

THE CHALLENGE OF A SUSTAINABILITY CHANGE: A DESIGNERLY APPROACH

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ABSTRACT

Changing a company's role and position in its context towards a more ambitious profile centred on waste minimisation can be challenging due to external factors such as regulations and economic logics, but also internal challenges of transforming visions into supporting activities can hinder the role change. This paper focuses on the waste minimisation project Nulskrald (Zerowaste) initiated by AVV. The project has undergone two phases without fulfilling its vision. A designerly approach was applied in a strategic workshop as the company faced the launch of the third phase. Here the Actantial model and the Strategic Pyramid were applied and conjoined to enhance waste minimisation activities. As a result, the company enters a new role in which they are no longer just passive, active or interactive in their communication, but also provocative in order to affect citizens' behaviour.

INTRODUCTION

Waste generation is a global environmental challenge since waste pollutes the environment and the surrounding communities (Starke 2012, p. 16). Challenged by this, new waste management strategies focus on the reduction of waste through reuse and recycling. OECD defines waste prevention as: strict avoidance (not generating waste in the first place), minimising the use of dangerous substances, and product reuse (OECD 2004, p. 62).

Municipalities collect and dispose the generated waste. In 2012, the Danish Environmental Protection Agency calculated that approximately 10.4 million tons of waste was generated in Denmark of which 63% was collected for recycling, 29% incinerated, and about 6% was sent to landfills with the rest stored for special treatment (The Danish Environmental Protection Agency 2013). Even though the Danish government and municipalities puts more sustainable strategies for waste management in effect, ambitious visions for changing the ways of thinking about resources and waste are crucial to be taken into action in order to decrease the pollution and resource depletion further. Departing from the standards and going beyond governmental requirements could be one such solution for waste management companies. This, however, calls for an innovative approach within the field and a reframing of the role waste management companies has regarding reuse and recycling. In the past years waste management companies have undergone incremental changes to adjust their practice to the requirements, which they are confronted with, but is this sufficient or is a radical change towards minimising waste needed instead to meet the current environmental challenges?

THE ROLE OF WASTE MANAGEMENT COMPANIES

Waste management companies are established by the government to sustainably manage waste. Their roles and tasks are defined by legal requirements from the government (AVV 2009¹). Consequently, the vision, strategy and, also, to some degree the practices of a waste management company are defined by the government. However, not all waste management companies find the ambition of sustainable transition high enough.

Since these companies exist in a demarcated role, which presupposes the existence of waste, they are enfeebled to realise their aspiration to do more regarding the minimisation of waste. As a result innovative approaches to waste minimisation are likely not to be pursued by waste management companies, diminishing the level of ambition of new strategies for waste management.

Waste management companies might be experts within their existing context, but are challenged when in the process of entering a new context and hereby redefining or reframing their role in society.

AVV AND THEIR VISION

AVV (Affaldsselskabet Vendsyssel Vest), a publicly owned waste management company located in Northern Jutland, Denmark, has higher ambitions than the governmental requirements and will therefore constitute the empirical case for this paper. As an organization they are seeking not only to collect and manage, but also to actually affect society to minimise waste.

AVV's CEO even has a vision to set a political agenda directed towards venturing beyond the existing operations to promote waste minimisation. The vision shared by him and the board of AVV is to profit from new activities directed towards minimisation of waste. This presents a challenge for AVV, because if citizens for instance reduce their waste then AVV will experience a decrease in their income due to their selling of sorted waste. It presents a dilemma for waste management companies because their existence presupposes waste. Despite this dilemma, AAV decided to pursue waste minimisation from an environmental and ethical perspective.

RESEARCH METHODOLOGY

The methodological approach for this paper is mainly action research (Heron & Reason 2006); however it is combined with early investigative interviews, as a means to understand the context, before engaging with it. The combined methodological approach is rooted in a

hermeneutic interpretation of the compiled qualitative data.

The interviews were initially conducted to uncover the previous activities within the Nulskrald project. Three semi-structured interviews were conducted with key figures to understand the underlying motivation and the experiences gathered from establishing and driving the first two phases of the project. The three employees were the Innovation Manager, the project manager and the internal communicator. The interview guides were adjusted to match the individuals' role as well as their responsibility and line of work.

