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**Stimulating adaptive  
performance of pilots using  
the job demands-resources  
model**

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## ABSTRACT

Variant Flying (VF) is an innovation within an airline company and means that pilots will both fly the B777 and B787 which has an impact on their working conditions. The extent to which pilots adapt to these changes (the willingness and volunteering rate) is called adaptive performance. Adaptive performance is predicted using the job demands-resources model. This model describes a motivational process and health/energy process that respectively stimulate/diminish employee well-being. The motivational process was found to be related to adaptive performance via an increase in work engagement whereas the energy/health process was only related to exhaustion and not to adaptive performance. Change information was introduced as a job resource and it was positively related to adaptive performance directly and indirectly via meaning-making of the change. Change information is also related to adaptive performance by influencing expectations regarding the change since it was negatively related to expected increases in job demands due to the change while it was positively related to expected increases in job resources. These expectations were respectively negatively and positively related to adaptive performance.

An intervention of six change information items did not increase scores of experienced change information over time. However, using change scores it was found that increases in change information were positively related to increases of expected job demands/resources due to the change. A change of expected increase in job resource stimulated scores on adaptive performance over time, emphasizing the importance of change information as a facilitator of adaptive performance.

## PREFACE

The master thesis lying before you is the result of my graduation project for the Master program Operations Management and Logistics at the Human Performance Management capacity group. The thesis was conducted within the Flight Operations department of an European airline company and partly at the Eindhoven University of Technology.

During my study period within Eindhoven I especially enjoyed courses about human performance management. Also within my job as an airline pilot, I am interested in what drives humans to behave in certain ways. I believe that human well-being is the most important predictor in how we behave and ultimately perform in job tasks. Since I started working, I was surprised about the amount of organizational changes being continuously implemented within the company, mostly communicated in writing. I am glad to have been in the opportunity to combine human behaviour with a major and important innovation within the Flight Operations division, leading to a study on adaptive performance of pilots to start Variant Flying.

Finalizing this study would not have been possible without the input of the supervisors from Eindhoven University of Technology and the airline company. First of all, I would like to thank Prof. Dr. Evangelia Demerouti for her enthusiastic supervision during the study. You provided me with valuable insights and feedback to improve the study and I liked the brainstorming and discussions during our progress meetings. Within the company my special thanks go to Wido de Wilde for his supervision within the company. In special you helped me with practical organizational insights, maintaining relevance and preparing the information offensive. Next, I would like to thank the management of the B777/787 unit for initiating this study and their cooperation which has made possible gathering data and sending out an intervention. Furthermore, my thanks go to the Communications Department and 777/787 Unit Support Office that have been of help in publishing the information offensive.

And finally I would like to thank my family for encouraging and supporting me to start studying and continuing the last part of the Master in combination with a full-time job, together with my girlfriend, who was very understanding during the project and a source of inspiration by finishing her master thesis just half a year ahead of me.

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## MANAGEMENT SUMMARY

### INTRODUCTION

In the airline company under study a strategic re-organization plan has been set up to increase organizational efficiency and lower costs. Variant Flying (VF) contributes to this plan and means that pilots simultaneously operate the B777 and B787 on a single license endorsement. Pilots can currently volunteer to participate in a Difference Training (DT), after which they are qualified to also fly the B787, but the amount of volunteers remains below expectations and is not sufficient to plan all DT's, after which pilots need to be assigned. This is an undesirable situation because a motivated VF-corps is desirable since the VF concept is new and needs to prove itself in practice.

Researchers found that employee well-being was related to successful operator adaptation to change. Adaptive performance is therefore studied in relation to the job demands-resources model that describes employee well-being and has been linked to performance outcomes. Company management believes change information is not used to its potential and it can be an important facilitator of adaptation to change. In this study it is therefore investigated whether change information can stimulate adaptive performance. The main questions that will be tested and evaluated in this thesis are:

- 1.) Can adaptive performance be stimulated by change information as a job resource?
- 2.) Can the processes within the job demands-resources model explain the facilitation / diminishment of individual adaptive performance of pilots?

### THEORETICAL BACKGROUND

Adaptive performance is defined as the extent to which individuals adapt to changes in a work system or work role. Since the psychological capital of a positive employee can bring an important contribution towards successful organizational change, adaptive performance is studied using a model around employee well-being.

The job demands-resources model is built on the principles of employee well-being. The main assumption of the job demands-resources model is that working circumstances can be classified in two general categories, job demands and job resources. Job demands are aspects of a job that require effort and skills. When job demands become of a chronic nature this may lead to exhaustion. Exhaustion has been negatively related to in-role performance of employees and is expected to be negatively related to adaptive performance as well. On the other hand job resources refer to aspects of a job that are functional in achieving work goals or stimulate personal growth and development. Job resources may initiate a motivational process that supports work engagement and commitment. Work engagement was found to be related to extra role-behaviour and is expected to be positively related to adaptive performance. Expectations regarding increases in job demands and job resources, because of the change, are as well expected to be respectively negatively and positively related to adaptive performance.

Change information in combination with meaning-making of the change is added to this model. Change information can facilitate employee adjustment to change over time by reducing feelings

of anxiety and providing a rationale for the change. Effectivity of change information can be increased by adjusting the framing of the information to match personal preferences. Individuals with a promotion focus are driven by a need for growth and development and job goals should be presented as the desired level to attain, while individuals with a prevention focus are driven by a need for safety and job goals should be presented as avoiding failures. Change information can as well stimulate adaptive performance indirectly via a process of meaning-making. Change information may trigger employees to reflect on the changing environment around them by helping them to understand the change (strategy worldview) and find benefits in the change.

## **METHOD**

This study is organized around an intervention on change information. A pre-measure (T1) and post measure (T2) were held via an online survey and all pilots within the B777/787 unit were invited to participate. Current information regarding VF was mostly informative without convincing/motivating character. Six communication items were published during a period of six weeks to complement current information about VF, reduce feelings of anxiety, provide a rationale for the change and motivate pilots to change. This intervention consisted of:

- I. Column from higher management (chief-pilot) explaining the vision behind VF.
- II. An infographic which stimulates finding benefits because of VF.
- III. An infographic which stimulates understanding the change of VF.
- IV. Feedback on response of the first survey.
- V. A description of the DT and tools that support pilots with managing VF difficulties.
- VI. An interview with a colleague pilot who already started VF about his experiences.

## **CONCLUSIONS**

Pilots experiencing more job resources were found to be more engaged in their work and they show more adaptive performance. This makes sense since engaged workers are enthusiastic, committed to the organization and prepared to go the extra mile. Pilots experiencing more job demands were more exhausted in their work but this was not related to adaptive performance. During periods of change, exposure to job resources thus is important since the organization is in need of engaged workers that are willing to change. A job resource to which special attention should be given during periods of change is change information. Change information does not only increase work engagement by being part of job resources but it is also related to adaptive performance directly. Secondary pilots experiencing better change information were more triggered to find meaningfulness in the change. Meaning-making in turn is positively related to adaptive performance as well. For change information to be effective it should target pilots with the right communication style. Using a promotion-oriented framing style shows most positive relations with desired outcomes.

Besides differences in terms of well-being, expectations of how the change increases working circumstances as well influences adaptive performance. Adaptive performance of pilots was higher when they perceive VF as an opportunity to professionally develop themselves. Adaptive performance was lower when pilots show higher scores on expected increases in job demands

regarding the change. Most important dis-satisfier is expected increases in work-home conflict, mostly representing the employment terms of pilots with less favourable destinations, flying days versus days off and extra preparation time for flight/simulator checks. Summarizing, pilots started VF because they are engaged in their work, making them committed and prepared to go the extra mile, therefore showing adaptive performance. When a state of engagement is absent pilots will start VF when it brings them more personal gains (increase in job resources) than losses (increase in job demands) or they are convinced by change information and experience the change as meaningful.

The aim of the change information intervention was to stimulate adaptive performance of pilots. By comparing scores of pilots that participated in both surveys no difference was found in how they experienced change information and meaning-making. Having read more information items did not stimulate change information or meaning-making as well. The intervention did thus not have any effects on outcome variables. Change scores of change information did however influence scores on expected increases in job demands (diminishing) and resources (stimulating) over time and changes on increase in development opportunities were positively related to changes of adaptive performance. In order to stimulate adaptive performance pilot well-being should be given extra attention within the organization and disadvantages to go VF, where work-home conflict was most important, should be reduced by improving B787 rostering and routes.

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## 1. INTRODUCTION

The European airline industry has quickly been changing following the full deregulation of the airline markets in 1997 (Cento, 2009). The expectation of this market deregulation was that competition between airlines increased due to an increase of competitive intensity and fares lowered (Pels, 2009) (de Wit, 2010). Deregulation caused the markets for transfer passengers on major European hubs to increase and the rise of Low Cost Carriers increased direct competition on similar airports and indirect competition on parallel route (de Wit, 2010). Recently, there is a growing competitiveness for European airlines from airlines from the Middle East (de Wit, 2010). Due to this increase in competition airfares have decreased significantly (Goetz & Vowles, 2009). Legacy carriers are more traditionally organized and suffer from a larger and more expensive labour force. A strategy that legacy carriers can use to compete with, mainly low cost carriers is to reduce costs (Graham & Vowles, 2006). Legacy carriers thus have to undergo transformations and change their business operations in order to stay in business. In the airline company under study this is being operationalized by a multi-year strategic plan which aims to become a faster, easier, cheaper and more flexible organization. This requires company re-organization (changes) that strives for operational excellence together with reducing labouring costs as stated within a company-wide employee-session. The company strives for becoming a customer-focused, innovative and efficient European airline.

Innovations and changes on ways of working will form a crucial part in restructuring the organization. Innovations are important in sustaining a competitive advantage (Croom, 2001) (Fairbank & Williams, 2001); (Lengnick-Hall, 1992). The speed with which a company can innovate has become a second important asset (Kessler & Chakrabarti, 1996). Innovations can be defined as “the intentional introduction and application within a role, group or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, the organization or wider society” (West & Farr, 1990)(p.9). For successful implementation of an innovation employees must be willing to work with the innovation. Such a company change is however not easy because of heritage of resources and organisational culture (Johnson, Scholes, & Whittington, 2008). Just developing smart and successful innovations is therefore not enough. In order to implement an innovation successfully it is important that employees collaborate and are willing to change as well.

The willingness of employees to change with innovations or organizational changes can be defined as adaptive performance. “Modern work is frequently characterized by jobs where adaptive performance is crucial for employees to succeed in light of new or altered task demands” (Jundt, Shoss, & Huang, 2015)(p.53). Adaptive performance seems an important prerequisite for successful implementation of an innovation by employees. While employees have traditionally been viewed as ‘resisting’ elements in the change process, positive psychology has put emphasis on facilitating the adaptation process by creating willingness to change (Dent & Goldberg, 1999).

Within this study it is tested and evaluated whether the processes within the job demands-resources model as developed by Demerouti, Bakker, Nachreiner and Schaufeli (2001) can facilitate or diminish individual adaptive performance of employees in an organizational change

context. The job demands-resources model is mainly focused on explaining employee well-being and it proposes that job characteristics can be characterized into job demands and job resources. It is discussed whether job resources can facilitate a process of meaning-making and increase engagement which in turn is proposed to facilitate adaptive performance. Job demands are proposed to increase exhaustion / disengagement which in its turn diminishes adaptive performance. Management believes that communication towards pilots is not used to its full potential. Within this study it is tested whether a set of six change communication items, about the effects of VF for the pilots themselves and the organization, can stimulate adaptive performance. It is moreover studied whether these change communication items can facilitate a process of meaning-making and engagement. Within these relations it is studied whether a regulatory fit between the communication style (situational promotion or prevention framing) and individual preferences (individual promotion or prevention focus) moderates the relation between change information and meaning-making. Because of the changing working circumstances pilots are likely to form expectations regarding changes in job demands and resources due to the change. These new constructs are studied in relation to adaptive performance in a separate model.

The main questions that will be tested and evaluated in this thesis are:

- 1.) Can adaptive performance be stimulated by change information as a job resource?
- 2.) Can the processes within the job demands-resources model explain the facilitation / diminishment of individual adaptive performance of pilots?

By answering these questions several contributions to current academic literature are made. Current organizational change theories like the three stage model of Lewin (1957) view employees as resisting elements to change. For employees change is stressful and demanding and therefore adaptation to change can be inhibited by an inability or unwillingness to respond to the change (Monsell, 2003). Positive psychology however emphasizes the importance of employee well-being. Van den Heuvel, Demerouti, Bakker and Schaufeli (2010) found that employee well-being in terms of work engagement was related to successful operator adaptation to change. By using the job demands-resources model as a facilitator of adaptive performance, the processes of generating/diminishing employee well-being are taken into account and connected to adaptive performance of employees. The job demands-resources model has been used before to explain in-role and extra-role performance (Bakker, Demerouti, & Verbeke, 2004), but within this study the scope of the job demands-resources model is extended to adaptive behaviour.

The job demands-resources model itself has also been extended. Personal ability to create meaning of the changes has been included as a mediator between job resources and work engagement. A new job resource, which is supposed to be extra helpful during organizational change, change information, is introduced within the model. The relation between change information and meaning-making has been studied before by van den Heuvel, Demerouti, Bakker and Schaufeli (2013) but this relation is now included in the job demands-resources model as a facilitator of adaptive performance together with potential moderating effects of regulatory fit as has been studied by Petrou, Demerouti and Häfner (2015).

Explaining adaptive performance using the job demands-resources model, as well contributes to literature about current predictors of adaptive performance. Current literature has only studied single relationships between adaptive performance and facilitators but no structural ‘mechanism’ was studied that can generate or diminish adaptive performance and allows for interaction of predictors. Jundt et al. (2015) stated that especially contextual and job related factors should derive future research attention in studying adaptive performance. Literature does moreover not describe how expectations regarding changes in working circumstances may influence adaptive behaviour. In this study it is also examined how expectations about increases in job resources or increases in job demands are related to adaptive performance.

