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ABSTRACT

This paper presents a set of techniques for modelling business in rich, tangible formats. These tangible formats were developed in companies and educational settings and have proven extraordinarily successful in initiating conversations about how to innovate business in cross-disciplinary and cross-functional groups of participants. Our aim here is to provide an overview of the techniques and the state of our research rather than a detailed argument for each of them. This is still work in progress, but the results are so convincing that we offer to publish although some of the factors that contribute to the success we cannot yet explain.

INTRODUCTION

In a situation in which companies increasingly rely on collaboration with external parties to innovate their products and services – users, customers, distributors, public organizations etc. – it becomes essential to establish conversations in cross-disciplinary settings. Such conversations need to concern not only the emerging product and service concepts, but also business concepts, as the business models become increasingly diverse in a changing, digitized world. To bank on physical objects as *boundary objects* (Star 1989) or *things-to-think-with* (Brandt 2005) to support collaboration between disparate groups of participants has been very successful in the participatory design community and there are similar examples in business circles also (Lego Serious Play, David Gauntlet 2007). In this paper we suggest a series of techniques that rely on tangible materials to encourage conversations about business innovation in groups where some of the participants may have no business training, yet could potentially have valuable contributions to make. We present the techniques under the heading of a *business modeling lab* to indicate that collaborative business innovation requires a good deal of experimentation. Whether we think of the lab as an actual physical place or as a temporary setting is of less consequence.

These techniques were developed in ongoing participatory innovation projects (Buur & Matthews 2008) with partners in both large and small companies and with graduate students in university settings. As for research methods we work with a combination of action research and interaction analysis. Action research in the sense of repeated experiments in settings that have an actual purpose of innovating their business (Brandt 2005). As researchers we facilitate the event and include partners in reflecting on the viability of the techniques after wards. The sessions are video recorded for later detailed analysis of the interactions between participants and with the material offered. We rely on the ethnomethodological method of conversation analysis (Heritage 1984).

Figure 1. Tangible value network mapping with 'The Silver Set', a collection of silver coloured bric-a-brac on a black tablecloth. Managers discuss how a a small electronics manufacturer may introduce a new technology to a particular market segment.

MAPPING THE VALUE NETWORK WITH TANGIBLE MATERIALS

Companies are increasingly dependent on other actors outside the organisation to create business. Where Porter's concept of the *value chain* focused on the internal organisation of activities that lead to business (Porter 1996), later research has focussed on interactions in the *value network* between the company and its suppliers, customers etc.: *A value network is a web of relationships that generates economic value and other benefits through complex dynamic exchanges between two or more individuals, groups, or organizations* (Allee 2000). One of the ways in which business innovation may come about, is when new partners are invited into the value network, or if existing partners take on new roles. For this reason it is important to discuss both present and future configurations of the value network, a discussion that can typically take its starting point in mapping what is in place today.

We have developed a very simple technique that invites participants to establish a shared understanding of their organisation's value network: We use tangible material to build 3-dimensional maps.

HOW IT WORKS

We provide bric-a-brac materials from which participants in groups can create a map of an organisation's key relationships, Figure 1. Who are the suppliers? The customers? The partners? The other stakeholders? How are all these actors connected? Once the map is built we ask participants about their choice of materials, how they characterise the actors and relationships. We challenge them to adjust the map in order to consider new possibilities and alternative perspectives, e.g. what is an ideal value network? Or a nightmare one?

Many people find this technique much more stimulating than drawing a diagram on paper. The description of partners and relations inevitably becomes much richer, as participants search for materials that can represent the character of the people they work with, and the experience they have of their relationships. Participants enjoy to articulate aspects of their business that they had not thought of before.

In sessions with representatives from several companies participants find it rewarding to listen to presentations of the tangible maps of other companies, in particular if they do business with each other. One thing we have learned is that value networks are very much a question of perspective: One tends to place one's own organisation in the centre. This makes for a very creative tension, if several company partners try to align their understanding of the value network that they share with one another.

RESEARCH FINDINGS

Through interaction analysis we have studied how participants fundamentally introduce new objects and co-construct meaning when building the tangible value network maps. What an object communicates is a social construct that is in fact dependent on the ongoing social actions in an interaction and the social order that needs to be established or maintained between conversational partners (Heinemann et al. 2009).

