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Bewextra: Creating and Inferring Explicit Knowledge of Needs in Organizations

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Abstract

We introduce a new methodological framework, called Bewextra, for the creation of the knowledge of needs in organizations. The development of our framework builds on theoretical engagement with literature from several disciplines including visioning and philosophy of needs as well as empirical data from vision development processes we have accompanied. To the best of our knowledge it is the first theoretical work that describes learning from an envisioned future and the generation of need knowledge as an abductive process in a methodologically replicable way. The advantages and practical implications of our method introduced are discussed in detail.

Keywords: Learning from the future, Knowledge of needs, Vision development, knowledge-based management

Introduction

The satisfaction of human needs may be viewed as being the broadest and most basic physiological and psychological requirement for a person's well-being (Thomson, 2005). If our actions are effective in the sense of fulfilling our needs, we thrive and flourish.

Despite the fact that our needs govern our behavior in general and actions in particular, people are most of the time hardly aware of the needs they are trying to satisfy. Surprisingly, in previous works with large groups it became obvious that people have hard times to reflect on their (abstract) needs and communicate them. They hardly talk about their needs and desires but rather about certain satisfiers (concrete objects or conditions) when asked about what they need for their well-being. It seems that we are used to think in terms of realization possibilities

and solutions (which we will later refer to as the concept of satisfiers). This is in line with the claim of the philosopher Stephen K. McLeod that we cannot be aware of our needs directly but only of their satisfiers. (McLeod, 2011) As a consequence, knowledge about our needs is valuable in the sense that it enables us to find a variety of different solution strategies.

Envisioning how a desirable future might look is a long-standing effort in human evolution and social change. Utopian thought and visions provide direction for actions and behavior; more so, they create identity and community. (Wiek & Iwaniec, 2014) It is assumed that it is more likely that visions become reality if they meet humans' needs. Therefore, it is necessary to know the needs explicitly.

Additionally need knowledge helps us to escape binary decisions (yes or no) on certain actions and rather focus on developing alternative strategies. In general, there are many actions which can be taken in order to satisfy a specific need. Knowing the underlying need opens up a possibility space which otherwise is limited to a yes-or-no decision.

$$\text{Need : Action} = 1 : n$$

However, if considerations (f.e. in organizations) start on the level of actions and solutions, the possibility space is narrowed, as we are limited to certain solutions we either can implement or reject (binary decision).

So, the hypothesis is that being aware of one's need, rather than a certain satisfier, enables us to find many and different future-oriented solutions to satisfy our needs. We follow (Griffin & Hauser, 1993) and (Arndt, 1978) who point out that the focus on needs dramatically extends the range of possible solutions. The question at hand is how researchers can look *behind* a satisfier at the underlying need. This is about making explicit what is implicitly governing our acting. In a face-to-face setting (e.g. interview) researchers are able to check back what needs an interviewee actually has. However, when working with a large group of people in a non-instantaneous setting (data acquisition and analysis are sequential rather than iterative) this approach seems to be uneconomical and nearly impossible.

The main purpose of this paper is to introduce a conceptual framework informed by an abductive reasoning approach which consists of three steps, namely qualitative data acquisition, abduction and hermeneutic interpretation of the data, which enables the generation of need hypotheses and finally a communicative validation of these hypotheses.

Research gap, research question and research methodology

There are a lot of visioning approaches which emerged in the last 20 - 25 years in research as well as in practice. These approaches include among others backcasting, community visioning, future workshop and many more. (Wiek & Iwaniec, 2014) give an excellent overview of general insights from visioning studies. It would be by far out of scope for this paper to analyze all existing visioning approaches, so therefore we decided to have a very short look on three different approaches, one very popular approach, one not really well known model and one approach which has been developed recently.

Maybe one of the best known approaches is the work by Peter Senge, who states that the skills involved in building shared vision include the following (Senge, 1990): encouraging personal vision, communicating and asking for support,

visioning as an ongoing process, blending extrinsic and intrinsic visions and distinguishing positive from negative visions. He also stresses the importance of the tension between the presence and the future as a resource, when stating “that leadership in a learning organization starts with the principle of creative tension. Creative tension comes from seeing clearly where we want to be, our “vision,” and telling the truth about where we are, our “current reality.” The gap between the two generates a natural tension (Senge, 1990).

