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Using Action Research for Gaining Competitive Advantage out of the Internet's Impact on Existing Business Models

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Abstract

The aim of this paper is to identify the contribution of the action research theory within a methodology for developing eBusiness business models which was elaborated at evolaris and is currently validated in various business cases. First a definition of the terms business model and action research are given and the prerequisites for such a methodology are presented. We found that for the improvement of existing business models the principles of action research – to interact intensively with the participant; or to review, to document, and to reflect the found results – are very valuable. Consequently the presented methodology is divided into the three phases –Understand, Identify the internet's impact and Change. These phases embraces seven specific steps which are grounded either on system theory, system dynamics or action research. First results obtained in a business case with one of our partners imply the importance of the application of the action research theory in a methodology for improving existing business models.

1. Introduction

The economy these days is going through a big change. The time of the “internet-hype” has gone. Almost daily died dot-coms – pure Internet companies operating only on-line - appear in the headlines. But also the so called “wanna dot-coms”, established organisations seeking to incorporate the Internet into their business, are struggling with their online performance. The biggest problem these companies face is the challenge to manage change. We agree with Kanter’s argument [10]: “When wanna dot e-ventures fail, it isn’t anything inherent about the Internet that trips them up.” These companies are not really prepared to undergo a serious makeover. Therefore we are putting emphasis on these companies in this paper.

How the web changes traditional business models has recently become a much-discussed topic in literature. Thus we think a framework as methodology for supporting the whole process of developing a business model is required. For this reason we are working on a methodology showing how to use the impact of the internet on business models for gaining competitive advantage.

The aim of this paper is to answer the following research question:

What is the contribution of the action research theory in the complex effort of exploring change in business models in the digital economy?

In order to answer this question our definition of a business model and its development process is given first. Then the prerequisites for a methodology to improve existing business models and the role of action research within such a methodology are presented. Due to the fact that all analysed theories on their own are not appropriate for the development process, we decided to develop our own methodology, the *evolaris* methodology. We introduce the *evolaris* methodology in detailed form in the third part, titled “Our approach”. At the end of the paper we show results gained up to now while applying this methodology in business cases.

2. Definitions

2.1 *What are the Elements of a Business Model?*

Business models are perhaps the most discussed and least understood aspect of the web. In the most basic sense a business model is simply a model of the logic behind a business. It describes how to make money. A model on the other hand is a representation of the reality. The probably best known definition is given by Timmers [18]: In his 1998 article he defines a business model in respect to its architecture for the product, service and information flows, the benefits for the various business actors, and the sources of revenues. He espouses a “systematic

approach to identifying architectures for business models” via a value-chain deconstruction and reconstructions.

In the view of Petrovic, Kittl and Teksten [14] a business model describes the core logic of a business, as shown in their article. The following figure 1 demonstrates the hierarchical structure of the business logic. The business model gives sense to the various business processes and the business processes on the other hand determine the information and communication system. All three levels are connected to each other. This means that changes on a higher level always result in changes on a lower level and that a business model itself can only be successful if the two lower levels fit.

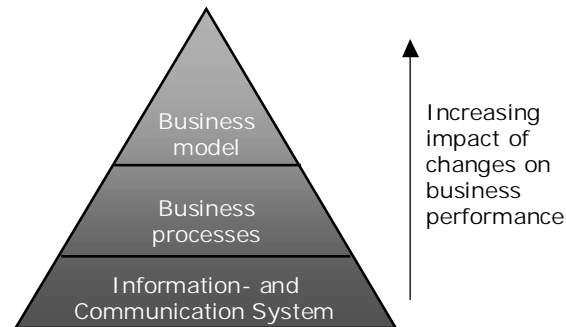


Figure 1: Hierarchical Structure of Business Logic [14]

A business model can be divided into seven sub-models: The value model, the resource model, the production model, the customer model, the revenue model, the capital model and the market model, for more detail please refer to Petrovic, Kittl and Teksten [14]. Figure 2 illustrates the whole system with its relevant environment and the seven sub-models that constitute the business model. Again it should be noted that the sub-models describe the logic behind the corresponding processes, e.g. the production model shows the variables which are relevant for choosing a certain production process.

