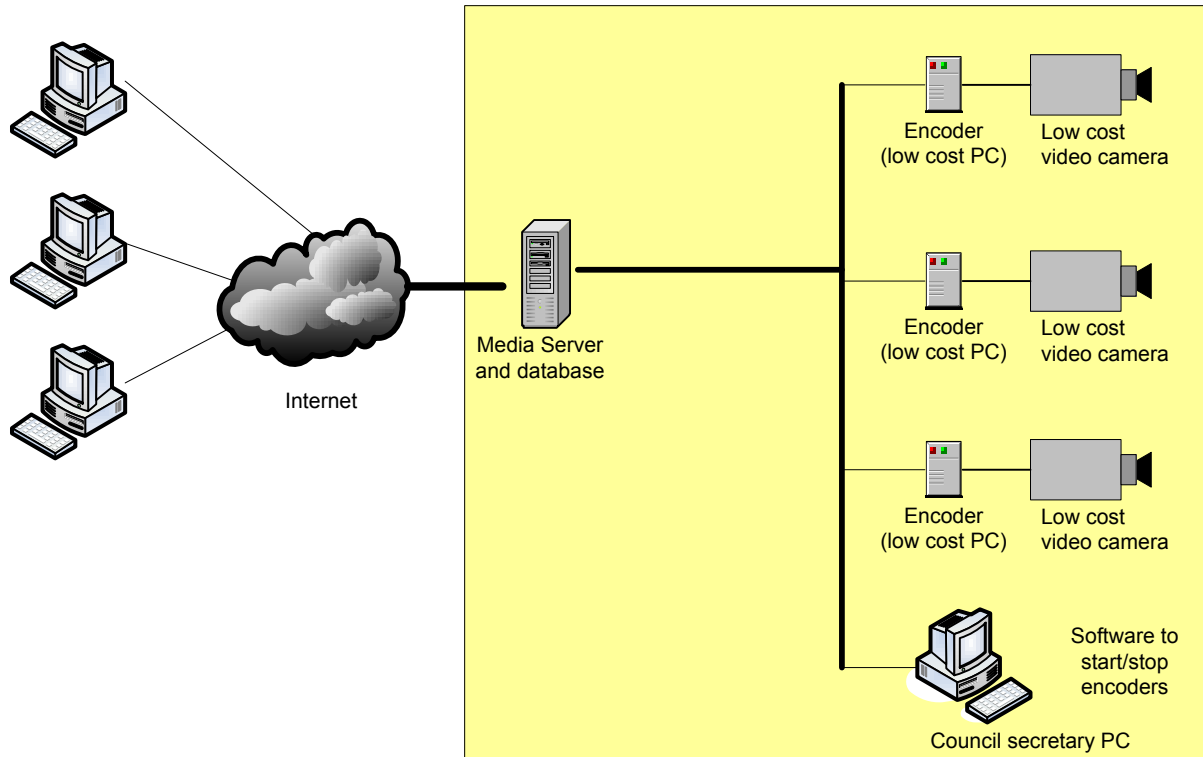


Webcasting of local council meetings

- 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



Technical solution

12k - Mediaavspiller - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites


Address http://12k.exss.no/multi_kamera.asp?kommune=8&kam1=Talerstol&kam2=Podiet&vis=Vis Go Norton AntiVirus

Ser Direktesending fra Talerstol



Playing: 448 K bits/second 02:45:16 / 02:51:14

Ser Direktesending fra Podiet



Playing: 448 K bits/second 02:45:15 / 02:51:14



Technical solution

12K - Streaming av kommunestyre møter - Levert av www.eXss.no - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://12k.acss.no/index2.asp?kde=147&uid=2758&arev=1&kommune=0

12-kommunesamarbeidet i Vestfold (12-k)


Møtearkiv | Direktesending | Søk

Kommune: Tønsberg

Bystyret

- 14.12.2005, 18:30
- 17.12.2005, 18:30
- Tolerstol
- Tønsberg Havnedistrikt
- Urtehaugen skole
- Tønsberg og Nøtterøy - samarbeid om skole
- Underskudd ved Middelalderfestivalen 2005
- Skjønkebøvilling for en enkelt anledning
- Næringsarealer i 9K
- Kommuneplanens arealdel 2004 - 2016
- Reguleringsplan for fortau langs Gårdbøveien
- Reguleringsplan for gang-/sykkelvei langs Nedre Bogenvei
- Reguleringsplan for kryssområdet Kilen øst
- VestfoldLAB AS - overdragelse av selskapet til de ansatte
- Forslag om endringer i kommuneloven - høring
- Jærslberg HV hus
- Interpellasjon fra Andreas Wahl
- Podiet

VestfoldLAB AS - overdragelse av selskapet til de ansatte.




