



# User Driven Innovation:

How to involve your user community  
in the design of your product?

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# Designing Evolvable Software Products

- A research project between
  - DHI Water and Environment
  - Microsoft Dynamics, Denmark
  - IT University of Copenhagen
- A company network  
<http://www.itu.dk/research/esp-net/>



# Roadmap

- What is a Software Product
- Use Orientation and Product Development
- Two cases:
  - A game community (Clusterball)
  - A booking system provider (Idavall)
- What means are used in the cases or recommended in literature
- Impact on the development

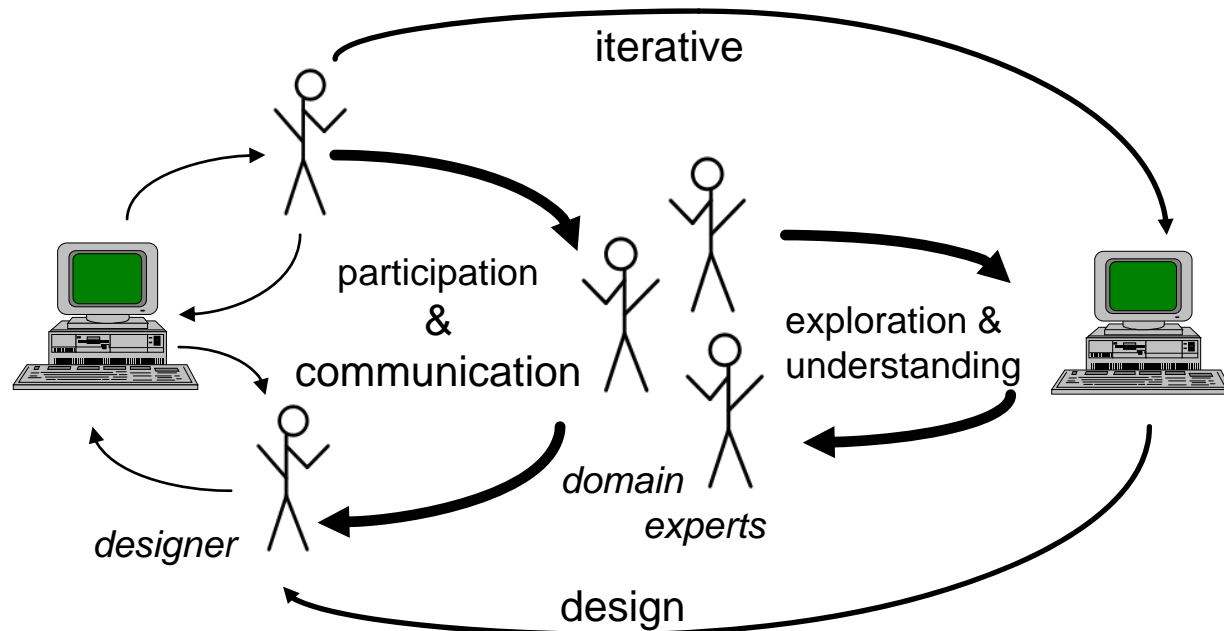


# Software Products

- Software that is developed to be used by a number of organisations.
- It often can be adjusted to different contexts.
- It most often is released in versions:
  - To fix errors.
  - To adjust to changing legal requirements.
  - To adjust to changing ‘state of the art’.
  - ....



# Learning Processes between Users and Developers



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# Why is user involvement difficult?

- You do not have a natural contact to the users.  
*... Use orientation takes contact for granted*
- There are many of them, from many different organisations with different requirements.  
*... Use orientation addresses design for the specific work places*
- What do users gain from getting involved?  
*... Normally participating users get some influence on the design of their future system*



# Why is it easy

- *Its not a one shot business:*  
New releases give space for correcting functionality and user interface.
- *It is meaningful to invest in user studies:*  
The costs can be carried by many customers.
- *Long term relationships with pilot users:*  
Also expert use can be observed.
- *There is time to develop expertise about the domain:*  
Knowledge might be the most important resource to deploy in product development.



Focus of this presentation:

How to involve users in the evolution of software products?



