# Innovating together with users –

# Taking the organizational context into account

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**Abstract:** For many organizations, user involvement is still a relatively new approach. There is enough expertise to conduct the user involvement successfully. However, there is a risk that the result of a user involvement project is not adopted within the organization that is supposed to materialise the result. We identified five factors in the organizational context that influence this success of a user involvement project: strategy, organization, client, organizational culture, and technology.

The paper suggests ways to deal with each of these factors practically, within an innovation project, based on empirical findings, from three cases. A compact tool is developed that allows the assessment of each of these factors on a 5-point scale. With this, people working in user involvement projects can take these factors into account when organizing and conducting their project to make their project more successful.

**Keywords:** user involvement; customer involvement; innovation management; strategy; organization; client; culture; technology.

## 1 Introduction

For successful innovation, the practice of involving users or customers in innovation processes [e.g. 1; 2; 3] and of user-centred design [e.g. 4] or human-centred design [5] are gaining importance. The goal is to involve users or customers actively in an early stage and to keep them involved throughout the entire innovation process. User

involvement approaches are for example participatory design [6], the lead user approach [1], co-design [7], applied ethnography [8], contextual design [9], or empathic design [10]. (For a review, see: 11; 12) Such approaches have clear benefits: the products that are developed match users' needs better [e.g. 13]. At the same time, however, there are still many opportunities to improve user involvement practices; e.g. such approaches require that researchers or designers are open towards the ideas and contributions of users [12]. Furthermore, user involvement does not always lead to successful new products, services or processes.

Before an innovation is rolled-out in the market or in the organization, an innovation project needs to be executed successfully. We propose to distinguish internal and external factors that influence an innovation project's success or failure. With internal factors we refer to factors that influence the execution of the project: its success in a narrow sense. With external factors we refer to factors that influence whether the project results are actually adopted and deliver impact: its success in a broader sense. In this paper we will focus on such external factors: on factors in the organizational context in which the innovation project takes place, which ultimately influence the success of the project in the broader sense. For the sake of argument, we will assume that the innovation project in the narrow sense is executed successfully, that is, that user involvement is executed 'according to the book'.

We will introduce our method of conducting case studies and present the cases. We will then introduce and discuss five key factors that influence the success of a user involvement project. We will illustrate these with examples from the three cases. Finally, we introduce a tool which practitioners can use to take these five factors into account when organizing and conducting a user involvement project.

## 2 Research goal

Our goal is to identify and understand factors in the organizational context that can support or hinder the way in which an organization successfully implements, produces or delivers the innovation that was designed via user or customer involvement.

There is a wide range of literature on innovation management, on success and failure of innovation projects, and about the relation between organizational issues and innovation [e.g. 14; 15]. Many of these texts identify a lack of understanding of users' or customers' needs and preferences as a source of failure of innovation projects. Furthermore, there is some literature on user or customer involvement [e.g. 3; 13], but not a lot, and the current literature tends to be descriptive rather than prescriptive. Moreover, relatively little is known about the relation between innovation management and the practice of user or customer involvement. We took this as a cue to follow an exploratory research approach. Our study is exploratory in the sense that we based our study on a relatively small number of cases. Our study is also exploratory in the sense that we propose specific factors (that influence success of a user or customer involvement project) through retrospective analyses, but we did not yet evaluate the validity of these factors.

Summarizing, we have the following assumption, research question and goal. We assume that organizational context factors influence the success of a user involvement project, i.e., whether the innovation project and its results are adopted by the organization. Our

research question is: *Which organizational factors influence the success or failure of a user involvement project?* Our goal is to provide practitioners with insight and tools to take organizational factors into account when organizing and conducting user customer involvement, in order to help them to make their project more successful.