## 2. CONTEXT OF THE PROBLEM

The airline company is based within Europe and employs about 32.000 people at various locations in the world. The airline operates as legacy network carrier via a hub and spoke system where transfer passengers are of main importance. The airline serves 135 destinations of which 68 are European and 67 Intercontinental. The fleet consists of 161 short, medium and long-haul aircraft. To ensure competitive operations, continuous investments in the fleet have to be made. In November 2015 the airline received its first Boeing 787 (B787) aircraft of in total 21. This is a state of the art aircraft using amongst others composite technologies leading to a very fuel efficient aircraft. The B787-9 is designed to operate on intercontinental flights and has a seating capacity of 294 seats, just below the Boeing 777-200 (318 seats) and B777-300 (408 seats) which the airliner already possesses. Boeing has designed the B787 such that it can be classified as a common operating type with the Boeing 777 (B777). Normally pilots are operating only on a single type of aircraft, but a Single Licence Endorsement makes it possible to operate them combined after pilots have completed a Difference Training (DT). This is called Variant Flying (VF) and it means that pilots are allowed to operate the B777 and B787 simultaneously on a Single Licence Endorsement because they are classified as operating variants. The airline is the first that will start VF with the B787 and B777. Operation of these new B787 aircraft is therefore an innovation within the working circumstances of pilots currently only flying the B777. In this chapter the context of the problem is described. First the benefits and the importance of VF are discussed followed by the impact due to this innovation on pilots. Thereafter an overview of current academic literature is given and this chapter concludes with a formal problem statement, the research questions and deliverables.

### 2.1. BENEFITS

VF with the B777 and B787 gives a variety of operational benefits. VF enables crew to be assigned to both the B777 and B787 and become broader employable. This allows aircraft to become more flexibly utilized within the network and leads to a more efficient organization, as can be seen in Figure 1.



**Figure 1**  
**Operational benefits of VF**

The operation of the fleet becomes more efficient directly from the start of VF. When introducing an aircraft the fleet size of this type will be very small in the beginning. This creates much inefficiencies within the operation because the aircraft type can be operated only on a small selection of routes. For example, when operating only one aircraft of a specific type, you are restricted to routes that approximate a turnaround time of 24 hours from the homebase, to avoid large times where the aircraft cannot be operated in the air. A small fleet of a specific type does as well limit abilities to deal with disruptions within the network. VF allows the B787 to operate on multiple routes from the beginning because routes can be flown combined with the B777, since

crew restrictions are eliminated. When disruptions occur within the B787 network, a B777 aircraft can take over this route without crew restrictions. Because of VF the utilization of the B787 will increase during the introduction months.

When more B787 aircraft are flying within the fleet new efficiency benefits occur. It becomes possible to adjust passenger capacity within the network schedule on a daily basis. Based on specific days where demand on a route is lower or higher you can plan to operate with a B787-9, B777-200 or B777-300. Normally such a flexible allocation of different aircraft on a single route is not possible because of crew restrictions and high crew labour costs.

Braune (1989) also states that the concept of a 'common Type Rating' is attractive for airlines because of the cost-conscious airline operating environment nowadays and its benefits for fleet allocation and crew training costs. Cost control and the use of state of the art technology are important strategies to be able to compete in the highly competitive airline market where consumers have high buying power (Reynoso, 2010). For the airline the successful introduction of Variant Flying can promise significant benefits and a successful implementation will contribute to a new, more efficient and flexible organization.

## **2.2. IMPACT ON PILOTS**

The pilots that will operate on the B787 are currently only flying the B777. The innovation of VF is an innovation in their work and creates more demanding working circumstances. Currently, pilots flying the B777 can volunteer to also fly the B787. The amount of volunteers for VF would like to be seen higher and is barely enough to fill the scheduled DT's for captains and first officers each month. When not enough volunteers are participating for the DT, pilots will be assigned to take the DT. A forced allocation is undesirable because it may degrade performance and deplete energy and/or health. For a successful introduction and operation, pilots should be willing to participate with the change. In an ideal situation all pilots should be motivated and willing to collaborate to go VF. For pilots it is desirable to be able to better deal with the changes in their work due to the introduction of VF. According to ability fit theory described by Choi and Price (2005) employees compare the technical demands of an innovation/change in their job with their current skills and abilities (Choi & Price, 2005). When employees believe the required ability is too high they may develop negative beliefs regarding the innovation (Reger, Gustafson, Demarie, & Mullane, 1994).

Besides an increase in the 'difficulty' of their job, the change itself does as well bring psychological costs. Creating employee acceptance to change is therefore not self-evident. Employees often prefer to stick with the status quo and do not share a similar set of beliefs about the advantages of the change as the initiators (Gourville, 2006) (Samuelson & Zeckenhauer, 1988). The endowment effect is described by Kahneman, Knetsch and Thaler (1990) and states that people value products that they already possess more than products that they do not own but could potentially obtain. Gourville (2006) has combined the endowment effect and status quo bias to build a behavioural framework where the adoption of an innovation and the behavioural changes are qualified in terms of gains and losses. A new benefit of a product is perceived as a gain while losing the benefit of an old product is perceived as a loss. The losses that occur from

losing the old weigh far greater than the gains obtained from using new products. They have to overcome psychological costs to adjust to the change. Besides not accepting the change, resistant behaviours that employees develop due to the change are also harmful for the organization. It is therefore useful to study which factors facilitate those adaptive behaviours.

Introducing an innovation within a pilots force even becomes more difficult because there is less space for personal contact and face-to-face explanation of the changes. Pilots are not traditionally employed at an office nor do they have common labour times and direct contact with their supervisor. In an ideal situation change should be communicated using 'rich' communication channels, which means face to face contact with non-verbal cues and possibility to give feedback (Smeltzer, 1991). Using only rich communication channels seems impossible in a business setting, but possibilities for management to communicate with pilots using 'rich' channels seems to be limited due the employment conditions. To interact with pilots, written communication is therefore the prime method used, and could be of special importance during organizational change. Current communication with pilots was dispersed and splintered but during this research a common NewsApp was introduced in order to secure the information flow towards pilots. Still, management would like to improve communication towards pilots and the amount of information actually read by pilots. Communication can be an important asset during changes to facilitate adaptation to change (van den Heuvel et al., 2013). Employees that experience change information from their managers during periods of change are more certain and adapt better (Kramer, Dougherty, & Pierce, 2004). Timely and detailed information seems to be a critical element of change endeavour (van den Heuvel et al., 2013). Finally change information can help to 'sell' the changes to employees (Pfeffer, 1981), by providing an upbeat communication style (George, 2000). There is a desire for a more effective and efficient change information structure to reach and motivate more B777 pilots within the company.

Currently the amount of pilots that volunteer for the DT is low indicating that adaptive performance of pilots to go VF is low. For pilots, being better able to coop with the changes can lead to benefits in terms of well-being. It also degrades disengagement from work. With the introduction of VF pilots will as well contribute to competitive advantage, increasing their job security in the long term. An increase in adaptive performance is extra beneficial for pilots since ultimately all pilots that are operating the B777 also need to fly the B787 as part of a collective agreement with the labour force.

### **2.3. CURRENT ACADEMIC RESEARCH**

The concept of VF with the B777 and B787 is new to the industry and no best-practices are revealed yet. The principle of flying different types of aircraft by a single pool of pilots is not new to the industry and has been done before with different types of the Boeing 737. However, little academic research seems to be done and studies that were found refer only to technical performance aspects. Lyall and Wickens (2005) studied the occurrences of pilots using old habits from the old aircraft wrongly while operating the new aircraft, called negative transfer. They state that they are the first to have studied such predictions of negative transfer in a simulator with qualified pilots. Layll A.E. (1992) performed another study where the differences between work activities were observed when pilots were flying the Boeing 737-200 and Boeing

737-300. The studies that have been performed focus on investigating operating behaviour and safety but the adaptation process from a pilot's perspective has not been taken into account.

## **2.4. PROBLEM STATEMENT**

The introduction of VF with the B777 and B787 promises to have significant operational benefits but has an impact on pilots because of the change itself and the increased demands in their work. Flight rostering issues may as well arise due to the limited initial route network of the B787. Until now academic research has not taken into account the pilot's perspective of adaptation towards flying two aircraft on a mixed basis. A low amount of pilots is motivated to start flying the B787, while the company believes that a motivated VF corps is desirable for a successful introduction. Communication is not effectively used to motivate and stimulate pilots to participate.

This study wants to investigate whether the enjoyment and willingness of pilots to also fly the B787 can be predicted by the processes described in the job demands-resources model and whether change information can stimulate adaptive performance of pilots to fly the B787.

## 3. THEORETICAL BACKGROUND

### 3.1. ADAPTIVE PERFORMANCE

Organizational changes have their influences on employees and fluent adaptation is not self-evident because changing to the new brings psychological costs and employees prefer to stick with the status quo. To remain effective under changing conditions individuals must be able to quickly adapt to new tasks and work roles (Burke, Stagl, Salas, Pierce, & Kendall, 2006). Modern work is frequently characterized by new or altered task demands and therefore adaptive performance has become crucial for employees (Jundt et al., 2015). Adaptive performance in its turn has found to be positively related with task performance (Shoss, Witt, & Vera, 2012).

#### 3.1.1. ADAPTIVE BEHAVIOUR

Adaptive behaviour occurs when employees adopt new roles, acquire new skills or modify existing work behaviours in order to respond to actual or anticipated work-relevant changes and meet objectives (Jundt et al., 2015). Griffin, Neal and Parker (2007) define adaptive performance as the extent to which individuals adapt to changes in a work system or work role. Jundt et al. (2015) define adaptive performance as behaviour that individuals enact in response to or in anticipation of changes relevant to job-related tasks. Task relevant changes include changes in the nature of job-related tasks, the methods for accomplishing the tasks and the way effectiveness is maintained (Campbell, McCloy, Oppler, & Sager, 1993).

Within this study adaptive behaviour is conceived as whether pilots volunteer to follow the DT and the willingness to spend time and effort to make VF a success. Volunteering for the DT means that pilots are showing adaptive behaviour to change and is the first step to adjust to the change. To complete the change successfully they should also be willing to spend time and effort in order to arrive well prepared for the DT and strive for maximum performance and learning during the simulator sessions. During VF operations pilots are as well encouraged to spend time on the change by filling in a variant flying observation report to gather data about possible incidents/errors because of VF which is an important tool for management to track issues and provide mitigating measures. The behaviour as described by Griffin and colleagues described below does mostly match with this study.

Griffin et al., (2007) studied work role performance under supervisors and public organizations using a twenty-seven item scale. They concluded that employee adaptivity is a distinct dimension of work role performance. In their study, Griffin et al. (2007) operationalize adaptive behaviour as how one copes with, responds to and supports the change and they made a distinction between adaptivity on an individual, team member and organization member level. Individual level adaptivity is the adjustment to new equipment, processes or procedures in work tasks. Pulakos, Arad, Donovan and Plamandon (2000) have as well studied adaptive behaviour and they created eight dimensions of adaptive performance. They however used a broader context by including role flexibility, cultural differences and physical conditions which is beyond the scope of adaptive performance within this study.

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### 3.1.2. INITIATORS OF ADAPTIVE PERFORMANCE

In a large variety of studies initiators of adaptive performance have been studied. An individual's cognitive ability, self-efficacy, achievement motivation and organizational commitment are personal factors that describe how well an individual can adapt to change (Baard, Rench, & Kozlowski, 2014), (Griffin et al., 2007) (Jundt et al., 2015) (Pulakos et al., 2002), (Shoss et al., 2012). In this study the focus is shifted to contextual factors that facilitate change.

When employees have access to more resources in their job like autonomy, possibilities to develop and social support they are more likely to show extra-role behaviour (Bakker et al., 2004). Extra-role behaviour is a part of employee adaptivity. Van den Heuvel, Demerouti and Bakker (2014) emphasize the importance of managing identity-related resources during turbulent times within the work context, in order to foster behavioural adaptation to change. They found that resources that were captured before the change show a positive relationship with adaptivity during the change among five-hundred-eighty police officers. In general personal resources can as well positively influence adaptation to change (Wanberg & Banas, 2000). The ability to create meaning of changes can be seen as a personal resource and it facilitates employees to engage in change implementation behaviours (Sonenshein & Dholakia, 2012). Van den Heuvel, Demerouti, Schreurs, Bakker and Schaufeli (2009) found that an individual's ability to make meaning of the change was positively related to willingness to change among health-care personnel.

The psychological capital of a positive employee may also bring an important contribution towards successful organizational change (Avey, Wernsing, & Luthans, 2008). Work engagement is a positive fulfilling work-related state of mind and was found to be an indicator of successful employee adaptation to change (van den Heuvel et al., 2010). Engaged workers have high levels of energy, are enthusiastic about their work and are prepared to go the extra mile (Bakker & Demerouti, 2008). Engaged workers show more organizational commitment (Demerouti et al., 2001) and experience more positive emotions (Schaufeli & Van Rhenen, 2006). They are moreover more sensitive to opportunities at work, more helpful, confident and optimistic (Cropanzano & Wright, 2001) (Schaufeli & Bakker, 2003). Work engagement is as well positively related to extra-role performance meaning that these employees show the willingness to go beyond their personal roles and engage in activities that benefit the organization as a whole in exchange for the resources they have access to (Bakker et al., 2004). Adaptivity can be considered as an indicator of extra-role behaviour (Demerouti, Bakker, & Leiter, 2014).

The absence of job resources may result in strain. Schraub, Stegmaier and Sonntag (2011) found that individual adaptive performance may be inhibited when individuals experience strain as a result of the change. Contrary to engagement, disengagement from work has been found to be negatively related to adaptivity to change (Demerouti et al., 2014).

