Stakeholder communication as basis for sustainable innovations

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Abstract

The aim of this contribution is to discuss the need for alternative and innovative forms of communication as a prerequisite of sustainable innovation and especially socially sustainable innovations.

The increasingly complex systems we deal with today and will have to deal with in the future, make it necessary for us to rethink previously successful communication strategies since many of them are not suitable for effectively and efficiently dealing with complex situations. Instead, the authors suggest a communication strategy that entails the following:

1.) At the level of the individual, active incorporation of more right-brain thinking in order to make use of the necessary creative, conceptual, and holistic skills that are required in handling an increasingly uncertain and complex future.
2.) Incorporating communication based on systems thinking and stakeholder-orientation.
3.) Establishing a change oriented language strongly associated with apperception and innovative forms of design-based communication as the basis for understanding, dealing with, and modelling complex systems.
4.) Applying not only more stakeholder-oriented problem solving, but also more transdisciplinary problem solving so as to encourage immediate involvement and participation of (the appropriate) stakeholders within the problem solving process.

The key features to be accomplished are more flexible and more creative communication patterns that can be handled easier, more effectively and more efficiently. Further, this is the basis for the immediate involvement of “active” stakeholders in order to make use of their conceptual capacities and that involve as many senses as possible.

It is not intended to make the traditional communication approaches obsolete, but rather to augment their significance by embedding them within a more holistic and adequate structure.

1 Introduction

Sustainable development, innovation together with supportive forms of communication, and stakeholder management have all become topics worthy of considerable attention, both in the literature as well as in practice. However, sustainable innovation as the linkage between innovation capability and sustainability has to date only been inadequately discussed. Especially the problem of the application of effective stakeholder management for sustainable innovation has not yet been resolved. Questions arise like - how can innovation contribute to sustainable development? What makes innovation itself sustainable? How can stakeholder management

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contribute to sustainable innovation? How can stakeholder be integrated in the problem solving process? To answer such questions suitable communication structures are needed.

There is a strong need for deeper inquiry into the social processes relevant for the generation of innovation and for specific consideration of incorporated stakeholders. Or as Scholl states, "[…] as a major factor among others associated with failure, past research has identified an overemphasis on technical validity and functionality at the expense of the social and institutional process side in change projects" (Scholl, 2004, p. 277). Not even the integration of users' perspectives, to name but one specific party of interest, is unproblematic: According to the Harvard Business Review's breakthrough ideas for 2007, with regard to innovation we are now facing a paradigm shift from producer-centered innovation to user-centered innovation (von Hippel, 2007), and this calls for a reorientation in the way innovation is done: According to von Hippel (2007, p. 28), 70% to 80% of new product development fails "not for lack of advanced technology but because of a failure to understand users' needs."

A lot of questions with regard to the role, the identification, and the involvement of the various stakeholders within creative problem solving processes and innovation processes still remain obscure and require further investigation. Achterkamp and Vos (2007) critically observe that although a variety of theoretical classifications of stakeholders exist, "…the problem of actual stakeholder identification is yet unresolved…" (p. 3), as is the issue of boundary setting, for example, in order to decide what parties should be involved or excluded and the respective roles of involvement and phasing of this involvement.

2 Sustainable Innovation

Innovation that contributes to sustainable development from an economic, ecological, and social point of view will be considered in the following as sustainable innovation. Innovation plays a two-fold role for sustainable development: in the following it is pointed out that innovation with regard to sustainability can both be a supporting means for attaining sustainability but innovation can itself be considered sustainable. Various questions arise out of these two positions. How can innovation contribute to sustainable development? What makes an innovation itself sustainable? How can the two positions be synthesized? Furthermore, whereas the attainment of economically sustainable innovation and sustainable competitiveness seems to be obvious for most corporations as a prerequisite for their survival (i.e. Sahay, Mohan, & Maini, 2004), the other facets of sustainability seem to be much more critical. The following discussion is supposed to bring some light to these questions.

