Transforming energy infrastructure between market incentives and local cooperation

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Abstract. Distribution system (grid) operators (DSO’s) currently experience turbulent times. Changes in society and the energy infrastructure related to the worldwide accords to diminish CO2 emissions and the rise of decentral energy production demand a different position from DSO’s. Until recently DSO’s were utilities part of larger companies combining energy production, transportation and delivery. This changed after the introduction of a market model in the EU, making sure that consumers had a choice and competition would promote more efficiency and the investment of private capital in energy production. Now we are facing major impacts of the results of man induced global warming current economic models are questioned. Therefore it is important to investigate whether a different way of organizing would be able to bring about social transformation and different results that would be of value in reducing CO2 emissions and addressing adverse effects of the current economic system. In this paper it is investigated what the different model of cooperation would bring. This paper uses a framework of cooperation to explore new ways of working for DSO’s in the Netherlands. For this a case study is used directed at facilitating internal cooperation within one Dutch DSO.

1. Introduction
Distribution system operators (DSO’s) currently experience turbulent times. As a result of worldwide ambitions to reduce global carbon emissions, they face an enormous challenge. An important part of the challenge posed by addressing Climate Change is known as the energy transition. As a result the demands from society towards DSO’s change, as well as the conditions society formulates for its operations. One of consequences of these ambitions to diminish CO2 emissions is the rise of decentral energy production and the increasing demand by consumers and communities, which results in the need to transform the energy infrastructure, the position of DSO’s and what is asked of the organization and its workforce.

In the EU, the context for the case study of this paper, directives have been formulated to provide direction and framework for the realization of the ambitions for its member states in the energy transition, for example for the increasing generation of distributed renewable energy [1], renewable electricity [2], and the ongoing effort to improve energy efficiency [3]. Relatively recent is also a change in jurisdiction which forced energy service companies to disentangle energy generation and distribution. The two activities can no longer be combined in one company. Until last decade DSO’s were activities part of larger utilities combining energy production, transportation and delivery. This changed after the introduction of the market model. The EC wanted to make sure that consumers have a choice and competition would promote efficiency and investment of private capital in energy production.

These developments urges DSO’s to reinvent themselves, which is not easy for these conservative companies. They have to change their attitude, to reconsider their business focus and to develop new business activities often within a strong regulatory environment. As a result DSO’s are experimenting with new business models e.g. around e-mobility, one stop shopping formulas for energy efficiency, local storage and block chain technology.
In 2019 most of these experiments have been placed outside the boundaries of the organizations since they are potential competitors of other businesses that are emerging and therefore these are not always compatible with the new law. At the same time these companies also discover opportunities in transforming their changing infrastructure into active energy networks, so called smart grids. Apart from the need for a changing attitude of the DSO’s, it is advocated that regulation needs to allow DSO’s to have access to a wider range of options and incentives available in choosing the most efficient ways to run their businesses [4].

While DSO’s are facing all these changes, the results of man induced climate change become clear. And at the same time the DSO’s are transforming their business, current economic models are questioned, since the current economic model is held responsible for the emergence of climate change, environmental issues, social problems and the financial crisis of 2008 [5]. Therefore it is important to investigate whether a different way of structuring activities around energy infrastructure would be able to bring about social transformation and different results that would be of value in addressing the current situation. In this paper is investigated what a model of cooperation would bring. Therefore a framework of cooperation is used to explore new ways of working for DSO’s in the Netherlands.

2. Theoretical framework
For the assessment of the case study we need a theoretical framework of cooperation. In addition, there are two main bodies of knowledge also relevant as to know how to approach change in organizations and society. Therefore, we also present a paragraph on reinventing organizations, part of the change management domain, and a paragraph on the multi-level concept of transition management.

2.1. Cooperation
In order to explore alternative ways of working based on the point of departure that man is not only competitive but also a cooperative creature, we need to have a framework on cooperation. This matches very well with recent scientific findings in a myriad of knowledge domains. As point of departure a definition of cooperation is necessary:

Cooperation can be defined as the tendency to maximize outcomes for oneself as well as others. It it can be contrasted to competition, the tendency to maximize own outcomes in combination with minimization of others outcomes [6], and to individualism, the tendency to maximize own outcomes with no or very little regard for others.

