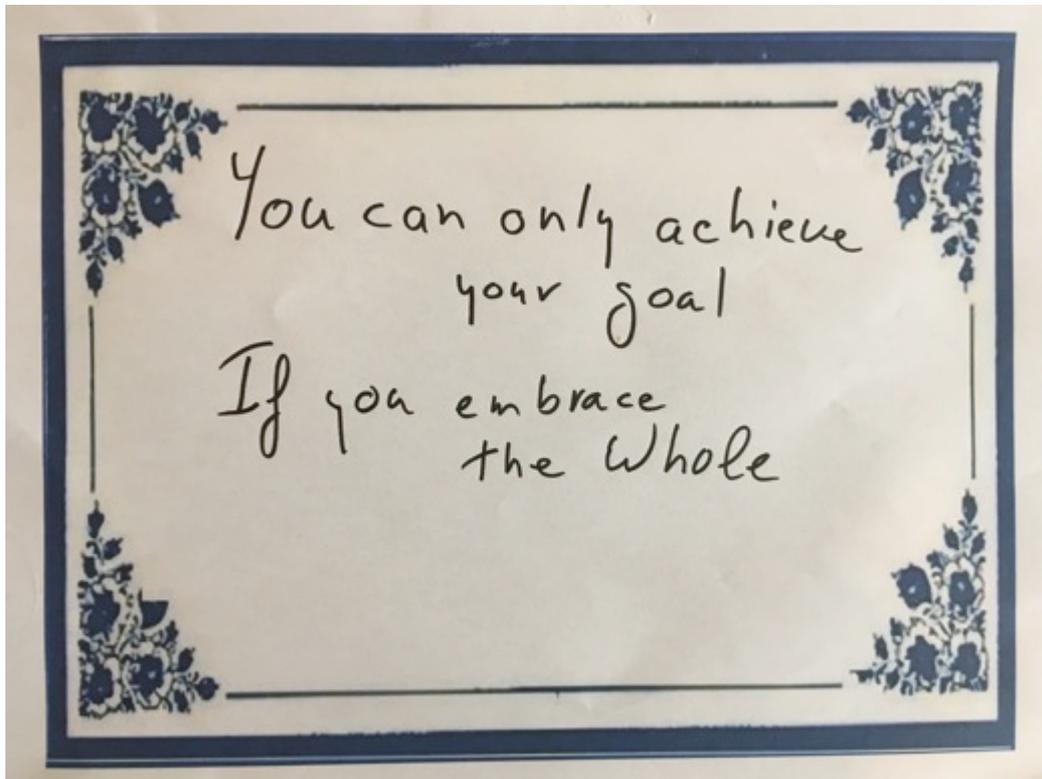




Neerlands diep
Academie voor publieke
bouw- en infra-projecten

The holistic approach of project management

(outcome of 2 days of knowledge exchange with Trafikverket)



Neerlands diep, June 2016

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1. Introduction

In January 2016 a task force with representatives from Trafikverket (Sweden) and several Dutch public organisations responsible for the realisation of large scaled infrastructure projects, agreed to organize meetings for knowledge exchange twice a year. The first meeting took place on June 1st and 2nd 2016 in the Netherlands. Central topic of this meeting was: the holistic approach of project management. In several rounds the participants explored a common meaning and understanding of the holistic approach and its application in practice.

This report gives an overview on the outcome generated by the participants during the two days and an abstract of the contents of the plenary conversations. In addition some reflections are given on the process and a couple of reflective questions are asked to provide some extra food for thought on the rather abstract, but challenging subject. A list of participants is added in [Appendix A](#).

2. Meaning of the holistic approach

For a first impression of the meaning of the holistic approach some definitions were selected from the internet.

What is holism?

The idea that *systems* and their *properties* should be viewed as *wholes*, not as *collections of parts*. If systems are considered to function as wholes, their functioning cannot be fully understood *solely* in terms of their component parts.

What is holistic?

Relating to or concerned with *complete systems* rather than with *individual parts*. These parts are considered to be all *interconnected*, such that they can neither be effectively compartmentalized nor fully developed independently of each other.

What is a holistic approach?

An all *encompassing* approach based on the *knowledge* of the nature, functions and properties of the *components*, their *interactions* and their *relationship* to the *whole*. A holistic approach looks for *fundamental underlying issues* rather than only addressing symptoms.



What is a holistic approach of project management?

No specific information was found on the holistic approach of *project management*, other than some quotes such as: "Your project is part of a larger context. Longer journeys. Larger stories. And these stories shape your project more than you know. It's like *Star Wars*. You can watch just episode IV. And enjoy it. But it starts really making sense when you watch the entire series."

The participants tried to create their own common meaning of the holistic approach by making mind maps in two rounds. In the second round the participants were asked to combine two mind maps from the first round focusing on the distinguishing features of the holistic approach in comparison with the traditional approach. The resulting mind maps are attached as [Appendix B](#).



The dialogue concerning these two mind maps resulted in the following features for the holistic approach compared with the traditional approach.

<i>traditional approach</i>	<i>holistic approach</i>
<ul style="list-style-type: none"> • Reductionist thinking: subdivide the whole into manageable subjects 	<ul style="list-style-type: none"> • Global understanding: see all subjects as a whole, in which everything is connected
<ul style="list-style-type: none"> • Project manager 	<ul style="list-style-type: none"> • Project leader (servant leadership)
<ul style="list-style-type: none"> • Structure and standard methods 	<ul style="list-style-type: none"> • Structure and culture
<ul style="list-style-type: none"> • Organisational values 	<ul style="list-style-type: none"> • Personal values
<ul style="list-style-type: none"> • Rule based goals 	<ul style="list-style-type: none"> • Principle based goals
<ul style="list-style-type: none"> • Reporting 	<ul style="list-style-type: none"> • Storytelling
<ul style="list-style-type: none"> • Sequential 	<ul style="list-style-type: none"> • Parallel
<ul style="list-style-type: none"> • Focus on speed 	<ul style="list-style-type: none"> • Time for reflection
<ul style="list-style-type: none"> • Seeing changes as a threat 	<ul style="list-style-type: none"> • Embracing changes
<ul style="list-style-type: none"> • Open culture within the project team 	<ul style="list-style-type: none"> • Truly open culture to whoever / whatever
<ul style="list-style-type: none"> • Should I raise my hand or not? 	<ul style="list-style-type: none"> • Daring to raise a hand
<ul style="list-style-type: none"> • I don't want to hear this 	<ul style="list-style-type: none"> • Listening to the raised hand

The participants outlined the holistically driven project manager as a leader that:

- decides consciously for an open culture within the project as well as in association with external stakeholders;
- sees all subjects as a whole, in which everything is connected;
- shows servant leadership in order to create win-win (1+1=3) and to do the right things, rather than only doing things right.