## 3 Research method

The three authors work at TNO, a research organization in the Netherlands, and the study is based on cases studies [16] of three projects in the ICT industry. Studying our own projects allowed us to 'go backstage'. This approach of studying one's own projects also brings the risk of too much involvement and of bias. In order to minimize that effect, each author studied those projects in which he or she was not involved personally. Furthermore, they did parts of the analysis independently and then compared their analyses, to obtain a form of 'researcher triangulation'. This method was followed:

- For each of three cases, one author interviewed the other author about one project and wrote a description of the case;

- The authors discussed the three cases and explored factors that influence success or failure of the projects;

- Parallel to this, literature from organization or management studies was reviewed, in order to further our understanding of these factors;

- The case studies and literature were then brought together and a list of five key factors was generated.

Many of the references in this paper come from the information and communication technology (ICT) industry and the field of human-computer interaction (HCI). As a result, our findings are relevant to the ICT industry and to the HCI field. In addition, we speculate that our findings are also interesting and relevant to other industries or fields.

Our research was conducted in retrospect, but our findings are intended to be applied prospectively, that is, before and during a project, and in order to organize and conduct it successfully and to deliver positive results.

## 4 Case studies

In this section, we introduce the three case studies; for each case, the client's organization, the goal of the project, the activities and the results are described.

*Case 1: Start-up Web shop*

Peter Vanderbilt used to work as a consultant in the financial industry. He then decided to quit his job and to start his own venture: a web shop for people over-fifty. His idea was to create a user-friendly online shop with user-friendly products: products that provide convenience, such as healthcare appliances, mobile phones, games, books and other life style products. He wanted to target a specific market segment with a variety of products. Peter Vanderbilt is self-employed and gathered around himself a network of experts to

help him create this online shop: a marketing expert who provided consultancy, business administration students who did market research, a web development agency that would implement and host the web shop. He asked TNO to conduct user research and to create an interaction design, which the web development agency would then implement.

TNO formulated guidelines for interaction design, based on desk research about usability guidelines for people over-fifty, and based on that, created several use cases which were then evaluated by people from the target group during one focus group. The web development agency then created a prototype, which TNO evaluated in usability tests with the same people. The result of the project of TNO for Peter Vanderbilt was an interaction design for his online shop. Based on this, the online was built and the shop was successfully launched in 2007 and is currently growing.

## *Case 2: Governmental Intranet*

Bart Cooper is manager of the Information Office of a governmental organization. This department provides information to approx. 1700 civil servants of their organization via their Intranet. For that, the Information Office cooperates with regional offices to collect information, and works with the Information Technology (IT) department to implement and manage their Intranet. At this moment, the Intranet pages are inconsistent; the information is patchy, scattered, incomplete and difficult to find. Bart asked TNO to formulate recommendations to improve the usability of the Intranet design so that its users can find information more easily and use it within their working processes.

The project of TNO started with several focus groups with users, in order to identify key issues and priorities for improvement of their current Intranet. In addition, TNO conducted a survey amongst 250 of the employees in order to quantify the topics identified during the focus groups. Furthermore, TNO conducted twelve in-depth interviews with users in order to validate the survey results and to gather background information. Based on these studies, TNO created an improved interaction design for their intranet. Subsequently, a usability agency evaluated the current and the improved intranet pages. Based on the previous studies, TNO provided advice on how to improve the intranet interaction design and lay-out, as well as how to organize information and which information employees need. This resulted in an intranet that provides improved access to information, with which employees can work more efficiently and effectively.

## *Case 3: Telecom company Workshops*

Philip Perrier works in a new business creation department of a large telecom operator. For a long time he had wanted to organize a workshop in which children are invited to create telecom inventions. His idea was that children are more capable of out-of-the-box thinking than adults, especially adults who work in the telecom industry. Furthermore, his idea was to invite employee's children, so that they can indirectly inspire their parents to also think more out-of-the box. Moreover, his ambition was to select some of the children's ideas for further development in cooperation with people from marketing and product development departments. He asked TNO to organize such workshops with children.

TNO organized three workshops with a total of 50 children between seven and ten years old. In these workshops, children were divided in groups of approximately four children. One TNO employee was added to each group in order to coach the creative process; he or she would start with telling a story, invite the children to join the storytelling and to draw situations and make inventions, and then provide them with material to visualize these. In this process, the children were mildly steered towards products and services related to communication. TNO created reports of each workshop and sent these to the children as a souvenir, and to inform and inspire their parents. From the results of the workshop, eight ideas for the shorter term and eight ideas for the longer term were selected as candidates for further development. Unfortunately, Philip moved to another position within the company and subsequently left. Moreover, none of his colleagues continued the process of disseminating the results; the children's ideas were not formally discussed with people of the marketing and product development departments.