Another model which has a strong connection to vision development is the Intentional Change Theory (ICT) by Richard Boyatzis. His model proposes that a change process involves a sequence of discontinuities, called discoveries, which function as an iterative cycle in producing the sustainable change at the individual level. These are: (1) the ideal self and a personal vision; (2) the real self and its comparison to the ideal self resulting in an assessment of one’s strengths and weaknesses, in a sense a personal balance sheet; (3) a learning agenda and plan; (4) experimentation and practice with the new behavior, thoughts, feelings, or perceptions; and (5) trusting, or resonant relationships that enable a person to experience and process each discovery in the process. (Boyatzis, 2006) The ideal self plays an important role in the ICT and it is outlined that it is the driver for a personal vision and that there are three major components converging into the articulation of the person’s ideal self, and the resulting personal vision: (1) The ideal self contains imagery of a desired future; (2) the ideal self is emotionally fuelled by hope; (3) the third component of the ideal self is the person’s core identity. (Boyatzis & Akrivou, 2006)

Theory U is a core process of profound innovation and a model for social technology processes involving inner knowledge and social innovation. Scharmer developed the model in the context of change management, learning from the emerging future and social innovation (O. C. Scharmer, 2007). Theory U describes a multi-step process in the form of the letter “U“ which enables radical changes on a collective as well as on an individual level. Scharmer describes his model as opening one’s mind, heart and will in order to give the highest future possibilities the chance to become reality. He argues that it is necessary that something within an organization has to “die” in order to let something new “be born”. One of the main purposes of the U-process is to overcome mere reactive (= “downloading”) practices and move on to generative fields of attention in which acts from the perspective of the best possible future are performed. (Claus Otto Scharmer, 2001) In its essence, the U-process describes seven stages of an opening process (= U-process of presencing), while stage four (“presencing”) marks the turning point where things start to change.

Of course, these three approaches are – as mentioned above – a selected sample out of a vast number of existing visioning methods. However, from our point of view the main research gap of nearly all existing visioning approaches can be identified as the lack of generating and integrating explicit knowledge about substantial needs in developing sustainable visions. As (Wiek & Iwaniec, 2014) state “As our societies struggle to fulfill human and social needs without detrimentally impacting other societies or compromising the viability of supporting ecosystems, calls are repeatedly made for visions that can guide us towards sustainable futures.” Making the knowledge about needs explicit is crucial for the creation of innovative and sustainable solutions, products or services and as shown above it is assumed that it is more likely that visions become reality if they meet humans’ needs.

Furthermore, we identified the lack of theoretical work to describe the generation of need knowledge as an abductive process, which defines this knowledge creating process in a methodologically consistent and replicable way.

Based on these research gaps and based on the preliminary work we have done in the last few years in the fields of visioning and vision development (Kaiser, Feldhusen, & Fordinal, 2013), the following research question can be defined:

How to infer abductively - in a methodological replicable and consistent way - human needs from observable satisfiers in a non-instantaneous setting using qualitative research methods?

Due to the emergent nature of our research, we used a Grounded Theory based analytic approach that provides a set of flexible analytic guidelines enabling iterative data analysis and conceptual development. In Grounded Theory (Charmaz, 2014; Glaser & Strauss, 1967) empirical data of most heterogeneous sources is used. The development of our conceptual framework especially builds on theoretical engagement with literature and our insights and empirical data from different knowledge-based change processes we have facilitated in the last years.

The remainder of this paper is organized as follows. In the next section we provide the theoretical background for our framework. Subsequently, we introduce the Bewextra framework for generating need knowledge in organizations. Afterwards we give an overview on several projects where we used the Bewextra framework and point out key findings. Finally, we discuss our lessons learned and present implications for further research.

Theoretical Background

Our methodological framework is based on three main theoretical pillars, namely theory of needs, learning from an envisioned future and generative listening. In the following we will cover each of these pillars with a compact overview.

The theory of needs

According to (Goffin, Lemke, & Koners, 2010), there are three different kinds of needs. He distinguishes between known needs, unmet needs and hidden needs. The first ones are commonly known within an industry and are already addressed by products and solutions. The second ones are needs that are known on the market but have not been serviced yet. Hidden needs have not been articulated by customers nor are they known by the industry. (Goffin et al., 2010) argue that individuals are not consciously aware of their hidden needs. Their identification may yield the potential for an organization to enter new markets with innovative products and services; thus, learning about hidden needs of their customers may provide organizations with competitive advantage. However, identifying hidden needs appears to be challenging since they cannot be articulated by the individuals themselves.

Traditional market research is based on the assumption that customers can fully express their needs. However, surveys and other ordinary market research tools often fail in identifying customers' product requirements, particularly where customers are not really aware of their own needs, i.e. their hidden needs. (Goffin et al., 2010)

We are proposing a hierarchy of needs, desires and satisfiers, where needs are the fundamental. (Kaiser, Fordinal, & Kragulj, 2014; Kragulj, 2014a)

A **satisfier** is either an object or description of a proposed state of affairs in which a need is satisfied. This might be a description of a vision or the imagined future (c.f. learning from the future, storytelling). Satisfiers are seen as a precise realization of needs and desires, respectively. The question to be asked is “how does it look or feel like when the fulfillment of a need or desire has become real?”