It was emphasized that the distinction between the traditional approach and the holistic approach is not a matter of “good” or “bad”. There is nothing wrong with the traditional approach. It is necessary indeed to have a structured fundamental basis. However, for managing large scaled infrastructure projects in the present complex society you need far more than that.

The question is: can the two approaches be combined? Is it possible to switch back and forth from the traditional approach that focuses on a *predict & control* way of thinking to the holistic approach that asks for an attitude that is more related to *prepare & commit*? How can you create the time and space for global reflection and understanding in a world that holds on to *predict & control* as the dominant paradigm?

3. Dysfunctional patterns

As was stated earlier the holistic approach looks for fundamental underlying issues rather than only addressing symptoms. In order to practice the search for underlying issues, the participants were asked to share stories from practice dealing with the cooperation within one of the social subsystems from the schedule below.

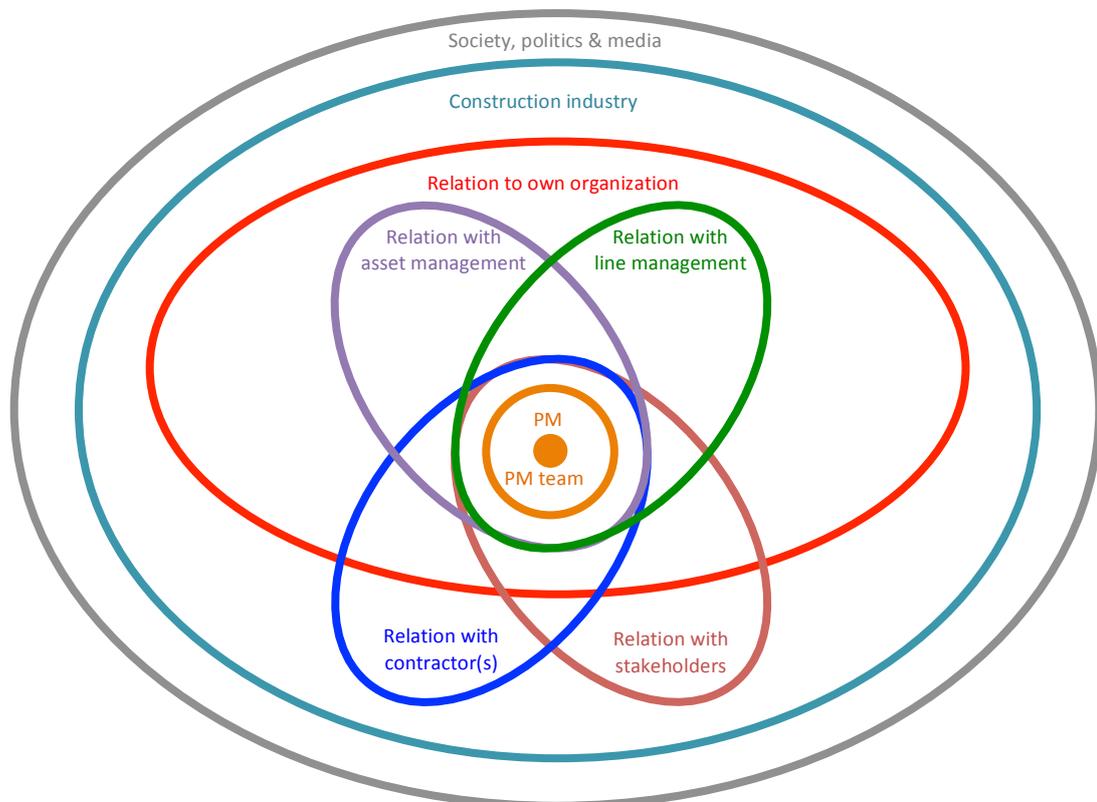


Figure 1: schematic representation of several social subsystems in which project managers operate

The assignment for each story was to discuss, select and write down characteristic *patterns* that possibly lay underneath the described cooperation and the *motivations* of the people concerned that maintain these patterns. A pattern is considered to be unconscious standard behaviour and predictable mutual reactions. An action of actor A typically leads to a standard reaction from actor B, which encourages actor A in continuing the chosen approach. This mechanism is presented in a simplified manner in the figure below.

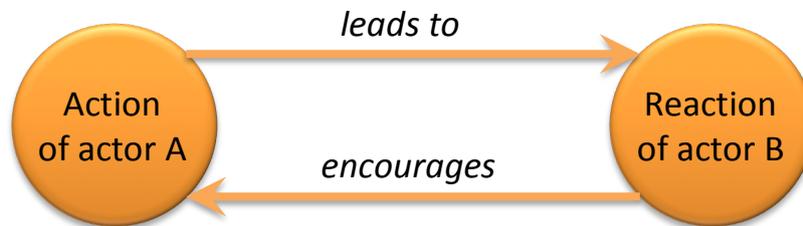


Figure 2: schematic representation of a pattern

As a result from the storytelling experience in small groups the participants came up with the following main patterns within the different social subsystems in which they operate. A complete list of all the patterns reported by the small groups is attached as [Appendix C](#).

Relation with asset management

The main pattern in the cooperation between project managers and asset managers is characterized by a different perception on the speed of making decisions. Focusing on a good project (i.e. delivery according to plan) a project manager has an interest in fast and clear decision making. Asset managers mainly focus on a good product (i.e. maintaining according to plan) and therefore tend to be more cautious and conservative in making decisions. The more a project manager is trying to speed up, the more an asset manager feels the desire to reconsider the specifications and vice versa.