First of all, innovation is not an end in itself, but rather a means of coping with change and future development. This seems to be especially true with regard to strategic innovation and its powerful influence on future developments (i.e. Drejer, 2006). Therefore, standard solutions have only very limited meaning, and instead, new approaches are required in the form of innovations at the product-, process-, organizational-, and social levels as well. Thus, the generation of innovation also depends strongly on the effective utilization of the available internal and external creative sources of the system considered. This requires developing awareness about the peculiarities of the various stakeholder parties and the extent to which they are or have been affected. Furthermore, this knowledge is the basis for the establishment of effective internal as well as external communication. Hence, innovation is a means of providing for an improvement of a certain system in specific regards by making available new system-related solutions that lead to an improvement of the previous situation. Here it is crucial to be aware of the limitations of the positive effects of innovation, including those of sustainable innovation, with regard to specific system boundaries or system segments, since, as is pointed out below, all-embracing win-win situations seldom occur.

Sustainable development is not stable, and nor does it merely entail passively responding to changes in the environment. Instead, it has to be stressed that sustainable development is itself dynamic with pattern change as a core characteristic. Achieving sustainable development carries a great dynamic in itself. It is by no means a fixed objective, and has therefore be considered as a “form of ongoing inquiry” (Laws et al, 2002, p. 5).

Further, market implementation generally entails a high degree of uncertainty and unpredictability. In such a context, it is obvious that traditional, deterministic means of investigation, such as research on known or potential target groups, is not helpful. Sustainable innovation, incremental and radical, both show nonlinear, dynamic system behavior, but to a different degree. This means that discontinuous, inhomogeneous, and aperiodic attributes usually have a higher impact within the context of sustainable radical innovations. Nevertheless, it is the interplay between determinism and chaos, structure and flexibility, and convergence and divergence, that is needed for such systems to function and to reveal their sustainable characteristics.

Hence, as based on the groundbreaking works of Varela and Maturana in systems thinking and second order cybernetics, self-stimulation and internal feedback are mechanisms of systems with autopoietic character and are responsible for the self-creating property of these systems (Maturana & Varela, 1992). In addition to these internal dynamics, the sustainable development of a system is interdependent with respect to its environment and therefore any system under consideration both influences, and is influenced by, its environment. With regard to the innovation system it becomes obvious that in order to develop sustainable innovation we have to deal with an open system that cannot sufficiently be investigated based on a reductionist point of view, such as the static trait approach often used in innovation and creativity research. It is necessary to be aware that these approaches can at best provide only one tiny piece of the “overall puzzle”. Since the temporal perspective is not taken into account, these investigations do not consider potential influences from the rest of the system or influences from the environment, such as the technological, social, and cultural milieus. A systems perspective becomes especially necessary, when the focus lies on the creation of sustainable innovation.

The complexity of the generation of sustainable innovation becomes even more complex with regard to the negative effects that, in addition to specific positive effects, usually accompany the generation of innovation (Brown & Frame, 2004): Generally, it necessary to differentiate between those stakeholders (with users as one particular group) and subsystems which are generally better off as a result of the innovation and those which are or might be made worse off. Innovation not only entails the development of new and more appropriate solutions, but also – to some degree – the destruction of former solutions (Schumpeter, 1980). These former solutions stand in close relation to the people affected. It is thus necessary to generate awareness of these diverse effects on the different stakeholder groups and not merely make decisions based on a majority principle. Where possible, decision making needs to be based on intense communication and interaction in order to attain consensus. Extensive stakeholder analysis is thus a necessary prerequisite. Critical questions need to be asked concerning the primary and secondary effects of the innovation and the possible destruction of former applications What might the roles of these stakeholders be within the process of generating sustainable innovation and what use might be made of their creative potential?

Clearly, sustainable innovation must take both the positive and negative effects into consideration. Realistically, from a systems thinking perspective the objective behind sustainable innovation cannot be the attainment of an across the board improvement. Instead it is primarily about the creation of actionable alternatives based on the awareness of the effects of an innovation over its life-cycle, not only on those involved, but also on those stakeholders directly

and indirectly affected and on their possible involvement within the collaborative processes, including any relevant impact on non-human systems.