An inventory was made of theoretical concepts from different disciplines: psychology, economics, neurobiology, sociology, anthropology, and political science. The concepts that could be put to practical use were combined to form a framework for analysis (see Table 1).

2.2. Reinventing Organizations
In his book Reinventing Organizations [7], Frederic Laloux researched pioneering companies practicing other ways of organizing and doing business. Next to describing the changing paradigms in organizational development, he identifies three breakthroughs and a metaphor. The new metaphor is to look at organizations as living systems, creating workspaces that aspire to create. The three major breakthroughs found are:

- Self-management, an organizational system based on peer relationships rather than hierarchical or consensus-based structures that proves to operate more effectively.
- Wholeness, in the sense that expanding the professional self to the private self invites the employee to use all of the talents at work.
- Evolutionary purpose, inviting members of this new type of organizations to listen in to what the organization needs to become, rather than predicting and controlling the future.
Table 1. Three levels of the theoretical cooperation framework.

| Aspect of cooperation | Explanation & references |
|-----------------------|--------------------------|
| **Individual**        |                          |
| Expectations          | Since the mind models what will happen, it is important to understand what colours the perceptions of what is actually happening [8]. |
| Social value orientation | Individualistic: to make decisions based on what will be personally achieved, without concern for others. Competitive: strive to maximize own outcomes in combination with minimization of others outcomes. Cooperative: to maximize own outcomes and to prefer strategies that generate win-win. Altruistic: willing to sacrifice one’s own outcomes in the hope of helping others. [6,7]. |
| Learning              | Deutero-learning or transformative learning: learning how things occur, the development of habits & learning how to learn [9]. |
| **Team**              |                          |
| Group size            | Large groups: (a) increase anonymity, (b) make people more pessimistic about the efficacy of their efforts, and (c) lower levels of personal responsibility for collective outcomes [10]. |
| Framing               | Frames are linguistic constructions that influence our experience and behaviour. A frame is a cognitive structure, one that is necessary for understanding and reasoning [11,12]. |
| Trust                 | Trust is necessary for cooperation [13]. Lack of trust hampers creativity in teams [14]. |
| Self-management       | Self-management can be achieved through a combination of innovative structures and processes [7,15,16]. Differentiate between self-organizing teams and self-management. |
| **Organization**      |                          |
| Organizational learning | Levels in organizational learning: single-loop learning: a mismatch is detected and corrected without changing of the underlying values and routines. Double-loop learning: when a mismatch is detected and corrected by first changing the underlying values and routines [17,18]. |
| Culture               | Three cultures of within an organization: the operators - line managers and workers that make and deliver products and services (referred to as workers in this paper); the engineers - the technocrats and core designers of control systems e.g. financial rewards, IT systems; and executives - chief executives that share a global set of assumptions based on their role & status [19]. |
| Structural hole       | There are clumps of people doing certain tasks. But between those clumps there are holes, places in between where there are no people and there is no structure. These are places where the flow of ideas stops [20]. In between knowledge domains there are similar holes [9]. |
Laloux [7] describes stages of development of organizations primarily based on the work of two thinkers, in particular Ken Wilber [21] and Jenny Wade [22]. Laloux refers to the stages and to the corresponding organizational model with both a name and a color. The stages he describes are similar to the different social value orientations [6]. Every organization type, and in a more nuanced way also every individual organization, will have a different social value orientation. Looking at value systems of large international companies you can determine differences between office locations, as well as on the different levels within the organization and (specific groups of) employees. According to Laloux these can all be red, amber, orange, green or teal [7]. Commercially (achievement-) focused organizations have a competitive orientation or orange profile, some organization have a cooperative or a green profile and there are only a few evolutionary teal organizations [7]. Some organizations realize that investment in command & control provides less and less results. They start looking for an alternative way of working and do invest in the reorientation and changing their social value orientation.