Relation with line management

Both project managers and line managers have a great interest in a good project. Nevertheless, their approach to succeed differs greatly: line managers tend to focus on centralization, standardization, rules and regulations (predict & control), while project managers want to be acknowledged in their craftsmanship as problem solvers and desire the freedom and flexibility to manage a project their way (prepare & commit). The more a line manager is dictating rules and regulations, the more a project manager will try to work around them and vice versa.

Relation with stakeholders

Project managers of large scaled infrastructure projects always have to deal with a lot of stakeholders, from direct neighbors to (often multiple) financiers. Driven by the pressure to deliver on schedule project managers often neglect the need for good governance and interactive communication with stakeholders. Especially in the era of social media not paying attention to the needs of stakeholders and underestimating the potential influence that even small groups may have, can become a great risk for the progress of the project.

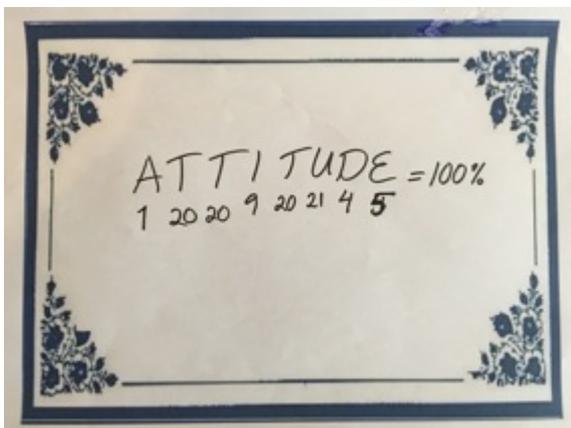
Relation with contractors

The last decade the main trend in contracting large scaled infrastructure projects has been to transfer as many responsibilities to the contractor as possible (“the market, unless...”). As a result public project managers tend to draw back and manage their project from the perspective of the contract. Contractors in general are mainly driven by making profits. Therefore they focus on their main task and the incentives in the contract. These are not necessarily compatible to a “best for project” approach. The more project managers withdraw, which contractually seems to be the right thing to do, the greater the risk that they will lose sight of stakeholder concerns.

Relation with politics & media

Public organizations in general as well as project managers of public large scaled infrastructure projects tend to be very cautious in their communication to the media, trying to prevent negative publicity often in a reactive and fact driven way. Politicians use media in an exposure driven way to share their ideas and opinions in order to be (re)elected. Media are mainly profit driven: they are looking for news that sells, which is mainly bad news, like conflicts, and political exposure. The general approach from public organizations towards media still is trying to keep sensitive information indoors, while the actual social trends are calling for more transparency.

Looking at the patterns as listed in Appendix C, one can argue that quite a few of the described patterns are incomplete (see the question marks). A pattern is maintained by the interaction between both parties involved. It takes two to tango. So the question is for example: if a contractor is covering his back by not communicating openly, what reaction from the project manager encourages him to keep on doing so? Changing a pattern starts with changing your own attitude. Only acting slightly different from what the other party can expect, may already be a good start.



4. Holistic view

During the morning session on the second day we tried to get a feel for a holistic view on the identified patterns by positioning them in the schedule below. The closer a pattern was put to the center of the schedule, the more influence the project manager has on changing or even breaking it. One by one the participants took a pattern from the wall, which was discussed briefly and then put in in the schedule. The main remarks that were made during the plenary dialogue are added in the listed patterns in Appendix C in *italic*.

The dialogue during this exercise led to the main insight, that all the patterns are interconnected one way or another: the way we deal with one involved party, influences our relation with other parties. It was also concluded that project managers do have a great deal of influence on most of the patterns. So if the patterns are all connected and can be influenced, a slight change in your own attitude eventually can cause a change of whole system.

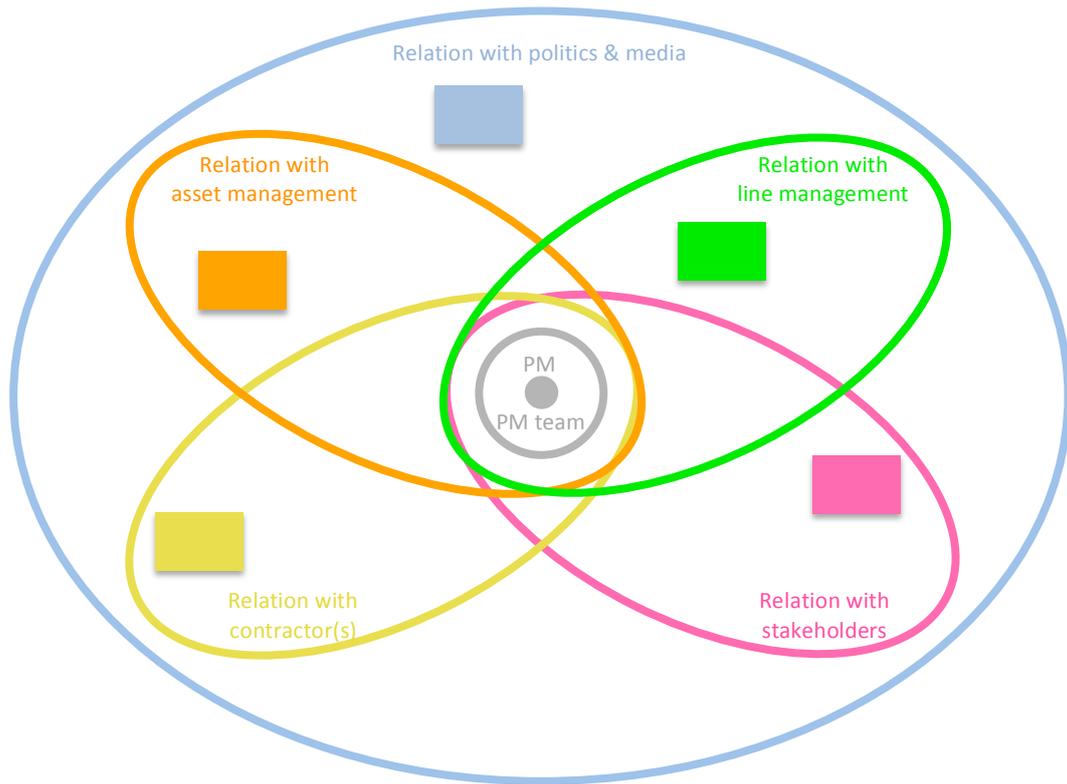


Figure 3: schedule for positioning the identified patterns

5. Dealing with the unexpected

Managing large scaled infrastructure projects is a complex affair. Despite all our efforts in terms of project control and risk management, every project manager one day or another is confronted with incidents that came as a surprise: the unexpected. Dealing with the unexpected is not a matter of spending more money and energy on risk management. Research shows that a lot of risks that eventually occur, were not identified in the risk databases. So dealing with the unexpected demands an approach beyond the conventional project control measures.