Desires are personally coined and intentional. (Thomson, 2005) There are differences in personal desires: I may desire (or want) x and *not* y, although x *and* y are of the same quality and both satisfy the need Z. (Wiggins & Dermen, 1987) Additionally, what I desire need not be desired by person B.

Needs have, according to Thomson (2005), three distinctive qualities:

- They are objective in the sense of being a discoverable fact,
- they are matters of priority, and
- are undeniable values.

McLeod suggests in contrast to the phenomenological thesis, that “needs are not themselves experienced”. They “are not to be confused with the desires they generate.” (McLeod, 2011, p. 215)

To sum up, satisfiers are explicit and concrete realizations of desires and needs: *What* satisfies my desires and needs? Desires are personally coined instances of needs: *How* do I want to satisfy my need? These two questions are usually answered by a formulated vision, i.e. a description of a desired future state. (Wiek & Iwaniec, 2014) Needs are most fundamental and are the basis for our desires and satisfiers, they are the motivational source of our acting. *Why* do I desire a certain thing or an imagined future?

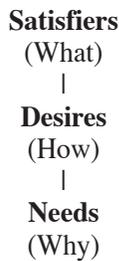


Figure 1. Hierarchy satisfiers – desires – needs

Of course it can also be argued that both the desires and the needs could be independently satisfied by the satisfiers. The discussion of our proposed hierarchy of needs, desires and satisfiers is out of scope of this paper and does not critically influence the design of our methodological framework.

Learning from an envisioned future

Conventional experiential learning theory defines learning as “the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 41). Knowledge results from the combination of grasping and transforming experience. Accordingly, learning is understood as an action-reflection process based on reflecting experiences from the past. Learning from the past is well known and well developed. It underlies all our major learning methodologies, best practices and approaches to organizational learning. There are several learning theories which all are based on the paradigm of learning from past experiences; the most influential

theories may have been formulated by (Argyris & Schön, 1978, 1996; Bateson, 1972; Kolb & Boyatzis, 2000; Kolb, 1984).

Breaking with the conception of learning as strictly and solely connected with our past experiences and questioning the belief that the future is a mere forward projection of the past, several authors (Greenleaf, 1977; Jaworski, 1998; Claus Otto Scharmer, 2000; Senge, Scharmer, Jaworski, & Flowers., 2005) are proposing an alternative source of learning: learning from the future. The idea is to shift attention to the individual's inner world and to sense the very moment by "connecting with the source of one's best future possibility and of bringing this possibility into the now" (C. Otto Scharmer & Kaeufer, 2010, p. 28f). Thus, it is about learning "from a reality that is not yet embodied in manifest experience" (Claus Otto Scharmer, 2000).

We extended Scharmer's idea and introduced "Learning from an Envisioned Future" (Kaiser et al., 2014; Kragulj, 2014a, 2014b), which is a method that fosters the imagination of an ideal future scenario, i.e. imagine a situation in which all desires, wishes and dreams have become true, and to experience how this looks and feels like. (Atance & O'Neill, 2001) Thereby, people must not think of possible restraints that result from current limitations or previous experiences. So our approach makes use of our capability of imagination (i.e. to have experiences in the absence of sensory input) and, thus, it enhances the creation of knowledge that is less affected by past experiences. Our experience shows that the outcome of this learning approach covers categories that are more substantial since their generation is not influenced by every day limitations, problem-oriented aspects and thoughts about implementation.

The articulated dreams, wishes and desires that result from this learning mode are satisfiers. They do not yet represent the needs of organizations directly but they embody patterns that point towards their hidden needs.

Generative listening

Generative listening describes a dialogue setting where knowledge is generated transcending the information carried by spoken or written words (Kaiser & Kragulj, 2015; Claus Otto Scharmer, 2008). The idea is that while listening to what someone is saying, we dwell in a state where we are open for whatever knowledge wants to emerge; we suspend our assumptions, prejudices and unquestioned assumptions to connect with a "deeper source of knowing" (Claus Otto Scharmer, 2008, p. 58). By listening to the articulated satisfiers we try to understand what the speaker wants to express; we aim to grasp the essence of not what is being said but what is being meant. Thereby, we create new valuable knowledge about hidden needs.

With this approach we follow several authors, e.g. (Peet, Walsh, Sober, & Rawak, 2010) who introduced and used this special kind of listening in different contexts. Generative listening is described as a listening from the emerging field of future possibility and transformative conversation (Claus Otto Scharmer, 2008). Generative listening is seen as the most valuable mode of listening. It transforms the listener's self profoundly and enables him to connect to deeper source of knowing, including the knowledge of your best future possibility and self (O. C. Scharmer, 2007).

So generative listening is on the one hand strongly connected with learning from the future and on the other hand it enables the creation of self-transcending

knowledge. (Kaiser & Fordinal, 2010). Using the approach of generative listening on the satisfiers generated with the approach of learning from an envisioned future enables the emergence of (hidden) needs.

