

The value proposition from end-user perspective as main driver for creating complex business models

Paper presented at COST269 conference Good Bad Irrelevant, Helsinki, Sept 3-5, 2003

Harry Bouwman, Delft University of Technology, Delft, The Netherlands,
tel +31 (0)15-2788069, w.a.g.a.bouwman@tbn.tudelft.nl

Timber Haaker, TNO Telecom, Leidschendam, The Netherlands
tel +31 (0)70-4460001, fax +31 (0)70-44 63206, t.i.haaker@telecom.tno.nl

Marc Steen, TNO Telecom, Leidschendam, The Netherlands ,
tel +31 (0)70-4463994, fax +31 (0)70-44 63206, m.g.d.steen@telecom.tno.nl

Henny de Vos, Telematica Instituut, Enschede, The Netherlands,
tel +31 (0)53-4850475, henny.devos@telin.nl

Abstract

Successful development and exploitation of ICT based services increasingly depends on cooperation between organisations: sharing resources and capabilities in a complex value system or '*value web*'. This paper discusses the design of complex business models for ICT based services delivered by such *value webs*, or more specifically: the results of creative sessions in which participants explore and develop complex business models. It addresses the question: How do creative sessions contribute to the creation of viable and feasible business models? The hypothesis to be tested is whether creative sessions which start with a value proposition will lead to more viable and feasible business models. Creative sessions, so-called '*Business Blueprint*' sessions, were organised in which participants explored and developed a value proposition, organisational arrangements, technical architecture, and financial arrangements. During these sessions observation protocols were used, discussions were monitored, and the process and results were evaluated. Our research suggests that these sessions help to develop a shared vision, and contribute positively to the development of more viable and feasible business models. Such creative sessions are useful when participants want to explore options, but further research is needed to develop formats for creative sessions that are useful when participants want to actually develop workable solutions.

Introduction

The mobile telecom industry is facing opportunities that may radically change the field of mobile telecom. The development of networks like GPRS (2,5 G), UMTS (3G) WLAN (WiFi), and Personal Area Networks (beyond 3G) will create a market for mobile data services: services that combine technologies and services from the domains of mobile telephony, internet (browsing, e-mail), business applications (office software), mass media (television, radio, advertising), content (news, movies, games, books), PC industry (laptops, PDA's) and electronics (cameras). These innovations and *convergence* offers opportunities for the mobile telecom industry. But to capture these, companies must buy licences, build networks, and develop services. Such activities require large resources, which most players in mobile telecom currently lack. Furthermore, the mobile industry is threatened by new players from domains entering the market for mobile data services, e.g. companies that provide business software or financial services. Due to innovations, *convergence*, and the limited

resources, development and exploitation of ICT based services increasingly depends upon cooperation between organisations: sharing resources and capabilities in a complex value system or '*value web*'. It is assumed that dynamic *value webs* will arise and replace static and linear value chains (Moschella, 2003). *Value web* stands for a cooperation between companies and organizations during development, implementation, exploitation or marketing of complex, innovative ICT based services. In such a *value web* each player has different capabilities and resources, and innovation thrives on the combination of these. A recent example in the Netherlands is the co-operation between Compaq HP, Microsoft and KPN Mobile in development and marketing of mobile office application Lucio.

Although extensive literature on strategic alliances (Carlson, 1996) and network formation (Contractor & Monge, 2003) is available, this literature is not related with research into business models, and doesn't give insight in the subtleties involved in the formation of a value web. Bringing different players together does not always yield success. There may be friction, e.g. when individual and collective goals are unclear or are not shared, or a crucial player is missing or leaves because he experiences not enough incentive to co-operate, or one player is over-ambitious, and leaves not enough space for others. Moreover we aren't aware of *practical* approaches in which viability and feasibility of business models are assessed in relation to value web formation in an early stage of service development (see also Maitland et al., 2003). A theory and practice of cooperation is needed to ensure *win-win* situations in which each player has incentives to cooperate, and in which the combined benefits are larger than each player working separately. Such cooperation can only be successful if the business model works for each separate player, as well as for the *value web* as a whole.

It is our claim that viable and feasible business models should start with a realistic and univocal value proposition – with a value proposition that matches manifest or latent needs in the market. This is especially relevant for a technology driven industry like mobile telecom, and especially relevant when different players cooperate: efforts are likely to gravitate towards technological, financial or organizational issues. We assume that a realistic and univocal value proposition should steer decisions in the domains of technology, finance and organisation – and not the other way around (although customer value of innovative services is often enabled by innovative or emerging technologies).

The objective of this paper is to present a format for facilitating creative sessions, so-called '*Business Blueprint*' sessions, in which participants start with the value proposition from the perspective of an end-user, and then explore and develop business models for a *value web*. This paper addresses the question: How do the *Business Blueprint* sessions contribute to the creation of viable and feasible business models for complex value systems in the domain of mobile data services? The hypothesis to be tested is: that creative sessions which start with a value proposition will lead to business models that are more promising than business models that start from the network formation perspective. This research is conducted using a qualitative approach: we conducted several *Business Blueprint* sessions, and analysed the process and results of six of these sessions. Before we present these sessions, we will first discuss literature on business models in order to define the common elements that should be the contents of these creative sessions.