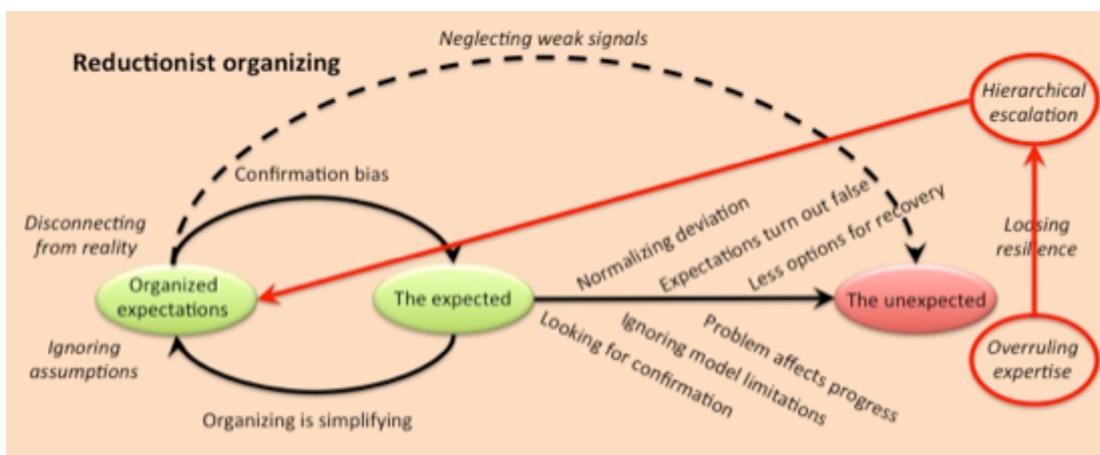


Figure 4: schematic representation of reductionist organizing

The traditional approach of project management is dominated by a reductionist way of thinking (see scheme above): subdividing the whole into manageable and controllable subjects.

Scientists Karl Weick and Kathleen Sutcliffe found that the more you focus on these planned subjects with their predicted results (the expected), the more your vision on weak signals that may indicate the development of unexpected incidents is troubled. They state that although we tend to experience these incidents as if they were unexpected, in fact they are not.

Weick and Sutcliffe explain this general lack of alertness by the way our brain works: we tend to focus on the confirmation of what we already know (confirmation bias). That gives us a feeling of control and predictability. However, by studying high reliable organizations, such as aircraft carriers and nuclear plants, Weick and Sutcliffe show that a more alert or mindful approach can be achieved by following 5 principles (see scheme below)¹.

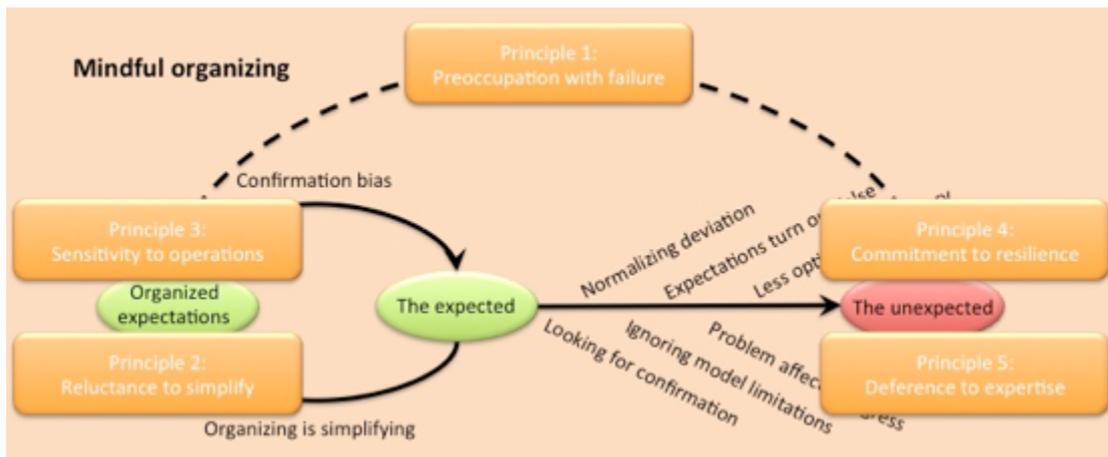
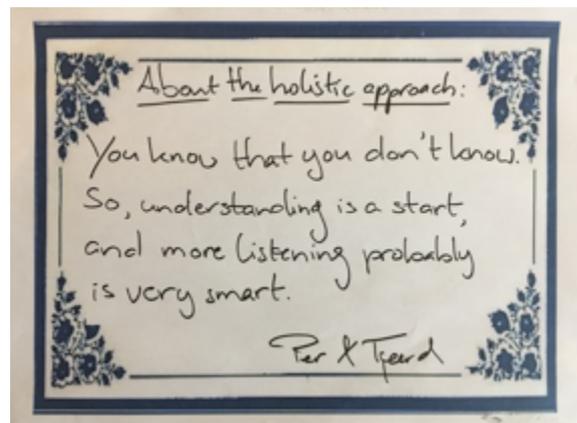
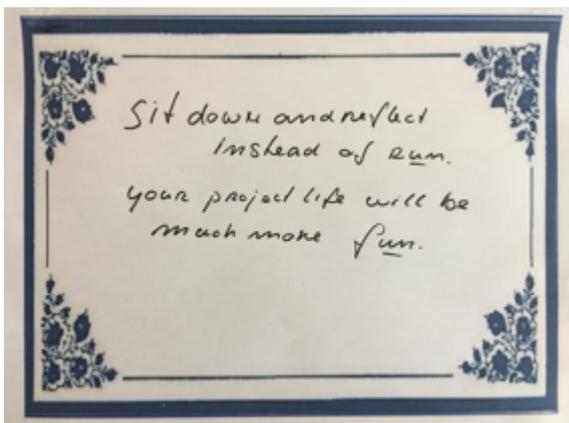


Figure 4: schematic representation of the 5 principles of mindful organizing

Mindful organizing has a lot in common with the holistic approach of project management. They both stimulate a broader and multiple view on the actual project context in addition to the traditional more reductionist approach. They both focus on attitude and interaction rather than systems and methods. When everything is interconnected (holistic view), every deviation in the daily interactions may be a potential starting point for the development of an unexpected event (mindful organizing).