What we have found is that participants in our value network workshops generally work to establish agreement about what an object should represent and actively seek to solve any problems on that matter, when faced with potential disagreements. Working with objects seems to actively invite all participants to contribute and share their knowledge, independently of their organizational status and power asymmetries. Every participant manages to contribute his or her knowledge towards creating a complete map of the present and potential collaboration partners for the company and the map becomes a real representation of shared knowledge across the hierarchical structure of the organization.

We have experimented with a range of material variations to see how best to support the team discussion on value networks (Heinemann 2011), Figure 2.

1. Bric-a-brac tinkering material. Although many different materials work (coloured wooden bricks, foam pieces, even organic materials), we have found that business people respond well to a professional looking kit of similarly coloured objects deployed on a surface with a contrasting colour. Objects, which are too heavily coded (animals, figurines), tend to focus the discussion too much towards personal characteristics, and pieces that are too similar (like Lego bricks) do not support sufficient dynamics. We now prefer what we have named 'The Silver Set' of silver coloured metal objects on a black tablecloth.

Figure 2. Three variations of material used for building tangible value network maps: tinkering bric-a-brac, life-size materials and starfish-like objects.

2. Life-size materials. Large scale materials such as furniture provide a more engaging embodied experience and provides a map which can be viewed from many perspectives, whilst allowing more space in which to "zoom in" on complex details. The life-size map allows an insider perspective ('What is it like to be a customer?') different from the helicopter view of the tabletop maps.

3. Starfish objects. This is an attempt to break away from thinking of agents and relations as separate entities. With the bric-a-brac material participants tend to represent agents (nodes) and relations (connectors) with different objects, whereas in real life people *have* relations, just like starfish have arms. The materials shown in Figure 2 provoked an emphasis on how stakeholders are connected, but with less opportunity to discuss the objects themselves.

COMPARING BUSINESS RELATIONS USING PICTURE CARDS

The second technique encourages company partners to discuss their professional relationships – and how they might develop. If business is about creating and maintaining relationships to suppliers, customers, installers, users etc, then this discussion is a very important precondition for innovating business. Relationships can become a very personal and delicate matter, so we use picture cards to stimulate conversation.

The concept of relating is key to Ralph Stacey's investigation of complexity in organisations (Stacey 2001). Business can be described as facilitating the exchange of assets for other assets. This involves two or more asset holders relating their valuation of particular assets to the valuation of those that they wish to trade with. Successful relating is exchanging assets with other identities such that one increases one's access to (or control of) the type and quality of assets that one wishes to. It may appear less clumsy to describe such ongoing relating as a relationship, but the verb form: relating draws attention to how the process of valuing assets of self and others is an active process that never completely stabilises.

HOW IT WORKS

We provide three sets of picture cards, Figure 3. To describe how they relate to one another, participants should individually select the one image from each stack, which seems the most accurate answer to the following questions:

Handle: How do you handle the relationship?

Instrument: How do you monitor the relationship?

Tool: How do you think the relationship effects the other person or organisation?

We then encourage participants to select three more images that best describe an ideal version of this particular relationship. When participants are asked to explain their choices to each other we have found that this exercise can reveal how different their view of their relationship may be, and be a humorous means of talking about potentially sensitive topics.

When using this technique with representatives from a company, its suppliers and its customers (Figure 4) we saw that the picture cards helped the participants form a shared understanding of what role personal relationships play in innovation.

RESEARCH CHALLENGES

These experiments came about because of a concern that the value network mapping technique may lead to emphasis on nodal connections by symbolizing relationships with static materials – as if relationships can be switched on or off independent of the agents in question. It may be easy to connect symbolic objects with lollipop sticks, but the skill and sweat involved for both parties in building a business relationship is obscured. Relationships are constantly evolving and often asymmetrical in terms of power and which value each partner ascribe to them. Furthermore the space occupied by depicting a connection on a map can too strongly suggest that the space for relating is limited; that there is a finite amount of relationships.

An important goal for research here is to understand how the picture cards facilitate a change in conversations about relating, and which importance this has for innovation. We hope to be able to report on the interaction analysis of video documentation of the picture card activities at a later point.

Figure 3. Examples of picture cards of handles, instruments and tools used to trigger conversations about relating between business partners.