2.3. Multi-Level Concept

The Multi-Level Concept [23,24,25] is a high-level lens through which transition processes can be better understood. The concept looks at three functional levels:

- Macro-level: the level of autonomous developments and global trends. In this case Climate Change, Renewable energy and the changing market model in the EU.
- Meso-level: the level of the regime, authority, rules, laws & policies.
- Micro-level: the level of experiments, practices & projects.

3. Purpose & research methodology

The case study in this paper looks into a work-pilot in a Dutch DSO with the name Energized! at work. This paper will reflect on the processes and the outcomes of the project, which ran within one of the three Dutch regional DSO’s (grid operators) during the period November 2018 – July 2019. The description of the case is based on the experience of one of the authors as part of the initiative. Herlaar was initiator and facilitator of the project. Oostra is professor Applied Urban Energy Transition and developed the cooperation framework as a means to reflect on the process within the case study. The material on which the analysis is based derives from action research. First a general description of the case study will be given and some outcomes. Followed with a section dedicated to the analysis of the process before ending with a conclusions and reflection section.

4. Case Study introduction - facilitating internal cooperation

In its very nature, DSO’s are historically grown form small local (cities) utility companies to regional and national grid operators. The energy transition requires from DSO’s to get a lot of things done in a short timeframe. While coping with a huge demand, the introduction of new technology and the extension of the electricity networks’ capacity, the company structures have to be reinvented in order to cope in time with future demands and changing technological skills. To make this a success internal
cooperation between employees and groups is necessary. Roughly 40% of the people in a DSO work as blue-collar workers, practical people that actually build, maintain and operate the infrastructure.

4.1. Sources of Inspiration for Energized! at work.
According to Rotmans [26]: “transitions can only be successful, when the dynamics is the same on all levels”. With this he means that the dynamics of patterns on the macro level, and the dynamics of initiatives on the micro level, both put pressure on the prevailing “system” or regime. A simplified version of this concept was used to initiate Energized! at work. Projecting the multi-level concept on the organization as a system, the C-level and middle management were considered as the regime (meso-level) feeling the pressure to act on the global impacts of climate change (macro level), a need for creating niches to experiment with different ways of working was identified at micro level. Rather than starting an ambitious companywide project under direct supervision of the Board, the team chose to initiate a project with a small-scale scope. Objective was to start bottom up interactions with the regime to create room for social innovation on the operator level.

4.2. Transition skeleton: working concepts and methodologies.
To achieve radical social innovation and transformation, there was a need to break away from the generally used top-down approach, concepts and working methodologies. Participatory leadership concepts were introduced and methodologies to create a safe space (container) for the initiative: e.g. The Art of Hosting and Harvesting conversations that matter, Liberating Structures and Transformative Learning. These methods encompass new ways of meeting, prototyping and building new stories. The pyramid of Lencioni [16] was used as a basis for a step-by-step joint learning process towards self-management. According to Lencioni a team has to develop though a number of stages in order to reach the required level of self-management:

- To build trust
- To allow conflict to spark dialogue in a safe way
- When having a base of trust and safe conflict engagement can emerge
- From engagement flows responsibility
- Then finally results can be delivered.

During the process the team is forming from the ground up. It is a group of individuals, searching for their place in the group. The leader / manager has to give clear instructions. When a set of competences is mastered, the team develops into the storming phase, where dealing with differences and conflict are the new competencies. In this phase individuals look for similar minded colleagues in the group, hence smaller cells start to develop based on similar views on how to work together. These cells, instead of the individuals in phase 1, follow the instructions of the leader / manager. Arriving at the third phase of team development, and because they master the dialogue on conflict, the group members start to develop a set of joint values. Here a feeling of “team” starts to emerge. Examples of new competences here are: the ability to reflect on own behavior and giving feedback. Now the group has become a “team”, team goals can start to develop. The role of the leader / manager changes into coach or consultant. Finally the team arrives at a level, where the (former) leader/ manager is part of the team. In this team there is no hierarchy. Every member has an important role in realizing the team objectives, hence delivering the corporate values. Roles and tasks allow the team to do its job.