In order to get a feel for the 5 principles of mindful organizing, the participants were asked to pick a pattern from the wall and discuss from the perspective of one of these principles how its application might help to change or break the pattern.

¹ Source: "Managing the unexpected" by Karl E. Weick and Kathleen M. Sutcliffe

The assignment was to come up with reflective questions (for yourselves and your colleagues) that stimulate thinking of ways to act slightly different in order to *give the “whole system” a little push*, so that it starts moving. This process was repeated in several rounds. A complete list of all the questions that were formulated is attached as [Appendix D](#).

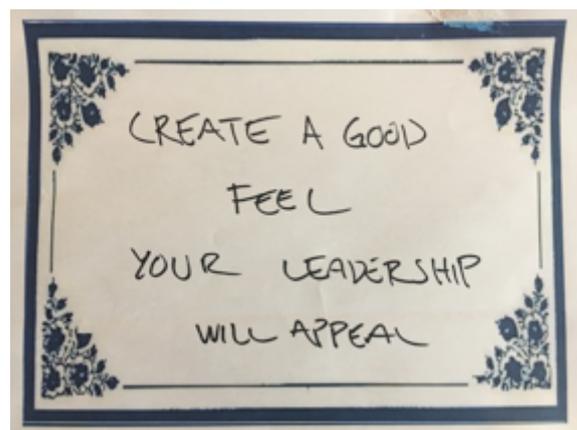
The questions formulated by the participants were put in different (personal) forms. Because they are intended to be reflective, we changed them consequently into a first-person plural form: what/how can/should we (as a team) do to...? Still, overlooking the results of this carousel in Appendix D one may wonder if all these questions - even put in a first-person plural form - in fact are reflective questions anyway.

At Neerlands diep we consider reflection as the ability to explicitly look at a situation and think about (the effects of) your own action(s). So therefore a reflective question is about you as a person and your attitude, behavior and actions. Such a question can also refer to you and your colleagues as a team. A reflective question provides respondents with an opportunity to explore their personal knowledge, experiences, ideas, values and feelings. Reflective questions are thought provoking and do not have one definite answer. They are mainly intended to learn from your own experience.

Since we saw earlier that changing the whole can start with changing you own personal attitude, the ability for self reflection is a key factor in the holistic approach of project management. Reflective questions are a practical aid to stimulate reflection in a team. Neerlands diep has developed a reflection method to stimulate mindful organizing in project management teams, the so called “mindfulness mirror”. As a way of implementing the 5 principles of mindful organizing we have created implementation cards with reflective questions. For inspiration these implementation cards are attached as [Appendix E](#).

6. Deeper insights

Based upon the gathered questions the dialogue continued on the issue how project managers (can) apply the holistic or mindful approach in practice. How do they oversee the whole? How do they deal with weak signals? How do they beware for quick fixes? How do they keep in touch with the real works? How do they create resilience in their team? How do they change their attitude? How do they act to break dysfunctional patterns? Etc.



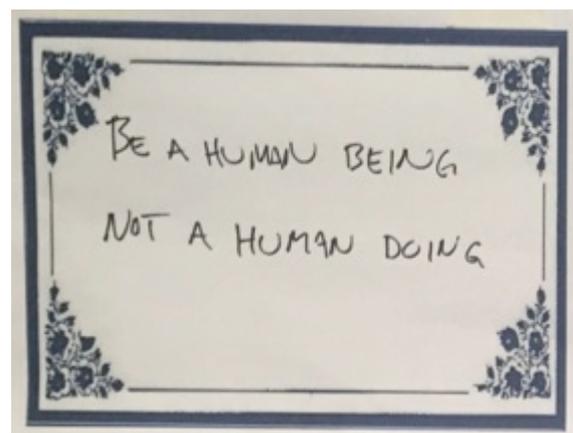
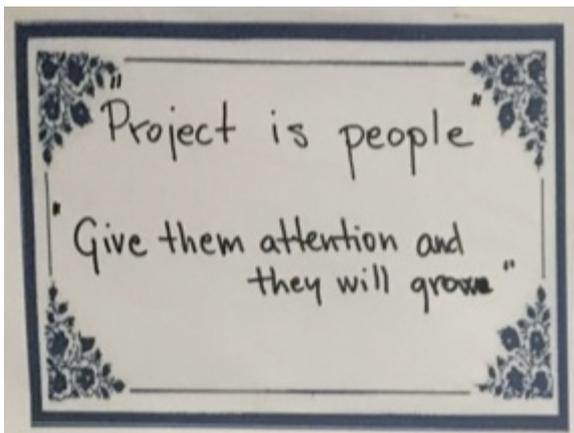
The central notion in this dialogue was: *gut feeling*. The participants considered this as an important tool for distinguishing smaller from larger risks. A reliable gut feeling is developed through experience, an open and curious attitude and the courage to ask (uncomfortable) questions. Project managers should dare to follow their gut feeling.

If they are dealing with an area or discipline where they lack experience, they should organise the expertise around them and make sure they understand it in order to be able to make decisions.

Weak signals or early warnings never come on their own. Quite often they appear as a combination of gut feeling, incidents in other projects, own experience, conversation with others, developments in society, etc. For example: an accident with a capsizing crane in Alphen aan de Rijn in August 2015 stimulated a project manager to ask for a second opinion on the geotechnical calculations for the placing of a bridge construction on its temporary abutments. Measures that may be helpful in recognizing weak signals are: creating a divers team around you, having reflection moments with your team and being challenged by your principles or colleagues on a regular basis.