Full skjerm

(Fullskjerm avsluttes ved å trykke på Esc knappen på tastaturet.)



Saksinformasjon

Sakstittel: VestfoldLAB AS - overdragelse av selskapet til de ansatte.
Saksnr: 178
Tilhørende saksdokumenter: 178/05

Utviklet i samarbeid med:



System og utstyr levert av:



Sustainable innovation

- 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



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



Common Portal Information Structure

- Collaboration brings better opportunities to use research methods in the design process
 - Click analysis
 - Search keywords
 - Exit interviews
 - Usability experts



Other effects

- 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



The Planning and Building Act

- 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

- 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.

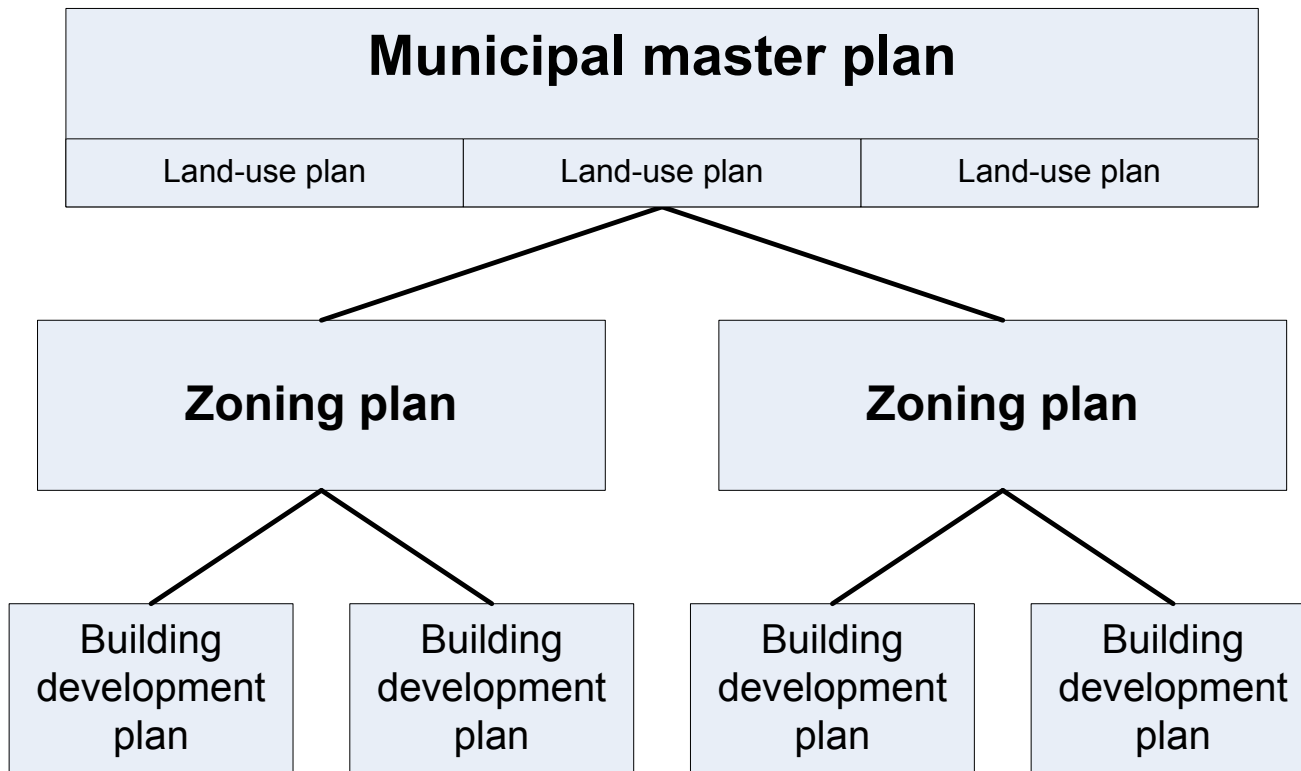


The Zoning Plan

- 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



Stakeholders

- 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

