

Using the DANS Model in Groningen Internet Exchange, GN-IX

The organization

GN-IX is a non-profit foundation and set-up by the Municipality and the University of Groningen with the objective to support and stimulate entrepreneurship and innovation in the Northern Netherlands in the field of ICT and the Internet.

GN-IX has become the center for broadband connectivity and Internet services in the Northern Netherlands. It offers peering, inter-connection and housing facilities to Internet Access and Service Providers. Several open broadband networks are connected to GN-IX, which makes GN-IX the marketplace for providers and customers of broadband services.

State of the art switches, a redundant infrastructure, direct peering connections to AMS-IX in Amsterdam and highest standard computer rooms guarantee reliability, service and cost effectiveness.

GN-IX also supports ICT and Internet start-ups, especially young entrepreneurs with innovative internet projects. GN-IX offers start-ups unique facilities the project "[Internet Valley](#)".

The DANS Model

In the traditional view, actors such as public authorities, industry and academia form a triple helix structure for innovation. But in this Triple Helix Model, citizens are left to the role of passive recipients, consumers or end-users, who only assimilate the products and services developed in mass production for the market.

In the DANS cluster view, also the citizens should be included in driving innovation in regions of Europe and therefore be a part of the partnership, to interact and collaborate with regional and local innovations systems for ICT. By expanding the Triple Helix model with a fourth helix, including the citizen, a Quadruple Helix Model can be created.

Quadruple Helix Model and citizen perspective fits and is suitable for operations near the innovation processes where the citizen needs are central, as in health care, public e-services, energy efficiency, and smart transportation. User oriented innovation also creates greater social benefit at a lower cost and by offering user friendly products and services it also strengthens the ability of users to influence their daily lives and society at large. It also provides with a bottom-up perspective, as a counterweight to the otherwise prevailing top-down perspective in the research and innovation process. Getting citizens involved at an early stage of an innovative process also means reduce resources and costs during the production process as it is less likely to produce goods or services which nobody is really waiting for and which are rejected by the end-user in the end.

The DANS Model is to be seen an additional tool, pointing the way for the benefit of local and regional innovation systems, to improve performance, collaboration and the impact of innovation by increasing the involvement of citizen as a consumer and user in innovation.

Who is the Citizen?

A citizen is a full member of a democratic society and has rights and obligations within the community or state s/he is living in. Ideally a citizen contributes to society with her/his knowledge to improve the quality of life of the community in various ways. The Dutch expression of "participatie samenleving", which has occurred in recent years, in principle means something like this, in reality it is an euphemism for all the cuts the government has introduced in the last two years, mainly for the weaker citizens, the young, the older, the sick or handicapped etc.

A citizen can of course contribute a lot to an innovation process, when involved at a very early stage and able to communicate his or her needs, and to improve products or services from the very beginning of their creation to make them successful and useful for other citizens, respectively for society at large. Responsible citizens keep themselves informed about the latest developments in society, technology, education, economics etc. and should raise their voices when things seem to go wrong, for instance when members of society are threatened to be excluded, either by education or by non-investment in technology, see for instance the study on "Broadband connections in rural areas" (Breedband op het platteland, Salemink, Strijker, 2014). As a result of this research, the Municipality of Oldambt in the rural area of East Groningen took the initiative to invest in glass fiber connections within that municipality and let the citizens pay for the last bit of connections to their houses (last mile). In fact, this is a good example for the engagement of citizens in new technology, which then can be broadened to more involvement also in innovation processes for new products or services.

Informed citizens are necessary for a democracy to function properly. When average citizens stay informed, they reinforce democracy and help to keep the government to ensure the freedom of its people. Staying informed keeps people abreast of their rights and responsibilities as citizens and enables them to act appropriately based on their knowledge. Citizens should educate themselves regarding the source of the information they receive and make decisions accordingly. As a fourth player in the QH model, "citizen" can vary from the individual to the organizational levels, from individual citizen, consumers, workers, entrepreneurs, independent contractor, to non-profit organizations or associations.

Methods to use

Involving citizens as users means giving them the opportunity to participate in the innovation or development process as representatives of a target user group with the aim to improve the chances of developing successful products and services. Different methods and approaches to involve the citizens and their needs of a product or service can be used, depending upon the degree of involvement that is required i.e. the actual influence the user has on the final product and service. One way of differentiating degrees of citizen and user involvement is to categorize them according to for, with and by users. Different methods can be applied that form the basis for developing a new product or service. The methods might vary from one actor to the other, depending upon the area of development, the knowledge the actors want to obtain, but also the users' ability to express the problems they face and the needs they have.

Innovation of Products, Services and Design for Users, Indirect Methods

Data about the users and user behavior are used, this approach often include surveys. A variety of tools are available for conducting user surveys; interviews and market reports. Focus groups are commonly used for problem detection in order to test concepts rather than to generate ideas.

Experts on Interaction design models and theories can also be used, which aim to define and facilitate interaction between a user and a system by understanding both the technology as well as human needs.