## 5 Factors that influence success

In an iterative process of analysing the cases and reviewing literature, five factors were identified that influence success. We roughly followed the Seven-S framework of McKinsey, which identifies seven factors, namely: Shared values, Strategy, Structure, Systems, Skills, Style and Staff. We adapted these factors to our purpose. Below, we will introduce these five factors and discuss how these influence the success of a user involvement project. Per factor, this will be illustrated with two examples from the cases studied.

*Strategy*

The Strategy factor is about the match between the project and the strategy of the client organization. This factor was made operational using three topics:

- The match between the project and the organization's goals and timelines

- The balance between the project's costs and benefits

- The match between the type of user involvement project and the organization's strategy

The match between the goal and timelines of the user involvement project and the strategic goals and timelines of the organisation influences the project's success for the organization. Furthermore, there must be a match between the costs and benefits of the project and these must fit the way in which the organization deals with costs and benefits. Finally, there needs to be a match between the risks and difficulty of the user involvement project and the organization's strategy.

We propose to distinguish different kinds of user involvement projects: a project that starts with only a problem or a theme; a project that starts with an idea but no concrete solution; a project that starts with a concrete solution; or a project that starts with a product that needs to be altered or improved. The more concrete the project starts, the less difficulty and risk the people involved will experience. On the other hand, the more concrete the starting point of a project, the less opportunities for radical innovation.

- In the case of the Web shop, there was a good match between the project and the organization in terms of goal, timelines, costs and benefits. The Web shop was a small, start-up company and its founder played a key role in all decision making. He wanted a lightweight project that delivers a concrete user interface design for an online shop within several weeks. He needed that design as a brief to an agency that would build this online shop. And the project did exactly that: it delivered an interaction design in time, so that the web development agency could build the online shop. Furthermore, the organization was granted subsidies for the project, which made the project financially attractive.

- In the case of the Workshops, the client worked within an organization that tends to play a 'smart follower' role, rather than an 'innovator' role and tends to create incremental innovations. Furthermore, the timelines for innovation are relatively short-term, e.g., one or two years. Contrastingly, the project was about exploring and proposing new ideas for innovation and new business development, with a longer timeline, e.g., two to five years. As a result, there was a mismatch between the project's and the organization's strategy and timelines. Nevertheless, the project's costs were relatively low and results were delivered in time.

*Organization*

This Organization factor is about which parts of the organization are involved, similar to the Structure and Staff factors from the Seven-S framework. This factor was made operational using three topics:

- Involvement of departments during the project

- Involvement of departments needed for implementation

- Attitude of the organization towards user involvement

A number of departments within the organization or of organizations affiliated to the organization need to be involved. Moreover, one wants to involve the appropriate departments or organizations (not too many and not too few) at the right moment in order to be successful. Involvement of departments or organizations is needed during the project in order to understand the organization and to obtain input for the project. Furthermore, involvement and support is needed of departments or organizations during the implementation of the findings or results of the project, in order to 'land' the project within the organization. They may need to change their working processes and this may cause friction or resistance. Finally, a general positive attitude towards user involvement, partly based on knowledge about its benefits and challenges, within the organization is needed for successfully conducting a user involvement project.

- In the Intranet case, regional offices were involved during the project and this indeed helped to understand how they gather and organize information and their requirements for the intranet. However, it proved difficult to take into account various differences between different regional offices and to design one central process that would work for all. Based on first reactions from these regional offices, we can expect that one interaction design for the intranet will be an improvement for many regional offices, but also a slightly less optimal solution for some of the

regional offices. Furthermore, the Information Office depended on the IT department for the actual implementation of the intranet, but this IT department was not yet involved in the project. This may result in a situation in which not all the recommendations are implemented.

