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Vision development in a multi-stakeholder research project: Digitalization for a sustainable shift in the use of heat

Abstract

"A global force for Learning-through-Play" is the Lego company's vision, and by reading it is clear that every step this company takes is directed towards achieving this vision. The efforts, decision-making, and goals for both employees and clients, the why behind Lego is lived by is evident in their vision statement. For a company or an organization to have a vision and mission is a well-known topic both in literature and practice. A clearly defined vision and mission statement is key to bringing a team together, in decision-making and has an impact on the organization's success. However, when we look at projects a vision and mission statement is rarely defined. Considering the positive impact a vision and mission statement can have on an organization's success, why is this not applied to projects? Or why is this not done more frequently? This article focuses on how a multi-stakeholder research project is working together, and how developing a vision was an important step into coming together to work towards their specific and common goals. The project WWNW (German: WärmewendeNordwest, English: Northwest heat transition) is looking into ways in which digitalization can help develop further solutions to improve energy consumption in terms of heating, and in this article, we will dive deeper into their vision and mission statement development process as a case study and example for other multi-stakeholder projects.

Keywords: Vision development, project vision, multi-stakeholder, sustainability

1. Introduction

There is no doubt that there is a need to continue looking for applicable solutions to achieve better and more sustainable use of our resources. In this sense, Germany, as many other countries, is investing in research projects that work towards this goal. These projects have, more often than not, clear goals, objectives and tasks to be achieved in a determined time line. However, what they often seem to lack is a common vision and mission. This might be due to the limited time the projects take place in or the many different organizations involved, each with their own vision and interest. However, considering that a vision is designed to strengthen creativity, performance and motivation [1] and that the inspiration of those involved is awakened through the vision in order to achieve the goals [2], the value and importance vision statements bring it might be necessary to have a vision and mission statement also on project level, particularly in multi-stakeholder projects where a connection and team-building among the parties is normally not given beforehand.

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El-Namaki's description of vision determines two levels, "(...) as a concept of the kind of future an individual, or an organization, aspires to create within a broad time horizon and the underlying conditions for the realization of this concept" [1, pp. 29]. However, the concept of vision statements outside the scope of the individual and organizational level is also present in a country level in Alshuwaikhat and Mohammed's work [3] and on the federal state level as introduced in the work by Müller and Reutter [4]. In the work of the sustainable development of a country for the 2030s, the topics addressed are society and the economy and are the focus of their vision, in which sustainability is prioritized to facilitate transformation. The vision seeks to comprehensively reform the country to ensure preparedness for the future. Ultimately, the vision is intended to initiate progress and thus ensure security, justice and sustainability [3]. In the federal state level in Germany, the authors describe the vision development of the federal state up to the year 2030. The focus was on the design of a sustainability strategy from the perspective of science. The participation of different stakeholders, such as society and business, was a central point. The development of a transition management of the transformation (e.g. society and environment) took place [4].

Considering that the relevance of a vision is that "It's not what the vision is, it's what the vision does" [5, pp. 324] we argue that vision definition can and even should be considered at the project level too, particularly given the first studies showing its importance for the project's success [6] and therefore making it a relevant task of project management. One example of vision development at the project level takes place in the higher education sector, as described by Doten-Snitker et al. [7] on organizational change and the involvement of different stakeholders. The involvement of stakeholders (cooperation partners) is seen as central to ensuring room for maneuver and coordination to achieve the project goals. It was found that the vision development process is successful when there is cooperation and initiative. This enables the vision to be implemented and the project goals to be achieved.

In their work, Christenson and Walker [8] deal with visions and their influence on project results in organizations. A multi-stakeholder analysis was also carried out in several case studies. The vision development processes, which are located in the subject areas of project planning and the criteria and factors for success, were carried out in workshops. The results showed that a vision has a positive influence on the specific project results and helps communicate the project's benefits. At the same time, it was shown that a vision has a motivating, inspiring, and innovative effect.