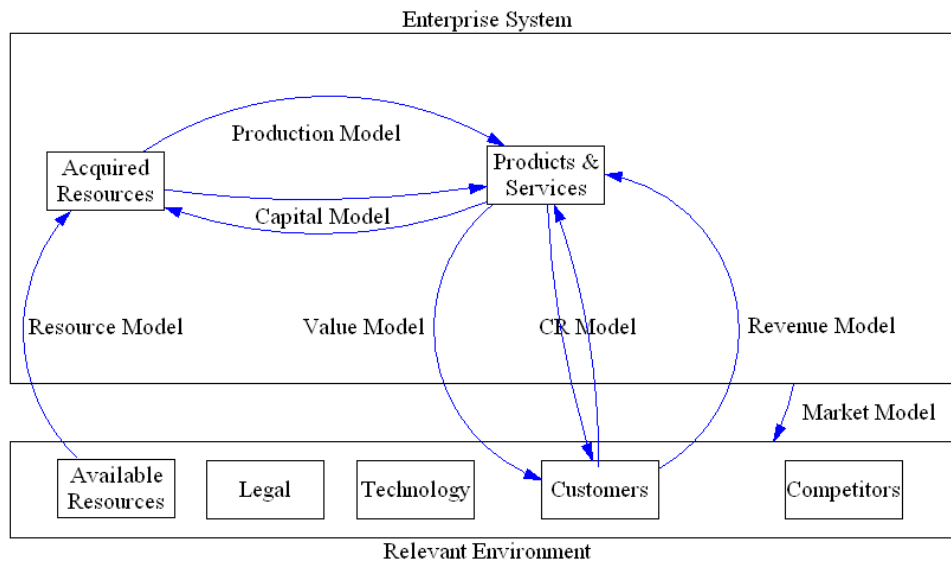


Figure 2: Elements of a Business Model [14]

To find out more about the benefits that occur when using business models to describe the logic behind a business please refer to the article of Petrovic, Kittl and Teksten [14].

2.2 How to Develop Business Models for Existing Companies?

It is quite rare that companies develop a business model for an existing business area. Usually when a company plans to enter a new segment or market a business plan, often required by investors, is developed [10, 15]. Such a business plan can be seen as a first step towards a business model as defined above. But it is important that the business plan is continuously updated so that the changes in the market, e.g. the influence of a new technology, are reflected in it. Only then the business plan can be seen as a business model in our definition, describing the logic – the “Why?” – behind the business processes.

Due to the fact that many established companies do not have a business model they are struggling with the change caused by the effect of the internet [10, 15]. It is not understood what the key success factors for gaining competitive advantage by using the internet are. Researchers at Insead for example found no evidence that the so called “first mover” advantage which was often thought to be one main key success factor in the internet leads to any sustainable economic advantage [3]. Due to this uncertainty in the field companies are looking for guidance to identify which changes the internet imposes on their business model.

The literature also shows that for most researchers the question how to improve an existing business model by using the internet is of highest interest e.g. [18]. Many existing companies are trying to successfully use the internet technology for their business model, but often they don't know how and where to start.

What are the Prerequisites for Improving Existing Business Models?

In order to develop a methodology for improving existing business models instead of developing a new ones we expanded the methodology from Petrovic, Kittl and Teksten [14] by using the principles of action research.

Business models are always based on the mental models of managers developing them. In order to be able to effectively change mental models while working with teams, learning has to occur in three (iterative and flexible) stages [17]:

- Mapping mental models – explicating and structuring assumptions (via systems models);
- Challenging mental models – revealing inconsistencies in assumptions;
- Improving mental models – continually extending and testing mental models.

Based on these three stages of Senge/Stermann we identified three main phases for improving an existing business model - the manager's mental model of the business - as shown in table 1.

The first phase "Understand" corresponds with the mapping of mental models which can be seen as a means for structuring and sharing knowledge. It enables the communication of ideas within the company, with employees, consultants and customers.

The second phase "Identify the internet's impact" can be seen as a challenge of the existing mental models. The internet expert has to illustrate the risks or opportunities which occur through the impact of the internet on the (mental) business model.