Laloux has formulated conditions based on the experiments with self-organizations in the nineties. Important is to recognize the difference with self-organizing teams in the years HPO’s, high performance organizations [27], were a hype. From the experiments in this period was learned that more is necessary then to eliminate the management layer and to give people permission to organize the work. Important extras are: the organizations is responsible to provide a safe working environment
and make the organizations an attractive place to work [7]. Self-management is going to give people the opportunity to collaborate within a group of peers, but this needs to be developed step-by-step [16]. A lot can be learned from the organizational experiments in the context of Holocracy [28] and Sociocracy [29], the Volksbank for example, a Dutch bank that is also working in self-management teams, or Buurtzorg, a Dutch health care organization.

4.3. Energized! at work
To be able to start this project considerable effort had to be made to free the workers from the obligation to book direct hours. Indirect hours are expensive for an organization, since they are not directly compensated with income. Joining the initiative allowed these workers to spend eight working hours per week on this pioneering initiative.

4.3.1 Group composition. A conscious choice was made to invite a workers only into the initiative, thereby creating a specific group of peers. It was a diverse group of practical people, often long term fixed contract employees and without a specific basic technical education. Technical people, specialists educated over the years by in-company training programs. All peers. No hierarchy was wanted in this first group, because of the risk of stereotyping and role modeling.

4.3.2 Two groups, one team. A peer group of operators and a coaching team worked together in this initiative. There was no hierarchy. Coaches only acted when asked. Main task of the coaches was to hold the ‘safe container’. At the start the total group consisted of 15 people. Two external coaches were part of the coaching team: a specialist in transformative learning and a systemic coach. This allowed the provision of a safe space in case of escalations or personal problems in cooperation and building new relationships. This approach also helped to build internal capacity for next projects.

4.3.3 Goals and Objectives. In order to get the project on the road some goals and objectives were set. It has been quite ground breaking that no qualitative or quantitative goals or objectives were set for the team by the organization. There was no hierarchy. Coaches only acted when asked. Main task of the coaches was to hold the ‘safe container’. At the start the total group consisted of 15 people. Two external coaches were part of the coaching team: a specialist in transformative learning and a systemic coach. This allowed the provision of a safe space in case of escalations or personal problems in cooperation and building new relationships. This approach also helped to build internal capacity for next projects.

4.3.4 Kick-off. The initiative kicked off with a 3-day meeting at a simple yet beautiful location. Objective was to come to an understanding of the initiative’s purpose, to invest in team building, and to learn about principles of learning, participation and leadership. Meetings were held to discuss learning outcomes, discoveries and questions. Inspirational meetings and a learning journey to an innovation hub were part of the programme.

4.3.5 Tangible outcomes
• In a matter of weeks an administrative problem was solved. The problem had been a cause of irritation for many years. What was needed was gaining a better understanding from middle management in order to solve some problematic settings in an IT form.
A sustainable and effective prototype has been delivered to provide cooling of telecommunication equipment, resulting in considerable CAPEX savings.

Over 80k worth of OPEX savings was realized after an expert-operator assessed a bill of quantities.

Functional connections have been healed. The expert-operators now connect to director level of the organization. Important technical issues are now directly on the table at meso-level, not filtered by any middle manager.

As a result of the pilot project participants said: “I have learned to think before I act”, “I know now I can actually talk to people I need”, “I can talk openly about what actually matters and is needed”, “They (director level) listen to me and took me seriously, now I can start the right conversations”, “I had negative experiences with bringing up certain topics. Now I have more trust and feel safe”, “I understand our complex organization better and know who I need to contact in order to achieve what I want”.

Better understanding of how self-management works and what is necessary for a staged development process from being a group of individuals to become a self-organising team over time.