Business models: from ontology to Business Blueprints

To understand the design of business models we first have to define business models and describe the constituting elements of a business model. Literature on business models is

extensive (Afuah & Tuicci, 2001; Hedamn & Kalling, 2003; Madehevan, 2000; Osterwalder & Pigneur, 2002; Weill & Vitale, 2001, see for an extensive overview of literature Bouwman & Van den Ham, 2003; Bouwman, 2003). Timmers (1998) defines a business model as the architectural and technology elements: *A business model is an architecture for the product, service, information flows, including a description of various business actors and their roles, a description of potential benefits for the various actors, and a description of the sources of revenue.* Alt & Zimmerman (2001) suggest that there are a few common elements that turn up in definitions of business models:

- Mission: determining the overall vision, strategic objectives and value proposition, but also the basic features of a product or service;
- Structure: the actors and the role they play within a specific business environment (a value chain or web), the specific market segments, customers and products;
- Process: the concrete translation of the mission and the structure of the business model into more operational terms;
- Revenues: the investments needed in the medium and long term, cost structures and the revenues that are generated.

We focus on customer value, and on the organizational arrangements, technical architecture and financial arrangements that are needed in order to provide a service which has customer value. Customer value discusses what Ansoff's (1987) matrix, based on the dimensions of market and product newness, illustrates. Newness is quite a troublesome concept. It concerns products that are new to the world (Booz et al, 1982), or major innovation (Lovelock, 1984) or disruptive innovations (Christensen, 1997). Customer value can be seen as a new, innovative offer of a firm to its customers (see also the concept of *product integrity*: Clark & Fujimoto, 1990). In general, we will make the distinction between new-to-the-world products or services and new versions of existing products or services (see also the concept of *versioning*: Shapiro & Varian, 1999). Value is seen as part of an equation in which customers in target markets compare the perceived benefits and total costs (or sacrifice) of (obtaining) a product or service (Chen & Dubinsky, 2003; Petrovic & Kittl, 2002). The value proposition must be considered better, and deliver the desired satisfaction more effectively and efficiently than competitors. Customer experience is the key (Bouwman, Staal & Steinfield, 2001). In many cases the customer value as perceived by the end-user has little to do with the customer value that is envisaged in initial business models and greatly depends on the user's personal or consumption context (Chen & Dubinsky, 2003).

In general, organizational arrangements revolve around the resources and capabilities that have to be made available. In their analysis of business models Hedman & Kalling (2003) conclude that the bottom line is that economic value is determined by a firm's ability to trade and absorb ICT-resources, to align (and embed) them with other resources, to diffuse them in activities and manage the activities in a way that creates a proposition at uniquely low costs or with unique qualities in relation to the industry in which the company is operating. Increasingly organizations have to work together to deliver customer value in so-called 'value networks'. Depending upon which actor(s) contribute key assets in the creation of value and the operating risks involved a different configuration of actors is likely to result, some taking structural, integrative roles in the alliance and others taking supporting, facilitating roles (Castells, 1996; Gulati, Nohria & Zaheer, 2000; Kothandaraman & Wilson, 2001; Selz, 1999; Stähler, 2001; Tapscott, Ticoll & Lowy, 2000; Wigand, Picot & Reichswald, 1997).

Critical resources for value networks are most of the time technical in nature. Technical and organizational arrangements are closely related. Without discussing technologies in detail we

observe that ‘access’ plays a crucial role. More specifically this means access to the internet and/or mobile infrastructure, to content, to content developers, aggregators and hosting providers, to software and application platforms, to customers, customer data, billing, customer support and management, based on the type of service providers of specific technology-related services, for instance mobile, location or positioning applications. In some cases these (technical) resources may be found within a single organization, in other cases more than one may be needed. Some resources may only be provided by one organization (structural partners), for other multiple alternatives (support partners) are available. Discussing these technologies in detail falls beyond the scope of this paper (see for instance Lankhorst, Stappen & Jansen, 2001).

With regard to financial arrangements there are two main issues: investment decisions and revenue models. When it comes to investment decisions there are a large number of surveys available (Demkes, 1999; Renkema, 1996). The authors of these surveys describe a large number of methods predominantly based on financial criteria. They discuss general financial methods as well as multi-criteria, ratio and portfolio approaches (Renkema, 1996). Demkes (1999) does point out that decision-makers hardly ever use these kinds of methods. Generally speaking the cost side is reasonably well charted. As far as the revenue side is concerned – which we think should include cost reductions but also long term advantages that stem from intangibles – literature is less uniform. Revenue models indicate what methods of payment are used, what is being paid for, and thus in what way income is generated. Literature about models for income generation is less articulated than business models literature. Furthermore, the distinction between the two is often vague (Mahadevan, 2000; Weill & Vitale, 2001).

The four concepts discussed above were used in multiple case studies in the domain of middleware services: mobile payment, customer relationship management applications, broadband networks; and mobile data services: location based services and mobile information and entertainment services (Maitland et al, 2003). Based on these case studies a format for creative sessions was developed, the *Business Blueprint* method, which aims to support exploration and development of business models (see also: Haaker & Steen, 2002; Faber et al, 2003). Fig. 1 shows the four constituting elements of a business model. Often technological innovation enables conception of an innovative service with customer value (T_0), this service then defines organisational arrangements, technical architecture, and costs (T_1). Financial arrangements then redefine organisational arrangements and technical architecture (T_2), and the division of costs of revenues between actors in the *value web* (T_3). And this *value web* is supposed to actually deliver the service with customer value (T_4).