The Bewextra framework

The conceptual framework for the creation of need knowledge in organizations consists of three steps. We name this framework “Bewextra”. Bewextra is an acronym for the German translation of generating explicit need knowledge (Bedürfniswissensextraktion). The first step is the data acquisition based on the approach of learning from the future. The output of this step is a number of satisfiers, articulated by the members of the organization in a process of asking questions by facilitators. The second step generates hypotheses about the substantial needs on which the satisfiers are based on, stimulated by the observations of the first step and enabled by different views on these observations. Finally, the third step covers the validation of the hypotheses by communicative validation and quantitative analysis. In the following the three steps will be described in detail. Figure 2 shows the whole Bewextra framework at a glance.

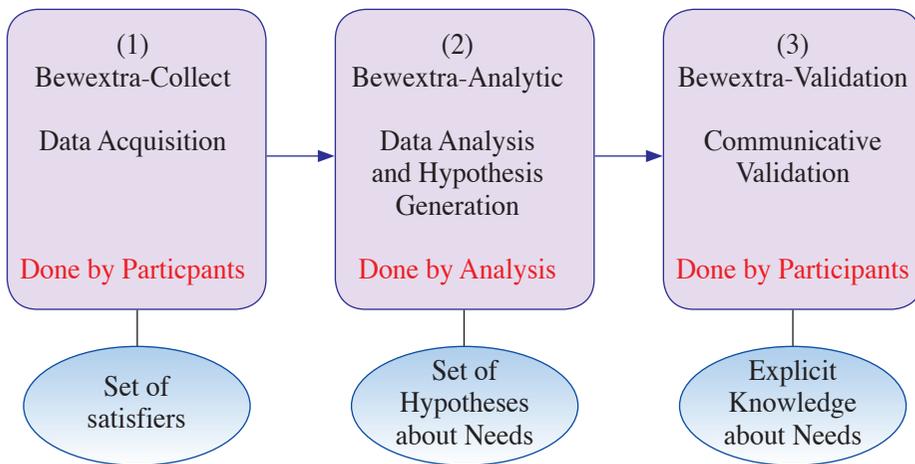


Figure 2. Overview on the whole Bewextra process

Bewextra-Collect

The most important purpose of the first step is the creation of an enabling space or special kind of Ba. Ba is a time-space-nexus which can be described as a “shared space” of interaction, interpretation and dialectical processes, a form of “learning foundation” in its own right which generates knowledge. (Creplet, 2000) The special kind of Ba which is essential for Bewextra-Collect has its center in the access to self-transcending knowledge. We have introduced this Ba as vocation ba. (Kaiser & Fordinal, 2010) This Ba enables the participants to make explicit a rather huge number of wishes, dreams, visions, goals and ideas. As described in the previous section, we use our approach of learning from an envisioned future to support the participants in reporting their wishes for a fulfilled life.

The creation of such an enabling space is realized by a setting, which is designed to facilitate the detachment from the current system's situation and to fantasize about the participants ideal future scenarios. Thereby, a facilitator makes the participants imagine that they were actually present in a scenario taking place in the future (5 to 10 years from now); the narrative time journey takes up to several minutes and the imagined time leap is illustrated with appropriate music, e.g. Richard Strauss' Zarathustra. Furthermore additional rituals like change of physical gesture (e.g. changing the sitting position). Now, participants are encouraged to interact with their imagined future scenario, e.g. taking a walk in their organization's building and observing their surrounding. This sequence is structured by two questions: "What has emerged and is new?" and "What has come to an end?" Not until then participants are asked to write down features and descriptions of this personal ideal future answering the two questions.

Engaging in a learning cycle that allows for learning from an ideal future scenario, we can more effectively generate sustainable satisfiers, compared to the reflection on past experiences. This approach should foster the detachment from today's circumstances, including restrictions, boundaries and impossibilities. Situated in these enabling surroundings, people should be able to shift their thinking to come up with visionary and creative results transcending the boundaries of the current situation and environment.

Throughout the process, participants are encouraged to mention also satisfiers whose realization is not realistic at the moment, because of the embedded need knowledge in these satisfiers. (Peltokorpi, Nonaka, & Kodama, 2007, p. 56) point out that "... exposure to diverse ideas during the externalization phase is important as every step in the innovation process is proposed to be about someone asking about imaginary possibilities, speculating about what would happen if, and reflecting on yet-unrealized and perhaps unrealizable solutions."

From a system theoretic point of view (Von Bertalanffy, 1968) it is essential that the learning from the envisioned future occurs in all relevant (sub)systems. Therefore, it is necessary to involve all stakeholder groups concerned, i.e. learn from the future from different point of views. These multiple perspectives in learning from the future ensure that all aspects relevant to the overall system are covered in the learning. This is the basis for detecting and generating need knowledge in the second step of Bewextra. Figure-3 sums up the first step of our framework.

