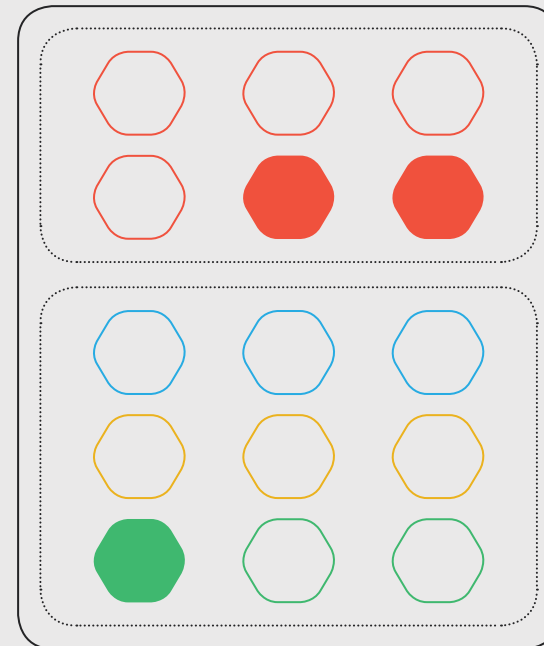


The first step of a roadmap for **realizing bottom-up innovation** within an operating business:

An MVP tooling designed for the business
group Pon Equipment and Pon Power
Solutions (part of Pon Holding)

Appendices



Appendix A |

Personal Factors

Supplementary material to:

Chapter 02 | Theoretical Background

2.4 Theoretical Framework

2.4.3 Personal Factors

The 7 personal factors that on an individual level influence employee's innovative behaviour are: (1) intrinsic motivation, (2) personality & cognitive style, (3) attitude, (4) creative self-efficacy, (5) skills & abilities, (6) self-leadership, and (7) intrapreneurial behaviour.



(1) Intrinsic Motivation

Intrinsic motivation is the extent to which an employee is excited about a specific work activity and engages in this by virtue of the activity itself (Utman, 1997). Since innovative behaviour cannot be commanded, it is considered a key factor. Employees who are intrinsically motivated are more likely to be (a) curious, (b) cognitively flexible, (c) taking risks, and (d) persistent to overcome barriers to realize innovation (Utman, 1997; Zhou & Shelley, 2003).

(2) Personality & Cognitive Style

Personality & cognitive style are traits and abilities that affect the effectiveness and display of certain behaviours. Employees that are high on “openness”, perseverance and independence are more likely to be (a) broad-minded, (b) curious, and (c) untraditional (Shalley et al., 2004; Amabile, 1983). Being “open” suggests employees to be (a) more flexible at absorbing new information, (b) combining new and unrelated information, and (c) seeking new experiences and perspectives (McCrae & Costa, 1997), characteristics vital for innovative behaviour. In addition, employees with an innovate cognitive style are more willing to (a) understand complexities, (b) suspend judgement, (c) see things from another perspective, and (d) take risks to deviate from given paradigms and procedures to achieve enhancement (Kirton, 1976; 1994; Amabile, 1996).

(3) Attitude

Attitude is an employee's perspective towards change and his resistance/fear or embracing of this (Hassi et al., 2014). Employees with a positive attitude are more likely to be (a) open-minded, (b) step out of their comfort zone, (c) try new things, and (d) seek challenges. This factor is found to be influenced by contextual factors (elaborated upon in 2.4.6 Interactions and Appendix D).

(4) Creative Self-efficacy

Creative self-efficacy is the extent to which an employee believes in his/her ability to produce creative outcomes (Tierney & Famer, 2011). Employees with high creative self-efficacy are more likely to (a) take initiative, (b) be courageous, (c) have a positive self-esteem, and (d) be assertive in idea generation (Hassi et al., 2014). They are more likely to use their creative potential to realize innovative outcomes (Wang et al, 2014; Richter et al, 2012; Zhou et al; 2012; Diliello et al, 2011; Tierney & Farmer, 2011; Lemons; 2010; Gong et al; 2009; Jaiswal & Dhar, 2015). This factor is found to be influenced by contextual factors (elaborated upon in 2.4.6 Interactions and Appendix D).

(5) Skills & Abilities

Skills and abilities –“creative potential” – is an individual's competencies affecting the mobilizing of creative output (Hilton, 1970; Dillielo, 2006). Required skills entail (a) domain-relevant expertise, (b) creatively-relevant skills and processes, and (1) intrinsic task motivation. Employees with longer tenure length are more likely to have domain-relevant expertise and are able to tackle

jobs in a more focused and relevant way (Carmeli, 2006). Employees with creatively-relevant processes have the right (a- ii) personality and cognitive style, (b) work style, (c) are able to think creatively (divergent and convergent) and generate ideas (Woodman et al., 1993), (d) have a conceptual understanding of the process of innovation, iteration and idea generation (Hassi et al., 2014) and (e) are able to make use of the supporting structures and practises provided by the firm (Hassi et al., 2014). Only employees equipped with all three skills are likely to deliver creative output (Amabile, 1988). Through training and experience creatively-relevant skills and processes can be developed. This factor is found to be influenced by contextual factors (elaborated upon in 2.4.6 Interactions and Appendix D).

(6) Self-Leadership

Innovative self-leadership is a process through which an employee is able to navigate, motivate, and lead himself towards achieving the defined expectations and innovation outcomes (Neck & Manz, 1992). Also, self-leadership is considered a key component for long-term survival, allowing employees to self-manage and supervisors to be able to focus on long-term issues rather than oversight and control (Dillielo, 2006). Employees who exhibit self-leadership skills are more likely to (a) engage in innovation, (b-iv) have higher creative self-efficacy (Dillielo, 2006), (c) feel empowered to make decisions concerning their own tasks and implement them (Conger & Kanungo, 1998), and (d) are able to lead others to support new ideas and solutions

(Carmeli, 2006). The success of innovation is greatly dependent upon an employee's self-leadership skills (Howell, 2005). Through training and empowerment employees can learn how to self-manage.

(7) Intrapreneurial Behaviour

Intrapreneurial behaviour is an employee's ability to recognize opportunities and lead the generation, introduction and implementation of ideas (West & Farr, 1990; Bosma et al., 2012). Employees who exhibit intrapreneurial behaviour are able to (a) self-start (even acting without supervisory permission) (Vesper, 1984; Stevenson & Jarillo, 1990; Rigtering & Weitzel, 2013) (b) be persevere to shape environmental conditions and challenge the status quo or address issues of unconventional wisdom (Frese et al., 1997; Parker & Collins, 2010), (c) take initiative, (d) behave proactively, (e) go beyond their standard job descriptions, and (f) pursuit opportunities involving risks (e.g. potential damage to career) (Hayton, 2005). This factor is found to be influenced by contextual factors (elaborated upon in 2.4.6 Interactions and Appendix D).

Appendix B |

Contextual Factors on a Managerial Level

Supplementary material to:

Chapter 02 | Theoretical Background

2.4 Theoretical Framework

2.4.4 Contextual Factors Managerial Level

The 2 contextual factors that on a managerial level influence employee's innovative behaviour are (8) transformational leadership and (9) supervisory leadership.

Contextual Factors on the Managerial Level

(8) Transformational Leadership

(9) Supervisory leadership

Figure 8. The theoretical framework of 15 personal and contextual factors

(8) Transformational Leadership

Transformational leadership is a style where leaders focus on change and vision rather than supervision, monitoring and control (Avolio, 1994). As opposed to traditional and delegated styles, transformational leaders are directive (defining a vision & setting strategic priorities) and inclusive (involving, mobilizing and empowering employees) as can be seen in Figure 9. Key characteristics of transformational leaders are (a) exhibiting innovative behaviour himself and embrace failure and change, (b) being able to formulate an inspiring future vision and the road towards this, (c) design the supporting structures & practises necessary to build an innovative-supportive climate to train and mobilize innovative behaviour (Moghim i & Subramaniam, 2013; Jaiswal & Dhar, 2015).

Podsakoff, Mackenzie, Moorman, and Fetter (1990) have identified six distinctive behaviours and abilities of transformational leaders, which have been enriched over numerous scholars over the years. First of all, transformational leaders are able to (i) formulate and communicate a compelling and desired future vision that motivates employees and transforms the organisation (Burns, 1978). According to Avolio (1994), they act as 'change agents' by addressing the limitations of the status quo, pinpointing improvement and lead by a purpose to which employees can identify. This behaviour is driven by optimism and enthusiasm (Jaiswal & Dhar, 2015). Secondly, they are able to (iia) provide inspirational motivation to not only steer a

vision for the future but also show employees the path for achieving goals and helping them embrace change in order to realize these goals (Ahangar, 2009; Jaiswal & Dhar, 2015). In addition, they are able to (iib) provide intellectual stimulation to stimulate and challenge them to work differently seeking for new and fresh approaches in their tasks (e.g. rethinking routine tasks and the way jobs are currently executed) (Avolio et al., 1999; Jaiswal & Dhar, 2015; Khalili, 2016). They challenge employees' attitudes, introduce new patterns for completing a task and take more challenges to stimulate employees to become involved in innovative processes (Den Hartog, 2003). Third, they are able to (iii) build one-to-one relationships to take into account the needs and feelings of employees, build confidence and make themselves available and approachable to provide support when necessary (Jaiswal & Dhar, 2015). Fourth, they are able to (v) inspire employees to do more than they are expected to do and aim for high-performance and creative behaviour (Bass, 1985). They let their employees think creatively and encourage them to take risks while taking ownership of the results of these actions (Humusluoglu & Illsev, 2009). Fifth, they are able to (vi) foster the acceptance of a shared goal that directs collaboration among employees and that is beyond the leaders' own self-interests but for the benefit of the firm (Khalili, 2016). Lastly, they are able to (v) act as a role model to gain respect, admiration, and loyalty among employees and creates a sense of collective (Jaiswal & Dhar, 2015). They exhibit unconventional and innovative behaviour themselves, such as analysing problems

from different angles, and looking into new and fresh solutions for problems (Humusluoglu & Illsev, 2009). It is suggested that within established firms this creativity is considered one of the most essential aspects of effective leadership. It requires creative thinking, changing the status quo and transformational leadership to redesign established bureaucratic processes to become equipped to respond to change(Katz & Kahn, 1978). According to Hassi, Rekonen & Palu (2014), the personal involvement of a leader in innovation and "leading by example" are considered key.

Employees under transformational leaders (a) display higher levels of creative self-efficacy (Pillai & Williams, 2014), (b) feel inspired by passion and positive results making them willing to improve the status quo and accepts the difficulties and uncertainties involved, (c) have a more positive attitude towards challenge and consider the gap between current and desired as a challenge rather than a treat (Eiseneis, 2013), (d) have more trust and confidence in their leaders stimulating them to take risks, initiative and engage in critical thinking (Bennis & Nanus, 1985), (e) are more likely to rediscover their curiosity, use imagination and think of fresh and original ideas (Bass & Jung, 1999), (e) take over innovative behaviour from their leaders (Bandura, 1998), and (f) perceive the culture as more innovative-supportive (Jaiswal & Dhar, 2015). However, the effect of this factor is found to be influenced by personal factors (elaborated upon in 2.4.6 Interactions and Appendix D).

Unfortunately, transformational leadership is a "double-edged sword" and its negative effects have been neglected by most scholars (Eisenbeiß & Boerner, 2013). Employees under transformational leaders become more dependent upon their leaders inhibiting them to exhibit innovative behaviour and make smart decisions in the absence of a leader (Dillielo, 2006; Carmeli, 2006).

The negative effects of transformational leadership is the so-called follower dependency. This dependency negatively affects whether employees exhibit innovative behaviour in three ways: (i) the strong admiration and attachment to the leader increases acceptance of a leaders' ideas and uncritical thinking (Gerbert, 2002). As a consequence, employees are found to be less likely to develop unconventional ideas themselves, think 'out-of-the-box' and establish new thinking patterns. In addition, (ii) employees are found to have higher desire for recognition and approval (Conger, 1990). As a consequence, they are less likely to express doubts and critical thoughts to challenge the leader. Lastly, (iii) employees might become disoriented and unable to perform creativity when the leader is absent. Recent scholars call for new leadership styles, e.g. informal leadership, SuperLeadership, and self-leadership, to build employee's internal leadership skills allowing them to exhibit creativity and make smart decisions in the absence of traditional leadership (Dilielo, 2006; Carmeli, 2006).

(9) Supervisory leadership

Supervisory leadership is the leadership exhibited by management layers directly supervising employees. It is found that supervisory leadership to a great extent determines an employee's perception of the innovative-supportive climate (Scott & Bruce, 1994; Wang et al., 2014) and exhibition of innovative behaviour (Bass & Avolio, 1994). Innovative supervisory leadership is similar to transformational leadership and concerns the way the supervisor appreciates, expects, promotes, acknowledges and encourages innovative behaviour among its employees (Hassi et al., 2014).

According to Shin & Zhou (2003), supervisors require similar leadership styles to transformational leadership. Other behaviours and abilities preferred are a supervisor's ability to (i) encourage employees to challenge the status quo (Amabile, 1996; Bass & Avolio, 1994). Employees who believe their supervisors invite them to question the status quo feel more comfortable to share ideas (Argyris, 1999). Supervisors who aim to maintain the status quo are found to inhibit innovative behaviour and idea generation among employees (Amabile, 1988). Also, supervisors are required to (ii) have an open attitude towards risk-taking, (iii) be able to see and use failures and mistakes as learning opportunities, (iv) use and share knowledge and information, (v) focus on continuous learning, (vi) conduct fair and informative evaluations, (viii) value and reward innovative behaviour (Khalili, 2016) (ix) practise participatory management, (x) be self-reflective, (xi) are supportive by showing concern

for employees' feelings, providing non-judgemental, informational feedback about their work and encourage them to voice their own concerns (Deci et al., 1989). Controlling supervisors closely monitor employee behaviour, make decisions without involving employees, and demand employees to follow strict rules and guidelines. Employees who consider their supervisors to be supportive are found to show higher intrinsic motivation. Supervisors that are perceived as controlling inhibit intrinsic motivation and creativity (Deci & Ryan, 1985).

In addition to transformational leaders, innovative supervisory leadership entails being able to manage job expectations. Employees under innovative supervisors understand the importance of innovation efforts in relation to other tasks and responsibilities (Hassi et al., 2014).

Appendix C |

Contextual Factors Organisational Level

Supplementary material to:

Chapter 02 | Theoretical Background

2.4 Theoretical Framework

2.4.5 Contextual Factors Organizational Level

The 6 contextual factors that on an organisational level influence employee's innovative behaviour are categorized in the organisation's innovative-supportive climate and supporting structures and practises



(10) Innovative-supportive Climate

An innovative-supportive climate is an employee's perception on how the shared attitudes, behaviours and feelings experienced characterising the work environment for him or her foster and encourage creative and innovative behaviour and consider it part of the organisation's DNA (Hassi et al., 2014; Gundry et al., 2015; Jaiswal & Dhar, 2015; De Jong & Den Hartog, 2007; Khalili, 2016; Ren & Zhang, 2015). An perceived innovative-supportive climate is found to be one of the key factors predicting an employee's innovative behaviour (Mumford et al., 2002; Krause, 2004).

An innovative-supportive climate is characterised to (a) promote, appreciate or expect innovative behaviour and risk-taking (Hassi et al., 2014; Khalili, 2016), (b) consider innovative behaviour valuable, (c) welcome and support innovative behaviour and ideas by allocating sufficient resources (such as adequate work time in schedules) (Charbonnier-Vorini et al., 2010), (d) promote a challenging work environment that requires a creative approach and continuous learning, (e) be a safe environment to take risks and accept and learn from failure, (f) create the trust that ideas have a fair and realistic chance to get selected and supported, (g) reward and recognize creative and innovative behaviour, (h) promote and facilitate knowledge-sharing, collaboration, transparency and openness, and (i) tolerate ambiguity and incompleteness (Hassi et al., 2014), and (j) value experimentation (Hassi et al., 2014; Scott & Bruce, 1994; Jaiswal & Dhar, 2015; Tseng,

2019; Wang et al., 2013; Dilliello, 2006). One of the key characteristics of an innovative supportive climate is its ability to provide a safe environment. Employees exhibiting innovative behaviour require risk-taking, making mistakes, and experimentation (Hassi et al., 2015). It is essential that the climate ensures employees that risk-taking, mistakes and experimentation is rewarded, encouraged and not punished (Khalili, 2016; Amabile et al., 1996) and that ideas are suggestively evaluated rather than critically judged (Shalley & Perry-Smith, 2001).

Employees who feel that they work in an innovative-supportive and safe climate are found to (a) exhibit higher levels of innovative behaviour (Çerne et al., 2013), (b) share ideas and work on them, (c) feel comfortable to take risks, examine new thoughts, experiment and exchange information without fear to fail or not delivering desired result, and (d) feel expected to adopt creative and innovative behaviour (Dragoni, 2005; Jaiswal & Dhar, 2015). This factor is found to be influenced by personal factors (elaborated upon in 2.4.6 Interactions and Appendix D).

However, who (e.g. supervisors, leaders or co-workers) and to what extent they should display innovative-supportive attitudes and behaviours or be considered a role model remain undetermined (Shalley et al., 2004).

Supporting Structures & Practises

Innovative supporting structures and practises are

tooling, processes, mechanisms, and (in)formal ways of working that design the work environment to establish an innovative-supportive climate to support and facilitate innovative behaviour at group, supervisory and individual level (Hassi et al., 2014; Çerne et al., 2013; Dillielo, 2006). Supporting structures & practises are found to be vital elements to promote an innovate-supportive environment, since it reflects management's commitment to innovation (Hunter et al., 2007; Tseng, 2019). Without these elements and climate cannot be considered innovative-supportive and innovative outcomes are unlikely to happen (Reiter-Palmon & Illis, 2004). Supporting structures and practises can be distinguished into 5 contextual factors which are: (8) job design, (9) resource-allocation, (10) creative processes, (11) reward & incentive mechanisms, and (12) collaboration and communication flows.

(11) Job Design

A job design that supports innovative behaviour (a) considers it a standard of any job description (Rigtering & Weitzel, 2013) and (b) include daily tasks and activities that require idea generation, knowledge-sharing and creative problem-solving (Dillielo, 2006; Pitta, 2009; West & Farr, 1990). Employees in jobs that are considered (a) complex and (b) unformalized (not steered and controlled through formal job descriptions, work procedures and rules)(Mintzberg,1993) are more likely to have higher levels of (a) autonomy, (b) responsibility, and (c) intrinsic motivation. Higher levels of intrinsic motivation are found to result in (a) excitement, (b)

interest to accomplish tasks, and (c) develop ideas (Shalley et al., 2004).

(12) Resource-Allocation

Resource-allocation is the availability of time first and later on budget employees can spend on creativity and the development and implementation of ideas. Employees who have allocated work time for creativity and innovation in their day-to-day schedules are more likely to exhibit innovative behaviour (Hassi et al., 2014). A lack of time and a high perceived workload are found to inhibit innovative behaviour (Chandler et al., 2000). A firm's ability to manage their NPD portfolio through effective decision-making is essential for adequate resource-allocation and long-term survival (Kester et al., 2011). Unfortunately, many NPD portfolios of established firms are imbalanced (focused on incremental innovation and firefighting and being overloaded), leaving insufficient resources to intrapreneurship (Kester et al., 2011).

(13) Creative Processes

Creative processes are the tooling, structure and guidance in place to (a) support employees' extensive efforts required, (b) reduce the risks and uncertainty and (c) help them overcome the organisational hurdles (such as inertia and bureaucracy)(Imran & Anis-ul-Haque, 2011; Rigtering & Weitzel, 2013). Employees who can make use of the creative processes (a) know where to find support, (b) use a process and steps to help them proceed with their idea, and (c) know when the idea is approved.

(14) Reward & Incentive Mechanisms

Reward and incentive mechanisms on innovation give (a) adequate rewarding/recognition to positively reinforce employees who exhibit innovative behaviour and (b) encourage employees through goals, responsibilities, and incentives to adopt innovative behaviour (Hassi et al., 2012). Although monetary incentives are questioned to foster innovation, some scholars have found that both monetary and recognition enhance innovative behaviour since it entails informational value and recognizes an employee's contribution (Eisenberger, 1992; Eisenberger & Armeli, 1997; Amabile, 2005).

(15) Collaboration & Communication Flows

Firms that have flatter hierarchies and facilitate (a) social interaction, (b) information-sharing, (c) (multidisciplinary) teamwork and collaboration, and (d) free communication (broad and diffuse information flows) (Srivastava & Agrawal, 2010) are found to have higher chances of success implementing ideas (Bird & Schjoedt, 2017; Miles & Covin, 2002; Zahra & Filatochtev, 2004). Employees of firms that (a) make innovation and idea generation part of day-to-day conversations and communication of the organisation (e.g. through reminding for new ideas, discussing ideas, sharing examples, celebrating failures and successes) and (b) provide transparency in the development process are exhibiting higher levels of innovative behaviour (Hassi et al., 2014).

Interactions Factors

Supplementary material to:

Chapter 02 | Theoretical Background

2.4 Theoretical Framework

2.4.6 Interactions

Scholars have identified and researched the following interactions between personal and contextual factors:

- (a) Attitude + Personality**

An employee's attitude towards change and innovation is found to be related to one's personality.
- (b) Attitude + Creative Self-efficacy**

An employee's attitude towards change and innovation is found to be affected by his creative-self-efficacy.
- (c) Attitude + Learned Helplessness**

An employee's attitude towards change and innovation is founded to be affected by learned helplessness. Learned helplessness is "the result of external factors over time reducing an individual's initiative to respond to opportunities for improvement and change" (Hassi et al., 2014).
- (d) Creative self-efficacy + Contextual Factors**

An employee's creative self-efficacy is found to be easily affected by contextual factors (Tierney & Farmer, 2011; Jaiswal & Dhar, 2015; Yang & Cheng, 2009). In addition, creative self-efficacy is also found to hold a moderating role strengthening or weakening the effect of contextual factors transformational leadership and innovative-supportive climate. Employees with a low creative self-efficacy might not be affected by organisational strategies and contextual factors promoting innovative behaviour (Jaiswal & Dhar, 2015). A low creative self-efficacy is found to reduce the positive effects of transformational leadership and the innovation climate (Jaiswal & Dhar, 2015). In contrast, employees with a high creative self-efficacy experience more positive

- effects of the innovative-supportive climate (Jaiswal & Dhar, 2015). Also, the lack of an innovative-supportive climate negatively affects an employee's creative self-efficacy even if he or she is capable of innovating (Jaiswal & Dhar, 2015). Firms and managers interested in intrapreneurship are suggested to simultaneously construct a supportive-innovation climate and train and coach employees on a regular basis to enhance their creative self-efficacy (Jaiswal & Dhar, 2015).
- (e) Skills & Abilities + Supporting Structures & Practises**

An employee's skills and abilities should allow them to be able to make use of supporting structures and practises provided (Hassi et al., 2014).
- (f) Self-Leadership + Supporting Structures & Practises + Intrinsic Motivation**

An employee's skills and practise of self-leadership can be strengthened by providing autonomy and responsibility (Dillielo, 2006; Yun et al., 2006). Autonomy and intrinsic motivation are considered natural rewards for self-leadership (Manz & Neck, 2004).
- (g) Self-Leadership + Creative Self-Efficacy**

An employee's self-leadership skills is found to enhance creative self-efficacy and results in employee's innovative behaviour (Houghton et al., 2003; Prussia et al., 1998).

- (h) Intrapreneurial Behaviour + Supporting Structures & Practises + Supervisory Leadership**

An employee's ability to behave in an intrapreneurial way and implement ideas and innovation processes requires the support from the organisational to overcome hurdles, reduce risks. For some employees if the risks are not reduced (e.g. potential negative impact on career), employees might not use their intrapreneurial behaviour (Hornsby et al., 2002). Also, intrapreneurial behaviour cannot be used if the firm does not offer intrapreneurial opportunities. The first step of intrapreneurship is for the organisation to offer and stimulate intrapreneurial opportunities, to which the employee can decide to be involved (step 2)(Rigtering & Weitzel, 2013). In addition, trust in one's supervisor and autonomy are vital (Dess et al., 2003; Rigtering & Weitzel, 2013).
- (i) Transformational Leadership + Innovative-Supportive climate + Supporting Structures & Practises**

Transformational leadership from leaders is found to design the supporting structures & practises to build an innovative-supportive climate (Moghimi & Subramaniam, 2013; Jaiswal & Dhar, 2015). In addition, they promote an innovative-supportive climate through behaving in an innovative way, being considered a role model, and inspire, motivate and learn employees to create and innovate. An innovative-supportive climate is found to moderate the relationship between transformational leadership and an employee's innovative behaviour (Khalili, 2016).

Appendix E |

Interview Guide

Exploration

Supplementary material to:

Chapter 03 | Methodology

3.2 Interviews

3.2.2 Data Collection

Introductie

Korte introductie Verena + uitleg afstudeeropdracht
Kun je me vertellen wat jouw werk bij Pon inhoudt?

(1) DIP-ervaring

Wat was jouw motivatie om mee te doen aan het DIP
Programma?

Follow-up:

Wat was je grootste leerervaring?
Hoe pas je de vaardigheden nu toe in je dagelijkse
werkzaamheden?
Voorbeelden van toepassingen?
Tegen welke uitdagingen lopen je aan?
Wat heb je nog niet toegepast? Waarom niet?
Wat zie jij als een essentieel element om te kunnen
innoveren?

(2) Innoveren tijdens dagelijkse werkzaamheden

Welke rol speelt innovatie in jouw dagelijkse
werkzaamheden?

Follow-up:

Voorbeelden van hoe je innoveert?
Wat gaat hierbij goed?
Wat maakt het lastig om te innoveren?
Hoe kijkt de rest van de organisatie naar innoveren?
Hoe zou je willen dat innovatie binnen jouw dagelijkse
werkzaamheden eruit zien?
Wat zie jij als de grootste barrière om als organisatie te
innoveren?

(3) Experimenteren (individu)

Tijdens DIP hebben jullie geleerd over het uitvoeren
van experimenten, wat betekent voor jouw een
“experiment”?

Follow-up:

Hoe gebruik je “experimenten” tijdens je dagelijkse
werkzaamheden?
Voorbeelden?
Waarom gebruik je het wel/niet?
Wat vind je er leuk/minder leuk aan?
Wat werkt wel / wat werkt niet?
Welke uitdagingen hebben je ervaren / zie je in het
uitvoeren van experimenten?

(4) Experimenteren (infrastructuur en cultuur)

Kun je mij uitleggen wat de rol van “experimenteren” is
binnen jouw organisatie?

Follow-up:

Hoe wordt experimenteren gefaciliteerd? (processen,
infrastructuur)
Hoe kijken collega's naar het doen van experimenten?
Waarom?
Wat zijn uitdagingen / twijfels / wat werkt nog niet?
Hoe denk je dat mensen meer gestimuleerd kunnen
worden om experimenten op te zetten?
Wat zie jij als de grootste barrière om als organisatie te
gaan experimenteren?

(5) Toekomst experimenteren

Kun je me vertellen hoe jij hoopt dat “experimenten”
in de toekomst in jouw dagelijkse werkzaamheden
gebruikt worden?

Appendix F |

Interview Guide Validation

Supplementary material to:

Chapter 03 | Methodology

3.2 Interviews

3.2.2 Data Collection

Korte introductie

Korte introductie Verena + uitleg afstudeeropdracht

Aanleiding Pon Management Dagen

(I) Pon Management Dagen

Welk belangrijkste inzicht heb je meegenomen vanuit de Pon Management Dagen?

Nieuwe inzichten qua innovatie? Of experimenteren?

(2a) Innovatie in huidige werkzaamheden

Wat betekent innovatie voor jou binnen je werkzaamheden?

Wat doe je op dit moment?

Waarom ben je er wel of niet mee bezig?

Hoe belangrijk is innovatie in jouw werkzaamheden?

Waarom wel of niet?

Wat wordt er van jouw verwacht omtrent innovatie?

Hoe kijk jij aan tegen deze verwachtingen? Haalbaar?

(2b) Experimenteren

Wat betekent “experimenteren” voor jou?

Voorbeelden?

Waarom wel / niet?

Uitdagingen om te experimenteren?

Tijdens de Management Dagen werd veel gesproken over experimenteren, wat betekent “experimenteren” voor jou?

Wat betekent experimenteren voor de rest van de organisatie?

Hoe wordt experimenteren tot aan nu gebruikt?

Voorbeelden?

Wat maakt het lastig om te experimenteren?

(Uitdagingen)

Hoe stimuleer jij dat er wel of niet wordt geëxperimenteerd?

(3) Ideaal: experimenteren

Als je kijkt naar de toekomst, hoe zou je willen dat er wel of niet wordt geëxperimenteerd?

Wat is daarvoor nodig?

Hoe kan experimenteren worden gestimuleerd?

Wat is jouw rol hierin?

Wat is de rol van werknemers?

Wiens verantwoordelijkheid is dit?

Hoe kunnen we morgen al beginnen?

Wat zie jij als grootste barrière die dan overwonnen moet worden?

(4a) Managen van innovatie en experimenteren

CHECK: Heb jij een team van mensen dat je aanstuurt?

Wat verwacht jij van je team omtrent innovatie en experimenteren?

Hoe beïnvloedt jouw leiderschap innovatie door het team?

Hoe stimuleer je innovatie / experimenteren?

(4b) Managen van innovatie en experimenteren

Wat maakt het lastig voor jou om innovatie te managen?

Welke uitdagingen ervaar je?

Wat zie je als grootste barrier?

(5) Toekomst innovatie / experimenteren

Wat moet er veranderen om meer te kunnen innoveren en experimenteren?

Wat is jouw rol hierin?

Wat is de rol van je team? Wiens verantwoordelijkheid is dit verder?

Wat kan jij doen? Wat heb je daarvoor nodig?

Hoe kunnen we morgen beginnen?

Wat is de grootste barrière die overwonnen moet worden?

Hoe kan experimenteren worden gestimuleerd?

Wat is jouw rol hierin?

Wat is de rol van werknemers?

Wiens verantwoordelijkheid is dit?

Hoe kunnen we morgen al beginnen?

Wat zie jij als grootste barrière die dan overwonnen moet worden?

Slot: wie raad je aan om hierover verder nog te spreken?

Overview Findings Empirical Research

Supplementary material to:

Chapter 03 | Methodology

3.2 Interviews

3.2.2 Data Collection

3.3 Observations

3.3.2 Data Collection

This is not our culture, this is not what we do and the industry we in are also not very used to this. This means that it is a bit difficult, the asking thing we can almost forget. Asking things

Yet, we at PENO don't even ask questions. We are not even there. Which makes it very difficult. We have basically never done that. Sometimes we are lucky when we partner up with someone who does that. For example, a supplier who says we need to see how the users do and measure it. Asking questions

Noone really knows & noone really cares to investigate Be open about not knowing it
Je wilt eerst klein beginne, dan resultaat late zien en Resultaat dan opschalen

Researcher 1	Researcher 2	Researcher 3	Researcher 4	Researcher 5	Researcher 6	Researcher 7	Researcher 8	Researcher 9	Researcher 10	Researcher 11	Researcher 12	Researcher 13	Researcher 14	Researcher 15	Researcher 16	Researcher 17	Researcher 18	Researcher 19	Researcher 20	Researcher 21	Researcher 22	Researcher 23	Researcher 24	Researcher 25	Researcher 26	Researcher 27	Researcher 28	Researcher 29	Researcher 30	Researcher 31	Researcher 32	Researcher 33	Researcher 34	Researcher 35	Researcher 36	Researcher 37	Researcher 38	Researcher 39	Researcher 40	Researcher 41	Researcher 42	Researcher 43	Researcher 44	Researcher 45	Researcher 46	Researcher 47	Researcher 48	Researcher 49	Researcher 50	Researcher 51	Researcher 52	Researcher 53	Researcher 54	Researcher 55	Researcher 56	Researcher 57	Researcher 58	Researcher 59	Researcher 60	Researcher 61	Researcher 62	Researcher 63	Researcher 64	Researcher 65	Researcher 66	Researcher 67	Researcher 68	Researcher 69	Researcher 70	Researcher 71	Researcher 72	Researcher 73	Researcher 74	Researcher 75	Researcher 76	Researcher 77	Researcher 78	Researcher 79	Researcher 80	Researcher 81	Researcher 82	Researcher 83	Researcher 84	Researcher 85	Researcher 86	Researcher 87	Researcher 88	Researcher 89	Researcher 90	Researcher 91	Researcher 92	Researcher 93	Researcher 94	Researcher 95	Researcher 96	Researcher 97	Researcher 98	Researcher 99	Researcher 100
Researcher 1	Researcher 2	Researcher 3	Researcher 4	Researcher 5	Researcher 6	Researcher 7	Researcher 8	Researcher 9	Researcher 10	Researcher 11	Researcher 12	Researcher 13	Researcher 14	Researcher 15	Researcher 16	Researcher 17	Researcher 18	Researcher 19	Researcher 20	Researcher 21	Researcher 22	Researcher 23	Researcher 24	Researcher 25	Researcher 26	Researcher 27	Researcher 28	Researcher 29	Researcher 30	Researcher 31	Researcher 32	Researcher 33	Researcher 34	Researcher 35	Researcher 36	Researcher 37	Researcher 38	Researcher 39	Researcher 40	Researcher 41	Researcher 42	Researcher 43	Researcher 44	Researcher 45	Researcher 46	Researcher 47	Researcher 48	Researcher 49	Researcher 50	Researcher 51	Researcher 52	Researcher 53	Researcher 54	Researcher 55	Researcher 56	Researcher 57	Researcher 58	Researcher 59	Researcher 60	Researcher 61	Researcher 62	Researcher 63	Researcher 64	Researcher 65	Researcher 66	Researcher 67	Researcher 68	Researcher 69	Researcher 70	Researcher 71	Researcher 72	Researcher 73	Researcher 74	Researcher 75	Researcher 76	Researcher 77	Researcher 78	Researcher 79	Researcher 80	Researcher 81	Researcher 82	Researcher 83	Researcher 84	Researcher 85	Researcher 86	Researcher 87	Researcher 88	Researcher 89	Researcher 90	Researcher 91	Researcher 92	Researcher 93	Researcher 94	Researcher 95	Researcher 96	Researcher 97	Researcher 98	Researcher 99	Researcher 100
Researcher 1	Researcher 2	Researcher 3	Researcher 4	Researcher 5	Researcher 6	Researcher 7	Researcher 8	Researcher 9	Researcher 10	Researcher 11	Researcher 12	Researcher 13	Researcher 14	Researcher 15	Researcher 16	Researcher 17	Researcher 18	Researcher 19	Researcher 20	Researcher 21	Researcher 22	Researcher 23	Researcher 24	Researcher 25	Researcher 26	Researcher 27	Researcher 28	Researcher 29	Researcher 30	Researcher 31	Researcher 32	Researcher 33	Researcher 34	Researcher 35	Researcher 36	Researcher 37	Researcher 38	Researcher 39	Researcher 40	Researcher 41	Researcher 42	Researcher 43	Researcher 44	Researcher 45	Researcher 46	Researcher 47	Researcher 48	Researcher 49	Researcher 50	Researcher 51	Researcher 52	Researcher 53	Researcher 54	Researcher 55	Researcher 56	Researcher 57	Researcher 58	Researcher 59	Researcher 60	Researcher 61	Researcher 62	Researcher 63	Researcher 64	Researcher 65	Researcher 66	Researcher 67	Researcher 68	Researcher 69	Researcher 70	Researcher 71	Researcher 72	Researcher 73	Researcher 74	Researcher 75	Researcher 76	Researcher 77	Researcher 78	Researcher 79	Researcher 80	Researcher 81	Researcher 82	Researcher 83	Researcher 84	Researcher 85	Researcher 86	Researcher 87	Researcher 88	Researcher 89	Researcher 90	Researcher 91	Researcher 92	Researcher 93	Researcher 94	Researcher 95	Researcher 96	Researcher 97	Researcher 98	Researcher 99	Researcher 100

[illegible]

Category Innovation Ambition

Supplementary material to:

Chapter 04 | Findings

4.2 Personal Factors

Whether employees are willing to engage in a creative activity, such as improving, innovating or experimenting, is considered one's "innovation ambition". This research has identified three factors that directly and on an individual level affect this innovation ambition. The overview can be found in Table 3.



