TNO report

From Unnatural Behaviour to Innovation Resilience Behaviour: Prototype of a Change Tool

TNO innovation for life

December 2014

From Unnatural Behaviour to Innovation Resilience Behaviour: Prototype of a Change Tool

Date	December 2014
Authors	P.R.A. Oeij P.T.Y. Preenen F.A. van der Meulen
Project name	ETP Behaviour and Innovation
Project number	060.08177/01.02
Report number	TNO 2014 R11845
Contact TNO	Steven Dhondt
Telefoon	088 866 61 55
E-mail	steven.dhondt@tno.nl

Healthy Living
Schipholweg 77-89
2316 ZL LEIDEN
P.O. Box 3005
2301 DA LEIDEN
The Netherlands
www.tno.nl

T +31 88 866 61 00
infodesk@tno.nl

Chamber of Commerce 27376655

Summary

The purpose of this project is to develop a change tool to make teams and their members responsible for working on an innovation, more aware and more able to deal with unexpected events and setbacks during an innovation project. To enable such behaviour, called 'innovation resilience behaviour', teams need certain competencies and organisational features.

We used the Capability Maturity Model of Work Place Innovation (CMM-WPI) as a source for competencies and organisational features. We selected the following features: team psychological safety, team learning behaviour, complexity or paradoxical leadership, participative decision making and team voice. These features together constitute a 'semi-structure' for teams that may enable innovation resilience behaviour. A semi-structure is a combination of structural and cultural elements of an organisation such as (unspoken) rules, ways of working, shared ideas that are neither very rigid nor very flexible. Semi-structures can change, but not overnight. We named such a structure here 'mindful infrastructure', which points at the a certain state of alertness that teams, who are responsible for innovation, may need.

Innovation resilience behaviour is based on knowledge from the field of safety and crisis management where teams must be extremely alert to prevent and contain risky situations and events. Innovation resilience behaviour is founded on the behaviours of being preoccupied with failure, resist oversimplification, show sensitivity to operations, perform commitment to resilience and being deferent to expertise. Our assumption is that innovation teams (in other branches), who are often part of organisations living in great economic turmoil and technological change, can benefit from these extremely mindful behaviours when it comes to being innovative and staying competitive or cost-efficient.

Subsequently, we studied mindful infrastructure and innovation resilience behaviour in practice among 12 'innovation teams' and we did exercises within our own project team to test parts of our tool. We also discussed our ideas with organisations that we studied and with organisations where we presented our ideas. From these activities we could conclude that our concepts were robust: it was possible to describe empirical situations with both concepts.

In a next step, we were looking for ways how to transform the findings into a change tool for practice. We needed a tool that understands complex teamwork and that was simple - but not simplistic - in use. Otherwise it would not be applied in practice. We describe one approach that we took as a point of departure for our own tool.

Finally, we present a prototype[1] of the change tool. We collected and grouped instruments developed by others which we made domain specific for 'innovation teams' that have decided that they want to work on the following issues: recognize defensive behaviours in their team and make these discussable; assess the degree to which mindful infrastructure and innovation resilience behaviour are present and assess which elements should be enhanced; develop simple practical tools to be applied during team meetings. All this in order to improve innovative behaviour in teams.

[1] The change tool is 'in progress' and must be tested in practice. We welcome your experiences and feedback!

Table of Contents

1 Introduction: Study Goal

This report's central topic is about stimulating unnatural behaviour[2], which is described as forced social behaviour that is contrasting natural behaviour (Oeij et al., 2013). Natural behaviour is characterised by high efficiency, and is performed rather cognitively 'effortless' and in an 'automatic' way, such as our natural 'fight and flight responses'. Natural behaviour does not 'demand' much psychological effort and motivation. We almost show it instinctively when we experience 'danger', discomfort or social threat (Argyris, 2010). In some circumstances that need immediate attention and can rely on simple, routinized reactions, natural behaviour can be useful in order to react quickly and efficiently without using too much effort.

However, when it comes to situations in which one needs to perform and learn new behaviour, as in the process of innovation, creation and problem solving, effortful behaviour is needed. In such cases persons have to suppress their inclination of performing (automatic) natural behaviour and replace this by 'unnatural behaviour': force themselves and motivate themselves to perform effort-demanding tasks. To perform unnatural behaviour, people need to experience a sense of urgency to really become motivated and prepared to bring up the effort (Kahneman, 2011[3]).

Yet, even in such situations people often tend to show natural, routinized behaviours. The pitfall with natural behaviour is that persons might be overlooking certain important 'weak signals' that hinder innovation processes, because addressing such signals takes extra effort. Weak signals are indications that a project may go wrong, and that small events may have big consequences. For example, in a meeting someone has the feeling that something is wrong in an innovation project, but keeps his mouth shut because that is easier. Or a critical remark from someone that is taken up as a personal attack (automatic, first natural response) instead of an invitation to look into it (effortful, unnatural response). Such weak signals need attention. As a consequence of overlooking weak signals people just move on with their natural behaviour ignoring possible issues that require attention.

During a subconscious or unconscious, natural response people are often inclined to avoid risk (e.g., feelings of discomfort) and want to stay in 'control' by relying on their natural behaviours. This may hinder performance and innovative behaviour. In such instances, risk avoiding behaviour may take the place of 'controlled' risk taking, with the undesired possible outcome of some kind of underperformance, i.e. not responding to weak signals with far stretching consequences. Overlooking 'weak signals' or especially not responding alertly to weak signals, may negatively affect the innovation process. In the field of crisis management and safety studies so-called High Reliability Organisations (HROs) have found a way to effectively deal with weak signals and the 'unexpected'. HROs are, for example, aircraft carriers, nuclear plants, surgery teams, and first responders (police, ambulances, fire brigade). Mistakes may take lives, therefore there is a very high sense of urgency to not overlook any weak signals (Weick & Sutcliffe, 2007).

---

[2] This report is part of Enabling Technology Project (ETP) Platform 2013-2020: Workplace innovation (Gedrag en prestatie 2014); Work Package (WP) 2 Behaviour and organization practice; sub project WP2.1 Ontwikkeling tooling (intrapreneurial contexts, measurement, stimulating unnatural behaviour).

[3] Unnatural behaviour is effortful behaviour in situations in which individuals are naturally inclined to perform effortless behaviour (see Kahneman, 2011).

The question remains if such a sense of urgency can be observed across teams in organisations that are responsible for successful innovations. Competition and continuous change require organisations to constantly adapt or proactively renew their products, services, organisational processes or marketing strategies. Investing in innovations must achieve higher success rates than the 10% to 30% success rates that are reported in the literature (Mulder, 2012). In other words, the 'failure rate' is of such a degree (70 to 90%) that we presuppose that a certain sense of urgency should be present within such organisations.

Our assumption is that enhancing the alertness about weak signals in the innovation process improves the innovative capability of a team, because it can reduce certain natural behaviours (i.e., risk avoidance). Or, alternatively said, it induces certain unnatural behaviour (controlled risk-taking behaviour). The behaviour associated with controlled risk taking is 'innovation resilience behaviour' (IRB). IRB is based on the behaviour or teams of HROs, applied to an innovation management setting, and can be seen as an example of innovative behaviour in teams. Innovative behaviour is (loosely) described as behaviour that is supportive in the phases of innovation management (generating and initiating new ideas, selecting new ideas, prototyping, testing and piloting, implementation and marketing) to realise an innovation becoming a product or services or mode or organising that finds its way to the market, i.e., the users.

In this report:

- First, we will describe how unnatural behaviour can be related to innovation resilience behaviour. We will use the 'Capability Maturity Model of WorkPlace Innovation [CMM-WPI]' (Dhondt & Van der Meulen, 2014) to select the IRB-elements. The CMM-WPI contains certain competencies that are related to IRB. We will describe in the following Section what we know about IRB from a theoretical and empirical viewpoint;
- Second: From there we will sketch how IRB can be stimulated, developed and implemented. We propose a prototype, for a change tool. We will describe the contours of an initial tool and its steps to develop and enhance innovation resilience behaviour. This can be seen as a first outline of a manual for such a tool;
- Third: In order to arrive at this prototype we did our work in three phases:
  1. We connected innovation resilience to mindful infrastructure as a theoretical framework;
  2. We investigated the robustness of this framework in practice and experimented in practice to apply these insights. We tested elements of the change tool 'in progress' in a few meetings and presentations;
  3. We searched for examples of tools that meet the requirements of user-friendliness and their relation with the intricateness of team work. These three phases are the groundwork for the prototype of our change tool.