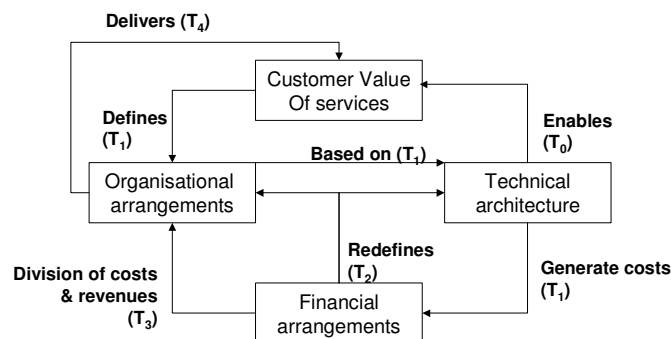


Fig. 1: Business model components

Business Blueprint sessions

In the *Business Blueprint* sessions participants explore the four discussed concepts that constitute a business model. *Business Blueprint* sessions may be applied in many situations, whenever people set out to envision and develop business models for innovative ICT-services that require cooperation between (multiple) parties. We may however divide these situations into two categories:

- *Exploring possibilities*, where the focus is on open discussion and envisioning, probably in the earlier phases of innovation. Participants ‘play’ a role, and the goal of a session is also to create awareness, and to explore the concept of cooperation.
- *Developing solutions*, where the focus is on reaching concrete solutions, probably in the later phases of innovation, e.g. product development and implementation. It is likely that participants ‘are’ their role and that commercial stakes are at hand,

The *Business Blueprint* sessions described in this paper are in the category of *exploring possibilities*.

Alternative methods for service development like Quality Function Deployment (QFD, Clausing, 1994) and System engineering are more formal. QFD focuses on delivering excellent customer value by understanding and addressing both the spoken or expected requirements and the unspoken or excitement requirements (wow factors) of target customers. QFD is criticized by not taking the organizational (supply) side into account (Simons & Bouwman, 2004). System engineering starts from a formal approach in which requirement engineering plays a key role (Loucopoulos & Karakostas, 1995; Kontonya & Sommerville, 1998), but also lacks a multiple perspective approach. Creativity is an important element in the process of innovation. In the *Business Blueprint* sessions the innovation process is modelled as subsequent phases and iterations – each phase consisting of a divergent (generating ideas) and a convergent (choosing and detailing ideas) part (Buijs, 1984; Buijs & Valkenburg, 1996). An important aspect of creativity is (by) passing existing assumptions and practices, and creating novel ideas or novel combinations. There are many alternative techniques available for such creative processes, e.g. brainstorming, brain writing, *synectics*, morphological analysis and boundary examination (see for example Walravens, 1994). The business blueprint sessions make use of insights from these techniques and facilitate in a rather ‘free format’ the generating, and choosing and detailing of ideas.

Each *Business Blueprint* session involved four to six participants and was facilitated by one researcher. The facilitator guided the participants through the different steps of the sessions and saw to it that the blueprint results were put to paper. Although we have done a number of sessions we will discuss in this paper only the sessions we have done with experts in the fields of business models and innovative mobile data-services. Four of these sessions were discussing a mobile data service for a consumer market, i.e. a guided tour service along some famous Dutch Dolmens (the *Dolmen* sessions) from the perspective of seniors and of families as a target group, respectively, while two other sessions discuss similar services for the business market, i.e. a context aware availability management service (the *Office* sessions).

Typically a session took one and a half to two hours. To start, participants were given a short description for a new mobile service idea and a work plan for the process of sketching and exploring the blueprint. Participants started with formulating the value proposition for the service. They define a service concept, a target group (market segment) and a slogan for their service. Next the participants determine the most important roles needed for the service. Each

participant is then asked to choose a role and play and advocate this role in the remainder of the session. Participants draw together the value network with relations as arrows between the roles.

The technical architecture is relatively briefly addressed. It provides a sketch of the fundamental organization of a technical system needed for the service. Participants use the obtained *value network* to sketch the revenue streams. First the total amount of money that is assumed to flow through the network is determined, and then the money is distributed, each participant advocating his own value. At the end the results were discussed with the participants and the process was evaluated. The evaluation of the sessions occurred in steps:

- Participants evaluate the viability of the business blueprint by asking themselves: would I invest in this service? Participants also evaluate the process of the business blueprint: is it an effective and efficient method for developing and exploring business models?
- Facilitators produce a session report based on the collected data and the participants' evaluation.

In order to test our hypothesis that starting with the value proposition leads to more promising business models, the design of the sessions was varied. The *Dolmen* sessions started with formulating the value proposition, while the *Office* sessions started with the network formation. During the session we collected data in a number of ways. Sessions were videotaped, and the facilitator, following an observation protocol, took notes. Material that was produced by the participants, such as drawings and sketches of value networks, technical architectures et cetera were collected (or photographed), and participants were asked to make notes during the session about what strikes them and what they learn. Also the facilitator's reports of individual sessions were analysed and discussed with co-researchers. Further details were derived from coding and analysing a videotaped session

Business Blueprint Results

We discuss the results of the *Business Blueprint* sessions with respect to the efficiency and effectiveness of the process, and the viability and feasibility of the obtained results. Table 1 summarizes the results from the sessions: VP stands for value proposition or customer value, VN for value network or organisational arrangements, TA for technical architecture, and RM for Revenue Model or financial arrangements. Table 1 provides the order in which the steps were taken, the efficiency and effectiveness in the process of realizing the blueprint, and a brief description of the obtained result. Please note that the order in formulating the value proposition and the value network is different in the *Office* sessions and the *Dolmen* sessions.