Figure 4. Representatives form a ventilation systems manufacturer, its customer (building contractor) and supplier (electronics manufacturer) use picture cards to discuss how they relate to each other in daily business.

PAIRING THE TACIT WITH BUSINESS THEORY THROUGH BRICOLAGE

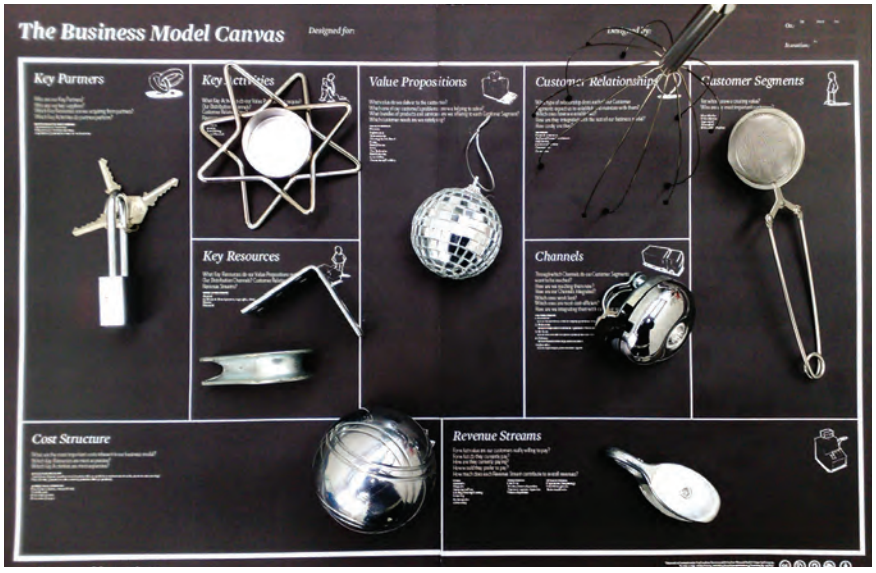

Figure 5. Silver-coloured bric-a-brac placed on an Osterwalder business model canvas to encourage discussions of fundamental business terms.

There are several examples in literature of conceptualising business models in business terminology, Osterwalder's business model canvas being the most widespread (Osterwalder and Pigneur 2009). Based on these we have developed a technique for provoking rich shared understandings of, and new perspectives on an organisation's business model. The technique has been successfully tested both with Danish industrialists, innovation consultants and graduate students. Using physical objects can help make discussing business concepts (like 'value proposition', 'ressources', 'customer segments') accessible and memorable also for participants without theoretical business knowledge.

HOW IT WORKS

We arrange a variety of bric-a-brac objects on a business model canvas work surface with at least one object in each 'cell' corresponding to an abstract business concept, Figure 5. We then ask participants in groups if the objects are a fitting representation of this aspect of their business? We encourage the groups to make adjustments so that the model fits their business better. This could mean swapping objects between cells or drawing upon extra materials.

This technique is a means to two ends: It fosters clarifying discussions of what the abstract business terms mean, and it brings about reflections on how the business of the company is organised at present. Describing accurately the different aspects of a business model often requires participants from different departments of a company to come together to pool their understandings. In essence this is not so different from the post-it activities suggested by Osterwalder and Pigneur (2009), only does the use of tangible objects make the discussion and presentation more concrete and memorable.

A variant we have applied with good result is to ask participants from different organisation in the same value chain to synchronise their individual business model canvases. In business-to-business relations one company will appear as customer of the other, while the other will enter as supplier resource on the business model canvas of the former. By asking the participants to link their canvases, the interdependencies of partners become very apparent, Figure 6.

RESEARCH FINDINGS

By studying video recordings of these sessions, we have shown that participants typically identify one particular salient property of an object and then use that property to create a metaphor about the organization's situation (Heinemann et al. 2011). We categorize the different kind of properties invoked into three: *physical, kinetic* and *iconic*. What particular property is invoked varies according to aspects such as the context in which the objects are placed and whether the object lends itself better to being interpreted in one way or another. Our research suggests that participants, through working with tangible material in fact have a large variety of different paths available to them; paths that affect the narration that is the end-result of these workshops. Participants tend to use the salient properties of objects in very similar manners, namely to create metaphors with what we call 'negative associations'. In other words, the end result, independently of what object is being used and of what property of that object is invoked, is the creation of a metaphor that portrays an organization's relations as fraught with matters of power differences, competition, struggles (Heinemann et al. 2011).