# Two cases

- Building up an on-line community to support a multi user online game development.
  - Helena Holmström. Community-based customer involvement for improving packaged software development. PhD Thesis. Department of Informatics. Göteborg University. School of Business, Economics and Law. 2004
- Letting the user community drive the development.
  - C. Hansson, Y. Dittrich, D. Randall. How to Include Users in the Development of Off-the-Shelf Software: A Case for Complementing Participatory Design with Agile Development. In: Proceedings of the Hawaii International Conference on System Sciences (HICCS), January 4-7th 2006.

([www.scholar.google.com](http://www.scholar.google.com))



‘The customer is our best product developer’

Clusterball



# The Clusterball virtual community

- Parallel to the development of a new on-line game, a virtual community system was launched in Dec 1999.
- The system provided material about the game and the possibility to communicate among gamers.
- Gamers could sign up as 'test pilots' for very early versions.
- The beta version was published in June 2000, the final release was out in July 2000.
- The input from the pilot players resulted in additional features published only 2 months after release (e.g. new playmodes, in-play chat rooms, modifying the 'skin')



# Why did it work out?

- Keeping integrity of the community members.
- The company actively cultivated the community.
  - E.g. publishing of interesting additional material
  - E.g. early access to the product
- Game developers took part in the community.
- The game developers reacted on error reports as well as on improvement proposals.
- The virtual community system provided the possibility to discuss improvement proposals.



“The development is driven by our users, not  
by ourselves”

Idavall



# Caring for a user community around a booking system

- A four person company develops and supports a booking system for ca 300 customer organisations (mainly Swedish municipalities) and 1300 users.
- The company uses mainly three channels for getting inspiration from their users:
  - All staff is answering the support line. The support is based on a customer database holding information about former contacts with the customer.
  - User meetings: between 8 and 10 meetings per year supporting networking between users as well as between users and Idavall.
  - Courses addressing higher level functionality like tailoring possibilities. Again a possibility for networking.
- Pilot users are recruited to cooperate with when major changes are implemented.



## Why does it work out?

- High quality support! Users feel at ease to share ideas for improvement.
- Small changes are implemented rapidly: The company distributes round 20 releases per year via a web site.
- Through the user meetings and courses, user get the possibility to share different ways of making the software more useful.
- The meetings and courses allow Idavall to keep in touch with the user community and to become known.



# Common Issues

- Benefit for the user
- Communication with the users
- Development organisation
- Infrastructure



## Common issues: Benefits for the users

- The members of the gaming community see the game before release.
- In both cases they learn from their peers:
  - Case 1: how to be a better player
  - Case 2: smarter ways of using the booking software.
- Their improvement proposals get implemented.
  - This was mentioned in both cases and is confirmed in other literature as well.



# Common issues:

## Communication with the users

- Who is responsible for the communication?
  - Case 1: A virtual community manager (gamer community).
  - Case 2: One of the co-owners was mainly responsible for user contacts and arrangements of events.
- How are the user issues fed into the development process?
  - Case 1: Developers took part in the community and joined the game playing.
  - Case 2: Developers manned the support line during the mornings and participated in user meetings.
- Reaction on proposals
  - In both cases in form of new versions.



# Common Issue: Development Organisation

- Case 1: Clusterball  
Nothing published on the development process but frequent patches after release
- Case 2: Idavall  
Agile development practice
  - Ca 20 releases per year.
  - Interleaved long and short term development cycle.
  - Deliberation of development around the coffee table.
  - Tight cooperation between developers.



# Common Issues: Infrastructure

## Case 1: Clusterball

- Community web site
- (CRM system)

## Case 2: Idavall

- Web site with user information and new download versions
- CRM database
- User meetings
- Courses



# Additional literature

- R. Keil-Slawik 'Artifacts in Software Design.' in: C. Floyd, H. Züllighoven, R. Budde, R. Keil-Slawik (eds.): *Software Development and Reality Construction*. Springer Verlag: Berlin 1992.
- C. Hansson, Y. Dittrich, B. Gustafsson, S.Zarnak How Agile are Industrial Software Development Practices? *Journal of Systems and Software* 79 (2006) 1295-1311.
- K. Rönkkö, B. Kilander, M. Hellman, Y. Dittrich Personas is not Applicable: Local Remedies Interpreted in a Wider Context. *Proceedings of the Participatory Design Conference PDC 2004, Toronto, July 27 - 31, 2004*.
- G. K. Hanssen, T. E. Fægri Agile Customer Engagement: a Longitudinal Qualitative Case Study. *Proceedings of the ISESE '06*, pp. 164 ff