2 Phase 1 - From Capability Maturity Model to IRB

2.1 The Capability Maturity Model of Workplace Innovation

Below is the Capability Maturity Model as applied to WPI (Dhondt & Van der Meulen, 2014) (Figure 2.1).

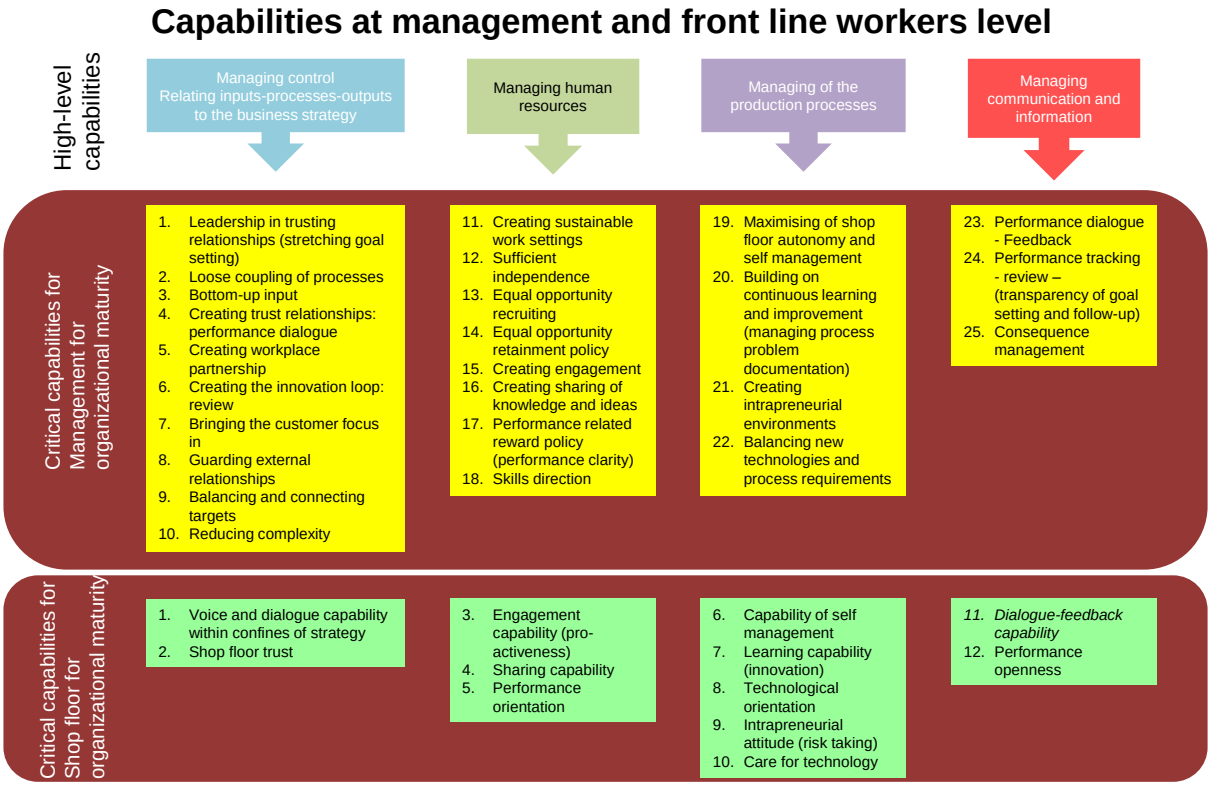

Figure 2.1 Capability Maturity Model WPI

This model contains capabilities at the level of management and employees (front line workers) that are necessary for creating sustainable organisations, good work and active jobs. The capabilities refer to underpinning workplace innovation within an organisation. Workplace innovation is putting in place renewals by the employers and employees together that improve both organisational performance and the quality of work (Pot, 2011). From this model we deducted the capabilities related to improving 'innovative behaviour' (which can be seen as a result of WPI interventions being implemented). Our focus was on capabilities that could stimulate innovation resilience behaviour from the perspective of unnatural behaviour.[4]

Innovation resilience behaviours (and also entrepreneurial and intrapreneurial behaviour) are opposite to risk avoidance (natural behaviour) and examples of controlled risk taking (unnatural behaviour). The term 'controlled' indicates a clear distinction with 'sensation seeking

[4] Please note that these behaviours are related to entrepreneurial and intrapreneurial behaviour, which is also a part of this ETP.

behaviours', 'overconfidence behaviour' and 'recklessness'. Controlled risk taking is intended, conscious and rational. Risk avoidance, however, is often unconscious or subconscious and driven by emotions of (the possible experience of) threat, failure, and anxiety which then ignites risk avoidance as a form of defensive behaviour (Oeij et al., forthcoming; Argyris, 2010).

2.2 Selection of IRB related topics

The Capability Maturity Model WPI (CMM-WPI) makes a distinction between management level and shop floor level.
We selected the relevant competencies from the CMM-WPI model in Figure 2.1. The change tool that we develop is only related to these competencies. The competencies are placed in Table 2.1, and are related to unnatural behaviour and innovation resilience behaviour. In Chapter 5 we describe the set-up of the change tool, its steps and manual.

For our purpose the two organisational levels are relevant. Table 2.1 contains the selected competencies of the CMM-WPI model (the numbers in Table 2.1 correspond to the numbers in Figure 2.1).

Table 2.1 Unnatural behaviour related CMM-WPI

High level capabilities	Indicators of unnatural behaviour (from initial-intermediate to optimising)	
	Management	Shop floor
Managing control	1. Leadership in complexity 4. Receptive for criticism 8. Think from the customer 10. Absorbing complexity	1. Understanding strategy
Managing HR	12. Stimulate bottom up initiatives 17. Stimulate team performance	3. Being involved 4. Sharing knowledge
Managing production	19. Taking initiative 20. Deutero problem framing 21. Absorb knowledge externally	6. Self managing 7. Learning 9. Risk taking 10. Receptive to newness
Managing communication	23. Non-defensive communication 24. Self critical	11. Act responsible 12. Non-defensive communication

Twenty aspects (Table 2.1) play a role in the (team) dynamics in organisations when it comes to innovation in very different ways, which are too many to deal with at this place one by one. From a general perspective, however, these are important elements of successful innovative behaviour in the sense that defensiveness is avoided and controlled risk taking is at place.

2.3 Linking innovation resilience behaviour (IRB) to a mindful infrastructure: a model

In the literature (Weick & Sutcliffe, 2007; Oeij et al., forthcoming) 'innovation resilience behaviour' can be operationalized as a set of team competencies that can make a team bounce back on the right track once a team has chosen to take or is already taking an ineffective course (a mishap) with regard to its innovation goal. Possible 'innovation resilience

behaviours' which are in line with Argyris' approach to effectively suppress risk avoidance (defensiveness, and can be suppressed by 'productive reasoning', Argyris, 2010) are:

a. to be alert of 'weak signals',
b. to resist oversimplification by suggesting valid alternatives,
c. to remain sensitive to what is done in the projects, why and for whom,
d. to defer to expertise,
e. to monitor vigilantly what the team does,
f. to brief and debrief decision making during the project, and
g. to learn from what you do by organising feedback loops (Weick & Sutcliffe, 2007).