Efficiency

In all sessions participants obtained results within the available time for a session, on average about 90 minutes. Often formulating a value proposition took longer than the 20 minutes prescribed in the work plan. Formulation of the value proposition had strong relations with discussions on the technical architecture, assessing technological requirements or opportunities. In all steps of the *Business Blueprint* session, frequent sidesteps to other domains were made. This is analysed in more detail in the next section for one of the videotaped *Dolmen* sessions. It worked efficiently to assign each domain to one of the participants. Participants feel responsible for their domain and for the timely formulation and sketching of the domain's results. It aids in forcing decisions and obtaining timely results.

Table 1: Summary of business blueprint session results

Session	Domain	Process efficiency	Process effectiveness	Results
Dolmen 1	VP	Participants needed longer for formulating the service characteristics than the prescribed time.	A clear service concept was finally selected from alternatives steered by the value proposition and cost considerations	Tourist (active senior) rents a dedicated PDA, offering routing, tourist information and services (fixed data). Also some advertising on the PDA. Added value through personalised and flexible information. <i>Travel back in time at your own pace.</i>
	VN	Defining and dividing roles took longer than prescribed	Resistance against division of roles. It was not seen a necessary thing to do.	Roles: Device operator, retailer, application provider, content aggregator, content provider, advertiser
	TA	Participants frequently stepped from the VP to the TA	Simple technology was chosen “to make it work”	PDA with audio, video, GPS and speakers. PDA with WLAN was considered to expensive; only a voice service was considered not attractive.
	RM	After value proposition and value network were roughly defined, fine-tuning occurred during TA and RM	A clear and viable RM was obtained.	Tourist pays €6 per day for rental of the PDA. Additional income from advertising. Big upfront investment (€500.000) for application development needed. PDA’s are leased.
Dolmen 2	VP	Participants were sceptic about added value of the service and spent a long time discussing it	Assumption that target group (active senior) wants “person to person communication” leads to a low-tech service	Guided tour service offered by volunteers on your mobile phone. Tourist calls for road directions, tourist information and local information. <i>Your own guide, at your own pace.</i>
	VN	Dividing roles among participants induced positive energy in the group	Low tech service leads to a small number of roles	Tourist information office (content aggregation, marketing), Volunteers (guides), Network operator (ACD), content providers.
	TA		The obtained TA has limited feasibility as the scalability of the proposed solution is very poor	Tourist office provides guides with CD’s for easy information searching. Guides have handsets with user-friendly interface for guides. Number of guides and availability of guides is limited.
	RM		Participants had much doubt about the viability of the revenue model	Tourist office does not want to invest, so guides and content providers get no pay. Government support may be necessary. Tourist expected willing to pay €6 per day.
Dolmen 3	VP	Formulation of value proposition took longer than prescribed. One participant formulated from his own preferences as a target customer. Another thought from technical possibilities and got excited by that.	Target group (families) steered value proposition “there should be something in the service for children” Two service concepts – a ‘light’ and a ‘heavy’ version remained.	Light service complements paper info with location based up-to-date information retrievable via WAP requests (routing, calendar, nearest playground,...). In the heavy version tourists rent a web tablet with static information (video, e-book) which is supplemented with interactive possibilities (gaming, wireless updating of dynamic content)
	VN	Important roles were quickly defined and divided.	Negotiating about precise role definitions started almost immediately after the roles were divided.	Light: System integrator, content aggregator, content provider, network operator Heavy (additional): Tourist office, equipment manufacturer Tourist office was not interested in light version “ this is hardly

Session	Domain	Process efficiency	Process effectiveness	Results
				more than my paper material”
	TA	Participants with technical interest dominate during formulation of value proposition and TA.		
	RM	Participants were fast in using the role model to split the revenues among them.	Role division and fierce negotiating resulted in revenue split that was acceptable to all. Participants recognize intangible benefits in the heavy version.	Tourists pay €0.50 per request. Tourist office sees promotion of local tourism and is willing to subsidize the heavy version. The device manufacturer uses the service to promote its web tablets. There was discussion whether the content aggregator should pay the content providers (premium content) or vice versa (advertisement).
Dolmen 4	VP	Participants were quick in defining the value proposition. VP and TA steered the process and VN and RM followed.	Participants said “It’s interactive, it’s a game, with options for advertisement”. Once stated this functioned as a guiding principle for the other models.	Tourists rent a PDA for interactive adventure gaming related to the Dolmen. Also advertisement on the PDA from commercial parties.
	VN	Participants were given two responsibilities: play a role and be responsible for a specific domain.	The combination of the two worked well (e.g. combination of responsibility of TA and role of technology provider worked well)	Coordinator, Advertiser, Tourist office, game developer, system integrator, content provider
	TA	One participant was keen on technology and felt responsible for that	.Another participant was keen on the value proposition and expressed clear statements about how he would behave as a tourist.	Interactivity is realized via WLAN.
	RM		Participants recognize also immaterial benefits.	Participants addressed not only the revenue streams but also a market and investment model
Office 1	VN	Participants formulate all roles that they may think off (long list). They wonder how far to go (“also electricity supplier?”).	Participants discuss the nature of the service: mobile application? Internet? Participants formulate three alternatives for the value network. Each participant formulates a role description for his role. This stimulates subsequent role-play.	Participants formulate the four most important roles: End-user, Service provider, system integrator, Retailer. In each alternative value network a different role takes a central position.
	VP	During formulation of the value proposition participants were able to decide which value network is most likely to be successful.	Participants explicitly suggest starting with value proposition, in order to work most effectively.	The added value was formulated for the end-user in a work context (selective availability, better communication between colleagues), and as an idea for selling to the ‘DMU of the organization where people work’ based on ROI. <i>DO (NOT) DISTURB</i>