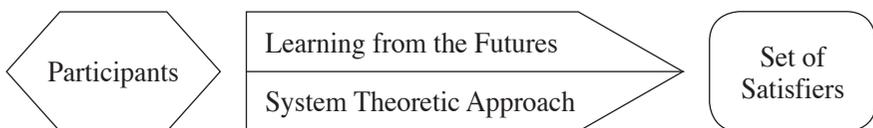


Figure 3. Bewextra-Collect (step-1)

Bewextra-Analytic

For the data analysis and the generation of hypotheses about needs we follow a hermeneutic approach (Davis, 1997) and use generative listening (Senge et al., 2005; Yackel, Stephan, Rasmussen, & Underwood, 2003). As described in the section on the theoretical background, generative listening is a listening from the emerging

field of future possibility (O. C. Scharmer, 2007) and transformative conversation (C. Otto Scharmer & Kaeufer, 2010). The method of generative listening aims at hearing the essence of what the participants say, thus, trying to hermeneutically understand which need they try to express by the satisfier they mention. It is about capturing the essence by not letting prejudice take over, trying to see the world with the eyes of the participant, thus, hermeneutically.

The method of generative listening is used in the following way: To adjust oneself towards the necessary attitude of generative listening, a ritual is introduced. Analysts pair (A and B) and adjourn to a pleasant and silent space. Rotationally, one analyst (A) reads out the related worksheets of one workshop participant connecting the bullet point-like statements/items into a short narrative without changing the content and adding additional information. The partner (B) listens generatively without any other task to do. After reading the text and a moment of silence, the partner (B) reflects and vocalizes what he/she heard, what the need might be which wants to be satisfied in the narrative. The reader (A) documents the statements of the partner (B). Using the approach of generative listening on the satisfiers which were generated in step-1, we are coding the articulated ideas, wishes and answers. For this purpose, we are using the software suite ATLAS.ti to organize codes (and groundedness) and to illustrate hierarchies. The unit of the analysis (defined as a quotation in ATLAS.ti) is each participant. The unit of coding (a code in ATLAS.ti) is the needs that are included (implicit as well as explicit) in their ideas and wishes. Finally, we utilize a haptic approach and place the codes (often several hundreds) on the floor. We then organize and cluster them so that patterns are found and the main categories of the hypotheses about possible hidden needs can be generated. These need categories should be as separable as possible and should not overlap in meaning.

In short, Bewextra-Analytic enables the emergence of hidden needs of the participants and results in a set of hypotheses about needs. Figure-4 sums up the second step of our framework.

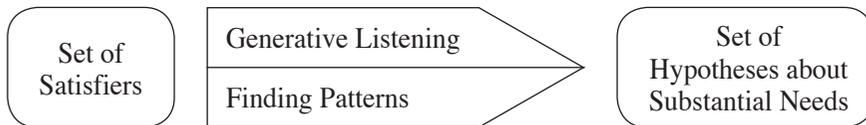


Figure 4. Bewextra-Analytic (step-2)

Bewextra-Validation

In the final step, the set of need hypotheses generated during Bewextra-Analytic has to be validated. The hypotheses shall be validated in terms of both correctness and completeness. For the correctness validation we use an online questionnaire containing the hypotheses generated in Bewextra-Analytic. This questionnaire is sent to all participants and consists mainly of Likert scale questions. Each need hypothesis can be rated from 1 to 4, where 1 means that the hypothesis does not fit at all and 4 means that the hypothesis fits perfectly. Further, the participants are asked to give us some general demographic information about them as well as specific questions on their professional environment (e.g. size of the organization, the region where the company operates, etc.).

Additionally, the participants are asked to comment on the completeness of the proposed need hypotheses in case that relevant needs or need aspects are missing. This communicative validation can either be done in a workshop setting (as in case 1) or as part of the online questionnaire.

The simultaneous use of completeness (qualitative) and correctness (quantitative) validation allows us to accept or reject the generated hypotheses about needs in order to finally create a catalogue containing explicit knowledge about substantial needs. Figure-5 sums up the final step of our Bewextra framework.

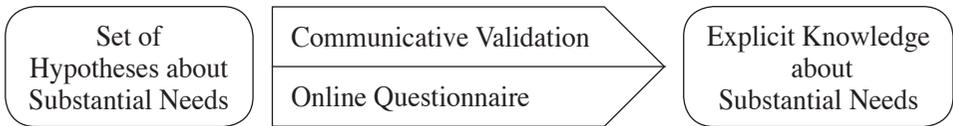


Figure 5. Bewextra-Validation (step-3)

Empirical findings

This section exemplifies our conceptualization of needs, desires and satisfiers we introduced in section 2 with empirical data. Thereby we illustrate the interrelation between the three steps of our framework (see section 3). Additionally, we summarize key figures and specific findings from three different projects (case studies) and reflect on the lessons learned.