The presence of a 'mindful infrastructure' can enable IRB. The likeliness of 'innovation resilience behaviour' to emerge in the context of innovation, probably depends on the presence of a semi-structure that facilitates this behaviour. This is due to the fact that the sense of urgency to behave resilient is not self-evident. Semi-structures are a combination of order, prescriptions, and rules (structure), and the decision latitude to move freely and make autonomous choices and decisions. Semi-structures 'exhibit partial order, such that some aspects are prescribed and others are not' (Brown & Eisenhardt, 1997). The semi-structure that functions as the organisational facilitation for team behaviour to perform innovation projects is called a 'mindful infrastructure'. It consists of three elements, namely team *psychological safety and learning behaviour, paradoxical leadership* and *participative decision making and team voice*. Team psychological safety and team learning allow team members to make mistakes without being punished and to explore and experiment. It builds trust. Paradoxical leadership (or complexity leadership) enables a team and/or its leader to effectively deal with mixed messages, opposing logics and seeming incompatibilities. It tries to look for synergy, instead of choosing for 'cost effectiveness at the detriment of innovative solutions'. It synergizes transactional and transformational leadership goals. Participative decision making and team voice encapsulate organisational politics and enhance problem ownership among team members. It improves to constructively deal with diverse stakeholder interests.

Based on the above theory, we developed a research model that helps to explain how a 'mindful infrastructure' can enable 'innovation resilience behaviour' (Figure 2.2). This model assumes that complex innovation projects may induce defensive behaviours (like risk avoidance as a consequence of, for example, experience of threat, feelings of incompetency and shame), which may affect how the project results are being perceived in terms of the degree of innovativeness. IRB could help suppress defensiveness and more effectively dealing with complex aspects of the project, eventually affecting how the project results are being perceived in terms of the degree of innovativeness. When IRB is in place, there might be a more positive perception of the project results than when it is not (Oeij et al., 2013).

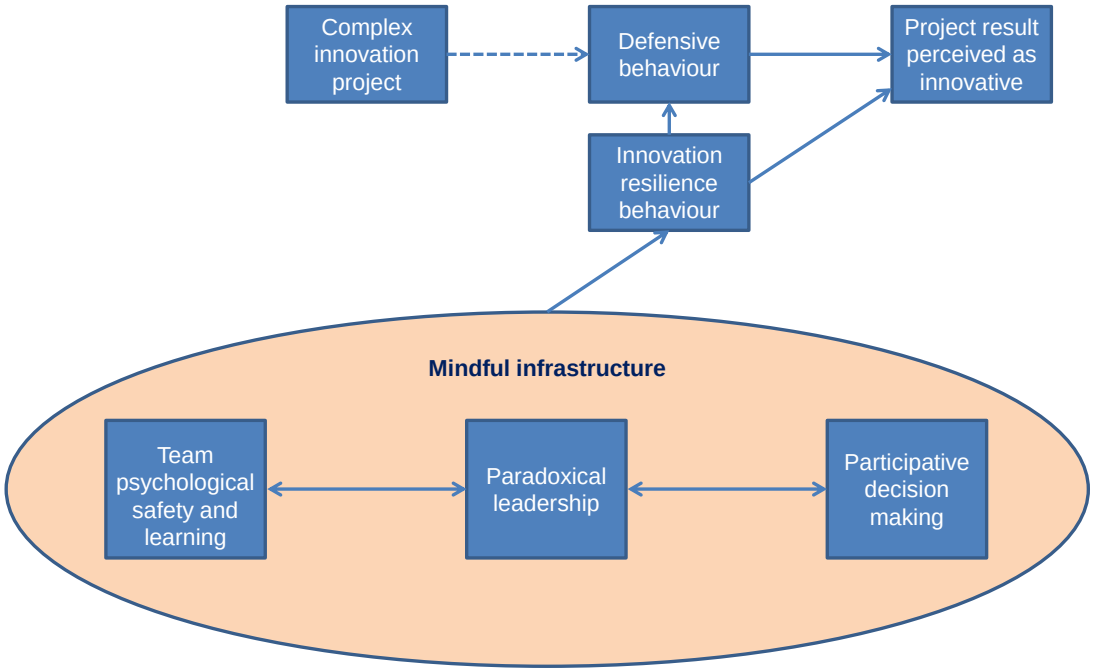

Figure 2.2 Research model of the field research (Oeij et al., 2013)

Linking the IRB model to the Capability model

Now we can link the CMM-WPI model-competences (Table 2.1) to IRB and to mindful infrastructure (MI) by adding a fourth column (in Table 2.2).

Table 2.2 Unnatural behaviour related to CMM-WPI and IRB/MI

High level capabilities	Indicators of unnatural behaviour		
	Management	Shop floor	Link to IRB/MI
Managing control	1. Leadership in complexity 4. Receptive for criticism 8. Think from the customer 10. Absorbing complexity	1. Understanding strategy	MI - paradoxical leadership, team learning IRB - alert for weak signals, resist oversimplification, remain sensitive
Managing HR	12. Stimulate bottom up initiatives 17. Stimulate team performance	3. Being involved 4. Sharing knowledge	MI - team psychological safety, team learning, paradoxical leadership, participative decision making IRB - remain sensitive, defer to expertise
Managing production	19. Taking initiative 20. Deutero problem framing 21. Absorb knowledge externally	6. Self managing 7. Learning 9. Risk taking 10. Receptive to newness	MI - team psychological safety, team learning, paradoxical leadership, participative decision making IRB - resist oversimplification, remain sensitive, defer to expertise, monitoring, learn by feedback

High level capabilities	Indicators of unnatural behaviour		
	Management	Shop floor	Link to IRB/MI
Managing communication	23. Non-defensive communication 24. Self critical	11. Act responsible 12. Non-defensive communication	MI - team psychological safety, team learning, paradoxical leadership, participative decision making IRB - resist oversimplification, monitoring, learn by feedback

We researched the mentioned aspects in the 4th column by fieldwork (case studies of teams in companies) and practice (a team meeting and a workshop). We shortly describe the design of that study below.

3 Phase 2 - Data for Tooling IRB

3.1 Research into IRB and testing the insights in practice

The purpose of this chapter is to inform that we performed case studies among innovation teams where we investigated mindful infrastructure (MI) and IRB; we also inform about testing our insights in practice on defensiveness, MI and IRB.
Based on the theory and pre-study of a case study of a research and technology organisation (Oeij et al., forthcoming), we designed a follow-up study. This ongoing follow-up study, which is a PhD study, involves up to now 12 cases of teams and their innovation projects. The study design includes face-to-face interviews, internet surveys and feedback-surveys (Oeij et al., 2014). The purpose of the PhD study is to assess relations between MI and IRB. (The results of this study[5] will be reported elsewhere). Below, we will report the results that are relevant for this ETP-study.

First, the performed 12 case studies underline that the model in Figure 2.2 is helpful in describing and understanding the innovation process in practice. By means of discussing 'critical incidents' in innovation teams we could reconstruct that elements of mindful infrastructure were present or absent and how this did enable or not to perform (variants) of innovation resilience behaviour. When a team leader, for example, in solving an issue actively involved team members (participative decision making) and talked extensively to stakeholders to meet diverging needs and expectations (paradoxical leadership), he or she was able to avoid obstacles by being attentive for specific needs (alert for weak signals) and at the same time steering the project to directions that were backed by most of them (remain sensitive to the overall picture). This created enough transparency to deal with difficulties (non-defensive processing of complex tasks), which ensured better outcomes for all (project results).

Second, in sequence of the 12 case studies in the companies, discussions were held with the studied teams on how to assess defensive behaviours (Table 3.1) and how to make them discussable within the teams of those twelve cases.

Table 3.1 List of 14 defensive behaviours (based on Ardon, 2009)

1. Compliance strategy: If your superior persuades you to commit, say that you comply regardless of whether you really do.
2. Undergo strategy: If your superior initiates a change process, just undergo the interventions passively and do not make debatable that you don't think this going to work.
3. Plan strategy: Agree to make a plan and act as if you comply with the plan; this way you contribute to change and stay in your comfort zone.
4. Blame strategy: If changing does not succeed, blame others and attribute negative intentions to them (scapegoating).
5. Assume strategy: Keep your negative assumptions about other individual's intentions and situations private.
6. Withdraw strategy: In case of difficulties in the communication, do not make this debatable with the persons who are involved; rather, withdraw and think up a new initiative or discuss the difficulties with peers.

[5] PhD study by Peter Oeij.