Change information is as well an initiator of adaptive performance. When managers are supportive and communicate a vision for the change, employees are more likely to have higher scores on adaptive performance (Griffin & Hesketh, 2003). Van den Heuvel et al. (2013) also found that change information as a contextual resource was an important predictor of adaptive performance within a police department undergoing organizational changes. Moreover, the vision that leaders show for the change does positively influence the adaptation frequency (self-rated) of

employees that reported high openness to change (Griffin et al., 2010). Petrou et al. (2015) found that employee adaptation to changes was as well related to an individual's regulatory orientation. They found that framing the changes in a prevention-focused manner was helpful for employees in adapting to change when they were prevention-focused.

Finally, Shoss et al. (2012) state that employees are only likely to spend time and effort in adapting to change when employees perceive it will be valued, rewarded and supported.

### **Selecting a model**

The job demands-resources model was chosen as the model that describes adaptive performance during organizational change. This model already takes into account job resources in working circumstances and how this is related to well-being and performance. As well the consequences of a lack of job resources and strain can be taken into account. Within the model employee work engagement is also already included. Work engagement itself is positively related to adaptive performance and furthermore characteristics of work engagement seem to be closely related to other facilitators of adaptive performance: employee motivation (enthusiastic about work), organizational commitment (going the extra mile) and self-efficacy (confident and optimistic). The job demands-resources model has moreover already been used in relation to different types of performance (in-role and extra-role) across a range of studies (Bakker et al., 2004) and proven its worth within this field showing that employee well-being and performance are linked. Finally, the model allows for flexible inclusion of job characteristics depending on different contexts (Bakker & Demerouti, 2007) and therefore allows for inclusion of change information and meaning-making in the relation between job resources and work engagement.

Concluding, the job demands-resources model seems to be a useful model to describe adaptive performance since the original model already possesses constructs and relationships that are facilitator of adaptive performance and allows for introduction of change information and meaning-making within the model. The next section gives an introduction into the job demands-resources model.

## **3.2. JOB DEMANDS-RESOURCES MODEL**

The job demands-resources model developed by Demerouti et al. (2001) is a theoretical framework used to explain employee well-being. The main assumption within this framework is that whereas every job is unique in terms of stressors or risk factors these can all be classified within two general categories, job demands and job resources (Demerouti et al., 2001). Job demands and resources can however be assigned flexible to catch a specific work context (Bakker & Demerouti, 2007). Job demands are the physical, psychological, social or organizational aspects of a job that require effort and skills of an employee and are therefore related to certain psychological costs when dealing with them (Bakker & Demerouti, 2007). Job demands can both be positive or negative depending on the amount of effort an employee needs to put in these demands. Employees may experience stress when meeting job demands may require high effort from which they cannot recover adequately (Meijman & Mulder, 1998). On the other side job resources refer to the physical, psychological, social or organizational aspect of a job that are functional in achieving work goals, reduce the psychological costs of job demands or stimulate

personal growth, learning and development (Bakker & Demerouti, 2007). Job resources are not only necessary to deal with job demands but they are also important itself. Job resources as social support, feedback and autonomy may initiate a motivational process that supports work engagement and commitment (Bakker & Demerouti, 2007).

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### 3.2.1. HEALTH / ENERGY PROCESS

When job demands become of a chronic nature and employees must attain big effort to cope with them, employees' mental and physical resources may become exhausted and this may lead to depletion of energy (exhaustion) and health problems (Demerouti et al., 2001). The greater the effort of the employee, the larger the physiological costs will be (Bakker & Demerouti, 2007). Normally an employee becomes tired by everyday work, but the energy resources are sufficient to meet task demands (Gaillard, 2001). In order to maintain performance an employee must mobilize extra energy through mental effort. This extra mobilization of energy can result in incomplete recovery from workload demands and may lead to long-term effects on health and well-being (Frankenheuser & Johansson, 1986). Studies found that when employees become more exhausted because of environmental demands, their performance will be degraded due to a diminishment of their energetical resources (Bakker et al., 2004). Performance degradation may occur because of several processes. Bakker and Demerouti (2007) refer to Hockey's theory where different patterns of performance degradation are identified. Compensatory costs (increased activation or subjective effort), strategy adjustments (narrowing of attention, selectivity, redefining task requirements) and fatigue after-effects (risky choices, high-levels of subjective fatigue) are patterns that may drain an individual's energy and potentially result in employee breakdown (Bakker & Demerouti, 2007). Job demands are negatively related to in-role performance, which are the officially required outcomes and behaviours that serve organizational goals (Motowidlo & Van Scotter, 1994). This occurs because exhaustion creates cognitive and emotional fatigue (Bakker et al., 2004) and it is expected that exhaustion therefore also diminishes adaptive performance.

**Hypothesis 1:** Job demands are negatively related to adaptive performance and this relation is mediated by exhaustion.

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### 3.2.2. MOTIVATIONAL PROCESS

On the other hand, job resources have a motivational potential and may lead to high work engagement, low cynicism and excellent performance (Bakker & Demerouti, 2007). Job resources can be instrumental in achieving work goals and play an intrinsic motivational role because they stimulate employees' growth, learning and development or extrinsic motivation (Bakker & Demerouti, 2008). Through the satisfaction of these basic needs or through the achievement of work goals, engagement is likely to occur (Schaufeli & Bakker, 2004). When job resources are absent a cynical attitude towards work is likely to be developed (Bakker & Demerouti, 2007). A loss of job resources can also lead to the experience of stress by employees (Bakker & Demerouti, 2008). According to the Conservation of Resource theory by Hobfoll (2001) people want to obtain, retain and protect things that they value (for example job resources) and the loss of resources gives a desire to restore this.

Besides the motivational potential, job resources can also stimulate extra role performance (Bakker et al., 2004). Extra role performance is characterized by behaviour of an employee that directly promotes the effective functioning of an organization whereas this behaviour does not help an employee to target personal productivity (Podsakoff & MacKenzie, 1994). Employees show the willingness to go beyond their personal roles and engage in activities that benefit the organization as a whole in exchange for the resources they have access to (Bakker et al., 2004). Giving employees access to sufficient job resources may stimulate engagement and create employees that are prepared to go the extra mile and is therefore proposed to be related to adaptive performance. Job resources that are found to stimulate engagement are amongst others social support, skill variety and learning opportunities (Bakker & Demerouti, 2007).

**Hypothesis 2:** Job resources are positively related to adaptive performance and this relation is mediated by work engagement.

As described there is a dual processes within the job demands-resources model. Job demands may lead to exhaustion and diminish in-role performance. Job resources are related to engagement and increase extra-role performance. Numerous studies found existence of this dual process and showed that it can predict important organizational outcomes (Bakker & Demerouti, 2007). Job demands and resources do however not work totally separated from each other.

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### *3.2.3. INTERACTION BETWEEN JOB DEMANDS AND RESOURCES*

Job demands and job resources do not independently stimulate exhaustion and engagement, they can interact as well. Some job resources may act as buffers in coping with job demands (Bakker & Demerouti, 2007). They propose that job resources may buffer the impact of job demands on job strain and that different resources may act as a buffer in their own specific way. Job resources may provide the employee with control over the tasks to accomplish despite the large amount of job demands experienced (Karasek, 1979). Kahn and Byosserie (1992) claim that properties within a work situation can buffer the effects of the stressor and alter the perceptions and cognitions caused by the stressor reducing consequences on health.

Different combinations of job demands and job resources may also give different outcomes in job strain and motivation (Bakker & Demerouti, 2007). In all situations job resources are of importance because working conditions with high resources will always lead to high motivation despite the experience of job demands. This supports the statement that employees are in special need of job resources during periods of change. Bakker, Demerouti and Euwema (2005) found evidence for this interaction from buffering effects of job resources on the relation between job demands and well-being. The motivational process is therefore expected to be stronger related to adaptive performance than the health/exhaustion process.

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### *3.2.4. EXPECTATIONS OF CHANGING WORK CIRCUMSTANCES*

The effect of job demands and job resources on an individual's well-being and subsequently adaptive performance has been discussed so far and literature provides evidence for those effects. I believe that within an organizational change context, employees are likely to form expectations

regarding changes in working circumstances. This is supported by the ability fit theory by Choi and Price (2005) as discussed in the problem context. Moreover Gourville (2006) states that quality of an innovation will be classified in terms of gains and losses by potential adopters. These new working circumstances can as well be classified in terms of job demands and job resources. According to conservation of resource theory (COR) by Hobfoll (1989) individuals seek to obtain, retain and protect resources and they may develop stress when resources are threatened or when they fail to gain resources after a substantial investment. In line with Hobfoll (1989), expectations regarding to how job demands and job resources may change can therefore as well stimulate an individual to show adaptive behaviour. When people expect they will lose job resources or will not gain job resources despite extra time invested, this is likely to degrade adaptive behaviour. When they see the change as a way to gain job resources this may in its turn stimulate adaptive behaviour. Within this study pilots need to make an extra effort by following the DT and operating two aircraft on a mixed basis, which can be perceived as an increase of job demands. I propose that a change need to be accompanied by an opportunity to gain job resources in order to stimulate adaptive behaviour because individuals seek to obtain resources according to Hobfoll (1989). An increase in job demands may degrade adaptive performance, since employees want to protect resources they currently possess.

**Hypothesis 3a:** Expectations about increases in job resources are positively related to adaptive performance.

**Hypothesis 3b:** Expectations about increases in job demands are negatively related to adaptive performance.

### 3.3. CHANGE INFORMATION

Change information is included as a job resource within the job demands-resources model. In general, communication is an important process within organizations. Managers must communicate to motivate and lead employees, to learn about and manage the environment and finally to make decisions (Trevino, Daft, & Lengel, 1990). Also within a change context communication has proven to be of special importance and different studies found positive effects of communication on adaptive behaviour. Change information can facilitate employee adjustment to change over time (van den Heuvel et al., 2009) (Klein S. , 1996) and is positively associated to adjustment in terms of well-being and satisfaction (Jimmieson, Terry, & Callan, 2004). Even after the introduction of the change, communication remains important to enhance implementation success (Jackson, Chow, & Leitch, 1997) (Kotter, 1995). Change information can facilitate adaptation to change by reducing anxiety about the change and stimulate motivation.

First, many employees are only vaguely aware that changes are taking place and this ambiguity provides a fertile ground for rumours, anxiety and ultimately resistance which has a negative influence on acceptance of the change (Jick, 1993). Klein (1996) confirms this and finds that many people do not comprehend the necessity for change and how it affects them which might lead to development of rumours, which is mostly negative. During change many employees may have developed attitudes that are different to what management intended and negative attitudes may have a negative effect on the success of the change (Klein S. , 1996). When change

information is lacking, anxiety and rumours will persist. Uncertainty during major changes is an important reason why employees propagate negative rumours about the change (DiFonzo & Bordia, 1998). Change information can reduce this anxiety, can provide employees with a need and logic for the change (Kotter & Schlesinger, 2008) which can increase positive affect (Berger & Calabrese, 1975) and increases adaptive attitudes (Ashford, 1988). Employee uncertainty seems to be reduced most by the use of official communication channels which includes meetings and communication from supervisors (Kramer et al., 2004). Employees that experience change information from their managers during periods of change are more certain and adapt better (Kramer et al., 2004). Timely and detailed information seems to be a critical element of change endeavour (van den Heuvel et al., 2013). Change information can thus be an important facilitator of employee adaptivity by limiting rumours and anxiety about the change.

Second, change information can motivate employees to change. Normally employees prefer to stick with the status quo (Samuelson & Zeckenhauer, 1988). Change information can call this status quo to question and the rationale behind the change can be explained which can motivate employees to change (Klein S. , 1996). Wanberg and Banas (2000) support this and found that change information predicts higher openness to change. Taylor and Brown (1988) state that people possessing high openness to change try to attempt to see change in the best light possible which stimulates adaptation. Change information can moreover be written such that it provides upbeat cognitive representations of the change to positively alter employees emotional states (George, 2000). Providing only facts has however a limited effect on initial opinions about the change (Druckman & Bolsen, 2011). People perceive new information in a biased way. Facts that are consistent with their opinions weigh stronger than when facts are consistent with their predispositions (Druckman & Bolsen, 2011). Change information itself can as well have a motivational role in which it stimulates employees to take action by using storytelling. Storytelling can be used as a tool to motivate and inspire employees about the change (Fryer, 2003). Contrary to facts, stories can fulfil a human desire to grasp the patterns of living, as a personal or emotional experience and this stimulates employees' motivation to change (Fryer, 2003).

Summarizing, change communication can reduce feelings of anxiety because of the change and therefore possibly decrease expectations about increases in job demands due to the change. Employees can be motivated to change by providing the rationale to change which stimulates openness to change or using upbeat communication or storytelling to alter cognitive representations and increase awareness of gains of the change. Change information may therefore possibly stimulate expectations regarding increases in job demands and resources due to the change and stimulate adaptive performance directly. These expectations are hypothesized in *H4*, *H5a* and *H5b* in the next section.

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### 3.3.1. FRAMING THE INFORMATION MESSAGE

For change information to be effective, management should understand and match the tone with the perspective of the audience (Clampitt, 2013). The tone of change information should thus be framed depending on the audience in order to increase effectivity.

Individuals can have different preferences in the communicative style of a message, called individual regulatory orientation. To create a fit between an individual's regulatory orientation and the environment, change information language can be used and it stimulates positive outcomes (Brockner & Higgins, 2001) (Higgins, 2005). Regulatory fit theory predicts that motivation and performance are enhanced when people pursue goals framed in a way that fits their regulatory orientation (Petrou et al., 2015). Kristoff-Brown, Zimmerman and Johnson (2005) state that a fit can as well facilitate change. The extent to which the employee's values fit with the organizational change values is most important when adapting to change (Klein & Sorra, 1996).

The regulatory orientation of people can be distinguished into two chronic motivational orientations, promotion and prevention focus (Higgins, 1998). Individuals with a promotion focus are driven by a need for growth and development, while individuals with a prevention focus are driven by a need for safety (Higgins, 1998). For prevention focused employees regulatory fit is established when performance goals are framed as failures or undesired outcomes that should be avoided while promotion focused employees will experience regulatory fit when their job performance is framed in terms of the desired level that should be attained (Petrou et al., 2015). In terms of gains and losses during change, prevention-focused employees are motivated by avoiding losses while promotion-focused employees are motivated by the opportunity to reach gains.