A vision must be concrete, fact-based, and at the same time generally understandable, as the example of the Lego company shows: "A global force for Learning-through-Play" [9]. The focus is on identifying attributes that influence the implementation of a vision and are conducive to the success of this vision. Furthermore, when developing a vision, it is important to ensure that the team members involved and their perspectives are taken into account to increase performance [10, 11]. This research aspect of the team members has received little attention to date [10, 12]. It should be noted that "A clear vision is one important component of an effective vision but, the vision must also be shared and supported by others on the team" [10, pp. 478]. A clear vision increases potential success and success. The vision itself should be seen as a tool to give meaning to the project to achieve the project's goal [6].

Given the fact that the success of a vision statement is influenced by the development process [1, 13, 14] and how the structured approach of vision planning significantly supports the implementation of the vision and the success of the project [13] more information is needed on how this is done on a project level. The topics of tools and techniques and communication management are also to be addressed. In this sense, there are different examples on the organizational level, particularly for companies as seen for example in Ulbrich and Leuz's workbook [15]. There is little information in the literature on the project level and vision development process, so there is a clear need for further research efforts to enable a more in-depth understanding and analysis of this topic [16].

Seeing the need for more information and learnings on how to apply a vision development process at a project level, in this article we used the descriptive single case study as proposed by Yin to look into a phenomenon in its real-life context and therefore offer the opportunity to provide with a richer description of the case and using participant observation [17, 18, 19]. This is beneficial for both practitioners and researchers. Practitioners, for example, project managers, can apply a similar vision development process in their projects, and researchers can follow up on the effects of such process and vision statements concerning, for example, the project success, as seen at the organizational level. The case is a multi-stakeholder research project taking place in Germany and we will study its vision development process. A detailed description of the case project is presented in the following section. Section three focuses on the process itself, explaining all the different phases of the vision development process in

the project used for this case study. Section four introduces the learnings, thus far, as the process is still ongoing and the project has not yet come to an end.

2. Case Project: WWNW (Northwest heat transition) its structure and individual goals

One challenge in many countries today, continues to be the high amount of energy needed for different activities, one of them being heating. The latter requires the use of high amounts of energy and is variable according to the season of the year. Considering on the one hand, that - according to the European Commission - buildings account for around 40% of the EU's total energy consumption and that this figure is rising, and on the other hand, that governments are looking for ways to reduce the levels of CO_2, the task is therefore to develop solutions that improve the use of energy for heating, thus reducing the CO_2 levels [20]. Renovation plays a central role in achieving this, but together with digitalization the potential to revolutionize the way we use heat more efficiently and productively, leading us to a heat shift might be closer. This is the goal of the project: "WärmewendeNordwest - Digitalization to implement heat turnaround and value-added applications for buildings, campus, districts, and municipalities in Germany's northwest" also known as WWNW[1]

The multi-stakeholder research project started at the end of 2020 with a consortium of 21 organizations including partners from industry, government, and higher education and research institutions. The project is ongoing until November 2025. Funded by the German Federal Ministry of Education and Research[2], it takes place in the German northwest region of Oldenburg and Bremen. The project's scope includes looking for solutions at different levels, such as buildings, campuses, neighborhoods, and municipal communities. The tools to be developed to achieve a shift in the use of heat are to be practically researched, implemented and demonstrated. The project is organized into six research fields and three transversal activities, all of them with different partner combinations taking part.

The different research fields focus on particular levels (buildings, campuses, etc.), and in a first overview, it could seem that they work independently from each other, moreover taking into consideration that most partners work only on one of the research fields.