Session	Domain	Process efficiency	Process effectiveness	Results
	TA	Participants had little time for the TA. Some technical issues were discussed during the other session parts.	Participants discussed the 'one device or many device issue'.	Does the application run on a dedicated device or does it run 'all' existing old and new devices
	RM	The division of roles and negotiations finally led to a clear final solution.	In determining the revenue model all participants advocated their own role. On this 'battlefield' one participant's role was marginalized.	The Service provider and System Integrator share the bulk of revenues. The first one executing commercial 'front-office' activities, the second one executing 'back office' technical activities. The retailer was considered to have value in a b-2-c market, but not in a b-2-b market.
Office 2	VN	Participants preferred starting with the value proposition as they find it difficult to decide on the most important roles without knowing the value proposition.	Participants realised that the service was more complex than they expected – more roles were needed. There was discussion on the necessary activities and which role is responsible for them. The three participants divided the roles in three clusters. Each participant advocating one cluster.	Participants formulate the four most important roles: end-user organization, voice & data provider, system integrator, service provider. The Service provider is the central role, with connections to nearly all other roles.
	VP	Participants were quick in defining the added value for the A-caller, B-caller and the DMU of the organization.	Participants had different levels of involvement with the service concept. However, there was much valuable discussion due to the expertise and unbiased look of the less involved participants.	End-users play two different roles. The A-caller attempts to set up a communication with B. The result of the attempt is based on the context information supplied by B. Added value: A can see the availability of B; B can manage his availability; both resulting in more efficient communication.
	TA	Participants did not separately discuss the TA. They did formulate some boundary conditions for the TA in the other session parts.	The formulation of the role descriptions led to some conflicting technical preferences.	Participants discussed to what extent existing applications should be included in the new application.
	RM	All participants advocated their own role. However this happened in 'close harmony' and two alternatives for clustering of roles remained.	Participants drew a qualitative revenue model using the value network. They indicated the direction of the different cash flows: one-time fees, recurring fees and use-based fees.	Either the IT-role may take the role as service provider or the voice & data provider. no participant claimed the central role.

Effectiveness

In all sessions participants worked effectively, in the sense that they came up with a value proposition and sketches for a value network, revenue model and a (although in many cases a rudimentary) technical architecture. In some sessions participants strongly advocated a specific value proposition or technical architecture. A high degree of involvement was constructive and steered the process strongly. Other groups discussed longer to reach a compromise on the value proposition, based on several participants' ideas, or defined two versions of a service concept – a light and a heavy version.

Nearly all participants evaluated the sessions as instructive and pleasant. Participants for example indicated that they learned about the complexity of the interrelation of the domains and of the domains themselves in a relatively short time. Participants also said that the session contributes to a common understanding of the design issues in the *Business Blueprint*. In one session some participants were sceptic about the added value of the session and the validity of the results obtained. Without additional data on costs or prices of competing services, it is difficult to sketch a realistic revenue model.

Dividing different roles of the value network among participants made the sessions livelier. Sessions got especially exciting when the group formulated the value network and revenue model together, each participant advocating his own role. In some sessions this resulted in a *battlefield*, with real negotiations and every participant striving for an optimal result. In other sessions collaboration happened in *close harmony* and alternative value networks remained open for discussion. Some design issues with respect to who is responsible for what, or who has to pay for what, appeared in a natural way, e.g. in the relation between the content provider and the service provider.

Business blueprint session dynamics

The two different target groups in the *Dolmen* sessions clearly directed the value proposition. The sessions working for *active seniors* came up with simple services based on the assumption that the target group would have a preference for a 'low-tech' solution. This also resulted in a lower number of actors in the value network and therefore in the revenue model. Participants made the value proposition and the value network leading and considered this as a *strategic* choice. The revenue model and technical architecture were considered as details. The sessions that started with *families with children* as a target group came up with a complex solution including interactive possibilities. There was more focus on innovative elements in the technical architecture and a higher number of actors in the value network were necessary. Participants let the value proposition and the technical architecture steer the process, and value network and revenue model followed. In all sessions the revenue model was the result of the result in the other domains, truly a bottom line.

In the *Office* sessions participants started with the formulation of the value network. Participants said they found it difficult to decide on the most important roles without knowing the value proposition. In one session this did lead to three alternatives for the value network. Only during the formulation of the value proposition, participants were able to decide which value network is most likely to be successful. Participants explicitly suggested to start with the value proposition in order to work more efficiently and effectively. The *Office* service may be classified as a B2E-service, i.e. a service offered by organizations to their employees enabling mobile access to organizational resources (see e.g. Van den Ham et al., 2003). Participants formulated the value proposition for both the end-user (employee) and the decision-making unit of the organization where the end-user works. For a viable business

model both value propositions have to be accommodated. It is therefore even more important to start with formulating the value proposition for a B2E service.

Viability and feasibility of results

Through sketching the four perspectives and playing their roles, participants realised insights in the critical design choices that determine the viability and feasibility of a business model. Viability of the business model is discussed especially during the formulation of the revenue model, in relation to the value proposition and what customers in the market segment may want to pay for the service. Participants try to assess if the costs and investments for the service are matched with the expected revenues.

Feasibility is especially discussed with regard to the formation of the value network and the necessary technical architecture. During one of the *Office* sessions, participants formulated their precise role, and their drivers for participating in the value network. This led to conflicting preferences for technical choices, thereby obstructing a feasible solution.