Examples for the conceptualization of needs, desires and satisfiers

Our proposed hierarchy of needs, desires and satisfiers (see section 2) has been theoretically founded as well as empirically tested. In previous projects we analyzed how people are used to articulate ideas and wants, namely as artifacts or actions. We make use of this habitual way of communication and refer to this type of statements as satisfiers. In Bewextra's step-1, we acquire the satisfiers by which the participants describe (narratively) the desired future they imagine. Subsequently, in step-2, we approach the data by generative listening. This abductive analysis results in sound assumptions about the desires participants may have and which are not apparent in the raw data (satisfiers). Further, we condensed and aggregated these desires and hypothesize need categories.

Examples from the subsequently described cases for these three concepts are given in table 1. Although concrete examples are given, the reader should be aware of the fact that the related statements of each participant stem from a narrative which draws a whole and coherent picture of the desired future in mind and therefore it has to be interpreted holistically and must not be analyzed in isolation. As described, in step-3 the need hypotheses are discussed and validated by the members of the system.

Table 1. *Examples for needs, desires and satisfiers from three cases.*

	Case 1	Case 2	Case 3
Satisfier (What?)	“Children talk about the baker.”	“Everyone is allowed to take the final exams whenever s/he feels ready to.”	“E-bicycles to shuttle between buildings on the campus”
Desire for ... (How?)	I want my profession to be valued from outside my professional sphere. I want my work to have value for my customers.	Individualize my learning progress and adjust my efforts accordingly.	I want to economize my mobility on the campus in a fashionable way. Using technology is cool.
Need for ... (Why?)	Appreciation of the professional group	Self-unfolding	Efficiency

Due to the use of a qualitative data analysis software (ATLAS.ti) the groundedness, i.e. the relation between the need (hypothesis) postulated by the researchers and the raw data (satisfiers acquired in step-1), is ensured and made transparent.

Case Studies

Case 1 – Austrian Bakers, Austrian Federal Economic Chamber (WKO)

The Austrian Federal Economic Chamber (WKO) offers various services to their compulsory members. In order to (re)define new and adapted services, the WKO is interested in understanding their members’ needs. Therefore, an action research project was conducted in 2013 to gain knowledge about the substantial needs their members have to work successfully. The aim was to generate a catalogue of the substantial needs of the WKO member companies which are in business for more than 10 years (maturity stage) and employ more than 5 and less than 50 people (small and medium-sized enterprises). For this research enterprise, one important industry was chosen by the WKO, namely the Austrian Bakers. Accordingly, the research question was “*What are the substantial needs Austrian bakers have?*”

In order to gain data from the envisioning task in Bewextra’s step-1, the guiding question was “*From the perspective of [role], how does your fulfilled reality in 2015 look like, in which all your wished and goals have become true?*” The question was intended to guide participants in their ideal future scenario. Additionally, two questions sharpened the focus of preexperience and the subsequent narrative reporting: “*In this year 2015, what has come about, what is new?*” and “*What has disappeared?*” By design, asking these two questions emphasizes the difference between 2015 and today (spring 2013). The year 2015 as the future point in time has been chosen in accordance with the project partner WKO.

Accounting for the system theoretical considerations discussed earlier (see section 3), each participant put himself/herself into four related perspectives and thereby covered all relevant views in the respective system: Customers, entrepreneurs, employees and the perspective of the WKO as a support giving institution. The considered role changed the guiding question respectively.

Using the method of generative listening, we identified 591 codes representing hypothetical desire(s) and/or need(s) underlying the satisfiers. In a second coding cycle, we consolidated these codes to a final number of 441 codes.

Similar codes (e.g. typos, synonyms) were consolidated, then analysts tried to find emerging patterns and corresponding concepts in there. The resulting structure was transferred into ATLAS.ti. We finally derived twelve main hypotheses (with several sub-hypotheses each) about categories of needs from these codes.

According to our framework described in section 3, the validation was done by the persons concerned in two ways, quantitatively (correctness) and qualitatively (completeness). Firstly, an online survey testing the correctness of the hypotheses was conducted, and secondly, a final workshop in which the results (hypotheses) were presented and feedback was obtained to test the results' integrity (communicative validation). All need hypotheses were accepted by the bakers. These were the following:

Table 2. *Need hypotheses (bakers).*

Need for handcraft working	Need for quality of life and social safety
Need for time	Need for an orderly world and cooperation
Need for relief of the entrepreneur	Need for appreciation of the professional group
Need for co-responsibility of employees	Need for innovation
Need for qualification	Need for security
Need for profitability	Need for customer satisfaction

Based on these needs the Austrian Chamber of Commerce (WKO) has developed several new services that support the bakers in their entrepreneurial activity. For example they developed an innovative coaching service for bakers, which helps bakers to have more time for handcraft working by learning how to relieve in the fields of administration and organization. For more details on this case see (Kaiser et al., 2014; Kragulj, 2014a).