Figure 13. A PEPP-specific Theoretical Framework for based on the findings from the Empirical Research

The three factors are:

- Attitude is an employee's resistance to change and his/her open-mindedness towards newness
- Creative self-efficacy is an employee's belief about his/her self-capacity in terms of essential knowledge, skills, and ability, to produce creative outcomes.
- Intrinsic motivation is an employee's pleasure received from being involved in a creative task, serving as a type of reward.

Personal factor: Attitude

Attitude is the first factor that influences an employee's innovation ambition. An employee's attitude towards change and newness is reflected in whether he/she is able to step outside his/her comfort zone, try new things, seek challenges or whether this is feared.

PEPP consists of a spectrum of attitudes, with a large majority of the employees being reserved about change and find it both "scary" and "uncertain".

Many employees have worked for PEPP for over 10 years, and are loyal and passionate to the product and service they sell. They have "Yellow Blood" and will only change when asked for by CAT. Also, many believe that change equals additional time, and with already filled with overwork, their first response is negative.

A small noticeable group of employees explicitly showcases a strong attitude against change. This negative attitude is driven by past experience and resulted in frustration from being ignored or not rewarded for responding to opportunities in the past. This behaviour is called learned helplessness and is

"Veel werknemers vinden iets nieuws "eng" en zien het daarom als "onzin"

"Veel mensen zijn gepassioneerd voor het product en willen graag hieraan vasthouden"

"Verandering betekent extra tijd en deze hebben we niet"

the result of external forces over time reducing an employee's initiative to respond to opportunities (Hassei et al., 2014).

"Maar we doen dit al 20 jaar zo. We zeggen en denken dat het allemaal op de oude manier gaat"

"Ik heb al meerdere keren iets aangedragen waar niks mee is gebeurd. Ik ben er daarom een beetje klaar mee"

"Doordat management in het verleden niet naar werknemers heeft geluisterd zijn veel werknemers moe"

A similar sized, less represented, group of employees are positive towards change and newness. Unfortunately, they experience the lack of support and like-mindedness from many of their colleagues and direct managers. A group of has reached out to Area 52 and are part of the community "De Movement". Other employees have not been identified by Area 52 and stay under the surface. All community members feel their attitude is appreciated, and encouraged by other members and

"Wanneer iemand iets nieuws wilt proberen wordt er meteen gezegd: "Dit hebben we al geprobeerd en werkt toch niet"

"Werknemers willen wel, maar zijn sceptisch dat er toch niks met hun input gedaan wordt"

Area 52. Unfortunately, employees who have a positive attitude feel little supported by peers, their managers, MT and MD.

"Ik zie dat het anders kan en dat we anders moeten om te blijven overleven en inspelen op kansen"

"Ik probeer ondanks de werkdruk mijzelf te verbeteren en dingen anders te doen en collega's hierin uit te dagen"

"Als we echt willen innoveren moeten we dat ook uitdragen en hier de resources en ruimte voor vrij maken. Op dit moment gebeurt dat niet. We hebben veel praatjes, maar als het puntje bij paaltje komt."

To conclude, most employees experience a some-what to extreme negative attitude towards change and thus innovation. Employees with a positive attitude feel unsupported. PEPP and the OpCo's overall attitude towards change greatly affects employee's own attitude. For PEPP and OpCo's to shift towards a more positive attitude, top-down commitment, actions that support the company's pursuit for change and newness and empathy are required. For employee's innovation ambition to turn into innovation actions, employees with a positive attitude should feel supported. Also, learned helplessness by employees should be overcome by showcasing empathy and regain their trust and believe.

Winnovation ambition. High creative self-efficacy is when employees take initiative, are eager to face challenges, show courage, have a positive self-esteem and are assertive to pursuit innovation.

The way “innovation” and “creativity” is represented at PEPP is greatly rooted in the company’s DNA of being a dealership and not a producer or manufacturer. With the importing and selling of products, the creative process of creating such a product is unknown. In the minds of employees, “creativity” and “innovation” are considered outcomes and results rather than processes and even ways of working and thinking. Also, employees have the common perception that “innovation” and “creativity” is the ability to think and create new and disruptive ideas. This belief is fuelled by the sharing, showcasing and endorsing of only successful innovation projects done by an exclusive group of employees having an unconventional job. Due to this representation, “innovation” and “creativity” are activities employees do not relate to and/or consider applicable to themselves and in their own jobs.

Also, PEPP employees are specialists of a variety

“We representeren innoveren als iets groots en nieuws, terwijl het hem ook zit in de kleine dingen. Werknemers zien niet dat dit ook innoveren is en dat dit iets is wat ze zelf ook al doen.”

of disciplines such as (technical) engineering, programming, finance and marketing. The common belief is that the marketing department does “creative things” and is concerned about the customer experience and market research. As a result, employees from other departments believe they do not hold the right skills, knowledge or tasks to be creative as well, and as a result are not involved in many creative activities.

In addition to employee’s own insecurity, a negative

“Dat [creatief zijn] is geen onderdeel van mijn baan en dagelijkse werkzaamheden en ben ik ook niet voor aangenomen.”

“Ik heb geen taken waarin ik wordt verwacht na te denken over nieuwe ideeën of manieren hoe we het anders kunnen doen.”

environment and high peer-pressure fuels this insecurity. Most employees have faced or seen judgment, disapproval and discouragement on creative outbursts and input from their peers as well as their manager. In contrast, employees showcasing a high creative confidence all mentioned the importance and experience of a supportive environment greatly derived by the trust, and empowerment provided by their manager.

“Mijn manager geeft mij dat vertrouwen waardoor je je empowered voelt en vleugeltjes krijgt om het zelf te doen.”

“Als iemand iets nieuws zegt of er iets nieuws wordt geïntroduceerd dan zijn mensen vaak sceptisch.”

To conclude, for employees to feel confident to be creative the condition of a supportive environment by managers and peers is required. For employees to become aware of what creativity can mean in their own work and for themselves, the spectrum and representation of “innovation” and “creative activities” need to be broadened. By showcasing examples of ideas, creative tasks and people, employees can relate to, employees are better able to relate and get inspired and aware of their own creative potential. In their trust and believe.

Personal factor: Intrinsic Motivation

Intrinsic motivation is another factor affecting an employee’s innovation ambition. Employees have different reasons and motivations for being involved in a creative task.

PEPP holds employees with a variety of different education backgrounds and levels. Despite the exceptions, employees with a higher education level both experience and witness how they differ in motivation to change and innovate compared to employees with a lower level of education. In specific, they depend more upon a higher purpose beyond executing their work, they hold a strong purpose for

“Sommige collega’s komen gewoon naar werk om te werken en geld te verdienen en gaan dan weer naar huis”

“Door bezig te zijn met verandering en innovatie ben ik mezelf aan het ontwikkelen. We doen daar binnen PEPP nog te weinig mee.”

personal growth, and are more purpose-driven. In addition, employees with a higher level of education seem to be more aware of and understanding the long-term impact of innovation. Also, they feel a higher

“Uiteindelijk blijven we maar een beetje hobbyen zonder dat er echt iets verandert, er tijd voor wordt gemaakt of het belangrijk wordt gevonden.”

urgency to change and consider it more crucial. Lastly, employees who are intrinsically motivated share the believe that a certain impact can be made and desire to be part of creating this impact. Unfortunately, most of them have a prior experience(s) of being motivated to try something resulting in overtime or scarified leisure time without any ripple effect. Therefore, many of them require some kind of certainty, confirmation, commitment or trust from decision-makers to realize

“Sommige collega’s zijn niet bezig met de lange-termijn. Er moet concreet worden verteld wat verandering op korte-termijn voor hun betekent.”

impact before acting upon this internal drive. To conclude, there is a variety of motivations for employees to engage in innovative activities. Employees who are driven by a higher purpose beyond their work, ambition personal growth, or understand and believe in the long-term impact of innovation are witnessed to be intrinsically-driven. This group of employees is encouraged by the believe that a certain impact can be made. Unfortunately, past experiences have made employees reserved in responding on their intrinsic motivation, and requiring external motivation in the form of approval, commitment and trust.

Innovation Ambition			
Construct	Attitude	Creative Confidence	Intrinsic motivation
Defintion	An employee's resistance to change and his/her open-mindedness towards newness	An employee's belief about his or her self-capacity in terms of essential knowledge, skills, and ability, to produce creative outcomes	An employee's pleasure received from being involved in a creative task, serving as a type of reward
Proof quote	<i>“Het is een uitdaging om te zorgen dat werknemers innoWvatie niet gaan zien als onzin”</i>	<i>“Werknemers weten vaak niet dat en hoe ze creatief kunnen zijn binnen hun huidige werkzaamheden”</i>	<i>“Veel [werknemers] komen naar werk met de reden voor inkomen en weinig hebben een hoger doel”</i>
Link to extant Literature	This construct relates to the concepts of personal-ity (Hassi et al, 2014), is affected by the concept of learned helplessness (Hassi et al, 2014), is one of the elements of a learning orientation of a company (Calantone et al, 2002).	This construct relates to the concepts of self-image and self-confidence (DiLiello, 2006). Also, is affected by both personal and contextual factors such as the innovation climate (Jaiswal, 2015). The construct is considered both a mediating role between transformational leadership and an antecedent of employee creativity (Gong et al., 2009; Wang et al., 2013; Mittal and Dhar, 2015; Shalley et al, 2004)	This construct is considered a driver and reward for self-leadership (Manz and Neck, 2004). Also, supervisory support is important (Ford, 1999).
Differentiation from Literature	The existing literature focuses on attitude as a personality trait excluding external factors such as tenure length, direct management support, and company's attitude towards change and newness.	The existing literature has not addressed how one's creative self-efficiency is determined by the definition of oneself and the company on “creativity”. To add to contextual factors both trust (or pressure) from managers and direct peers have been identified.	The existing literature remains undescriptive about what intrinsically motivates employees. Three drivers have been identified as having a sense of (shared) purpose, feeling a sense of urgency for change and newness, and expecting a certain impact to be made and aiming to be involved in creating this.
Specific for PEPP	Overall, PEPP employees have a negative attitude towards change. This attitude is rooted in many employees with long tenure length at the company experiencing learned helplessness and frustration. Also, many employees are loyal to CAT and respond to change only if required by CAT. Although a group of employees has a positive attitude, this negative attitude is overruling and shown through fear, scepticism and judgement. The small group of employees who have a positive attitude feel unsupported by peers and management.	Unique for PEPP is how “innovation” and “creativity” are defined as this ability to create new and disruptive ideas and solutions. With many employees being specialists without creative backgrounds, “innovation” and “creativity” is considered exclusive and not applicable to them. Many of the employees believe or feel insecure that they do not have the right skills, knowledge and abilities to be creative and therefore do not dare or are interested. This insecurity is worsened by the negative environment of peer-pressure, judgement and lack of support. Others are curious and are interested to learn more about this!	PEPP holds a variety of employees with different disciplines and education backgrounds. Employees' education level greatly determines on whether they are intrinsically motivate to change, due to the purpose they have, the urgency the feel, the long-term impact they see, and/or the pursuit for personal growth. While (due to prior unsuccessful attempts) intrinsically employees require confirmation of decision-makers to act upon their internal drive, many employees at PEPP require a different management approach and/or external stimuli.

Table 3. The constructs of the Innovation Ambition

Category Innovation Capabilities

Supplementary material to:

Chapter 04 | Findings
4.2 Personal Factors

If Innovation Ambition is present within an employee, the ability to act upon this ambition is facilitated by his/her innovation capabilities. An employee's innovation capabilities are all the skills, knowledge, and mindset as well as know-how, ability to use tooling and experience that enables him/her to engage in Innovative Behaviour. This research has identified three factors that indirectly and on an individual level affect an employee's innovation capabilities. The overview can be found in Table 4.



Figure 13. A PEPP-specific Theoretical Framework for based on the findings from the Empirical Research

- The three factors are:
- The creative mindset is an employee's ability to engage in the activities of critical-, customer-, and explorative thinking as well as having an open and external-oriented mindset.
 - The Know-How & Practise is an employee's understanding of the innovation process, his/her ability to act in an innovative way by having practical skills and his/her ability to make use of creative tools and methodologies.
 - Innovative self-leadership is an employee's ability to engage in activities of risk-taking, entrepreneurship and autonomy, comfortable dealing with uncertainty, and seeking opportunities.

Personal factor: Creative Mindset
The creative mindset is one of the factors that influences an employee's innovation capabilities. Employees who hold a creative mindset are able to and engage in activities of critical, customer-centric, external and explorative thinking.

From origin, the PEPP business group and the OpCo's is a dealership. This means that OpCo's play a middlemen between their OEM and the customer. For this role, required expertise within the company was considered either a sales or technical background. Most employees within the OpCo's have therefore specialized roles in their sales, marketing or ,on the other hand, engineering and technology. As a result of this, most employees do not consider a creative mindset necessary in their function.

The organisation's representation confirms employees belief that creativity is not something done by everyone.

"Bij Marketing daar zijn ze creatief."

"Mijn rol als Product Owner is eigenlijk een beetje een vreemde eend in de bijt. Veel werknemers hebben gewoon traditionele functies van sales of engineers. Mijn rol laat het eigenlijk als enige in de organisatie toe om bezig te zijn met iets nieuws en dingen bedenken".

Currently, creative within PEPP is presented as outcomes of products and disruptive ideas rather than a way of working or thinking. This narrow definition of creativity is rooted in PEPP not having expertise in production or creative activities by itself.

"We leggen de nadruk op creativiteit als resultaten en vette ideeën. Er wordt weinig gesproken dat creatief zijn een manier van denken is"

All though PEPP's message is that every employee can be creative within their work, their functions show otherwise. Most, if not all, tasks employees execute do not require creative, critical, explorative or customer-centric thinking. This fixedness of tasks prevent employees from engaging in and developing a creative mindset. Questions and thus thinking on what

"Er wordt van mij niet gevraagd om te bedenken hoe dingen anders of beter kunnen"

"Er is geen mentale headspace om na te denken"

"We zijn alleen maar bezig met brandjes blussen en denken niet na over brandpreventie"

can be improved, how to better served the customer experience, how to do things different, and how to learn from other departments, OpCo's and companies are rarely asked by employees themselves and their managers.

In addition, customer-centric thinking is greatly influenced by employees' functions and the structure of the organisation. Currently, sales representatives, key account managers, and engineers, are the only customer touchpoints. Sales representatives are reserved and often unwilling to allow other employees to talk to their long-developed personal customer relationships. Thus most employees do not interact with the customer directly or during their work. As a result, a large group of the organisation is internal-focused, not considering a customer-perspective during their work activities. Most customer interactions are driven by a sales motive or potential to sell.

"We denken dat we de klant wel kennen en maken dus beslissingen voor hem/haar."

"We zijn druk bezig met elkaar terwijl we druk bezig zouden moeten zijn met de klant"

"Niemand durft de klant echt te vragen. Ten eerste is sales heel beschermend over hun klanten dat het haast onmogelijk is om deze te spreken. Daarnaast, weten we ook niet echt hoe we de klant vragen moeten stellen, en proberen we automatisch iets te verkopen. Je merkt aan alle kanten dat we echt een sales-organisatie zijn. Maar betekent dat we dus weten wie de klant is en wat hij wil? Zeker niet."

Despite the fixed tasks and specialized functions, a small group of employees within the organisation have developed a creative mindset. This group of employees include: (old) trainees, DIP (in a Day) participants, and Problem owners. The function Problem owner has been introduced over the last year to manage new innovation projects and entails a small group of around 5 employees. Participants from the DIP (in Day) program have emphasized how the program helped or further developed this creative mindset. Unfortunately, this program is currently limited to managers and chosen employees and is considered a high threshold to participate in.

This small group of employees encounter frustrations during their work, as they believe most colleagues are only internal-oriented, don't think from a customer-perspective and are close-minded.

To conclude, only a small group of employees has currently developed this creative mindset. For the rest of this organisation the creative mindset is unfamiliar and considered irrelevant for their function and tasks. Both existing functions and task descriptions suppress and prevent employees from developing as well as apply creative thinking.

Personal factor: Know-How & Practise

The Know-How & Practise is another factor that influences an employee's innovation capabilities. Employees with know-how & practise have an understanding on how to behave in an innovative way and have gained skills through practise.

Within the organisation knowledge on and application of existing methodologies, such as Design Thinking, Scrum, Design Sprints, and processes such as an innovation funnel, is low. The skills and methodologies on New Product Development were considered unnecessary in the role as dealership. All though the emphasis on internal innovation, employees are not provided with tooling and/or acquainted with existing tools like the Business Model Canvas and the Customer Journey. Also, techniques of brainstorming, ideation, prototyping, and experimentation are unfamiliar and not facilitated.

Only employees who have participated in the full DIP program are equipped with know-how and have developed skills. The skills they identified as most necessary for all employees are: how to conduct a customer interview, how to become aware of your assumptions and the steps of the innovation process. Regarding knowledge, they believed understanding that failure is also a good result, the fact that 9/10 ideas fail and that there is a difference between what customers say and do. Despite being equipped, most DIP participants are only to apply their creative mindset and not skills during their work activities. This DIP program is currently the only way for employees to develop these skills and knowledge.

“De DIP training heeft mij veel geleerd over innovatie en verbetering. Hoe je het aanpakt en welke tooling je kan gebruiken. Het zou goed zijn als binnen de organisatie werknemers basiskennis hebben van het innovatieproces en de tooling die er is. Op dit moment is het DIP programma niet toegankelijk en een hoge drempel voor werknemers om aan mee te doen.”

Without any DIP experience, a small group of intrinsically motivated employees is determined to work on their idea. Without facilitation, tooling and know-how, they are using a trial-and-error approach wild-guessing their way through. To realise their ideas, most employees believe that they have to create and present a Business Case. Others, are pitching their idea to responsible managers discussing whether time and budget is available. In most cases, a planning-driven approach is taken, where ideas are talked about but not developed. The only supporting tooling provided is the opportunity to pitch their idea to top-management by Area 52, which is creating a high threshold for most.

As a consequence, employees spend time working on self-initiated ideas, with almost all of them never seeing the light or being stopped soon afterwards.

“Om een idee uit te werken heb ik een vriendin gevraagd hoe ik dit het beste kon aanpakken. Samen met haar heb ik een klantreis gemaakt. Nu weet ik hoe ik een klantreis moet maken.”

“Als jij er niet was, dan waren we met ons idee ergens in een hokje gaan zitten om het proberen te gaan uit te werken. Waarschijnlijk hadden we een oplossing gebouwd om te presenteren.”

“Als je een idee hebt wordt je verwacht een plan te hebben met een business case waarin je kan laten zien hoeveel het gaat kosten en hoeveel het gaat opleveren.”

“Er is nog nooit iemand bij mij [MD en Pon-board member] aan de deur gekomen om een miljoen te vragen.”

To conclude, only a small group of employees is equipped with know-how and experience in innovation. Within the organisation there is no knowledge and tooling in existing methodologies of Design Thinking and Lean. The only tooling available is the DIP training which is not accessible by all employees. As a result, employees work on self-initiated ideas through trial-and-error, wild-guessing, and planning, with little to no success.

Personal factor: Self-Leadership

Self-leadership is also a factor that affects an employee's innovation capabilities. Employees with innovative self-leadership are daring, opportunity-seeking, risk-taking and comfortable with taking initiative and decisions.

Within the existing structure of the organisation, fixed tasks are described with instructions and protocols, not requiring capabilities of employees in self-directing these tasks. With everyone's job on solving problems and responding to explicit customer needs, it's not in the organisation's DNA to look for opportunities. Nevertheless, when employees have an idea or suggestion, approval needs to be asked from their direct manager. Due to bureaucracy and many management layers, most decisions require approval of multiple layers. As a result, employees feel little autonomy to make decisions by themselves and pro-actively and independently act up ideas or suggestions they have.

“Veel Ideeën worden door directe managers beoordeeld en bepaald dat deze niet door gaan.”

“Om aan een idee te werken heb je altijd goedkeuring nodig van je manager.”

Despite this hurdles, a very small group of intrinsic motivated employees have an entrepreneurial drive to realize their ideas. Currently, this entrepreneurial activities are undertaken in their own time or overwork.

While on the other hand, a small group of employees experiences the autonomy to make decisions and take initiative. They are naturally conducting small experiments, and do not fear failing. In all cases, this self-leadership is supported, expected and encouraged by their direct manager”.

“Ik werk in mijn vrije tijd aan de technologie om het werkend te krijgen en te kijken wat we ermee kunnen.”

“We moeten dit gewoon gaan doen. Zo laten we zien dat het een goed idee is.”

“Mijn manager geeft mij dat vertrouwen waardoor je je empowered voelt en vleugeltjes krijgt om het zelf te doen.”

“Ik heb een safe space en een manager die mij het vertrouwen geeft om te falen. Hij zegt we moeten gewoon een keer gaan vieren als je een fout maakt. Hij is een sparringpartner en stimuleert experimenteren.”

Unfortunately, most employees do not showcase innovate self-leadership. With a culture of pointing fingers, few employees feel personal ownership and responsible. Also, it is believed and feared that entrepreneurial behaviour is not appreciated. This belief is confirmed by management not asking for and encouraging it and not have listened to suggestions by employees made in the past. As a consequence, most employees are reserved and are in the modus of wait-and-see. It is assumed by entrepreneurial employees, that is large group of employees has forgotten that they can behave self-directed and need to be activated.

“Ik denk dat het empowerment, dat kwam vorige week heel veel naar voren, mensen moeten ook het gevoel hebben dat ze het vertrouwen krijgen om dingen te proberen.”

To conclude, only a small group of employees feels the autonomy, management support, and room to act in an entrepreneurial way. For most employees, however, the feeling of autonomy is low. Due to decision-making by management, and little self-directed tasks, most employees feel personal ownership, responsibility and empowerment. In addition, employees belief that entrepreneurial behaviour is not appreciated due to experiences in the past, and the lack of management encouragement on this.

Innovation Capabilities			
Construct	Creative Mindset	Know-How & Practise	Innovative Self-Leadership
Defintion	An employee's ability to engage in the activities of critical-, customer-, and explorative thinking as well as having an open and external-oriented mindset.	An employee's understanding of the innovation process and his/her ability to act in an innovative way by having practical skills and ability to make use of creative tools and methodologies such as Design Thinking, Lean and Experimentation.	An employee's ability to engage in activities of risk-taking and autonomy while dealing with uncertainty, and seeking opportunities and be comfortable with autonomy as well as uncertainty.
Proof quote	<i>“Werknemers begrijpen het wel wat experimenteren inhoudt, maar ze kunnen niet nadenken of bedenken dat dat ook in hun werk heel handig zou kunnen zijn”</i>	<i>“To be honest, I can use it kind of for myself, but my colleagues around haven't DIP in a day. So they don't understand. They have absolutely zero idea about what I am talking. I have these very simple questions, like “Has anyone investigated what the customers really want, or asked or even just observed, experimented or exposed the customer for this”. They have absolutely no idea what I am talking about”</i>	<i>“I don't think employees understand that they can experiment. The general feeling would be that we can't spend time on this. We think this is a risky idea, most likely it will not work, so we don't spend time on it and I will not bother to each suggests it, because I won't get the money for it. I don't even think employees are daring to experiment”</i>
Link to extant Literature	This construct relates to the concepts of creative thinking (McFadzean, 1998), critical thinking (Gong et al., 2009), creative problem-solving as part of Design Thinking (Liedtka, 2018).	This construct relates to the concepts of technical skills and know-how (Hassi et al., 2014) and Design thinking (IDEO U, 2019).	This construct relates to the concepts of entrepreneurship and intrapreneurship (Antoncic, 2011), and self-leadership (Carmeli, 2006).
Differentiation from Literature	The existing literature has not merged multiple modes of thinking under an umbrella term while considering these thinking practises an overall mindset.	The existing literature has not highlighted the first core capabilities of being able to identify and formulate assumptions and understanding how to involve customers into the innovation processes.	In addition to the existing literature, the importance of feeling ownership has been briefly touched upon. In addition, the link to the creative mindset with the entrepreneurial has been noted. It shows how entrepreneurial behaviour does not only seek opportunities, but also hold the ability to convert problems into opportunities. Lastly, entrepreneurial activities hold a natural behaviour towards an experimental approach.
Specific for PEPP	In general, PEPP employees with specialized functions in sales or engineering do not consider a creative mindset as necessary in their function. This is confirmed by most of their tasks not require any form of creative thinking. In addition, customer-thinking is considered only relevant for customer-facing roles. As a result, the organisation is internal-oriented, and most employees have not developed nor required creative thinking. In contrast, a small group of employees has developed a creative mindset and uses this only a daily basis. In specific, the employees make use of critical, customer-centric and explorative thinking. Unfortunately, being a minority in the organisation, employees who have a creative mindset experience both resistance and frustration.	Overall, PEPP, being a dealer, has little knowledge in New Product Development and related methodologies such as Design Thinking and Lean. Due to this, no tooling, despite the DIP training, is provided. Unfortunately, this tooling is inaccessible and is experienced by employees as too high of a threshold. There is a gap between a small group of employees equipped with know-how and skills, and the rest of the organisation. Unfortunately, most DIP participants are unable to apply all knowledge and are limited to their creative mindset. Without any support, facilitation and knowledge, employees are still engaged in innovative behaviour. Their current approach is trial-and-error, resulting in low success rates.	PEPP's core business is the solving of acute problems and explicit customer pains. As a result, seeking opportunities is not in the organisation's DNA. Therefore, most tasks employees have are focused on executing, not requiring any creative thinking or self-directedness. When opportunities are identified, (top-)management approval is necessary. Most employees feel little autonomy to make decisions, take initiative and be responsible. In some cases, employees even belief entrepreneurial behaviour is not appreciated, as it is not asked for and encouraged. A small group of employees experiences autonomy and room to act entrepreneurial enabled by provided support from their manager.

Table 4. The constructs of the Innovation Ambition

Supplementary material to:

Chapter 04 | Findings

4.3 Contextual Conditions

The 6 personal factors are complemented by 9 contextual factors.

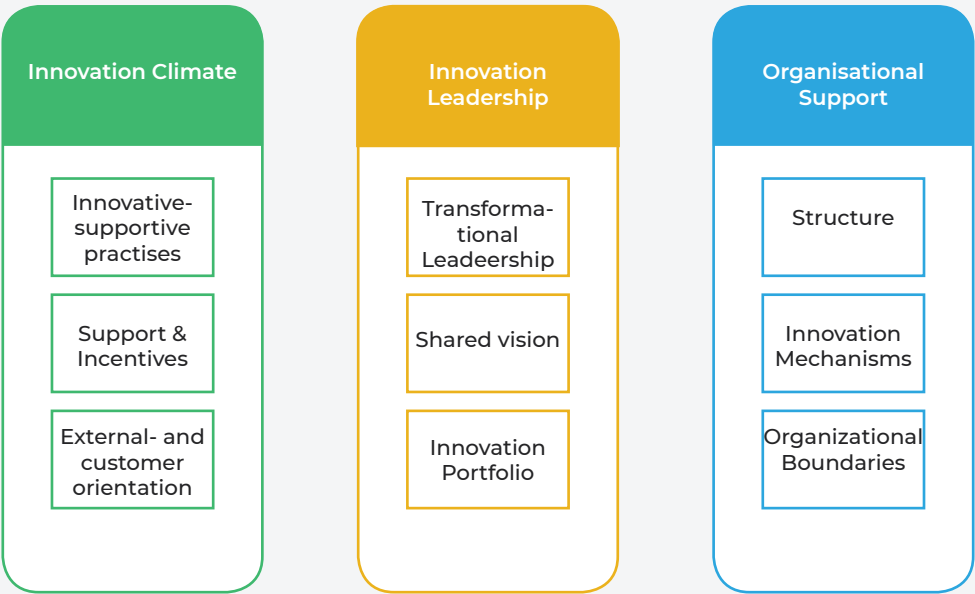


Figure 13. A PEPP-specific Theoretical Framework for based on the findings from the Empirical Research

Category Innovation-Supportive Climate

An innovation-supportive climate is the perception employees have on whether the organisation supports and encourages practises of risk-taking and creativity, whether there is a safe environment, and sufficient resources allocated (Jaiswal, 2015).

The cluster Innovation Climate consists of the constructs: innovation-supportive practises, support & incentives, and customer- and external-orientation. Despite the unique cultures OpCo's hold, the following factors have been identified to be shared among most OpCo's.

Contextual factor: Innovation-Supportive Practises
Innovation-supportive practises are how the organisation supports and encourages practises of risk-taking, opportunity-seeking, and entrepreneurship.

Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:

- The fear that they can't make mistakes or fail and their idea has to be successful
- That involving customers not for the sake of sales but discuss and test one's idea is not allowed
- That ideas that do not add value to short-term targets (e.g. saving costs) or involve high risks are not supported by supervisors and do not have resources available to spend on them
- That ideas should always be approved by supervisors or top management before time can be spend on them

Contextual factor: Support & Incentives
Support and incentives are the positive reinforcement and support employees perceive are in place to facilitate innovative behaviour.

Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:

- The peer pressure and criticism, cynicism and discourage they have to deal with
- The discouragement, ignorance, or lack of support from supervisors and top management support to ask for, appreciate, or encourage working on self-initiated ideas and/or provide necessary resources, such as guidance, help, ambassadorship or active involvement.
- The lack of official resources allocated and available, such as time, tooling, and budget, available for resources to develop skills in innovation or develop self-initiated ideas.
- The recognition of innovative behaviour and adequate rewards for investing personal time and taking risks

Contextual factor: External- & Customer Orientation
An external and customer centric orientation displays how the organisation focuses beyond their internal operation and has knowledge about changes in the environment, competitors and customer demands.

Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:

- The lack of priority to enhance the customer experience beyond internal sales and productivity
- The focus on ad hoc work and solving explicit customer needs
- The focus on fire-fighting and overwork preventing employees to work on ideas that prevent customer problems or not involve explicit customer need impossible or hard to prioritize and spend time on
- The little knowledge the organisation has on existing customers as well as market, competitor and customer developments and trends
- Approval, support from or collaboration with the OEM for successful development of ideas
- The priority on sales despite services offering more opportunities and freedom for innovation

Category Innovation Leadership

Innovation leadership is the way the leaders of the organisational establish an innovation climate that empowers their followers and provides sufficient support for innovation (Jung et al., 2003). The delegated business model requires leadership on many levels of the organisation, such as Pon Advisory board, Pon executive board, PEPP executive board, MD, Management Team and middle management layer.

Contextual factor: Transformational Leadership
Transformational leadership is a leader's ability to create an innovation climate, inspire employees by motivating them to learn and develop new ways of doing things and mobilize the necessary contextual resources to enable creative behaviour (Jung et al., 2003; Gupta et al., 2012; Jaiswal, 2015).

- Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:
- The missing of a vision and long-term goals and communication of this by the management team
 - The lack of responsibility of top management in creating an innovation-supportive climate by being a role model (e.g. celebrate failures, believing in innovation), and provide the necessary support (e.g. time for innovation).
 - The missing of focus that ensures activities are prioritized, innovation is prioritized, resources are allocated and not considered scare, and overtime is prevented, which is reflected in employee's daily activities

“Er is een visie opgesteld met het PEPP-board en alle Managing Directors. Zij hebben gezamenlijk een visie opgesteld voor 2022”

“We worden verwacht een toekomstvisie voor PEPP op te stellen vanuit bottom-up, want vanuit de top ontbreekt die”

“De mensen die aan het roer zijn, zijn geen natuurlijke visionairs”

Contextual factor: Shared Purpose & Vision
A shared vision and purpose is a vision that is shared among the PEPP group and is considered a North-Star for employees guiding their innovation behaviour. This shared vision is part of the organisation's collective ambition and the extent to which all employees share the same company goals and values (Kester et al., 2011).

- Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:
- The lack of communication of a compelling vision that makes employees aware about the ambitions of their organisation inspires them
 - The lack of clear innovation ambitions and targets that allow employees to be able to place their ideas in the “bigger picture” and see whether they fit

“We hebben altijd meegelift op de visie van CAT. We hebben geen visionair leiderschap”

“We worden verwacht te innoveren vanuit PEPP en CAT. Er ontbreekt vaak een gezamenlijke visie waarin iedereen zegt dat ze het relevant vinden”

“Weinig MD's hebben een lange-termijn visie. Ze zijn gefocust op het runnen van de operatie en laten zich leiden door CAT”

“We weten niet waar we als PEPP over 10 jaar willen staan.”

“Ook al heb ik een idee, dan weet ik niet of dit binnen de ambitie van mijn OpCo valt”

“Ik omschrijf de huidige visie als we moeten veranderen, anders wordt ons business model gekaapt.”