Example of one Business Blueprint session

As a more detailed illustration of the interrelatedness of the four domains the discussion in *Dolmen* session 2 (see Table 1) was analysed. We coded the discussion and duration for the four domains. The Value Proposition domain was coded in more detail, making a distinction between discussions on service design, value proposition and proposed market segment. These three elements are the main concepts in the more detailed conceptual model for the value proposition domain.

The discussion lasted for about 90 minutes. Effectively, about 22 minutes were dedicated to discussions on the value proposition, 17 minutes were used to discuss the value network, 16 minutes on revenue model and 14 minutes were needed for technical architecture. The rest of the time was spent on introduction and evaluation of the session. The table shows how the domains are represented in the discussion. A breakdown of the value proposition domain resulted in 8:42 minutes on service design, 6:21 minutes on design of value proposition and 6:55 minutes on market segment. Discussions on market segment reflected other initiatives in the market and assumed behaviour of the target group.

Fig. 2 shows how the discussion evolved over time. The vertical axis depicts the several subjects of discussion, where 'other' implies topics like introduction to the assignment and evaluation. The horizontal axis is the time line. The thick line in this figure indicates the domains according to the work plan, the thin line reflects the actual discussion.

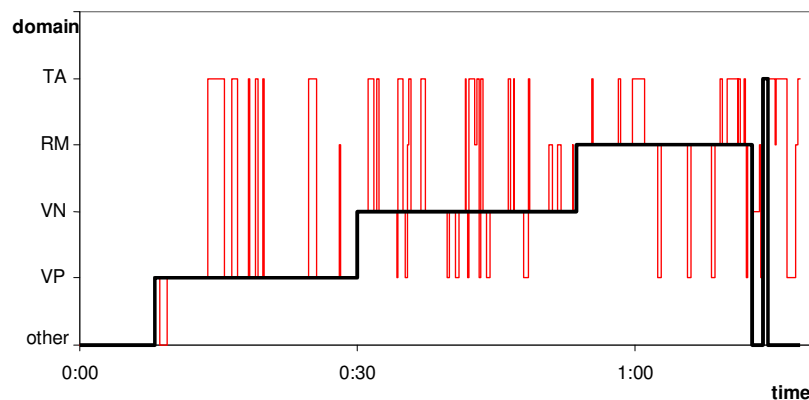


Fig. 2: Time spent in each domain during Dolmen session 2

Fig. 2 shows that many side steps are taken in all domain discussions. For example during the value proposition discussion much side steps to the technology domain were needed to get a clear picture of the service and how it would look like when implemented. Surprisingly, there were hardly any side steps to the value network domain: when roles are settled, the discussion was closed. During discussions on the revenue model side steps to technical architecture and value proposition were made to see whether these would be feasible and viable and to check whether changes in the architecture were needed.

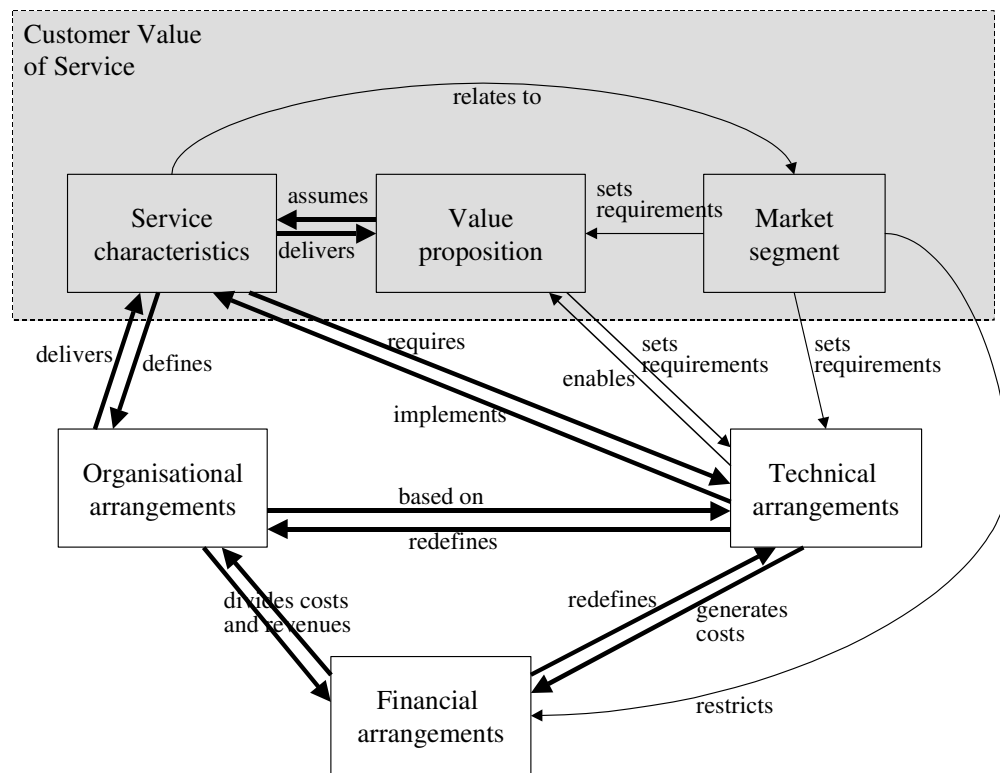


Fig. 3: Links between service domain concepts and other domains

Fig. 3 presents the results of a sequence analysis. That is the number of times subjects are discussed sequentially. Arrows indicate that a subject is discussed directly after the other. Thick arrows imply a more frequent relation. No arrows between subjects indicate that subjects are (hardly) discussed in relation to each other. The nature of the relations is placed near the arrows. This figure relates to the conceptual model as depicted in Fig. 1. In Fig. 3 we see that service characteristic is the main subject of customer value of the service, in the sense that it has a stronger relation to the other domains than other elements. There is a frequent interaction between service characteristics and value proposition. Market segment mainly gives the context for the service design, its implementation and financial arrangements. Market segment defines some of the requirements for the other domains. We are aware that these results are only based on the analysis of a single case and differences or similarities with the conceptual model may be fortuitous. However, the relations between the business model domains show a striking similarity with the conceptual model.