The complexity of innovation systems, and in particular of sustainable innovation, calls for an understanding of the system, not only on a micro-level but also on a macro-level. Furthermore, innovations do not just occur by accident, but depend on various building blocks, with people playing a crucial role within the whole innovation system. In order to take special account of the human factor and specifically the utilization of the stakeholders' creative potential for the generation of sustainable innovation also by means of communication, the implications of stakeholder management for sustainable innovation are introduced next.

3 Stakeholder management for sustainable innovation

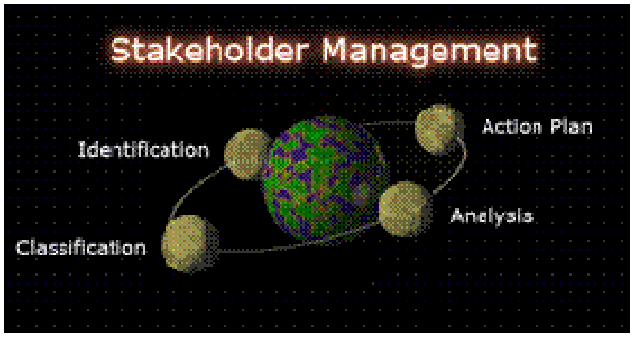
Whereas stakeholder related developments usually consider the integration of stakeholder interests without actually involving the stakeholders in the problem solving process (something that is especially true for external stakeholders), it is the aim of the present contribution to extend this perspective. The involvement of affected stakeholders in particular, may not only lead to stakeholders who are more satisfied but above all it may lead to better solutions by incorporating valuable creative potential from those places where the development affects people and their environments most. Especially with regard to its social implications, stakeholder management can significantly contribute to the generation of sustainable innovation.

Stakeholder management is not an end in itself but is usually embedded within a whole (creative) problem solving process consisting of a phase-like innovation process. It is thus the interplay with other process subsystems and phases – such as the problem related, objective related, or alternative related phases preceding the progressing working or innovation process – that needs special attention for stakeholder management (Steiner, 2006, 2005). As an example, within the generation of innovation we usually have to deal with a complex system. It is a characteristic of such a problem that not only its future state but also its present state cannot precisely be described (Scholz & Tietje, 2002). Here, the involvement of certain stakeholders such as users and non-users might be fruitful in providing for better understanding of the system in that it allows for relatively narrow views to be enlarged so as to incorporate interpretations that really matter to stakeholders.

3.1 Collaboration characteristics

Stakeholder management consists of the "identification", "analysis", and "classification" of stakeholders and the phasing of the stakeholders' involvement within the collaborative process as part of the "action plan" (see Figure 1). The relation among stakeholders is less likely to be characterized by one-off transactions but instead by interactions based on continuity as well as on collaboration and the ability to deal with potential conflicts (Post, Preston, & Sachs, 2002, p. 7, 25). Nevertheless, these interactions differ according to the specific role a stakeholder has to take within the collaboration process, the stakeholder's competences, and the competences attached to the role.

Figure 1: The Stakeholder Management Model



Further, effective stakeholder management needs to assure that stakeholder's competences are congruent with the competences attached to the role within the collaboration process. Incongruencies within the collaboration process will unavoidably result in lower effectiveness, with either the stakeholder being overstrained or under challenged by the role she/he has to play within the collaboration. This potentially harmful influence is not an end in itself but can spill over to the whole group and lead to a negative group climate (Steiner, 2005).

Stakeholder-based problem solving implies a need for collaboration among the people involved within the innovation process and for simultaneous awareness of the underlying heterogeneity of stakeholders. Consequently, collaborative problem solving processes based on adequate stakeholder management become crucial. Depending on their potential role, stakeholders might be either actively involved within the innovation process or merely indirectly affected by the innovation process (in most recent stakeholder literature instead of "affected" the term "passively involved" is often used, for example by Achterkamp and Vos (2007). This division is important since being actively involved also implies process ownership and responsibility for the action taken. Hence, involved stakeholders will probably show higher motivation. Consequently, within stakeholder management, the decision to provide opportunities for active participation to those only previously passively involved, can be highly significant in terms of its impact on the quality of sustainable innovation. Further, in order to ensure that all collaborating participants enjoy a sufficiently well-equipped knowledge base (appropriate for dealing with complex real-world problems), the provision of appropriate information systems able to support collaborative problem solving becomes an integral element of sound decision making in stakeholder involvement. In this respect, the implementation of structured collaborative information systems such as that proposed by O'Sullivan, Mulligan and Dooley (2007) for university-based research might prove helpful.