The qualitative interview data was transcribed before being processed and coded using the data software nVivo and analysed further through the KJ method (Scupin 1997; Spool 2004). The transcribed data was cut into small pieces of meaningful data – from one sentence to a longer argument of up to 10 lines. These data pieces were arranged and rearranged into momentous clusters. Insight into the connections between the different actors and even paradoxes within the context were identified. The analysis of the interviews enabled us to define the core areas of the strategic workshop in which we as action researchers were active participants in the field.

Two frameworks were used as a setting to identify AVV's surrounding context and its complexity, as well as AVV's future role. The frameworks will be elaborated below (cf. Strategic workshop).

The strategic workshop was recorded on video and subsequently a meaning condensation was performed. Photos of the Actantial model and the Strategic Pyramid supplemented the analysis. The meaning condensation focused on identifying the main stories described by the participants as they were working with the Actantial model. A recurring motif of AVV's role and its implications for the third phase of project Nulskrald (Zerowaste) was then deduced.

PROJECT NULSKRALD

AVV launched project Nulskrald in 2013 with the aspiration to minimise waste by making the citizens the pivot of different initiatives.

The Innovation Manager argued that the vision for Nulskrald is to engage citizens in the minimisation of waste with an end-goal of triggering behavioural change, ending with a consumption pattern that reduces waste at the household level.

Accordingly, the project manager's vision is to promote citizens to take responsibility for their waste by eventually minimising the generation of waste. Moreover, the vision builds on the idea of consumer empowerment by engaging citizens in autonomous

¹ The new waste management plan for AVV will be published in 2014.

communities to mutual inspiration and knowledge development.

Involving citizens to a greater extent than previously increases the organisational and the communicational complexity because AAV hereby enters a new context with extended communication to the citizens.

Including the increased complexity of the context, the process of reframing presents as a considerable challenge for waste management companies, such as AVV. Achieving the new and desired role of AVV can be considered as a radical change and if they succeed it can be characterized as a radical innovation.

The authors claim that a designerly approach (Cross 2006) within an action research intervention (McNiff 2002; McNiff & Whitehead 2006) can accommodate the orientation in the increased complexity and support the process of reframing the vision, mission and short-term goals of companies with high environmental ambitions.

COMMUNICATIVE ROLE

Read (1999) classifies three common types of communication used by waste management companies promoting recycling in the UK: *passive*, *active* and *interactive* (Read 1999, p. 229). Read defines the interactive aspect as a broader term, including door-to-door surveys and education, telephone hotline, visits to the recycling centre and public meetings (Read 1999, p. 229). AVV uses this approach; however, they also use Facebook, Twitter, Instagram, and a corporate blog (AVV 2009). Therefore, we include Capriotti and Moreno's (2007) definition of interactivity regarding websites as a way to generate relationships between the public and the organisation (Capriotti & Moreno 2007, p. 85).

THE FIRST TWO NULSKRALD PHASES

Project Nulskrald consists of three phases of which two has already been carried out. Each of the two first phases consisted of an experiment with a certain focus in order to test different strategies. In the following we will provide a brief overview of the first and second phase, concentrating on the waste focus, main initiatives, the type(s) of communication and the target group.

PHASE 1

The activities in the first phase aimed at improving the citizens' sorting of waste (Nulskrald 2013). The approach was to use competitions to motivate and intensify the sorting of waste. The time frame for the phase was five weeks with weekly weighing of the residual waste at the participants household by the refuse collectors. The residual waste from the households was also weighed in the week prior to and after the phase. All households within the two

municipalities could participate by actively signing up. This had an effect on the type of participants as these were mostly active and dedicated citizens. The participating 105 households achieved an average reduction of 51 % of the residual household waste.

All three types of communication were used to provide guidance and advice on the praxis of the sorting of household waste. Primarily, passive and active communication was used, supported by the interactive method, which mainly comprised a Facebook page and two public meetings.

PHASE 2

Phase 2 had the same focus as Phase 1, but also included the promotion of smart shopping such as buying quality rather than quantity (Nulskrald 2015). This second phase had a time frame of all of 2014 and was geographically limited to a village of about 600 citizens in Northern Jutland. The long time frame and the fact that the activities was run by citizens allowed for the citizens to engage in self-propelled communities and provided an opportunity to try out different activities in the village as well. The overall aim was to empower the citizens.

Unlike in Phase 1 the residual waste was not weighed at each household but the body of residual waste from all the households was weighed after the collection. At four locations in the village, public recycling containers were set up at which citizens could drop off seven different fractions of recyclables.

No sign up was required as all the citizens were perceived as participants to ensure that everyone felt as a part of the challenge.