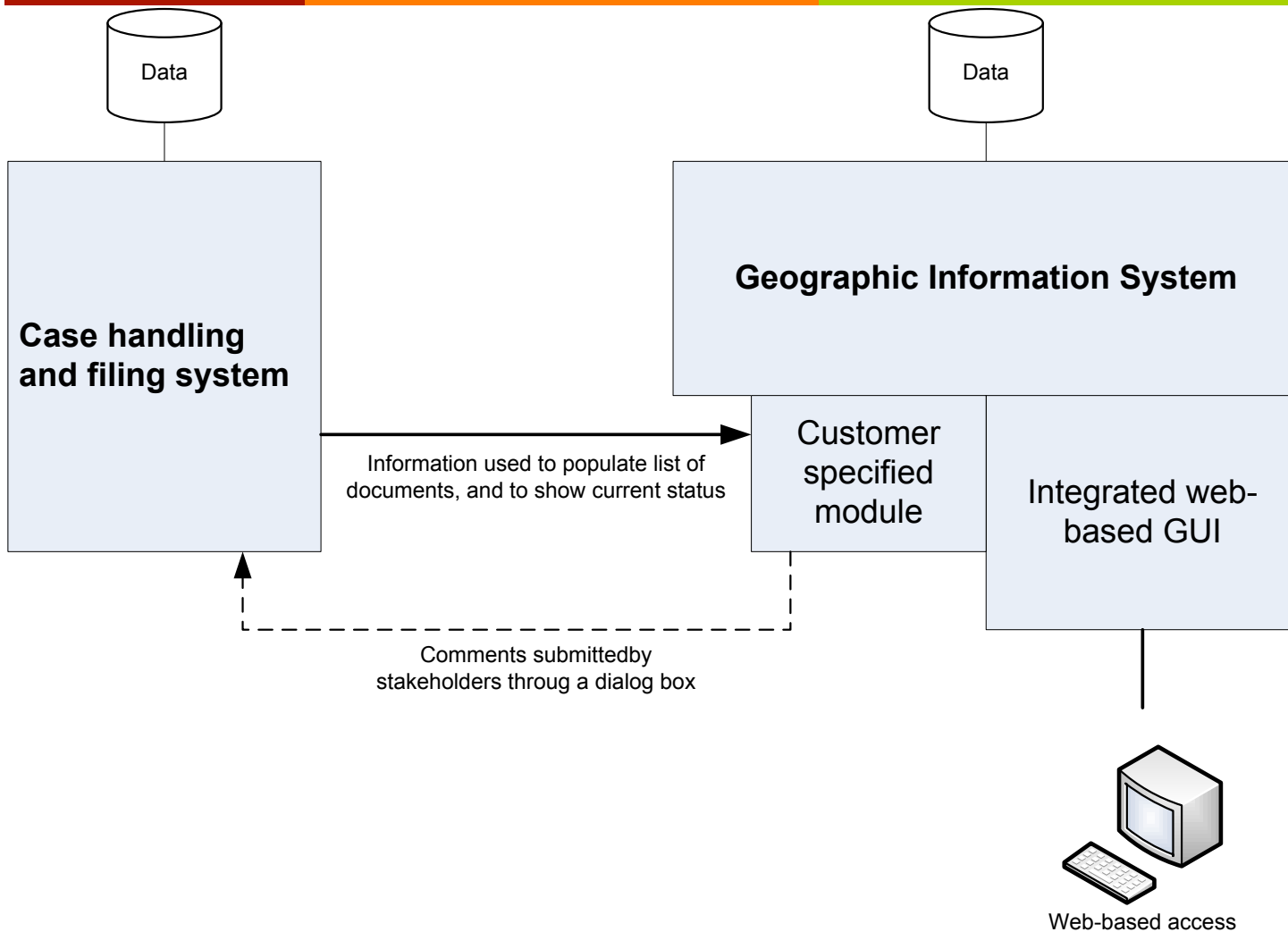


Project aims

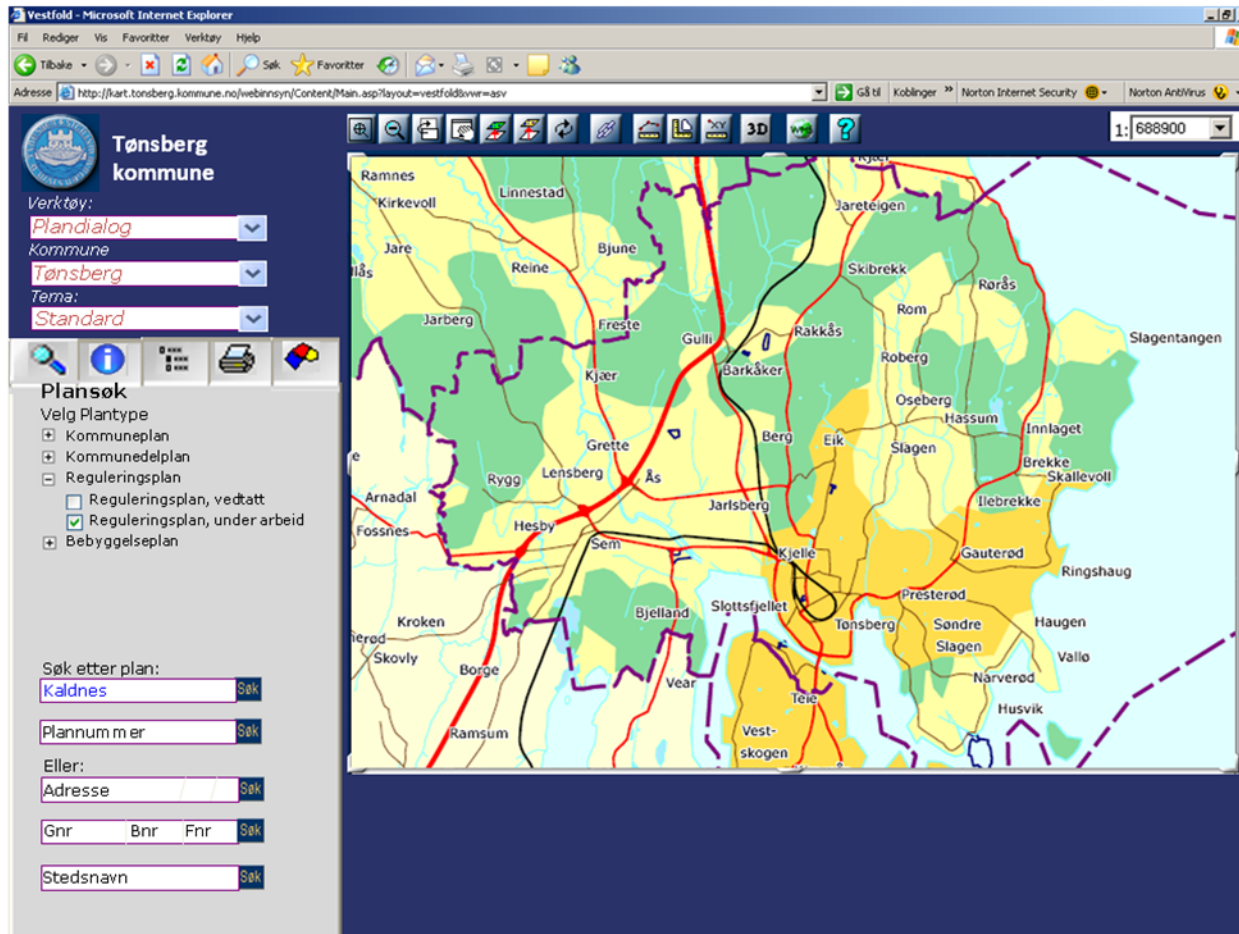
- The scope of the “Digital Planning Dialog” is to improve development of zoning plans by use of information and communication technology.
- The development of zoning plans is a complex process which includes high amounts of document interchange between stakeholders and the municipality.



Integration of systems



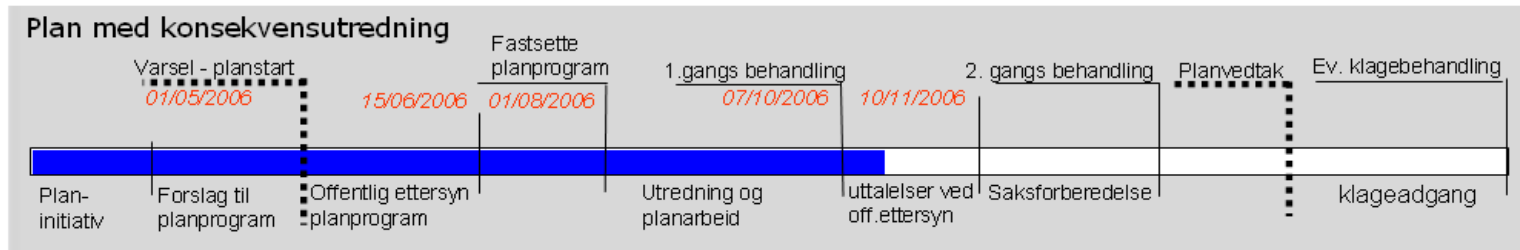
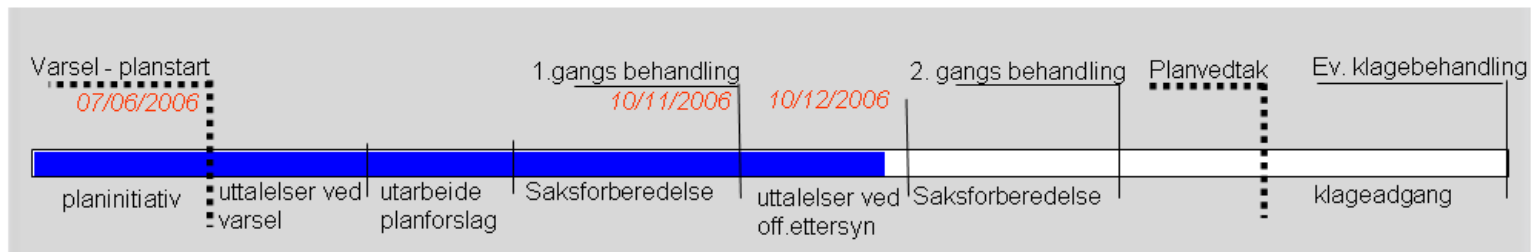
User interface