5. Analysis
An analysis was made based on the cooperation framework introduced in the theoretical section.

INDIVIDUAL

5.1. Expectations
A lot of attention was given to the expectations of the participants. Not only during the kick-off, but also when preparing for the project. More people had initially signed up for the project, but some had withdrawn in a later stage. Apparently it was considered a rather large step for the workers to assign to the project. Later it became clear that if you start with an initiative like this within a bureaucratic organization like this particular DSO, there is some fear among operator employees. Most people had the feeling they were unable to realize the expectations that are associated with the great new visions of the future so often communicated within the organization. Most of the time these visions do not lead to real change. They feel it is also beyond their means to realize the expectations these visions create. The initiating team made sure no one was appointed. An open invitation was send. This meant, the workers always had the opportunity to say no or simply not to show up. The initiators were very much aware that trust had to be built first in order to make the project successful. Not all participants showed up at the start or joined the project until the end. Next round people that stopped may want to participate since the first round was a success, therefore the expectation is that next time the group size will be bigger.

5.2. Social value orientation
After three decades of investments in command & control structures using the possibilities IT technology provides, the management of the DSO now realizes that additional investment in similar systems produces less and less results. Therefore this particular DSO stared to look for an alternative way of working and explore different routes. The organization not only discovered that additional investments in command and control no longer have the same pay off as before, increasingly the downside of this approach is experienced.

In the development trajectory of organizations as described by Laloux, the most logical step to take would be to initiate change from the current competitive, orange organization type towards cooperative or green. Since cooperative organizations are known for having difficulties realizing
results [7], the ambition is set to develop towards an evolutionary teal type organization. This also demands a different social value orientation from the employees. In this new type of organization there is more room for individuality. The individual is respected while having a profit focus. This means that it is important as a first step not to invest in organization development but in the underlying value systems from which the organization wants to achieve its goals. Filling in this step with a first small project was precisely the argument the initiator utilized to advocate for this project.

5.3. Transformative learning
Rotmans [26] describes transformation as a “significant and non-reversible tip over of a complex system in society”. In order to achieve transformational change in organizations, it is needed to flip the thinking, the doing and the way of organizing. For this reason the concept of transformational learning [9] was introduced to the participants of the project. Transformational learning invites the participants into different ways of thinking and looking at a situation through different lenses. While documenting this practice with rigor, key threads have been identified, which were reflected upon and discussed before strategizing upon how to test the outcomes in daily operations. Participants got a better understanding of the actual human value systems and motivational drivers in the specific group and got insight how to respond, hence how to introduce new ways to accelerate the energy transition.

Since the learning goal of the project was transformative learning [9], and it was known in advance that proper documentation of the entire process ameliorates the learning process, all steps were documented and time was scheduled for reflection sessions to enable joint learning. This project has therefore enabled double loop learning [18], as will be described in paragraph 5.8. What the initiator found important is to facilitate that people would be able to take the learning points from this project right into the situation of the next project. Normally, people start again from zero. Learning was facilitated in several ways. There was the learning process of the individual employees. The things learned were internalized by work processes, circle conversations and by inviting the participants to present in a certain way. Not by sharing goals, content and process only, but in the form of storytelling, interviews and by questioning. This surfaced were people got stuck and what the things were they needed in order to proceed with the next step.

TEAM

5.4. Group size
Initially the size of the group appeared to be 15. Later the group shrank to 6 employees and included 3 internal coaches. Additionally the team was extended with two external coaches. In total there were five coaches. The internal coaches learned to facilitate future groups. Ideally in the next phases the groups are a bit larger in size, to allow for a practical division in teams for the different work forms that require a team size of 3 to 4 people. The group of participants may also not grow too big since this makes it difficult for employees to deal with insecurities. A group that is to large will refrain people from speaking up in a plenary setting, since they will no longer dare to reflect in the open.

5.5. Framing
In this project people participated who have grown accustomed to a certain role, who work in a certain type of organization and who have not changed jobs that often. Trade union and collective labor agreements have created an environment in which they are well taking care of. The world however is changing fast, and prospects are not that certain. As a result, the employees of the DSO risk of being excluded from participation in the labor market if they decided or were forced to work outside the organization. Therefore the initiator hoped the project would to help these people to put their heads outside the window, in order for them to feel the wind. This particular group has never realized that
they could be overtaken by societal changes of this pace. The initiative was based on a personal passion of initiator which he explained in the interview for the group by one of the coaches during the kick-off. This formed an essential element in the overall framing of the project. All had to fit within the context of the business environment and the objectives of the DSO of course.