- The first research field (RF1) - "Regional online platform for energy efficiency optimization and business models", has the goal of creating a regional and digital renovation platform for the exchange of knowledge and best practices.
- The research field 2 (RF2) - "Secure gateways and routers as a basis for value-added services", works towards the development of digital value-added services for buildings based on existing security technology including the smart meter gateway[3]
- In research field 3 (RF3) - "Digitalized experimental campus for building physics", the partners are working on the one hand on the development of a digital caretaker system with concepts for heat control planning basing on high-resolution sensor data, and on the other hand, they develop, based on external data sources, strategies for municipal heat management planning.
- Research Field 4 (RF4) - "Experimental Campus Digitalized Heat Transition at the University of Oldenburg" is looking to demonstrate synergy potential and try out operating strategies for heating/cooling processes.
- In research field 5 (RF5) - "Climate-neutral heat for neighborhood solutions" the partners want to develop transformation strategies for a climate-neutral energy supply in neighborhoods as a guide for decision-makers and project developers.
- Research field 6 (RF6) - "Climate-friendly heat supply for municipalities", works towards the development and implementation of digital concepts for climate-neutral heat supply in the community: renewable energy and heat registers, renovation/monitoring concepts, map-based CO_2 accounting.

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[1] Link to the project´s website: https://www.waermewende-nordwest.de/.

[2] Link to the website of the German Federal Ministry of Education and Research: https://www.bmbf.de/bmbf/en/home/home_node.html.

[3] Further information about the smart meter gateway on the German Federal Office for Information Security: https://www.bsi.bund.de/EN/Themen/Unternehmen-und-Organisationen/Standards-und-Zertifizierung/Smart-metering/Smart-Meter-Gateway/smart-meter-gateway_node.html

The transversal activities function as a group of services provided to the above mentioned research fields. Through the activities and offers developed and implemented within the transversal activities, the research fields come together. The participation in such activities facilitates the communication and exchange to find synergies and further learnings between the RF. The transversal activities one and three could be understood as the project's base, while the transversal activity two is the main connector of the project to the outside world, as you can see in Figure 1.

- The transversal activity 1 (TA1) - “Building and operating a digital heat transition platform”, has the goal of collecting, archiving, providing, and evaluating data in the project’s platform to identify optimization potential for the heating transition.
- In the case of the transversal activity 2 (TA2) - “Transfer and innovation, qualification and training”, the goal is threefold: national and regional transfer of the project results, development of innovations for the heat transition, and derivation of training and further education measures from the project.
- Finally transversal activity 3 (TA3) - “Project coordination and coordination of public relations”, is a well-known aspect of all projects, taking care of the implementation of the overall project, as well as publicizing the project through public relations.

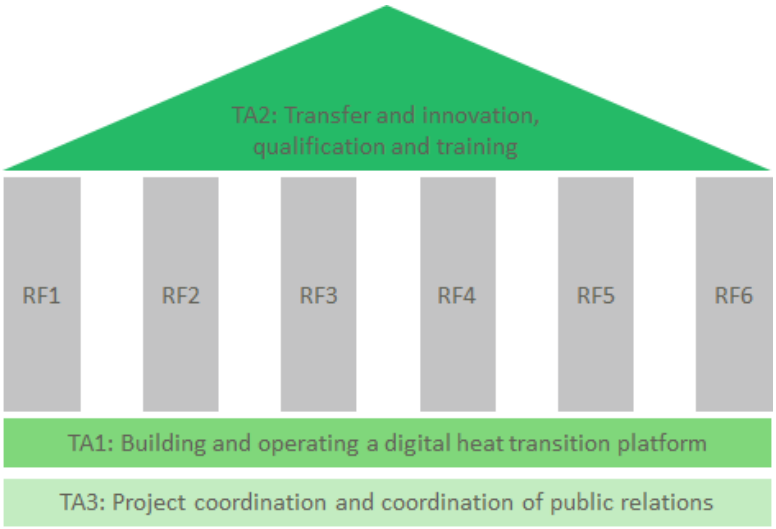

Fig. 1. Pictorial organization of the project Research Fields and Transversal Activities.