Wisdom of the crowd is a type of crowdsourcing, based on the idea that a group of people is on average more intelligent than an individual. By collecting large amounts of information from a group of people you will gain a complete and true picture of an area, topic, product or service. This method has proven to be effective on the web because many people with different and diverse background contribute in real-time.

Innovation of Products, Services and Design with Users, Direct Methods

Data of the users' preference, needs and requirements are in focus where the users are involved and can respond on the end-result and solutions for the products and services. The methods presented can be seen as new ways for businesses to innovate and create competitive advantage as well and for the public sector to make sure their services deliver what the public wants and needs.

Co-design is an abbreviation for collaborative design, community design or cooperative design. (Design Council, <http://www.designcouncil.org.uk>) It is a method, a user-led development process where design professionals invite end-users or a community to participate in designing solutions to the problem, a need or to deliver a product and service. Design professionals empower, encourage, and guide the users during the process by which the design objective is created. It is generally recognized that the quality of design increases if the stakeholders' interests are considered in the design process and that the final result will be more appropriate and acceptable to the user. (For further reading, see *DANS Good Practice Guide, CODesign, p.52*).

Living Lab is an innovation environment or an innovation approach in which the industry, researchers, public authorities, and citizens work together for the creation and test of new product and services, ideas, markets, and technologies in real-life contexts. The idea is that people's ideas, experiences, and knowledge, as well as their daily needs of support from products, services, or applications, are the starting point of innovation and stimulate and challenge the development. The kind of environment needed dependson the product or service being developed. They help adaptation of technology to real life use by theirfeedbacks and hence speed up the lifecycle of realization of innovations.

Innovation of Products, Services and Design by Users, Direct Methods

The users are involved and actively taking part in the development and innovation of the product and services. The lead user method, users' toolkit and crowdsourcing, are all examples of tapping knowledge for a specific product and service from users.

Lead User Method, lead users are leading buyers who are early adopters of new technologies, products and technologies. Lead users are motivated by their own dissatisfaction with the existing output, and modify products or services to their own needs. Their experienced needs will later be experienced by many other users and therefore usually create trends on the regular market for new innovative products. (Eric von Hippel, "Democratizing innovation", Cambridge, The MIT Press 2006, p.4ff).

Lead user activities can be used by organizations and manufactures to produce and commercialize user-developed innovations, supply complementary products to the user-developed innovations or engage in a joint innovation process with the lead users.

Toolkits for user innovation, producers and manufacturers must understand user needs in order to develop successful products and since consumers preferences and needs are changing more quickly, some manufacturers have abandoned the idea of trying to understand the user needs of products and services and current trends. Instead they provide the users with toolkits in order to tap the users on the knowledge of needs and preferences. The toolkits provided by the manufacturer are explicit for a given product or service and to a specified production system. Within those constraints, the users are given freedom to innovate, allowing them to develop their product through trial-and-error. (Eric von Hippel, "User toolkits for Innovation", Journal of Product Innovation Management, July, 2001)

The Effective Services Delivery Toolkit, ESD Toolkit(Effective Service Delivery Toolkit, <http://www.esd.org.uk/toolkit>), is a framework of tried and tested tools, guidance and practical examples to support and help with innovation in the public sector to deliver smarter more efficient services. The ESD toolkit is developed by the sector for the sector and grounded in practice as well as theory. Many of the toolkits are freely available to all public service deliverers.

Crowdsourcing, this open innovation method involves using the Internet to invite your customers, users, and other large groups of people online communities from the external world to contribute in the production of finished product designs, needed services, ideas, or content instead of using the traditional in-house knowledge. Wikipedia is one of the early examples of crowdsourcing.

Involving citizens in GN-IX

Involving users early in projects helps to understand real-world accessibility issues and helps you implement more effective accessibility solutions. It also broadens your perspective in a way that can lead you to discover new ways of thinking about your product that will make it work better for more people in more situations. This benefits not only users, but also stakeholders; for example, increased use of the product and other business benefits from increased accessibility. Including end user feedback should be an organized activity because study after study shows that active involvement in the design and creation of a system dramatically increases the chance of success.

Methods

One important branch of Groningen Internet Exchange is Groningen Internet Valley, a non-profit organization which supports young entrepreneurs to develop products and services for the growing ICT and Internet market. Startups who make use of support and funding from Internet Valley will be guided by experts and mentors from the very beginning to the finalization of their product or service and will have the chance to involve citizens to co-create, test and improve the services, before they will be put on the market. There is a broad network of people the young entrepreneurs can discuss their product with and numerous activities in the Groningen Region they can participate in to improve the innovation process and to achieve a final product or service in the end that makes sense and is useful for a larger target group and contributes to community needs.

Workshops - during the project period of DANS-ON (one year) the management of Groningen Internet Valley organized five (5x) workshops and events. During the workshops the startups have the opportunity to present their product, idea or new concept. Basically representatives of university, government and private sector are invited. But since one year also potential end-users are invited to participate. This A new element is that also But what are they about? I suggest to count those as events were "citizens" are being involved

Meet-up – during the project period of DANS-ON (one year) the management of Groningen Internet Valley organized two (2x) meet-ups with entrepreneurs who are already active in the program. Discussions about communication and involvement of end-users were integral subject of the agenda.