Wholeness was a very important element when framing the project, as part of wanting to accelerate the energy transition. The intention was to invite people to also bring their personal qualities to work. And to thereby facilitate a transformation back into real people from the machine-like creators that the DSO nudged them into. People who participated were reluctant but also curious. Afterwards they said things like: "I always tried to change things, but I always got stuck.", "We never had the opportunity to come to the table and contribute", "Now we are listened to and we are noticed". The concept of wholeness was introduced with the assumption that the creativity of people is needed that know the nuts and bolts of the current system to boost new ideas and help to create different new niches from which the organization can renew itself. This is compliant with the breakthroughs Laloux determined.

5.6. Trust
There was little trust of team members towards their own organization, since they had the experience that they are put to work with precise instructions only, and that the organization wants them to refrain from thinking or innovation. Therefore creation of trust was a very important prerequisite to be built into the design of Energized! at work. A setting was made to create a safe haven from the scrutiny of other organization members. The external coaches had an important contribution to make here. Since they had no ties to the organization they were in the position to provide the employees with independent advice. Trust building was also considered an important first step in the pyramid of Lencioni [16], used as a basis for a step-by-step joint learning process towards self-management in this case study.

5.7. Self-management
As indicated, the development towards a self-managing team followed the route of Lencioni’s pyramid. Someone from the Volksbank was invited to explain their experiences with self-managing teams. To arrive at the situation that the team could properly work according to the principles of self-management first the 5 levels of working in teams [16] had to be internalized. It had to be clear what the responsibilities for the team are, then tasks and roles can be derived that can be matched with the talents of the team members. Then a discussion took place to clarify what interdependencies there were. Everyone made explicit what it was they need and who should provide this. This led to agreements and the trust necessary, since they had to be able to rely on each other. No-one is in the lead, there is only a chairperson who guides the discussions. Knowing what they stand for, the goal of the team, tasks and roles necessary and filling them in as a team. As a result, when someone leaves or enters the team, redeployment has to take place.

ORGANIZATIONS

5.8. Single & double loop learning
The project has ameliorated learning on three levels: on the individual level, on team level, but also on organization level. The fundament of trust was carefully designed into the set-up of the project as to enable transformative learning of individual employees within the context of their own organization. It gave the participants the confidence to experiment and learn from it, not because someone else told them what to do, but to decide for themselves what is necessary or important. Develop a plan, ask for help and then simply start doing it. Learning in the team was augmented by simply listening to each other. During the kick-off they got information on listening methodologies. Goal was to teach them
attentive listening at different levels and speaking with intention. This enabled learning at different levels at the same time, thereby increasing their learning capacities.

Participants felt invited to mend administrative procedures, e.g. the IT form, or solve operational issues, e.g. the cooling of the telecom equipment or improvement of a bill of quantities, all examples of single loop learning. This project has been deliberately aimed at double loop learning [18]. Therefore the initiator thought of a way to make sure the organization would be able to change as a result of the project. This will be explored in further detail in the next paragraph. Capacity building for change within the DSO was also ameliorated by involving internal coaches in the process in combination with the external coaches. Facilitating learning of the internal DSO coaches has allowed the organization to build capacity to upscale similar initiatives after this trajectory. These internal coaches are now including what they have learned in their own work. It can now also be seen that one of the coaches applies new work forms in other teams and in his own team.

5.9. Culture
When you want to invite your employees to bring their entire personality to work, as in this case-study, the organizations needs extension of the economic goal with social objectives based on social values. The executive board of the DSO of this specific project was aware that it’s culture had to change, that was the reason to give permission for this project that aims to do new things and create small innovative niches within the organizations. With a change in culture the organization hopes to also attract another kind of people. They hope a new paradigm will allow people in the organizations to show different behavior, which eventually will lead to change of culture. That is a basis which will create room for the emergence of organizational transition roles. Trail blazers for example, who show the way in what has to be done, palliative caretakers, who will take care of matters within the organization that die off, protectors, that support and protect innovative niches etc. People who take on the roles required in the two loops of organizational transformation [30].