A practical example from practice is to organise free form meetings on a regular basis with no agenda and no intention for making decisions, talking about the daily work, sharing successes and addressing issues (without solving them during the meeting). Sharing knowledge and reflective dialogue can stimulate the growth of the collective gut feeling. For sustainable decisions you need to include all aspects.

Question is how to find the time for a reflective dialogue within the daily project dynamics. One of the participants suggests that a project manager can create time for reflection by reducing time for making decisions. Enlarge your added value as a project manager by taking time to reflect and be an example towards your team.



One of the participants introduces a human perspective: we are all human beings; the people we are working with are also human beings; get them to connect to each other and you; find out what drives them in all these different areas. If they connect emotionally with you and the project, they are going to work for it in order to help you and the project. Show that you care, make a personal connection to create a strong base for collaboration.

At the end of the dialogue someone states: if you see anything wrong with a pattern, just break it and change it. Don't think about it, don't try, just do it! This sounds of course attractively simple, but would it really be that easy?

APPENDIX A:

List of participants

Swedish delegation:

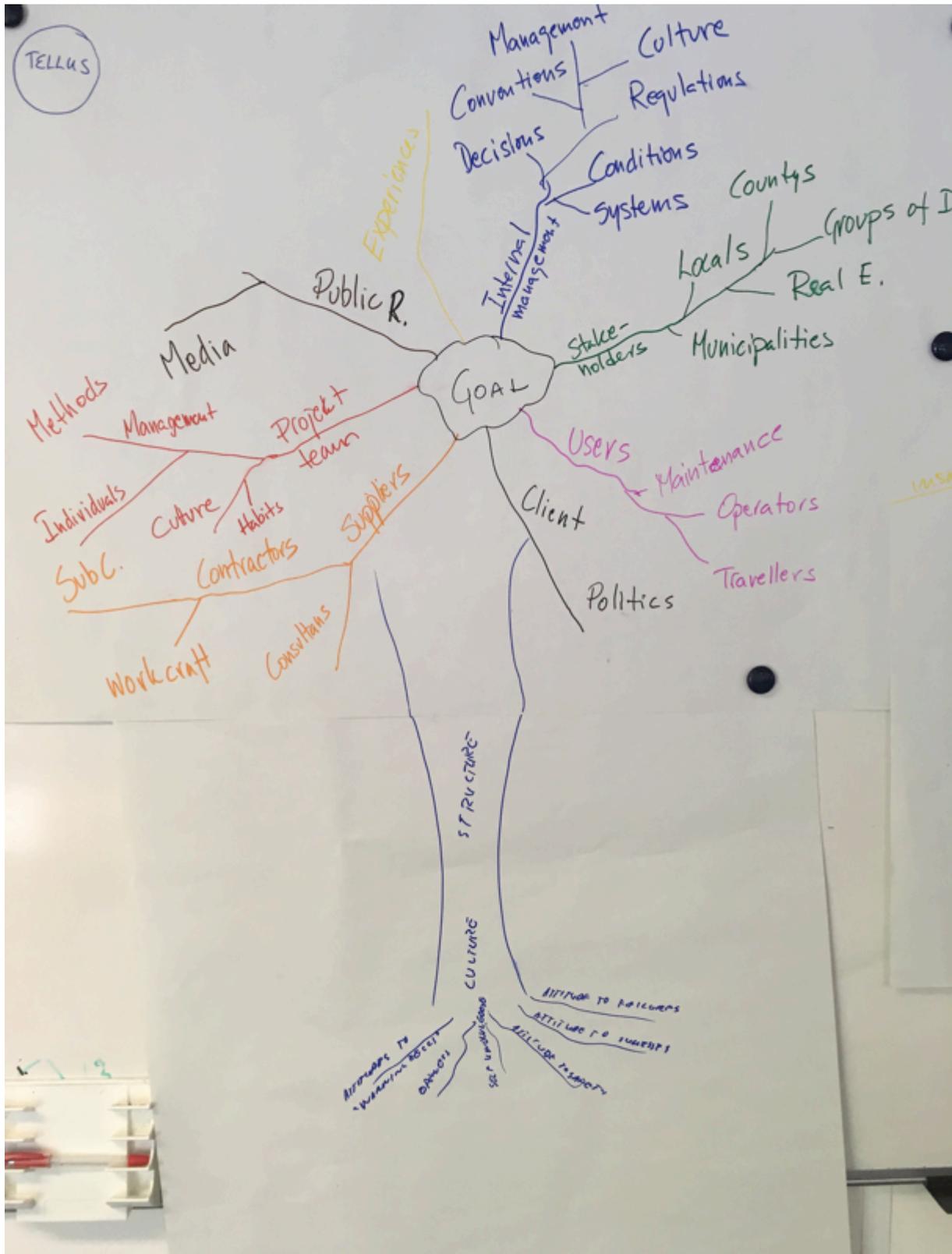
1. Per Rydberg (Trafikverket)
2. Kjell-Åke Averstad (Trafikverket)
3. Erik Lööv (Trafikverket)
4. Ali Sadeghi (Trafikverket)
5. Robert Lindfors (Trafikverket)
6. Lars Lilja (Trafikverket)
7. Johan Brantmark (Trafikverket)

Dutch delegation:

1. Hans Ruijter (Rijkswaterstaat)
2. Lars Teulings (Rijkswaterstaat)
3. Hans Versteegen (Rijkswaterstaat)
4. Guido Hagemann (Rijkswaterstaat; only June 1st)
5. Jan Derks (ProRail)
6. Jaap Balkenende (ProRail)
7. Tjeerd Roozendaal (Municipality of Amsterdam)
8. Maarten Reinking (Neerlands diep)
9. Maarten Kraneveld (Neerlands diep, facilitator)
10. Danielle van der Horst (Rijkswaterstaat)