Figure 6. Participants from the ventilation systems manufacturer, its customer and its supplier use silver bric-a-brac to link their three business model canvasses and discuss mutual interdependencies.

EXPLORING BUSINESS MODEL DILEMMAS WITH DYNAMIC SCULPTURES

Following up on the success with tangible value network maps we started exploring if it would be possible to build interactive installations that could provide an impression of the dynamics of a business model: How customers move depending on choices made, how resources flow, how activities develop etc.

HOW IT WORKS

We design a tangible interactive business model based on interviews with the company, value network maps, market research, user research, and sometimes concept design activities. The tangible business model typically focuses on a particular business dilemma as identified in the company research, rather than attempt to cover all aspects of the Osterwalder canvas. It is dynamic in that it encourages experiments with alternative business models.

We employ such a model to trigger a conversation between company managers and key employees about their present and future business. We have found that rather than explain all the intricate details of the model design, it is much more stimulating to ask the participants to play with the model, then explain by themselves, what the elements may mean, and how this relates to their business opportunities.

Figure 7. The Hearing Aid Pinball Machine. A tangible business model developed for a hearing aid manufacturer. When a release gate is lifted the hearing impaired customers (marbles) roll down the slope and bounce off various obstacles towards either buying the partnering company's products or those of the competitors. The 'flippers' represent audiology clinics with their inclinations towards specific manufacturers.The obstacles represent product features and services.

One company executive, upon having seen the student presentation of tangible business models, got so enthusiastic about the results that he invited the students to come and demonstrate the models at the next board meeting. Here, in particular the Sales Effort Balance, Figure 8, triggered a discussion of the company's priorities in allocating resources to, respectively, engineering development and sales. Is it really a question of overall balance? Or temporary imbalance? Soon after this meeting, the sales manager was allowed more resources to step up the sales effort.

RESEARCH FINDINGS

When looking at a series of tangible business models built by graduate design and business students and tested in events with business representatives, it became clear that some catch the attention of industry partners and lead to very engaged conversations, others do less so. By analysing the features of these models we have identified some of the characteristics that support engaging group discussions (Mitchell & Buur 2010):

1. The design must present a good alignment between real business variables and the physical entities of the model. But discussing this alignment itself can fuel exploration ('what does this wheel represent?'); so all things may not need to be decided upon at the outset.
2. The design must be dynamic; things should move and change to allow for experimentation.
3. The tangible business model should allow a variety of interactions that will alter the outcome.
4. The design should provide a variety of reactions. Unexpected and unforeseen ways of functioning should be seen as strength, as they fuel engagement and discussion.
5. The design should offer a tricky challenge to overcome in collaboration between participants (i.e. finding the balance, or collecting most marbles).

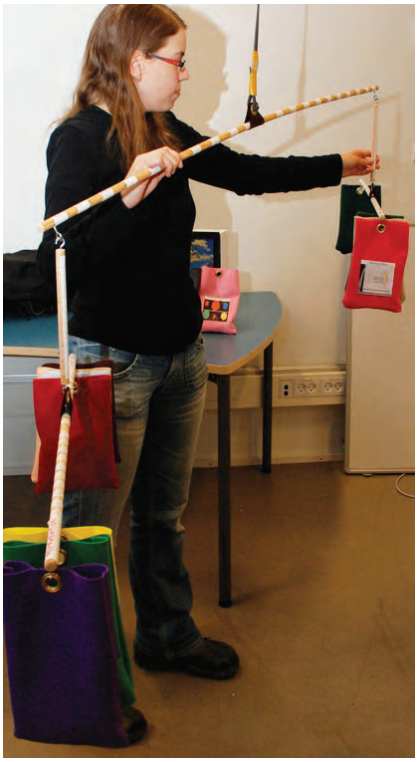

Figure 8. The Sales Effort Balance. A tangible business model developed for a lighting component manufacturer. A suspended Dowling pole represents the balance between sales resources and development resources. A set of filled cloth bags of different weights allow participants to experiment with adding different types of tasks and investments to achieve a balance.