“Niemand draagt de visie en we worden niet geïnspireerd en aangezet tot nadenken over de toekomst”

“We worden verwacht van CAT en PEPP om te innoveren”

“Meewerken naar de toekomst is geen doel voor mensen. We zijn geen purpose-gedreven organisatie”

Contextual factor: A Balanced Innovation Portfolio
A balanced innovation portfolio is a New Product Development (NPD) portfolio of opportunities that is strategically aligned with the organisations' priorities, has defined areas of focus and respective targets and covers all three horizons of innovation in terms of innovation efforts with the required resource-allocation (Kester et al, 2011; Tuff and Nagji, 2012).

- Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:
- The lack of focus on any form of innovation, including incremental innovation
 - The overload of projects resulting in scarcity of resources
 - The lack prioritizes activities, including innovation,
 - The lack of resources allocated to innovation showing that it is not a priority and helping employees successfully develop their ideas, or at least spend time on them

“We zijn alleen gefocust op hoe we met de huidige bedrijven geld kunnen verdienen”

“Binnen PEPP vinden we alles belangrijk en zien we overal kansen. Omdat onze stip op de horizon niet scherp is heeft alles automatisch prioriteit 1.”

“We zijn alleen maar bezig met de brandjes blussen van vandaag”

“We zijn nog steeds afhankelijk van CAT. We struggen om los te komen van CAT en het lijkt wel of we zelfs een stapje terug doen. We doen er alles aan om CAT te pleasen”

“Vanuit Area 52 hebben we een innovatiestrategie, innovatie criteria, en domeinen opgesteld. Deze gebruiken we inderdaad alleen intern en zijn OpCos niet mee bekend”

“We kiezen vooral projecten met korte-termijn doelen en die snel resultaat leveren. We zijn gedreven door wzekeerheid”

“We praten over innovatie, maar bedoelen allemaal iets anders. Bijvoorbeeld onze directeur die noemt eigenlijk alles wat nieuw is voor PEPP innovatie.”

“We hebben zoveel thema's. Vanuit PEPP is het onduidelijk waarin we moeten gaan innoveren”

“We missen focus waarin we willen innoveren. We besteden overal een beetje aandacht en tijd”

“We focussen ons vooral op de grotere innovaties, de incrementele innovaties doen we niet.”

“Area 52 heeft heel veel bereikt. Toch snap ik niet helemaal dat ze op Horizon 3 focussen. Binnen de OpCos zitten we nog op Horizon 1 te spartelen en lukt het ons niet om op Horizon 2 te innoveren. Er is nog zoveel mogelijk binnen de OpCos zelf.”

“We hebben een jaaragenda met projecten”

“We leggen alle 200 ideeën op tafel en dan spreken we onze voorkeur uit”

Category Organisational Support

Organisational support is the organisational structure, processes and boundaries the organisation provides and holds in facilitating innovation (Hassi et al., 2014). Despite OpCo's being differ in size, profitability, and infrastructure, most findings have been identified to be shared among most OpCos. The cluster Organisational Support consists of the constructs:

Contextual factor: Supporting Structures

Supporting structures are the processes in place designed by the organisation to facilitate innovation.

Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:

- The standard of overtime resulting in innovative behaviour in overtime or free time
- The lack of flexibility in time and project-based work in employees' fixed schedules
- Working in silos that prevent cross-collaboration and knowledge-sharing necessary for most improvements and innovations
- The few customer touchpoints in sales or engineering that prevent customer insights or contact with the customer in most other jobs
- The missing of an innovation process, tooling, methods, practises, and facilitation

Contextual factor: Innovation Mechanisms

Innovation mechanisms are the way in which the organisation facilitates the innovative behaviour through mechanisms of rewarding and incentives, decision-making, resource-allocation, and innovation portfolio

management.

Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:

- The multiple layers of decision-making and decentralized structure makes it unclear for employees which stakeholders should be involved in the decision-making to develop a self-initiated idea and is requires approval from top management before time can be spend on the idea
- The lack of mechanisms for resource-allocation make it uncertain for employees the resources that are available to be spend on innovation
- The lack of mechanisms for rewards and incentives on innovation make any attempt in developing an idea a personal investment that will not be rewarded or recognized for which sometimes does not compensate the risks involved

Contextual factor: Organisational Boundaries

Organisational boundaries are the limitations the organisation face in facilitating and nurturing innovation.

Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:

- The dealership model that requires ideas involving Caterpillar to be aligned with the strategic priorities of Caterpillar as well
- The newness of innovation within the entire value chain of PEPP, including its OEM and customers, that requires employees to not only learn skills in innovation themselves but also take along their OEM and customers in the innovation process to

ensure the success of self-initiated ideas.

“We hebben geen innovatiedoelstellingen”

“Tijdens MT meetings wordt innovatie niet besproken. Het is geen vast agendapunt”

“Wanneer het einde van het jaar is of we moeten bezuinigen dan vallen innovatieprojecten het eerste af”

“Innoveren is voor ons hobbyen. We doen het in onze vrijetijd. Het is bijvangst.”

“Er is niemand verantwoordelijk gesteld voor het monitoren en aanjagen van innovatie”

“We hebben korte-termijn doelstellingen waardoor innovatie of lange-termijn projecten niet in worden Geïnvesteed”

“Vanuit ons huidig budget wordt weinig zelf geïnvesteed, voor budget gaan we naar Area 52”

“We worden maar verwacht te innoveren op Horizon 2, terwijl we net bezig zijn met incrementele innovatie en de low-hanging fruits”

“We hebben nog geen eigen innovatieproces. We liften mee op Area 52”

“Area 52 biedt leiderschap dat nodig is om na te denken over de toekomst en innovatie prioriteit en tijd te geven. Ik betwijfel of OpCos dit leiderschap zelf hebben”

“Area 52 laat snel los bij interne projecten, terwijl we iemand nodig hebben die het kan uitvoeren. We kunnen het niet alleen”.

“Innovatie en Ideeën worden alleen beoordeeld op financiële waarde en business cases. Mensen durven niet te pitchen”

“We zijn te afhankelijk van Area 52.”

“Om echt te innoveren, hebben we iemand van buiten af nodig die ons kan helpen.”

“Innovatie wordt stilgezet omdat deze basis niet goed is, zoals door een NAXT implementatie”.

“Uiteindelijk worden we beoordeeld op onze winstgevendheid en doelstellingen dus de operatie heeft altijd prioriteit”

Appendix K |

Target Group

Supplementary material to:

Chapter 05 | Design Brief

5.1 Final Problem Statement

5.1.5 The Final Target Group

In chapter 4 (paragraph 4.2.3 Target Group) the target group is described as employees who are characterized by (i) a high level of intrinsic motivation and (ii) work on self-initiated ideas on Horizon 1, 2, and 3. This target group is selected because they (ii) require minimal conditions to exhibit innovative behavior, and (ii) are the least influenced by contextual factors. From the problem analysis and final problem statement the characteristics of (iii) spending time on innovation as a personal investment and (iv) experiencing the pain points of risks and a lack of compensating rewards and recognition are added to the list of characteristics.

Every OpCo holds a small group of employees that fit within the target group and are either already working on self-initiated ideas or have ideas in mind. These employees are active in a variety of functions and layers of the organization, from the operation to the top management-layer. Hence, in the realm of a bottom-up approach, this thesis focuses on employees in all functions from the operational level only. Additionally, this target group is considered (i) most approachable (e.g. members of the “De Movement”), (ii) experience the above-mentioned pain points, and (iii) are considered most open and available to test and co-create the final design.

Other potential employee groups will be out of the scope for the solution. These are:

- Employees who have in the past reported an idea or suggestion, and have not received any feedback on this. This group of employees is experiencing “learned helplessness”, left feeling frustrated and sceptical. Besides a solution, this group of employees will require an apology/explanation of why their idea has not been used. Also, they will require management’s empathy to regain their trust in acting upon their ideas in the future.
- Employees who currently have a negative attitude towards improvement and innovation. In most cases, this group of employees is scared of innovation and lacks understanding and motivation on why they can and should spend time on this. Besides a solution, this group of employees will require a purpose, a framework, and clear expectations provided by management.

Solution Directions

Supplementary material to:

- Chapter 05 | Design Brief
- 5.2 Possible Design Directions
- 5.2.1 Design Direction 1
- 5.2 Possible Design Directions
- 5.2.2 Design Direction 2

Design Direction 1: Decrease the Risks

The first design direction explores how the risks faced by employees can be either reduced or even eliminated. The risks encountered by the target group can be categorized in two types of risks, namely A. the risk of one's ability to meet the requirements of existing tasks, while spending time on innovation and B. the chance of success in realizing innovation ideas. Therefore, to lower the risks, potential solution solutions can either ensure employees that time can be spent on innovation not having consequences on their existing tasks and career (A) or higher the chance of success of ideas when employees work on them (B).

1 | Decrease the risks

Lowering the risks employees encounter when spending personal time on innovation

Solution 1A

Time to Innovate

Solution 1B

A Higher Success Rate

2 | Higher the rewards

Rewarding employees for spending personal time on innovation

Solution 2A

Compensating Rewards

Solution 2B

Motivational Boosters

Figure 17. An Overview of the Design Directions

Solution Direction 1.A: Time to innovate

This solution direction will explore ways how employees can spend time on innovation without experiencing or fearing the negative consequences it might have on their assigned tasks and career. The solution will be innovation time that can be utilized by the employee as part of his or her daily work.

Three examples of this solution are:

- Offering employees who have an idea or suggestion to spend a fixed amount of time during their work time on exploring this.
- Offering all employees a fixed amount of time that can be spend on innovation and improvement on a weekly/monthly basis
- Building a balanced innovation portfolio as management with determined time and resources allocated to running the daily business, operational excellence and innovation and make this reflected in specific or all employees' day-to-day schedule

Solution Direction 1.B: A higher success rate

This solution direction will explore how to increase the success rate of ideas and pet projects employees are working on. This solution will be necessary resources that can be utilized by the employee to guide him/her through the process of innovation.

Two examples of this solution are:

- Offering employees a bootcamp training in which they learn-by-doing and are facilitated to work on their idea
- Offering employees an instrument or tool in the form of a standardized process/framework they can apply to help them work on their idea

Design Direction 2: Increase the Rewards

The second design direction looks into how the lack of rewards to compensate for the risks employees take can be resolved. The type of rewards can fall into two categories of solutions, namely A. Rewards that stimulate employees who already work on an idea to continue and B. Rewards that stimulate employees to start engaging in improvement and innovation activities.

Solution Direction 2.A: Compensating Rewards

This solution direction will explore how to make employees feel rewarded for spending time on their idea, or at least being compensated for taking risks. This solution will be ways to provide employees with the right appraisal and recognition for acting upon their intrinsic motivation.

Three examples of this solution are:

- Making time spend on ideas and pet projects part of employee's personal assessment
- To praise employees who have attempted to innovate by positively putting them on a stage, showing how others can learn from them as "innovation champions"
- Offering employees official certificates and awards to showcase their expertise in innovationidea
- Offering employees an instrument or tool in the form of a standardized process/framework they can apply to help them work on their idea

Solution Direction 2.B: Motivational Boosters

This solution direction will explore how to inspire and encourage employees to start engaging in innovation activities. This solution will be ways to provide employees with the right incentives to become involved in

innovation and improvement.

Five examples of this solution are:

- Making innovation efforts part of employee's personal targets
- Making bonuses depended upon all employee's innovation efforts
- Offering individual/department prizes and gifts for spending time on innovation
- Reward managers when allowing employees time to spend on innovation
- Making innovation efforts part of the organisation's KPIs and targets

Supplementary material to:

Chapter 05 | Design Brief

5.3 Final Design Direction

5.3.2 The First Step of the Roadmap

The solution area entails two potential design directions subdivided in four potential solution directions. To make a decision on which solution direction to continue, each direction will be evaluated upon its Pros and Cons. In addition, the negative effect and impact if not selected will be also elaborated upon.

Solution Direction 1.A: Time to Innovate

The Pros

The first solution direction has two positive aspects. First of all, employees can now spend sufficient time in a structural way on innovation. As a potential result, due to this additional time the ideas and suggestions employees have can be further elaborated upon. Also, by dedicating resources on innovation, the organisations show commitment that innovation is considered important. As a potential result, employees' feeling that time can not be spent on innovation will either reduce or even slip away.

The Cons

On the other side, four negative aspects have been identified. First of all, within the existing structure and schedules it is impossible to free up time. Secondly, this direction will require a longer time period, as it will require a reorganisation of schedules as well as activities the entire company prioritizes. Also, this direction will require buy-in from management to realize this solution, which is out of the scope and influence of this graduation project. Lastly, by providing employees time to innovate, there will be no influence on their success rate of innovating.

The Negative Impact if not chosen

In addition to the pros and cons, this solution has a negative effect when not being selected. Without structured time available for innovation, most ideas will remain pet projects, fiddling around for long periods of time, without impact being made.

Solution Direction 1.2: A Higher Success Rate

The Pros

The second solution direction has six positive aspects. First of all, by providing tooling, employees can learn how to utilize their personal time spent on innovation in a more effective and successful way through experimentation. As a potential result, the success rate of the small group of employees working on ideas will increase. Secondly, based on the findings from the Empirical Research, it can be concluded the current trial-and-error approach from employees provides many opportunities for simple suggestions that already higher the chances of successful innovation. The following situations frequently occur:

- Currently, employees believe this first step is speaking to those who are responsible and asking for either FTE or budget. They are unaware of the possibility to work in a smart and simple way on an idea without requiring any resources.
- Currently, employees' automatic pilot (and their job) is to build solutions. Most employees find it difficult and forget to spend adequate time understanding the problem or opportunity they are building a solution for.
- Currently, most ideas are focused on optimizing the business. All though important, they forget to define and determine how their idea adds value to the customer and generates business in the end.
- Currently, employees work on ideas of which they are not aware that other colleagues, departments and OpCo's are working or have worked on them as well. They are sometimes reinventing the wheel.
- Currently, any idea can be worked upon as its

relevance, priority and value is underdetermined. Employees are working on ideas without knowing whether this idea is relevant for the business and whether it is considered a priority to spend time and energy on.

Another positive aspect is that by increasing the success rate of ideas and pet projects, results come out. As a potential consequence, the employee's environment, including fellow colleagues and management, will also become aware of the results achieved with innovation. With PEPP being a result-driven organisation these small successes can trigger the buy-in and management support needed, potentially creating a snowball-effect. Furthermore, this solution direction builds on the knowledge, interest and time made available by Area 52 to already spend on creating tooling. In addition, it builds on the knowledge and training already provided by Pon, such as Digital Impact Program (DIP), DIP in a Day and the Winterlabs. Lastly, this solution has the potential to be designed, tested and improved during the timeframe of this graduation.

The Cons

On the other side, this solution direction holds two negative aspects. First of all, the tooling should be embedded in the current tight and inflexible schedules and infrastructure of the employees and the organisation. Secondly, its utilization will depend upon the acceptance of employees. This means the tooling should be low in threshold, effort and time.

The Negative Impact if not chosen

In addition to the pros and cons, this solution has a negative effect when not being selected. An assumption is that the employees, who are currently investing their personal time in innovation, are either discouraged, stopped or scared due to the low success rate. The

Solution Direction 2.A: Compensating Rewards

The Pros

The third solution direction has one positive aspect. By offering compensating rewards, employees who are already investing their personal time in an idea, are encouraged to prolong this and continue investing time in the future.

The Cons

Unfortunately, this solution direction holds 3 negative aspects. First of all, the targeted employees are not driven by external motivation and rewards. Therefore, it is doubtful whether the rewards will affect them. In addition, also this solution direction will require a longer time period, as it will require a reorganisation of the system of rewarding as well as setting targets and KPI's. This will not only redefine the targets of employees, but also the targets and KPIs the organisation is assessed upon. Lastly, by providing employees compensating rewards, there will be no influence on their success rate of innovating.

The Negative Impact if not chosen

In addition to the pros and cons, this solution has a negative effect when not being selected. An assumption is that when employees continue without being compensated they either will be demotivated or eventually stop responding to opportunities and ideas in the future.

Solution Direction 2.B: Motivational Boosters

The Pros

The fourth solution direction also has one positive aspect. In regard to the small group of employees currently innovating, by introducing rewards, more employees might be triggered to spend their personal time on innovation. As a potential result, the pool of employees innovating will expand.

The Cons

Unfortunately, this solution also holds a very strong negative aspect. All though rewarding, will expand the pool of employees innovating, it will not influence the success rate of it. As a potential consequence, more employees will be innovating while facing the high risks, the low chance of success and the lack of compensating rewards, that then needs to be resolved. In the current situation, the organisation can focus on this select small group of employees who already take the initiative and learn from them before scaling up the pool of innovative employees.

Appendix N |

Development MPV Tooling

Supplementary material to:

Chapter 06 | Final Design

6.1 The Final Concept

6.1.2 Development of the Final
Concept



Figure 19. The MVP Tooling Concepts

In Chapter 5 the solution direction 1B was chosen as the first step in the roadmap towards bottom-up innovation within an operating business. This solution direction entails the development of a tooling to higher the success rate of self-initiated ideas from employees.

This development process is driven by the question: “How to design a minimum tooling that can be provided by the organisation that upskills and equips employees with necessary innovation expertise, while simultaneously higher the success rate of the self-initiated ideas?”.

The following questions will be answered:

- In which form is the MVP Tool effective and can it be provided by the organisation?
- What are the requirements and conditions under which the MVP Tool works?
- In what form can the MVP tool be integrated in the innovation process?
- What doesn't work or should be further researched about the MVP tool?

The Experimentation Approach

Regarding this project's topic of making employees apply an experimentation approach, the development process will be based on the principles of experimentation and the Lean-Startup Build-Measure-Learn-Loop. During the Develop Phase, a first concept of the MVP tooling was built, measured, and learned to provide input for the next MVP tooling concept. Based on testing with employees, the MVP tooling is adopted and improved.

The Context

The MVP tooling has been developed within the context of the OpCo PENL. This OpCo has been chosen as a case study, since both the MVP tooling and the innovation process are developed. This innovation consists of four stages: inspire, collect, prioritize and execute. The MVP tooling has provided design input for the execution phase. On the other hand, the innovation processes addressing conditions (such as time, people, management support) necessary for the successful application and implementation for the MVP tooling. Despite the OpCo PENL as pilot, the MVP tooling is designed generically to fit all OpCos within PEPP.

The Evolution of the MVP Tooling

During the Develop Phase, a total of 6 concepts for the MVP tooling have been developed. The first concept, the “project” was used to create a standardized experimentation process tailor-made to the context of OpCo's within PEPP. In addition, the concept “project” was also used to determine the requirements and conditions of the MVP tooling. The second concept was the standardized experimentation process as a canvas. The third was a Lunch & Learn. Based on learnings of both concepts, a mini-training and workbook were developed on how to utilize the standardized experimentation framework. In the end, a concept was designed to explore the structural time slots for training and work sessions.

Concept	Number of Participants
Project	2
Lunch & Learn	30
Canvas	1
Mini-training session	8
Workbook	8
	45

Table 5. Conducted experiments with employees

Appendix O |

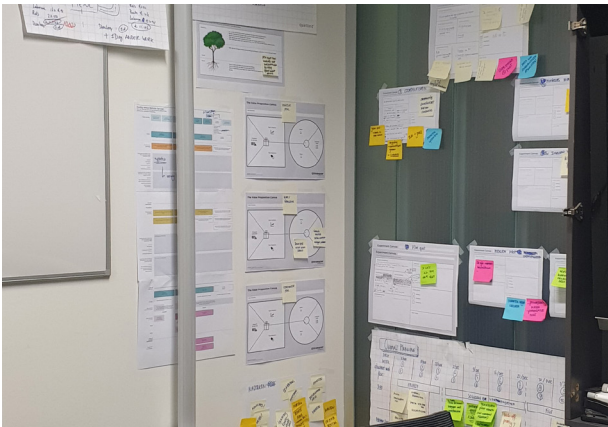
MPV Tooling Concepts

Supplementary material to:

Chapter 06 | Final Design

6.1 The Final Concept

6.1.2 Development of the Final Concept



Experiment Canvas

This tool will help you set up an experiment to validate

<div><div>RISKEST ASSUMPTION</div><div>Wat is ons leedst? Welke aanname moeten we testen?</div></div>	<div><div>RESULTS</div><div>Experimentatie data / Validatie data. Is meest belangrijke section</div></div>
<div><div>FALSIFIABLE HYPOTHESIS</div><div>Wij geloven dat (meetbaar resultaat)</div><div>wordt bevestigd door (meetbare actie)</div><div> binnen 2(dag)en</div></div> <div><div>SUCCESS METRICS</div><div>Het experiment is meetbaar door</div><div> Het experiment is een succes wanneer</div></div>	<div><div>CONCLUSION</div><div><input type="checkbox"/> Validated <input type="checkbox"/> Invalidated <input type="checkbox"/> Inconclusive</div></div>
<div><div>EXPERIMENT SETUP</div><div>Experimentatie data / Validatie data. Wat? Waar? Wanneer?</div></div>	<div><div>NEXT STEPS</div></div>

MVP Tooling Concept 1: Project

Description and Concept Objective

The project is the case study Remote Assistance in which experimentation was used as an approach. The goal of this project is to find a way of working/ framework/approach to experiment within the operating business and set up a pilot solution.

Design Set-up

During this project, two employees were guided by a facilitator (the graduate intern) during a time period of 10 weeks with two hours per week as work sessions. The facilitator provided the structure and activities for each work session.

Test Outcomes

The final outcome of the project is a standardized experimentation process. This process is tailored to the context of operating businesses of the business group PEPP applicable to be used by employees. The process consists of three phases, which are opportunity, solution, and implementation. For the development of a MVP tooling, this process will be the basis. During the development phase, a fitting design of the MVP tooling will be experimented with.

Learnings

From the project the learnings for what employees require in order to experiment are derived. This is done through observations and team reflections. Based on these insights, 6 requirements were identified, which are tooling, process, knowledge, structure, resources

and support. These requirements are input for the development of the MVP tooling.

Conditions MVP Tooling

In addition to the requirements for the MVP tooling, the following learnings about improvement, innovation, and experimentation should be taken into account. First of all, improvement and innovation is not a priority within the operating business. Since both are not acute problems or customer pains, it will require discipline and commitment to make it a priority. On the other side, due to the solving of acute, unplanned, problems and customer pains, innovation is difficult to organise and structure. All though innovation activities have been scheduled, some problems and customer pains remain priority number 1. Furthermore, improvement and innovation often cover multiple departments. Regarding experimentation, it should be considered that within the business of PEPP sample sizes are low, A/B testing is not always possible and the existing data quality is low. Also, sometimes results are unable to be quantified.

List of Requirements MVP Tooling

Tools

Employees require tooling to apply when working on an idea. This tooling can range from a framework to a canvas and should be understandable, intuitive, and considered easy to fill-in. For the project members, the final standardized experimentation framework is an intuitive guideline of what an improvement and innovation process looks like. On the other hand, the experimentation canvas has been called complex and difficult to use by oneself.

Process

Employees require a process to understand what steps are required when improving and experimenting. The three stages of the standardized experimentation framework – opportunity, solution, and implementation, has provided the project members the necessary understanding of the process. For employees to be guided by the process, time indications as well as a checklist before going to the next steps should be included.

Knowledge

Employees require knowledge on Design Thinking and Customer-Centric Thinking. The project members require practical guidelines that provides them with the necessary knowledge, including: how to formulate assumptions, how to define the size of an opportunity, what is the innovation process, how to design a solution meeting the technical, customer, and business aspects, how to identify pains and gains for customers, how to determine the customer, how to conduct a customer interview, how to set up an experiment, why to set up an experiment, determine the idea's strategic fit, impact and effort etc.

Structure

Employees require a structure to work in a project-based manner. This structure entails having fixed moments and time allocated to working on an idea. This structure should become a rhythm that fits within the existing schedule of the employee. The frequency and time to spend are important, as it determines the speed of a project. Also, time should be scheduled for homework, execution as well as time should be planned to transition the mindset of employees from working on their daily activities to working on innovation activities.

Resources

Employees require resources necessary to work on an idea they have. For most, this resources will include time in their daily schedule allocated. In addition, this can mean resources in terms of budget and network. Also, when ideas involve other colleagues, resources should be allocated to them as well.

Support

Employees require support to be able to successfully work on their idea. This support can be provided by management through commitment, allocation of resources and recognition and help. Only through commitment of management, employees are able to make working on their idea a priority. In addition, to work according to a process, they require the facilitation of an expert. Also, when executing experiments and solutions, the buy-in and support from involved colleagues are required.



MVP Tooling Concept 2: Lunch & Learn

Description and Concept Objective

The Lunch & Learn is a format to introduce employees to experimentation and teach them a standardized experimentation framework derived from the project Remote Assistance (see concept “Project” (6.2.1)). The goal of the Lunch & Learn is get employees acquainted with and interested in learning more about how they can apply this experimentation process for their own ideas.

Design Set-up

The Lunch & Learn was organised on the 12th of February from 12:00 – 13:00. The event consisted of two parts: presenting the project Remote Assistance and explaining the learnings about doing experimentation in an operating business.

Test Outcomes

Over 30 employees joined the Lunch & Learn, most of them interested in the project Remote Assistance. Unfortunately, the set-up of the presentation the focus was on the content of the project rather than on the process. Due to this most employees become little to not

acquainted with the experimentation process.

Learnings & Conditions MVP Tooling

Based on the concept of Lunch & Learn the following learnings derived: the format of Lunch & Learn is an inviting and accessible way for employees to learn something. Also, by inviting employees from different disciplines knowledge-sharing is enhanced. On the other side, the format of a Lunch & Learn does not provide employees with theory and opportunities to practise. Based on the feedback on the Lunch & Learn it became evident that there is not a clear definition of what “experimentation” means. For example, two employees consider an experiment when something is built and tested. Testing assumptions by setting up customer interviews is in their eyes considered “research”. This insight will be taken into account for the next concepts, to provide a definition of what an experiment is.



Positive aspects	Negative Aspects	Conditions MVP Tooling	Input next Concepts
Accessible, knowledge-sharing	No development of skills, no practise and theory	Definition of “experiment”, development of skills, practise & theory	Define what an “experiment” is, development of skills, provide theory and practise through an assignment

Table 6. Evaluation MVP Tooling Concept 2 Lunch & Learn

MVP Tooling Concept 3: Canvas

Description and Concept Objective

The “Canvas” is a standardized experimentation process that is derived from the project Remote Assistance (see concept “Project” (6.2.1)). The goal of the canvas is to offer employees a tooling they can use independently when having an idea or solution.

Design Set-up

This canvas is an A3 poster with a set of questions that can be filled in by the employee himself. To introduce the canvas and make the employee acquainted with it, a facilitator (in this case the graduate intern) will be guiding the employee through the canvas by asking the set of questions.

Test Outcomes

The canvas was tested with one employee’s idea for an improvement. Within 45 minutes all questions were answered and an experiment was set up to test the MVP solution. Unfortunately, the solution was never implemented as the employee decided to discontinue the experiment due to the high workload and unavailability of time.

Positive aspects	Negative Aspects	Conditions MVP Tooling	Input next Concepts
Easy-to-use, effective, fun	No commitment, not action-able, not self-sustaining, no management support	Facilitator role, management support, development of skills, rhythm	A form to develop skills, accessible, Effective (actionable)

Learnings & Conditions MVP Tooling

The canvas was evaluated through observation and feedback from the participant. All though, the canvas with questions was received as easy, fun, and effective, no commitment and action was taken. Also, the canvas required a facilitator’s role and was not self-sustaining. Another negative aspect was that it was an individual activity, although the solution required management support. Also, through the set-up the employee did not learn anything or developed skills. Instead, he/she only answered the questions and filled in the canvas. Furthermore, the activity was not recurring, and is considered a one-time exercise.

Based on this experiment, the following conditions for the MVP tooling have been identified: it requires a facilitating role, management support, the development of skills and recurring activity as rhythm. Based on this evaluation, the next concept should explore a form which develops skills of employees in an accessible and effective way, having an outcome.



MVP Tooling Concept 4: Mini-Training

Description and Concept Objective

The “Mini-Training” is a 1-hour training offered to PENL employees to work on self-initiated ideas and/or learn how to approach improvement and innovation in general. The mini-training is hosted at PENL and is guided by a facilitator (in this case the graduate student herself). The goal of the concept is to provide employees with training that provides the necessary knowledge and tooling to help employees work on their idea using a structured process from the workbook (see concept “Workbook”.

Design Set-up

The design of the mini-training was inspired by the positive feedback received on the Lunch & Learn (see Concept “Lunch & Learn” (6.2.2)). From this Lunch & Learn the positive aspects of an organised activity during lunch-time, short time span of 1 hour, and the ability to share knowledge. The mini-training consists of two parts: part 1 (20 min) is the theory on experimentation

Positive aspects	Negative Aspects	Conditions MVP Tooling	Input next Concepts
Accessible, effective, well-organised, practical theory, clear standardized experimentation framework, diversity of employees, knowledge-sharing, energizing, rhythm	Information overload, time pressure, no time available for homework, filtering criteria / checklist	Facilitator, interactive setting, multidisciplinary group, recurring activity (rhythm), available time	Checklist, reference work, role of management as ambassadors

as a presentation and part 2 (40 min) is a work session where employees are offered time to practise for on their own idea or that of others. The principles of experimentation are provided through a set slides of presentation, while tooling and assignments are offered through the workbook (see concept “Workbook” (6.2.5)). To promote the mini-training, an email and WhatsApp was sent 2 weeks in advance.

Test Outcomes

In the end, 8 participants joined the mini-training on Wednesday 25th of February from 12:30 – 13:30. During this training, the presentation was given and the assignments until step 2.3 of the phase Opportunity were finished. Through the mini-workshop 6 ideas were worked upon according to its methodology. Due to time constraints it was decided to schedule a next mini-session in which the participants will continue working on their idea. This session is scheduled for the 11th of March from 14:00 – 15:00 and the 25th of March from 12:30 – 13:30.

Evaluation

The concept “Mini-training” was evaluated in multiple ways. First of all, employees were asked to write down a “tip” (something participants suggest to improve or change) and a “top” (something participants liked and encouraged to keep). Also, an evaluation form was built and sent to all the participants the next day after the session. In addition, employees were individually asked how they experienced the mini-training. Furthermore, one individual participant was asked to provide and discuss more in-depth his feedback.

In general, the mini-training (with workbook) was perceived as well-organised, practical theory, a nice initiative, effective, accessible, brought with enthusiasm and bringing together a diversity of employees. On the other hand, points to improve are: offer participants the

Tips	Tops
Provide homework for the participants to better prepare	Good and clear explanation also about the improvement process
Too much in too little time	Good organisation
Lack of examples + 1 example case during the mini-training	Effective (short and practical) (Kort maar krachtig)
Keep it simple (do less)	Nice initiative & enthusiasm
	Diversity of participants
	Very accesible and low in threshold (1h is great!)

Table 7. Evaluation MVP Tooling Concept 3 Canvas

Table 8. Evaluation MVP Tooling Concept 4 “Mini-training”

Table 9. Evaluation participants

ability to prepare (homework), keep it simple, make it fit within the time, and showcase examples.

Learnings

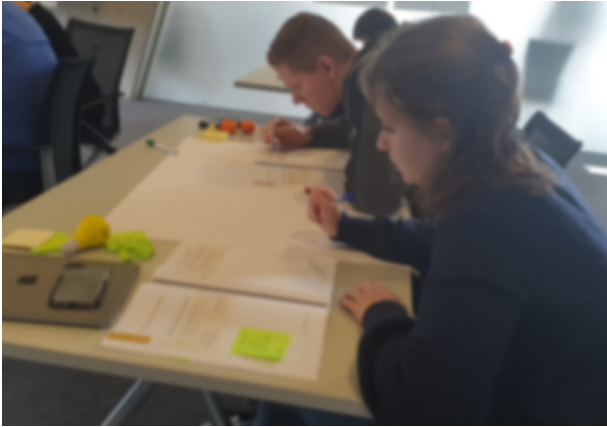
The concept “Mini-training” derived a couple of important learnings. First of all the mini-training is an accessible form for a diversity of employees from the operation to engage in innovation activities. Secondly, it offered employees an energizing and fun way on how to get started with their ideas. Third, the training validated the accessibility of the standardized innovation framework created (see concept “Canvas” (6.2.3)). Also, the mini-training allowed employees to share knowledge and build new connections on top of silos. Lastly, an recurring activity was created by offering a second training, having the potential to form a rhythm and creating structural innovation momentum. On the other side, through the mini-training it was discovered that many ideas are internally-oriented, not looking from a customer-perspective. Also, some ideas have been explored by other colleagues or departments already without the idea owner being aware of this. The mini-training showed that a filtering system of ideas, whether they suffice adding value to the customer and are not reinventing the wheel. In addition, the training currently appealed to employees who have desk jobs from the layer of the operation. Unfortunately, management as well as engineers and employees working in the field have participated. Furthermore, for the training to be effective it is best to include homework (for preparation and afterwards). Currently, homework is not included and taken into account for the 1-hour mini-training. Additional time will be required and needs to be scheduled for this.

Conditions

Based on this experiment, the following conditions for the MVP tooling have been identified. The tooling should take into account the current schedules of employees. As most schedules are not project-based, structural times need to be planned in to work on the mini-training and finish the homework. In addition, the mini-training itself needs to be a recurring activity. This recurring activity should be a break of their workflow, but not disturb it. Also, the MVP tooling requires a facilitation role as well as an interactive set-up.

Input Next MVP Tooling Concept

Based on the positive feedback received on the combination of the mini-training and workbook, it is decided to further develop both into a final MVP tooling. Specifically for the development of the mini-training, the following iterations will be made: a checklist should be created to prevent ideas from not adding value to the customer as well as reinventing the wheel. Also, the role of management as ambassadors should be developed. In addition, the mini-training will require reference work, such as the presentation, or an instruction video. Lastly, it should be explored how managers, engineers, and employees working in the field can also partake in the mini-training.



MVP Tooling Concept 5: Workbook

Description and Concept Objective

The “Workbook” is a booklet with step-by-step instructions, exercises and questions to be asked. This booklet is a collection of all best-practises of innovation projects considered in the past by both Area 52, PENL and in general. For the development of this workbook the set-up and executions of innovation projects by Area 52, including project Verachtert, project ThunderBolt, project Marlin, and project Micasas, and PENL, such as the project Arie Fix’t, have been analysed. Also, the best-practises and learnings from the first concept “Project” have been taken into account. The goal of this concept is to provide a physical framework with steps that employees can follow and exercises they can fill-in autonomously by themselves. The booklet is a self-sustaining form that can be provided by the organisation to employees.