Discussion and conclusions

This paper addresses the question: How do creative sessions contribute to the creation of viable and feasible business models? The hypothesis to be tested is: creative sessions which start with a value proposition will lead to more viable and feasible business models.

Our conceptual model that is central in the *Business Blueprint* sessions proves to be valuable: it helps to understand the critical relations between customer value, organisational arrangements, technical architecture and financial arrangements; and helps participants of a *Business Blueprint* session to discuss, explore and develop business models for innovative mobile data services. The sessions show an efficient and effective order of discussing the components of the business model: participants start with the value proposition, and organisational arrangements (*value web*) and technical architecture follow this value proposition. While financial arrangement (revenue model, pricing, risk assessment) define the bottom line, they may redefine technical architecture and organisational arrangements (which partners to involve in the *value web*). These findings confirm our hypothesis.

Our findings corroborate the relations between the domains, as they are suggested in Fig. 1. However, if we look into one specific domain in detail (as was done for the service domain) relations become less clear. The analysis of a videotape of one sessions showed that the relations between value proposition and technical architecture, and between organisational arrangements) and technical architecture are strong. We saw that discussions on financial arrangements dealt with technology (costs and risks) and customer value (price and value), and not with organizational arrangements. We can conclude that our main research question is answered, but that our approach clearly needs further fine-tuning.

Although our conclusions are formulated rather straightforward, we should be cautious seen the limited number of cases, and the effects of the role of (different) facilitators, the fact that the cases were fictional, the fact that participants were experts and not stakeholders who aim for concrete gains. Nevertheless, the sessions were instructive, and helped to understand the process of exploring and developing business models. Participants repeatedly indicated that the sessions offered them a number of *eye openers* with regard to the complexity of the issues at stake, the interrelatedness and complexity of issues, the possibility to explore and discuss options and priorities, the necessary level of detail in discussions, and how these issues effect the creation of viable and feasible business models.

The question remains open if these insights may also be achieved if other formats for creative sessions or scenario methodologies were. We plan to combine findings from case studies on business models with the *Business Blueprint* approach, and develop a business game in which the development of a business model can be simulated, and which enables early testing of the viability of a business model, from a supply side point of view. We stress the importance of starting with the value proposition from end-user perspective, and in addition to that we plan to test empirically the value proposition which results from the session. After all, this value proposition is an *assumed* customer value, and needs to be tested, e.g. with qualitative market research or conjoint measurement studies.

Acknowledgements

This paper is a result of the B4U project, a project within the Freeband Impulse program. This program aims at the generation of public knowledge in advanced telecommunication

(technology and applications. The Dutch Ministry of Economic Affairs is co-funding this program. The general intention is to prepare the grounds for the big leap forward towards 4G, in which seamless integration of fixed, wireless and mobile networks will be the standard and in which an attractive environment for user centred applications will be the norm. The B4U project is part of the Freeband Impulse program (<http://www.freeband.nl/projecten/b4u>). In the B4U project Telematica Instituut, TNO–STB, TNO-Telecom and Delft University of Technology investigate the conditions for a rapid and effective introduction of context-aware services for healthcare professionals and knowledge workers.

References

- Afuah, A. & C. Tucci (2001). *Internet Business Models and Strategies*. Boston: McGraw-Hill, Irwin.
- Alt, R. & H-D. Zimmerman (2001). Introduction to Special Section: Business Models. *Electronic Markets* Vol. 11 (1) 3-9.
- Ansoff, I. (1987). *Corporate Strategy*. Middlesex: Penguin.
- Booz, Allen & Hamilton (1982). *New Product Management for the 1980s*. New York: Booz, Allen & Hamilton.
- Bouwman, H. (2003). Designing metrics for business models describing Mobile services delivered by networked organisations. Paper presented to Workshop on concepts, metrics & visualisation, at the 16th Bled Electronic Commerce Conference eTransformation, Bled, Slovenia, June 9 -11, 2003.
- Bouwman, H., M. Staal & C. Steinfield (2001). Klantenervaring en Internet concepten. (Consumer experience and Internet concepts) *Management & Informatie*, Vol 9 (6) pp.52-60.
- Bouwman, H. & E. van den Ham (2003). Business models and eMetrics, a state of the art. In: B. Preissl, H. Bouwman & C. Steinfield (eds). *Elife after the Dot.com bust*. Berlin; Springer Verlag.
- Buijs, J. (1984) *Innovation and Intervention*. Deventer: Kluwer
- Buijs, J. & R. Valkenburg (1996). *Integrale productontwikkeling (Integral Productdevelopment)* Utrecht: Lemma.
- Carlson, R. (1996). *The Information SuperHighway. Startegic Allainces in Telecommunications and Multimedia*. New York: St Martin Press.
- Castells, M. (1996). *The Rise of the Network Society*. Oxford, Blackwell Publishers.
- Chen, Z. & A. Dubinsky (2003). A conceptual model of Perceived Customer Value in E-commerce: A Preliminary Investigation. *Psychology & Marketing*, Vol. 20 (4): 323-347.
- Christensen, C.M. (1997). *The Innovator's Dilemma. When New Technologies Cause Great Firms to Fail*. Boston: Harvard Business School.
- Clark, K.B. & T. Fujimoto (1990). The power of product integrity. *Harvard Business Review*, Nov-Dec 1990.
- Clausing, D.P. (1994). *Total Quality Development: A Step-by-Step Guide to World-Class Concurrent Engineering*. New York: ASME Press.
- Demkes, R. (1999). COMET: A comprehensive methodology for supporting telematics investment decisions. Enschede: Telematica Instituut.
- Faber, E., P. Ballon, H. Bouwman, T. Haaker, O. Rietkerk & M. Steen (2003) Designing business models for mobile ICT services. Paper presented to Workshop on concepts, metrics & visualisation, at the 16th Bled Electronic Commerce Conference eTransformation, Bled, Slovenia, June 9 -11, 2003
- Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal*, 21, 203-216.
- Ham, E. van den, Rietkerk, O., Bouwman, W., Haaker, T., van Silfhout, K. (2003), Exploring service networks enabling the delivery of mobile business-to-employee services, paper presented at ICEC'03, Pittsburgh, USA, October 1-3, 2003.