Only when the differences are revealed and understood – meaning that the mental model has been improved/changed – the third phase "Change" can be successfully initiated. One of the main aims of this phase is the communication of the improved business model within the organisation so that the employees, consultants and customers are able to adapt their own mental models.

Below we point out - by stating the phase's number in brackets - the relevance of the methodology's prerequisites for each of the three phases (Understand, Identify the internet's influence and Change).

Phase	Title	Aim
1	Understand	Help the company and the researcher himself to understand the business model
2	Identify the internet's influence	Identify the impact of the internet on each variable of the company specific business model
3	Change	Take part in the change process and document the effects

Table 1: *The Three Phases of the Evolaris Methodology*

Petrovic, Kittl and Teksten, identified the following six prerequisites of a methodology for developing business models. For detailed description of the principles please refer to [13].

1. The methodology should be able to handle complex systems (1)
2. The methodology should support the structuring and sharing of knowledge and the change of mental models (1)
3. The methodology should be able to predict the outcomes more accurately through the support of risk free experiments (2)
4. The methodology should create an learning environment for managers (2,3)
5. The methodology has to support iterative expansion and change (2,3)
6. The methodology should be grounded on theory and practically applicable (1-3)

From an action research point of view three further prerequisites are required for a methodology to improve existing business models.

7. The methodology requires (inter)-action as an integral part of the process itself (1-3)

Both close interaction and intensive communication with all people involved in the change process are required to insure a widely accepted and understood business model. Also the direct involvement of the researcher – the internet expert – during the whole process must be an integral part of the methodology.

8. The methodology is based on the researcher's professional values rather than methodological considerations (2)

The researcher who also leads the project can be seen as an expert on the internet's impact on business models. Provided by structure of supportive knowledge which only exists within research and competence centres the researcher is able to use the experience gain in previous business cases. The researcher is not to be seen as a strategy consultant who tells the project partner how his business model should look

like. He only helps to make the complex mental model understandable for a larger audience as well as for himself. This equally understood version of the business model is necessary in order to show the impact of the internet on it.

9. The methodology has to support structured reflection of learned lessons and academic discourse (1-3)

To initiate a continuous improvement of the expert knowledge concerning the internet's influence on business model results, theories and models have to be published and discussed in the academic community. Also an external evaluation of the competence center and its published results should be initialized in order to guarantee a high quality its output.

2.4 What are the Benefits of Action Research?

The easiest way to understand action research is to look carefully at the two words in the title. Action research is a methodology which has the dual aims of action and research [5]: *action* to bring about change in some community or organisation or program and *research* to increase understanding on the part of the researcher or the client, or both.

Action research always involves a team that includes researchers and participants of the change process. Participation is one of the most important characteristics in action research. The action research process is not static. It is more cyclic, alternating between action and critical reflection. It is an iterative process which converges towards a better understanding of what happens.

Action research is sometimes seen as trade-off between rigor and relevance. But in reality both dimensions are equally important: A methodology that is not grounded on theory rigorously won't provide reliable results and will always be challenged by someone who is not satisfied with the outcome. On the other hand the methodology has to be practically applicable in order to be of any relevance to managers at all.

Action research can go more in the direction of action or more in the direction of research, but good action research needs to stay somewhere in the middle. It's a question of finding the mean between 'all action and no research' or 'all research and no action' [19].

There are many different ways of research. Good action research shares the basic characteristics of all good research, but it also has its own special characteristics, as illustrated in the book of McNiff, Lomax and Whitehead [11] and shown below:

Action research shares the following characteristics with other research:

- it leads to knowledge
- it provides evidence to support this knowledge
- it makes explicit the process of enquiry through which knowledge emerges
- it links new knowledge with existing knowledge

Action research is different from other research because

- it requires action as an integral part of the research process itself
- it is focused by the researcher’s professional values rather than methodological considerations
- it is necessarily insider research, in the sense of practitioners researching their own professional actions

2.5 How is the Process of Action Research (Checkland) Carried out?

Figure 3 illustrates Checkland’s cycle of action research in a human situation [4]. This cycle will be used in the following description of the evolaris methodology. In Checkland’s FMA model particular linked ideas F are used in a methodology M to investigate an area of interest A. As shown in figure 3 the researcher is interested in particular themes, declaring F and M, then enters a real-world situation in which the themes are relevant and becomes involved as both participant and researcher. The result of this reflection is not only for the benefit of the researcher, but also for others wishing to try and understand the study and make sense of the researcher’s findings. Without the clear and explicit statement of the framework of ideas it would be nigh impossible for anyone else to understand and learn from the researcher’s findings, interpretations, and reflections.