Regulatory fit is proposed to be beneficial because it stimulates the thought of doing the right things which stimulates engagement and involvement (Higgins, 2005). Absence of regulatory fit for prevention-oriented individuals may result in development of adverse health reactions (Klenk, Strauman, & Higgins, 2011) which in turn declines adaptation to change. Within literature, regulatory fit has moreover been related to motivation, performance, persuasion, learning and behaviour change (Petrou et al., 2015) which seem related to adaptive behaviour.

In general research states that both types of regulatory fit have positive outcomes (Aaker & Lee, 2006). Petrou et al. (2015) however found results that imply that, during change, prevention-focused employees rely more strongly on regulatory cues of their manager's communication. Absence of regulatory fit for prevention-focused individuals may result in development of adverse health reactions (Klenk, Strauman, & Higgins, 2011) which in turn declines adaptation to change. In developing change information not all change messages should be framed in a preventive way but it should be taken into account that for prevention-focused employees more is at stake during periods of change (Petrou et al., 2015). A mixed use of both framing styles, where prevention-focused communication is included to serve prevention-focused employees thus seems most beneficial for communicating changes.

**Hypothesis 4:** Change information as a job resource is positively related to adaptive performance and this relation is moderated by regulatory fit of the change communication, such that the relations becomes stronger when regulatory fit is high.

**Hypothesis 5a:** Change information as a job resource is positively related to expected increases in job resources (because of the change) and this relation is moderated by regulatory fit, such that the relation is stronger when regulatory fit is high.

**Hypothesis 5b:** Change information as a job resource is negatively related to expected increases in job demands (because of the change) and this relation is moderated by regulatory fit, such that the relation is weaker when regulatory fit is high

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### 3.3.2. MEANING-MAKING

Finally, change information can trigger a process of meaning-making. Researchers found that individuals who experience the same objective circumstances (job demands and job resources) may develop different interpretations about the change (Sonenshein, 2009) (Sonenshein, 2010). This can be explained by the extent to which an individual has the ability to make meaning of those events (Sonenshein, 2010). Research found that individuals could be surprisingly adaptive during negative life events when they constructed meaning of those events (Taylor, 1983).

Change information can provide employees with a template for the change, which can be seen as the context in which the change is happening (Gioia & Chittipeddi, 1991). It may facilitate employee's constructing the change as a new strategic direction for the organization and not some ad hoc movement (Barry & Elmes, 1997). Sonensheim and Dholakia (2012) state that exposing employees to more change information may increase meaning-making in terms of understanding the change (strategy worldview) and finding benefits for the change. Strategy worldview is defined as a set of beliefs around the organizational plans that helps to lend coherence to change for employees and allows them to understand why they must make adjustments (Sonenshein & Dholakia, 2012). Benefits finding is defined by Sonenshein and Dholakia (2012) as the extent to which individuals construct change as having more benefits relative to downsides and imbuing change with positive emotions. In their study Sonenshein and Dholakia found that the greater an employee's exposure to managerial communication was, the higher an employee's level of strategy worldview (understanding) and benefit finding for the change. Van den Heuvel et al. (2013) found that the provision of information will trigger employees to digest the information by reflecting on how the change will affect them using meaning-making processes. Communication from management may thus trigger employees to reflect on the changing environment around them (van den Heuvel et al., 2013). To be effective information should include both practical information and information on how the change will help employees and the organization to reach its goals (van den Heuvel et al., 2009).

**Hypothesis 6:** Change information is positively related to meaning-making and this relation is moderated by regulatory fit such that the relation is stronger when regulatory fit is high.

Meaning-making can help individuals to overcome adverse events by creating interpretations of those events using psychological resources (Taylor, 1983). By the use of meaning-making,

individuals can link the change to their personal goals and values (van den Heuvel et al., 2013). The creation of meaning can make employees believe they are resourceful enough to implement with the change and goes beyond relieving employee stress due to uncertainty (Sonenshein & Dholakia, 2012). Being able to find meaning could be seen as a personal resource during periods of change (van den Heuvel et al., 2009). Van den Heuvel et al. (2013) found that meaning-making was positively related to willingness to change and adaptive behaviour within a police organization that was undergoing several organizational changes. In a study within healthcare organizations by van den Heuvel et al. (2009) it was found that meaning-making is positively related to in-role performance and willingness to change. Cash and Gray (2000) do as well state that finding meaning may be helpful in adapting to changing organizational environments.

Meaning-making thus is an important predictor of adaptive performance and it can be seen as the linking process between pre-change information and post-implementation adaptive performance (van den Heuvel et al., 2013). A positive relation between meaning-making and engagement is as well expected because a sense of meaningful work can have a positive influence on work engagement and personal resources are related to work engagement as well (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Work engagement in its turn may predict adaptive behaviour by stimulating extra-role behaviour.

**Hypothesis 7:** Meaning-making of the change is positively related to adaptive performance and partially mediated by work engagement.

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### 3.3.3. CHANGE INFORMATION INTERVENTION

Change information can help in reducing uncertainty and anxiety because of the change, reducing concerns about possible increases in job demands. Communicating a vision for the change can emphasize the necessity to change and stimulate positive affect to change. The changes do as well need to be sold to employees and change information can facilitate this by an upbeat motivational style, increasing the awareness of possible gains (job resources) that can be achieved by participating with the change and telling about the change in terms of a stories instead of summarizing facts. Besides stimulating adaptive performance directly and indirectly via influencing expectations about increases in job demands and resources, change information can also stimulate adaptive performance indirectly via meaning-making in terms of benefit finding and understanding the change. In order to fulfil above requirements the information offensive should include the following content:

- 1.) Provide a clear vision for the change by the higher management.
- 2.) Provide insight into the rationale of the change, to create meaning-making in terms of strategy worldview.
- 3.) Provide insight into what the benefits for the pilots are to stimulate meaning-making in terms of benefit finding.
- 4.) Tell a story about an enthusiastic VF pilot by means of an interview.
- 5.) Be written in an upbeat, motivational style, with an emphasis on promotion focus to stimulate and activate pilots to volunteer.
- 6.) Pay attention to concerns that increase anxiety to change and provide supporting tools.

**Hypothesis 8:** The perception of change information as a job resources will be higher after the intervention and an increase in change information will be related to an increase in adaptive performance both directly and indirectly via an increase in meaning-making.

**Hypothesis 9a:** An increase in the perception of change information as a job resource will be related to an increase of adaptive performance both directly and indirectly via an increase in expectations about increases in job resources (because of the change).

**Hypothesis 9b:** An increase in the perception of change information as a job resource will be related to an increase of adaptive performance both directly and indirectly via lowering expectations about increases in job demands (because of the change).

### 3.4. RESEARCH MODEL

The research model is presented in Figure 2 and Figure 3. The current working circumstances and expected increases in working circumstances are separated into two distinct models, since the constructs job demands and resources and increases of those constructs are closely related. Hypotheses 1 – 9 are shown in the research model by their numbers. The research model to predict adaptive performance from current working conditions is largely based on the job demands-resources model and extended with change information as a job resource and the constructs meaning-making and regulatory fit of change information with personal preferences. Expected increases of job resources and job demands because of the change are also proposed to influence adaptive performance. These relations are fitted within a new model since they are not part of the energy and/or motivational process. Change information is proposed to be able to influence expectations about increases in working circumstances. Results are therefore presented in a model predicting adaptive performance from current working circumstances (M1) and a model predicting adaptive performance from expected increases in job demands and resources because of the change (M2).

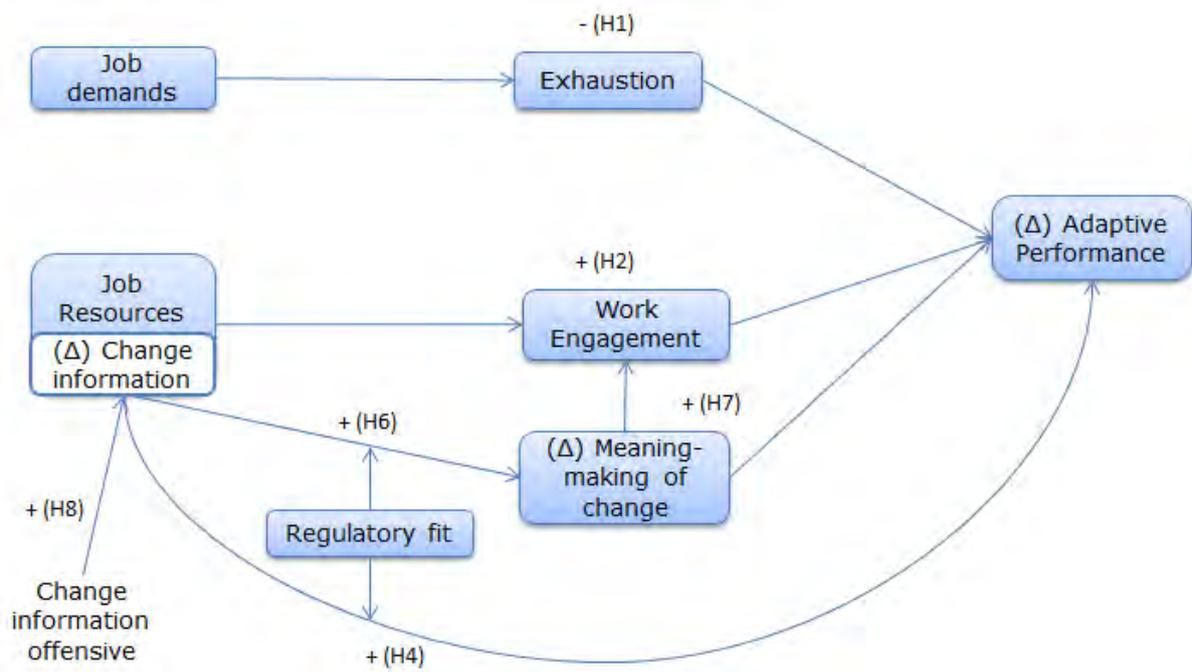


Figure 2  
 Research model M1 - Predicting adaptive performance from current working circumstances

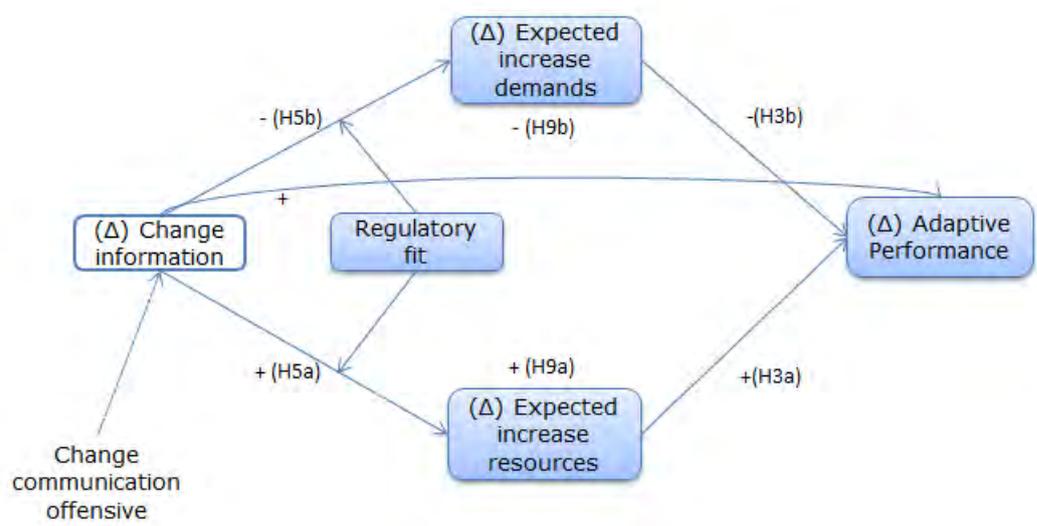


Figure 3  
 Research model M2 - Predicting adaptive performance from expected changes in working conditions

## 4. METHOD AND PROCEDURE

This chapter describes the design of this study followed by an analysis of information items that were used within the organization before the intervention. This chapter is concluded with the research methodology used to derive relations from the data.

### 4.1. RESEARCH DESIGN

This study is arranged around an intervention on change information, preceded by a pre-test (T1) and followed by a post-test (T2) using a single group. Pilots were invited via e-mail to participate in the first online survey (the pre-test) which was used to check the relations between the constructs in both theoretical frameworks. After the pre-test survey was closed, the intervention has been implemented. An intervention around change information has been performed that needs to fill the gap in the organizational information about VF and stimulates adaptive performance. The intervention consisted of six information items that were sent out during a period of six weeks. After the change information items were implemented and sent out to pilots via the company Newsapp, an invitation to participate in the second online survey (the post-test: T2) was sent out to all pilots. By comparing scores of the same pool of pilots it was checked whether the intervention has led to better valued change information, whether pilots were better able to make meaning of the changes and if this stimulates engagement and adaptive performance.

Because of operational restrictions and mutual contacts between colleagues, it was not possible to use a control group that was excluded from the intervention. Therefore only the results of the pre-test and post-test could be compared with each other. It can therefore not be objectively determined whether the effects measured in the post-test are occurring solely because of the intervention. This always remains a weak point in any pre-test - post-test design since effects of the pre-test itself can also influence the control group. However job demands and job resources are measured in both the pre-test and the post-test which allows for statistical control of changes in these constructs and their influence on adaptive performance. Nonetheless, the intervention period is kept as short as practical and was moreover chosen in such a way that planned external influences (for example announcement of routes/destinations where the B787 is going to operate on and agreement with the labour force) were avoided.