7. Ignorance strategy: If you observe patterns that are difficult to deal with, e.g. that your employees are not really committed, do not inquire; rather, increase pressure on them to comply (disregarding).
8. Reduction strategy: If things become threatening or embarrassing, reduce the problem until it is controllable again.
9. Denial strategy: If things become threatening or embarrassing, reduce the problem until it is controllable again.
10. Distance strategy: If the discussion comes too close, change the subject to discuss 'other' parties or general observations, such as employees, middle management, or 'the organization'.
11. 'We' strategy: Talk in terms of 'our responsibility' and 'what we should do'; as a consequence, nobody has to feel personally responsible.
12. Not speaking up, otherwise one might be criticized themselves by the others [non-intervention strategy].
13. Joke strategy: If things become threatening or embarrassing, make a joke and change the subject.
14. Shirk strategy: Shift the responsibility to an 'outsider' and avoid sharing your own opinion about the process or colleagues.

Many of the defensive behaviours were recognized as being present in team interactions and beyond, and were mostly acknowledged as being possibly harmful to the innovation process, for example, in the way how it hinders open communication and collaboration. This leads to the assumption that improving transparency by making defensiveness discussible could be beneficial to the process of collaboration and the innovation process as a whole.

Third, a few presentations/workshops were held on the topic of innovation resilience behaviour (e.g. see Oeij, 2014), during which participants were invited to assess defensiveness within their teams and projects and how they could more effectively deal with them. One technique applied is the use of 'brainwrites' (Gaspersz & Wijnhamer, 2006; Rohrbach, 1969). Brainwriting is a group creativity technique used to generate very many new ideas in a very short period of time. In a similar way to brainstorming, it is not the quality of ideas that matters but the quantity. Opposite to brainstorming, however, processes like group conformation, groupthink, and social pressure are strongly excluded, because participants write up their ideas individually. More creativity is thus being made available.

Fourth, and final, we tested to make defensiveness discussable during an internal team meeting (within TNO). First, participants were invited to closely read a list of 14 defensive mechanisms (Table 3.1), which may lead to risk avoiding behaviour. Second, they were instructed to observe whether they experienced any of this defensive behaviour among themselves or others during the meeting. Third, if so, they were requested to take the initiative to press a virtual red alert button (which was simply a piece of paper with a red alarm button printed on it; individuals had to make a gesture as if they were pressing this button by slamming the table, indicating they had something to put forward). In such instances, the meeting was stopped to enable a meta-discussion about the observations of one of the participants. It proved to be difficult in the sense that it was hard to assess defensiveness in action (reflection in action). The participants concluded that one should first have a good understanding of any of the 14 defensive mechanisms. Then, one should practice to play with these mechanisms. Nonetheless, a positive sound was uttered, namely that being skilled in assessing defensiveness on the spot could improve collaboration during meetings.

3.2 Learnings

What we learned from these activities are the following:

a. It is not easy for participants to discuss defensive behaviours, which is in line with the works of Argyris and Schön (Argyris, 2010);
b. Everyone recognises the defensive behaviours that are listed in Table 3.1. “Yes, they all happen here!”;
c. Once people start talking about examples of defensiveness often the ice melts, transparency wins over sealing behaviour and covering things up; participants open up taking the risk of becoming vulnerable or feeling embarrassed. Apparently they feel (socially) safe.

What follows are lively debates about why defensiveness occurs and how it negatively affects the effectivity of team work. In many cases there appears to be a willingness to recognise this as a fact and really do something about it. Participants also realised that it is very difficult to recognise defensive behaviour as it occurs (real time) and then make it discussable simultaneously (in-action). Many participants show an eagerness to learn more about it, and how it can improve teamwork if one knows how to handle it. Some, nonetheless, remain hesitant because transparency means vulnerability, whereas others are even pessimistic, and are stating that ‘nothing is going to change here, this is how the corporate culture works’. On a more abstract level, participants recognise the relevance and meaning of having a ‘mindful infrastructure’. They also understand very well how the mindfulness of high reliability organisations, transformed into the mindfulness of ‘innovation resilience behaviour’, could help teams to overcome defensiveness and risk avoidance. In conclusion, after these sessions there seems to be a certain level of cognitive receptiveness of our ideas to improve unnatural behaviours for the sake of innovativeness and better teamwork.

4 Phase 3 - Learning from other examples

4.1 Introduction

The purpose of this chapter is to present one example of a change tool that meets two requirements:

1. A tool that reckons with the fact that team work is complex, hard to plan, difficult to predict, in short: non-linear to a large extent;
2. A tool that is feasible and useful in the sense that it is simple, but not simplistic, and that it can be used in such a way that it will enhance the competencies of team members while using it.

4.2 Example: Team Tool from Pacanowsky

In the development of 'tools to bring about change in the behaviour of teams' we take as a starting point that teams and their members must learn new behaviours both cognitively and experientially when it comes to curbing defensiveness. Just knowing about defensiveness (cognition) is not sufficient; one has to experience that it works, because it takes much cognitive effort and psychological motivation. Moreover, it is unnatural to expose oneself to the risks of being laughed at, made ridiculous or feeling incompetent. Quite the reverse is natural: in dangerous or discomforting situations we either fight or flight, and perform the kind of behaviour that helps us to survive and (re)gain control, to enhance our self-esteem. Therefore, dealing with defensiveness is dealing with a *wicked problem*: the problem always comes back as it appears to be unsolvable. Besides cognitive changes, therefore, individuals have to change their attitudes in order to change their behaviour.
We looked at some literature that concerns wicked problems and team problem solving behaviour.

The Team Tool (Pacanowsky, 1995) combines cognitive learning with experiential learning effects of new behaviours through on-the-job learning. Teams can apply the tools that are part of the Team Tool (kit) during their work.

This implies:

- Limited time and costs;
- Teams have self control (self management);
- Practicing immediately leads to results (productive);
- What is learned is being practiced and becomes part of automated and routine behaviour.

The Team Tool and the thinking behind it state that many problems can be wicked, and wicked problems are non-linear, multi-causal and interdependent. These problems, related to dynamics in organisations, are never alike which makes them complex. Namely, complex in the sense that the (same) factors constituting a problem are often played out in different directions. Innovation can also be wicked if you realise that the value of an innovation can only be assessed and understood by hindsight. It is therefore problematic that often teams use standard ways to solve problems, namely linear and approaching the problems as being

a ‘tame’ one. Pacanowsky, like many others, contends that people are inclined to predict what will happen, but complicated matters are simply very hard to predict. In the case of wicked problems Pacanowsky (1995) suggests an alternative approach:

1. Promote an atmosphere of inquiry and an attitude that aligns with that. This implies to not jump to conclusions, to explore alternatives, to use knowledge of others, to test and validate knowledge and information, and to ask questions instead of giving answers;
2. Develop a shared display. A shared display can be created by developing a ‘group memory’. This can be realised by performing certain activities by the team as a whole, such ‘domain mapping the problem’ (identifying the main features of the problem), ‘mind mapping the problem’ (identifying the relations of that problem) and ‘cause mapping the problem’ (identifying the causal relations with that problem);
3. Manage the environment. This basically means switching from learning of individuals by learning of others and the whole environment;
4. Manage polarity. Polarity-management means to identify, understand and deal with polarities (Johnson, 1992;1993). Well-known examples of polarities are team-individual, centralisation-decentralisation, technology-push-market pull, short term-long term, and, of course, ‘invest time and money to innovate’-‘push for results, accountability and efficient performance’.

   As we learned from Kahneman (2011), Argyris (2010), and many others, in the case of polarity, people often choose the pole of tame behaviour (predictable), instead of the pole of wicked behaviour (uncertainty). Johnson explains that a ‘loop’ can combine polarities of tame and wicked phases (Figure 4.1). How? By being able to turn ‘flipsides’ of the pendulum into ‘upsides’ every time when it is necessary, and by embracing the idea that each state is a temporarily situation. Every pole has advantages and disadvantages. However, these advantages and disadvantages are not stable, they change over time due to changes in the environment. Look for example to TNO in relation to Figure 4.1: sometimes it fits to be organised as a hierarchical organisation and sometimes it fits to be organised as a matrix organisation, depending on internal and external changes. The one is not better than the other, they just fluctuate in value, fit and applicability over time. Therefore, it is of great importance that within organisations the ‘traditionalists’ (who dislike change) and the ‘crusaders’ (who continuously look for change) understand each other and that they complement each other when the time is right. They just need to be patient and understand timing.