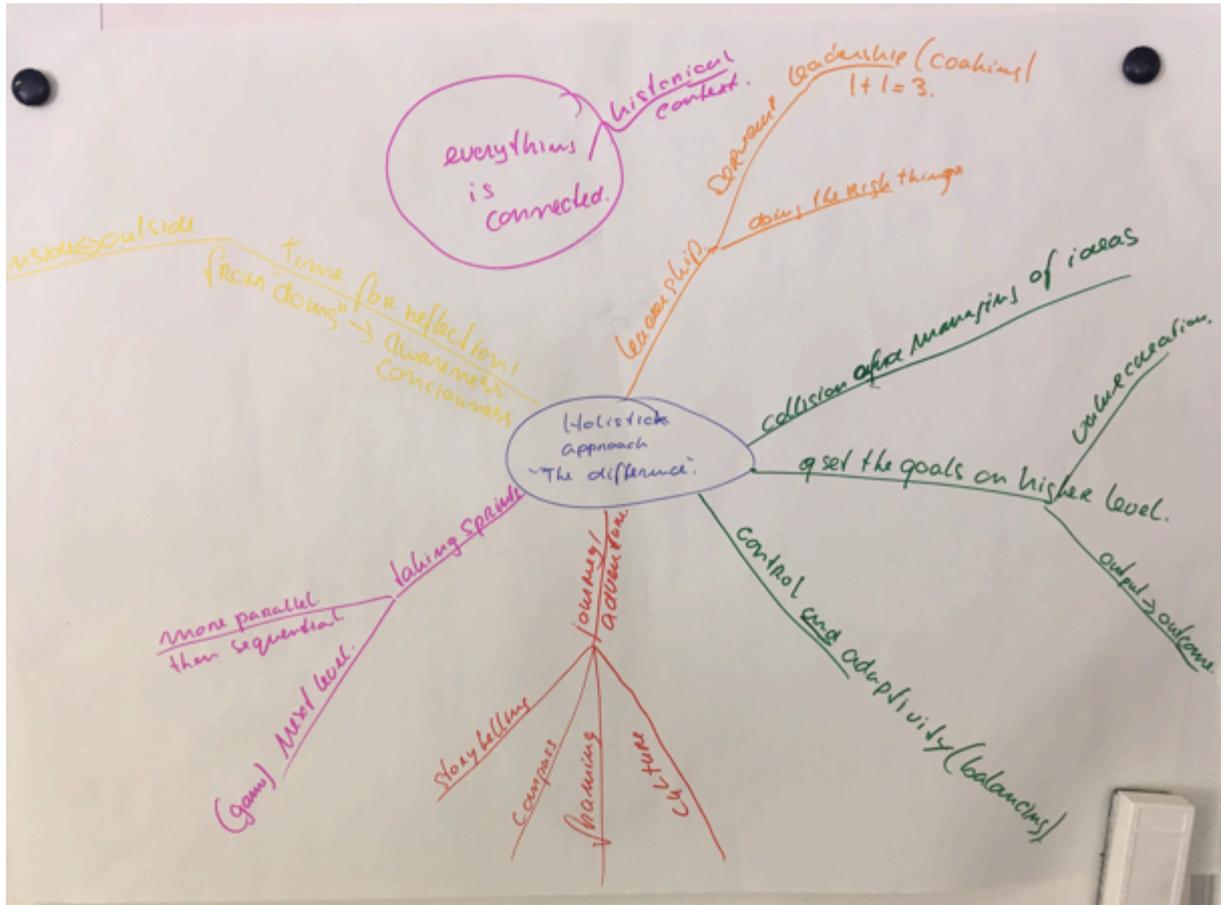
APPENDIX B:

Mind maps concerning the holistic approach of project management



APPENDIX B:

Mind maps concerning the holistic approach of project management



APPENDIX C:

Patterns in different social subsystems in which project managers operate

In the table below all the reported patterns are listed including their actors (A and B) and the mentioned motivations that maintain the concerning pattern. The main remarks that were made during the plenary dialogue are added in *italic*.

<i>actor(s)</i>	<i>pattern</i>	<i>motivation(s)</i>
relation with asset management		
A: asset manager	Asset managers are like hyenas taking care of old kills	?
B: project manager	A project manager is like a lion making a new kill	?
A: asset manager	Struggles with adaptivity and requires a different change speed	Because change needs new funding (split resources maintain the pattern)
B: project manager	Can be adaptive to change (“freedom in creativity”)	Because € are there
A: asset manager	No change attitude, repeating status quo	Prejudice is leading, <i>long term thinking, wants a good product, project managers are too fast</i>
B: project manager	<i>No change attitude, repeating status quo</i>	Prejudice is leading, <i>short term thinking, wants a good project, asset managers are too slow</i>
relation with line management		
A: line manager	Solves problems within projects with centralization, standardization, rules and regulations	Uncertainty, wanting influence, lack of trust and leadership, <i>desires more control and trying to prevent problems in other projects</i>
B: project manager	<i>Doesn't involve line manager and tries to work around the rules and regulations</i>	<i>Wants to be acknowledged as a problem owner and desires flexibility</i>
A: line manager	Wants to know more (to help and to report) → this leads to discussion / hard words (because of worry) → this may lead to harder words (anger)	Worry, need to answer questions, more freedom
B: project manager	Tends to not inform line management about a problem → “Don't you trust me?” (defensive) → “Don't bother me!”	Pride, not to fail, freedom “my way”
relation with stakeholders		
A: financier	Tries to interfere in project management, so a lot of discussion (monopolist), <i>lengthy and complex decision making process, due to interference of (often multiple) financiers and other stakeholders</i>	No trust because of financial consequences and monopolist, goal conflict, cost distribution between parties: how to split the costs? <i>Protecting their interests</i>
B: project manager	<i>Underestimating the need for adapting the governance of the project according to the actual situation of the stakeholders</i>	?
A: project manager	Ignoring inconvenient signals (wishful thinking), not respecting soft signals	Pressure (time) / political, <i>pressure to proceed according to plan</i>
B: stakeholder	?	?