Design Set-up

The design of the workbook is a physical A4 booklet

consisting of three phases (opportunity, solution, and implementation) spread over 36 pages. The first page of the booklet, is an overview of the standardized experimentation framework (see Concept “Canvas” (6.2.3)). Each exercise in the booklet is elaborated upon with a short instruction and space to fill-in. The booklet is provided during the mini-training (see Concept “Mini-training” (6.2.4)) and can be considered as homework booklet as well as reference book.

Test Outcomes

In combination with the mini-training, the booklet has been provided to 8 participants. The participants worked on the exercises during the mini-training and were able to fill them in and work on them independently. During the mini-training it became evident that support and facilitation is required for this workbook. Due to the unfamiliarity with the subject matter of this booklet, most participants required additional instructions and the ability to ask questions. Therefore, the booklet currently requires mini-training for interaction, question-asking and elaboration on the instructions and theory supporting the exercises.

Positive aspects	Negative Aspects	Conditions MVP Tooling	Input next Concepts
Effective, balancing theory and practise, Knowledge-sharing and cross-department collaborations,	The sequence of the exercises, Information Overload, individual activity, exclusivity	Interactive form, facilitation of knowledge-sharing, active a customer-oriented perspective, minimum set of questions and exercises, rhythm and structure, management ambassadorship	Collection of three booklets, 3/4 questions/ exercises, target group of engineers and employees working in the field, role of management support, supporting structure & rhythm

Learnings

The concept “Workbook” was evaluated in multiple ways. During the mini-training, the participants were observed and the questions regarding the subject matter and exercises were documented. In addition, the outcomes and results of the workbook was discussed with one participant of the mini-training.

First of all, during the mini-training and evaluation it became evident that the sequence of questions and exercises was illogical. Also, important exercises were missing.

In addition, another negative aspect of the booklet is the overload of information. Employees were scrolling through all the information, left thinking of the many steps ahead of them. Therefore, the booklet should be subdivided into individual booklets for each step. When reorganising the booklet it is important that the exercises are simplified and reduced. Each sub-booklet should have a maximum of 4 steps and questions for exercises that they are able to question themselves and colleagues also during their daily work activities. To simplify the instructions, one clear example should be provided. Lastly, a third negative aspect is the inclusiveness of the tooling. Unfortunately, the tooling is most accessible for the employees who have a desk-job. For employees working in the operation and in the field, this training and workbook is yet unsupportive.

In contrast, the most positive aspect of the booklet is the practical steps and practise it provides employees. The exercises invite action and make employees effortlessly follow the steps of the experimentation process without requiring complex additional knowledge. The

Table 10. Evaluation MVP Tooling Concept 5 “Workbook”

workbook is able to encourage employees to take action, start doing and putting their thoughts into actions. Moreover, the positive aspects of the booklet are the combination with the mini-training and the potential to be self-sustaining. First of all, by combining the booklet with the mini-training knowledge-sharing and cross-functional and cross-department. Through interaction, employees learned that other colleagues have similar ideas and can build/support each other. The format encouraged collaborations between employees who have never worked together on shared ideas. In addition, the workbook has the potential to become self-sustaining, being independently used as reference book by employees who have participated in the mini-training. In the future, this workbook should be part of an employee's toolbox. This can be done by for example making it a part of the goodie bag of the onboarding process. As well as having a physical booklet always present at one's desk.

To conclude, one learning derived from the concept “Workbook” is the value of combining the workbook with an instruction and work session. By allowing interaction between different employees, knowledge-sharing as well as the building of connections between existing silos is facilitated. The concept also transforms the current underground individual ideas and activities employees undertake, and make it part of a group work and group effort. All though employees are currently not working on same ideas, they are able to support and help each other out. Another important learning derived from the concept “Workbook” is the need for training to effectively utilize the booklet. In addition, the concept requires a structure and rhythm to be utilized by employees. The mini-trainings are one way of working, but any form of organised work sessions

is required. The time interval of 2 weeks seems to give employees the breath and ability to do some after-work/homework. Unfortunately, without time scheduled for homework employees will be unable to do this. Also, this requires good communication of the expectations and time-investment of the workbook. Lastly, the workbook is currently positively received by employees who work in the office. Unfortunately, engineers and employees working in the field, the tool has not been tested and appealed to.

Details learnings

From the workbook answers it became evident that participants worked on internal problems or opportunities they saw. In each case, the customer was not identified or considered the main target group. Also, the goals formulated did not consider the value that should be added to the customer. The exercise on the stakeholder-mapping was unnecessary and not fitting with the first steps. Also, the Most Riskiest Assumption Analysis was not necessary – instead the main assumption is that pains, opportunities and problems identified are identified by the customer (and the responsible employee) and a solution is desired. Therefore, the first question should be: "How does your idea add value to the customer experience", afterwards defining the customer and the employee responsible for delivering this experience. In this instance, the customer should always be considered the #1 target group. In general, better instruction per exercise is required.

Conditions

Based on this experiment, the following conditions for the MVP tooling have been identified. The tooling should enable interaction and knowledge-sharing between employees. Also, the MVP tooling should activate

and stimulate a customer-oriented perspective. The questions and exercises should be simple and applicable to daily work activities. Lastly, the tooling requires training of employees on how to use the tooling.

Vul In: Het Het Experiment Canvas																								
1. De meest riscalve naam(e)s Welke naam(e)s gaan we testen?																								
2. Hypothese formuleren Wat denken dat (omkeer) resultaat op basis van (naam(e))																								
3. Definitie validatie Wanneer is de aanname gevalideerd?																								
4. Experiment opzet De wari van het experiment is: Het experiment duurt: Het experiment wordt uitgevoerd op: De wari van de informatie verzameld wordt: Deze personen zullen de volgende gaan testen: Deze personen gaan het experiment uitvoeren: Deze personen/bestrijdingsgrenzen gaan het resultaat bepalen:																								
5. De resultaten Welke informatie is verzameld? Van wie zijn daaruit de 3 belangrijkste inzichten?		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Inzichten derde</th> <th style="width: 25%;">Quintie</th> <th style="width: 25%;">Sexte</th> <th style="width: 25%;">Septie</th> </tr> </thead> <tbody> <tr><td style="height: 30px;"></td><td></td><td></td><td></td></tr> <tr><td style="height: 30px;"></td><td></td><td></td><td></td></tr> <tr><td style="height: 30px;"></td><td></td><td></td><td></td></tr> <tr><td style="height: 30px;"></td><td></td><td></td><td></td></tr> </tbody> </table>			Inzichten derde	Quintie	Sexte	Septie																
Inzichten derde	Quintie	Sexte	Septie																					
6. Conclusie en Evaluatie Op basis van welke gegevens en definitie van validatie is de aanname <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <input type="checkbox"/> Onvalideerd <input type="checkbox"/> Gevalideerd <input type="checkbox"/> Nog niet te concluderen </div>																								
7. Vervolgacties Wat zijn de vervolgacties op basis van deze conclusie?																								

1.5 De belangrijke stakeholders die in moet informeren en/of betrekken

	stimulerend positief inloggen, ruggefit	neutraal, ontzettend ontbrekend
Stakeholders zijn	🟢	🔴
72 team	🟢	

↔ De relaties tussen stakeholder-holders

Stakeholder management (indien nodig)

Stakeholders met veel macht, veel belang	Stakeholders met veel macht, weinig belang
<p>Stakeholders met veel macht, veel belang</p> <p>Stakeholders met veel macht, veel belang</p> <p>Stakeholders met veel macht, veel belang</p> <p>Stakeholders met veel macht, veel belang</p>	<p>Stakeholders met veel macht, weinig belang</p> <p>Stakeholders met veel macht, weinig belang</p> <p>Stakeholders met veel macht, weinig belang</p> <p>Stakeholders met veel macht, weinig belang</p>
Stakeholders met weinig macht, veel belang	Stakeholders met weinig macht, weinig belang
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1.6 De kans begrijpen en bepalen

Stap
2

2.1 Bepaal de doelgroep(en) voor je verbetering/idea

Beschrijf de doelgroepen aan de hand van een persoon:

- Bereikt de doelgroep de juiste doelgroep?
- Doelgroep is relevant?
- Doelgroep heeft een behoefte aan de oplossing?
- Doelgroep heeft de middelen om de oplossing te gebruiken?

Doelgroep bepaald

Wanneer de doelgroep aan de hand van een persoon wordt beschreven, kan de doelgroep worden gebruikt om de doelgroep te bepalen.

Doelgroep onbepaald

Wanneer de doelgroep aan de hand van een persoon wordt beschreven, kan de doelgroep niet worden gebruikt om de doelgroep te bepalen.

2.2 Het idee ontwikkelen

Stap
3

3.1 Het idee ontwikkelen

3.2 Het idee testen

Stap
4

4.1 Het idee testen

4.2 Het idee implementeren

Stap
5

5.1 Het idee implementeren

5.2 Het idee evalueren

Stap
6

6.1 Het idee evalueren

6.2 Het idee evalueren

Stap
7

7.1 Het idee evalueren

7.2 Het idee evalueren

Stap
8

8.1 Het idee evalueren

8.2 Het idee evalueren

Stap
9

9.1 Het idee evalueren

9.2 Het idee evalueren

Stap
10

10.1 Het idee evalueren

10.2 Het idee evalueren

Stap
11

11.1 Het idee evalueren

11.2 Het idee evalueren

Stap
12

12.1 Het idee evalueren

12.2 Het idee evalueren

Stap
13

13.1 Het idee evalueren

13.2 Het idee evalueren

Stap
14

14.1 Het idee evalueren



Presentation
Final Concept

Supplementary material to:

Chapter 06 | Final Design
6.3 Crash Course Elements
6.3.2 The Instruments



Workbook
Final Concept

Supplementary material to:

Chapter 06 | Final Design
6.3 Crash Course Elements
6.3.2 The Instruments

Assignments workbook “Kickstart je idee”

Assignments Mini-training 1

1. (Preparation) Description of the idea, the cause, and personal motivation to work on this idea
2. Description of how the idea adds value to the customer experience, identifying the target group and employees responsible for delivering this customer experience to the target group
3. Description of the problems, pains, needs, and desires assumed to be experienced by the target group (and responsible employees)
4. The formulation of assumptions about the described problems, pains, needs, and desires (which can be finished after mini-training 1 and before mini-training 2).

Assignments Mini-training 2

5. (Preparation) The formulation of the most riskiest assumptions that will be tested by conducting an experiment
6. The set up of an experiment (part 1) by designing and preparing an interview with the target group and/or responsible employees
7. The set up of an experiment (part 2) by defining the metrics of when assumptions are (in) validated subdivided in either customer interviews or employee interviews.
8. The conduction and documentation of interviews according to a description of theinterviewees, their problems, pains, needs, and desires they have shared, and their ideas for improving the customer experience (which can be finished after the mini-training 2 and before

mini-training 3).

Assignments Mini-training 3

9. (Preparation) The execution of an experiment by determining the (in)validation of formulated assumptions and determining the final (in) validation of the most riskiest assumption. The results of this assignment will depend whether to proceed to assignment 10 or revisit assignment 3, 6, or 7.
10. The formulation of the size of opportunity, in terms of its target group, the validated pain, problem, need, or, wish, its frequency, its cause, directions for idea generation, and the negative consequences or missed opportunities when the opportunity will be unaddressed.
11. The assessment of the impact and effort when proceeding this opportunity and designing a solution. The identification of stakeholders that should be involved in the decision-making of deciding to proceed.
12. The “Go”/”No Go” moment is determined by identifying the necessary and minimal resources, and if applicable sponsorship, required for building a solution and assessing whether these are in place.

Second Phase “Solution”

A plan of attack on the employee/team will proceed with the next phase of building a solution and testing an idea. It elaborates on the planning, responsibilities, and expected results.

Appendix S |

Innovation Coach

Supplementary material to:

Chapter 06 | Final Design

6.3 Crash Course Elements

6.3.3 “Innovation Coach”

The role of the Innovation Coach is to prepare, organize and facilitate the crash course and its mini-trainings. The Innovation Coach should have demonstrated skills and knowledge in Experimentation, Design Thinking, and Coaching. Foremost, it's important that he/she is passionate, energizing, creative, empathic, and empowering.

Roles & Responsibilities

- During the crash course the Innovation Coach's responsibilities are:
- Provide employees with the necessary theory and guide them through the assignments
 - Discuss questions, concerns, pain points, and best practices on ideas and topics of innovation
 - Make employees aware of the 8 PENL innovation pitfalls and how to overcome them
 - Encourage collaboration and knowledge-sharing between participants
 - Encourage critical-thinking, creative-thinking, trial-and-error, failure, learn-by-doing, self-leadership, and reflection
- During the crash course the Innovation Coach tasks are:
- Plan the 3 mini-training moments
 - Promote the crash course and invite employees
 - Prepare the crash course and choose a case example
 - Creatively facilitate the mini-training sessions and provide support to employees as well as challenge them
 - Provide support and guidance in-between mini-training sessions

Validation

Supplementary material to:

Chapter 07 | Validation

7.1 The Objective

Desirability assessed with the Pilot

To determine if the crash course is desirable, employees and participants' input has been evaluated and assessed on the aspects of (i) format, (ii) gained value, and (iii) developed innovation expertise.

Format

Both employees and participants accepted the format of the crash course. Employees considered the format interesting, accessible and were invited by the 1-hour mini-training to try it out. Participants found the 1-hour training sessions effective, learning in a short period of time the essential about innovation and simultaneously applying it to their own ideas. In addition, the sessions fitted their work schedules and did not disturb their workflow. Furthermore, participants found the format novel and fun, since it differed from their routine tasks and allowed them to share knowledge with colleagues from other departments. Some participants advised to improve the format to make use of its ability to collaborate and facilitate more group work.

“Ik zou andere collega's zeggen dat de training doeltreffend is. Je leert over hoe je verbetert en gebruikt dit meteen voor je eigen idee in een uurtje tijd.”

“Ik heb geen verwachtingen, maar ben nieuwsgierig wat we je ons in 1 uur wilt leren.”

Gained Value

Participants gained value from the crash course in four ways. First of all, participants developed skills and know-how in innovation and experienced personal growth. Secondly, they experienced the necessary guidance and support to start/continue working on their ideas by the tooling and facilitation provided. Thirdly, they were (for the first time) encouraged to work on their self-initiated ideas during work. At last, the interactive format helped participants connect with like-minded employees, share knowledge and make connections between silos by getting familiar with other participants' ideas and help each other out in developing these. Whereas participants were fond of the gained value, for some employees the goal of the crash course could be better communicated.

“To-the-point, praktisch en een goed framework.”

“Vond de training nuttig, heb iets “nieuws” geleerd, dit geeft echt wel praktische handvatten voor in de praktijk.”

Developed innovation expertise

The skills participants developed during the training helped them create awareness in and abilities to identify, overcome or prevent PEPP-specific innovation pitfalls and include a customer-perspective. Although participants have gained the necessary skills and knowledge in innovation, the learn-by-doing approach could have been more effective. Since the theory

was new for all participants, learning the theory and practicing on their idea simultaneously resulted in confusion and not a full understanding of the process. Participants preferred to work on an example first rather than working on their idea immediately.

“Ik had geen idee hoe ik een klantinterview moest doen en weet nu door de tips hoe ik een werknemer kan interviewen om mijn idee te testen.”

“Ik miste een goed voorbeeld. Nu had iedereen een eigen idee dat het lastig maakt het centraal te houden.”

Viability assessed with the Pilot

To determine if the crash course is viable, it is assessed on how equipping participants with innovation expertise resulted in a higher success rate of self-initiated ideas.

The success rate of self-initiated ideas

By equipping the participants with innovation expertise the success rate is found to be significantly increased in ten ways. First of all, participants have spent their time in a more effective way. Time has not been misused on thinking about a process since the crash course organizes all the steps and guides the participants. Secondly, participants have been able to prioritize the development of their self-initiated ideas over other tasks and have spent more (work) time on this. Thirdly, participants have gained awareness of the innovation pitfalls and where they are able to prevent failure, getting stuck, or even quit. Fourth, participants have learned to become more critical towards the relevance and impact of their ideas and learned to determine whether personal resources should be spent on the idea's development or to dismiss. Fifth, participants have learned that failure is necessary and part of learning and have become more comfortable to fail and not get discouraged or quit when it occurs. Seventh, participants have gained understanding and abilities to identify and test intuition and assumptions to validate the relevance and impact of their ideas by conducting customer interviews. Eighth, participants have been able to faster develop ideas by sharing knowledge with other participants, making use of existing knowledge to develop their ideas, learning from past failed ideas and

being aware of reinventing the wheel. Ninth, participants were more likely to continue rather than quit by being encouraged and facilitated and showcased higher levels of motivation. Ten, participants have shown ownership and proactiveness working on self-initiated ideas, working around gaining approval, writing a business plan, or convincing stakeholders to allocate necessary resources.

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“Nu weet ik wat je moet doen als je een idee in je hoofd hebt. Anders was ik waarschijnlijk mijn idee gaan uitwerken. Nu bepaal ik eerst hoe groot de kans is.”

“Ik snap nu dat je aannames maakt wanneer je een idee hebt en dat je deze moet valideren. En dat je begint bij het valideren van je aannames over het probleem eerst.”

“MD support en MT support zijn de grootste aannames. We moeten dit gewoon als fysieke Jenga-toren presenteren aan Dennis van Dijk.”

Feasibility assessed with the Pilot

To determine if the crash course is feasible, it is assessed on the required resources and its applicability to self-initiated ideas.

Required resources

Participants were positive regarding the time investment of three times 1-hour work sessions. Also, with 1-hour as a short time span, most participants emphasized the use of preparation and homework assignments. To be able to make this time investment they believe it's essential the crash offers official planning with time slots and structured moments, including for preparation and homework. During the pilot most employees were unaware of this time investment. In addition, they mentioned clear communication on time investment that needs to be agreed upon by supervisors when signing up.

“Als tip misschien mensen vragen om van te voren een probleem of behoefte te bedenken in plaats van geen voorbereiding. Dit scheelt toch wat tijd tijdens de les.”

“Nice dat we al een opdracht hebben voor de volgende keer.”

During the pilot, it was found that two resources are essential which are work time for employees and the facilitator. All participants have not only stressed the added value of a facilitator but more mentioned it as a condition for the survival of the crash course. It shows that the crash course is not sustainable in itself and relies upon the organizational role of “Innovation Coach”.

“Het meedenken heeft me laten zien dat er ook een klantwaarde in mijn idee zit.”
“Om echt structureel te gaan innoveren en niet te meer te gaan hobbyen, hebben we een externe partij nodig die dit faciliteert. Enerzijds omdat we de kennis niet hebben, maar ook de mankracht niet hebben om dit te kunnen faciliteren. Iedereen heeft al een baan, waardoor het onmogelijk wordt om innoveren naar een structureel niveau te brengen met de huidige resources.”

Additionally, the workbook and process were found to offer practical guidelines for participants.

“Met het boekje erbij heb ik stappen waar ik mee aan de gang kan.”

“Het experimenterproces is makkelijk en duidelijk.”

Application to self-initiated ideas

During the pilot it was found that most participants have ideas for internal (and technical) problems or opportunities. Most ideas have not assessed their value to the customer. As a consequence, facilitation and additional time is necessary to help participants determine the value of their ideas to customers.

Desirability assessed during the Reviews

To determine if the crash course is desirable, the added value of the crash course is reviewed with Area 52, the DIL, and the executives of the PEPP board.

Added value

The crash course is found to add value to all the above-mentioned parties. For Area 52, the crash course allows them to gain more insights into the ideas within OpCo's and might complement/replace the format of the pitch stop. In addition, it can complement the current tooling of facilitation from external partners, the canvas from Bram Kanstein. For the Digital Innovation Lab, the crash course complements existing programs (such as DIP and DIP in a day [16]) and enriches their knowledge on experimentation. In addition, the crash course offers them a low threshold and compact program that can be provided to employees from all business groups to facilitate the development of ideas on Horizon 1 and Horizon 2. Lastly, for the Executive Board of PEPP, the crash course can become another way to facilitate bottom-up innovation in addition to existing courses. It is found that no other programs in the business group PEPP and on Pon Holding level offer employees tooling that is applicable to Horizon 1 and Horizon 2 and daily tasks, experimentation-driven, and low in resources.

“Daarnaast geeft het mij inhoudelijk ook veel inzichten over de initiatieven van de OpCo's.”

“Een crash course voor werknemers zou zeker dus aansluiten bij wat wij doen en wat het DIP programma al voor ontwikkelend is. Het zou mooi zijn we uiteindelijk richting onze eigen Adobe Kit kunnen gaan met tools, budget, en tijd.”

“Like the innovation process, DIP (in a day), the crash course can help us facilitate innovation.”

Viability assessed during the Reviews

To determine if the crash course is viable, the gained value of the crash course is reviewed with Area 52, the DIL, and the executives of the PEPP board.

Gained value

The crash course is found to deliver the following values to each party. For Area 52, the crash course can help them facilitate OpCo's in a low-invest manner on Horizon 1 and Horizon 2. For the Digital Innovation Lab, the crash course can strengthen its position as a provider of training programs for innovation. For the executives of the PEPP board and the OpCo's, the training is envisioned to benefit them in multiple ways. First of all, the crash course will higher the success rate of initiatives and thus bottom-up innovation. Secondly, the crash course responds to the cry from help from OpCo's to require facilitation on Horizon 1. Thirdly, the crash course makes effective use of scarce resources and spends personal/work time on innovation in a more lean and effective way. Fourth, the crash course contributes to building internal innovation capabilities within the organization and making innovation responsibilities an integral part of the organization. Fifth, the crash course stimulates and facilitates knowledge-sharing and cross-departmental that can accelerate the development of ideas and avoid the reinvention of the wheel. Sixth, the crash course lowers the threshold for employees to take part in innovation and stimulate them to start working on their ideas. Lastly, the crash course is considered a one-time investment that holds a format that is sustainable, adaptable to the organization over time and scalable to other business groups.

Feasibility assessed during the Reviews

To determine if the crash course is feasible, the required resources and next steps are reviewed with Area 52, the DIL, and the executives of the PEPP board.

Required resources

During the pilot it was found that two resources are essential which are work time for employees and the facilitator. Participants have been found to successfully invest in the required work time. However, most participants and employees advised that buy-in from supervisors and top management is required to allocate work time to participate in the crash course. The parties hold different opinions on whether the crash course should be offered to all participants or a specific group of employees or ideas.

“I don't think we should offer it to all employees. Instead, we should determine which employees should spend time on their ideas and allocate time to them.”

The potential filing of the organizational role of the Innovation Coach is validated in three ways. First of all, the role is discussed with a classified employee from PEPP. He/she considers the role of a crash course facilitator as relevant and necessary within the context of OpCo's. He/she believes the role can become part of his/her responsibilities under the condition that the role can

be handed down to a successor (preferably an employee from the OpCo).

“Als positief vind ik dat het een haalbaar plan is, het al PENL-proof is, en het een schaalbaar concept van een gedachtegang is. Wel gaat het tijd kosten om dit op te zetten en uit te voeren. We moeten zorgen dat uiteindelijk voor de training Area 52 niet meer nodig is en los van mij kan draaien.” - Kristel Breukers, Area 52 Innovation Manager & Horizon 2 coordinator

Secondly, the role is discussed with participants and Movement members. Most employees do not see themselves facilitating the crash course due to their inexperience and newness to innovation. One classified employee has shared his/her ambitions in creating a new function with tasks and responsibilities for innovation within his/her OpCo PENL. Potentially, facilitating these crash courses could be part of this function's responsibilities.

Lastly, the role of the facilitator is discussed with a classified employee from PEPP. He/she will be interested to be involved in the further implementation of the crash course and partner with Area 52 to scale up the course to other business groups. He/she identified the condition that external partners are required for this.

“Het aanbieden van tooling is iets waar DIL expertise in heeft. Een crash course voor werknemers zou zeker dus aansluiten bij wat wij doen en wat het DIP programma al voor ontwikkelend is. Het zou mooi zijn we uiteindelijk richting onze eigen Adobe Kit kunnen gaan met tools, budget, en tijd. Ik zou het dus zeker interessant vinden om te kijken hoe wij als DIL aangesloten kunnen worden bij de verdere ontwikkeling van de crash course. Hierin zou bijvoorbeeld gekeken moeten worden naar hoe de crash course aangeboden kan worden naar alle businessgroepen. Dit opschalen zal het partneren met een externe partij vereisen.”

Next Steps

During review with Area 52, the next steps of the crash course were discussed. It was advised that the crash course should elaborate on the Go / No Go moment and the next steps after mini-training session 3. Additionally, it is advised to elaborate on ideas with a “Go” and what resources, in terms of work time, budget, and sponsoring, will be required.

“We starten veel kleine ideeën die uiteindelijk geen budget of tijd krijgen waardoor ze doodbloeden. We moeten voorkomen dat we nog meer ideeën en projecten gaan opzetten zonder dat hier tijd en budget voor wordt vrijgemaakt.”

Appendix U |

Recommended Design Iterations

Supplementary material to:

- Chapter 08 | Recommendations
- 8.1 The Crash Course
- 8.1.1 Design Iterations**

Recommended iterations on Desirability

The final design validation resulted in various points of improvement for the desirability of the crash course. To enhance the effectiveness of the crash course, the following elements are recommended to adapt or include: (1) time management, (2) expectations, (3) learning versus practice, and (4) collaboration. (1) To ensure the mini-trainings address the necessary topics and assignments and include a wrap-up and next steps, a tighter schedule is desired. By including and organizing preparation and homework assignments, time constraints can be prevented. (2) To ensure participants are able to fully commit to the crash course, the required time investment and end-goal of the course should be better communicated. Choosing a platform and schedule that fits with the existing workflow of employees should be explored. (3) To balance learning versus practice, a prior focus should be given to learning the approach first. By working with a case example during the session and using homework assignments for self-initiated ideas, this balance can be reinstalled. (4) Lastly, the crash course should explore and strengthen itself in facilitating group work and cross-departmental collaboration. For example, workgroups can be created based on the input from preparation assignment 1. In addition, knowledge-sharing between groups, through organized moments of feedback and input on other workgroups, should be explored.

Recommended iterations on Viability

In addition, the final design validation resulted in points of improvement to enhance the viability of the crash course, which are: (5) structure and rhythm and (6) scalability. (5) The purpose of the crash course is to offer employees consistent moments during their work to spend of self-initiated ideas in a structured way. To provide this, a time schedule for the crash course itself as well as a time schedule and time slots for each course should be determined. Regarding the rhythm, the ending after session 3 should be elaborated upon. For example, an organized stage gate-moment or “Go/ No Go”-moment, after session 3 should be explored. This will require looking into how the crash course can offer an instrument or platform for (self-)assessment of self-initiated ideas. For example, a dragons’ den in which participants can pitch their ideas to the Management Team / Sponsors can be designed. In addition, the next steps after the “Go/No Go”-moment should be designed. For example, “No Go” ideas should be captured and their learnings and reasoning for dismissal should be reflected upon and documented. For “Go” ideas, the next steps, a process, or a platform should be offered to continue facilitation. (6) Regarding scalability, the crash course’s applicability to other OpCos should be explored. Over time, when knowledge and know-how are reached among all employees, the course has the ability to shift its focus from learning to practice. This way, the format of the course can be sustained over the time remaining applicable.

Recommended iterations on Feasibility

Lastly, the final design validation resulted in points of improvements to enhance the feasibility of the crash course's clarity and content, which are: (7) a case example, (8) theory versus practice, (9) preparation and homework assignments, and (10) individual orientation. (7) To maximize participants' learning a clear and relatable example should demonstrate the assignments. It is recommended to use an example of a well-known issue, such as the challenge of communication between PENL and the customer, to ensure relatedness and applicability to employees' self-initiated ideas. (8) The prior focus of the course should be on learning theory. Homework assignments and preparation assignments can provide participants the room to practice and application to their own ideas. (9) Since the course will be more effective with preparation and homework assignments, this time should be scheduled, and communicated to participants. (10) To shift the course’s ability to facilitate group work and remote working, digital platforms, such as Mural, can be explored.

Conclusion

Although all recommendations are considered promising and fruitful, only three recommendations are considered essential and urgent to adopt: (5) structure and rhythm, (7) a case example, and (9) preparation and homework assignments. The frequency of the course should be communicated, and a clear time schedule with set time slots should be created. Also, the last step, the “Go/No Go”-moment should be designed. For the course, a case study should be provided to ensure effective learning of the course material. The preparation and homework assignments should be reorganized to offer participants room and time to work on their self-initiated ideas.

- An addition to the tasks of the Innovation Coach is then:
- Prepare a time schedule with set time slots
 - Promote the crash course
 - Send preparation assignment 1 to the participants with the deadline x days prior to the course
 - Review preparation assignment 1 and assign participants to workgroups
 - Inform participants about assigned workgroups
 - Prepare a case example and use of digital tooling or platforms, such as Mural

Appendix V |

Scale-up Phase

Supplementary material to:

Chapter 08 | Recommendations
8.2 Implementation Guidelines
8.2.2 The Pilot Phase

Recommendations Scale-up Phase

If the pilot phase is considered successful, the crash course holds at least 4 opportunities for future evolution ensuring its durability. First of all, the crash course can be extended to other OpCos within the PEPP business group, or even be offered to other Pon Business Groups. Secondly, the course balances theory and practice. With the newness and inexperience with innovation for most employees, the course's primary focus is on teaching the theory. Nevertheless, once this theory has become basic knowledge, the course's format can easily shift its focus on the practice. Instead of offering theory, the course's format can change towards full work sessions instead. This way the crash course is able to continue maintaining and fostering an innovation rhythm within the organization. Thirdly, opportunities can be explored by transferring the responsibility and role of Innovation Coach towards internal capacity. As employees have become more mature and experienced in innovation, and the organization as a whole as well, internal roles of innovation coaches can be explored. Through for example a train-the-trainer program, employees within OpCo's can take over the role and responsibilities of Innovation Coach. Lastly, the tooling primary goal is on developing the innovation expertise of employees within OpCos. As is witnessed, for most of PEPP's customers and OEM the experimentation approach and innovation expertise are rather new. To make use of the innovation potential employees as well as customers and their OEM hold, the crash course can provide the necessary tooling to facilitate co-creation with different departments, different OpCo's and in the end and with customers and their OEM.

Design Innovation Funnel and Process

Supplementary material to:

Chapter 08 | Recommendations

8.2 Implementation Guidelines

8.2.3 Integration Innovation Process

In parallel to the crash course, an innovation process has been designed for the OpCo PENL. For this thesis, the execution phase of the innovation process is designed according to the structure of the crash course. It is believed that the crash course has the potential to be integrated in any OpCo's innovation process.