3. Vision development: the project´s guiding lighthouse

A multi-stakeholder research project has challenges given the diversity of its project partners and the diverse interests each of them brings to the project. WWNW, as you explained in Section 2, has a lot of different fields and twenty-one partners. As mentioned in the introduction, it is quite common to hear about a company or an organization that has a vision and a mission statement. However, it is less common for a research project to have one, even though, some studies already have determined the importance of a common vision for a project’s success [6]. Therefore, having a common vision as a lighthouse to guide them and a mission determining how to get there, could be key. In this sense, and given the lack of use and information of vision and mission statements in research projects, but the relevance it has, we find it important to explain how the process in the WWNW project worked.

The vision came to life as part of a vision development process. This process was designed and implemented by the two members of the TA2 and with the support of the TA3. The process, summarized in Table 1, is divided into five phases using different tools. The process three months for phases one to four as can be seen in Figure 2, the final phase is still underway. Phases two through four were moderated by one of the team members of TA2, who was an observant participant in phase one.

Fig. 2. Timetable of the vision and mission development process in WWNW.

- In the first phase, all of the consortium's team members were invited to participate in a one-day workshop in the city of Oldenburg. During this workshop, three groups were built with participants from different research fields and transversal activities working together. It was important to have people from different activities and as many organizations as possible working together to ensure the sharing and support of the project members. For this workshop, we used the Lego Serious Play (LSP) method [21, 22]. Following the different LSP steps and with one LSP facilitator per group. The three questions posted during the workshop were: "What will the heat supply look like in the northwest of Germany in 2023?", "What does the population do differently to make the heat supply sustainable?" and finally "How have we (WWNW) successfully contributed to the implementation of the heating transition?". Based on the work of these three questions and using the LSP method and materials after three stages, each one answering one question and building up on the next one, each group prepared a final presentation which was video recorded for about 3 minutes presenting the ideas developed as response to the three questions. These three questions were formulated by the facilitators and the members of the TA2 who designed and implemented the entire process in a preparation session beforehand. It was crucial to come up with questions that not only were suitable for the LSP method but were formulated for open answers, including the different stakeholders, levels, and topics at which the project has to develop solutions.
- The second phase was two online meetings. Again, all partners were invited to participate. After clarifying the difference between a vision and a mission and presenting the text of the transcribed videos, that evolved from step 1, groups were formed and again a mix of members from the different RF and TA was taken into consideration. For these digital workshops, the task was to use the transcripts as a basis for further work on a concrete vision statement. Each group should use the three texts and try to combine them into a possible vision statement. The idea was to create a text based on the work of the LSP workshop, but not to use it completely if not wanted. The result was three shorter statements.
- For the third phase, two online meetings, with a smaller vision team, consisting of the partners from the previous rounds that volunteered, took place. Using a digital whiteboard the groups discussed what was important, what was missing from the texts, what did not work out, and aspects that were not clear. Using this input the previous texts were combined into two new ones. In this process, it was crucial to emphasize the difference between a vision and a mission, as there were aspects in the texts produced by the groups that were more part of the mission statement. There were many vivid discussions and active participation of the team. During the last meeting, the texts were then separated into vision and mission statements.

- In the fourth phase the TA2 core team and TA3, project coordination, finalized the text. One crucial aspect of this phase was making sure that each research field and transversal activity was included in the vision and mission statement. Then the small vision team from phase three received the text to give final feedback and comments, which were integrated into the final text. This one was then introduced to the lead of each RF and TA and afterward to the steering committee who gave their support.
- The final stage was the communication of the vision and mission statement to the entire project personnel. The last phase also includes the acknowledgment and use of the vision and mission. This part of the process is undergoing.

Table 1. Summary of "Finding a WWNW vision and mission".