- Haaker T. & M. Steen: From idea to business blueprint. Paper presented at International BITA B4U Conference Business models for innovative mobile services, Delft, The Netherlands, November 15-16, 2002.
- Hedman, J. & T. Kalling (2003). The business model concept: theoretical underpinnings and empirical illustrations. *European Journal of Information Systems* 12, 49-59
- Kontonya, G. & I. Sommerville (1998). Requirement Engineering. Processes and Techniques. Chichester: John Wiley Publisher.
- Kothandaraman, P. & D. Wilson (2001). The Future of Competition. Value Creating Networks. *Industrial Marketing Management*. Vol 30, pp. 379-389.
- Lankhorst, M., P. v.d. Stappen, & W. Jansen (2001). State of the Art in E business Services and Components. Enschede: Telematica Instituut.
- Lovelock, C.H. (1984). Developing and implementing new services. In L George, W.R. & Marshall, C.E. (eds.). *Developing New Services* (44-64). Chicago: American Marketing Association.
- Loucopoulos, P. & V. Karakostas (1995). *Systems Requirement Engineering*. New York: McGraw-Hill.
- Maitland, C., E. van de Kar, U. De When Montalvo, H. Bouwman (2003). Mobile Information and Entertainment Services: Business Models and Service Networks (pp. 69-86). In: G.M. Giaglis, H. Werthner, V. Tschammer & K.A. Froeschl (eds) *2nd International Conference on Mobile Business*. June 23/24 Vienna: Osterreichische Computer Gesellschaft.
- Mahadevan, B. (2000). Business models for internet- Based E-commerce. *California Management Review*. Vol. 42, No.4, pp. 55-69
- Mintzberg, H. (1983). *Structure in Fives: Designing Effective Organizations*.
- Monge, P. and N. Contractor (2003). *Theories of Communication Networks*. Oxford: Oxford University Press.
- Moschella, D. (2003). *Customer Driven IT. How Users are Shaping Technology Industry Growth*. Boston: HBS Press.
- Osterwalder, A. & Y. Pigneur (2002). An e-business Model Ontology for Modelling e-business. In: Loebbecke, C., R. Wigand, J. Gricar, A. Puchicar & G. Lenart (Eds.). *Ereality: constructing the eEconomy*. Proceedings 15th Beld Electronic Commerce Conference. Bled Slovenai June 17-19, 2002.
- Petrovic, O & C. Kittl (2003). Capturing the value proposition of a product or service. Position paper for the international workshop on business models. Lausanne Switzerland, October, 2003.
- Renkema, T. (1996). *Investeren in de informatie-infrastructuur. Richtlijnen voor besluitvorming in organisaties*. Deventer: Kluwer Bedrijfsinformatie.
- Selz, D. (1999). *Value Webs. Emerging forms of fluid and flexible organisations. Thinking, organising, communicating and delivering value on the internet*. Dissertation St. Gallen
- Shapiro, C. & H. Varian (1999). *Information Rules. A Strategic Guide to the Networked Economy*. Boston Ma: Harvard Business School Press.
- Simons, L. & H. Bouwman (2004). Developing an Multi Channel Service Model and Design Method. *International Journal of Internet Marketing and Advertisement*.
- Stähler, P. (2001). *Geschäftsmodellle in der digitalen Ökonomie. Merkmale, Strategien und Asuwirkungen*. Köln: Josef Eul Verlag
- Tapscott, D., Ticoll, D. & Lowy, A. (2000). *Digital Capital: Harnessing the Power of Business Webs*. Boston (Ma): Harvard Business School.
- Timmers, P. (1998). Business models for E-commerce. *Electronic Markets*, 8 (2) 3-7. (www.electronicmarkets.org)
- Walravens, I. (1994). *Probleemoplossen met creatieve technieken (Problem-solving with creative techniques)*. Utrecht: Lemma
- Weill, P. & M.R. Vitale (2001). *Place to Space. Migrating to e-business Models*. Boston: Harvard Business School Press.
- Wigand, R., A. Picot, Reichswald (1997). *Information, Organization and Management*. New York, John Wiley & Sons