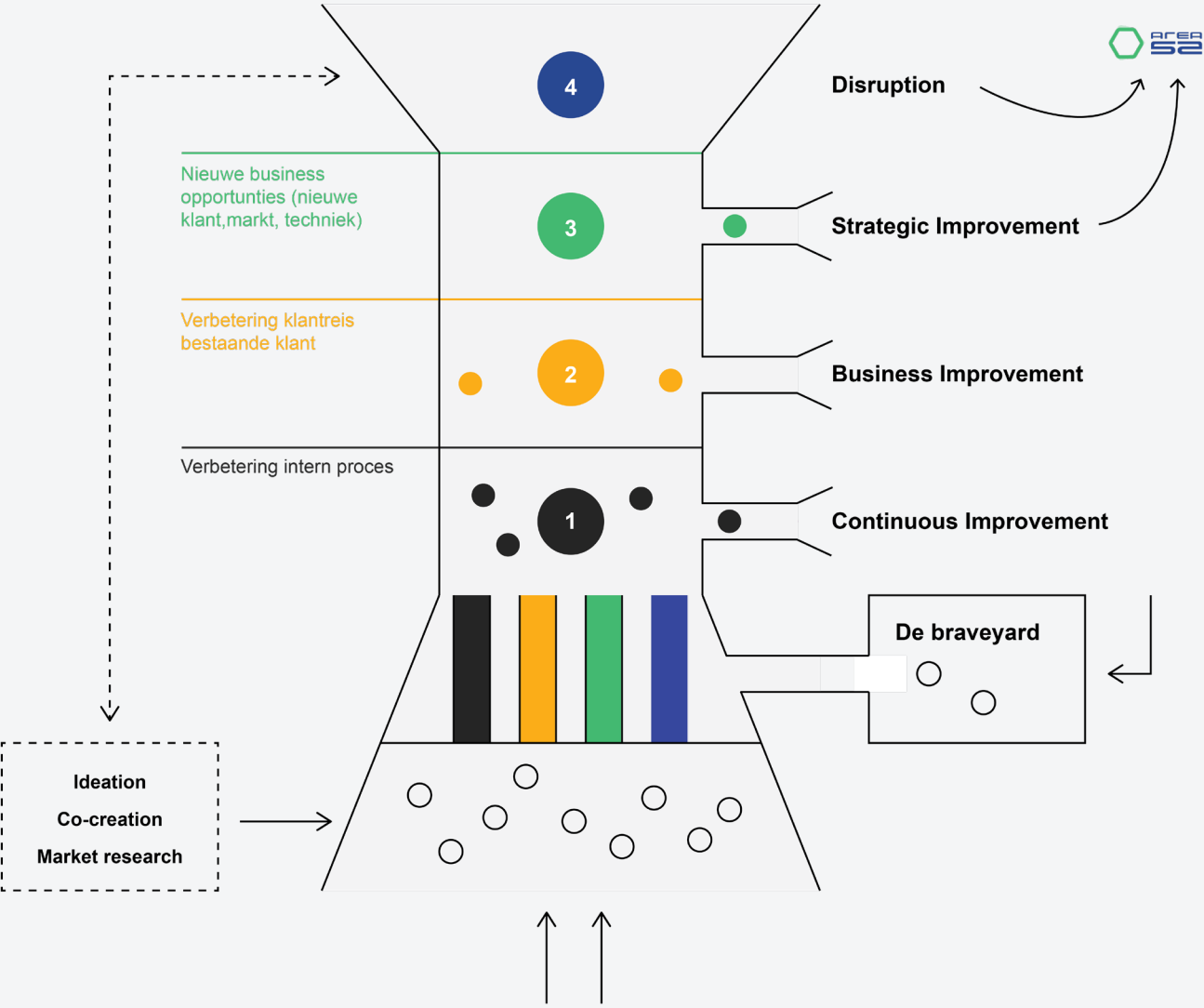


Figure 26. Designed Innovation Funnel for PENL

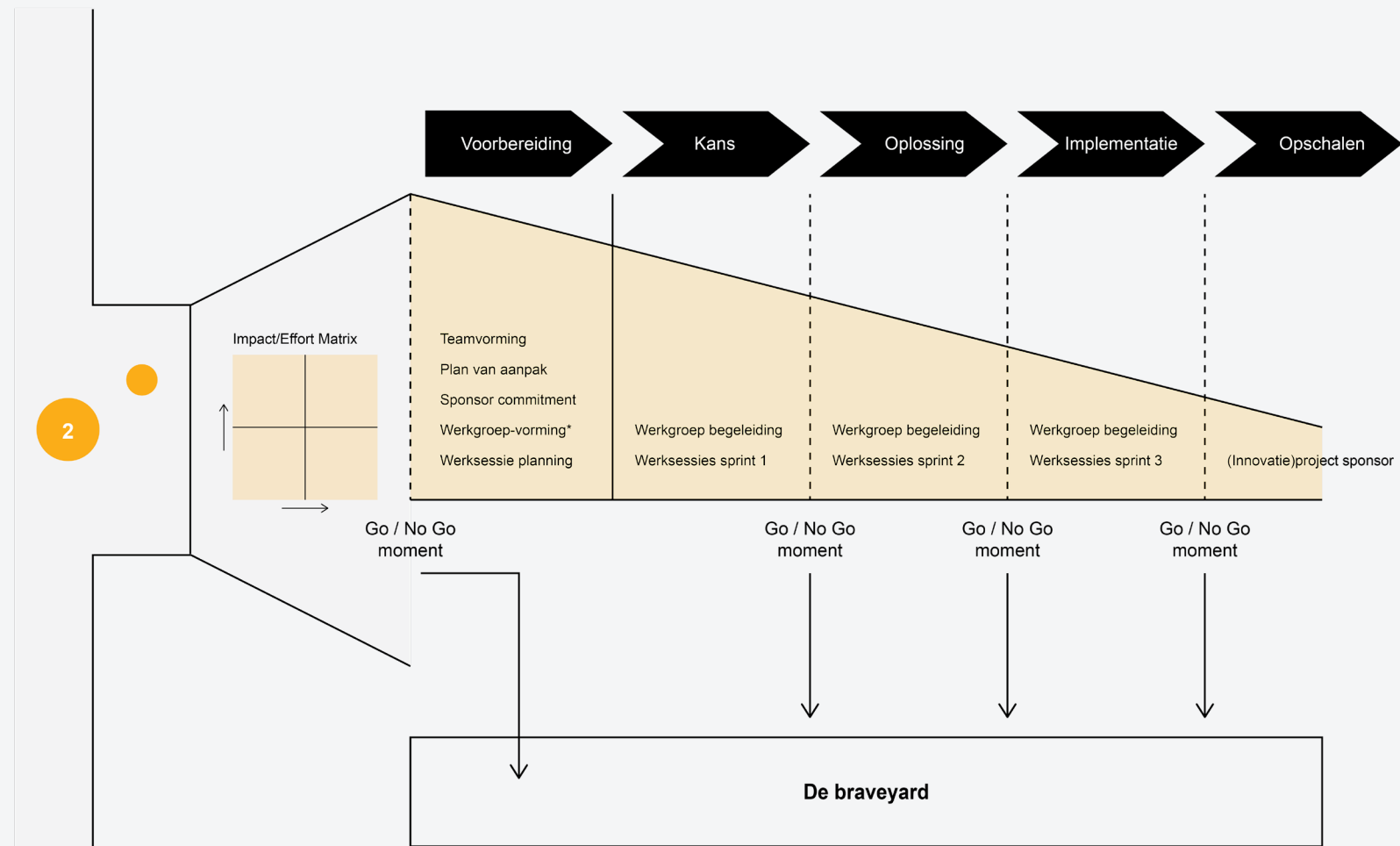


Figure 27. Designed Innovation Funnel for PENL

Appendix |

Graduation Project Brief

SUPERVISORY TEAM **
Fill in the required data for the supervisory team members. Please check the instructions on the right !

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Fill in the required data for the supervisory team members. Please check the instructions on the right !

** chair Prof. dr. Hultink, H.J. dept. / section: MCR
 ** mentor Ir. Bluemink, R.G.H. dept. / section: MOD
 2nd mentor Ir. Duvekot, E.
 organisation: Pon (Holding)
 city: Delft country: Nederland
 comments
 (optional)
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 comments
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- Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v..
- Second mentor only applies in case the assignment is hosted by an external organisation.
- Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

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- Second mentor only applies in case the assignment is hosted by an external organisation.
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- Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v..
- Second mentor only applies in case the assignment is hosted by an external organisation.
- Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

 chair Prof. dr. Hultink, H.J. date - - signature _____

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: _____ EC

Of which, taking the conditional requirements into account, can be part of the exam programme _____ EC

List of electives obtained before the third semester without approval of the BoE

☒ **YES** all 1st year master courses passed

☐ **NO** missing 1st year master courses are:

 name Erik Jan Hultink date 10 - 12 - 2019 signature Hultink, Erik Jan

 Digitally signed by Hultink, Erik Jan
Date: 2019.12.10 13:34:55 +01'00'

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **. Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks?
- Does the composition of the supervisory team comply with the regulations and fit the assignment?

 Content: ☒ **APPROVED** ☐ **NOT APPROVED**

 Procedure: ☒ **APPROVED** ☐ **NOT APPROVED**

comments

name _____ date _____ signature _____

Experimentation-driven innovation for employees in corporates

project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

 start date 04 - 11 - 2019 06 - 04 - 2020 end date

INTRODUCTION **

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

Pon (Holdings) is a Dutch family-owned business that offers mobility products, services and solutions globally. In 1895, the company started as a Dutch importer of Volkswagen. Currently, it has grown into a successful trading firm with mobility expertise and market leadership. [1] Pon operates in various markets categorized by their four business units: Pon Automotive, Pon Bike, Pon Industrial Solutions and Pon Equipment and Pon Power Solutions. Based on a delegated business model, each business unit operates as collection of independent companies that are held responsible for their own profit and loss.

The business unit Pon Equipment and Pon Power Solutions (PEPP) focuses on construction, marine and generator solutions. The companies consists of a financial holding, 8 operating companies and the innovation lab "Area 52" and is located in both Norway and the Netherlands. Regarding innovation, PEPP is adapting to the fast-pacing society by investing in digital transformation and executing their innovation strategy. Part of PEPP's innovation strategy is to stimulate and accelerate internal innovation within the operating companies.

"Area 52" is the innovation lab of PEPP and helps the business unit to successfully implement PEPP's innovation strategy. The lab consists of a team of FTE (soon 6 FTE) and facilitates and initiates numerous innovation projects. Currently, the lab executes over 20+ Horizon 2 projects, 3 Horizon 3 projects, and has more concepts idea in the innovation pipeline. [2] Regarding innovation projects on Horizon 2, Area 52's goal is to help operating companies evolve their business model. By offering a pitch stop, employees from operating companies can pitch their idea. Ideas selected by the innovation board receive funding, (external partner) support and tools. The employees are responsible to validate, develop and implement the project back into the business, yet Area 52 facilitates, supports and monitors the project.

Pon Equipment Netherlands (PENL) is one of the operating companies of the business unit PEPP and located in Almere. In 1926, PENL became the Dutch official CAT-dealer that offers construction solutions (including CAT machines, service contracts and parts) to customers. Regarding internal innovation, PENL has successfully implemented a number of new services (including Arie Fixt 't) and is exploring how innovation can help sustain and evolve it's business model. Their newest innovation project is called "Remote Assistance".

The project "Remote Assistance" is part of PENL's strategy to offer more digital and remote solutions. The project is pitched to Area 52 by two PENL employees, Bas and Joris, who have received funding and support from Area 52. In total the team consists of 3 (Bas, Joris and Verena) - with support from Area 52 members Kristel and Eva. The team will run a validation sprint to execute experiments to design, test and iterate the value proposition. In the end, the project's goal is to explore how PENL can offer remote service when customers experience a problem with their machine. This remote service includes using Big Data to better diagnose problems, and, in the future, even prevent them.

This thesis is in assignment of Area 52 and takes place in the business unit PEPP. It will focus on PEPP's innovation strategy to stimulate and accelerate internal innovation happening within the operating companies. The project "Remote Assistance" will be used as a case study.

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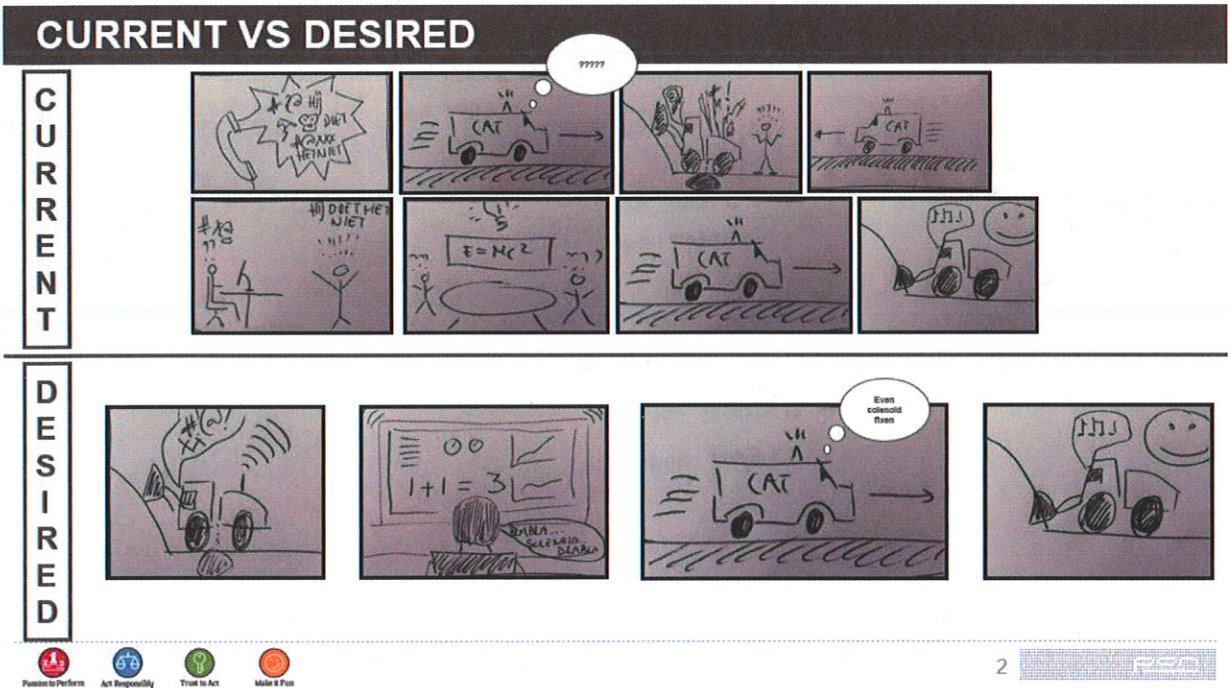


image / figure 1: Project Remote Assistance Deck

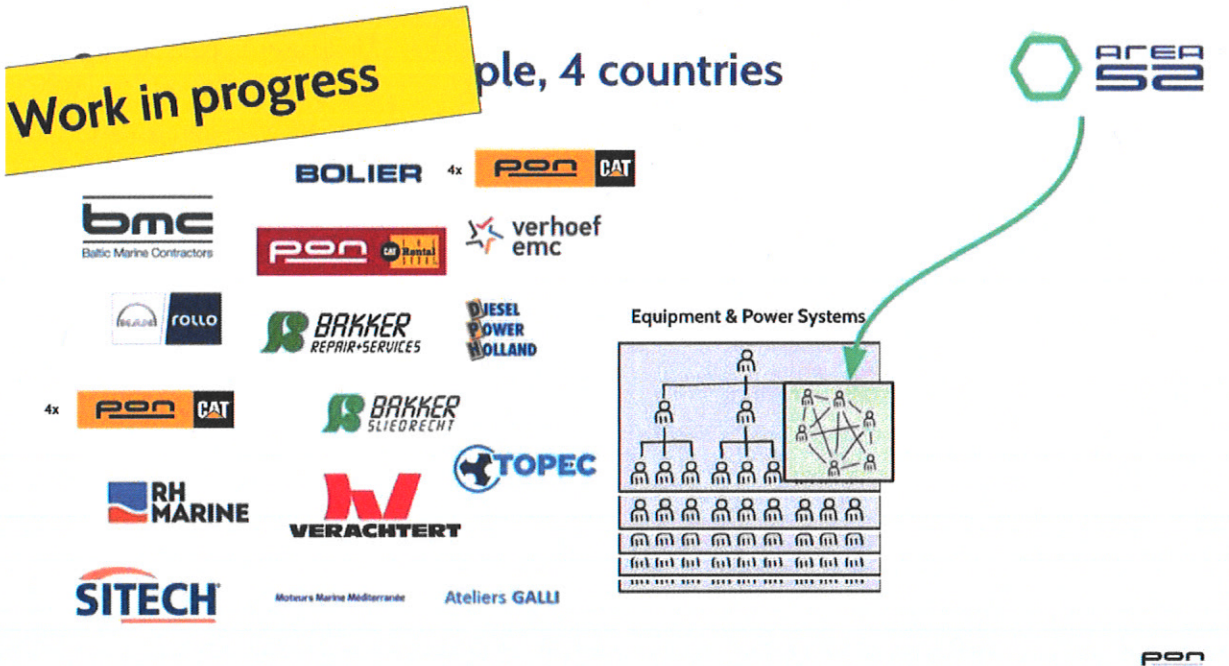


image / figure 2: Organisational structure and companies within PEPP

PROBLEM DEFINITION **

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

The business unit PEPP faces that internal innovation is not taking of as expected from their innovation strategy. Area 52 witnesses that operating companies, indeed, face difficulty to innovate successfully. Currently, operating companies do organize their own innovation projects. Yet, many of these projects are one-offs, take a lot of (unnecessary) time and do not result in successful implementation. For example, PENL has talked about Remote Service for over 8 years without any clear results. According to literature, unsuccessful internal innovation is not rare, as between 70% and 90% of all internal innovation projects currently fail. [3] In addition, employees from Horizon 2 projects become depended upon Area 52. They require support that Area 52 is unable to provide to help employees to validate the concept ideas successfully.

The reason why employees depend upon Area 52 is caused by the problem that employees currently lack expertise to innovate autonomously. Most are unfamiliar and unskilled to experiment and validate new concept ideas. This ability to experiment is considered the core competence of innovation. [4]

The problem of employees' inability to experiment and innovate autonomously has multiple causes. Cause one is that PEPP's and employees' main focus is on operational activities, where employees and their managers have and feel that there is no time to innovate. Cause two is that both PEPP's organization, culture, infrastructure and employees' mindset do not promote and even prevent experimentation. Currently, the unit is driven by short-term results, minimizing risks and avoiding failure. Also, there are no incentives to innovate as innovation and experimentation are not part of the KPIs of employees or the business goals. Cause three is that operating companies and Area 52 do not have a structured approach to experiment and innovate. Currently, innovation is talked about and expected by the board, yet only facilitated through funding.

ASSIGNMENT **

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

Design a method and corresponding environment that enables employees to autonomously experiment and validate new concept ideas during their daily practice.

I will execute a literature review, observe the case study of the project "Remote Assistance Pilot" and conduct employee interviews. Based on these findings, observations and insights, I will deliver a problem analysis of the current application of business experimentation within existing businesses within PEPP and create a list of barriers that challenge or prevent applying it. From this opportunity area, I will propose and discuss the most relevant barriers as design direction(s). If possible, the relevance of these barriers will be validated through an employee survey.

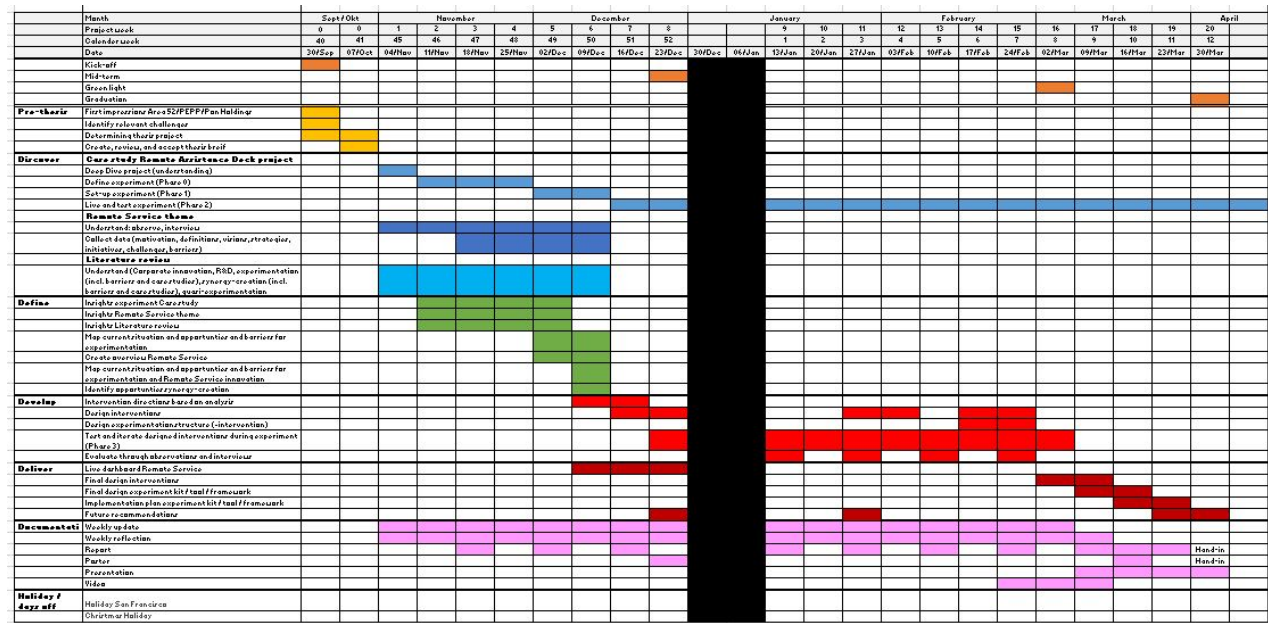
Per design direction, I will design an intervention aimed to higher employee's competence to experiment. Through quasi-experimentation or action research, I will measure the impact of the intervention. Based on the results, I will iterate, and if possible, co-create the intervention with employees.

I am to deliver the final deliverable that consists of 3 parts: 1) a method and environment based on the designed interventions(s) 2) a blueprint on how and when employees and Area 52 can apply the method and 3) a roadmap and recommendations on next steps of scaling experimentation successfully within PEPP.

PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

start date 4 - 11 - 2019 6 - 4 - 2020 end date



The planning is based on the four steps of the double diamond: Discover (1), Define (2), Develop (3) and Deliver (4). This thesis project will start on week 1 (4/11/2019) and end after 20 weeks on 30/3/2020. Discover will take place between week 1 and week 6. During this phase, the project, Remote Service and literature will be researched. From week 7 the case study will start as the experiment will go live. Define will take place between week 2 and week 6. During this weeks, insights will be collected on the experiment specific and the topic Remote Service in general. An overview will be created of Remote Service and the barriers towards experimentation. These insights will be translated into opportunities to improve experimentation as well as opportunities for synergy-creation. Develop will take place between week 6 and week 16. During this phase, quasi-experimentation will be used to design interventions that improve the experimentation and build synergies. These interventions will be tested, analysed and iterated upon. Deliver will take place between week 6 and week 8 and between week 16 and week 20. During the first deliver, a live dashboard will be designed for Remote Service. During the second deliver, the final design for the interventions and an experiment kit/framework/tool will be created. Also, an implementation plan and a list of future recommendations will be created. During the 20 weeks, a weekly update will be provided to the professors, as well as a written reflection will be written. Bi-weekly parts of the report will be written and visuals will be created. From week 15 the final deliverables for graduation will be developed.

MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, Stick to no more than five ambitions.

My motivation for graduating at Area 52 is to learn about how innovation is implemented in a large corporate organization. Being educated in designing of helping corporates through the design of future visions, strategies, roadmaps and (product-)service solutions, I have witnessed that this design rarely takes of to make an impact beyond inspiration. First, naively thinking that designing this new thing was the challenge, I have taken that back. I now believe that after this idea or design it there, the REAL challenge begins with how to implement it. During this graduation, I hope to learn about how to stimulate internal innovation and experimentation through empowerment of employees. This thesis is my first step to understand the bumps of this road and what are the requirements to over come that. So that the next time I design, I can take these bumps into account and design for these requirements – at least let the idea have an airbag included.

When I have graduated I have learned these 3 things:

First of all, I have learned how innovation within the established company and at Area 52 works. I have learned about the challenges of implementing innovation, such as politics, organizational culture, and employees' mindset, and what is required to trigger employees within the organization to start innovating.

Secondly, I have gained awareness in and learned how I can portray myself in a confident and mature way. This means being able to show that I trust my own capabilities and operate autonomously. But also to show awareness, vulnerability and transparency when I don't have the expertise. I want to show this by asking questions, listen and observe more, and involve other people. When involving people, I have learned to effectively engage people and involve them in the right way to work together towards something, letting go of my urge to figure it out all by myself.

Lastly, I am able to make a well-thought decision about where to apply for my first job. I have learned about the pros and cons of a position at a corporate and in a (design) consultancy. Regarding Pon and outside Pon, I have explored functions and talked to people related to innovation.

[1] We move you to a better world • Pon. (2019). Retrieved November 4, 2019, from Pon website: <https://pon.com/>
[2] Enduring Ideas: The three horizons of growth. (2009). Retrieved November 7, 2019, from McKinsey & Company website: <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/enduring-ideas-the-three-horizons-of-growth>

FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.

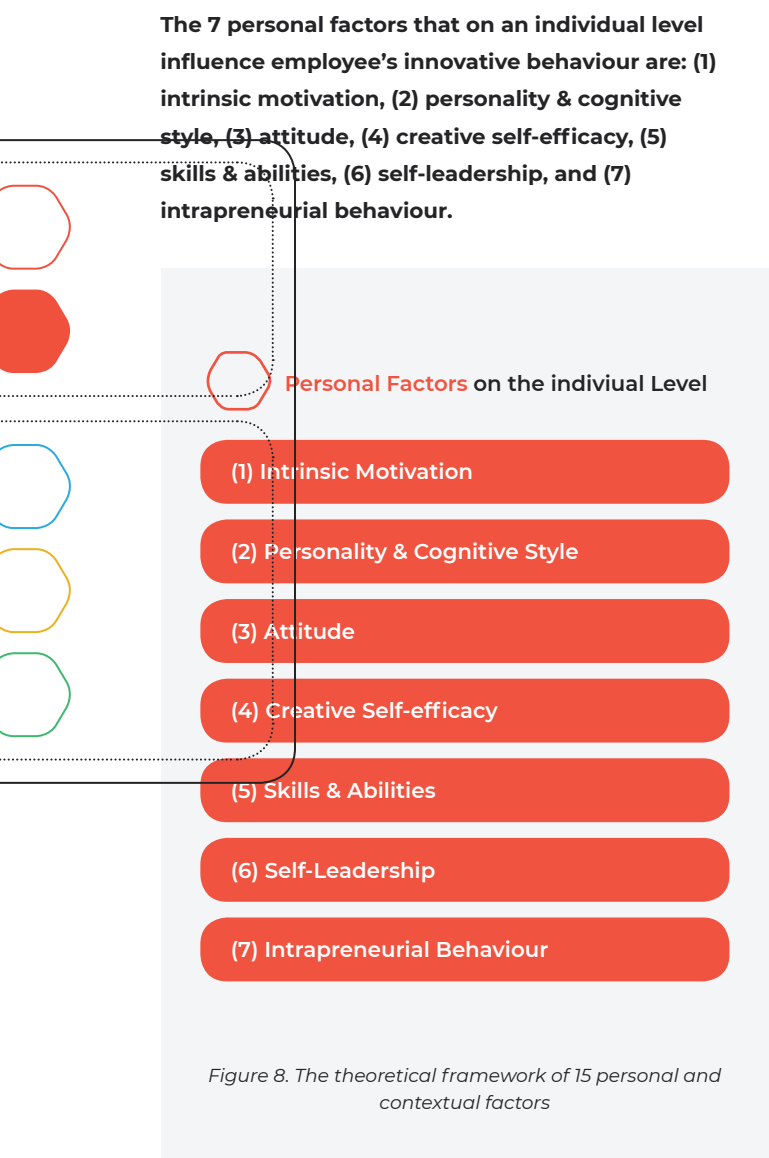
[3] A New Model for Innovation in Big Companies. (2013, November 19). Retrieved November 7, 2019, from Harvard Business Review website: <https://hbr.org/2013/11/a-new-model-for-innovation-in-big-companies>
[4] Hampel, C., Perkmann, M., & Phillips, N. (2019). Beyond the lean start-up: experimentation in corporate entrepreneurship and innovation. Innovation, 1-11.

The first step of a roadmap for **realizing bottom-up innovation** within an operating business:

An MVP tooling designed for the business
group Pon Equipment and Pon Power
Solutions (part of Pon Holding)

Appendices





(1) Intrinsic Motivation

Intrinsic motivation is the extent to which an employee is excited about a specific work activity and engages in this by virtue of the activity itself (Utman, 1997). Since innovative behaviour cannot be commanded, it is considered a key factor. Employees who are intrinsically motivated are more likely to be (a) curious, (b) cognitively flexible, (c) taking risks, and (d) persistent to overcome barriers to realize innovation (Utman, 1997; Zhou & Shelley, 2003).

(2) Personality & Cognitive Style

Personality & cognitive style are traits and abilities that affect the effectiveness and display of certain behaviours. Employees that are high on "openness", perseverance and independence are more likely to be (a) broad-minded, (b) curious, and (c) untraditional (Shalley et al., 2004; Amabile, 1983). Being "open" suggests employees to be (a) more flexible at absorbing new information, (b) combining new and unrelated information, and (c) seeking new experiences and perspectives (McCrae & Costa, 1997), characteristics vital for innovative behaviour. In addition, employees with an innovate cognitive style are more willing to (a) understand complexities, (b) suspend judgement, (c) see things from another perspective, and (d) take risks to deviate from given paradigms and procedures to achieve enhancement (Kirton, 1976; 1994; Amabile, 1996).

(3) Attitude

Attitude is an employee's perspective towards change and his resistance/fear or embracing of this (Hassi et al., 2014). Employees with a positive attitude are more likely to be (a) open-minded, (b) step out of their comfort zone, (c) try new things, and (d) seek challenges. This factor is found to be influenced by contextual factors (elaborated upon in 2.4.6 Interactions and Appendix D).

(4) Creative Self-efficacy

Creative self-efficacy is the extent to which an employee believes in his/her ability to produce creative outcomes (Tierney & Famer, 2011). Employees with high creative self-efficacy are more likely to (a) take initiative, (b) be courageous, (c) have a positive self-esteem, and (d) be assertive in idea generation (Hassi et al., 2014). They are more likely to use their creative potential to realize innovative outcomes (Wang et al, 2014; Richter et al, 2012; Zhou et al; 2012; Diliello et al, 2011; Tierney & Farmer, 2011; Lemons; 2010; Gong et al; 2009; Jaiswal & Dhar, 2015). This factor is found to be influenced by contextual factors (elaborated upon in 2.4.6 Interactions and Appendix D).

(5) Skills & Abilities

Skills and abilities –"creative potential" – is an individual's competencies affecting the mobilizing of creative output (Hilton, 1970; Dillielo, 2006). Required skills entail (a) domain-relevant expertise, (b) creatively-relevant skills and processes, and (1) intrinsic task motivation. Employees with longer tenure length are more likely to have domain-relevant expertise and are able to tackle

jobs in a more focused and relevant way (Carmeli, 2006). Employees with creatively-relevant processes have the right (a-ii) personality and cognitive style, (b) work style, (c) are able to think creatively (divergent and convergent) and generate ideas (Woodman et al., 1993), (d) have a conceptual understanding of the process of innovation, iteration and idea generation (Hassi et al., 2014) and (e) are able to make use of the supporting structures and practises provided by the firm (Hassi et al., 2014). Only employees equipped with all three skills are likely to deliver creative output (Amabile, 1988). Through training and experience creatively-relevant skills and processes can be developed. This factor is found to be influenced by contextual factors (elaborated upon in 2.4.6 Interactions and Appendix D).

Supplementary material to:

2.4 Theoretical Framework

2.4.4 Contextual Factors Managerial Level

(6) Self-Leadership

Innovative self-leadership is a process through which an employee is able to navigate, motivate, and lead himself towards achieving the defined expectations and innovation outcomes (Neck & Manz, 1992). Also, self-leadership is considered a key component for long-term survival, allowing employees to self-manage and supervisors to be able to focus on long-term issues rather than oversight and control (Dillielo, 2006). Employees who exhibit self-leadership skills are more likely to (a) engage in innovation, (b-iv) have higher creative self-efficacy (Dillielo, 2006), (c) feel empowered to make decisions concerning their own tasks and implement them (Conger & Kanungo, 1998), and (d) are able to lead others to support new ideas and solutions

(2006). The success of transformational leadership is dependent upon an employee's innovative behaviour (Hayton, 2005). Through this factor, employees can learn how to manage their innovative behaviour.

renewal Behaviour

Employee's innovative behaviour is an employee's ability to generate, identify, and implement ideas that improve the organization and lead the generation, development, and implementation of ideas (West & Wood, 2005; Bosma et al., 2012). Employees who exhibit innovative behaviour are able to (a) self-start (even without supervisory permission) (Vesper, 1984; Hayton, 2005; West & Wood, 2005; Rigter, 2013), (b) challenge the status quo or address issues of the organization (Frese et al., 1997; Parker & Hayton, 2005), (c) take initiative, (d) behave proactively, beyond their standard job descriptions, and (f) seek opportunities involving risks (e.g. potential for failure or to career) (Hayton, 2005). This factor is found to be influenced by contextual factors (elaborated upon in Figure 8 and Appendix D).

The 2 contextual factors that on a managerial level influence employee's innovative behaviour are (8) transformational leadership and (9) supervisory leadership

Contextual Factors on the Employee's Innovative Behaviour

Transformational Leadership

Supervisory Leadership

Figure 8. The theoretical framework of 15 personal and contextual factors

(8) Transformational Leadership

Transformational leadership is a style where leaders focus on change and vision rather than supervision, monitoring and control (Avolio, 1994). As opposed to traditional and delegated styles, transformational leaders are directive (defining a vision & setting strategic priorities) and inclusive (involving, mobilizing and empowering employees) as can be seen in Figure 9. Key characteristics of transformational leaders are (a) exhibiting innovative behaviour himself and embrace failure and change, (b) being able to formulate an inspiring future vision and the road towards this, (c) design the supporting structures & practises necessary to build an innovative-supportive climate to train and mobilize innovative behaviour (Moghimi & Subramaniam, 2013; Jaiswal & Dhar, 2015).

Podsakoff, Mackenzie, Moorman, and Fetter (1990) have identified six distinctive behaviours and abilities of transformational leaders, which have been enriched over numerous scholars over the years. First of all, transformational leaders are able to (i) formulate and communicate a compelling and desired future vision that motivates employees and transforms the organisation (Burns, 1978). According to Avolio (1994), they act as 'change agents' by addressing the limitations of the status quo, pinpointing improvement and lead by a purpose to which employees can identify. This behaviour is driven by optimism and enthusiasm (Jaiswal & Dhar, 2015). Secondly, they are able to (iia) provide inspirational motivation to not only steer a

vision for the future but also show employees the path for achieving goals and helping them embrace change in order to realize these goals (Ahangar, 2009; Jaiswal & Dhar, 2015). In addition, they are able to (iib) provide intellectual stimulation to stimulate and challenge them to work differently seeking for new and fresh approaches in their tasks (e.g. rethinking routine tasks and the way jobs are currently executed) (Avolio et al., 1999; Jaiswal & Dhar, 2015; Khalili, 2016). They challenge employees' attitudes, introduce new patterns for completing a task and take more challenges to stimulate employees to become involved in innovative processes (Den Hartog, 2003). Third, they are able to (iii) build one-to-one relationships to take into account the needs and feelings of employees, build confidence and make themselves available and approachable to provide support when necessary (Jaiswal & Dhar, 2015). Fourth, they are able to (v) inspire employees to do more than they are expected to do and aim for high-performance and creative behaviour (Bass, 1985). They let their employees think creatively and encourage them to take risks while taking ownership of the results of these actions (Humusluoglu & Illsev, 2009). Fifth, they are able to (vi) foster the acceptance of a shared goal that directs collaboration among employees and that is beyond the leaders' own self-interests but for the benefit of the firm (Khalili, 2016). Lastly, they are able to (v) act as a role model to gain respect, admiration, and loyalty among employees and creates a sense of collective (Jaiswal & Dhar, 2015). They exhibit unconventional and innovative behaviour themselves, such as analysing problems

from different angles, and (9) Supervisory leadership solutions for problems (Humusluoglu & Illsev, 2009). The leadership exhibits characteristics that are essential as a part of effective leadership. It requires creative thinking, employee's perception of the innovation status quo and transformational leadership (Scott & Bruce, 1994; Wang et al., 2014), and employee's innovative behaviour (Bass & Avolio, 1993). According to Hassi, Rekonen & Palu (2014), the transformational leadership and conceptualization of a leader in innovation management are considered key. The leader's supervisory leadership acknowledges and encourages innovative behaviour among its employees (Hassi et al., 2014).

Employees under transformational leaders (a) display higher levels of creative self-efficacy (Shan & Zilber, 2003), supervisors (2014), (b) feel inspired by supervisors' styles to transformational leadership that behaviours and abilities prefer to make them willing to take risks and accept the difficulties and uncertainties, (c) encourage employees to have a more positive attitude towards change (Amabile, 1996; Bass & Avolio, 1993). Employees do not believe their supervisors inhibit their challenge rather than a threat (Eisenst, 2013), (d) have more trust and confidence in their ideas (Argyris, 1999), (e) supervisors who allow them to take risks, initiative and ideas are found to inhibit innovation thinking (Bennis & Nanus, 1985), (e) and ideas are more likely to be rediscovered their curiosity (Amabile, 1988), (f) supervisors are required to provide fresh and original ideas (Bass & Avolio, 1993), (g) risk-taking, (iii) be able to overcome innovative behaviour and failures and mistakes, as learning opportunities (Bass & Avolio, 1993), and (f) perceive the employees' knowledge and information, (v) supportive (Jaiswal & Dhar, 2015). However, the effect of this factor is found to be evaluated by personal factors (elaborated upon in 2.4.6 (Khalili, 2016) and Appendix D).