Case 2 – High School in Lower Austria

This project was conducted with a high school in Lower Austria. The project was intended to be a research project, however, during the carrying out, it turned out that the results are valuable for the quality management initiative the school runs to ensure continuous quality improvement. Therefore, it gained practical relevance.

The main purpose of this project was to make the needs of teachers, pupils (separated by branches within this school called “HAK”, “HAK” and “HAS”), parents and the private school provider explicit. Prior the data acquisition, these stakeholder groups were identified as concerned and crucial to be asked. Different to other projects, the stakeholder groups were represented by themselves and the data acquisition was twofold. The vast majority of participants (teachers, pupils) took part in a data acquisition workshop in their school. Additionally, managers of the private

school provider were interviewed separately in their offices. This was intended to gather in-depth information from a stakeholder group crucial for the process, but with a small number of representatives involved (two interviewees). The interview data was equally integrated into the workshop data. Unfortunately, neither pupils of branch “HAS” nor parents participated in the project.

The data analysis approach was similar to other Bewextra projects, except that university students, who were trained prior to the analysis, took part in the generative listening task too. Their results were equally integrated and coded. In this project we conducted three coding cycles in order to come up with data density that allowed for establishing the 15 need hypotheses which were the following:

Table 3. *Need hypotheses (high school).*

Need for solidarity [dimension A *]	Need for justice
Need for quality of school food	Need for wellbeing
Need for quality of teaching	Need for practice orientation
Need for flexibility	Need for unfolding the self
Need for space for unfolding	Need for participation
Need for modernity by means of technology	Need for internationality
Need for variety	Need for solidarity [dimension B *]
Need for persistence	

(*The need for solidarity was split into two dimensions A and B indicating that those were of opposing quality. However to our astonishment both hypotheses were accepted by the survey participants.)

The need hypotheses were validated with an online survey to which all workshop participants were invited. In short, all need hypotheses were accepted by 97 survey participants with an average acceptance rate of 89%. However, only the need hypotheses “persistence” turned out to be controversial, it was accepted by (only) 69% of the survey participants. An in-depth analysis of the survey data showed that - different to the concrete satisfiers, which are controversially viewed among different stakeholders - needs are of inclusive quality meaning that different stakeholders can commit themselves to common needs to largely the same degree than others. This has been analyzed by the different acceptance rates of different stakeholder groups. The most controversial need hypothesis “persistence” had a maximum delta of 38%-points in acceptance rate between teachers (94%) and pupils HAK+ (56%). The average delta over all need hypotheses between the maximum acceptance and the minimum accepted among the stakeholder groups was 14%-points; only three need hypotheses showed a delta in acceptance greater than 20%-points (“variety”, “solidarity, dimension B”, “persistence”).

These results confirm our assumption that organizations may be well advised to engage with their common needs first in change processes, in order to find common ground for sustainable solutions and strategies based on their needs.

Case 3 –Vienna University of Economics and Business

This Bewextra case study had a special focus on the data acquisition part (step-

1). We intended to analyze the effects learning approaches (Learning from an Envisioned Future versus conventional learning) have on the generated needs, i.e. on the overall outcome of the Bewextra process. For this purpose, we conducted a study with 25 students from the specialization field “Information Systems and Operations” at the Vienna University of Economics and Business. Participants were separated into two groups employing either Learning from an Envisioned Future or conventional learning from past experiences. Both groups together produced a total number of 572 satisfiers. Subsequently, we analyzed the generated satisfiers as described in section 3 and identified 115 codes. Subsequently, we clustered these codes to find their underlying needs. Combining the two learning approaches, we identified 19 different need categories; 4 categories emerged regardless of the respective learning approach, 7 categories emerged from the satisfiers collected in the past-oriented learning approach and 8 clusters emerged from the satisfiers collected in the future-oriented learning approach. These were:

Table 4. *Need hypotheses (university).*

Need for individuality	Need for community
Need for freedom and flexibility	Need for quality
Need for efficiency	Need for security
Need for sustainability	Need for self-realization
Need for consideration	Need for practical relevance
Need for transparency	Need for convenience
Need for communication	Need for appreciation
Need for purpose	Need for variety
Need for curiosity	Need for being on the pulse
Need for holism	

These findings suggest that applying both learning methods leads to a significantly higher number of unique satisfiers and resulting need categories. More precisely, using Learning from an Envisioned Future as an additional source of learning led to an approximately 64% increased number of covered need categories. 16 students from the Vienna University of Economics and Business took part in the validation survey. Within the questionnaire, each of the 19 need hypotheses (along with a short description) was tested for the participants’ agreement. Overall, the approval rate was 84 %. The needs with the lowest agreement rate originate from the past-oriented workshop. It is unclear, whether the needs “efficiency” (50%), “security” (63%) and “sustainability” (69%) constitute needs of the whole system; these high rejection rates should serve for further discussion within the system. For more details on this case see (Kaiser, Kragulj, Grisold, & Walser, 2015).