GIS is used to provide user interface



Timeline



User interface

Vestfold - Microsoft Internet Explorer

Adresse <http://kart.tonsberg.kommune.no/webbrowsersyn/Content/Main.asp?layout=vestfoldbivw.asp>

Tønsberg kommune

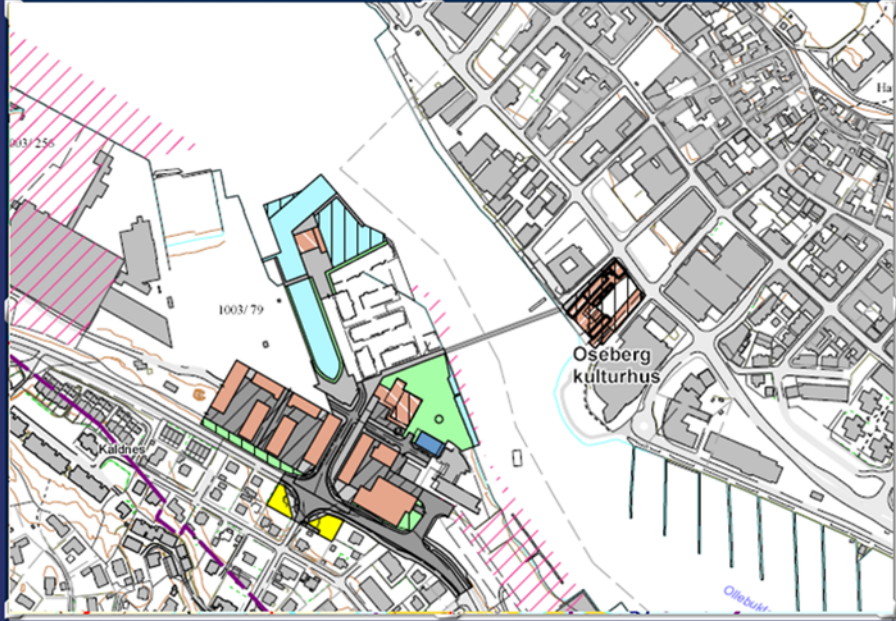
Verktøy:
Plandialog
Kommune: Tønsberg
Tema: Standard

Planinformasjon
Reguleringsplan
Kaldnes industriområde
Status i saksbehandling:
Offentlig ettersyn
Frist for uttalelser
10.12.2006
Gjennom skinnelig plan
0% 100%

[Reg. bestemmelser](#)
[Plankart \(PDF\)](#)
[Illustrasjoner](#)
[Saksframlegg](#)

Andre Saksdokumenter

- Innkommne uttalelser
 - Nabo 1
 - Statens vegvesen
 - Fylkesmannen
- Tidligere saksdokumenter



Varsel - planstart 07/06/2006

1. gangsbehandling 10/11/2006

2. gangsbehandling 10/12/2006

Planvedtak

Ev. klagebehandling

planinitiativ | uttalelser ved varsel | utarbeide planforslag | Saksforberedelse | uttalelser ved off. ettersyn | Saksforberedelse | klageadgang



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



Users and innovation



➤ 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



Innovatory



Innovatory



Innovatory



Innovatory



Conclusion

- 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>
- NET-EUCEN website: <http://www.net-eucen.org>



Thank you for listening!