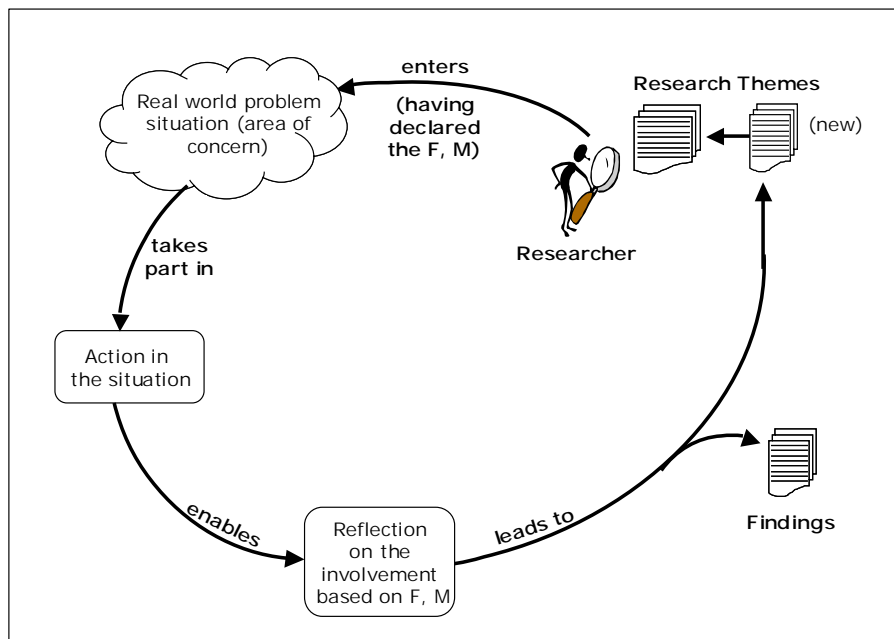


Figure 3: The cycle of action research in human situations (based on [4], Fig. 3)

As shown in figure 4, the two main differences to the field research are that the action researcher takes part in the change process and that the rethinking process a continuous one through the whole action research process. Therefore one main difficulty is to find the right time to stop the research and to present the results. As a consequence of insufficient time during the research process usually at the end of the research case a reflection on the gaining experience is carried out, documented and often published within the science community.