- For the Web shop, Peter Vanderbilt created an ad-hoc network of organizations. He encouraged cooperation between TNO and the web development agency during the processes of interaction design, evaluation and building. Peter and people from TNO and from the web development agency had several joint project meetings and Peter and the people from the web development agency attended the focus groups and usability tests via live video and they were invited to ask some questions afterwards. However, during the implementation of the web shop, the agency did not involve TNO while making several design decisions; as a result, some recommendations were not implemented.

### *Client*

The Client factor was introduced because of the importance of the person of the client: the person who commissions the project and whose support is needed during and after the project. The Client factor draws attention to the force field that he or she is in: to his or her, and other people's, interests and influences within the organization (cf. Lewin's force field analysis). We are interested in the client's power within the organization, not only his or her legitimate power (cf. French & Raven' idea about social power), that is, the power that is associated with being the client of the project, but also in his or her power to influence others within the organization, more in general. The Client factor was made operational as follows:

- The client's influence within the organization

- Match of the project with the client's (personal) targets

- The client's attitude towards user involvement

The person who commissions a project can play a key role and influence the success of a project. A first criterion is the amount of influence of the client within the parts of the organization that are supposed to adopt the project or the results from the project. The more influence, the more likely the project's success. Another criterion is the match of the project's results with the client's personal targets and ambitions. If these are compatible, then the client is likely to be an advocate for the project. Finally, a positive attitude of the client towards user involvement will have a positive influence on the chances that the organization will adopt the project and its results.

- In the Workshops case, the project matched one of the client's personal targets; he had a personal agreement with his manager to conduct the workshops. Furthermore, he was enthusiastic about user involvement and about the project and with how TNO conducted it. However, when he left the project, the support for the project diminished and it was difficult to implement the results from the project.

- In the Web shop case, the client ran the project and was managing the start-up company. Furthermore, he wholeheartedly supported the user involvement approach

of TNO. Moreover, creating a web shop matched his personal goals of setting up his own venture. All this helped to bring the project to a successful implementation.

### Culture

The Culture factor combines the Shared values and Style factors of the Seven-S Framework; it is about the match between the project and the organizational culture. Furthermore, we used Hofstede's concept of uncertainty avoidance, because this seems to be the most relevant of his five dimensions of culture. Uncertainty avoidance is directly related to the willingness to engage in innovation and in innovative approaches to innovation, such as user involvement. In addition, we used two of Harrison's typologies of organizational culture, namely process culture and task culture. Culture was made operational, by focusing on these two topics:

- Dealing with uncertainty

- Organizational culture

The organizational culture influences the success of a user involvement project. It is not necessary to identify one type of culture within one organization, but one can see tendencies within an organizational culture and relate these to the success of innovation projects. In general terms, an organization tends to deal differently with uncertainty, and a tendency to allow uncertainty rather than to avoid uncertainty is likely to have a positive influence on innovation. Similarly, a focus on tasks and on flexibility, on getting things done, rather than a focus on process and on structure, on following rules, can positively influence an innovation project. The organizational culture relates to both the success of a user involvement project in a narrow sense, and to the successful implementation of the results of this project in a broader sense.

- The culture of the Information Office in the Intranet case and its context is mixed. The Information Office itself takes responsibility in providing information and access to the information to employees of the public service; in that respect their culture is task oriented. However, the public service tends to value and follow procedures relatively strictly, which makes their culture more process oriented. The Information Office and TNO have a shared task of implementing a new intranet in such a way that it matches the processes of the employees from the central and regional offices.

- The Workshops case can be understood as an attempt to act innovatively and to generate and explore ideas for new business. Because of the project's character, it was difficult form the rest of the organization to adopt and implement the project's results. Within many parts of the organization, an organizational culture of following procedures and avoiding risks dominates.