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
People involved	WWNW consortium	WWNW consortium	Volunteer group	Core team TA2 & TA3	WWNW consortium
Location	On-site	Online	Online	Online	via Mail & Meeting
Tools	LSP	Digital whiteboard + Snowball technique	Digital whiteboard	Digital whiteboard	
Output	3 Videos	3 Texts from videos	1 Text divided into vision & mission	Final vision and mission text	Final reviewed text

In this sense the WWNW vision is: "We enable people and organizations to actively shape the heating transition through our development of digital support solutions". Followed by the mission statement: "We help shape the heating transition by providing digital tools that are used from households to municipalities. Through the secure and sustainable collection, use, and provision of data, as well as the use of intelligent control strategies, these tools can identify optimization potential to improve energy efficiency. The continuous transfer of knowledge, information, instructions, and services from the project enables the further development of different stabilization models and the co-creation of training, teaching, and political framework conditions".

4. Learning, thus far

The project, as well as, the last phase of the vision and mission development process is still undergoing. Therefore we can only present learnings taken by the observant participation thus far. Most of these aspects can be already applied in further vision and mission statement processes in other research projects.

- Inclusion: given the particular case project, with the different very independent RF it was essential that all of the fields would be considered and integrated into the vision and mission statements. Given the project's size and complexity, this was not an easy task. The active participation of the project coordinator helped achieve this aspect, as the coordinator has a complete overview of all the RF and was always making sure that these were all included.
- Moderated process: moderation throughout the process was helpful and necessary. The moderation was particularly important in the time management aspect, otherwise, the discussions would have been too long, in the adaptation and application of tools and methods appropriate to the context and project, and finally for clarification of vision and mission, since it was often the case that this two were mixed.
- Participation: Everyone in the project had the chance to participate, contribute, and/or comment on this vision and mission statement. As in the work presented by Müller and Reutter [4] participation of different stakeholders was also a central point and through the participant observation of our case the vision development process was

successful given the cooperation and initiative as explained by Doten-Snitker et al. [7]. The final phase ensured the sharing and support from all the project team members as this is also a relevant aspect of the success [10].

- Tools and Methods: In our case, there was a combination of tools and methods in an agile working environment and the process was iterative as known from Design Thinking approaches. Starting with the use of LSP as a visual and interactive tool, with questions designed for the project and topic [21, 22], followed by working groups and snow-ball effect methods to achieve a final text in which all participants had a chance to take part, proofed to be an effective way of conducting the vision development process.

5. Conclusion

The WWNW project's vision: "We enable people and organizations to actively shape the heating transition through our development of digital support solutions" together with the mission statement leads to a common understanding and identification for the project members within the project and gives an understandable and clear public illustration to communicate outside of the project. This simple sentence brings together the efforts of a multi-stakeholder project with partners representing different interests and research fields together. Considering again the relevance of a vision "It's not what the vision is, it's what the vision does" [5, pp. 324] the next step would be to follow up on this process and evaluate the actual effects the vision and mission statements had in the project on different aspects, for example, motivating, inspiring and innovative effect [8], or strengthen creativity, performance and motivation [1]. However, given that phase five is still ongoing we can not yet confirm this in our case study, but we have already observed a motivational effect and also a positive effect on team-building within different RF and TA in the project. Furthermore, another aspect that can be evaluated is whether the clarity of a common vision helped in decision-making processes or moments of disagreement. It remains to be seen how this process and the vision and mission statements will contribute to the success of the project. In which ways this process and the vision and mission statements will be beneficial for the project's success remain to be seen. Thus far, the communication and perception of the project have changed towards a common vision. Considering that the vision development process is successful given the cooperation and initiative as explained by Doten-Snitker et al. [7] and that this in consequence enables the vision to be implemented and the project goals to be achieved, we believe that a positive effect of this process will be seen in the future. It remains still to be evaluated.

Further research aspects are to extend this approach to other case studies. Single case studies have the advantage of diving deeper but are also limited by the particularities of the case itself. Our case project was a multi-stakeholder research project, it would be interesting to look into other kinds of projects and determine if similar processes are effective and have a positive impact on the project's success. One final aspect that can be mentioned is the project's duration. In our case, a five-year project presented an ideal opportunity for the vision development process and its implementation. It remains to be seen if projects with a shorter duration can also benefit from a vision and mission statement.

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