APPENDIX C:

Patterns in different social subsystems in which project managers operate

<i>actor(s)</i>	<i>pattern</i>	<i>motivation(s)</i>
<i>relation with stakeholders (continued)</i>		
A: project manager	Formal communication or correspondence instead of conversation/dialogue about interests and goals	Modest / non-sexy / public attitude of the stakeholder? <i>Underestimating the potential influence/power of relatively small stakeholders</i>
B: stakeholder	?	?
A: project manager	Getting away from the unknown and simplifying, <i>ignoring and underestimating the problems and risks</i>	No perspective on a solution
B: stakeholder	?	?
<i>relation with contractors</i>		
A: project manager	<i>Less focus on the risks, because they are transferred to the contractor, losing stakeholder concerns out of sight</i>	?
B: contractor	<i>The contractor gives the impression he will deliver, but he focuses too much on the main task</i>	Incentives for the constructions (high bonuses)
A: contractor	Not open communication, covering his back	Better to raise figures, gets praised instead of punished
B: project manager	?	?
A: contractor	Reductionist way of thinking instead of holistic approach	The traditional way to do so
B: project manager	?	?
<i>relation with politics & media</i>		
A: politicians	Use a lot of social media and use projects pro or con and vice versa	Politicians are exposure driven
B: project manager	Is behind in the use of social media	Project managers are fact driven
A: media	Is more interested in a bad story & conflict between parties	?
B: project manager	Facts and figures can be used "both ways" and are not always predictable	?
A: media and politicians	Axis between politics & media is dominant	<i>Politicians need media to share their opinions to be (re)elected and media need politicians to attract readers or viewers</i>
B: project manager	<i>Tendency to not involve media proactively</i>	<i>Prevent the risk that projects/minister is getting into trouble (being called into account)</i>

APPENDIX D:

Reflective questions to stimulate mindful organizing

In the table below all the formulated questions from the perspective of the 5 principles of mindful organizing are listed. Since these questions are meant as reflective questions, all questions are put in a first-person plural form: what/how can/should we (as a team) do to...? The main additional questions and remarks that were mentioned during the plenary dialogue are added in *italic*.

<i>Principle 1: preoccupation with failure</i>
<ul style="list-style-type: none">• How can we transform coffee machine-talk into making decisions (to change the context)?• How do we distinguish the weak signals we need to hear, see or feel?• Did we take the time to investigate what is behind the weak signals?• How can we detect the “real” weak signal between all the signals?• <i>What does our gut feel say about this (weak) signal?</i>• <i>Do we consider this (weak) signal as a serious complaint?</i>
<i>Principle 2: reluctance to simplify</i>
<ul style="list-style-type: none">• What do we need to analyse in order to make thorough considerations for a decision on this matter?• <i>Suggestion: leave making decisions out of the question. Then the question will be: what do we need to analyse or what needs to be analysed?</i>• <i>Reflective question: do we consider this as a sustainable decision or as a quick fix?</i>• Do we need simplification to oversee the whole?• Do we consider simplification as being the same as ignoring risks?• How do we embrace complexity or complicated matters?• Which effect do we reckon, has this decision have on the whole?• Do we have a devil’s advocate in our team and do we take him or her seriously?• How do we slow down making decisions?• <i>Which decision does our organisations expect us to take?</i>• <i>What can we consider as a more complicated solution? Goal: to think about the alternative scenario's</i>
<i>Principle 3: sensitivity to operations</i>
<ul style="list-style-type: none">• What works do we have during the next period (month/week) that can be of interest for media, public and politics?• How can we put the right questions, if we don’t know the real works?• Do we understand that we create an asset every day?• What rating would our asset manager give for the quality of the product you delivered from 1 to 10? <i>Suggestion: ask him!</i>• Can we help the daily operation in some way?• What has changed in our context due to a recent conversation with an expert?• Are we part of the operations or not?• Can we oversee the risks in our project without knowing the business and operations?• <i>Are we visiting the work site enough to stay in touch with the real work?</i>

APPENDIX D:

Reflective questions to stimulate mindful organizing

Principle 4: commitment to resilience

- What can we tell about the diversity of your team profile?
- Are we doing the right things or the things right?
- Are we curious enough to each other's problems?
- Looking at the whole system: what do we consider to be the largest risks except the construction works and how do we deal with them?
- How can we be brave and take responsibility for it?
- How do we allow ourselves to reflect on the question whether or not we are still doing the right things?

Principle 5: deference to expertise

- Do we agree with the expert's opinion? If not, why not?
- How can we involve the experts in making decisions (a transparency issue)?
- How do we engage experts in making decisions?
- How do we show your experts that you rely on their expertise?
- How do we reduce making decisions by the "top" or "line"?
- What do we reckon: is there only one truth?
- Who do we consider to be the expert?
- *If we consider what the expert is saying to be true, could it cause a negative headline in the newspaper? What could be the consequences?*
- Do we need a second opinion?
- What do we reckon our stakeholders need to rely on the organization's competence?
- How do we distinguish the true en competent expert from the DIY or non-competent expert?
- How do we facilitate the discussion between experts?



Dealing with the unexpected

Preoccupation with failure: take weak signals seriously

Reflective questions:

- 1. Which weak signals did we notice during the last period, that we haven't discussed yet?*
- 2. What are the concerns we have on the progress of the project en how can we deduct them?*
- 3. What were our failures and near misses during the last period and what can we learn from them?*



Dealing with the unexpected

Reluctance to simplify: beware for quick fixes

Reflective questions:

- 1. Which problems did we face during the last period and how did we cope with them?*
- 2. Which assumptions did we make and to what extent can we consider them as valid?*
- 3. To what extent have we solved the concerned problems in a structural and durable way and how do we know?*



Dealing with the unexpected

Sensitivity to operations: keep in touch with the real works

Reflective questions:

- 1. What do we consider to be the actual situation of the work in progress and on the construction site?*
- 2. On what facts do we base our impressions of the actual situation?*
- 3. Which difficulties, uncertainties or doubts did we receive from the working place or construction site during the last period and how do we deal with them?*



Dealing with the unexpected

**Commitment to resilience:
enable flexibility
and improvisation**

Reflective questions:

- 1. Which failures or deviations did surprise us during the last period?*
- 2. How did we react on these?*
- 3. What were the effects of our actions (in a positive and/or negative sense) and what can we learn from this experience?*



Dealing with the unexpected

**Deference to expertise:
respect competence
and experience**

Reflective questions:

- 1. Whose experience and expertise did we use inadequately during the last period?*
- 2. How did we enrich our own experience and expertise during the last period and who did we consult for that?*
- 3. What were the effects for us from this enrichment?*