### 4.2. INTERVENTION DESIGN

To design the intervention an analysis was made about current information within the company about VF. In total 53 information messages were identified in the Flight Operations division in the period January 2015 – January 2016. Each information item has been labelled on different aspects: the sender, the communication channel, the goal, framing-style and whether the information message was dedicated to the introduction of the B787 or part of a larger message (for example paying attention to it within a column).

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#### 4.2.1. *DISPERSION OF INFORMATION*

In total 15 senders of information items on VF were identified. Most of the information originated from the Communications Department within the Flight Operations Division, followed by the Operations Manager of the 777/787 unit and the project team that introduced the B787 within the Flight Operations division. Besides the large amount of senders also many different information channels have been used. The @777/787 was the monthly information update within the unit and was the most used information channel with 34% of total messages. Furthermore 30% of messages were spread via the intranet which is accessible to all airline pilots. Appendix A, Figure 11 and Figure 12 show detailed figures with distribution of senders and information channels used. Concluding information about the introduction was ‘splintered’ with many different sources along different information channels. This has been mitigated by introduction of a NewsApp as a new information medium and it is the successor of the intranet and the @777/787 messages. The introduction of the Newsapp decreased dispersion of communication channels and improved the flow of information towards pilots.

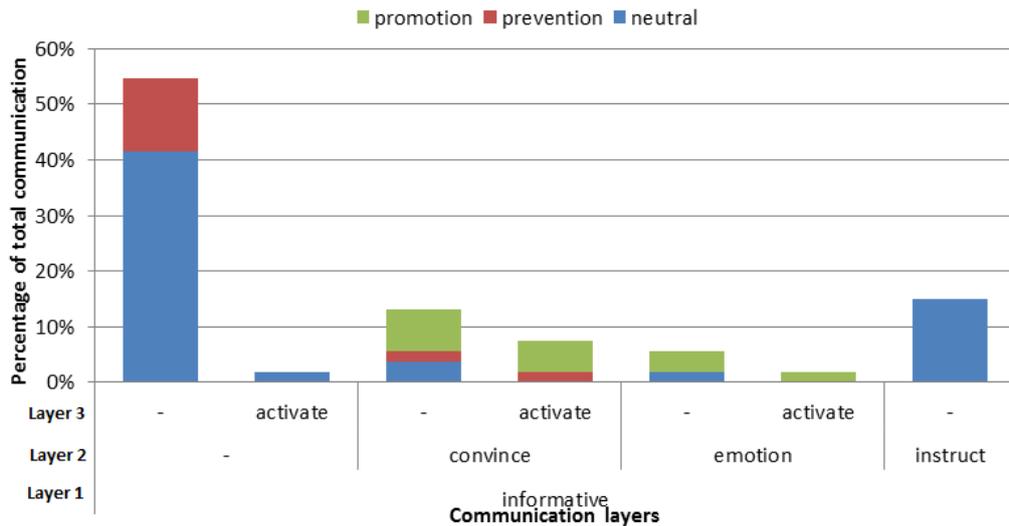
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#### 4.2.2. *CLASSIFYING INFORMATION ITEMS*

The content of the information items has been analysed by an objective tree developed by Karreman and van Enschoot (2013) and is shown in Appendix A, Figure 10. They propose that communication strives for its goal via three layers. At the highest layer of communication goals is activating / motivating the reader to take action (layer 3). Before arriving at the highest layer the reader should first be made convinced / emotional / instructed that getting into action is useful (layer 2). Before getting convinced, the reader needs to be informed about the circumstances (layer 1). Classifying the information items has been done by asking questions like, after reading this item the reader knows that... An overview of classification questions is shown in Appendix A, Table 4. When a message was not classifiable within a layer it was scored blank (-) within that layer. The analysis was performed for information about the introduction of VF distributed within the Flight Operations division as a whole and information solely distributed within the B777/787 unit. Reliability of rating the information items has been improved by an independent second assessor, who has no connection to the airline and graduated in the domain of Organizational Communication at University Master level. At first an inter-scorer reliability of 94% was measured across subjective ratings. Where differences were observed, a discussion until consensus followed

#### **Information within Flight Operations Division**

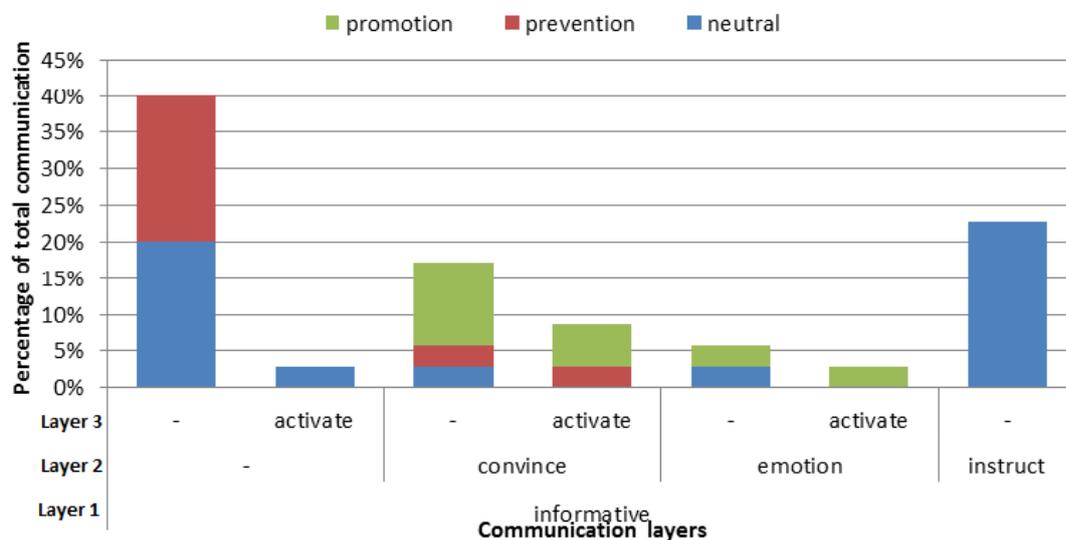
An analysis of the three layers and respective framing style of the information items is shown in Figure 4. It can be concluded that most of the communication purely has an informative character but no classification could be made in the layers two and three. From all messages send only 9,4% of the messages was of an activating nature by a convincing language or using/expressing emotion. When looking to framing style, it can be concluded that most information is neutrally framed. Use of a promotion framing was more often accompanied by a convincing/emotion and activating character.



**Figure 4**  
Classification information items and framing styles within Flight Operations Division

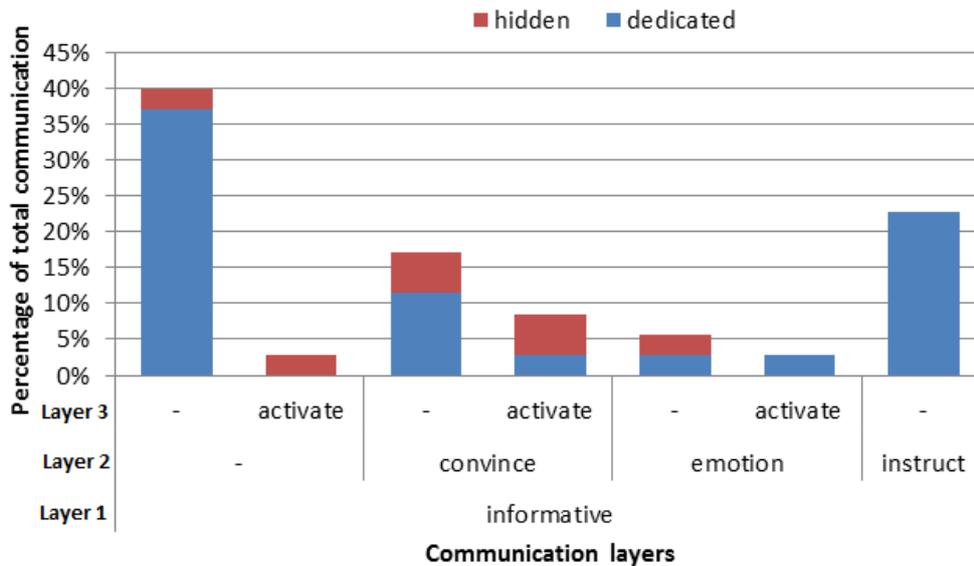
### Information within the B777/787 unit

Information solely spread within the B777/787 unit had a more restrictive target audience and therefore was expected to be of a more activating nature. From Figure 5 it can be concluded that the amount of activating information messages increased but is still fairly low. A large part of information was moreover instructing but does not activate pilots to go VF. Again a promotion framing of information messages was accompanied by a more activating nature of information.



**Figure 5**  
Classification information items and framing styles within 777/787 unit

Within the 777/787 unit information was also classified as hidden or dedicated. A dedicated communication item should increase visibility and impact of the message. From Figure 6 it can be concluded that most informative and instructing messages are dedicated while a large part of the activating messages is hidden within a larger communication item, which is likely to decrease the impact of the activating message. Activating messages should therefore become more visible.



**Figure 6**  
Classification information items and visibility within 777/787 Unit

## Conclusion

Based on the above figures, a set of conclusions has been derived about current change information on VF.

- 1.) All messages related to instructing do not have an activating / motivating message included to motivate them to go VF.
- 2.) A large part of information only shows an informative character and is purely pragmatic.
- 3.) A small part (20%) of the information, within the 777/787 unit, has an activating character via amongst others convincing or emotion, but this information is often hidden within a larger information message, likely to decrease the impact.
- 4.) A significant part of information (40%), within the 777/787 unit tries to emotion / instruct / convince pilots of variant-flying but fails to contribute with an activating character.

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### 4.2.3. DEVELOPING INFORMATION ITEMS

Change information serves an important goal during organizational change as discussed in the theoretical background section 3.3. The intervention consists of six information items that were launched during a period of six weeks. A mix between promotion and prevention focused items was used to reach maximum efficiency of the intervention in line with theoretical background. The information items are summarized below (an overview of these communication items is presented in Appendix G).

- I. Column from higher management focused on how VF fits within the history of the company as a pioneer in aviation and how it contributes to future goals of the organization. In this way a management vision is combined with storytelling to motivate pilots to change. The column uses a promotion-focused style.

- II. An infographic with Facts & Figures of the B787 for pilots. This should stimulate finding benefits in the change for pilots because of VF. The infographic is written using a promotion – focused style by presenting the gains that could be gained by starting VF.
- III. An infographic with the operational advantages of VF for the company. This infographic should provide an understanding of the importance of VF and stimulate meaning-making by a strategy worldview. It also provides a prevention-oriented tone by how it prevents losses in destinations / routes that will be flown because of VF and how it is important to reach a more efficient organization.
- IV. An item providing feedback on outcomes of the first survey to as a resource and create commitment to this study in order to improve response on the post test.
- V. A description of the DT that pilots need to participate in before starting VF, emphasizing the accessibility of tools that will support them with VF.
- VI. A published interview with two airline pilots that already started VF. This interview was set-up as a story to motivate pilots and it targets concerns popped-up in the first survey to take away concerns and decrease the ability gap that can occur because of an innovation as described in the problem context. This was set up prevention-focused to by paying attention to minimizing the losses.

Moreover the monthly invitation e-mail that notifies pilots of a new volunteering period for the DT has been adjusted to become better structured and using a more friendly tone. The invitation e-mail moreover has been provided with a more activating character to volunteer for the DT

### **4.3. DATA COLLECTION**

The research focused on airline pilots (captains, first officers and second officers) that are currently flying the B777, regardless whether they are already qualified to fly the B787.

#### *4.3.1. GATHERING RESPONSES PROCEDURE*

An invitation to participate in the first survey was sent by the Operations Manager pilot from the B777/787 unit to all pilots currently flying within the unit. Pilots could fill in the survey anonymously and participation was on a voluntary basis. To encourage responses pilots were made aware of the possibility to give their opinion on the current concept of VF which could be reviewed. Two reminders were sent out. The last reminder did specifically attend the group of pilots that did not volunteer for the DT to fill in the survey because they were less well represented in intermediate responses. In this way I aimed for the best possible reflection of the total B777/787 pilot force.

During the invitation and subsequent reminder pilots were not informed about the intervention to avoid a bias their response. To improve pilot's response in the second survey and get them involved with the study, feedback of interesting results was given based on the first survey as part of the intervention. The second survey was sent out after the intervention has been implemented and all pilots were again invited via e-mail. To compare scores of the first and second survey all pilots were asked to fill in a set of personal questions that labelled their response with an unique code to match response from both surveys, called the panel group.

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#### 4.3.2. PARTICIPENTS

Unfortunately, the first survey was sent out too early by company management, creating a situation where questions were added while the survey was open. Several constructs therefore have different usable sample sizes. The main constructs within the job demands-resources model have a sample size of  $N = 314$ , while sample size for questions about expected changes in job demands and resources was  $N = 256$  and sample size for the constructs of prevention and promotion framing was  $N = 239$ . No demographic differences were observed between these different samples. The smallest sample consists of 46% captains, 39,3% first officers and 14,6% second officers. On average 55,2% of pilots had once or more volunteered for the DT. The second survey has a sample size of  $N = 135$  from which 77,8% volunteered for the DT. Pilot's function was not retrieved from T2 since demographic data was intended to be linked to response in the first survey using the anonymous link. However only  $N = 46$  matches could be retrieved using the anonymous key. This panel group consisted of 54,9% captains, 28,3% first-officers and 17,4% second officers where overall 73,9% volunteered for the DT. Independent sample t-tests did not indicate differences in frequency of captains, first officers and second officers between T1 and the panel group sample. Volunteering rates for the DT in the panel group compared to T1 are higher for both the panel group ( $t = -4,79; p < 0,01$ ) as well as T2 ( $t = -4,67; p < 0,01$ ). This indicates that the more enthusiastic pilots are again participating in T2.