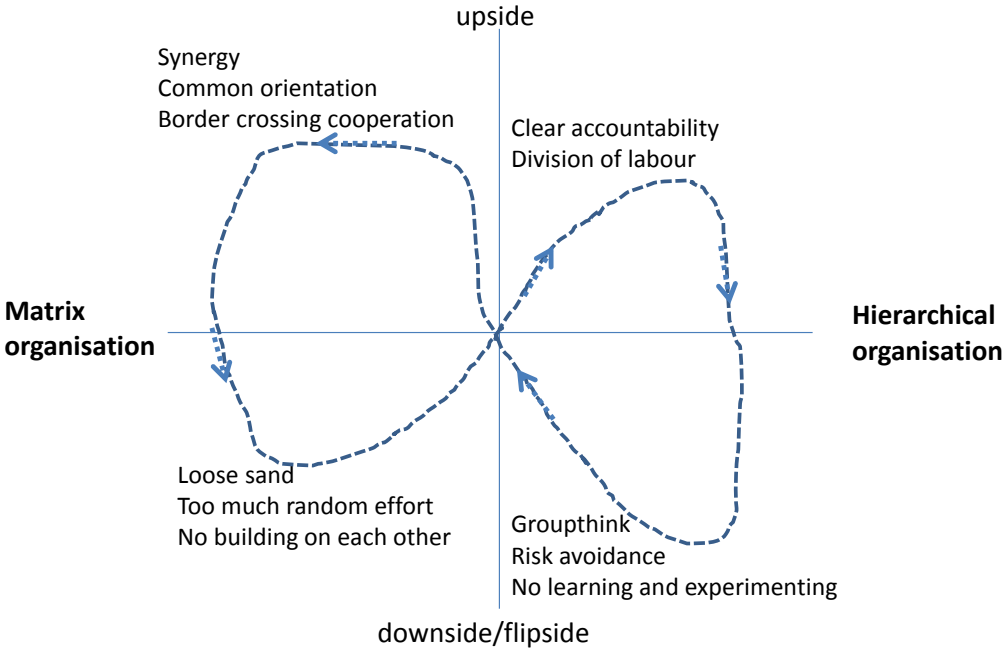

Figure 4.1 Functional infinity loop combining polarities (after: Johnson, 1992)

Another example is the individual-team polarity. The upside is high team diversity with creativity and the pooling of knowledge. The flipside is a lack of knowledge sharing, slowness (inertia) and inefficiency. A final example is rationality versus creativity. The upside is a good strategy, planning and a well-defined road to innovation. The downside is bureaucracy, no clear results and frustrated people who feel they are stuck.

5. Institutionalise online reflection and offline learning of team processes. This implies that teams who are capable of doing this are going beyond just problem solving. They reflect, have conversations, and timely (re)frame the problem; they understand that the problem is wicked and moving all the time. Therefore, in dealing with such dynamics in a controllable manner, they are flexible, adaptive, think in scenarios, and take decisions with the flexibility to reframe when necessary.
   Offline reflection could mean that the team, during a meeting, keeps a reflective journal: on the left page you take notes, make observations, jot down the to-do-list; on the right side are your critical questions, especially about possible conclusions, relations, consequences; online reflection could mean that the team, during a meeting, monitors what it is doing, how processes unfold, make icons of process characteristics and problem characteristics, and make them discussable by interventions such as meta-discussions.

In conclusion, one can say that in the case of difficult to predict situations, like complex innovations and team processes, ‘simplistic’ tools may not be helpful; yet Pacanowsky’s work is a neat example of ‘simple’ (not simplistic) tools for complex team dynamics. With this in the back of our mind we started to develop a change tool related to innovative team behaviour.

5 Prototype Change Tool Manual: From Unnatural Behaviour to Innovation Resilience Behaviour (in progress)

5.1 Introduction

At this stage we will define some initial steps and a first set-up of a manual that constitute a change tool to shift from unnatural behaviour to IRB. Future research can use this to further develop the manual. We are not able to deliver a completely validated change tool yet. If you work with this tool, we hope you will share your experiences with us.

When applying this tool a user will get:

- Insight into the presence of defensiveness, and so insight into possible causes for risk avoidance;
- Insight into the degree of the presence of mindful infrastructure, in other words into the presence of characteristics that facilitate innovation resilience behaviour;
- Insight into the presence of innovation resilience behaviour, in other words into the presence of behaviours and competences to keep an innovation team on track and to get an innovation team back on track;
- Develop simple and applicable team meeting tools for own use.

The insights are gained by doing exercises and by completing short questionnaires. The results or the data are meant to be used for team discussion to explore consensus or dissensus and to assess actions to improve your own practice.

The instruments are based on the work of renowned experts Chris Argyris and Donald Schön, Amy Edmondson, Robert Quinn, and Karl Weick and Kathleen Sutcliffe. They have developed and used these instruments mainly in settings of consultancy work. There is (yet) hardly any scientific evaluation research concerning the validity and reliability of their work. Despite this, many consultants, trainers and researchers are working with these instruments, which may be an indication that the instruments seem to work or lead to desirable results from a practical perspective. Therefore, the scientific external validity is uncertain, but the external face validity is accepted among many.

The manual (in progress) contains two parts:
The first is to assess the present state of defensive behaviours and how that affects the innovation process. It closes by assessing where the teams want to go;
The second part concerns the issue how to get to where the team wants to go. Mainly this evolves around making simple instruments to apply during team work and meetings to keep track of the innovation process by paying attention to innovation resilience behaviour.

In following the manual you will be guided to these steps:

Step 1:	Assess your present state and future state
Exercise 1:	Assess defensiveness (two-column model)
Step 2:	Move and go about it
Exercise 2:	Assess mindful infrastructure
	- Team safety & team learning
	- Leadership
	- Team voice and influence
Exercise 3:	Assess Innovation Resilience Behaviour
	- Acting mindful and alert
Step 3:	Wrap Up
Exercise 4:	Assess if you gonna do it
Exercise 5:	Assess which competencies to improve
Exercise 6:	Develop your own tools

The general format to describe each of the three steps is this:

- Step: explain the step;
- Explanation: give limited theoretical background;
- Exercise: preparation/prepare the team, execution, results/how to move on.

5.2 Step 1: Assess your present state and future state

EXPLAIN THE STEP

The purpose is to assess the presence of defensiveness. Defensiveness can be understood as risk averse behaviour. And risk averse behaviour can affect the innovation process. Making risk averse behaviour discussable will help the team to become transparent and better in determining relevant bottlenecks in communication and collaboration.

EXPLANATION

Perceived complexity in projects, e.g. innovation projects, implies that executing such projects is difficult and a fallible endeavour, which may invoke feelings of anxiety, scepticism, moral duty and commitment, which are mediated by power relations, and which can be both encouraging and inhibiting. Humans have a preference for control which makes them feel comfortable. When they perceive a situation as complicated and as difficult to master they may feel anxiety and are inclined to restore the situation to a state of control. Argyris refers to this kind of behaviour as organizational defensive routines, which are any action, policy, or practice that prevents organizational participants from experiencing embarrassment or threat and, at the same time, prevents them from discovering the causes of the embarrassment or threat (Argyris, 2010). Examples of defensive behaviour are shifting responsibility, blaming others, avoiding conflicts, reducing a big problem into a small issue, which prevents feelings of embarrassment, threat and anxiety (see Table 3.1).Complexity is a source for one of the most frequently occurring defences, namely sending mixed messages. Argyris illustrates how this works: "'Mary, you run the department, but check with Bill', or 'John, be innovative, but careful'. The logic is:

a. send a message that is inconsistent;
b. act as if it is not inconsistent;
c. make steps (a) and (b) undiscussable; and

d. make the undiscussability undiscussable".