3.2 Phasing within stakeholder management

Not only different projects call for different stakeholder involvement within the collaboration processes, but also the various phases of the collaboration process call for the involvement of different stakeholders. Effective stakeholder management must be capable of exhibiting considerable flexibility with respect to the project- and phase-related needs within the single phases of a collaboration process and with regard to specific projects. Consequently, in order to handle those requirements within a real-world context, effective stakeholder management calls for an understandable project vision, appropriate leadership, and understandable language. Here, project vision is not equal to, but needs to be complementary to, the meta vision of the organization, network, or region, and needs to be established and maintained by senior management (e.g. Shimizu & Hitt, 2004). In such a setting, appropriate stakeholder

management strongly influences the process of the creation of a shared vision among the problem-solving agents and other stakeholders.

In order to handle the complex issue of stakeholder management a phase-like scheme of the various phases of identification, analysis, classification of stakeholders and their roles within the collaboration process, as expressed in the action plan, is further extended by asking the relevant questions for each phase (see Table 1). The meta-objectives of the whole collaboration process or even of the whole organization or region are part of stakeholder management and exert considerable, influence within it. Generally speaking, stakeholder management encompasses the following issues:

Table 1: Guideline for stakeholder management

Task	Question
Pre-check: consistency with meta-objectives	
Check project and organization (region) related requirements?	• What is the general vision and policy of the organization or of the region responsible for the project? • What are the characteristics of the underlying project? • What are the basic objectives and shared goals within the project (i.e. Lee-Kelley & Blackman, 2005)? • How is the stakeholder management embedded within the overall project (including interaction with relevant subsystems of the project)? • How may a tentative work team and leadership structure be set up?
I. Identification	
1. Pre-screening for system experts with a broad knowledge about the stakeholders within the system and their relations (such as external experts and pro-active stakeholders)	• Who are the people with special knowledge about the stakeholder system? • Should they be integrated in screening for the relevant stakeholder parties?
2. Identification of stakeholders	• Who is indirectly affected (and not involved)? (=secondary stakeholder) • Who is actively involved? (=primary stakeholder) • Who has so far been affected without becoming actively involved but might meaningfully contribute in the future? (=potentially involved) • What does the basic stakeholder map look like?
II. Analysis	
3. Determining stakeholders' individual profiles	• What are the value systems, backgrounds and special interests of stakeholders? • How is the underlying problem perceived by different stakeholders? (reformulation of objective if needed) • What are stakeholder expectations and preferences with respect to present and future developments? • What might the stakeholder contribution to the overall performance within the project be?
4. Determining the modes of influence (with regard to positive and negative effects of innovation)	Based on how a person subjectively perceives how she or he is affected? • Who is/will be positively affected (by the innovation)? • Who is/will be negatively affected (by the innovation)?

III. Classification	
5. Allocation of activity profiles	Is the stakeholder actively or passively involved? • primary stakeholder (=actively involved) • secondary stakeholder (=indirectly affected or passively involved)
6. Allocation of role profiles	Is the stakeholder in the role of a • client, • decision maker, or • planner? (i.e. Achterkamp & Vos, 2007; Ulrich, 1987; Checkland, 1981; Churchman, 1971)
IV. Action plan	
7. Development of a stakeholder management strategy	• What does the comprehensive stakeholder map look like? • What is the underlying vision with regard to a stakeholder orientation? • What strategic orientation should be chosen? o Involvement of internal stakeholders? o Involvement of internal and external stakeholders? o Involvement of indirectly affected stakeholders with a view to their becoming primary (active) stakeholders? • What are the cornerstones of the strategy?
8. Phasing role involvement	• What stakeholders are to be involved at what phase of the collaboration process? • In what manner are the single parties and individuals to be involved? (actively or passively) • What might the specific roles of these stakeholders be? (for actively and passively involved)
9. Collaboration design	• How can appropriate forms of leadership be realized (i.e. also considering co-leadership)? • What structural and organizational means are needed for effective collaboration at every process phase? • How can effective and efficient group collaboration be arranged (including considerations of individual behavioral styles)? • What forms of (stakeholder-specific) communication are effective and appropriate? • How are competing stakeholder claims to be dealt with?
10. Provision of continuity	• What means need to be incorporated to promote stakeholder reflection and enable continuous process improvements? • How is project completion to be arranged and what is needed to further support implementation and maturity? • What assurances are provided for satisfied stakeholders so as to attain their approval for potential future involvement?