In Phase 2 all three types of communication were applied, however, the interactive communication was used more extensively than in the previous phase by creating a steering committee and task groups with citizens and having several public meetings (Nulskrald 2015).

AVV realised that the vision of project Nulskrald was not met during the first two phases. Instead the two phases were incremental adjustments to the existing line of action. The reason for this is that the context in which AAV operates is complex as there are a high number of actors with different agendas and, in addition, AVV is bound by regulations formed by the municipality and government. This complexity was an obstacle for achieving a shared vision and defining specific actions to meet the vision. A strategic workshop was planned to support the clarification of this matter.

STRATEGIC WORKSHOP

We proposed to facilitate a strategic workshop for AVV with the aim of, firstly, developing a shared perception of the context in which they operate and, secondly, collectively defining, which position to take or role to play in the third phase of the Nulskrald project. We found these two matters to be essential to address for the further progression of the project, due to the fact that diverse perceptions and inconsistencies in the vision for Nulskrald was identified through the mapping of the interviews. The diversity and inconsistency was a result of different responsibilities and a high contextual complexity with several paradoxes in the environmental political landscape. The complexity should not be neglected, but instead it should be embraced in order to develop an appropriated and relevant vision and mission.

We invited participants from different positions within AVV. The CEO, the Innovation Manager, the project manager, the internal communicator, one of the employed industrial PhD-fellows and the business developer participated in the workshop. One of the external initiators to the Nulskrald project was prevented from participating, but with this exception the people central to the project was gathered. In addition, we were three academics represented to facilitate the workshop. The workshop was conducted in a participatory set up, where we would facilitate the activities, while also engaging in the discussion by questioning and challenging the participants to collectively develop the new insights and the future direction.

A six hour workshop was planned where the two challenges was addressed with two frameworks first separately then jointly. Two frameworks, the Actantial model (Greimas 1966/1983), supported by the method Object Theatre (Strand 2014b), and the Strategic Pyramid (Liquid Agency 2012) were carefully selected to facilitate a discussion and to enable new insights in the form of a theoretical framework.

THE ACTANTIAL MODEL

Traditionally, the Actantial model is applied to theoretically analyse actions in literature due to its ability to decompose into actants and hereby illustrate how they affect each other on the axis of *power* and *desire* to describe the influence on the axis of *transmission* (Greimas 1966/1983). In the intervention the Actantial model was applied to analyse and abductively depict the future role of AVV and the consequences, which would appear in the wake of the new role (see above). In this sense the Actantial model was applied as an outwards perspective in contrast to the other applied model; the Strategic Pyramid.

THE STRATEGIC PYRAMID

The Strategic Pyramid has been developed by Marty Neumeier, Director of Transformation and writer at Liquid Agency. The Pyramid has three levels ranging from the top with the overall purpose to the actual goals at the bottom. Vision and mission ties the two levels together in the middle. The Strategic Pyramid was applied to create coherency between AVV's vision and their planned initiatives. Thus, the Pyramid provided an inwards perspective.

The insights from the Actantial model were collectively applied on a meta-level to the Strategic Pyramid, which then again and iteratively was related to the Actantial model. Combining them and applying them in a strategic context has to the authors knowledge not been done previously.

THE PROCESS

As clarified above there was a need to rethink the role of AVV in the third phase of Nulskrald. This could broadly be framed as a design challenge as it concerned "changing existing situations into preferred ones." (Simon 1969/1996, p. 4) and a designerly way of working was incorporated into the workshop. Inspiration was found in the creative method Object Theatre (Strand 2014b) to embrace the complexity of the wicked problem (Rittel 1972, Rittel & Webber 1984, Buchanan 1992). In Object Theatre artefacts are applied to articulate or configure meaningful stories of professional practices of any sort (Strand 2014a, p. 325), which also has proven to be valuable in design settings (Poulsen & Strand 2014).

In the workshop we replaced the sandbox, which is the platform for negotiation in Object Theatre, with the Actantial model. A broad collection of randomly picked artefacts, from a baby figure to a dollar note and from houses to warriors, was brought to the workshop in order to support an involving and rich interaction among the participants.



Figure 1: The Innovation Manager explaining his vision for Phase 3.

The purpose of project Nulskrald was defined as *Think the environment first.*

This led to the articulation of three missions corresponding to the overall vision, which was *Start a movement*, *Motivate to minimise waste* and *Transparent Business*. Starting a movement referred to engaging citizens to start a movement centred on consumption and minimising waste. Transparent business referred to a transparency of, for instance, production processes.