### Technology

The Technology factor draws attention to the importance of the match between the technology in the project and technology in the organization. This Technology factor combines the Systems and Skills concepts from the Seven-S Framework, and is made operational according to two topics:

- Necessary front-end technology (user)

- Necessary back-end technology (provider)

In many innovation projects, ICT plays a role, either because the project focuses on an ICT product, application or service (as in the cases studied), or because ICT is implemented in a working process. In both cases, technologies are needed in order to implement the innovation. One can distinguish between front-end technologies that the users need and back-end technologies that the provider would need. When little (new) hardware or software is needed or when this hardware or software needed is compatible with current systems, then it will have a positive influence on the project's success.

- The Web shop case started from scratch. An advantage of this situation is that there is no legacy that Peter must take into account. A disadvantage is that Peter had to create all the technology, including a back-end of the web shop. He commissioned the web development agency to host the web shop, but he still had to make many decisions about inventories, logistics and fulfilment. Consumers only need a computer with internet access, but no extra or specific technology such as Adobe Flash.

- In the Intranet case, there were some legacy systems, but not too many and they did not have a negative impact on the project. However, one factor that may complicate the implementation is the level of security that is required for any changes in the organization's IT environment.

## 6 Discussion and recommendations

We identified five factors in the organization that influence the success of user involvement in innovation projects. Now we will discuss how practitioners can cope with these.

Practitioners can anticipate and influence three of these five factors, i.e., Strategy, Organization and Technology, when they prepare their project and choose an approach to conduct it. And in many cases, if the client agrees, practitioners can adjust the approach during the project. For example, if the project is not aligned with the goals and timelines of the organization, it could be changed. If the appropriate people from departments are not involved, they can be included. And when there is ICT involved in the innovation, it is useful to think at an early stage about the ICT environment it needs to fit in.

Furthermore, two factors are difficult to anticipate before the project starts and it is quite a challenge to influence them in any way: Client and Culture. Having said this, taking these into account and understanding which impact they have on the progress of the project helps to anticipate problems and to minimize unexpected failures. Matching the project's targets with the client's, needs to be done before the project starts and this match can be finetuned during the project. Also the client's attitude towards user involvement in projects is something that the practitioner can work on changing in a positive way before and during the project.

The client's influence in the organization is important for the project to succeed in the broader sense. This is hard to evaluate beforehand. The client needs to collaborate with

parties outside the project team and to get support for realizing the results of the innovation project. If the influence of the client is insufficient, practitioners can do little. However, they can identify this at an early stage, and they can then take actions such as finding and involving sponsors and stakeholders to increase his or her influence or to guarantee the project continuity in a case that the client's influence remains insufficient (or, e.g., if he or she leaves the company).

When the organization's culture does not fit with the project's culture, practitioners need to take this fact into account before and during the project. During the project this could be for instance to create more moments for feedback and comments. When there are results, these should be interpreted and explained in a manner that it is actually recognizable and aligned with the organizational identity.

Ideally, these five factors can be assessed before the project starts, and at certain points in time during the project. In order to do this systematically, a simple tool has been developed (in the form of an Excel spreadsheet); see Figure 1.

**Figure 1** Assessment tool for organizational factors

| | Example case | |
|---|:---:|---|
| **1. Strategy** | | |
| match: project and organization's goals and timelines | 3 | |
| balance: project's cost and benefits | 3 | |
| match: type of user involvemnet project and organization's strategy | 5 | |
| **2. Organization** | | |
| involvement of departments during project | 4 | |
| invovlement of departments for implementation | 1 | |
| attitude towards user involvement | 3 | |
| **3. Client** | | |
| influence in organization | 3 | |
| match: project with client's targets | 2 | |
| attitude towards user involvement | 4 | |
| **4. Culture** | | |
| dealing with uncertainty | 4 | |
| organizational culture | 4 | |
| **5. Technology** | | |
| front-end technology | 5 | |
| back-end technology | 3 | |

The five factors and their constituent sub-factors are shown in the column. Each sub-factor can be evaluated on a five-point scale. The higher the scoring is, the more positive its impact on success. After evaluating each sub-factor, the colours change automatically from green (positive impact), via yellow, to red (negative impact). At the start of a project and also during a project, these factors need to be assessed, and one can find the 'weakest link'. The tool helps to identify key success factors that practitioners and their clients need to discuss and act upon in order to make their user involvement project a success.

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