The above schema is intended to be a source of guidance to those in charge of stakeholder management (based on organizational or regional collaboration) and on the accompanying decision processes (see Table 1). Here, the single phases of identification, analysis, classification of stakeholders, and action plan not only depend on the underlying meta-objectives (such as the vision and the general policy of the organization or of the region) but also need to be related to reflexive feedback loops. The same is also true for the single steps within the phases. Consequently, the linearity of cause and effect can no longer be assumed, and a more roughly structured and flexibly applied process may provide better for the guidance needed in

successfully handling stakeholder management within collaborative work on complex real-world problems.

The stakeholder management scheme described above aims to provide for higher sensitivity among those stakeholders affected as well as among those who are in the role of affecting others. Furthermore, it shows that throughout the collaborative process of sustainable innovation, relative roles need to be considered as something flexible. An individual or a group might at one phase of the project find itself to be in the role of an indirectly affected party (a secondary stakeholder), but at another phase find itself to be a directly involved party (= a primary stakeholder). By building awareness of such mechanisms stakeholders not only become more involved, but simultaneously need to show responsibility for their actions, and this in turn, further supports mutual learning among all collaborators.

What are the implications on of stakeholder-based problem solving on communication processes?

4 Understanding the complexity of the communicational process

According to a basic constructivist understanding the main characteristic of communication is its selectivity (Luhmann 1984, Bateson 1979, Glasersfeld 1996). To communicate, means to have a choice between several possible pieces of information. One of the most efficient ways to communicate is to use our verbal language, which gives us the opportunity to choose an infinite number of expressions for what we want to say. Therefore, every decision for every selection can always be made in another way – it is "contingent" (Luhmann 1984, p. 47). If, for example, somebody decides to say to another person, "I love you", this is, at the same time, a decision against millions of other possible selections like "I need you" or "you are my sunshine" or "would you please hand over the sugar", etc.. It is assumed that certain intentions lead to a certain expression which constrains the possibilities of expressions but even then there are many ways to say something in a different manner.

Luhmann speaks of two actors in three acts. One is the usual "sender" which he calls "alter" and the other is the usual "recipient" which he calls "ego". These two actors play in three acts which is a three-digit process of selection. The three selections of understanding are: (1) information (selection 1), (2) message (selection 2) and (3) adoption (selection 3). The first two selections are made by "alter" and the third by "ego" (Luhmann 1984, p. 194-195).

However, information is not something that can be handed over from one person to another, it needs to be selected by alter who then chooses how to transform the information into a message. The decision for one piece of information is at the same time a decision against another piece of information. A message is always a decision for one kind of information against other possibilities. The third selection refers to ego. Ego is the one who understands the received information, or not (Luhmann 1984, p. 193-195). This is the most important act. Communication takes place when ego accepts the received information and understands it (Luhmann 1984, p. 203).

From that constructivist point of view, it does not mean that what one person says means the same to another person although both talk about the supposed same thing. The spoken word is not the described thing or situation itself.

In all phases of the process of communication there appear interferences and bias. This is because every member of a social system has different life experiences, different interpretations of the context and a different language. It becomes clear how complex the process of communication can be when being aware of each person's reality.