The vision should be fulfilled through the mission. The phrases *Citizen-centred* and *Passionate citizens* referred respectively to having citizens as the pivot of any Nulskrald activities and to address the passionate citizens first. The mission should be accomplished by short-term goals, which were rooted in prior dialogue and thoughts within the organisation. The three core areas were identified and described:

1. Increasing reuse of clothing, electronic products and construction waste by providing a better service in the associated shops and by re-designing the clothes
2. Encouraging citizens to unsubscribe the weekly deliverance of paper commercials through nudging by providing pre-filled unsubscribing forms
3. Promoting citizens to reflect upon food waste through critical design or provocative initiatives.

AVV aims at presenting thought-provoking subjects on waste to citizens in order to change their way of thinking and subsequently their behaviour.

This is a shift of attention from recycling to reuse and minimisation of waste. The core areas address very specific fractions, which the authors believe to provide a basis for a focused effort in the reframing of AVV's role. Additionally, the insights into the interconnectedness and complexity of the context helped AVV to shape their vision for the reframing.

DISCUSSION

THE CHALLENGE OF CHANGE

AVV's approach to communicating has undergone changes from before the initiation of Nulskrald to the third phase of Nulskrald. These are organised in Table 1.

Table 1: Phase 0 to 3 with the characterisation of change.

	Pre-Nulskrald	Before the workshop		After the workshop
	Phase 0 (- 2012)	Phase 1 (2013)	Phase 2 (2014)	Phase 3 (2015 -)
Waste focus	Recycling	Recycling	Recycling	Minimising
Main initiatives	Sorting of waste	Intense sorting of waste	Intense sorting of waste Engaging citizens into social groups	Minimisation of waste by focusing on the front end of the value chain
Type(s) of communication	Passive (Active) (Interactive)	Passive Active (Interactive)	Passive Active Interactive	Passive Active Interactive Provocative
Citizen role	Everyone	The active and dedicated	Everyone	Undecided
Characterisation of change	None	Incremental	Incremental	Radical

The passive and active types of communication used in Phase 1 and 2 characterize AVV's required role as they enable the provision of information from AVV to their citizens. With an emphasis on interactive communication in the second phase, AVV pursued the ambition of creating a new role, encompassing the innovative vision of going beyond the required role and also opening on an organisational level towards the surrounding context. As Woodard et al. (2005) point to it is "becoming an increasingly popular" method of communication "as local authorities attempt to raise waste awareness" (Woodard et al. 2005, p. 120).

The interactive communication type procured extensive knowledge about the involved citizens. Especially public meetings and Facebook dialogues offered insights into the beliefs and behaviour of the citizens, resulting in much more complex and multifaceted concepts of the citizens. The public meetings and Facebook made it possible for the citizens to contribute to and influence the Phase 3 experiment. As such the interactive style of communication allowed the citizens to co-create different aspects of the experiment, but, also, to make sense of and reflect on their own behaviour and waste in general, possibly changing their mental models. To answer this, however, requires a follow up study.

As Table 1 shows, AVV has taken incremental steps towards more than just raising waste awareness by including the passive and the active style of communication to a larger extent. However, both phases

were aimed at the sorting of household waste regardless of the initial vision for Nulskrald's focus on waste minimisation. Incremental innovations are known to be minor improvements to an existing solution without changing the concept (Dewar & Dutton 1986; Bessant & Tidd 2011; Rowley et al. 2011). The progression of Nulskrald indicates that it is difficult for AVV to implement the new vision. In addition, this raised the question whether AVV would be able to fulfil their vision with incremental steps or if more radical changes had to be made. Radical innovations are fundamental and revolutionary changes to an existing concept or creating something new (Dewar & Dutton 1986, p. 1422-1423; Bessant & Tidd 2011, p. 248; Rowley et al. 2011, p. 77).

Throughout the entire project, the vision of Nulskrald has been waste minimisation; however, the activities within Phase 1 and 2 were expansions of the existing recycling activities known from Phase 0, which constitutes the usual line of thinking as the focus unintentionally remained on recycling (see Table 1). Thus, the incremental improvements did not meet the radical vision of Nulskrald. The main reasons are that the very idea of Nulskrald conflicted with the existing regulations and the implemented economic logic as the waste management companies' existence presupposes waste. The regulations and the economic logic promote ossification, keeping AVV from realising a radical role change. Also, aiming for minimisation required AVV to perceive itself differently in order to play another role in the context. The reframing and reorientation in the context proved to be difficult for the waste management company.