5.10. Structural hole
What struck the initiator is that a technical group of people did not only provide technical solutions. What happened is that many administrative issues were resolved, which had diminished work joy and efficiency of the workers involved. When developing bureaucratic control systems the staff did not think of adding elements that are of worth for operators, and the way workers have to fill out the IT forms had not been made efficient. The improvements suggested from the team could all be arranged simply because people dared to state it. As Bateson [9] demonstrated solutions are often to be found in between things. If you focus on science and the individual you will end up with scientific proof and objective knowledge [31]. When focusing on scientific outcomes alone, you risk declassifying other sorts of knowledge. These kinds of knowledge are also necessary in order for new solutions to work [32]. What is overlooked? For example the things that were not anticipated, in this case that administrative data could also be of value for operators and that these operators also want to do their work efficiently.

6. Conclusion & reflection
This paper investigated what a different model of cooperation would bring within a DSO organization experimenting with organizational change using a small-scale project as point of departure. From the analysis using the cooperation framework different conclusions can be drawn on the transformation it helps to bring. Further reflections extrapolate on what these conclusions might mean in the larger perspective of organizations looking for impact in times of societal transformation and climate goals.
6.1 On cooperation as part of organizational change:
The cooperation framework helped to analyse and reflect upon elements that all contribute to
effectuate the organizational change necessary for the DSO. At the individual level employees found
the freedom to not only put their hands at work and execute what others in the organization had
prescribed them to do, but to bring in their knowledge, talents and creativity to help to address the
issues now needed. For this it proved necessary to create the right expectations, as expected from the
theoretical framework. This proved to be quite a leap since it was the first time the organization
deliberately invested in exploring self-management, which needs a cooperative social value orientation
from the participants including learning skills. Development of these learning skills was part of the
trajectory.

With the aim of exploring self-management, the organization chose to invest in cooperation at team
level. There was careful investment in the right framing and trust building at team level to support this.
Group size was small, therefore non of the concerns from the framework related to this aspect needed
addressing. Since is was also the aim from the case study to mend functional relations and an
investment was made in capacity building to foster organizational learning, cooperation was also
addressed at an organizational level. This paper left inter-organizational cooperation out of its scope.

6.2 When looking at the theoretical framework
The framework helped to disentangle different layers in cooperation in the case study and therefore
clarified meaning and impact of the case study as pilot within the organizational change process.
Learning was deemed essential from the start, but proved to be even more essential when
deconstructing the case study during the analysis. These learning processes can be seen as a fractal,
since it has impact at the level of the individual, the team, the organization and beyond. Team learning
as part of organizational change was of course already advocated by Senge [33], but seen the
importance within cooperation it should probably be part of all levels in the theoretical cooperation
framework. A lot of what the employees learned, including attitude or how to proceed in
transformational learning, works in each of these settings. They personally have changed and that means
that the daily operation has also changed as a result. Because of the importance it can be concluded
that in the analytical model learning should be an element on every level, also on team level.
Additionally one could argue that one element is missing. A feature that is undernourished in our
society due to its strive for rationality and efficiency only; morality. A source of inspiration to fill in
this aspect is in a recently published book by Klaas van Egmond [31], professor geo-sciences in
Utrecht, the Netherlands. He explores the way towards a new moral compass in Europe. Based upon
the dynamics in Leonardo da Vinci’s Vitruvius man and parallels he found in historical research Van
Egmond paints a picture of a new European Renaissance, with a new set of values, resulting in a new
kind of Homo Universalis. Finally the theoretical framework needs expansion when there is a need to
look at cooperation beyond organizations.

6.3 On the level of change within organizations:
Though growth through the stages of development [7] takes time, experimenting with niches at
operator level proves to be a great opportunity in increasing capacity and speed of learning in a DSO
organization, perhaps this is also true for other organizations. If this is the case learning on all levels
within organizations can help to accelerate the energy transition. The initiative proves operators can be
trailblazers. Trailblazers initiate actions that can form the reverse hockey stick in the transformation
model of Frieze [30]. They usually leave organizations that are stiffened due to command & control
systems that require substantial time for reporting. These workers can help driving the innovations
necessary when provided with a protector. These protectors will connect the trailblazers with the right
people. In the case of this project, important new niches have emerged as a result that can form the
basis of the renewal process the organization longs for. The C-level will have to be patient and wait
for the self-managing teams to develop. Here additional momentum for change can be created. Since a
lot of organizations show the tendency to invest in additional command & control, the approach and framework used for this project can be used as source for inspiration once people within these organizations come to the point they feel they need to brush up their objectives, values and routines.