4.1 Demand on Communication Tools in Dealing with an Uncertain and Unpredictable Future

In helping problem solving groups establish appropriate communication in their effort to deal creatively with future scenarios and develop sustainable innovation, it is suggested that the use of design-based tools such as mood boards, personas, story-telling, story-boarding, and rapid-proto-typing – can offer (if properly chosen and applied) specific benefits. These include:

- Making use of all the different senses available to humans and applying them to broaden the physiological possibilities of perception. Many traditional methods in researching the future merely make use of vision (based on writings) or/and audition (by presenting or discussing), but neglect the power of the other senses. Assumption: design-based tools allow the synergetic use of senses in order to support the perception of complex issues.
- Synergistic use of left and right hemisphere thinking capabilities. Science and education in Western society has been mainly dominated by logical, sequential, and analytical thinking. Those thinking capabilities are only of limited benefit when dealing with uncertain and unpredictable future developments; this is less a question of substitution than of extending left hemispheric thinking by right hemispheric thinking to make use of humans' logical and creative potential. Assumption: design-based tools allow the interplay of right and left hemispheric thinking and can thus provide for flexible creativity within the needed structural framework without resulting in desultoriness.
- Provision of a commonly understandable language (not necessarily only written and spoken forms). Interdisciplinary teams usually have great difficulties in finding a commonly understandable language, often leading to momentous misunderstandings; this is especially true for written and spoken language mainly due to the attempt to squeeze a complex phenomenon (such as the idea of a new product) into specific words. The meaning of the words as interpreted by the listener/reader may or may not be aligned with that intended by the original user. Assumption: design-based tools provide for a commonly understandable language by making use of a kind of meta-language that allows the rapid communication of complex issues in an effective manner by activating various senses. In this way complex issues can be understood, communicated, and shared within collaborative problem solving processes.

The ability to hook up to successful elementary patterns of thinking and sharing of experiences. The functioning of our brain is not so much based on sequential processing of facts (comparable to an excel fact sheet), as on strong narrative imagining (stories) (Pink, 2005, p. 98 ff.; Turner, 1996, p. 4 ff.).

4.2 Communication Tools

Communication tools are tied to the deeply rooted thinking capabilities found in most people (as a matter of fact, everyone was once a kid and probably was told stories by his or her parents, and not fed fact sheets) and can consequently be of tremendous impact within problem solving and communication processes.

4.2.1 Market of competences as a strategy (pattern) for basic stakeholder communication

A good foundation of trust is the basis of every working area. The market of competences provides a structure for offering the different skills of every single person within a group, whereby it may also cover the different needs of the same persons. The exchange of skills strengthens every single person as well as whole groups and provides a sense of security. The method is particularly useful at the initial stage of building up a homogeneous group of people.

In practice, this means that small groups of three persons who do not yet know each other yet (A, B and C) are set up. Two persons, A and B, are supposed to discuss C's appearance and expected personality traits. They should become aware of the difference between their perceptions and their interpretations of these perceptions. The person under observation remains passive and is not allowed to engage in conversation with the observers. After the discussion of A and B, B and C do the same to A, who does not give any hints about his personal situation. Then C and A discuss B. After that the three people are asked to analyse and clarify assumptions. Now A interviews B and asks what skills he/she could offer the whole group, e.g. computer help or giving lessons on writing seminar papers, etc. A also asks what skills B lacks, i.e. what he/she would possibly need from the group. In the same way, B interviews C, and C interviews A. Each of the small groups of three persons (maximum four persons) writes down the names of colleagues, their offers, their needs and their contact data. This information is then passed on to the larger group. One of the students or teachers records the data and send it to the larger group.

This method aims to make group of people who do not know each other very well engage in a working process which lasts over a period of time in order that they get to know each other and learn to support each other's needs. It also encourages people to realize that how they perceive the world is not the world itself and that everybody creates his/her own model of the world - a kind of inner landscape which acts as a foundation for meaningful behaviour. The value of all cognition depends on the purposes and goals for which it is used (Simon 1998, pp. 21). One big goal of this lesson is to make people aware of the circumstance that every individual has his/her own model of the world. The strength of sustainability in practice lies in a kind of collaborative cognition.

The market of competences is one way to strengthen a group as a whole and to build a platform from which problems arising in a working process may be dealt with.