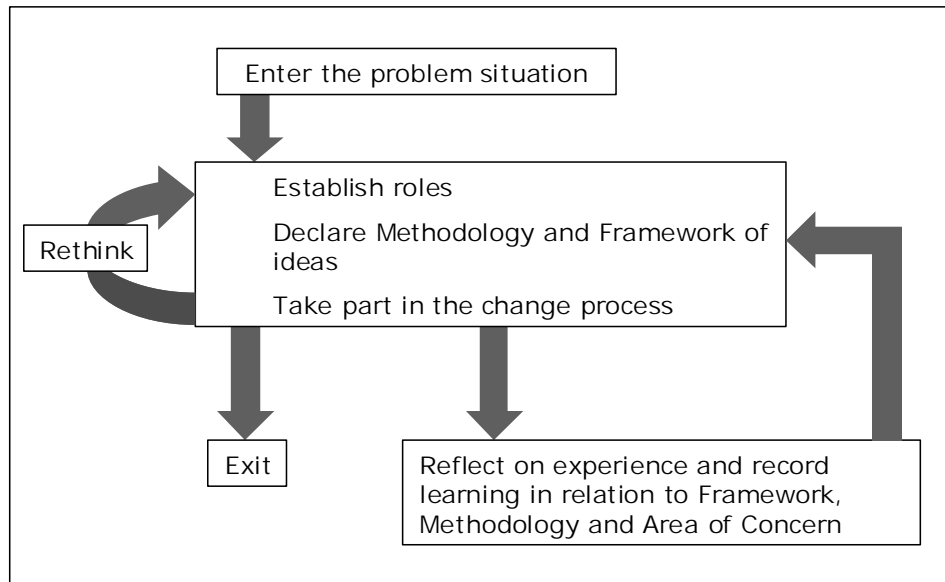


Figure 4: *The process of action research (based on [4], Fig. 4)*

2.6 Why to Use Action Research?

The process of action research is more difficult than conventional research. The action researcher takes on responsibilities for change as well as for research. But even so action research has important advantages as e.g. Dicks points out in his article [6]. The research questions arise from the needs and wants of practitioners, people who work as agents of change. That means that practitioners can use it as part of their normal activities and they can work closely together with the researcher. These practitioners has the potential to increase the amount they learn consciously from their experience. A further bonus is for the action researcher, that he becomes involved as both participant and researcher and that his work, e.g. a thesis or publication has direct relevance to practice as well as to the scientific community.

2.7 Where to Draw the Line between Action Research and Consulting?

This is a very important question for a competence centre with a good partnership to the scientific community, e.g. universities, as well as to the partner-companies. A competence centre using the methodology of action research does not want to be compared with typical consulting work. For that reason it is important to distinguish. Baskerville states in his article [2] that action research processes and typical organizational consulting processes contain substantial similarities, but there are still five key ways of differences, which are shown in the table below.

Key way	Action research	Consulting
Motivation	AR is motivated by its scientific prospects, perhaps epitomized in scientific publications.	Consulting is motivated by commercial benefits, including profits and additional stocks of proprietary knowledge about solutions to organizational problems.
Commitment	AR makes a commitment to the research community for the production of scientific knowledge, as well as to the client.	In a consulting situation, the commitment is to the client alone.
Approach	Collaboration is essential in action research because of its idiographic assumptions.	Consulting typically values its "outsider's," unbiased viewpoint, providing an objective perspective on the organizational problems.
Foundation for recommendations	In AR, this foundation is a theoretical framework.	Consultants are expected to suggest solutions that, in their experience, proved successful in similar situations.
Essence of the organizational understanding	In AR, organizational understanding is founded on practical success from iterative experimental changes in the organization	Typical consultation teams develop an understanding through their independent critical analysis of the problem situation.

Table 2: Distinguish Between Action Research and Consulting

In summary action researchers act out of scientific interest to help the organization itself to learn by formulating various experimental solutions based on an evolving,

untested theory. Therefore action research is the right research methodology for a competence centre, which takes part in the changing process. In difference to consultants who are usually paid to dictate experienced, reliable solutions based on their independent review [1].

3. Our Approach – The Evolaris Methodology

Based on the nine prerequisites mentioned above we developed the evolaris methodology by combining aspects of action research, system thinking and thinking in networks [4, 17, 8].

The proposed methodology is divided into three phases, as explained above and shown in table 1, in which seven specific steps towards the improvement of an existing business model are taken.

We found that in order to deeply understand the business model of a company we have to intensively interact with the involved people in the first phase in order to understand their mental model of their business.

Every entrepreneur has an intuitive understanding of how his business works, of the logic how it creates value – the business model. It influences all important decisions, but in many cases she or he is not able to communicate it in a clear and simple way. This logic of the system, the business model, is based upon a complex mental model and thus can only be changed if this mental representation of the real world changes before. The mental model can be described as a network of facts and concepts, and its content and structure contain our understanding of social and physical phenomena [12].

Therefore the aim of the **first phase – Understand** – is to understand the logic behind the business of the investigated company in order to be able to define a business model later in the process.

In this first step very different starting points can be found; some companies use a small number of short rules as a strategy others have complicated (long and hard to communicate) strategies. [7,15]. Depending on the state of the strategy definition of the consulted company this first stage itself can be very beneficial for an organization. As a result all discussed terms are defined in a glossary so that concepts are equally understood within the organization.

Based on Honegger's six steps for solving a complex problem we identified four relevant steps which have the objective to understand the existing mental model of the managers involved [9].