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#### 4.3.3. MEASURES

The first survey collects data about how pilots experience current working circumstances (in terms of job demands and job resources) and how they expect these working circumstances to change because of VF. The job demands that have been measured are task complexity, negative work-home conflict and work pressure. Complexity of the job was measured by a four item scale based on Furda (1995) (in Dutch) that refers to quantitative demanding aspects of the job and that originates from the Job Content Questionnaire developed by Karasek (1985). Items (e.g. "Flying asks a lot of my concentration") were scored on a five-point scale where (1) indicated never and (5) indicated often. Negative work-home conflict was measured by a three item scale based on Geurts, Taris, Kompier, Dijkers, Van Hooff and Kinnunen (2005). Items (e.g. "Your flight roster makes it difficult to participate in obligations at home") were scored on a five-point scale where (1) indicates never and (5) indicated often. Work pressure was measured using a three item scale based on Furda (1995) Items (e.g. "I have to do much work simultaneously") were scored on a five-point scale where (1) indicated never and (5) indicated often. The job resources that were measured are development opportunities, social support and change information. Development opportunities were measured using a three item scale based on a scale by Bakker, Demerouti, Taris, Schaufeli and Schreurs (2003). Items (e.g. "In my work I have sufficient opportunities to develop my strong points") were scored on a five-point scale where (1) indicated strongly disagree and (5) indicated strongly agree. Social support was measured by a three item scale developed by Van Veldhoven and Meijman (1994). Items (e.g. "Can you count on your colleagues when facing difficulties in your work") have five answer categories ranging from (1) never to (5) often. The same questions and answer scales were used to identify expectations about increases in job demands and job resources. Change information was measured by a three

item scale by Wanberg and Banas (2000). Items (e.g. “There has been communicated enough about the change”) have six answer categories ranging from (1) totally disagree to (6) totally agree. Framing of the communication was measured using a six item scale based on Petrou, Demerouti, and Häfner (2015). Items (e.g. “Communication about variant-flying is mainly about new duties it brings”) were scored on a six-point scale where (1) indicated totally disagree and (6) indicated totally agree. Meaning-making of the change was measured using four items from the meaning-making scale based on van den Heuvel et al. (2009). Items (e.g. “I actively reflect on changes within my job”) have six answers ranging from (1) totally disagree to (6) totally agree. Work engagement was measured by the dedication items of work engagement, to create a better fit with the working conditions of airline pilots, and measured by a three item scale from the Utrecht Work Engagement Scale (UWES) developed by Schaufeli and Bakker (2003). Items (e.g. “I am enthusiastic about my job”) were measured across six answer categories where (1) indicated totally disagree and (6) indicated totally agree. Exhaustion was measured using a four item scale based on the exhaustion items from the Oldenburg Burnout Inventory (OLBI) scale developed by Demerouti, Bakker, Vardakou and Kantas (2003). Items (e.g. “I feel mentally exhausted because of my work”) have six answer categories where (1) indicated totally disagree and (5) indicated totally agree. Finally, adaptive performance was measured both in a subjective way (the adaptive attitudes they show towards the introduction of VF) and whether they have volunteered to participate in the DT. Subjective adaptive performance was measured using a three item scale based on Metselaar (1997). Items (e.g. “I am willing to convince my colleagues of the benefits of variant-flying”) have five answer categories ranging from (1) totally disagree to (5) totally agree.

Within the second survey the same questions and scales were used as in the first survey. The second survey was extended by adding a question scale to measure an individual’s regulatory orientation based on a scale by Neubert, Kacmar, Carlson, Chonko and Roberts (2008). The measure consisted of six items (e.g. I focus my duties on fulfilling my responsibilities) that were scored on a five-point scale where (1) indicated totally disagree and (5) indicated totally agree. Moreover the second survey was extended by asking questions whether pilots have read and understand the items from the communication offensive.

Scales that are only available in English were translated to Dutch.

#### **4.4. STATISTICAL ANALYSIS**

Collected survey data was analysed using IBM SPSS Statistics 22 and IBM SPSS AMOS 22. Data were first checked for completeness and distribution by histograms, skewness and kurtosis. Since sample size is above 40 cases, the central limit theory states that the distribution tends to a normal distribution (Field, 2009). Thereafter constructs were checked for reliability by using Cronbach’s alpha.

##### **Creating constructs**

Constructs were formed by calculating the mean scores of the questions within a construct. Calculating mean scores was however only done when constructs were determined reliable according Cronbach’s alpha. When a construct was determined unreliable, factor analysis was used as an alternative to generate construct scores. Factor scores were however only useful if a

single factor was extracted from the questions within a construct. In this study adaptive performance consists of a combination of an objective component (having volunteered for the DT) and a subjective component by the construct measuring adaptive behaviour. The construct score of adaptive performance was created by a factor score of having volunteered for the DT {0,1} and the mean score of adaptive behaviour. It was chosen to test results based on a combination of adaptive behaviour and having volunteered for the DT, since analysing results on a {0,1} score is not possible in SEM.

To construct measures of regulatory fit and non-fit, regulatory fit inductions were used as described in the 'Measures' section of the Higgins Lab website<sup>1</sup>. A prevention regulatory fit was described by the difference between individual prevention focus and situational prevention framing and a promotion regulatory fit was described by the difference between individual promotion focus and situational promotion framing. On the other hand a prevention regulatory non-fit was described by the difference in individual prevention focus and situational promotion framing whereas a promotion regulatory non-fit was described by the difference between individual promotion focus and situational prevention framing. All these scores are difference scores such that a smaller value represents a better fit. Since individual focus is only measured within T2 regulatory fit is only calculated within the T2 dataset.

### **SEM Modelling**

Before starting modelling the proposed research model, correlations between constructs were checked. Second, to validate correlations and identify where largest differences for constructs exists, constructs means were compared for pilots who already volunteered to go VF and pilots who did not. Mean scores were compared using independent t-test per construct and grouping on whether pilots volunteered already to go VF. Corrections were made for whether the variances of both groups could considered to be equal, using Levene's test of equal variances. These outcomes are mentioned in the descriptive statistics section within the Results chapter.

The proposed research model was thereafter modelled in SPSS AMOS using Structural Equation Modelling (SEM) with maximum likelihood estimates. To check for goodness of fit, chi-square differences tests were used. The chi-square difference test is however sensitive to sample size and amount of variables making it difficult to reject a hypothesized model (Hair, Black, Babin, & Anderson, 2014). Therefore other fit measures were included as well in determining quality of the model as the goodness-of-fit-index (GFI), the root mean square error of approximation (RMSEA), the comparative fit index (CFI), Tucker-Lewis index (TLI) and Akaike Information Criterion (AIC). Within the SEM model "Job Demands" and "Job Resources" were both included as latent (unobserved) variables. Based on generated estimates and significances of paths in the SEM model conclusions are made upon proposed relations between constructs.

In order to gain sufficient statistical power to conduct SEM analysis, response should, as a rule of thumb, at least have a minimum sample of between 100 – 200 (Boomsma, 1982), 5 – 10 observations per estimated parameter (Bollen, 1989) or 10 cases per variable (Nunnally, 1967). For T2 data and panel group data the sample size is therefore too small. In order to allow SEM

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<sup>1</sup> <http://higginsweb.psych.columbia.edu/index.php/measures/#RFitI>

analysis each individual case has been copied to double total sample size. These results should therefore be interpreted with care and they are mainly used for validating T1 outcomes. All of these outcomes are validated by linear regression modelling using the original T2 and panel group datasets and conclusions are mainly derived on their results.

To validate path outcomes from SEM modelling, multivariate linear regression was used to check for significance of these same relations. Possible effects of multicollinearity of independent variables were checked by looking at Variance Inflation Factors, which values per variable should be below a value of 10 (Myers, 1990), whereas average values should not be 'much' higher than 1 (Bowerman & O'Connell, 1990). A Durbin-Watson test was moreover performed to check for independence of residuals in the model, indicated by values close to 2 (Field, 2009). Finally a scatterplot was checked consisting of standardized predicted values of the dependent variable (ZPRED in SPSS) against standardized residuals (ZRESID in SPSS) to check for linearity and heteroscedasticity of the data (Field, 2009).

### **Mediating analysis**

To check for mediating effects within SEM, direct path effects of the independent variable on the dependent variable were first checked. Second, the indirect effect via the mediator variable was added. Third, depending on whether the direct path effect remains unchanged, reduces but remains significant or becomes insignificant it can be concluded whether there is no mediating effect, a partly mediating effect or a full mediating effect of the added variable respectively. This was done for the motivational and energy/health processes of the job demands-resources model in the results section.

### **Moderating analysis**

Analysis of moderating effects was performed including interaction terms. A variable based on the interaction between the predictor variable and proposed moderating variable was included within a linear regression model as an independent variable together with the predictor variable and proposed moderator variable. The outcome variable was included as the dependent variable within the linear regression model. A significant relation of the interaction variable indicates a moderating relation of the proposed moderator variable on the relation between the predictor variable and outcome variable.

### **Change scores**

Post-test results were checked against pre-test results by comparing scores on constructs at times T1 and T2. Differences between T1 and T2 were computed by performing regression analysis with T1 scores as independent variable and T2 scores as dependent variable and using standardized residuals as the difference score. The difference scores were calculated for each respective construct and visually marked by a  $\Delta$  sign.

## 5. RESULTS

### 5.1. DESCRIPTIVE STATISTICS

Summary data for constructs at T1 are shown in Table 1, data from T2 are shown in Table 2.

#### Reliabilities

Within both T1 and T2 most constructs were considered reliable, having Cronbach's alpha scores above 0,7. Meaning-making scored moderate with a score of  $\alpha=0,623$  and  $\alpha=0,627$  respectively. Scores could not be improved by deleting individual questions within the construct. By looking at correlations between questions, the original construct was considered sufficient to work with. Expectations regarding increases in work-home conflict because of VF scored as well low with  $\alpha=0,686$  (T1) and  $\alpha=0,622$  (T2). Cronbach alpha scores could not be improved by deleting a question within the construct but after observing correlations and content of the questions the construct was considered sufficient to work with.

Experienced prevention and promotion framing of change information scored low with respectively  $\alpha=0,465$  and  $\alpha=0,639$  for T1 and  $\alpha=0,515$  and  $\alpha=0,629$  for T2. Scores could again not be improved above 0,7 by deleting a single item. These low reliabilities are likely to occur due a mix of both styles used within company information messages. An individual's prevention focus scores  $\alpha=0,684$  and promotion focus  $\alpha=0,468$ . Because reliability scores are low on all constructs regarding regulatory framing and individual focus, factor analysis was used to create scores per construct. In all four cases factor analysis derived only a single factor which made it possible to use the factor scores of individual promotion/prevention focus and experienced promotion/prevention framing.

#### Correlations

Bivariate correlation scores were in line with general hypotheses based on theory. The three job demands were all correlated with exhaustion, except task complexity for T2, mostly supporting the energy/health process. The three job resources were all correlated with work engagement, supporting the motivational process. Change information was correlated with adaptive performance directly and the personal resource meaning-making. Work engagement and meaning-making were significantly positively correlated with adaptive performance in turn, while exhaustion is negatively correlated with adaptive performance. Remarkable was that the job demand task complexity shows a positive relation with work engagement and is the only job demand/resource that does not have a significant correlation with adaptive performance. Within T2 task complexity does even appear to be positively correlated with adaptive performance. It seems that for higher educated people task complexity can as well be seen as a challenge within their job. Because of these correlations task complexity is omitted in further analysis as an indicator of job demands.

T1 and T2 data show that expectations about increases in job demands are all significantly correlated with each other, as well as expectations about increases in job resources. Increases of job demands are mostly negatively related to adaptive performance, where increases in work-home conflict is most strongly correlated with adaptive performance. Increase of task complexity

seems to be the least important predictor of adaptive performance due to a low correlation in T1 and a non-significant correlation for T2. Increases in job resources by development opportunities are positively correlated with adaptive performance whereas increases in social support are not correlated with adaptive performance and is therefore omitted from further analysis. Change information as a job resource is in general negatively correlated to most increases in job demands, except an increase of task complexity, and positively correlated an increase of development opportunities. A prevention framing of change information shows positive correlations with most increases in job demands whereas a promotion framing is positively correlated with an increase in job resources.

In general it can be observed that experiencing a regulatory fit or a non-fit does not show relations with outcome variables. The sole significant correlation indicates that when the regulatory non-promotion fit becomes larger meaning-making increases. For an individual regulatory focus a prevention focus is positively correlated to meaning-making and work engagement while a promotion focus is positively correlated to meaning-making. No correlations with adaptive performance are found. Being promotion-focused or prevention-focused is positively correlated with each other. It indicates that some pilots are seeking for an individual focus whereas other pilots have a more neutral point of view and do not show scores on both individual promotion and prevention focus. Pilots that are promotion-focused do not show a correlation with experience of promotion-framed information and the same applies to prevention-focused pilots in experiencing prevention-framed communication. It indicates that experiencing a specific information style is not influenced by an individual focus. The situational promotion framing is positively correlated with change information, meaning-making and work engagement as well as expected increases in job resources. Experiencing a situational prevention framing is positively correlated with exhaustion (only for T1) and expected increases in job demands. It seems that a promotion framing of change information is thus most helpful to adapt to the change. Remarkable is that experiencing a promotion and prevention framing are positively correlated with each other. Since both framing styles are being used in company information it appears that some pilot seek for a framing style while others do not. Correlations are supported by independent sample t-tests where means were compared for pilots who already volunteered for the DT and pilots who did not, measuring objective adaptive performance. Results are shown in Appendix B, Table 5 for T1 and Table 6 for T2. No differences in means were found in task complexity and increase in social support in line with the non-significant correlations and confirming the decision to omit these constructs from further analysis. Largest negative difference between pilots volunteering for the DT versus non-volunteering pilots occurs for expected increase in work-home conflict (effect size = 0,26) and largest positive differences occurs for expected increase in development opportunities (effect size = 0,30).