EXTENDED ROLES

In the context of AVV, Nulskrald serves as the platform upon which AVV through interactive communication with the citizens can co-create a change in the political landscape (Pralhad & Krishnan 2008, p. 27): a new co-created behaviour aimed at minimising waste. In the Actantial model the new behaviour was presented as the Object, and AVV – with the support of its resource networks – helps the citizen in realising the behaviour change.

The co-created behaviour is planned to be brought into effect by a provocative style of communication, presenting waste and consumer related challenges and paradoxes to citizens, and eventually kick start a public debate possibly with political changes to follow. The authors claim that AVV through the provocative approach can access the consumers as a source of competence (ibid. 30), affecting their consumer behaviour and thereby indirectly influencing the production of consumer goods.

Moreover, AVV aims at creating a paradigm innovation (Bessant & Tidd 2011) by implementing a provocative

style of communication. This means changing the underlying mental models of citizens and AVV itself.

Deliberation as a tool for collaborative policy-making and governance has been thoroughly addressed and spoken in favour of by John et al. (2011, 2013), Fung & Wright (2001, 2003), and Sirianni (2008), arguing that citizen empowerment to a greater extent legitimises processes dealing with large public problems.

THE DESIGNERLY APPROACH

A designerly approach was employed to face the challenge of rethinking their activities in the third phase of the project. While the objective of the workshop was clear; however, the very framing of the situation with all the different actors and stakeholders was wicked. The ambiguity and complexity of the problem call for a designerly and solution-oriented approach. The overall structure of the workshop was arranged in accordance to designers iterative process of understanding the presence and envisioning the future by focusing, reflecting and reframing (More & Buur 2005). In practice this meant that the activities designed for the workshop aimed at enabling the participants to enter an abductive mindset in order position themselves in the complex landscape of regulations, traditions and actors, and, equally important imagine potential futures. The activities were inspired by designers way of engaging in the surrounding world to envision new solutions. Gedenryd argued that cognition is not organized around a mind working independently, but cognitive tasks are dependent of mind and action interaction with the surrounding world (Gedenryd 1998, p. 147). Working with the Actantial model offered an opportunity for AVV to orientate them in the context, while embracing the complexity and allowing new ideas to emerge. The iterative process of conjoining the gained insights from the Actantial model with the Strategic Pyramid supported the alignment and refinement between the vision, mission and intended future actions.

EXTERNALISATION

Externalization is an innate part of designing as designers have traditionally externalized their thoughts and ideas through mock-ups, sketches, and models, simply because "once externalized, the ideas become 'real'. They become something that can be discussed, defined, embraced, or rejected by any number of people, and the ideas become part of a larger process of synthesis." (Kolko 2011, p. 16).

The artefacts or "figures collect the people through their invitation to inhabit the corporal stories told in their lineaments" (Haraway 2008, p. 4). Here the artefacts were applied to develop configuration and re-configuration of the participants' perception of the context in the spatial area of the Actantial model. In this sense the participants collectively developed a mutual perception of the context.

REFRAMING THROUGH STORYTELLING

Applying creative methods and tools on a business strategy can be fruitful (Roos et al. 2004; Heracleous & Jacobs 2008; Nissley 2010; Gudiksen 2015). Roos et al. (2004, p. 565) argues that by using the alternative method ‘serious play’ new insights can be generated, leading to new strategies. This was also evident using the Object Theatre. Gudiksen (2015, p. 14) points out that a designerly approach embraces uncertainty and a temporary space for imagination motivates creative sense-making. Applying arts-based alternative tools to strategy processes can contribute to organisational learning (Nissley 2010, p. 13). In this case the application of the Object Theatre and the Actantial model enabled reframing through storytelling.

CONCLUSION

Having high sustainability ambitions and evolving the line of actions accordingly can be difficult due to internal and external factors such as the complexity of the context and fastening regulations, which tend to promote ossification of the field rather than encouraging new sustainable and innovative initiatives.

The complexity and uncertainty of the context and transition towards waste minimisation was embraced by the designerly intervention. This supported AVV in defining their new role in the context and the corresponding strategy by orienting and reorienting AVV in the Actantial model and relating the findings iteratively to the Strategic Pyramid.

Three core areas were developed, which directly concentrated on minimisation of waste and enabled AVV to orient their future actions. This can be perceived as a radical change which is evident in AVV’s self-image and actions – such as the provocative style of communication – as well as its relation to the citizens.

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