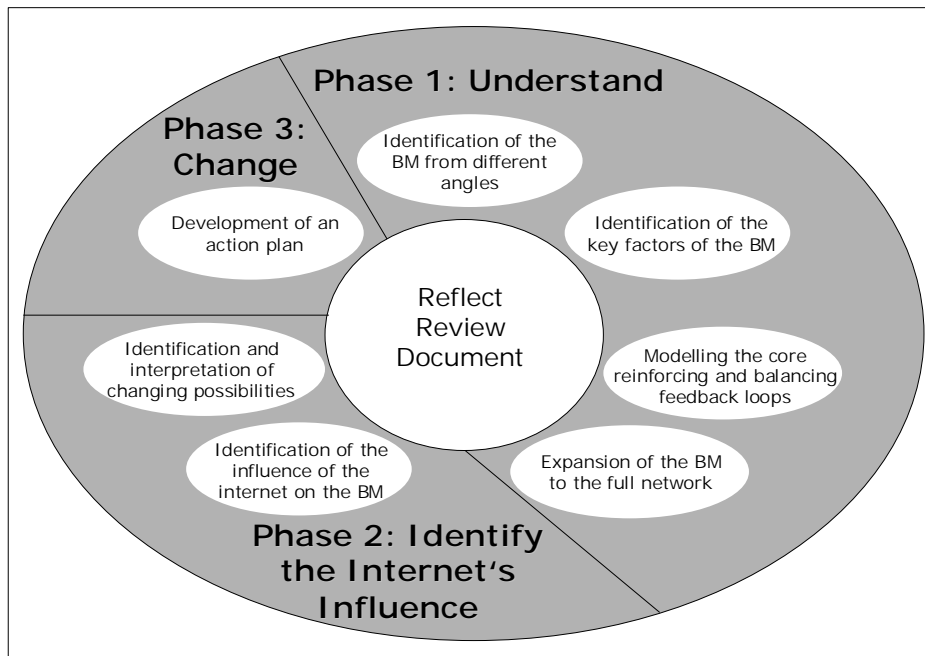


Figure 5: *The Evolaris Methodology*

In the first step the business model has to be defined in a more detailed way by taking different perspectives into account. As mentioned above a strategy definition, if it exists, can be used as a basis in this step. But different departments within large organizations often have different interpretations of the company's main goals. Therefore the researcher should include in this first step the positions of as much different stakeholders as possible in order to get an complete overview. Also any specific market facts and other important influencing factors should be taken in to account at this early stage.

The Identification of the key influencing factors of the business model is the main aim of the second step. This can be done by analyzing every stakeholders interest in the business model. As a first result the researcher can supply the company with a list of influencing variables within the business model. This list has to be discussed with and completed by the involved people from the organization. A glossary with a definition of every variable is another result of these first two steps.

After the variable definition the modeling of the core reinforcement or balancing loop is the objective of step three. The search for this central part of the business model has to be done in close relationship with the involved people of the organization. We found that a workshop lasting either a half day for the steps two and three or a whole day for steps two to four is very beneficial for the results and the acceptance within the organization.

During step four the researcher has to expand the model to a full network and identify specific clusters of variables. The results are even better understood and accepted if the involved people are developing the network under moderation of the researcher. But unfortunately we found often the involved people are not willing to invest sufficient time for this step. As a result more time has to be invested due explanation and discussion during the following steps. Figure 6 shows a typical result of Phase 1, in that case a business sub-model of an Call Center.