4.2.2 Personas and User Scenarios

While market analysis as such can provide for a broad understanding of the system of interest, it retains a mainly anonymous character. If applied in isolation, this can be counterproductive for a user-focussed, innovation process. On the other hand, such analysis can provide a fruitful basis for developing specific personas. Personas can provide for a holistic picture of a complex personality, based on real pictures, a real name, background, attributes, and needs, as well as a statement-based description of the person's general living philosophy together with a description of typical daily routines, and thus form the basis for specific user scenarios. In applying personas, the developer or problem solver is in a situation similar to that of a mother who takes care of her own children and not of those of others. He/she is developing someone real. The persona developed is always the basis for user scenarios that describe the person in the process of using the specific product or applying a certain procedure. Both personas and, user scenarios are story- based, and employ an easily understandable language. Thought processes are based on the deeply rooted thinking capabilities of childhood, which helps participants to remember, to analyze, and to imagine various possibilities.

The following example shows a persona, Kamea Meha, who is one of three personas that was part of a strategy building process within an e-business project:

Figure 2: Persona and unser scenario

Kamea Meha | Lecturer

"I love to discover the new! This is true for my work as well as for my spare

Background

- 32 year-old woman, born in Honolulu
- Single, no children
- Studied Portuguese, Japanese, Italian at universities in Berkeley, Roma, Tokyo, and Lisbon and gained a PhD from UC Berkeley
- Lives in Exwick, close to Exeter, owns an apartment outright
- Lecturer and researcher at the University of Exeter, GB

Attributes

- Young 'power woman'
- Can afford a nice living standard
- Experienced with computers, and internet applications
- Individualistic, flexible, but likes to take her time to plan novel adventures and find "the best" solution

Platform Needs

- Ease-of-use and interactive e-platform
- Clear, intelligent guidance
- Timely information, detailed, but to the point

Be creative and help others to become creative.
Kamea loves making a real difference in the lives of her students. "It's not just teaching, it is helping them help themselves!"

Enrich life and stay curious.
Kamea loves travelling and meeting new people. She is open to new ideas and tries to live her life and work "her way", intensely!

Kamea's Day

After a 30 minute ride from her home on the outskirts of Exeter, Kamea is relieved to reach her office by around 8:30 most days. At weekends, traffic is much lighter, so then she allows herself an extra hour of sleep. Kamea often works at weekends. She can enjoy the peace and quiet of the office and get stuck into her research on the influence of languages on cultural issues without being disturbed, as so often happens during the week. Besides, this also gives her a good opportunity to check out new travel ideas and plan new adventures.

During a regular weekday, Kamea splits her time between lecturing, meetings, answering emails, preparing readings, and doing research. This also gives her time to send emails to tourist agencies and put together plans for her next holiday, which is sometimes just an extended weekend

On her way back home, Kamea works out at a fitness centre three times a week. Afterwards she usually has a small, healthy vegetarian dinner in the sport centre's own restaurant. Here, she usually meets Kathrin and Joshua for a small talk; two friends who are also doing research at the University of Exeter, but in the fields of innovation management and marketing.

Back at home, Kamea makes herself a small dinner on the days she didn't eat before in the sport centre, takes time to do some reading, or completes her daily diary (an old habit she hasn't stopped since she was a little school girl). Then it's off to bed to dream of new travel adventures...

Kamea Meha | Lecturer

Kamea's Search Process for travel and leisure activities

Kamea doesn't like club arrangements, package holidays, nor the typical Club-Robinson or all-inclusive arrangement. That's not her world.

She much prefers to start the adventure before the actual travelling starts. "I love to start the adventure in my head. Think up unusual travel destinations myself, and not just have to accept standardized 'adventure trips' that may or may not be what I want.. I want to follow my sport interests, enjoy the beauty of nature, meet interesting people and experience different cultures!"

So far no travel agency has been able to satisfy Kamea's needs. At best they were only able to offer only very narrow, specialized travel opportunities. One example Kamea still has in her mind was a trip to New Zealand. The big problem for her was just that she had to accept one standard package and wasn't given the opportunity to plan actively, picking and chosing from a whole bunch of potential providers. Kamea is also aware that nobody – no matter how experienced – will ever find a better solution than she can find for herself.