6.4 For a DSO-company wanting to experiment with a similar set-up:

- Take the time necessary for preparatory work with the organizing team and define a shared purpose. Consider how to communicate about the initiative and how to explain to managers and team leaders involved; the project would leave the managers with additional planning problems and there is no guarantee the project will be successful. They will miss specific expert-capacity for 8 hours a week, therefore plan the activities of the team well in advance, not to jeopardise or interfere with operational planned work.

- It’s important to take the framing and the positioning of the experiment seriously, to take enough time for preparation and to work from the basis of personal invitation. Evolutionary teal [7] is all about working from purpose, so be clear and transparent in the ‘why’ of any experiment.

- Make the project somehow attractive and special; especially if the project is completely new in its kind within the organization. Participating means that workers will attract special attention, therefore some guts will be needed. Making it special helps people to take the leap.

- Facilitate learning at different levels, through careful consideration of the composition of the teams involved. The group will learn on all levels, in the case as described in this paper: on the individual level, as a group of operators, as a coaching team, on a team level of the group as a whole and beyond. The learning seems fractal: occurring at the level of the individual, the team, but also the department and the organization as a whole.

- There generally is a huge need for participatory and coaching leadership skills on meso-level to foster transformational & organisational learning. It would increase the impact of the project in trying to also facilitate capacity building of learning on all levels to transform the organization. Take, if you can, the opportunity to enlarge the learning capacity on all levels while building and executing your project.

- Self-management takes time. Just like a child needs time to develop the capacity to walk, a team needs time to develop into self-organising structures. By designing a roadmap for team development based on Lencioni and allowing enough time for learning, people will accelerate the speed of learning as a natural principle. Facilitating true self-management is one of the most challenging missions for command-control oriented management. A transition in itself, with an impact which must not be underestimated.

6.5 When looking at societal change:

From this case-study can be learned that if we are serious as a society in wanting to scale up change, there seems to be a way to accelerate knowledge and skill building in groups of workers across a wide spectrum of organizations. If this is true, we need to move from theoretic discussions on future modelling to pragmatism and doing. The hidden potential, capacity and the speed we need for the required social and technological innovation in organizations seems to lay dormant within groups on the operational level. The question is how to unleash this at a larger scale. Interestingly enough, we see all sorts of local initiatives emerge in society, where organizations still tend to respond towards change with even more command and control. As a individual, a worker can act both as an employee of a DSO using his hands only and, in his private time, participate in an energy initiative in his neighbourhood, using also his intellect, experience and creativity. The individual can therefore feel torn between the role in the private and corporate world. Common organizational structures have no natural tendency to create an environment where individuals from the group of workers can experiment and fully utilize their talents and potential. Strategies are top-down deployed, translated on the tactical level into operational tasks, which have to be operationalized and executed by the blue-
collar workers only. We need a different kind of leadership that unleashes this potential in order to be able to cope with the challenges of the next decades.

6.6 Beyond 2020 - What’s next?
Looking beyond 2020, as a result of this first round of developing a new way of working in the case-study project, the organization is shifting. This pilot initiative on technological and social innovation will be scaled up in this particular DSO where this experiment took place, involving a wider diversity of people and groups. The next project starts in Q1/2020. A white paper of the initiative as described here in this paper will also be available in Q1/2020.

There is an immediate need, to address the impact of the changing climate and paradigms in culture, economics and politics (democracy) on our energy systems, hence the changing role of DSO’s on a wider scale, as well as in a wide spectrum of other kinds of organizations. We hope this initiative can be of inspiration for any project, team or department. Our advice: simply start changing and learning. Let’s move from thinking and preparing to Doing and involving entire Human Beings! [34].

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