Supervisory leadership is a leadership style where the supervisor is self-reflective, (xi) are supportive by showing

ately, transformational leaderships, providing non-judgemental, “safe word” and its negative effects, have been found to encourage employee feedback by most scholars (Folger & Cropanzano, 2003; Deci et al., 1989). Transformational leaders closely monitor employee behavior, making decisions without involving employees, and do not make employees follow strict rules and procedures in the absence of a leader (Dilielo, 2006; Carmeli, 2006). Employees who are expected to be supportive are found to show higher intrinsic motivation. Transformational supervisors who are perceived as controlling and authoritarian inhibit follower creativity and creativity (Deci & Ryan, 1985). This deprivation affects whether employees exhibit innovative behavior in three ways: (i) the strong admiration and respect for the leader in a transformational leader, innovative ideas and uncritical supervision (Geddes, 2002). As being able to manage job demands, employees are expected to be less likely to express doubts or challenges to the leader. (ii) employees are found to have higher intrinsic motivation and recognition and approval (Conger, 1990). As a result, they are less likely to express doubts or challenges to the leader. Lastly, (iii) employees might become disoriented and unable to make decisions when the leader is absent. Recent research has called for new leadership styles, e.g. informal leadership, SuperLeadership, and self-leadership, to develop employee's internal leadership skills allowing them to be more creative and make smart decisions in the absence of traditional leadership (Dilielo, 2006; Carmeli,

Supplementary material to:

Chapter 02 | Theoretical Background

2.4 Theoretical Framework

2.4.5 Contextual Factors Organizational Level

The 6 contextual factors that on an organisational level influence employee's innovative behaviour are categorized in the organisation's innovative-supportive climate and supporting structures and practises



(10) Innovative-supportive Climate

An innovative-supportive climate is an employee's perception on how the shared attitudes, behaviours and feelings experienced characterising the work environment for him or her foster and encourage creative and innovative behaviour and consider it part of the organisation's DNA (Hassi et al., 2014; Gundry et al., 2015; Jaiswal & Dhar, 2015; De Jong & Den Hartog, 2007; Khalili, 2016; Ren & Zhang, 2015). An perceived innovative-supportive climate is found to be one of the key factors predicting an employee's innovative behaviour (Mumford et al., 2002; Krause, 2004).

An innovative-supportive climate is characterised to (a) promote, appreciate or expect innovative behaviour and risk-taking (Hassi et al., 2014; Khalili, 2016), (b) consider innovative behaviour valuable, (c) welcome and support innovative behaviour and ideas by allocating sufficient resources (such as adequate work time in schedules) (Charbonnier-Vorini et al., 2010), (d) promote a challenging work environment that requires a creative approach and continuous learning, (e) be a safe environment to take risks and accept and learn from failure, (f) create the trust that ideas have a fair and realistic chance to get selected and supported, (g) reward and recognize creative and innovative behaviour, (h) promote and facilitate knowledge-sharing, collaboration, transparency and openness, and (i) tolerate ambiguity and incompleteness (Hassi et al., 2014), and (j) value experimentation (Hassi et al., 2014; Scott & Bruce, 1994; Jaiswal & Dhar, 2015; Tseng,

2019; Wang et al., 2013; Dilliello, 2006). One of the key characteristics of an innovative supportive climate is its ability to provide a safe environment. Employees exhibiting innovative behaviour require risk-taking, making mistakes, and experimentation (Hassi et al., 2015). It is essential that the climate ensures employees that risk-taking, mistakes and experimentation is rewarded, encouraged and not punished (Khalili, 2016; Amabile et al., 1996) and that ideas are suggestively evaluated rather than critically judged (Shalley & Perry-Smith, 2001).

Employees who feel that they work in an innovative-supportive and safe climate are found to (a) exhibit higher levels of innovative behaviour (Çerne et al., 2013), (b) share ideas and work on them, (c) feel comfortable to take risks, examine new thoughts, experiment and exchange information without fear to fail or not delivering desired result, and (d) feel expected to adopt creative and innovative behaviour (Dragoni, 2005; Jaiswal & Dhar, 2015). This factor is found to be influenced by personal factors (elaborated upon in 2.4.6 Interactions and Appendix D).

However, who (e.g. supervisors, leaders or co-workers) and to what extent they should display innovative-supportive attitudes and behaviours or be considered a role model remain undetermined (Shalley et al., 2004).

Supporting Structures & Practises

Innovative supporting structures and practises are

tooling, processes, mechanisms on innovative

working that design the reward and incentive mechanisms on innovative behaviour. An innovative-supportive climate is found to be one of the key factors predicting an employee's innovative behaviour (Mumford et al., 2002; Krause, 2004). An innovative-supportive climate is found to be one of the key factors predicting an employee's innovative behaviour (Mumford et al., 2002; Krause, 2004). An innovative-supportive climate is found to be one of the key factors predicting an employee's innovative behaviour (Mumford et al., 2002; Krause, 2004).

(11) Job Design

A job design that supports innovative behaviour is found to be one of the key factors predicting an employee's innovative behaviour (Mumford et al., 2002; Krause, 2004). A job design that supports innovative behaviour is found to be one of the key factors predicting an employee's innovative behaviour (Mumford et al., 2002; Krause, 2004).

(14) Reward & Incentive Mechanisms

Reward and incentive mechanisms are found to be one of the key factors predicting an employee's innovative behaviour (Mumford et al., 2002; Krause, 2004). Reward and incentive mechanisms are found to be one of the key factors predicting an employee's innovative behaviour (Mumford et al., 2002; Krause, 2004). Reward and incentive mechanisms are found to be one of the key factors predicting an employee's innovative behaviour (Mumford et al., 2002; Krause, 2004).

to accomplish tasks, and (c) develop ideas (Hass et al., 2004).

Resource-Allocation

Resource-allocation is the availability of time first and budget employees can spend on creativity development and implementation of ideas. Employees who have allocated work time for creativity in their day-to-day schedules are more likely to exhibit innovative behaviour (Hassi et al., 2014). Time pressure and a high perceived workload are found to inhibit innovative behaviour (Chandler et al., 2000). The ability to manage their NPD portfolio through effective decision-making is essential for adequate resource allocation and long-term survival (Kester et al., 2013). Unfortunately, many NPD portfolios of established firms are imbalanced (focused on incremental innovation and firefighting and being overloaded), and lack sufficient resources to intrapreneurship (Kester et al., 2013).

Supportive Processes

Supportive processes are the tooling, structure and systems in place to (a) support employees' extensive idea generation, (b) reduce the risks and uncertainty and help them overcome the organisational hurdles (such as limited resources and bureaucracy)(Imran & Anis-ul-Haque, 2011; Imran & Weitzel, 2013). Employees who can make use of supportive processes (a) know where to find support, (b) know the process and steps to help them proceed with their ideas, and (c) know when the idea is approved.

Supplementary material to:

Chapter 02 | Theoretical Background

2.4 Theoretical Framework

2.4.6 Interactions

Scholars have identified and researched the following interactions between personal and contextual factors:

- (a) Attitude + Personality

An employee's attitude towards change and innovation is found to be related to one's personality.
- (b) Attitude + Creative Self-efficacy

An employee's attitude towards change and innovation is found to be affected by his creative-self-efficacy.
- (c) Attitude + Learned Helplessness

An employee's attitude towards change and innovation is founded to be affected by learned helplessness. Learned helplessness is "the result of external factors over time reducing an individual's initiative to respond to opportunities for improvement and change" (Hassi et al., 2014).
- (d) Creative self-efficacy + Contextual Factors

An employee's creative self-efficacy is found to be easily affected by contextual factors (Tierney & Farmer, 2011; Jaiswal & Dhar, 2015; Yang & Cheng, 2009). In addition, creative self-efficacy is also found to hold a moderating role strengthening or weakening the effect of contextual factors transformational leadership and innovative-supportive climate. Employees with a low creative self-efficacy might not be affected by organisational strategies and contextual factors promoting innovative behaviour (Jaiswal & Dhar, 2015). A low creative self-efficacy is found to reduce the positive effects of transformational leadership and the innovation climate (Jaiswal & Dhar, 2015). In contrast, employees with a high creative self-efficacy experience more positive

effects of the innovative-supportive climate (Jaiswal & Dhar, 2015). Also, the lack of an innovative-supportive climate negatively affects an employee's creative self-efficacy even if he or she is capable of innovating (Jaiswal & Dhar, 2015). Firms and managers interested in intrapreneurship are suggested to simultaneously construct a supportive-innovation climate and train and coach employees on a regular basis to enhance their creative self-efficacy (Jaiswal & Dhar, 2015).

(e) Skills & Abilities + Supporting Structures & Practises

An employee's skills and abilities should allow them to be able to make use of supporting structures and practises provided (Hassi et al., 2014).

(f) Self-Leadership + Supporting Structures & Practises + Intrinsic Motivation

An employee's skills and practise of self-leadership can be strengthened by providing autonomy and responsibility (Dillielo, 2006; Yun et al., 2006). Autonomy and intrinsic motivation are considered natural rewards for self-leadership (Manz & Neck, 2004).

(g) Self-Leadership + Creative Self-Efficacy

An employee's self-leadership skills is found to enhance creative self-efficacy and results in employee's innovative behaviour (Houghton et al., 2003; Prussia et al., 1998).

(h) Intrapreneurial Behaviour + Supporting Structures & Practises + Supervisory Leadership

An employee's ability to behave in an intrapreneurial way and implement ideas and innovation processes requires the support from the organisational to overcome hurdles, reduce risks. For some employees if the risks are not reduced (e.g. potential negative impact on career), employees might not use their intrapreneurial behaviour (Hornsby et al., 2002). Also, intrapreneurial behaviour cannot be used if the firm does not offer intrapreneurial opportunities. The first step of intrapreneurship is for the organisation to offer and stimulate intrapreneurial opportunities, to which the employee can decide to be involved (step 2)(Rigtering & Weitzel, 2013). In addition, trust in one's supervisor and autonomy are vital (Des et al., 2003; Rigtering & Weitzel, 2013). Interviews

3.2.2 Data Collection

(i) Transformational Leadership + Innovative-Supportive climate + Supporting Structures & Practises

Transformational leadership from leaders is found to design the supporting structures & practises to build an innovative-supportive climate (Moghimi & Subramaniam, 2013; Jaiswal & Dhar, 2015). In addition, they promote an innovative-supportive climate through behaving in an innovative way, being considered a role model, and inspire, motivate and learn employees to create and innovate. An innovative-supportive climate is found to moderate the relationship between transformational leadership and an employee's innovative behaviour (Khalili, 2016).

Supplementary material to:

Introductie

Korte introductie Verena + uitleg afstudeeropdracht
Kun je me vertellen wat jouw werk bij Pon inhoudt?

(1) DIP-ervaring

Wat was jouw motivatie om mee te doen aan het DIP
Programma?

Follow-up:

Wat was je grootste leerervaring?
Hoe pas je de vaardigheden nu toe in je dagelijkse
werkzaamheden?
Voorbeelden van toepassingen?
Tegen welke uitdagingen lopen je aan?
Wat heb je nog niet toegepast? Waarom niet?
Wat zie jij als een essentieel element om te kunnen
innoveren?

(2) Innoveren tijdens dagelijkse werkzaamheden

Welke rol speelt innovatie in jouw dagelijkse
werkzaamheden?

Follow-up:

Voorbeelden van hoe je innoveert?
Wat gaat hierbij goed?
Wat maakt het lastig om te innoveren?
Hoe kijkt de rest van de organisatie naar innoveren?
Hoe zou je willen dat innovatie binnen jouw dagelijkse
werkzaamheden eruit zien?
Wat zie jij als de grootste barrière om als organisatie te
innoveren?

(3) Experimenteren (individu)

Tijdens DIP hebben jullie geleerd over het uitvoeren
van experimenten, wat betekent voor jouw een
“experiment”?

Follow-up:

Hoe gebruik je “experimenten” tijdens je dagelijkse
werkzaamheden?
Voorbeelden?
Waarom gebruik je het wel/niet?
Wat vind je er leuk/minder leuk aan?
Wat werkt wel / wat werkt niet?
Welke uitdagingen hebben je ervaren / zie je in het
uitvoeren van experimenten?

(4) Experimenteren (infrastructuur en cultuur)

Kun je mij uitleggen wat de rol van “experimenteren” is
binnen jouw organisatie?

Follow-up:

Hoe wordt experimenteren gefaciliteerd? (processen,
infrastructuur)
Hoe kijken collega's naar het doen van experimenten?
Waarom?
Wat zijn uitdagingen / twijfels / wat werkt nog niet?
Hoe denk je dat mensen meer gestimuleerd kunnen
worden om experimenten op te zetten?
Wat zie jij als de grootste barrière om als organisatie te
gaan experimenteren?

Supplementary material to:

Chapter 03 | Methodology

3.2 Interviews

3.2.2 Data Collection

Wat is de belangrijkste inleiding voor de Pon Management Dagen?

Wat is de belangrijkste inleiding voor de Pon Management Dagen?

(1) Pon Management Dagen

Welk belangrijkste inzicht heb je meegenomen vanuit de Pon Management Dagen?

Nieuwe inzichten qua innovatie? Of experimenteren?

(2a) Innovatie in huidige werkzaamheden

Wat betekent innovatie voor jou binnen je werkzaamheden?

Wat doe je op dit moment?

Waarom ben je er wel of niet mee bezig?

Hoe belangrijk is innovatie in jouw werkzaamheden?

Waarom wel of niet?

Wat wordt er van jouw verwacht omtrent innovatie?

Hoe kijk jij aan tegen deze verwachtingen? Haalbaar?

(2b) Experimenteren

Wat betekent “experimenteren” voor jou?

Voorbeelden?

Waarom wel / niet?

Uitdagingen om te experimenteren?

Tijdens de Management Dagen werd veel gesproken over experimenteren, wat betekent “experimenteren” voor jou?

Wat betekent experimenteren voor de rest van de organisatie?

Hoe wordt experimenteren tot aan nu gebruikt?

Voorbeelden?

Wat maakt het lastig om te experimenteren? (Uitdagingen)

Hoe stimuleer jij dat er wel of niet wordt geëxperimenteerd?

(3) Ideaal: experimenteren

Als je kijkt naar de toekomst, hoe zou je willen dat er wel of niet wordt geëxperimenteerd?

Wat is daarvoor nodig?

Hoe kan experimenteren worden gestimuleerd?

Wat is jouw rol hierin?

Wat is de rol van werknemers?

Wiens verantwoordelijkheid is dit?

Hoe kunnen we morgen al beginnen?

Wat zie jij als grootste barrière die dan overwonnen moet worden?

(4a) Managen van innovatie en experimenteren

CHECK: Heb jij een team van mensen dat je aanstuurt?

Wat verwacht jij van je team omtrent innovatie en experimenteren?

Hoe beïnvloedt jouw leiderschap innovatie door het team?

Hoe stimuleer je innovatie / experimenteren?

(4b) Managen van innovatie en experimenteren

Wat maakt het lastig voor jou om innovatie te managen?

Welke uitdagingen ervaar je?

Wat zie je als grootste barrier?

Chapter 03 Methodology	
3.2	Interviews
3.2.2	Data Collection
3.3	Observations
3.3.2	Data Collection

This is not our culture, this is not what we do and the
mens verantwoordelijkheid is
industry we in are also not very used to this. This
means that it is a bit difficult, the asking thing we can
e daarvoor nodig?
almost forget.

Yet, we at PENO don't even ask questions. We are not even there. Which makes it very difficult. We have basically never done that. Sometimes we are lucky when we partner up with someone who does that. For example, a supplier who says we need to see how the users do and measure it.

Noone really knows & noone really cares to investigate

Je wilt eerst klein beginnen, dan resultaat late zien en dan opschalen

18

The diagram is a vertical flowchart. At the top, a red rounded rectangle contains the title 'The antecedents of Employee Innovation Capabilities' in white text. Below this, three white rectangular boxes with red borders are stacked vertically, each containing black text: 'Attitude', 'Creative confidence', and 'Intrinsic Motivation'. At the bottom, the text 'Innovation Ambition' is written in red. The entire diagram is set against a light gray background.

The antecedents of Employee Innovation Capabilities

Attitude

Creative confidence

Intrinsic Motivation

Innovation Ambition

- Attitude is an employee's resistance to change and his/her open-mindedness towards newness
- Creative self-efficacy is an employee's belief about his/her self-capacity in terms of essential knowledge, skills, and ability, to produce creative outcomes.
- Intrinsic motivation is an employee's pleasure received from being involved in a creative task, serving as a type of reward.

Attitude is the first factor that influences an employee's innovation ambition. An employee's attitude towards change and newness is reflected in whether he/she is able to step outside his/her comfort zone, try new things, seek challenges or whether this is feared.

Many employees have worked for PEPP for over 10 years, and are loyal and passionate to the product and service they sell. They have “Yellow Blood” and will only change when asked for by CAT. Also, many believe that change equals additional time, and with already filled with overwork, their first response is negative.

the result of external forces over time reducing an employee's initiative to respond to opportunities (Hasseli et al., 2014).

Area 52. Unfortunately, employees who have a positive attitude feel little supported by peers, their managers, MT and MD.

“Ik zie dat het anders kan en dat we anders moeten om te blijven overleven en inspelen op kansen”

(technical) engineering, marketing. The common department does “creative” the customer experience employees from other hold the right skills, as well, and as a result activities. security, a negative

“Ik probeer ondanks de werkdruk mijzelf te verbeteren en dingen anders te doen en collega's hierin uit te dagen”

“Als we echt willen innoveren moeten we dat ook uitdragen en hier de resources en ruimte voor vrij maken. Op dit moment gebeurt dat niet. We hebben veel praatjes, maar als het puntje bij paaltje komt.”

...geen onderdeel ...agelijkse werkzaamheden en ben ik ook niet voor aangenomen.”

de, most employees experience a some-what negative attitude towards change and thus n. Employees with a positive attitude feel ed. PEPP and the OpCo's overall attitude change greatly affects employee's own attitude. and OpCo's to shift towards a more positive top-down commitment, actions that support any's pursuit for change and newness and are required. For employees innovation to turn into innovation actions, employees with attitude should feel supported. Also, learned ess by employees should be overcome by ng empathy and regain their trust and believe.

“Ik heb geen taken waarin ik wordt verwacht na te denken over nieuwe ideeën of manieren hoe we het anders kunnen doen.”

“Mijn manager geeft mij dat vertrouwen waardoor je je empowered voelt en vleugeltjes krijgt om het zelf te doen.”

“Als iemand iets nieuws zegt of er iets nieuws wordt geïntroduceerd dan zijn mensen vaak sceptisch.”

To conclude, for employees to feel confident to be creative the condition of a supportive environment by managers and peers is required. For employees to become aware of what creativity can mean in their own work and for themselves, the spectrum and representation of “innovation” and “creative activities” need to be broadened. By showcasing examples of ideas, creative tasks and people, employees can relate to, employees are better able to relate and get inspired and aware of their own creative potential. in their trust and believe.

Personal factor: Intrinsic Motivation

Intrinsic motivation is another factor affecting an employee's innovation ambition. Employees have different reasons and motivations for being involved in a creative task.

PEPP holds employees with a variety of different education backgrounds and levels. Despite the exceptions, employees with a higher education level both experience and witness how they differ in motivation to change and innovate compared to employees with a lower level of education. In specific, they depend more upon a higher purpose beyond executing their work, they hold a strong purpose for

“Sommige collega's komen gewoon naar werk om te werken en geld te verdienen en gaan dan weer naar huis”

“Door bezig te zijn met verandering en innovatie ben ik mezelf aan het ontwikkelen. We doen daar binnen PEPP nog te weinig mee.”

personal growth, and are more purpose-driven. In addition, employees with a higher level of education seem to be more aware of and understanding the long-term impact of innovation. Also, they feel a higher

“Uiteindelijk blijven we maar een beetje hobbyen zonder dat er echt iets verandert, er tijd voor wordt gemaakt of het belangrijk wordt gevonden.”

urgency to change and consider it more crucial. Lastly, employees who are intrinsically motivated share the believe that a certain impact can be made and desire to be part of creating this impact. Unfortunately, most of them have a prior experience(s) of being motivated to try something resulting in overtime or scarified leisure time without any ripple effect. Therefore, many of them require some kind of certainty, confirmation, commitment or trust from decision-makers to realize

“Sommige collega's zijn niet bezig met de lange-termijn. Er moet concreet worden verteld wat verandering op korte-termijn voor hun betekent.”

If Innovation Ambition is present within an employee, the ability to act upon this ambition is facilitated by his/her innovation capabilities. An employee's innovation capabilities are all the skills, knowledge, and mindset as well as know-how, ability to use tooling and experience that enables him/her to engage in Innovative Behaviour. This research has identified three factors that indirectly and on an individual level affect an employee's innovation capabilities. The overview can be found in Table 4.



Figure 13. A PEPP-specific Theoretical Framework for based on the findings from the Empirical Research

- The three factors are:
- The creative mindset is an employee's ability to engage in the activities of critical-, customer-, and explorative thinking as well as having an open and external-oriented mindset.
 - The Know-How & Practise is an employee's understanding of the innovation process, his/her ability to act in an innovative way by having practical skills and his/her ability to make use of creative tools and methodologies.
 - Innovative self-leadership is an employee's ability to engage in activities of risk-taking, entrepreneurship and autonomy, comfortable dealing with uncertainty, and seeking opportunities.

Personal factor: Creative Mindset
The creative mindset is one of the factors that influences an employee's innovation capabilities. Employees who hold a creative mindset are able to and engage in activities of critical, customer-centric, external and explorative thinking.

From origin, the PEPP business group and the OpCo's is a dealership. This means that OpCo's play a middlemen between their OEM and the customer. For this role, required expertise within the company was considered either a sales or technical background. Most employees within the OpCo's have therefore specialized roles in their sales, marketing or ,on the other hand, engineering and technology. As a result of this, most employees do not consider a creative mindset necessary in their function.

The organisation's representation confirms employees belief that creativity is not something done by everyone.

"Bij Marketing daar zijn ze creatief."

"Mijn rol als Product Owner is eigenlijk een beetje een vreemde eend in de bijt. Veel werknemers hebben gewoon traditionele functies van sales of engineers. Mijn rol laat het eigenlijk als enige in de organisatie toe om bezig te zijn met iets nieuws en dingen bedenken".

Currently, creative within PEPP is presented as outcomes of products and disruptive ideas rather than a way of working or thinking. This narrow definition of creativity is rooted in PEPP not having expertise in production or creative activities by itself.

"We leggen de nadruk op creativiteit als resultaten en vette ideeën. Er wordt weinig gesproken dat creatief zijn een manier van denken is"

All though PEPP's message is that every employee can be creative within their work, their functions show otherwise. Most, if not all, tasks employees execute do not require creative, critical, explorative or customer-centric thinking. This fixedness of tasks prevent employees from engaging in and developing a creative mindset. Questions and thus thinking on what

"Er wordt van mij niet gevraagd om te bedenken hoe dingen anders of beter kunnen"

"Er is geen mentale headspace om na te denken"

"We zijn alleen maar bezig met brandjes blussen en denken niet na over brandpreventie"

can be improved, how to better served the customer experience, how to do things different, and how to learn from other departments, OpCo's and companies are rarely asked by employees themselves and their managers.

In addition, customer-centric thinking is greatly influenced by employees' functions and the structure of the organisation. Currently, sales representatives, key account managers, and engineers, are the only customer touchpoints. Sales representatives are reserved and often unwilling to allow other employees to talk to their long-developed personal customer relationships. Thus most employees do not interact with the customer directly or during their work. As a result, a large group of the organisation is internal-focused, not considering a customer-perspective during their work activities. Most customer interactions are driven by a sales motive or potential to sell.

Know & Practise

Another factor that innovation capabilities. Employees who have an experience in an innovative way can practise.

"We zijn druk bezig met elkaar terwijl we druk bezig zouden moeten zijn met de klant"

"Niemand durft de klant echt te vragen. Ten eerste is sales heel beschermend over hun klanten dat het haast onmogelijk is om deze te spreken. Daarnaast, weten we ook niet echt hoe we de klant vragen moeten stellen, en proberen we automatisch iets te verkopen. Je merkt aan alle kanten dat we echt een sales-organisatie zijn. Maar betekent dat we dus weten wie de klant is en wat hij wil? Zeker niet."

Participants in the full know-how and have they identified as most necessary for all employees are: how to conduct a customer interview, how to become aware of your assumptions and the steps of the innovation process. Regarding knowledge, they believed understanding that failure is also a good result, the fact that 9/10 ideas fail and that there is a difference between what customers say and do. Despite being equipped, most DIP participants are only to apply their creative mindset and not skills during their work activities. This DIP program is currently the only way for employees to develop these skills and knowledge.

"De DIP training heeft mij veel geleerd over innovatie en verbetering. Hoe je het aanpakt en welke tooling je kan gebruiken. Het zou goed zijn als binnen de organisatie werknemers basiskennis hebben van het innovatieproces en de tooling die er is. Op dit moment is het DIP programma niet toegankelijk en een hoge drempel voor werknemers om aan mee te doen."

Without any DIP experience, a small group of intrinsically motivated employees is determined to work on their idea. Without facilitation, tooling and know-how, they are using a trial-and-error approach wild-guessing their way through. To realise their ideas, most employees believe that they have to create and present a Business Case. Others, are pitching their idea to responsible managers discussing whether time and budget is available. In most cases, a planning-driven approach is taken, where ideas are talked about but not developed. The only supporting tooling provided is the opportunity to pitch their idea to top-management by Area 52, which is creating a high threshold for most.

As a consequence, employees spend time working on self-initiated ideas, with almost all of them never seeing the light or being stopped soon afterwards.

"Om een idee uit te werken heb ik een vriendin gevraagd hoe ik dit het beste kon aanpakken. Samen met haar heb ik een klantreis gemaakt. Nu weet ik hoe ik een klantreis moet maken."

"Als jij er niet was, dan waren we met ons idee ergens in een hokje gaan zitten om het proberen te gaan uit te werken. Waarschijnlijk hadden we een oplossing gebouwd om te presenteren."

"Als je een idee hebt wordt je verwacht een plan te hebben met een business case waarin je kan laten zien hoeveel het gaat kosten en hoeveel het gaat opleveren."

"Er is nog nooit iemand bij mij [MD en Pon-board member] aan de deur gekomen om een miljoen te vragen."

To conclude, only a small group of employees is equipped with know-how and experience in innovation. Within the organisation there is no knowledge and tooling in existing methodologies of Design Thinking and Lean. The only tooling available is the DIP training which is not accessible by all employees. As a result, employees work on self-initiated ideas through trial-and-error, wild-guessing, and planning, with little to no success.

Personal factor: Self-Leadership

Unfortunately, most employees do not showcase self-leadership. With a culture of pointing fingers, few employees feel personal ownership and responsible. Also, it is believed and feared that entrepreneurial behaviour is not appreciated. The belief is confirmed by management not asking employees to suggest ideas.

Within the existing structure, employees have not been encouraged to make suggestions. As a consequence, employees are reserved and are in the modus of not requiring capabilities of employees in self-directing these tasks. With everyone's job, it is assumed by employees that is a large group of employees has forgotten to behave self-directed and need to be activated.

Nevertheless, when employees have an idea or suggestion, approval needs to be asked from their direct manager. Due to bureaucracy and many management layers, most decisions require approval of multiple layers. As a result, employees feel little autonomy to make decisions by themselves and pro-actively and independently act up ideas or suggestions they have.

"Ik denk dat het empowerment, dat kwam vorige week heel veel naar voren, mensen moeten ook het gevoel hebben dat ze het vertrouwen krijgen om dingen te proberen."

"Veel Ideeën worden door directe managers beoordeeld en bepaald dat deze niet door gaan."

"Om aan een idee te werken heb je altijd goedkeuring nodig van je manager."

Despite this hurdles, a very small group of intrinsic motivated employees have an entrepreneurial drive to realize their ideas. Currently, this entrepreneurial activities are undertaken in their own time or overwork.

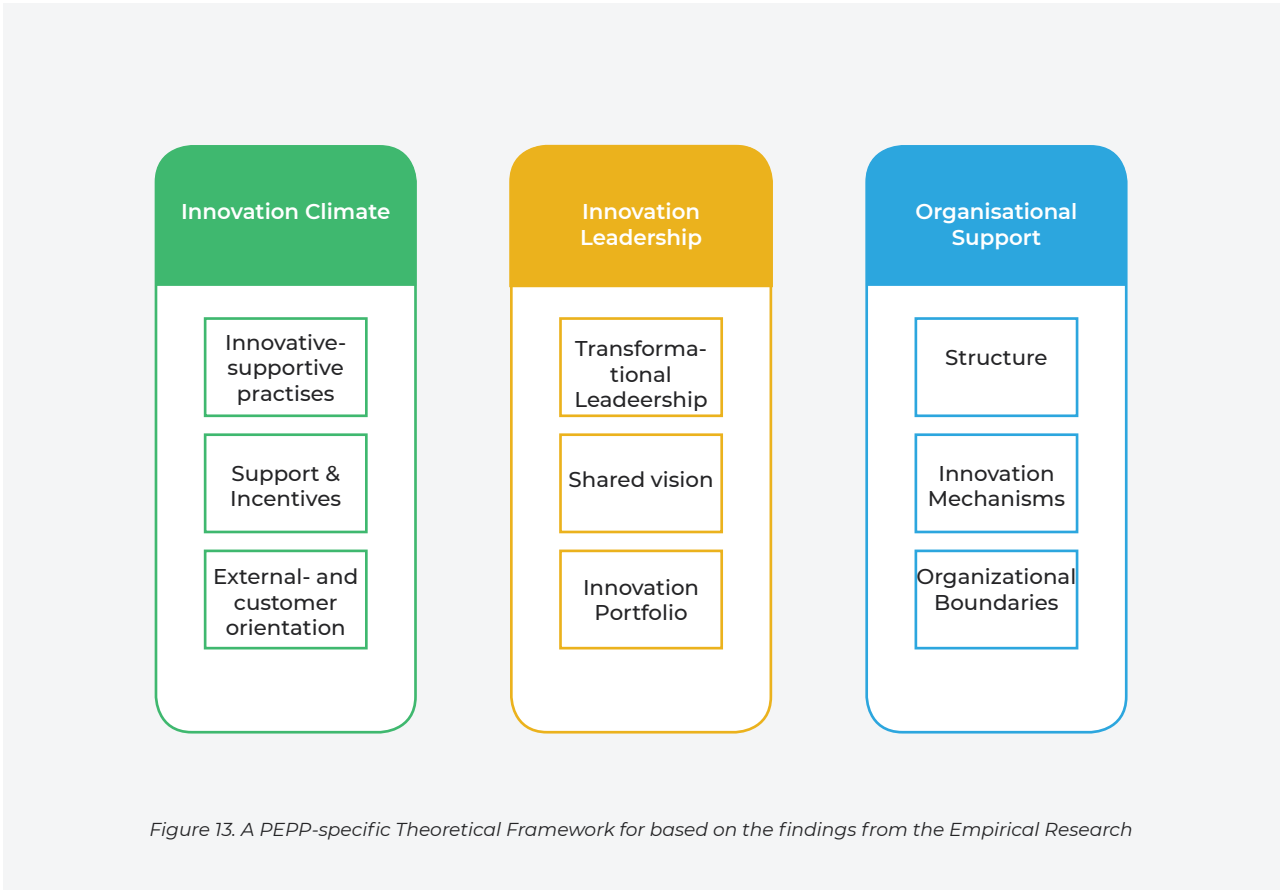
the other hand, a small group of employees
ces the autonomy to make decisions and
ative. They are naturally conducting small
nts, and do not fear failing. In all cases, this self-
o is supported, expected and encouraged by
ct manager”.

“Ik werk in mijn vrije tijd aan de
technologie om het werkend te
krijgen en te kijken wat we ermee
kunnen.”

“We moeten dit gewoon gaan doen.
Zo laten we zien dat het een goed idee
is.”

Innovation Capabilities			
Construct	Creative Mindset	Know-How & Practise	
Defintion	An employee's ability to engage in the activities of critical-, customer-, and explorative thinking as well as having an open and external-oriented mindset.	An employee's understanding of the innovation process and his/her ability to act in an innovative way by having practical skills and ability to make use of creative tools and methodologies such as Design Thinking, Lean and Experimentation.	An risk un con
Proof quote	<i>“Werknemers begrijpen het wel wat experimen-teren inhoudt, maar ze kunnen niet nadenken of bedenken dat dat ook in hun werk heel handig zou kunnen zijn”</i>	<i>“To be honest, I can use it kind of for myself, but my colleagues around haven't DIP in a day. So they don't understand. They have absolutely zero idea about what I am talking. I have these very simple questions, like “Has anyone investigated what the customers really want, or asked or even just observed, experimented or exposed the customer for this”. They have absolutely no idea what I am talking about”</i>	<i>“I a exp can ide tim bee thi</i>
Link to extant Literature	This construct relates to the concepts of creative thinking (McFadzean, 1998), critical thinking (Gong et al., 2009), creative problem-solving as part of Design Thinking (Liedtka, 2018).	This construct relates to the concepts of technical skills and know-how (Hassi et al., 2014) and Design thinking (IDEO U, 2019).	This ent 201
Differentiation from Literature	The existing literature has not merged multiple modes of thinking under an umbrella term while considering these thinking practises an overall mindset.	The existing literature has not highlighted the first core capabilities of being able to identify and formulate assumptions and understanding how to involve customers into the innovation processes.	In a of f up wit how op pro act exp
Specific for PEPP	In general, PEPP employees with specialized functions in sales or engineering do not consider a creative mindset as necessary in their function. This is confirmed by most of their tasks not require any form of creative thinking. In addition, custom-er-thinking is considered only relevant for cus-tomer-facing roles. As a result, the organisation is internal-oriented, and most employees have not de-veloped nor required creative thinking. In contrast, a small group of employees has developed a creative mindset and uses this only a daily basis. In specific, the employees make use of critical, customer-cen-tric and explorative thinking. Unfortunately, being a minority in the organisation, employees who have a creative mindset experience both resistance and frustration.	Overall, PEPP, being a dealer, has little knowledge in New Product Development and related methodologies such as Design Thinking and Lean. Due to this, no tooling, despite the DIP training, is provided. Unfortunately, this tooling is inaccessible and is experienced by employees as too high of a threshold. There is a gap between a small group of employees equipped with know-how and skills, and the rest of the organisation. Unfortunately, most DIP participants are unable to apply all knowledge and are limited to their creative mindset. Without any support, facilitation and knowledge, employees are still engaged in innovative behaviour. Their current approach is trial-and-error, resulting in low success rates.	PE pro see DN are cre op app aut res ent is n em ent the

The 6 personal factors are complemented by 9 contextual factors.