So Kamea is still looking for the e-platform that fits her needs. In her imagination the platform would need to support her on the following issues: "I want to go to Tierra del Fuego in South America". Kamea already knows a lot about the island's history, its discovery by Magellan, the struggle between Argentina and Chile, the visit of Darwin and others. "I would love to meet interesting and smart people to discover the cultural and natural peculiarities of the country. After visiting the Argentinean Rio Grande I see myself discovering the central and the Chilean part of the country on horseback, riding in a group of 3 to five people, guided by a native." Since Kamea is a sustainability-oriented person it is also important for her to travel in an ecologically friendly manner. There are also some other issues she is still in the process of

Tools and Technology for travelling and leisure activites

- Kamea's primary tool in organizing her travelling and leisure activities is e-based
- ...has used platforms such as hotels.com, expedia.com, and sonnenklar.tv so far to arrange her travelling, but still misses the broad , immediate negotiation with potential providers
- ...wants to use a one-hand platform for specifying and finally realizing the best solution

4.2.3 Story-boarding

Similar to personas and written user scenarios, story boards also tell stories, but mainly by employing drawings instead of written language. Based on a low-level vision of potential future developments, the teams draw pictures of the targeted user group, persona, or even of a whole organization or region. In this ongoing, reflective process, the quality of the vision is developed to a high-level vision with an ever more accurate conception of the future development. By drawing possible future scenarios the collaborators establish for themselves a broader basis for understanding and discussing innovative developments, which in turn, allows for further communication and reflection, and time-delayed communication processes.

4.2.4 Rapid-prototyping

A typical innovation process might include the following phases: secondary data search, system analysis and problem finding, analysis and development of the system of objectives, conceptualization, drafts and constructions, refinement and further elaboration, prototyping and engineering, finalization and realization. The role of traditional prototyping is totally different to the philosophy of rapid-prototyping: Rapid-prototyping accompanies the innovation process from an early stage on, beginning with initial crystallization. This means that as early as the conceptualization phase, “quick and dirty” prototypes can be developed by using cheap, readily available materials such as paper, wood, and other objects that can be found in every studio and used for improvisation. The purpose is to give the participating collaborators an opportunity to experience the “innovative idea” with their whole range of senses (including haptic) and to avoid misunderstandings that may otherwise easily occur when new ideas are merely reported upon.. Besides, with such rough, and not necessarily functioning models it is possible to understand a complex system quicker and more comprehensively. The role of rapid-prototyping is not reduced to the development of technical innovations, but is a powerful tool in the development of future regional scenarios. This avoids the risk of prematurely developing large-scale concepts in which possibilities for real feedback are extremely limited. If rapid prototyping is practised as part of the collaborative culture, reflections can be embedded earlier within the development process and thus help reduce the risk of later failure.

The examples of design-based tools described briefly above all aim at the general purpose of providing a “shared space” (Schrage, 1999, xiv) for successful communication and collaboration and attempt to develop innovation appropriate for future purposes. They become even more effective, when made part of daily problem solving practise. In order to implement such design-based tools within the daily practice of the organization or of the region, the installation of a specific “innovation lab” can be very useful. Such a lab greatly facilitates appropriate, synergistic application of design tools. Establishing continuity in the problem solving approach depends on considerable knowledge of the underlying procedures and methodologies concerned. Every attempt must also be made to make such methodologies part and parcel of the system’s culture, whether at the company, or at the regional level.

5 Conclusion

The increasing complexity of today’s challenges make it necessary to rethink the philosophy and background assumptions of previous problem solving practises. The need for more creative and conceptual thinking capabilities together with the need for stronger stakeholder involvement calls for an updating of many current problem solving approaches in order to develop forms of innovation more appropriate to the demands of sustainable development. What has been successful in the past will not necessarily be successful for future developments. In order to meet these new demands a much stronger affiliation among various disciplines is needed, as is

greater cross-disciplinary communication between knowledge experts (scientists, consultants) and expert practitioners (stakeholders).

6 References

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