TANGIBLE TOOLKITS

On several occasions we have experimented with kits of materials for participants to try build a tangible model of their business on the spot. Whereas 'The Silver Set' has proven its value in mapping activities and in the discussion of theoretical concepts, business modelling requires material with *dynamic* properties, material that that allow expression of flow, state changes, balance etc. Sets of balls & tubes, or pulleys & strings, or toy trains & tracks lend themselves to building contraptions that move and react. But so far we have limited success. The load of both finding the core business challenge of a company, expressing this in a suitable metaphor, and building an installation that allows dynamic, reactive interaction is very heavy, it seems. One way to move forward is to include Interaction Relabeling (Djajadiningrat et al. 2000) as an intermediary step between the static mapping techniques and the dynamic, tangible business model. In interaction relabeling, one imagines that the business is a machine: Choose an existing, complex mechanical device (perhaps an old-fashioned typewriter or antique camera) which has many moving parts as an analogy, then ask participants which aspects of their organisation's activities the different levers of the device remind them of. This elicits a conversation where participants finds ways of expressing what we could call the business logics of the company: 'If I do this, then...' or 'The more I turn this, the more...'

Figure 9. Plastic tubes & balls and a wooden toy train set as toolkit for modelling business dynamics. Company representatives discuss the business model could change in a situation where system manufacturer, building contractor and components suppliers combine their efforts.

CONCLUSIONS

Common to all these techniques is that they keep people's hands busy, which often appears to take the pressure of verbal articulations. The use of objects and images provides an indirect means to commence talking about topics, which may be difficult to approach head on. It seems to even out hierarchical imbalances between participants and allow people to effortlessly contribute with their different perspectives. Providing material as 'things to think with' also seems to provoke more unexpected discussions.

As for future work, we see in particular two challenges: One is to develop our understanding of how to bridge the gap between mapping and business modelling. Where as value network mapping is a rather straightforward participatory activity, the design of tangible business models that encourage experimentation and conversation is a demanding creative intellectual endeavour – about as difficult, it seems, as designing a successful new product concept.

The other challenge would be to 'prove' that the concept of tangible modelling actually has merit for industrial practice. We hope to be able to do this by combining a micro and a macro approach. On one hand to characterise the particular 'quality of conversations', which these models encourage that are supportive for innovation. This is possible through participatory experiments and interaction analysis of video documentation. On the other hand to provide interview studies and surveys of the uptake of these practices in industry.

Business is neither static nor flat. The tangible modelling shows great promise in bringing business discussions into the participatory realm.

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REFERENCES

Allee, V. 2000. Reconfiguring the value network. Journal of Business Strategy, 21,(4), 36-39.

Brandt E. 2005. How do Tangible Mock-U Support Design Collaboration?. Nordic Design Research Conference: In the Making, København, Danmark.

Buur J. and Matthews B. 2008. Participatory Innovation. International Journal of Innovation Management, 12(3), 255-273.

Djajadiningrat, J.P., Gaver, W.W. & Frens, J.W. 2000. Interaction relabelling and extreme characters: Methods for exploring aesthetic interactions. DIS 2000

Gauntlett, D. 2007. Creative Explorations: New approaches to identities and audiences. London/New York: Routledge

Heinemann, T., Mitchell, R. & Buur, J. 2009. Co-constructing meaning in innovation workshops, Objets et Communication, MEI 30-31 (2009) 289-304.

Heinemann, T., Landgrebe, J., Mitchell, R. & Buur, J. 2011. Narrating value networks through tangible materials. TAMARA Journal of Critical Organization Inquiry (Forth)

Heritage, J. 1984. Garfinkel and Ethnomethodology. Cambridge/New York: Polity Press

Mitchell, R. and Buur, J. 2010. Tangible Business Model Sketches to Support Participatory Innovation. DESIRE Conference

Osterwalder, A. and Pigneur, Y. 2009. Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers, Amsterdam: Modderman Drukwerk.

Porter, M. E. 1996. What is strategy? Harvard Business Review, November-December, 61-78.

Stacey, R. D. 2001. Complex Responsive Processes in Organizations: Learning and Knowledge Creation, Routledge, London

Star S. L. 1989. The structure of ill-structured solutions: Heterogeneous problem-solving, boundary objects and distributed artificial intelligence. In M. Kuhns, & L. Gasser (Eds.) Distributed Artificial Intelligence, Vol. 2 (pp. 37-54). San Mateo, CA: Morgan Kaufman