Category Innovation-Supportive Climate

An innovation-supportive climate is the perception employees have on whether the organisation supports and encourages practises of risk-taking and creativity, whether there is a safe environment, and sufficient resources allocated (Jaiswal, 2015).

The cluster Innovation Climate consists of the constructs: innovation-supportive practises, support & incentives, and customer- and external-orientation. Despite the unique cultures OpCo's hold, the following factors have been identified to be shared among most OpCo's.

Contextual factor: Innovation-Supportive Practises
Innovation-supportive practises are how the organisation supports and encourages practises of risk-taking, opportunity-seeking, and entrepreneurship.

- Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:
- The fear that they can't make mistakes or fail and their idea has to be successful
 - That involving customers not for the sake of sales but discuss and test one's idea is not allowed
 - That ideas that do not add value to short-term targets (e.g. saving costs) or involve high risks are not supported by supervisors and do not have resources available to spend on them
 - That ideas should always be approved by supervisors or top management before time can be spend on them

Category Innovation Leadership

Support and incentives and support employees perceive are in place to facilitate innovative behaviour. Innovation leadership is the way the leaders of the organisation establish an innovation climate that empowers employees and provides sufficient support for innovation (Jung et al., 2003). The de Jongsma business model requires leadership on many levels of the organisation, such as Pon Advisory board, PEPP executive board, MD Management, and top management level.

- The peer pressure and of the organisation, such as Pon Advisory board, PEPP executive board, MD Management, and top management level, discourage they have to do with.
- The discouragement, management, and top management level, from supervisors and top management support to ask for, appreciate, and encourage employees to initiate ideas and/or transform ideas into actions, such as guidance, help, and innovation climate, involve employees by motivating them to learn and develop new ways of doing things.
- The lack of official resources to mobilize the necessary available resources to develop and develop innovation or develop self-initiated ideas.
- The recognition of innovation, and self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:
 - The missing of a vision and long-term goals

Contextual factor: External- & Customer Orientation
An external and customer-centric orientation of top management is responsible for creating an innovation-supportive climate by focusing on innovation, operation and has knowledge about changes in the environment, competitors and innovation, and provide the necessary support (time for innovation).

- The missing of focus that ensures activities prioritized, innovation is prioritized, resources allocated and not considered scare, and over is prevented, which is reflected in employee activities

Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:

“Er is een visie opgesteld met het PEPP board en alle Managing Directors. Zij hebben gezamenlijk een visie opgesteld voor 2022”

“We worden verwacht een toekomstvisie voor PEPP op te stellen vanuit de bottom-up, want vanuit de top ontbreekt die”

“De mensen die aan het roer zijn, zijn geen natuurlijke visionairs”

A shared vision and purpose is a vision that is shared among the PEPP group and is considered a North-Star for employees guiding their innovation behaviour. This shared vision is part of the organisation's collective ambition and the extent to which all employees share the same company goals and values (Kester et al., 2011).

Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:

- The lack of communication of a compelling vision that makes employees aware about the ambitions of their organisation inspires them
- The lack of clear innovation ambitions and targets that allow employees to be able to place their ideas in the “bigger picture” and see whether they fit

“We hebben altijd meegelift op de visie van CAT. We hebben geen visionair leiderschap”

“We worden verwacht te innoveren vanuit PEPP en CAT. Er ontbreekt vaak een gezamenlijke visie waarin iedereen zegt dat ze het relevant vinden”

“Weinig MD's hebben een lange-termijn visie. Ze zijn gefocust op het runnen van de operatie en laten zich leiden door CAT”

“We weten niet waar we als PEPP over 10 jaar willen staan.”

“Ook al heb ik een idee, dan weet ik niet of dit binnen de ambitie van mijn OpCo valt”

“Ik omschrijf de huidige visie als we moeten veranderen, anders wordt ons business model gekaapt.”

“Niemand draagt de visie en we worden niet geïnspireerd en aangezet tot nadenken over de toekomst”

“We worden verwacht van CAT en PEPP om te innoveren”

“Meewerken naar de toekomst is geen doel voor mensen. We zijn geen purpose-gedreven organisatie”

Contextual factor: A Balanced Innovation Portfolio

A balanced innovation portfolio is a New Product Development (NPD) portfolio of opportunities that is strategically aligned with the organisations' priorities, has defined areas of focus and respective targets and covers all three horizons of innovation in terms of innovation efforts with the required resource-allocation (Kester et al, 2011; Tuff and Nagji, 2012).

Employees who work on self-initiated ideas or are interested in working on innovation feel that inhibited or discouraged in the following ways:

- The lack of focus on any form of innovation, including incremental innovation
- The overload of projects resulting in scarcity of resources
- The lack prioritizes activities, including innovation,
- The lack of resources allocated to innovation showing that it is not a priority and helping employees successfully develop their ideas, or at least spend time on them

“We zijn alleen gefocust op hoe we met de huidige bedrijven geld kunnen verdienen”

“Binnen PEPP vinden we alles belangrijk en zien we overal kansen. Omdat onze stip op de horizon niet scherp is heeft alles automatisch prioriteit 1.”

“We zijn alleen maar bezig met de brandjes blussen van vandaag”

“We zijn nog steeds afhankelijk van CAT. We strugglen om los te komen van CAT en het lijkt wel of we zelfs een stapje terug doen. We doen er alles aan om CAT te pleasen”

“Vanuit Area 52 hebben we een innovatiestrategie, innovatie criteria, en domeinen opgesteld. Deze gebruiken we inderdaad alleen intern en zijn OpCos niet mee bekend”

“We kiezen vooral projecten met korte-termijn doelen en die snel resultaat leveren. We zijn gedreven door zekerheid”

"We praten over innovatie, maar bedoelen allemaal iets anders. Bijvoorbeeld onze directeur die noemt eigenlijk alles wat nieuw is voor PEPP innovatie."

"We hebben zoveel thema's. Vanuit PEPP is het onduidelijk waarin we moeten gaan innoveren"

"We missen focus waarin we willen innoveren. We besteden overal een beetje aandacht en tijd"

"We focussen ons vooral op de grotere innovaties, de incrementele innovaties doen we niet."

"Area 52 heeft heel veel bereikt. Toch snap ik niet helemaal dat ze op Horizon 3 focussen. Binnen de OpCos zitten we nog op Horizon 1 te spartelen en lukt het ons niet om op Horizon 2 te innoveren. Er is nog zoveel mogelijk binnen de OpCos zelf."

"We hebben een jaaragenda met projecten"

"We leggen alle 200 ideeën op tafel en dan spreken we onze voorkeur uit"

Self-initiated ideas or are
Employees feel that inhibited or
says:
Decision-making and
makes it unclear for
Employees should be involved
develop a self-initiated
from top management
the idea
resource-allocation
Employees the resources that
innovation
rewards and incentives
empt in developing
ent that will not be
which sometimes does
involved

Final Boundaries
the limitations the
and nurturing

Self-initiated ideas or are
Employees feel that inhibited or
says:
requires ideas involving
the strategic priorities

within the entire value
OEM and customers,
to not only learn skills in
lives but also take along their
OEM and customers in the innovation process to

ensure the success of self-initiated ideas.

"We hebben geen innovatiedoelstellingen"

"Tijdens MT meetings wordt innovatie niet besproken. Het is geen vast agendapunt"

"Wanneer het einde van het jaar is of we moeten bezuinigen dan vallen innovatieprojecten het eerste af"

"Innoveren is voor ons hobbyen. We doen het in onze vrijetijd. Het is bijvangst."

"Er is niemand verantwoordelijk gesteld voor het monitoren en aanjagen van innovatie"

"We hebben korte-termijn doelstellingen waardoor innovatie of lange-termijn projecten niet in worden Geïnvesteed"

"Vanuit ons huidig budget wordt weinig zelf geïnvesteerd, voor budget gaan we naar Area 52"

"We worden maar verwacht te innoveren op Horizon 2, terwijl we net bezig zijn met incrementele innovatie en de low-hanging fruits"

"We hebben nog geen eigen innovatieproces. We liften mee op Area 52"

"Area 52 biedt leiderschap dat nodig is om na te denken over de toekomst en innovatie prioriteit en tijd te geven. Ik betwijfel of OpCos dit leiderschap zelf hebben"

"Area 52 laat snel los bij interne projecten, terwijl we iemand nodig hebben die het kan uitvoeren. We kunnen het niet alleen".

"Innovatie en Ideeën worden alleen beoordeeld op financiële waarde en business cases. Mensen durven niet te pitchen"

"We zijn te afhankelijk van Area 52."

"Om echt te innoveren, hebben we iemand van buiten af nodig die ons kan helpen."

"Innovatie wordt stilgezet omdat deze basis niet goed is, zoals door een NAXT implementatie".

"Uiteindelijk worden we beoordeeld op onze winstgevendheid en doelstellingen dus de operatie heeft altijd prioriteit"

Supplementary material to:

Chapter 05 | Design Brief

5.1 Final Problem Statement

5.1.5 The Final Target Group

In chapter 4 (paragraph 4.2.3 Target Group) the target group is described as employees who are characterized by (i) a high level of intrinsic motivation and (ii) work on self-initiated ideas on Horizon 1, 2, and 3. This target group is selected because they (ii) require minimal conditions to exhibit innovative behavior, and (ii) are the least influenced by contextual factors. From the problem analysis and final problem statement the characteristics of (iii) spending time on innovation as a personal investment and (iv) experiencing the pain points of risks and a lack of compensating rewards and recognition are added to the list of characteristics.

Every OpCo holds a small group of employees that fit within the target group and are either already working on self-initiated ideas or have ideas in mind. These employees are active in a variety of functions and layers of the organization, from the operation to the top management-layer. Hence, in the realm of a bottom-up approach, this thesis focuses on employees in all functions from the operational level only. Additionally, this target group is considered (i) most approachable (e.g. members of the “De Movement”), (ii) experience the above-mentioned pain points, and (iii) are considered most open and available to test and co-create the final design.

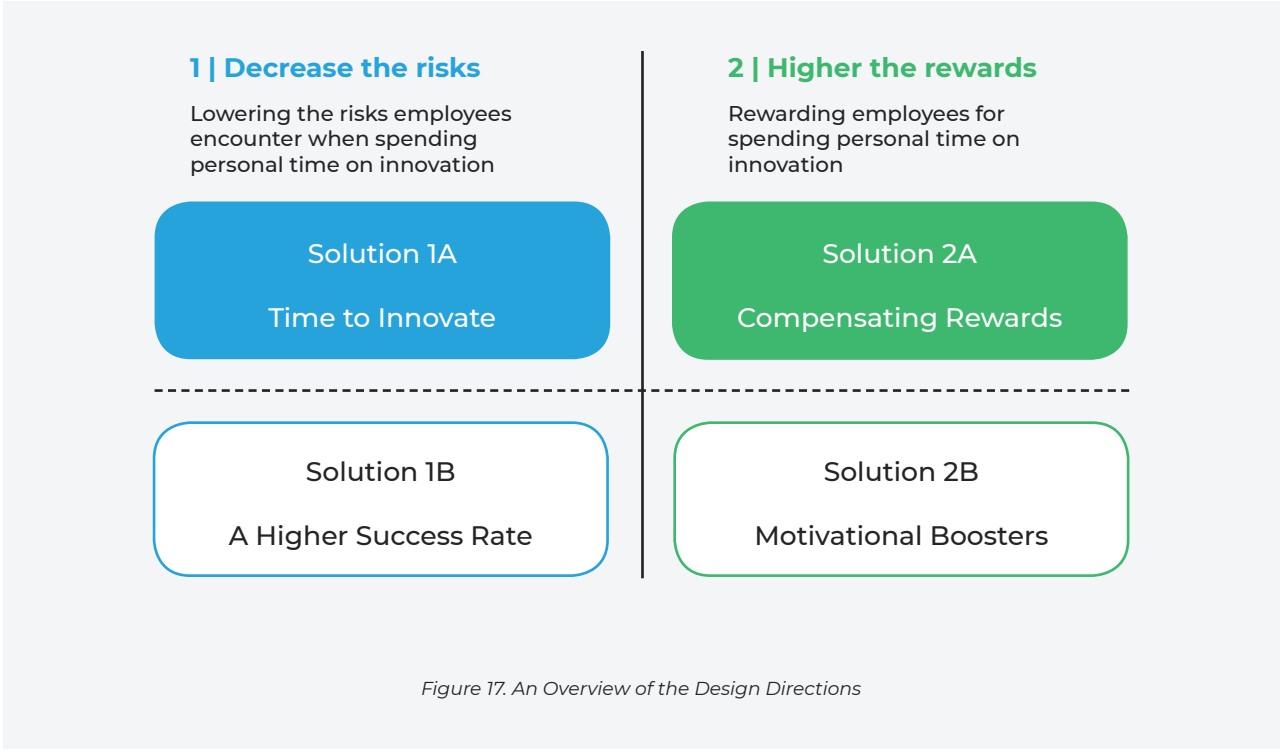
- Other potential employee groups will be out of the scope for the solution. These are:
- Employees who have in the past reported an idea or suggestion, and have not received any feedback on this. This group of employees is experiencing “learned helplessness”, left feeling frustrated and sceptical. Besides a solution, this group of employees will require an apology/explanation of why their idea has not been used. Also, they will require management’s empathy to regain their trust in acting upon their ideas in the future.
 - Employees who currently have a negative attitude towards improvement and innovation. In most cases, this group of employees is scared of innovation and lacks understanding and motivation on why they can and should spend time on this. Besides a solution, this group of employees will require a purpose, a framework, and clear expectations provided by management.

Supplementary material to:

Chapter 05 Design Brief	
5.2	Possible Design Directions
5.2.1	Design Direction 1
5.2	Possible Design Directions
5.2.2	Design Direction 2

Design Direction 1: Decrease the Risks

The first design direction explores how the risks faced by employees can be either reduced or even eliminated. The risks encountered by the target group can be categorized in two types of risks, namely A. the risk of one's ability to meet the requirements of existing tasks, while spending time on innovation and B. the chance of success in realizing innovation ideas. Therefore, to lower the risks, potential solution solutions can either ensure employees that time can be spent on innovation not having consequences on their existing tasks and career (A) or higher the chance of success of ideas when employees work on them (B).



Solution Direction 1.A: Time to innovate

This solution direction will explore ways how employees can spend time on innovation without experiencing or fearing the negative consequences it might have on their assigned tasks and career. The solution will be innovation time that can be utilized by the employee as part of his or her daily work.

Three examples of this solution are:

- Offering employees who have an idea or suggestion to spend a fixed amount of time during their work time on exploring this.
- Offering all employees a fixed amount of time that can be spend on innovation and improvement on a weekly/monthly basis
- Building a balanced innovation portfolio as management with determined time and resources allocated to running the daily business, operational excellence and innovation and make this reflected in specific or all employees' day-to-day schedule

Solution Direction 1.B: A higher success rate

This solution direction will explore how to increase the success rate of ideas and pet projects employees are working on. This solution will be necessary resources that can be utilized by the employee to guide him/her through the process of innovation.

Two examples of this solution are:

- Offering employees a bootcamp training in which they learn-by-doing and are facilitated to work on their idea
- Offering employees an instrument or tool in the form of a standardized process/framework they can apply to help them work on their idea

Design Direction 2: Increase the Rewards

The second design direction looks into how the lack of rewards to compensate for the risks employees take can be resolved. The type of rewards can fall into two categories of solutions, namely A. Rewards that stimulate employees who already work on an idea to continue and B. Rewards that stimulate employees to start engaging in improvement and innovation activities.

Solution Direction 2.A: Compensating Rewards

This solution direction will explore how to make employees feel rewarded for spending time on their idea, or at least being compensated for taking risks. This solution will be ways to provide employees with the right appraisal and recognition for acting upon their intrinsic motivation.

Supplementary material to:

Three examples of this solution are:

- Making time spend on ideas and pet projects part of employee's personal assessment
- To praise employees who have attempted to innovate by positively putting them on a stage, showing how others can learn from them as "innovation champions"
- Offering employees official certificates and awards to showcase their expertise in innovationidea
- Offering employees an instrument or tool in the form of a standardized process/framework they can apply to help them work on their idea

Solution Direction 2.B: Motivational Boosters

This solution direction will explore how to inspire and encourage employees to start engaging in innovation activities. This solution will be ways to provide employees with the right incentives to become involved in

on and improve the solution area entails two potential design directions subdivided in four potential solution directions. To make a decision on which solution direction to continue, each direction will be evaluated upon its Pros and Cons. In addition, the negative effect and impact if not selected will be also elaborated upon.

Examples of this solution direction include:

- Giving innovation efforts bonuses depending on the results of innovation efforts
- Giving individual/department prizes and gifts for spending time on innovation
- Reward managers when allowing employees time to spend on innovation
- Giving innovation efforts part of the organisation's budget and targets

Solution Direction 1.A: Time to Innovate

The Pros

The first solution direction has two positive aspects. First of all, employees can now spend sufficient time in a structural way on innovation. As a potential result, due to this additional time the ideas and suggestions employees have can be further elaborated upon. Also, by dedicating resources on innovation, the organisations show commitment that innovation is considered important. As a potential result, employees' feeling that time can not be spent on innovation will either reduce or even slip away.

The Cons

On the other side, four negative aspects have been identified. First of all, within the existing structure and schedules it is impossible to free up time. Secondly, this direction will require a longer time period, as it will require a reorganisation of schedules as well as activities the entire company prioritizes. Also, this direction will require buy-in from management to realize this solution, which is out of the scope and influence of this graduation project. Lastly, by providing employees time to innovate, there will be no influence on their success rate of innovating.

The Negative Impact if not chosen

In addition to the pros and cons, this solution has a negative effect when not being selected. Without structured time available for innovation, most ideas will remain pet projects, fiddling around for long periods of time, without impact being made.

Solution Direction 1.2: A Higher Success Rate

The Pros

The second solution direction has six positive aspects. First of all, by providing tooling, employees can learn how to utilize their personal time spent on innovation in a more effective and successful way through experimentation. As a potential result, the success rate of the small group of employees working on ideas will increase. Secondly, based on the findings from the Empirical Research, it can be concluded the current trial-and-error approach from employees provides many opportunities for simple suggestions that already higher the chances of successful innovation. The following situations frequently occur:

- Currently, employees believe this first step is speaking to those who are responsible and asking for either FTE or budget. They are unaware of the possibility to work in a smart and simple way on an idea without requiring any resources.
- Currently, employees' automatic pilot (and their job) is to build solutions. Most employees find it difficult and forget to spend adequate time understanding the problem or opportunity they are building a solution for.
- Currently, most ideas are focused on optimizing the business. All though important, they forget to define and determine how their idea adds value to the customer and generates business in the end.
- Currently, employees work on ideas of which they are not aware that other colleagues, departments and OpCo's are working or have worked on them as well. They are sometimes reinventing the wheel.
- Currently, any idea can be worked upon as its

relevance, priority and budget. Employees are working on ideas without knowing whether this idea is relevant for the business and whether it is considered a priority to spend time and energy on.

Solution Direction 2.A: Compensating Rewards

The Pros

The third solution direction has one positive aspect offering compensating rewards, employees who already investing their personal time in an idea, are encouraged to prolong this and continue investing in the employee's environment, including fellow colleagues and management, will also become aware of the results achieved with innovation. Unfortunately, this solution direction holds 3 negative aspects. First of all, the targeted employees are not motivated by rewards and rewards. Therefore, this solution will require additional knowledge, interest and time to be able to add to already spend on creating a reward system as well as on the knowledge and time needed to set targets and such as Digital Impact Program (DIP), or the Winterlabs. Lastly, this solution has the potential to be designed, tested and improved by providing employees compensation. If no compensation is provided, there will be no influence on their success rate of innovating.

The Cons

On the other side, this solution has five negative aspects. First of all, this solution will not be embedded in the current structure, schedules and infrastructure where employees continue without being compensated. Secondly, it is not clear if the acceptance of employees. This means the time and effort should be low in threshold and time.

ative Impact if r

Solution Direction 2.B: Motivational Boosters

n to the pros and cons of the solution. An assumption is that the employees, who are currently investing their time in innovation, are either discouraged, or scared due to the low success rate. The solution also has one positive aspect, in regard to the small group of employees currently innovating, by introducing rewards, more employees might be triggered to spend their personal time on innovation. As a potential result, the pool of employees innovating will expand.

The Cons

Unfortunately, this solution also holds a very strong negative aspect. All though rewarding, will expand the pool of employees innovating, it will not influence the success rate of it. As a potential consequence, more employees will be innovating while facing the high risks, the low chance of success and the lack of compensating rewards, that then needs to be resolved. In the current situation, the organisation can focus on this select small group of employees who already take the initiative and learn from them before scaling up the pool of innovative employees.

Supplementary material to:

Chapter 06 | Final Design

6.1 The Final Concept

6.1.2 Development of the Final Concept



Figure 19. The MVP Tooling Concepts

In Chapter 5 the solution direction 1B was chosen as the first step in the roadmap towards bottom-up innovation within an operating business. This solution direction entails the development of a tooling to higher the success rate of self-initiated ideas from employees.

This development process is driven by the question: "How to design a minimum tooling that can be provided by the organisation that upskills and equips employees with necessary innovation expertise, while simultaneously higher the success rate of the self-initiated ideas?".

The following questions will be answered:

- In which form is the MVP Tool effective and can it be provided by the organisation?
- What are the requirements and conditions under which the MVP Tool works?
- In what form can the MVP tool be integrated in the innovation process?
- What doesn't work or should be further researched about the MVP tool?

The Experimentation Approach

Regarding this project's topic of making employees apply an experimentation approach, the development process will be based on the principles of experimentation and the Lean-Startup Build-Measure-Learn-Loop. During the Develop Phase, a first concept of the MVP tooling was built, measured, and learned to provide input for the next MVP tooling concept. Based on testing with employees, the MVP tooling is adopted and improved.

The Context

The MVP tooling has been developed within the context of the OpCo PENL. This OpCo has been chosen as a case study, since both the MVP tooling and the innovation process are developed. This innovation consists of four stages: inspire, collect, prioritize and execute. The MVP tooling has provided design input for the execution phase. On the other hand, the innovation processes addressing conditions (such as time, people, management support) necessary for the successful application and implementation for the MVP tooling. Despite the OpCo PENL as pilot, the MVP tooling is designed generically to fit all OpCos within PEPP.

olution of the MVP Tooling

the Develop Phase, a total of 6 concepts for the tooling have been developed. The first concept, "Remote Assistance" was used to create a standardized experimentation process tailored to the needs of PEPP. In addition, the "Remote Assistance" project was used to determine the requirements and structure of the MVP tooling. The second concept was a standardized experimentation process as a canvas. The third concept was a Lunch & Learn. Based on learnings from the first concept, a mini-training and workbook were developed on how to utilize the standardized experimentation framework. In the end, a concept was developed to explore the structural time slots for training sessions.

	Number of Participants
	2
Lunch & Learn	30
Mini-training	8
Workbook	8
Experimentation	45

5. Conducted experiments with employees

MVP Tooling Concept 1: Project

Description and Concept Objective

The project is the case study Remote Assistance in which experimentation was used as an approach. The goal of this project is to find a way of working/ framework/approach to experiment within the operating business and set up a pilot solution.

Design Set-up

During this project, two employees were guided by a facilitator (the graduate intern) during a time period of 10 weeks with two hours per week as work sessions. The facilitator provided the structure and activities for each work session.

Test Outcomes

The final outcome of the project is a standardized experimentation process. This process is tailored to the context of operating businesses of the business group PEPP applicable to be used by employees. The process consists of three phases, which are opportunity, solution, and implementation. For the development of a MVP tooling, this process will be the basis. During the development phase, a fitting design of the MVP tooling will be experimented with.

Learnings

From the project the learnings for what employees require in order to experiment are derived. This is done through observations and team reflections. Based on these insights, 6 requirements were identified, which are tooling, process, knowledge, structure, resources

and support. These requirements are input for the development of the MVP tooling.

Conditions MVP Tooling

In addition to the requirements for the MVP tooling, the following learnings about improvement, innovation, and experimentation should be taken into account. First of all, improvement and innovation is not a priority within the operating business. Since both are not acute problems or customer pains, it will require discipline and commitment to make it a priority. On the other side, due to the solving of acute, unplanned, problems and customer pains, innovation is difficult to organise and structure. All though innovation activities have been scheduled, some problems and customer pains remain priority number 1. Furthermore, improvement and innovation often cover multiple departments. Regarding experimentation, it should be considered that within the business of PEPP sample sizes are low, A/B testing is not always possible and the existing data quality is low. Also, sometimes results are unable to be quantified.

List of Requirements MVP Tooling

Tools

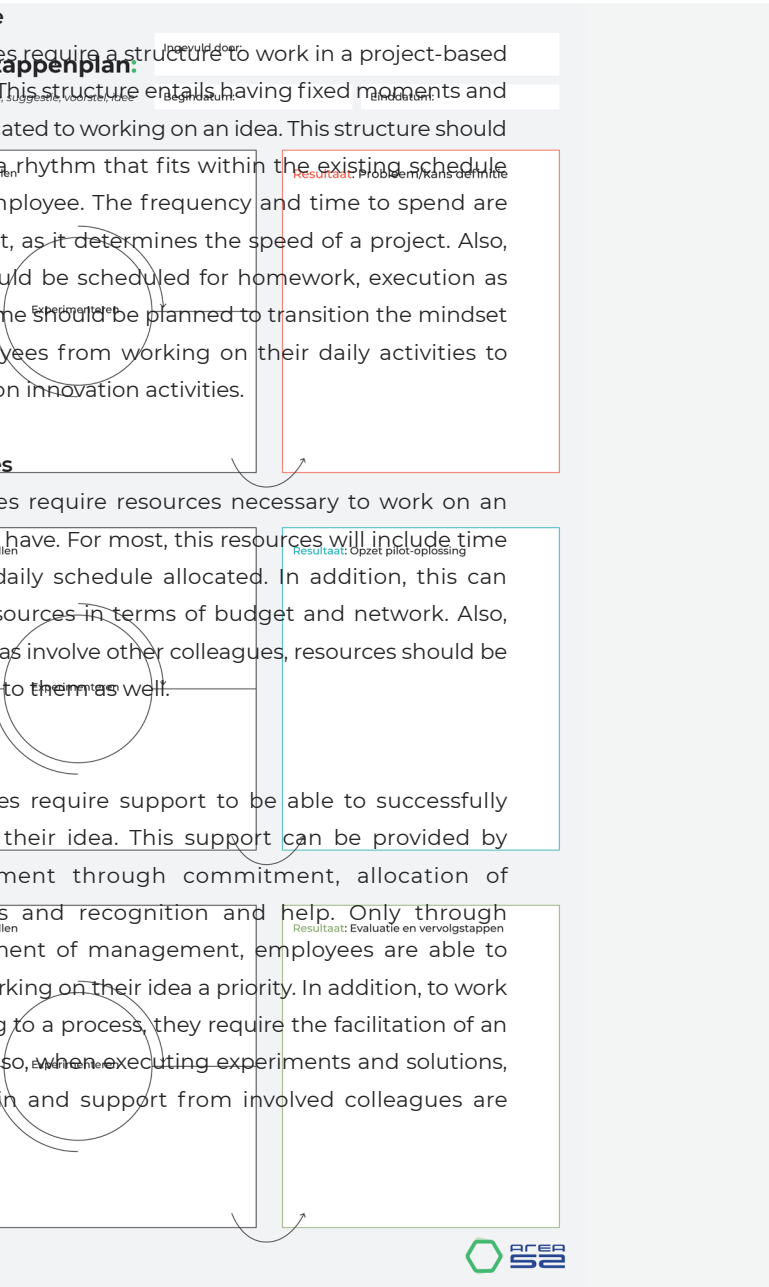
Employees require tooling to apply when working on an idea. This tooling can range from a framework to a canvas and should be understandable, intuitive, and considered easy to fill-in. For the project members, the final standardized experimentation framework is an intuitive guideline of what an improvement and innovation process looks like. On the other hand, the experimentation canvas has been called complex and difficult to use by oneself.

Process

Employees require a process to understand what steps are required when improving and experimenting. The three stages of the standardized experimentation framework – opportunity, solution, and implementation, has provided the project members the necessary understanding of the process. For employees to be guided by the process, time indications as well as a checklist before going to the next steps should be included.

Knowledge

Employees require knowledge on Design Thinking and Customer-Centric Thinking. The project members require practical guidelines that provides them with the necessary knowledge, including: how to formulate assumptions, how to define the size of an opportunity, what is the innovation process, how to design a solution meeting the technical, customer, and business aspects, how to identify pains and gains for customers, how to determine the customer, how to conduct a customer interview, how to set up an experiment, why to set up an experiment, determine the idea's strategic fit, impact and effort etc.



MVP Tooling Concept 2: Lunch & Learn

Description and Concept Objective

The Lunch & Learn is a format to introduce employees to experimentation and teach them a standardized experimentation framework derived from the project Remote Assistance (see concept “Project” (6.2.1)). The goal of the Lunch & Learn is get employees acquainted with and interested in learning more about how they can apply this experimentation process for their own ideas.

Design Set-up

The Lunch & Learn was organised on the 12th of February from 12:00 – 13:00. The event consisted of two parts: presenting the project Remote Assistance and explaining the learnings about doing experimentation in an operating business.

Test Outcomes

Over 30 employees joined the Lunch & Learn, most of them interested in the project Remote Assistance. Unfortunately, the set-up of the presentation the focus was on the content of the project rather than on the process. Due to this most employees become little to not

MVP Tooling Concept 3: Canvas

acquainted with the experimentation process.

Learnings & Conditions MVP Tooling

Based on the concept of Lunch & Learn, the following learnings derived: the format of Lunch & Learn is an inviting and accessible way to introduce employees to something. Also, by inviting employees to learn something, disciplines knowledge-sharing and learning. On the other side, the format of Lunch & Learn can provide employees with theory and opportunities to practise. Based on the feedback on the Lunch & Learn it became evident that the canvas is a good way to introduce what “experimentation” is to the employee himself. To introduce employees consider an experiment when making something is built and tested. Testing is a facilitation by setting up customer interviews and the employee considers “research”. This insight will be taken into account for the next concepts, to provide a definition of what an experiment is.

Description and Concept Objective

The “Canvas” is a standardized experimentation framework derived from the project Remote Assistance (see concept “Project” (6.2.1)). The goal of the canvas is to provide employees with theory and opportunities to practise. Based on the feedback on the Lunch & Learn it became evident that the canvas is a good way to introduce what “experimentation” is to the employee himself. To introduce employees consider an experiment when making something is built and tested. Testing is a facilitation by setting up customer interviews and the employee considers “research”. This insight will be taken into account for the next concepts, to provide a definition of what an experiment is.

Design Set-up

This canvas is an A3 poster with a set of questions that can be filled in by the employee himself. To introduce employees consider an experiment when making something is built and tested. Testing is a facilitation by setting up customer interviews and the employee considers “research”. This insight will be taken into account for the next concepts, to provide a definition of what an experiment is.

Test Outcomes

The canvas was tested with one employee’s idea for improvement. Within 45 minutes all questions were answered and an experiment was set up to test the MVP solution. Unfortunately, the solution was not implemented as the employee decided to discontinue the experiment due to the high workload and unavailability of time.

Positive aspects	Negative Aspects	Conditions MVP Tooling	Input next Concepts
Accessible, knowledge-sharing	No development of skills, no practise and theory	Definition of “experiment”, development of skills, practise & theory	Define what an “experiment” is, development of skills, provide theory and practise through an assignment

Table 6. Evaluation MVP Tooling Concept 2 Lunch & Learn



	Conditions MVP Tooling	Input next Concepts
not action- training, no support	Facilitator role, management support, development of skills, rhythm	A form to develop skills, accessible, Effective (actionable)

Evaluation MVP Tooling Concept 3 Canvas

olting
gh observation and
ll though, the canvas
easy, fun, and effective,
taken. Also, the canvas
as not self-sustaining.
t it was an individual
quired management
to the employee did
skills. Instead, he/she
d filled in the canvas.
Furthermore, the activity was not recurring, and is

llowing conditions
entified: it requires a
pport, the development
rhythm. Based on this
uld explore a form
es in an accessible and
e.



MVP Tooling Concept 4: Mini-Training

Description and Concept Objective
The “Mini-Training” is a 1-hour training offered to PENL employees to work on self-initiated ideas and/or learn how to approach improvement and innovation in general. The mini-training is hosted at PENL and is guided by a facilitator (in this case the graduate student herself). The goal of the concept is to provide employees with training that provides the necessary knowledge and tooling to help employees work on their idea using a structured process from the workbook (see concept “Workbook”.

Design Set-up
The design of the mini-training was inspired by the positive feedback received on the Lunch & Learn (see Concept “Lunch & Learn” (6.2.2)). From this Lunch & Learn the positive aspects of an organised activity during lunch-time, short time span of 1 hour, and the ability to share knowledge. The mini-training consists of two parts: part 1 (20 min) is the theory on experimentation

Positive aspects	Negative Aspects	Conditions MVP Tooling	Input next Concepts
Accessible, effective, well-organised, practical theory, clear standardized experimentation framework, diversity of employees, knowledge-sharing, energizing, rhythm	Information overload, time pressure, no time available for homework, filtering criteria / checklist	Facilitator, interactive setting, multidisciplinary group, recurring activity (rhythm), available time	layer of the operation. Unfortunately, management role of management as employees working in the have no spaces. Furthermore, for the training effective it is best to include homework (for prep and afterwards). Currently, homework is not included and taken into account for the 1-hour mini-training. Additional time will be required and needs to be scheduled for this.