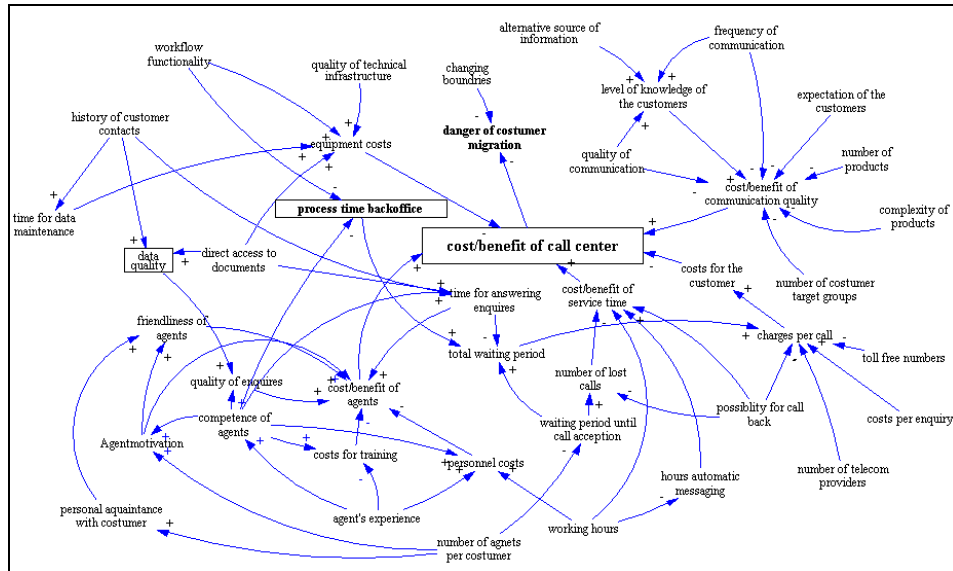


Figure 6: Cost/Benefit Model of a Customer Care Center

The **second phase – Identify the Internet's Influence** – has the aim to identify the impact of the internet on the business model and all its variables. Once this influence is identified, possibilities of changing the business model towards gaining competitive advantage by using the internet have to be found. These objectives are reached by providing expert knowledge about the influences of the internet on specific markets and industry sectors and by supplying a learning environment for managers to change their mental models. This phase illustrates the true value proposition of a competence center for eBusiness in the process of changing a business model.

The fifth step of the methodology therefore aims to identify all variables of the business model which are influenced by the internet. Based on an intensive desk study and the data stored in the case library the researcher indicates the influence on the business model and discusses his findings in a continuous review process with the client [9].

Seeking options for changing the business model in order to use the influence of the internet is the essence of the sixth steps. It includes pointing out the involved risks and opportunities of these options. The combination of the creative potential (knowledge of innovations) of the competence center and the knowledge about this specific company helps to generate a verity of change opportunities which are evaluated by the client and the researcher [13].

In the **third phase – Change** – an action plan for changing the business model is developed. Either the researcher continues to actively take part in the process and accompanies the change process within the organization or exits the problem situation here. Either way he has to document and structure the knowledge gained through the application of his findings during the phases and steps before. This detailed analysis of every successful or unsuccessful application of the methodology helps extend the knowledge of the experts within the competence center.

It is important to note that during the application of the methodology a continuous review and documentation process is obligatory. Jumping forward or backward from one step to another is explicitly allowed; the methodology should be seen as a network rather than a linear sequence of steps. This could mean for example that during the step: 'Identification and interpretation of changing possibilities' another variable of the business model is identified, so that the researcher has to jump back to the step 'Expansion of the BM to the full network' in order to change the business model network. Now the researcher has to go through the steps within the second phase again to see what the new variable implicates in these steps.

4. Current Findings

The presented methodology is the result of interdisciplinary research carried out at evolaris. It is currently applied and evaluated in business cases with partners of evolaris – international companies from different industries. Below we present the first results gained during these business cases. These results demonstrate the importance of action research as part of a methodology for changing existing business models.

We found that the amount of time invested in the first phase - the creation of the business model network - strongly affects the quality and the acceptance of the results. E.g. a business model network for a department of one of our partners was not understood and accepted by the manager of the department because he was not involved sufficiently during its development. Valuable employees always have a lack of time to contribute in the project if its importance is not stated clear enough. If possible the researcher should moderate a workshop where the involved people themselves develop the business model network on a white board. Or if the involved employees do not have sufficed time the researcher has to develop the network with his colleges step by step. It is important that each small result is

discussed with the responsible team so that the network can be understood. We found that the second method is in fact much more time consuming because people tend to discuss much longer if they are not involved from the beginning. These findings show the validity of the principles of action research which emphasize the involvement of the company and the researcher in the change process [16].

Nevertheless many companies prefer to invest less time in the first phase of the methodology. In these cases the researcher has to document in more detail all his steps and has to communicate these interim results frequently to the company. But we found that most people do have problems understanding business models which have been developed by someone outside their company. This is due to the natural difference between the mental model of the researcher and the one of someone inside the organization. Consequently parts of the network have be developed again so that the model is accepted [19].