The theory of action helps to explain why humans perform defensive behaviour (Argyris, 2010). Human beings hold two types of theories of action. The one they espouse is usually expressed in the form of stated beliefs and values (the 'espoused theory'); the other one is their 'theory-in-use' which can only be inferred from observing their actions, their actual behaviour. In practice, this means that human beings craft their positions, evaluations, and attributions in ways that inhibit inquiries into and tests of them with the use of independent logic. Consequently, these strategies are likely to be defensiveness (and also misunderstandings, self-fulfilling and self-sealing processes). Figure 5.1 depicts the theory-in-use.

Theory-in-use (what we do)

Governing values →	Action strategies →	Risks and negative consequences
• Stay in control • Maximise winning and minimise losing • Suppress negative feelings • Be rational	• Advocate your positions in order to be in control and win • Unilaterally perform 'save face' behaviour (own and others)	• Miscommunication • Self-fulfilling prophesies • Self-sealing processes • Escalating error

(source: Chris Argyris)

Figure 5.1 Theory of Action model I: Theory-in-use

What we do is exert our governing values into our action strategies. Our purpose is to win not lose, not lose face, feel good, and stay in control. The risks and consequences of this behaviour is mixed messaging, embracing 'tame' problems, covering-up what happens. You could look again at Table 3.1 and re-read the defensive behaviours that may be at play. You could try to assess for yourself which of those defensive mechanisms occur in your project team. You may not clearly 'see' them, but you might sense that some of them are or were at work. The next step is then to reflect on this question: in what way can defensive behaviours explain risk avoidance and how could that possibly affect to NOT achieve the (innovation) goal of the project? How can you assess defensiveness?

5.2.1 *Exercise 1: Assess defensiveness*

PREPARATION

Take a piece of paper and make two columns. Think of a conversation you recently had in which you had a difference of opinion with your conversation partner. A conflict is even better. Choose from a part of that conversation an excerpt in which you and your partner took turns for 3 to 5 times each.

EXECUTE

First: Write down what was said in the right column as literally (verbatim) as you can remember. So, write down every turn of you and of your conversation partner in the sequence of that talk. Take a good look of what you have written, reread it, and assess if you were complete according to your own memory.

Second: Now write down in the left column at the level of your own turns, what you were thinking, but did not say. Probably these were thoughts that were emotionally-laden and it is likely that these thoughts could have strong impact on the conversation if you had uttered them.

Third: Now please look at the following questions:

- Why did you not say what you were thinking?
- What would have been possible consequences if you had spoken out your thoughts?
- What is the reason why you did not say what you were thinking?

Fourth: Have a look at the defence mechanisms in Table 3.1.

- Did you, your conversation partners, or others that were present, by hindsight, perform any of these mechanisms? If so, which one(s)?
- If so: Can you give an explanation of applying this/these defensive behaviours(s)? What was the effect of its application?

Fifth: Take a step back from this concrete example, and reflect on the following question: to what extent could applying this/these defensive behaviours(s) affect the effectiveness of team work, especially with regard to performing an innovation project?
The same procedure can be done with your team as a whole, if it is safe to do.
It could be helpful to collect all experiences with defensive behaviours of the team. Then you could discuss questions like these:

- Do we see a pattern in how we communicate or miscommunicate?
- Are we moving in circles out of which we do not seem able to escape?
- Is defensiveness related to certain issues, problems, persons, situations?
- What does it say about our own ability to critically but constructively reflect on what happens?
- Are we self-critical or are scapegoating our environment or 'others'?
- Are we addressing issues we can influence ourselves or are we addressing issues that lay outside our sphere of influence?
- Is there a group bias to stress confirmation with each other which excludes deviant thinking and thinking out-of-the box?
- Is this a manner how we in fact keep mixed messages unresolved?

RESULT

The result of this exercise should be a personal or team awareness about your own defensiveness and how that possibly affects the innovation process of the project and/or the team. The fundamental question is: Are you prepared to do something about it? If so, please continue reading.

EXPLANATION

The second theory of action from Argyris is the espoused theory (Figure 5.2). It consists of governing values that are highly rewarded, but that most of us underuse. The assumption of this model is that its application could rule out most defensive behaviours. Consequently, the teamwork would improve with higher chances for successful innovations in the end. The most important governing value is to validate the information which is the basis of your decisions (see also Pacanowsky and his first feature of his alternative approach). The most im-

portant characteristic of the action strategies is that you show the courage to speak up when needed and deliberately taking/accepting the risk that you may hurt yourself or others. The trick is, of course, how to do that in a constructive manner. Argyris' experience is that to date very many people are able to do this. If the team succeeds to act like this, the results are very promising: no more defensiveness, no mixed messages, no ambiguity, better problem solving, better learning, and no repeating mistakes. In short: controlled risk taking or entrepreneurial behaviour in a controlled way.

Espoused theory (what we think how we should do things - *but what we most often don't do*

Governing values →	Action strategies →	Opportunities and positive consequences
• Get valid (validatable information • Free and informed choice (fact based decisions) • Internal commitment to the choice • Monitor (the actions') effectiveness	• Advocate your positions and combine with inquiry and public testing • Minimise unilateral face-saving • If being critical be constructive	• Reduction of self-fulfilling, self-sealing, error-escalating processes • No mixed messages • Effective problem-solving • Better learning

(source: Chris Argyris)

Figure 5.2 Theory of Action model II: Espoused theory

An important bottleneck is, as we contended, to be frank, open and confronting when needed. Most humans avoid such conflicts, to the detriment of clarity and progress. It is in a way unnatural to 'fight' when the sense of urgency to 'safe one's ass' is very limited. We prefer avoid doing so.

EXECUTION

› Discuss (as a team) how you can make the 'espoused theory' applicable. For example: apply it to how teams take (important) decisions.

5.3 Step 2: Move and go for it

Innovative behaviour is not just a matter of characteristics of the behaviour of individuals but also a matter of the issue or organisational design and the design of jobs, so called active jobs (Oeij et al., 2013). At team level a facilitating factor is the presence of a mindful infrastructure (Figure 2.2). Once this is at place, chances are higher for the emergence of innovation resilience behaviour (Figure 2.2).

EXPLAIN THE STEP

The purpose of this step is to assess whether a mindful infrastructure is present in your team. With this insight you can determine if your team is well facilitated to be really resilient in the innovation process. If that is not the case, you can decide what it is that you could improve.

5.3.1 Exercise 2: Assess mindful infrastructure

EXPLANATION

From the field of crisis management and safety research one can learn that a certain kind of teams are being trained to deal with unexpected situations which help them to avoid defensiveness. These teams from so-called High Reliability Organisations (HROs) can for example be found in nuclear plants, firefighting brigades, aircraft carriers, emergency surgery personnel and police squads. Such teams manage the unexpected because they are good at tracking small failures, resisting oversimplification, remaining sensitive to operations at the work floor, maintaining capabilities to act resilient, and deferring autonomy to experts instead of leaders (Weick & Sutcliffe, 2007).

The likeliness of this kind of behaviour to emerge, when applied to the context of innovation, framed by us as '**innovation resilience behaviour**', probably depends on the presence of a semi-structure that facilitates this behaviour. This is due to the fact that the sense of urgency to behave resilient is not self-evident. Semi-structures (Oeij et al., 2014) are a combination of order, prescriptions, and rules (structure), and the decision latitude to move freely and make autonomous choices and decisions. Semi-structures 'exhibit partial order, such that some aspects are prescribed and others are not'.

As said earlier, the semi-structure that functions as the organisational facilitation for team behaviour to perform innovation projects is called a '**mindful infrastructure**'. It consists of three elements, namely

1. Team psychological safety and learning behaviour,
2. Paradoxical leadership, and
3. Participative decision making and team voice.

Team psychological safety and team learning allow team members to make mistakes without being punished and to explore and experiment. It builds trust.

Paradoxical leadership (or complexity leadership) enables a team and/or its leader to effectively deal with mixed messages, opposing logics and seeming incompatibilities. It tries to look for synergy, instead of choosing for 'cost effectiveness at the detriment of innovative solutions'. It synergizes transactional and transformational leadership goals.

Participative decision making and team voice encapsulate organisational politics and enhance problem ownership among team members. It improves to constructively deal with diverse stakeholder interests.

PREPARE

› Multiply the checklist.

EXECUTE

› Complete the questions.