**Table 1**

**Means, standard deviations, reliabilities and inter-correlations of constructs from T1 ( $N(1-10) = 314$ ;  $N(11-15) = 256$ ;  $N(16-17) = 239$ )**

	<i>Mean</i>	<i>SD</i>	<i>Reliability</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Task Complexity	3,57	0,58	0,725	1															
2 Work-Home Conflict	3,10	0,86	0,765	0,16**	1														
3 Work Pressure	3,19	0,74	0,765	0,34**	0,22**	1													
4 Development Opportunities	3,39	0,92	0,867	0,10	-0,30*	0,02	1												
5 Social Support	4,14	0,78	0,851	0,13**	-0,29**	-0,04	0,42**	1											
6 Change Information	3,77	0,87	0,895	0,06	-0,31**	-0,02	0,32**	0,27**	1										
7 Meaning Making	4,32	0,89	0,623	0,06	-0,17**	-0,04	0,32**	0,28**	0,38**	1									
8 Work Engagement	5,04	1,02	0,870	0,13*	-0,32**	-0,14*	0,59**	0,40**	0,37**	0,39**	1								
9 Exhaustion	2,47	1,15	0,704	0,14*	0,41**	0,35**	-0,43**	-0,31**	-0,35**	-0,31**	-0,60**	1							
10 Adaptive Performance	0	1,00	By factor analysis	-0,02	-0,30**	-0,17**	0,25**	0,17**	0,43**	0,38**	0,41**	-0,38**	1						
11 Incr. Task Complexity	3,65	0,88	0,906	0,45**	0,24**	0,50**	-0,03	-0,05	-0,05	-0,01	-0,09	0,33**	-0,19**	1					
12 Incr. Work-Home Conflict	3,36	0,85	0,686	0,12	0,49**	0,25**	-0,26**	-0,20**	-0,39**	-0,11	-0,35**	0,41**	-0,48**	0,33**	1				
13 Incr. Work Pressure	2,76	1,04	0,885	0,30**	0,37**	0,56**	-0,09	-0,14*	-0,22**	-0,12	-0,18**	0,38**	-0,38**	0,59**	0,49**	1			
14 Incr. Development Opportunities	3,63	1,06	0,927	0,14*	-0,22**	-0,01	0,56**	0,30**	0,44**	0,42**	0,52**	0,31**	0,53**	-0,02	-0,34**	-0,21**	1		
15 Incr. Social Support	3,06	0,90	0,748	0,03	-0,09	0,02	0,34**	0,32**	0,10	0,18**	0,28**	-0,09	0,11	0,06	-0,05	0,17**	0,29**	1	
16 Prevention framing	0	1,00	By factor analysis	-0,01	0,16*	0,12	0,04	-0,04	-0,06	0,03	-0,03	0,20**	-0,12	0,13*	0,26**	0,26**	-0,04	0,10	1
17 Promotion framing	0	1,00	By factor analysis	0,06	-0,04	0,09	0,23**	0,12	0,25**	0,27**	0,21**	-0,06	0,11	0,08	-0,04	0,10	0,28**	0,26**	0,32**

\*\* Correlation significant at  $p < 0,01$ ; \* Correlation significant at  $p < 0,05$ .

**Table 2**  
**Means, standard deviations, reliabilities and inter-correlations of constructs from T2 (N=135)**

	<i>Mean</i>	<i>SD</i>	<i>Reliability</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 Task Complexity	3,53	0,53	0,723	1																				
2 Work-Home Conflict	3,52	0,92	0,837	0,11	1																			
3 Work Pressure	3,37	0,67	0,781	0,42**	0,23**	1																		
4 Development Opportunities	3,44	0,83	0,825	0,15	-0,17*	0,00	1																	
5 Social Support	4,08	0,81	0,860	0,23**	-0,11	0,07	0,53**	1																
6 Change Information	3,69	0,87	0,911	0,08	-	-0,09	0,29**	0,35**	1															
7 Meaning Making	4,44	0,75	0,627	0,00	0,13	0,11	0,22*	0,22*	0,26**	1														
8 Work Engagement	5,03	1,06	0,923	0,22*	-0,22*	0,06	0,65**	0,58**	0,38**	0,31**	1													
9 Exhaustion	2,58	1,09	0,652	0,10	0,36**	0,27**	-0,44**	-0,27**	-0,26**	-0,08	-0,57**	1												
10 Adaptive Performance	0	1,00	By factor analysis	0,28**	-0,09	-0,08	0,31**	0,21*	0,40*	0,21*	0,40**	-	1											
11 Incr. Task Complexity	3,64	0,78	0,899	0,45**	0,34**	0,47**	-0,12	-0,01	-0,11	0,09	-0,04	0,35**	-0,15	1										
12 Incr. Work-Home Conflict	3,69	0,82	0,622	0,12	0,56**	0,14	-0,33**	-0,23**	-0,36**	-0,02	-0,42**	0,37**	-0,40**	0,38**	1									
13 Incr. Work Pressure	2,83	0,88	0,862	0,13	0,43**	0,51**	-0,04	-0,03	-0,26**	-0,07	-0,05	0,35**	-0,27**	0,53**	0,37**	1								
14 Incr. Development Opportunities	3,70	0,94	0,944	0,22*	-0,13	0,15	0,60**	0,37**	0,40**	0,18*	0,52**	-	0,59**	-0,07	-0,37**	-0,02	1							
15 Prevention framing	0	1,00	By factor analysis	0,16	0,25**	0,15	0,13	0,00	0,18*	0,07	0,03	0,13	-0,05	0,19*	0,02	0,23**	0,17	1						
16 Promotion framings	0	1,00	By factor analysis	0,05	-0,01	-0,10	0,33**	0,23**	0,33**	0,28**	0,27**	-0,13	0,15	0,02	-0,06	0,02	0,33*	0,20*	1					
17 Individual prevention focus	0	1,00	By factor analysis	0,18*	0,18*	0,06	0,16	0,22*	0,16	0,34**	0,22*	-0,05	0,15	0,10	-0,01	0,22	0,13	0,12	0,12	1				
18 Individual promotion focus	0	1,00	By factor analysis	-0,06	0,18*	0,03	0,10	-0,02	0,05	0,32**	0,09	-0,08	0,16	0,05	-0,02	-0,01	0,14	-0,04	-0,01	0,30**				
19 Prevention fit (difference)	1,02	0,76	n/a	-0,04	0,07	-0,11	0,08	0,06	-0,02	-0,01	0,04	-0,02	0,21*	-0,05	0,13	-0,01	0,03	-0,01	-0,07	0,06	0,16	1		
20 Promotion	1,14	0,82	n/a	-0,07	0,03	-0,04	-0,06	0,06	0,04	0,09	-0,07	0,08	0,08	-0,01	-0,04	-0,04	-0,04	0,03	-0,02	0,05	-0,05	0,07	1	

fit (difference)																								
21 Prevention non-fit (difference)	1,03	0,82	n/a	-0,17	0,05	0,11	-0,02	0,06	-0,06	0,08	0,06	-0,03	0,13	0,11	0,02	0,04	0,01	0,07	-0,05	0,08	0,08	0,29**	0,22**	1
22 Promotion non-fit (difference)	1,17	0,78	n/a	-0,10	0,11	-0,07	-0,01	0,05	0,13	0,23**	0,03	-0,02	0,08	-0,02	0,05	0,02	-0,04	0,05	0,04	0,26**	0,01	0,22**	0,33**	-0,07

\*\* Correlation significant at  $p < 0,01$ ; \* Correlation significant at  $p < 0,05$ .

## 5.2. TESTING RESEARCH MODELS

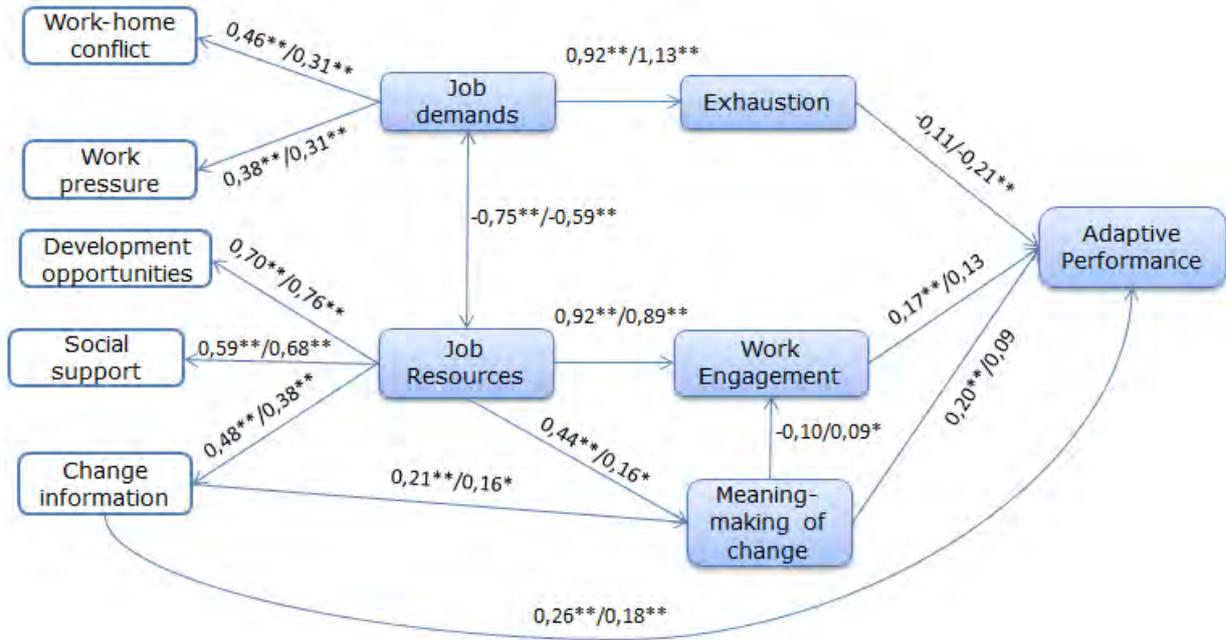
Structural Equation Modelling was used as a way to check for relations between constructs and derive conclusions on hypotheses. It was moreover used as a possibility to assess model fit and check for improvements in predicting adaptive performance of pilots. The theoretical framework predicting adaptive performance from current working conditions was modelled as SEM model M1. The theoretical framework predicting adaptive performance from expected increases in working conditions is modelled as SEM model M2. Both models were generated based on data from T1 and cross-validated by data from T2. Model fit indices are presented in Table 3.

**Table 3**  
**Model fit indices for M1 and M2 for data of T1 and T2**

Model	$\chi^2$	p	GFI	RMSEA	TLI	CFI	AIC	R <sup>2</sup> AP
M1 (T1)	64,9	0,000	0,958	0,082	0,908	0,946	112,9	0,311
M1 (T2)	56,4	0,000	0,918	0,112	0,820	0,895	104,4	0,191
M2 (T1)	28,2	0,000	0,966	0,120	0,878	0,951	58,2	0,398
M2 (T2)	35,7	0,000	0,958	0,136	0,809	0,924	65,7	0,408

### 5.2.1. CURRENT WORKING CIRCUMSTANCES

M1 was modelled using SEM, based on T1 and validated using T2. After initial modelling modification indices suggested including a relation between job resources and meaning-making which seems probable because contextual resources may stimulate or diminish an individual's ability to make meaning of the changes. Also a covariate relation between job demands and job resources was suggested which was as well added. A remarkable path within SEM is the non-significant relation between meaning-making and work engagement for T1 while correlations indicated a significant positive relation. This non-significant relation could be of a statistical nature but deleting the relation between job resources and meaning-making did as well not give a significant path from meaning-making to work engagement. The GFI and CFI show scores around 0,95 while RMSEA is below 0,1 which are indicators of a good fitting model. The model explains 31,1% of the total variance of adaptive performance. The SEM model is shown in Figure 7. The original SEM model as generated in AMOS is shown in Appendix C, Figure 14. Conclusions on hypotheses are primarily based on T1 since this sample is largest and best reflects the pilots corps as discussed in the participant section of the method chapter. Differences between T1 and T2 will be named at their general hypotheses and where applicable linear regression is used as a backup. Hypotheses based on model M1 are discussed below.



**Figure 7**  
**SEM Model M1 – standardized effects for T1 / T2**  
 (\*\* relation significant at 0,01 level; \* relation significant at 0,05 level)

H1 could not be supported by the results of model M1. Job demands are significantly related to exhaustion for both T1 ( $\beta_{std} = 0,92$ ;  $p < 0,01$ ) and T2 ( $\beta_{std} = 1,13$ ;  $p < 0,01$ ) but exhaustion is not significantly related to adaptive performance ( $\beta_{std} = -0,11$ ;  $p = 0,06$ ) for T1, while it is significant for T2 ( $\beta_{std} = -0,21$ ;  $p < 0,01$ ). The non-significant relation for T1 is contradicting with correlations. For validation purposes linear regression analysis was performed with adaptive performance as dependent variable and exhaustion, work engagement, change information and meaning-making as independent variables which as well gives a non-significant relation between exhaustion and adaptive performance. While the bivariate correlation between exhaustion and adaptive performance is significant, the semi-partial correlation (representing the unique relationship between an independent variable and dependent variable) is much lower ( $r = -0,09$ ). It means that exhaustion has a significant correlation with adaptive performance but when using the set of predictors, exhaustion does only contribute a small part in predicting outcomes on adaptive performance and most variance is declared by other predictors. Results of the linear regression model are presented in Appendix D, Table 7. A possible mediating effect of exhaustion was, as described in the method section, checked by removing exhaustion from the SEM model and including a direct relation between job demands and adaptive performance which does not deliver a significant relation for both T1 and T2. Including both the direct and mediating relation via exhaustion in the SEM model also provides two non-significant relations. Because it was discussed that T1 data is leading, it is concluded that job demands are not significantly related to adaptive performance and there is no mediating effect of exhaustion.