The significance of the fundamental principles “Document”, “Review”, “Reflect” is revealed by the following result. Only if the business model is written down in a network of variables and accepted by everyone involved, the expert can initialize the analysis of the influence of the internet on each variable. The findings of the desk research carried out in every business case at evolaris are much better accepted if the employees have understood the business model and are able connect the desk research results with their business model. Also very valuable are the in case library stored results gained in other cases. An essential part of this phase the fact that the found results are discussed with the client and reviewed once or many times in order to provide the best solution for this specific business model. The accepted outcome typically is a result from numerous discussions and reviews.

Our experience shows that it is helpful to apply the methodology step by step to each of the seven sub-models instead of trying to improve the whole business model at once. Simply because it would not be possible to invite all relevant mangers and it is too complex to discuss all seven sub-models at once. As figure 7 shows how the company and its environment can be seen as different layers of manageable variables which form a cone of different resolutions. e.g. the first level can be seen as the industry sector the organisation is in, the next level could contain the various business units, following a lower level which correlates with the top management board and below each level represents a management level.

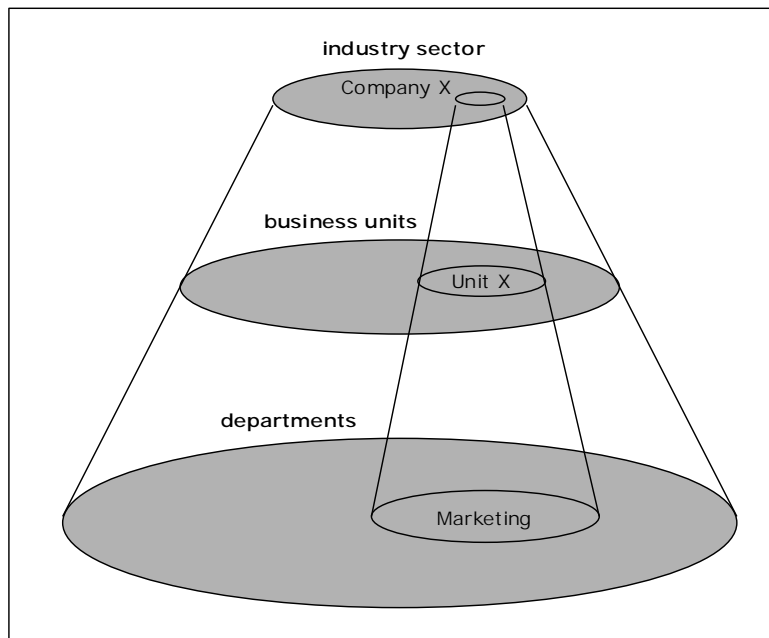


Figure 7: *The Different Layers of The Resolution-Cone Based on [8]*

It is essential that a business model and its sub-models are developed within only one such level. Thus depending on the position of the involved people a business model for the whole organisation, a business unit or a single department is the result of the evolaris methodology application.

4.1 The Right Environment – evolaris eBusiness Competence Center

As mentioned above one prerequisite for applying action research is a learning environment and a structured knowledge base. The core objective of the evolaris eBusiness competence center is to provide such an environment where business models can be analyzed and improved according to the prerequisites mentioned above [13].

evolaris is a joint venture of major Austrian enterprises from different industries and research institutions. The core values of evolaris are connecting, exploring and changing. For the business partners of evolaris, this endeavor supports these values by providing the theory behind, and the methodology for transforming their business models. However, it also clarifies the potential impact of the internet in general and within certain industries. evolaris moderates the entire process of improving an existing business model and provides valuable input through its experience with different industries and strong academic network. In this way an

optimum combination of rigor in methodology and relevance of outcomes can be achieved, which is one of the most important success factors of evolaris.

5. Further Research

Further research in the field of action research, business models, and systems thinking in connection with the impact of the internet on businesses is carried out at evolaris. The methodology is currently applied and evaluated in almost all business cases at evolaris. Various researchers are analysing the results of these case and improving the methodology according to these findings.

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