Answer the following questions for your team/department/organisation **Do you agree or disagree with the following statements about team safety & team learning?**	Agree = 1 Disagree = 0
If you make a mistake on this team, it is never held against you.	
Members of this team are able to bring up problems and tough issues.	
People on this team never reject others for being different.	
It is safe to take a risk on this team.	
It is easy to ask other members of this team for help.	
No one on this team would deliberately act in a way that undermines my efforts.	
Working with members of this team, my unique skills and talents are valued and utilized.	
We regularly take time to figure out ways to improve our team's work processes.	
This team tends to handle differences of opinion privately or off-line, rather than addressing them directly as a group.	
Team members go out and get all the information they possibly can from others – such as customers, or other parts of the organisation.	
This team frequently seeks new information that leads us to make important changes.	
In this team, someone always makes sure that we stop to reflect on the team's work process.	
People in this team often speak up to test assumptions about issues under discussion.	
We invite people from outside the team to present information or have discussions with us.	
Team Safety & Team Learning: Score: 10-14 = Present; 1-5 = Absent; 6-9 = Present to a limited degree	

Add up the scores and ask yourself (looking at the '0's):

› What should we improve?
› Why should we improve it? (What problem will it help to solve?)
› How can we improve it?

RESULTS

› Draw your conclusions.
› Define future actions to take.

PREPARE

› Multiply the checklist.

EXECUTE

› Complete the questions.

Answer the following questions for your team/department/organisation **Do you agree or disagree with the following statements about leadership?** *(Remember: leadership can be performed by one individual but also by professionals and by the group as a whole)*	Agree = 1 Disagree = 0
Leadership concerning *collaboration* is:	
Making it legitimate to contribute opinions	
Maintaining an open climate for discussion	
Employing participative decision making	
Leadership concerning *creativity* is…	
Launching important new efforts	
Getting unit members to exceed traditional performance patterns	
Encouraging direct reports to try new things	
Leadership concerning *control* is…	
Keeping projects under control	
Seeing that corporate procedures are understood	
Expecting people to get the details of their work right	
Leadership concerning *competition* is…	
Demonstrating full exertion on the job	
Getting work done quicker in the unit	
Providing fast responses to emerging issues	
Leadership concerning *tough issues* is…	
Able to provide clear directions	
Able to serve compatible needs in the organisation	
Able to rule out ambiguity	
Leadership of the leader and the team: Score: 10-15 = Present; 1-5 = Absent; 6-9 = Present to a limited degree	

Add up the scores and ask yourself (looking at the '0's):

› What should we improve?
› Why should we improve it? (What problem will it help to solve?)
› How can we improve it?

RESULTS

› Draw your conclusions.
› Define future actions to take.

PREPARE

› Multiply the checklist.

EXECUTE

› Complete the questions.

Answer the following questions for your team/department/organisation **Do you agree or disagree with the following statements about team voice and influence?**	Agree = 1 Disagree = 0
Here each (team) member:	
Develops and makes recommendations concerning issues that affect this work group.	
Speaks up and encourages others in this group to get involved in issues that affect the group.	
Communicates his/her opinions about work issues to others in this group even if his/her opinion is different and others in the group disagree with him/her.	
Keeps well informed about issues where his/her opinion might be useful to this work group.	
Gets involved in issues that affect the quality of work life here in this group.	
Speaks up in this group with ideas for new projects or changes in procedures.	
Here in this organisation:	
We have a "we are together" attitude.	
There are real attempts to share information throughout the project team.	
We decide many issues together, or at least have influence on matters that concern us.	
Team Voice & Team Participative Decision Making: Score: 7-9 = Present; 1-4 = Absent; 5-6 = Present to a limited degree	

Add up the scores and ask yourself (looking at the '0's):

› What should we improve?
› Why should we improve it? (What problem will it help to solve?)
› How can we improve it?

RESULTS

› Draw your conclusions.
› Define future actions to take.

Based on these completed checklists and questions you should have a fair picture of the mindful infrastructure. Is it satisfactory as it is, or will it be with the improvements being suggested? If the mindful infrastructure is satisfactory, or becomes satisfactory with the improvements you may implement, then the options will be favourable for Innovation Resilience Behaviour to emerge.
In the case you decide to improve the mindful infrastructure: make a list of your actions.

EXPLAIN THE STEP

A next step is to assess the presence of IRB. The purpose of this step is to assess whether IRB is present in your team. This step helps you to gain insight whether the team operates mindful and alert. With this insight you can determine if your team is well equipped to really

act resilient in the innovation process. If that is not the case, you can decide what it is that you could improve.

5.3.2 *Exercise 3: Assess Innovation Resilience Behaviour (IRB)*

EXPLANATION

When can we observe the presence of IRB in a team? What is IRB?

'Innovation Resilience Behaviour'

- A set of team competencies (team capability to make a team bounce back to the right track of the project once a team has taken/is taking an ineffective course with regard to its innovation goal
- Team behaviours: [Organisational Mindfulness - Weick & Sutcliffe]
  a. being extremely alert to track small failures (weak signal);
  b. resist oversimplification;
  c. remain sensitive to team operations and interactions
  d. maintain able to bounce back and recover (resilience);
  e. defer to expertise

PREPARE

› Multiply the checklist.

EXECUTE

› Complete the questions.

Answer the following questions for your team/department/organisation **Do you agree or disagree with the following statements about acting mindful and alert?**	Agree = 1 Disagree = 0
Preoccupation with failure	
We actively look for risks and try to understand them.	
We are keen for cues why our expectations are not met,	
When members spot potential risks we discuss them extensively.	
Reluctance to simplify	
Members of this team never take things for granted	
Team members listen carefully, and it is rare that someone's view goes unheard.	
We actively seek for more explanations and viewpoints before taking a decision.	
Sensitivity to operations	
Team members put effort in building a clear picture of the current situation of the project.	
We constantly monitor the progress of the project in a profound manner.	
The team has discretion to resolve unexpected problems as they arise.	
Commitment to resilience	
We always learn from every mistake being made.	
Most members have the skills to act on unexpected problems that arise.	
This team is extremely resourceful.	
Deference to expertise	
Team members typically "own" a problem until it is resolved.	
In this organisation expertise is valued over hierarchical rank in most decisions.	
Instead of muddling through, the team quickly obtains the external expertise if needed.	
Our Innovation Resilience Behaviour: Score: 11-15 = Present; 1-5 = Absent; 6-9 = Present to a limited degree	

Add up the scores and ask yourself (looking at the '0's):

› What should we improve?
› Why should we improve it? (What problem will it help to solve?)
› How can we improve it?

RESULTS

› Draw your conclusions.
› Define future actions to take.

The challenge here is to make a list of IRB-behaviours that could be improved by discussing them within teams or departments. The purpose of the discussion is to create a common awareness of what is needed. This could lead to an action list.

5.4 Step 3: Wrap up

EXPLAIN THE STEP

By now you should have a pretty good idea of the defensiveness, mindful infrastructure and IRB of your team/department or organisation. You may also have some suggestions on how to move forward. This step will link back to the 'espoused model' and help you to make your own tools.
The 'espoused model' will help you to combat defensiveness in your team. It tries to make defensiveness discussible. There is no easy guide for this: you and the team must be prepared to do this and find your own way in how to do it.

This step links the espoused model back to the CMM-WPI model.
This step also wraps up what was discussed in the earlier steps. It will ask you to decide if you are going to work on defensiveness and the mindfulness of the organisation and innovation resilience of the team. If you to choose to do so, it offers a guideline for making simple team tools that you can apply during team meetings.

5.4.1 Link IRB to espoused model

EXPLANATION

Let us return to the 'espoused' model (Figure 5.2). The relation between IRB and the espoused model is to suppress defensiveness and mixed messaging by validating your thoughts, acts, and decisions. This is easier said than done. Getting valid/'validatable' information is effortful. Living up to it is even harder. However, the only way to reduce defensiveness, mixed messaging and miscommunication is to move into this direction. It takes much psychological effort and motivation. It presupposes certain levels of trust and transparency, and sharing power and influence. Nothing about that is self-evident. People in organisations differ in position, responsibility, ownership, expertise, budget, and in the level of integrity, fear, guts and intra- or entrepreneurship. In complex innovation projects, actors interact and together constitute what happens, as an unpredictable unfolding of processes and patterns. We cannot predict innovations. But we can understand how this interacting and unfolding works. From this point we have created a choice, namely, for learning and reflection and deciding how we want to move forward (see Argyris, 2010).