Summary of the three cases and lessons learned

In the following table 5. summarizes the key figures of the three cases discussed.

Table 5. *Overview of empirical benchmarks.*

	Case 1	Case 2	Case 3
Participants in data acquisition	120	173	25
Answers and ideas (satisfiers)	3.600	2.587	572
Codes after first coding cycle (desires)	591	826	115
Codes after second coding cycle	441	301	n/a
Codes after third coding cycle	n/a	130	n/a
Hypotheses about needs	12	15	19
Participants in validation	121	97	16

These three projects cover a diverse range of organizational domains. Thus, the insights we gained from the cases are based on a variety of empirical data. In the following we outline our lessons learned from these projects which are valuable for refining our framework and the specific procedures.

- Combination of learning approaches

Based on the results from case 3 we can conclude that an additional learning source enables a more holistic view on the needs individuals have in a social system.

A corresponding study (Kaiser et al., 2015) has not revealed a significant qualitative difference between learning from an envisioned future and learning from past experiences; learning from one source does not appear better than learning from the other source. Consequentially, to get a holistic understanding of the needs in a social system, it may be best to use a combination of both learning sources, i.e. using conventional learning approaches in the form of learning from the past as well as Learning from an Envisioned Future, as they both together increase the spectrum of needs.

- Involve stake holder groups concerned in person

As argued, we cover multiple perspectives within the system under investigation. This was done either by putting oneself into the shoes of another person (case 1) or by involving the stakeholder groups in person. Comparing the data from these two cases (1 and 2) reveals that the results are more ecological stable in case 2 where the groups took part in the project themselves. For example, we observed that bakers reported the same satisfiers from their own and the imagined perspective of being their customers (case 1). This provokes doubts about whether people are really able to put themselves into the other stakeholders' shoes in this setting.

- Format of data collection

One of Bewextra's main feature is to be efficient in involving many people with relatively little time needed. In these workshops, the time travel ritual should enable people to detach from past and today's limitations and shift their thinking towards an ideal future. The instructed ritual is a time journey encouraging participants to construct their desired future as an imagined narrative. To best report from "there", the format of data collection should be suitable for the imagined narrative. In short, we may conclude that it is easier for analysts to access and understand these

narratives meaningfully if the raw data is collected in a semi-structured format, which allows for continuous text on the one hand side and on the other hand side keeps it structured (guiding questions, suggestion of bullet point lists).

- Online communicative validation

Researchers are interpreting the participants' satisfiers. This interpretation might be either wrong or incomplete (or both). To avoid this, the hypotheses are validated by the members of the respective social system on two dimensions "Are these needs complete?" and "Are these needs correct?" (step-3). To answer the latter question an online questionnaire has proven to be suitable. We initially proposed to approach the first question by an additional workshop following the idea of communicative validation. (Kvale, 1995) In case 1, we conducted such a designated workshop, whereas in the other cases we integrated the "completeness" validation into the online survey and considered the inputs in the final project results. This approach turned out to deliver results comparable to the workshop approach, however it does not offer the possibility to discuss the hypotheses in person with others, i.e. immediate knowledge transfer (and knowledge implementation). Therefore, we are going to consider more sophisticated online tools for this validation which efficiently and effectively support a discussion and consultation of the need hypotheses (Taudes & Leo, 2015).

Conclusion

The focus on needs and knowledge about needs in organizations drastically extends the range of possible solutions and enables organizations to create more innovative and sustainable products and services.

The overarching goal of this work is to introduce a framework for the creation and discovery of knowledge about needs in organizations. To the best of our knowledge, it is the first theoretical work that describes the generation of need knowledge based on learning from an envisioned future as an abductive process in a methodologically and replicable way.

Even though we do not discuss external social change, we believe Bewextra is relevant for futures studies because learning from an envisioned future in combination with abductive reasoning seems to be helpful for a foresight process. Further, the two large case studies (cases 1 and 2) have shown that our Bewextra framework enables even rather large organizations to detect and generate need knowledge with a small amount of time. Based on the discussed lessons learned and the plan to work with even larger social systems (e.g. communities) our future research will cover the following areas:

- Analyzing whether an IT support for Bewextra-Collect as well as for Bewextra-Analytic is possible and useful.
- Designing and implementing additional methods for learning from an envisioned future in organizations.
- Theoretical foundation of an enhanced learning theory, which covers learning from the future as well as learning based on experiences in the past.

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