Table 8. Evaluation MVP Tooling Concept 4 “Mini-training”

as a presentation and part of the preparation (look session), keep it simple, m
where employees are offered in the time practice showcase examples.
on their own idea or that of others. The principles of
experimentation are provided through a set slides of
presentation, while tooling and design “Mini-training” derived a couple of
through the workbook (see concept “Workbook” (6.2.5)) the mini-training
To promote the mini-training accessible for a wider variety of employees from
was sent 2 weeks in advance operation to engage in innovation activities. Second
it offered employees an energizing and fun way
how to get started with their ideas. Third, the training validated the accessibility of
In the end, 8 participants validated the accessibility of the standardized in
Wednesday 25th of February from 12:30 to 13:30. During concept “Canvas” (6.2.3)
this training, the presentation was given and the allowed employees to share
assignments until step 2 of the process. Opportunities connections on top of
were finished. Through the training workshop, a network was created by offering
worked upon according to its methodology by the potential to form a network
constraints it was decided to create a neutral innovation momentum.
session in which the participants with through the working training it was discussed
on their idea. This session has been held for the first time fully-oriented, not looking
March from 14:00 – 15:00 and the 25th perspective. Also, some ideas have been
12:30 – 13:30. explored by other colleagues or departments all without the idea owner being aware of this. The
training showed that a filtering system of ideas, they suffice adding value to the customer and a
in, the training of the desk jobs from
layer of the operation. Unfortunately, management role of management as employees working in the have no spaces. Furthermore, for the training effective it is best to include homework (for prep and afterwards). Currently, homework is not included and taken into account for the 1-hour mini-training. Additional time will be required and needs to be scheduled for this.

Conditions

Based on the following conditions

As a result of all, employees were asked to have been identified. The tooling

Something participants suggested to improve current schedules of

and a “top” (something that is not project-based,

ed to keep). Also, activities were to be planned in to work on the

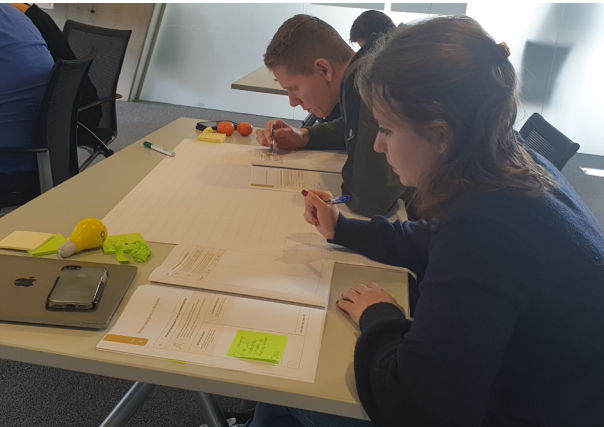
to all the participants training day after the homework. In addition, the

n addition, employees were to be asked a recurring activity. This

experienced the coming activity. Furthermore, break of their workflow,

individual participants was asked to provide the MVP tooling requires a

more in-depth facilitation role as well as an interactive set-up.



Input Next MVP Tooling Concept

As well as organized, the positive feedback received on the

effective, accessible, and with enthusiasm and workbook, it is

ing together a decision to further develop both into a final MVP tooling.

nd, points to improve the participation of the mini-training, the

following iterations will be made: a checklist should be

created to prevent ideas from not adding value to the

	Tops
homework for	In addition to the mini-training will require reference work,
participants to better	such as the active role about the improvement process
it should be explored how managers, engineers, and	Good organization
ch in too little time, employees working in the field can also partake in the	mini-training
examples + 1	Effective (short and practical) (Kort maar krachtig)
case during the	Nice initiative & enthusiasm
ining	Diversity of participants
imple (do less)	Very accesible and low in threshold (Ih is great!)

Table 9. Evaluation participants

MVP Tooling Concept 5: Workbook

Description and Concept Objective

The “Workbook” is a booklet with step-by-step

instructions, exercises and questions to be asked. This

booklet is a collection of all best-practises of innovation

projects considered in the past by both Area 52, PENL

and in general. For the development of this workbook

the set-up and executions of innovation projects by Area

52, including project Verachtert, project ThunderBolt,

project Marlin, and project Micasas, and PENL, such

as the project Arie Fix’t, have been analysed. Also, the

best-practises and learnings from the first concept

“Project” have been taken into account. The goal of

this concept is to provide a physical framework with

steps that employees can follow and exercises they

can fill-in autonomously by themselves. The booklet

is a self-sustaining form that can be provided by the

organisation to employees.

Design Set-up

The design of the workbook is a physical A4 booklet

Positive aspects	Negative Aspects	Conditions MVP Tooling	Input next Concepts
Effective, balancing theory and practise, Knowledge-sharing and cross-department collaborations,	The sequence of the exercises, Information Overload, individual activity, exclusivity	Interactive form, facilitation of knowledge-sharing, active a customer-oriented perspective, minimum set of questions and exercises, rhythm and structure, management ambassadorship	the current underground individual ideas and a booklet, 3/4 questions/ exercises for a target group of employees are currently working in the field role of management support, derived from the concept “Workbook” is the need to effectively utilize the booklet. In addition, the concept requires a structure and rhythm to be utilized by employees. The mini-trainings are on of working, but any form of organised work session

Table 10. Evaluation MVP Tooling Concept 5 “Workbook”


is required. The time interval of 2 weeks seems to give "enough time" to do some after-work/extra work. However, it was also clear from multiple interviews that participants were often unable to do this. Also, this might have been due to the fact that employees are often too busy with their regular work to do this. Also, this requires good communication of the expectations and objectives of the workbook. Lastly, the workbook was positively received by employees who work in the office. Unfortunately, engineers and employees in training and education has not been tested and reported on questions and important exercises were

Details learnings

From the workbook answers it became evident that participants of the booklets identified problems or opportunities for employees to research. The employee responsible for identifying, defining and designing the primary target group. Also, the goal formulated did not consider the value that should be added to the business by the exercise on the stakeholder-for-employees. When recognising the first step at the most Basic Assumption Analysis was not made by booklets, the main assumption is that pains, opportunities and problems identified are identified by the customer (either the responsible employee) and a solution is sought. Therefore, the first question should be: how can we provide additional value to the customer experience? In a series of defining the customer and the employee responsible for delivering this experience. In this case, the customer is always be considered the primary target group, the trial for better instruction per exercise is required.

Conditions of the booklet is the Basic provides the employer, The following conditions for the make Peronlonges effort to identify. The tooling should be able to attract process knowledge-sharing between employers and also to the tooling should activate

and stimulate a customer-oriented perspective. The questions and exercises should be simple and applicable to daily work activities. Lastly, the tooling requires training of employees on how to use the tooling.



Vul In: Het Het Experiment Canvas

1. De meest ricovolle aanname(s)

Welke aanname(n) gaan we testen?

2. Hypothese formuleren

Wat denken dat (aanname) resultaat op basis van (aanname)?

3. Definitie validatie

Waarom is de aanname geloofwaardig?

4. Experiment opzet

De personen die het experiment niet het experiment uitvoeren.
 Om te kunnen vergelijken welke van deze informatie verzamelen.
 Dit is hoe de informatie verzameld wordt.
 Deze personen zullen de experiment uitvoeren.
 Deze personen zullen de experiment uitvoeren.
 Deze personen zullen de experiment uitvoeren.

5. De resultaten

Welke informatie is verzameld? Wat zijn daaruit de 3 belangrijkste inzichten?

Experimenteerder	Quota	Score	Score



6. Conclusie en Evaluatie

Op basis van het experiment, resultaten en definitie van validatie is de aanname

☐ Gec valideerd
 ☐ Niet valideerd
 ☐ Nog niet te concluderen

7. Vervolgacties

Wat zijn de vervolgstappen op basis van deze conclusie?

1.5 De belangrijke stakeholders die in moet informeren en/of betrekken

Stakeholders zijn:	stimulerend, positief	neutraal, onbelangrijk	belemmerend, onbelangrijk
2) kernteam	→	→	→

De relatie tussen stakeholders

2.3 Het kan begrijpen en bepalen

2.3.1 Bepaal de doelgroep(en) voor je verbeteringsidee

Bepaal of de doelgroepen aan de hand van een personeel:

- Een personeel is niet verantwoordelijk voor de doelgroep gekozen doelgroep(en)
- Een personeel heeft niet echt te zijn, maar kan dat hebben uit alle belangrijke activiteiten

Doelgroep bepaald	Doelgroep onbepaald
Bevat 1 tot 3 personen, waarvan 1 of 2 personen zijn die verantwoordelijk zijn voor de doelgroep gekozen doelgroep(en)	Bevat 4 tot 10 personen, waarvan 1 of 2 personen zijn die verantwoordelijk zijn voor de doelgroep gekozen doelgroep(en)

Crash Course Conceptualization

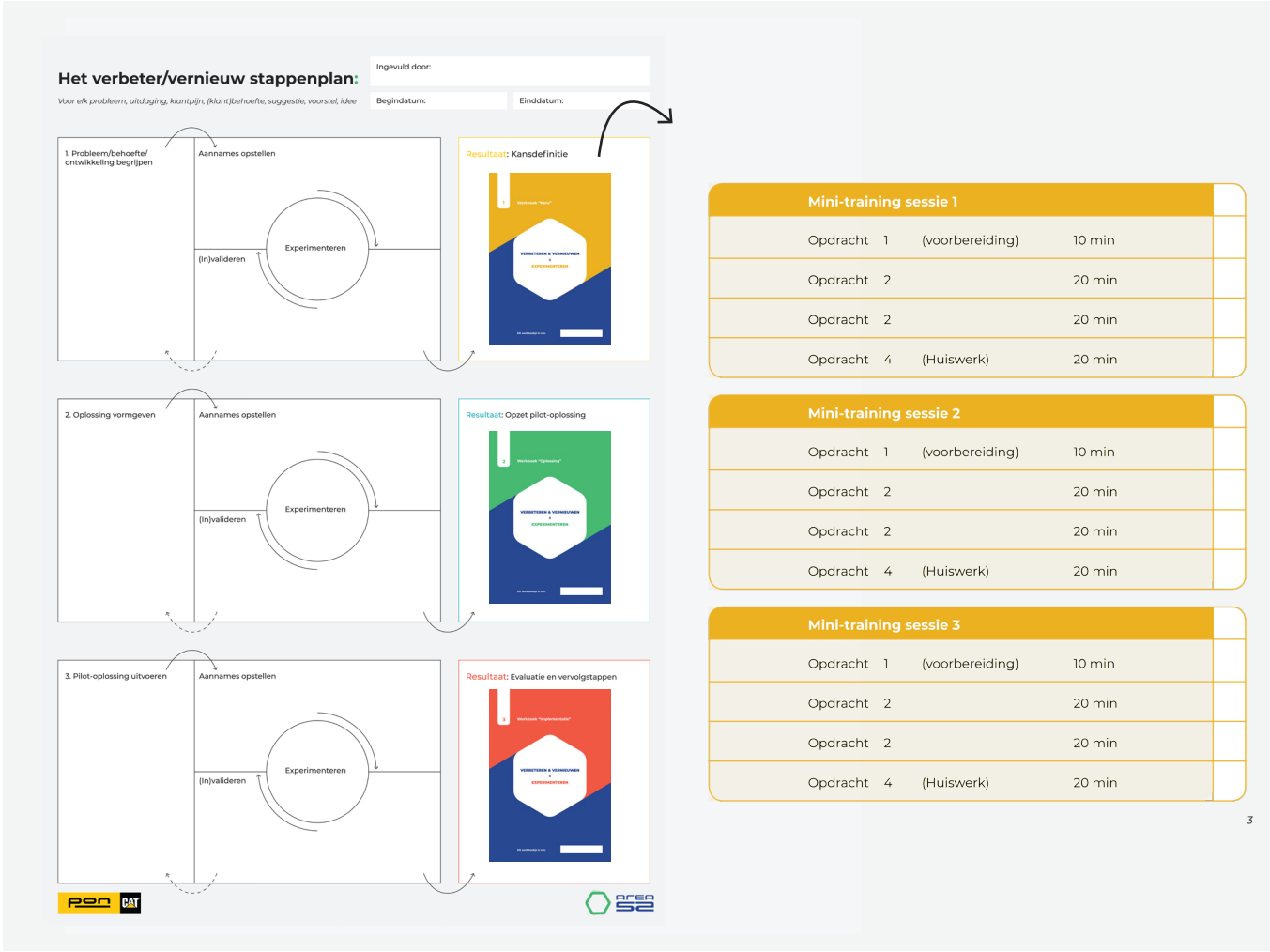
Supplementary material to:

Chapter 06 | Final Design

6.1 The Final Concept

6.1.2 Development of the Final Concept

The evaluation of the concepts the “Mini-training” and “Workbook” resulted in a list of conditions and envisioned iterations for developing both concepts into a final MVP tooling. The overview of the conditions as well as wishes for the MVP tooling can be found in table 11.



The Conditions and Envisioned Iterations

The first condition for the mini-training is to design the content and role of the facilitator to lead the mini-training.

In addition, another condition is to address a diverse group of employees and have participants working over multiple departments and functions.

The third condition is to offer room during the training for interaction and knowledge-sharing. It should be preferred to have group work rather than individual work to aid interaction and knowledge sharing. Furthermore, the mini-training should have a clear schedule of allocated and scheduled time slots. Lastly, the presentation and other information should become available for employees as reference material. The first condition for the workbook is to prioritize a customer-perspective first. Also, there should be minimal and intuitive exercises. Lastly, the booklet should count as a reference, where employees can make use of examples and instructions to independently work their idea.

In addition to the conditions set for the MVP tooling, a wish list has been created. The wishes are identified to aid the successful implementation and adaptation of the final MVP tooling. The wishes include: having ambassadorship of management to promote the training and allow employees to spend time on this, having the tool be used by both employees working in the office as well as in the field or working at the machines. The last wish is to have time allocated to the MVP tooling that employees can spend when

participating in the mini-training. With the conditions and wishes formulated, the MVP tooling is further developed.

The Development of the MVP Tooling

Based on the envisioned iterations (shown in Table 11), the mini-training and workbook are improved.

A collection of three workbooks

First, the workbook was subdivided into a collection of three individual booklets based on the three stages of the standardized experimentation process. The colour of each booklet refers to one of the stages.

Supplementary material to:

Conditions mini-training	Conditions workbook	Other conditions
Facilitator, interactive setting, diverse group, rhythm, scheduled time , knowledge-sharing, group work (over individual work), reference material, fun	Customer-centric perspective (first), minimum exercises, reference book, develop skills, idea filter	Fixed time for MVP tooling for participation management strategic goals and vision, allocation resources (innovation available), management commitment, clear purpose, experimentation integrated targets and

Table 11. Conditions and iterations for the MVP tooling

mini-training sessions

and step of the development process was to design
ce of mini-training sessions. During the first mini-
t was evident that more sessions are required to
employees through all the steps of the workbook.
klet will require multiple mini-training and work
For the MVP tooling, the first workbook and its
are designed, developed and tested.

ed iterations ining	Envisioned iterations workbook
g the necessary lge, homework/ ion assignments, ce with multiple ts scheduled	Collection of three book- lets, 3 or 4 questions per session, improve se- quence of questions, idea filter

Supplementary material to:

Chapter 06 | Final Design
6.3 Crash Course Elements
6.3.2 The Instruments

Assignments workbook “Kickstart je idee”

Assignments Mini-training 1

1. (Preparation) Description of the idea, the cause, and personal motivation to work on this idea
2. Description of how the idea adds value to the customer experience, identifying the target group and employees responsible for delivering this customer experience to the target group
3. Description of the problems, pains, needs, and desires assumed to be experienced by the target group (and responsible employees)
4. The formulation of assumptions about the described problems, pains, needs, and desires (which can be finished after mini-training 1 and before mini-training 2).

Assignments Mini-training 2

5. (Preparation) The formulation of the most riskiest assumptions that will be tested by conducting an experiment
6. The set up of an experiment (part 1) by designing and preparing an interview with the target group and/or responsible employees
7. The set up of an experiment (part 2) by defining the metrics of when assumptions are (in) validated subdivided in either customer interviews or employee interviews.
8. The conduction and documentation of interviews according to a description of theinterviewees, their problems, pains, needs, and desires they have shared, and their ideas for improving the customer experience (which can be finished after the mini-training 2 and before

mini-training 3).

Assignments Mini-training 3

9. (Preparation) The execution of an experiment by determining the (in)validation of formulated assumptions and determining the final (in) validation of the most riskiest assumption. The results of this assignment will depend whether to proceed to assignment 10 or revisit assignment 3, 6, or 7.
10. The formulation of the size of opportunity, in terms of its target group, the validated pain, problem, need, or, wish, its frequency, its cause, directions for idea generation, and the negative consequences or missed opportunities when the opportunity will be unaddressed.
11. The assessment of the impact and effort when proceeding this opportunity and designing a solution. The identification of stakeholders that should be involved in the decision-making of deciding to proceed.
12. The “Go”/”No Go” moment is determined by identifying the necessary and minimal resources, and if applicable sponsorship, required for building a solution and assessing whether these are in place.

Second Phase “Solution”

A plan of attack on the employee/team will proceed with the next phase of building a solution and testing an idea. It elaborates on the planning, responsibilities, and expected results.

Innovation Coach

Supplementary material to:

Chapter 06 | Final Design
6.3 Crash Course Elements
6.3.3 “Innovation Coach”

The role of the Innovation Coach is to prepare, organize and facilitate the crash course and its mini-trainings. The Innovation Coach should have demonstrated skills and knowledge in Experimentation, Design Thinking, and Coaching. Foremost, it's important that he/she is passionate, energizing, creative, empathic, and empowering.

Roles & Responsibilities

During the crash course the Innovation Coach's responsibilities are:

- Provide employees with the necessary theory and guide them through the assignments
- Discuss questions, concerns, pain points, and best practices on ideas and topics of innovation
- Make employees aware of the 8 PENL innovation pitfalls and how to overcome them
- Encourage collaboration and knowledge-sharing between participants
- Encourage critical-thinking, creative-thinking, trial-and-error, failure, learn-by-doing, self-leadership, and reflection

During the crash course the Innovation Coach tasks are:

- Plan the 3 mini-training moments
- Promote the crash course and invite employees
- Prepare the crash course and choose a case example
- Creatively facilitate the mini-training sessions and provide support to employees as well as challenge them
- Provide support and guidance in-between mini-training sessions

Validation

Supplementary material to:

Chapter 07 | Validation

7.1 The Objective

Desirability assessed with the Pilot

To determine if the crash course is desirable, employees and participants' input has been evaluated and assessed on the aspects of (i) format, (ii) gained value, and (iii) developed innovation expertise.

Format

Both employees and participants accepted the format of the crash course. Employees considered the format interesting, accessible and were invited by the 1-hour mini-training to try it out. Participants found the 1-hour training sessions effective, learning in a short period of time the essential about innovation and simultaneously applying it to their own ideas. In addition, the sessions fitted their work schedules and did not disturb their workflow. Furthermore, participants found the format novel and fun, since it differed from their routine tasks and allowed them to share knowledge with colleagues from other departments. Some participants advised to improve the format to make use of its ability to collaborate and facilitate more group work.

"Ik zou andere collega's zeggen dat de training doeltreffend is. Je leert over hoe je verbetert en gebruikt dit meteen voor je eigen idee in een uurtje tijd."

"Ik heb geen verwachtingen, maar ben nieuwsgierig wat we je ons in 1 uur wilt leren."

Gained Value

Participants gained value from the crash course in four ways. First of all, participants developed skills and know-how in innovation and experienced personal growth. Secondly, they experienced the necessary guidance and support to start/continue working on their ideas by the tooling and facilitation provided. Thirdly, they were (for the first time) encouraged to work on their self-initiated ideas during work. At last, the interactive format helped participants connect with like-minded employees, share knowledge and make connections between silos by getting familiar with other participants' ideas and help each other out in developing these. Whereas participants were fond of the gained value, for some employees the goal of the crash course could be better communicated.

"To-the-point, praktisch en een goed framework."

"Vond de training nuttig, heb iets "nieuws" geleerd, dit geeft echt wel praktische handvatten voor in de praktijk."

Developed innovation expertise

The skills participants developed during the training helped them create awareness in and abilities to identify, overcome or prevent PEPP-specific innovation pitfalls and include a customer-perspective. Although participants have gained the necessary skills and knowledge in innovation, the learn-by-doing approach could have been more effective. Since the theory

was new for all participants, learning the theory and practicing on their idea simultaneously resulted in confusion and not a full understanding of the process. Participants preferred to only obtain expertise rather than working on their ideas immediately. Participants have shown own working around gaining approval, writing a business plan, and asking managers and holders to allocate necessary resources.

"Ik had geen idee hoe ik een klantinterview moest doen en weet nu door de tips hoe ik een werknemer kan interviewen om mijn idee te testen."

"Ik miste een goed voorbeeld. Nu had iedereen een eigen idee dat het lastig maakt het centraal te houden."

With innovation employees have significantly increased their knowledge. They have spent the time on their ideas and have not been misused. The crash course has been effective for the participants. They are able to prioritize their ideas and have spent more (work) time on this. The participants have gained awareness of the innovation process, its pitfalls and where they are able to prevent failure, getting stuck, or even quit. Fourth, participants have learned to become more critical towards the relevance and impact of their ideas and learned to determine whether personal resources should be spent on the idea's development or to dismiss. Fifth, participants have learned that failure is necessary and part of the learning and have become more comfortable to not get discouraged or quit when it occurs. Several participants have gained understanding and abilities to identify and test intuition and assumptions to validate the relevance and impact of their ideas by conducting customer interviews. Eighth, participants have been able to faster develop ideas by sharing knowledge with other participants, making use of existing knowledge to develop their ideas, learning from past failed ideas and being aware of reinventing the wheel. Ninth, participants

Feasibility assessed with the Pilot

...er than quit by being
...showcased higher levels
of motivation. Ten, participants have shown ownership
and proactiveness working on self-initiated ideas,
...ine if the crash course is viable. During approval, writing a business
...quipping participants with innovative expertise
...n a higher success rate of self-initiated ideas.

Success rate of self-initiated ideas

Nu weet ik wat je moet doen als
je een idee in je hoofd hebt. Anders
was ik waarschijnlijk mijn idee gaan
uitwerken. Nu bepaal ik eerst hoe
groot de kans is.
First of all, participants have spent their time
in an effective way. Time has not been misused
...ng about a process since the crash course
...all the steps and guides the participants.
Ik snap nu dat je aannames maakt
wanneer je een idee hebt en dat je
deze moet valideren. En dat je begint
bij het valideren van je aannames over
het probleem eerst.
...d where they are able to prevent failure,
...uck, or even quit. Fourth, participants have
...to become more critical towards the relevance
...ct of their ideas and learned to determine
...personal resources should be spent on the
...velopment or to dismiss. Fifth, participants
...ned that failure is necessary and part of

...and have become more comfortable to fail and
...discouraged or quit when it occurs. Seventh,
...nts have gained understanding and abilities to
...nd test intuition and assumptions to validate
...ance and impact of their ideas by conducting
...r interviews. Eighth, participants have been
...ster develop ideas by sharing knowledge with
...ticipants, making use of existing knowledge to
...their ideas, learning from past failed ideas and

Feasibility assessed with the Pilot

To determine if the crash course is feasible, it is assessed
on the required resources and its applicability to self-
initiated ideas.

Required resources

Participants were positive regarding the time
investment of three times 1-hour work sessions. Also,
with 1-hour as a short time span, most participants
emphasized the use of preparation and homework
assignments. To be able to make this time investment
they believe it's essential the crash offers official
planning with time slots and structured moments,
including for preparation and homework. During
the pilot most employees were unaware of this
time investment. In addition, they mentioned clear
communication on time investment that needs to be
agreed upon by supervisors when signing up.

“Als tip misschien mensen vragen om
van te voren een probleem of behoefte
te bedenken in plaats van geen
voorbereiding. Dit scheelt toch wat tijd
tijdens de les.”

“Nice dat we al een opdracht hebben
voor de volgende keer.”

During the pilot, it was found that two resources are
essential which are work time for employees and the
facilitator. All participants have not only stressed the
added value of a facilitator but more mentioned it as a
condition for the survival of the crash course. It shows
that the crash course is not sustainable in itself and
relies upon the organizational role of “Innovation Coach”.

“Het meedenken heeft me laten zien
dat er ook een klantwaarde in mijn
idee zit.”
“Om echt structureel te gaan
innoveren en niet te meer te gaan
hobbyen, hebben we een externe
partij nodig die dit faciliteert. Enerzijds
omdat we de kennis niet hebben,
maar ook de mankracht niet hebben
om dit te kunnen faciliteren. Iedereen
heeft al een baan, waardoor het
onmogelijk wordt om innoveren naar
een structureel niveau te brengen met
de huidige resources.”

Additionally, the workbook and process were found to
offer practical guidelines for participants.

“Met het boekje erbij heb ik stappen
waar ik mee aan de gang kan.”

“Het experimenterproces is makkelijk
en duidelijk.”

Application to self-initiated ideas

During the pilot it was found that most participants
have ideas for internal (and technical) problems or
opportunities. Most ideas have not assessed their
value to the customer. As a consequence, facilitation
and additional time is necessary to help participants
determine the value of their ideas to customers.
Daarnaast geeft het mij inhoudelijk
ook veel inzichten over de initiatieven
van de OpCo's.
Een crash course voor werknemers
zou zeker dus aansluiten bij wat wij
doen en wat het DIP programma al
voor ontwikkelend is. Het zou mooi
zijn we uiteindelijk richting onze eigen
Adobe Kit kunnen gaan met tools,
budget, en tijd.”
“Like the innovation process, DIP (in
a day), the crash course can help us
facilitate innovation.”

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"We starten veel kleine ideeën die uiteindelijk geen budget of tijd krijgen waardoor ze doodbloeden. We moeten voorkomen dat we nog meer ideeën en projecten gaan opzetten zonder dat hier tijd en budget voor wordt vrijgemaakt."

Recommended iterations on Desirability

The final design validation resulted in various points of improvement for the desirability of the crash course. To enhance the effectiveness of the crash course, the following elements are recommended to adapt or include: (1) time management, (2) expectations, (3) learning versus practice, and (4) collaboration. (1) To ensure the mini-trainings address the necessary topics and assignments and include a wrap-up and next steps, a tighter schedule is desired. By including and organizing preparation and homework assignments, time constraints can be prevented. (2) To ensure participants are able to fully commit to the crash course, the required time investment and end-goal of the course should be better communicated. Choosing a platform and schedule that fits with the existing workflow of employees should be explored. (3) To balance learning versus practice, a prior focus should be given to learning the approach first. By working with a case example during the session and using homework assignments for self-initiated ideas, this balance can be reinstalled. (4) Lastly, the crash course should explore and strengthen itself in facilitating group work and cross-departmental collaboration. For example, workgroups can be created based on the input from preparation assignment 1. In addition, knowledge-sharing between groups, through organized moments of feedback and input on other workgroups, should be explored.

Recommended iterations on Viability

In addition, the final design validation resulted in points of improvement to enhance the viability of the crash course, which are: (5) structure and rhythm and (6) scalability. (5) The purpose of the crash course is to offer employees consistent moments during their work to spend of self-initiated ideas in a structured way. To provide this, a time schedule for the crash course itself as well as a time schedule and time slots for each course should be determined. Regarding the rhythm, the ending after session 3 should be elaborated upon. For example, an organized stage gate-moment or “Go/No Go”-moment, after session 3 should be explored. This will require looking into how the crash course can offer an instrument or platform for (self-)assessment of self-initiated ideas. For example, a dragons’ den in which participants can pitch their ideas to the Management Team / Sponsors can be designed. In addition, the next steps after the “Go/No Go”-moment should be designed. For example, “No Go” ideas should be captured and their learnings and reasoning for dismissal should be reflected upon and documented. For “Go” ideas, the next steps, a process, or a platform should be offered to continue facilitation. (6) Regarding scalability, the crash course’s applicability to other OpCos should be explored. Over time, when knowledge and know-how are reached among all employees, the course has the ability to shift its focus from learning to practice. This way, the format of the course can be sustained over the time remaining applicable.

Recommended iterations on Feasibility

Lastly, the final design validation resulted in points of improvements to enhance the feasibility of the crash course’s clarity and content, which are: (7) a case example, (8) theory versus practice, (9) preparation and homework assignments, and (10) individual orientation. (7) To maximize participants’ learning a clear and relatable example should demonstrate the assignments. It is recommended to use an example of a well-known issue, such as the challenge of communication between PENL and the customer, to ensure relatedness and applicability to employees’ self-initiated ideas. (8) The prior focus of the course should be on learning theory. Homework assignments and preparation assignments can provide participants the opportunity to apply and application to their own ideas. (9) Since the course will be more effective with preparation and homework assignments, this time should be scheduled, and communicated to participants. (10) To shift the course’s ability to facilitate group work and remote working, digital platforms, such as Mural, can be explored.

Scale-up Phase

Supplementary material to:
Chapter 08 | Recommendations
8.2 Implementation Guidelines
8.2.2 The Pilot Phase

Recommendations

If all recommendations are considered and fruitful, only three recommendations are considered essential and urgent to adopt: (5) structure and format, (7) a case example, and (9) preparation and work assignments. The frequency of the course should be communicated, and a clear time schedule with time slots should be created. Also, the last 'Go/No Go'-moment should be designed. For example, a case study should be provided to ensure learning of the course material. The preparation and work assignments should be reorganized to give participants room and time to work on their self-developed ideas.

In addition to the tasks of the Innovation Coach is then: create a time schedule with set time slots for the crash course. Prepare the preparation assignment 1 to the participants at the deadline x days prior to the course. Review preparation assignment 1 and assign participants to workgroups. Inform participants about assigned workgroups. Provide a case example and use of digital tooling or formats, such as Mural

Recommendations Scale-up Phase

If the pilot phase is considered successful, the crash course holds at least 4 opportunities for future evolution ensuring its durability. First of all, the crash course can be extended to other OpCos within the PEPP business group, or even be offered to other Pon Business Groups. Secondly, the course balances theory and practice. With the newness and inexperience with innovation for most employees, the course's primary focus is on teaching the theory. Nevertheless, once this theory has become basic knowledge, the course's format can easily shift its focus on the practice. Instead of offering theory, the course's format can change towards full work sessions instead. This way the crash course is able to continue maintaining and fostering an innovation rhythm within the organization. Thirdly, opportunities can be explored by transferring the responsibility and role of Innovation Coach towards internal capacity. As employees have become more mature and experienced in innovation, and the organization as a whole as well, internal roles of innovation coaches can be explored. Through for example a train-the-trainer program, employees within OpCo's can take over the role and responsibilities of Innovation Coach. Lastly, the tooling primary goal is on developing the innovation expertise of employees within OpCos. As is witnessed, for most of PEPP's customers and OEM the experimentation approach and innovation expertise are rather new. To make use of the innovation potential employees as well as customers and their OEM hold, the crash course can provide the necessary tooling to facilitate co-creation with different departments, different OpCo's and in the end and with customers and their OEM.

Design Innovation Funnel and Process

Supplementary material to:

Chapter 08 | Recommendations

8.2 Implementation Guidelines

8.2.3 Integration Innovation Process

In parallel to the crash course, an innovation process has been designed for the OpCo PENL. For this thesis, the execution phase of the innovation process is designed according to the structure of the crash course. It is believed that the crash course has the potential to be integrated in any OpCo's innovation process.

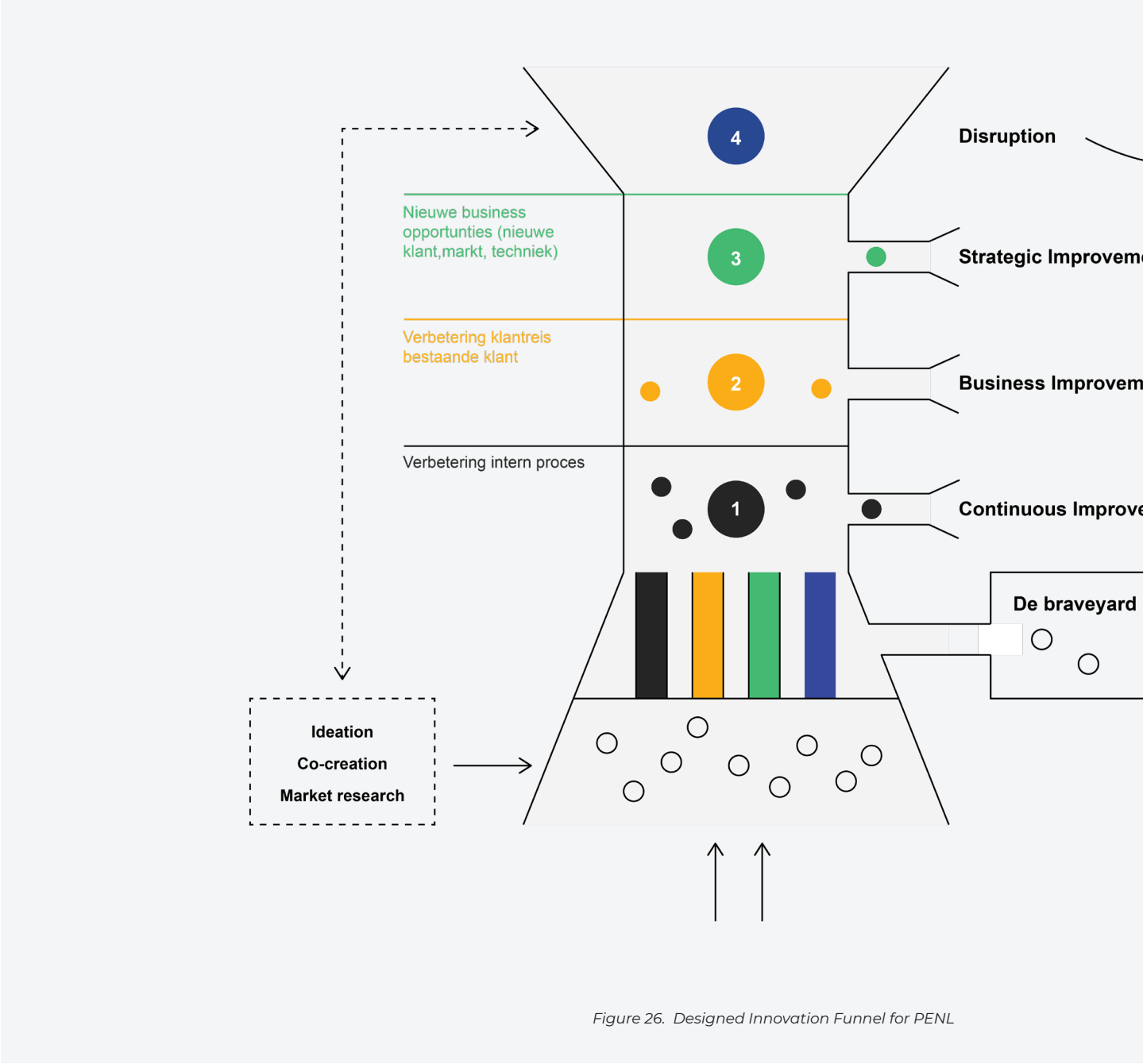


Figure 26. Designed Innovation Funnel for PENL