5.4.2 Exercise 4: Assess if you gonna do it

EXECUTE

For example in the situation of taking decisions during team meetings:

- Will you do the effort to gather valid information (evidence)?
- Will you decide fact-based?
- Will you seek internal commitment?
- Will you monitor actions on their effectiveness?

RESULTS

- Draw your conclusions based on your answers.
- Define future actions to take.

This exercise should help you to come to a conclusions about what to do next.

5.4.3 Back to the CMM-WPI model

EXPLANATION

In Chapter 2 we presented 'indicators of unnatural behaviour' (Table 2.2) related to the management and shop floor level of managing control, managing HR, managing production and managing communication. After reading this report and the manual (in progress), you will probably understand that unnatural behaviour is associated with situations which may trigger ambiguous and defensive behaviours. Table 2.2 points to competencies that, for example, are linked to complexity, criticism, initiative, sharing, risk taking, receptiveness, and even being non-defensive. If individuals and teams succeed in performing these competencies, they would be preventing risk avoidance, and be entrepreneurial/intrapreneurial. They would be resilient and mindful when it comes to the innovation process, and as such probably more successful in realising innovation and renewal.

5.4.4 Exercise 5: Assess the competences that need to be improved

PREPARE

› Please have a look at Table 2.2 and determine if there are any competences that need to be improved. See and assess what their relation is with IRB (in column 4 of the same Table 2.2).

RESULTS

› Draw your conclusions.
› Define future actions to take.

5.4.5 Exercise 6: Develop your own tools

EXPLANATION

Safety management and crisis management teams try to automate unnatural behaviour by creating procedures such as briefing and debriefing, and continuously improving processes and behaviours. Teams working on innovation could develop such tools as well. Two examples are presented in the Appendix meant to support team meetings and decision making.

The examples in the Appendix are meant to put you on track how to design simple tools for your own team meetings. In the same vein of what Pacanowsky is stating: make tools so simple that they will be used and that it improves the work and individual's competences and skills as they use them longer.

PREPARE

› Choose domains of team work for which IRB-tools are helpful. For example: decision making, stakeholder management, requirements of the end-result, future market opportunities, development of a pilot to test the result.

EXECUTE

› Apply the five IRB-competencies to tasks of the team/team members (see § 5.3.2) in relation to the selected domain(s): make a list that you can consult/walk through during a team meeting.

RESULT

- Apply the tool in a team meeting.
- Evaluate how it works.
- Decide to adjust the tool or otherwise.

Coda

You have reached the end of this tool.
We hope that you indeed did make some tools. Enjoy the ride and good luck!
Please give us your feedback.

References

Ardon, A.J. (2009). *Moving moments. Leadership and interventions in dynamically complex change processes.* PhD. dissertation. Free University of Amsterdam.

Argyris, C. (2010). *Organizational traps. Leadership, culture, organizational design*. Oxford UP: Oxford, MA.

Brown, S. L., & Eisenhardt, K. M. (1997). The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Administrative Science Quarterly, 42*, 1-34.

Dhondt, S., & Van der Meulen, F. (2014). WPI in a capability maturity framework. Instrumenting the Fifth Element: acquiring WPI capabilities by management and the front line employees. PowerPoint.

Gaspersz, J. B. R., & Wijnhamer, J. (2006). *Anders werken, nieuwe kansen. Praktische tips & oefeningen voor kansrijk werken en leven*. Houten: Unieboek | Het Spectrum.

Johnson, B. (1992). *Polarity management: Identifying and managing unsolvable problems*. Amherst (Massachusetts): HRD Press.

Johnson, B. (1993). Polarity management. *Executive Development, 6*,(2), 28.

Kahneman, D. (2011). *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.

Mulder, N. T. (2012). *Value-based project management. A design approach to develop a project management approach for chaordic projects from the perspective of complexity thinking*. PhD dissertation. Eindhoven University of Technology (in Dutch).

Oeij, P. (2014). Complex Innovation Projects and Defensive Behaviour in Teams: Discussing the undiscussable. Presentation for Taminco, 'Innovation Week', Kasterlee (Belgium), September 2.

Oeij, P. R. A., Dhondt, S., & Gaspersz, J. B. R (2014). A note on methodology: studying defensive behaviour, mindful infrastructure and innovation resilience behaviour among innovation teams. Paper for Fourth International PhD Conference "Africa and the World: Research in an Emerging Global Context". Open University of The Netherlands in cooperation with HoPolytechnic University. October 30, 2014, Ho Polytechnic, Ghana.

Oeij, P. R. A., Dhondt, S., Gaspersz, J.B.R. & De Vroome, E.M.M. (forthcoming). Can teams benefit from using a mindful infrastructure when defensive behaviour threatens complex innovation projects? *International Journal of Project Organisation and Management, 8(*3).

Oeij, P., Mayer, M., & Preenen, P. (2013). *Stimuleren van onnatuurlijk gedrag om risicomijding tegen te gaan ten gunste van innovatie* (ETP Gedrag & Prestatie deelproject). Hoofddorp: TNO Kwaliteit van Leven.

Pacanowsky, M. (1995). Team tools for wicked problems. *Organizational Dynamics, 23*(3), 36-51.

Pot, F. (2011). Workplace innovation for better jobs and performance. *International Journal of Productivity and Performance Management, 60*(4), 404-415.

Rohrbach, B. (1969). Kreativ nach Regeln - Methode 635, eine neue Technik zum Lösen von Problemen. *Absatzwirtschaft, 12*, 73-75 and *19*, (no page numbers).

Steen, M., Oeij, P., & Vos, P. (2011). *Succesvol samenwerken in projectteams*. (ETP Gedrag & Prestatie deelproject). Delft/Hoofddorp: TNO Behavioral and Social Sciences.

Steen, M., Oeij, P., & Vos, P. (2012). *Effectief samenwerken in projectteams*. (ETP Gedrag & Prestatie deelproject). Delft: TNO Behavioral and Social Sciences.

Weick, K. E., & Sutcliffe, K. M. (2007). *Managing the unexpected. Resilient performance in an age of uncertainty* (2nd ed.). San Francisco: Jossey-Bass.

Appendix Simple IRB-tools for Team Meetings

(Steen et al., 2011;2012)

Team behaviour to improve the clients' interests

- Alertness: Are we aware of the wishes of our clients, do we listen carefully to the client's demands, required amendments and developments?
- Simplification: Do we self-critically evaluate our decisions, do we seek for alternatives, if we modify our innovation do we communicate it well with the client; do we validate our decisions?
- Sensitivity: Do we open up for opinions from outsiders; do we check with others how they think about what we do; are we not going astray and do we keep our eyes on the main road? Do we have a shared awareness about where we should be headed?
- Resilience: Can we recover from setbacks; can we cope effectively with wishes from clients that cause resistance within our team? Are we resourceful to find solutions if needed the most?
- Expertise: Do we defer to expertise even if that reduces our role? Do we consult others in the interest of the clients, even if we are hesitant? Is our client always king?

Team decision making

- Alertness: Do we test and validate our decisions in the light of alternatives; are decisions unambiguous? Do team members have a common understanding about decisions and its consequences; do we base decisions on verifiable facts?
- Simplification: Do we prevent choosing simple solutions for complicated issues, because it gives us a sense of control? Do we avoid taking hard decisions? Are we aware of the risks of group conformity and tunnel visions?
- Sensitivity: Do we check decisions with the interests of various stakeholders; do we avoid putting too much time in details of decisions?
- Resilience: Do we dare to take unpopular decisions if that is necessary? Can we decide to really change our direction if needed?
- Expertise: Do we give way to experts over authority if that is needed? Do we find team voice as relevant as power positions when participating in decision making?

Signature

Leiden, 18 December 2014

Paul Saager
Research Manager Sustainable Productivity & Employability

TNO

Peter Oeij
Paul Preenen
Friso van der Meulen