H2 is partly supported based on model M1. Job resources are significantly related to work engagement in T1 ( $\beta_{std} = 0,92$ ;  $p < 0,01$ ) and T2 ( $\beta_{std} = 0,89$ ;  $p < 0,01$ ) and work engagement is significantly related to adaptive performance for T1 ( $\beta_{std} = 0,17$ ;  $p < 0,01$ ) while it is not

significant for T2 ( $\beta_{std} = 0,13; p = 0,07$ ). T2 findings were confirmed by linear regression analysis, using adaptive performance as dependent variable and change information, meaning-making, work engagement and exhaustion as independent variables. Results are presented in Appendix D, Table 8. Within the SEM model, mediating effects were checked as described in the method section. A direct relation between job resources and adaptive performance without work engagement as a mediator is not significant for both T1 and T2. Because T1 data is leading it can be concluded that job resources are indirectly related to adaptive performance via work engagement, but there is no mediating effect of work engagement.

*H4* is partly supported by model M1. Overall, change information is positively related to adaptive performance for both T1 ( $\beta_{std} = 0,26; p < 0,01$ ) and T2 ( $\beta_{std} = 0,18; p < 0,01$ ). This relation was not moderated by a regulatory prevention fit. The interaction term of change information and regulatory prevention fit was together with change information and prevention fit included in a linear regression model as independent variables to describe adaptive performance. This interaction term was not significant ( $\beta = -0,01; p = 0,94$ ). This same procedure was followed for regulatory promotion fit and again the interaction term was not significant ( $\beta = -0,01; p = 0,94$ ). A non-prevention regulatory fit and non-promotion regulatory fit are as well not moderating the relation between change information and adaptive performance since both interaction terms are not significant ( $\beta = -0,18; p = 0,17$ ) respectively ( $\beta = 0,02; p = 0,88$ ). No moderating effects of regulatory fit or absence of a regulatory fit were thus found. Outcomes of these models are presented in Appendix E, Table 10 and Table 11, Table 12 and Table 13.

Since no moderator effects were found research was extended by performing additional tests. Petrou et al. (2015) found that that during change more is at stake for prevention-focused individuals. Therefore moderator effects of regulatory fit were as well checked for pilots scoring high on prevention focus and pilots scoring high on promotion focus. The sample of pilots scoring high on individual prevention or promotion focus was determined by using a median split on these respective constructs where the upper half represents being more in need of an individual regulatory focus. In this manner the effects of regulatory fit were only checked for pilots having a relative strong individual promotion or prevention focus. With these new samples the same method for testing moderating effects was again applied. For high prevention focused pilots both a prevention fit as well as a non-prevention fit does not moderate the relation between change information and adaptive performance. Also the sample with pilots scoring high on an individual promotion focus does not reveal a significant moderating effect of promotion or non-promotion fit on the relation between change information and adaptive performance. Finally it was checked whether experiencing a promotion or prevention framing did moderate the relation between change information and adaptive performance, using the same method, but these interaction terms were again not significant in both T1 and T2. Concluding it appears that change information is positively related to adaptive performance but no moderating effects of regulatory fit and framing are found.

*H6* is partly supported by results from model M1. Overall, change information is positively related to meaning-making for both T1 ( $\beta_{std} = 0,21; p < 0,01$ ) and T2 ( $\beta_{std} = 0,16; p = 0,02$ ). To check for moderating effects of regulatory prevention/promotion fit and non-prevention/promotion fit on the relation between change information and meaning-making the

same procedure is applied as in testing *H4*. In a linear regression model where the interaction term was together with change information and the moderating variable included as independent variables a prevention fit ( $\beta = 0,16$ ;  $p = 0,28$ ), promotion fit ( $\beta = 0,17$ ;  $p = 0,19$ ), non-prevention fit ( $\beta = -0,07$ ;  $p = 0,56$ ) and non-promotion fit ( $\beta = -0,14$ ;  $p = 0,60$ ) are not significantly related to adaptive performance. Outcomes of these respective linear regression models are presented in Appendix E, Table 14, Table 15, Table 16 and Table 17.

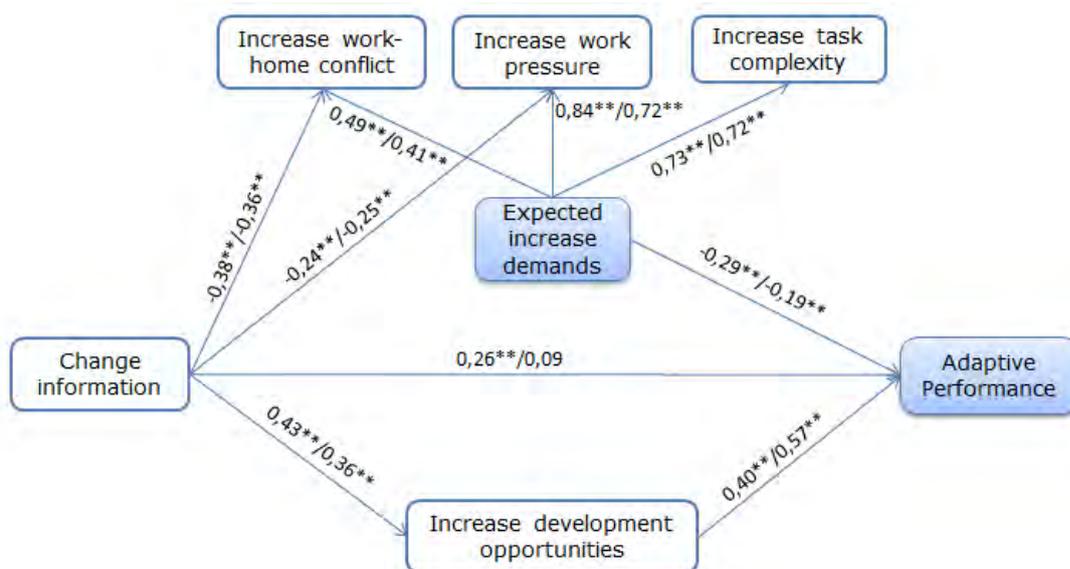
Since again no moderating effects of regulatory fit were found research was extended by checking for moderator effects of regulatory fit when individual prevention or promotion focus was high, using the same method of interaction effects. The same samples of high prevention and high promotion focused pilots as created in *H4* were used. A prevention fit or non-prevention fit does not moderate the relation between change information and meaning-making for high prevention focused pilots. For high promotion focused pilots, the relation between change information and meaning-making is as well not moderated by a promotion fit or non-promotion fit. Since experiencing a promotion framing shows a positive correlation with meaning-making, potential moderating effects of experienced situational framing were as well checked by using the same method. Both experiencing a promotion as well as a prevention framing did not moderate the relation between change information and meaning-making in both T1 and T2. Concluding change information is positively related to meaning-making but no moderating effects of regulatory fit or framing are found.

*H7* is partly supported by results from model M1. Meaning-making of the change is significantly related to adaptive performance ( $\beta_{std} = 0,20$ ;  $p < 0,01$ ) for T1 and non-significant for T2 ( $\beta_{std} = 0,09$ ;  $p = 0,14$ ). Correlations are however significant for T2. Linear regression analysis based on T2 with adaptive performance as dependent variable and change information, meaning-making, work engagement and exhaustion as independent variables as well gives a non-significant relation. Outcomes of the regression model are presented in Appendix D, Table 8. For T2 semi-partial correlations indicate that meaning-making has a less strong 'unique' relation to adaptive performance ( $r = 0,08$ ) compared to other independent variables, leading to the non-significant relation in linear regression. Since T1 is leading in results it is concluded that meaning-making is significantly related to adaptive performance. Secondary, the SEM model did not found a significant path between meaning-making and work engagement for T1 ( $\beta_{std} = 0,10$ ;  $p = 0,09$ ), while it did for T2 ( $\beta_{std} = 0,09$ ;  $p = 0,04$ ). Correlations between meaning-making and work engagement are however positive for T1. Linear regression analysis on T1 data with work engagement as dependent variable and the three job resources and meaning-making as independent variables revealed a positive relation between meaning-making and work engagement. Outcomes of the regression analysis are presented in Appendix D, Table 9. The non-significant path in SEM can be declared because meaning-making is related to job resources and change information which are both directly and indirectly related to work engagement. Based on T1 correlations and linear regression it is concluded that meaning-making stimulates adaptive performance directly and indirectly via work engagement. No mediating effect of work engagement is found since removing work engagement from the SEM model did not result in a stronger relation between meaning-making and adaptive performance.

### 5.2.2. EXPECTED CHANGES WORKING CONDITIONS

M2 was modelled using SEM based on T1 and validated using T2. The model including path outcomes is shown in Figure 8. Appendix C, Figure 14 shows the model as generated in AMOS. Since an expected increase in social support was not related to adaptive performance as discussed in descriptive statistics, an expected increase in development opportunities was the only expected increase in job resources. No latent variable increase of job resources was created within the model since it would consist of only one factor. Expected increase in task complexity did not show a relation with change information and therefore no path from change information to expected increase in task complexity was included. Model fit indices are indicating good fit with values above or close to 0,90. TLI score is however below traditional threshold scores with a value of 0,878 (T1) and 0,809 (T2), possibly occurring because of relative high model complexity. M2 however shows an increase in explaining adaptive performance by accounting for 39,8% (T1) and 40,8% (T2) of the variance.

H3a and H3b are both supported since an expected increase of job resources is positively related to adaptive performance for T1 ( $\beta_{std} = 0,40$ ;  $p < 0,01$ ) and T2 ( $\beta_{std} = 0,57$ ;  $p < 0,01$ ), while an expected increase in job demands is negatively related to adaptive performance for T1 ( $\beta_{std} = -0,29$ ;  $p < 0,01$ ) and T2 ( $\beta_{std} = -0,19$ ;  $p < 0,01$ ).



**Figure 8**  
SEM Model M2 – T1/T2 Standardized effects (\*\*relation significant at 0,01 level; \* relation significant at 0,05 level)

Change information is negatively related to an expected increase in the job demand work-home conflict ( $\beta_{std} = -0,38$ ;  $p < 0,01$ ) for T1 and ( $\beta_{std} = -0,36$ ;  $p < 0,01$ ) T2. A potential moderating effect of prevention or promotion regulatory fit was tested by including interaction effects within a linear regression as described in the method section.

The relation between change information and expected increase in work-home conflict is not moderated since interaction terms for a prevention fit ( $\beta = 0,07$ ;  $p = 0,49$ ) or a promotion fit ( $\beta =$

-0,03;  $p = 0,71$ ) as well as a non-prevention ( $\beta = -0,01$ ;  $p = 0,86$ ) or non-promotion fit ( $\beta = 0,02$ ;  $p = 0,82$ ) are not significant. Results of the linear regression models are presented in Appendix E, Table 18, Table 19, Table 20 and Table 21. Since no moderating effects were found potential moderating effects of regulatory fit or non-fit were as well tested for pilots with a relative high individual prevention and promotion focus. The sample of high prevention focused pilots was created by selecting the upper cases by a median split on individual prevention/promotion focus. No moderating effects are found for regulatory prevention and non-prevention fit for pilots scoring high on prevention focus and as well no moderating effects were found for a regulatory promotion and non-promotion fit for pilots being promotion focused. As a last alternative also possible moderator effects of prevention and promotion framing were tested but no moderating effects are found on the relation between change information and expected increase in work-home conflict for both T1 and T2. Concluding change information is significantly negatively related to expected increase in work-home conflict but no moderating effect of regulatory fit or framing are found.

Change information is negatively related to an expected increase in work pressure ( $\beta_{std} = -0,24$ ;  $p < 0,01$ ) for T1 and ( $\beta_{std} = -0,15$ ;  $p < 0,01$ ) for T2. The relation between change information and expected increase in work pressure is as well not moderated since interaction terms for a prevention fit ( $\beta = -0,01$ ;  $p = 0,95$ ) or promotion fit ( $\beta = 0,13$ ;  $p = 0,29$ ) as well as a non-prevention fit ( $\beta = -0,04$ ;  $p = 0,73$ ) or non-promotion fit ( $\beta = 0,12$ ;  $p = 0,50$ ) are not significant. Outcomes of the linear regression models are presented in Appendix E, Table 22, Table 23, Table 24 and Table 25. Since no moderating effects were found, again potential moderating effects were tested for pilots that scored relatively high on an individual prevention or promotion focus. A prevention fit or non-prevention fit does however not moderate the relation between change information and work pressure for high prevention focused pilots. For high promotion focused pilots as well no moderating effect of high promotion fit or non-promotion fit are found on the relation between change information and work pressure. As a last alternative moderating effects of experienced regulatory framing were tested. No moderating effects of both experiencing a promotion or prevention framing are found in both T1 and T2. Concluding change information is negatively related to an expected increase in work pressure but no moderating effect of regulatory fit and framing are found.

Change information is positively related to an expected increase in development opportunities for both T1 ( $\beta_{std} = 0,43$ ;  $p < 0,01$ ) and T2 ( $\beta_{std} = 0,36$ ;  $p < 0,01$ ), supporting *H5a*. However the relation between change information and expected increase in development opportunities is not moderated since interaction terms for prevention fit ( $\beta = 0,07$ ;  $p = 0,63$ ) or promotion fit ( $\beta = 0,21$ ;  $p = 0,10$ ) as well as non-prevention fit ( $\beta = -0,04$ ;  $p = 0,73$ ) and non-promotion fit ( $\beta = 0,09$ ;  $p = 0,28$ ) are not significant. Outcomes of the linear regression models are presented in Appendix E, Table 26, Table 27, Table 28 and Table 29. Since no moderating effects were found, again potential moderating effects were checked for pilots being relatively high prevention or promotion focused. A prevention fit or non-prevention fit does however as well not moderate the relation between change information and expected increase in development opportunities. As well no moderating effects of promotion fit or non-promotion fit on this relation are found for high promotion focused pilots. Since no results were found as well experienced framing style was checked for moderating effects but no moderating effects of experiencing a prevention or

promotion framing are found on the relation between change information and expected increase in development opportunities for both T1 and T2.

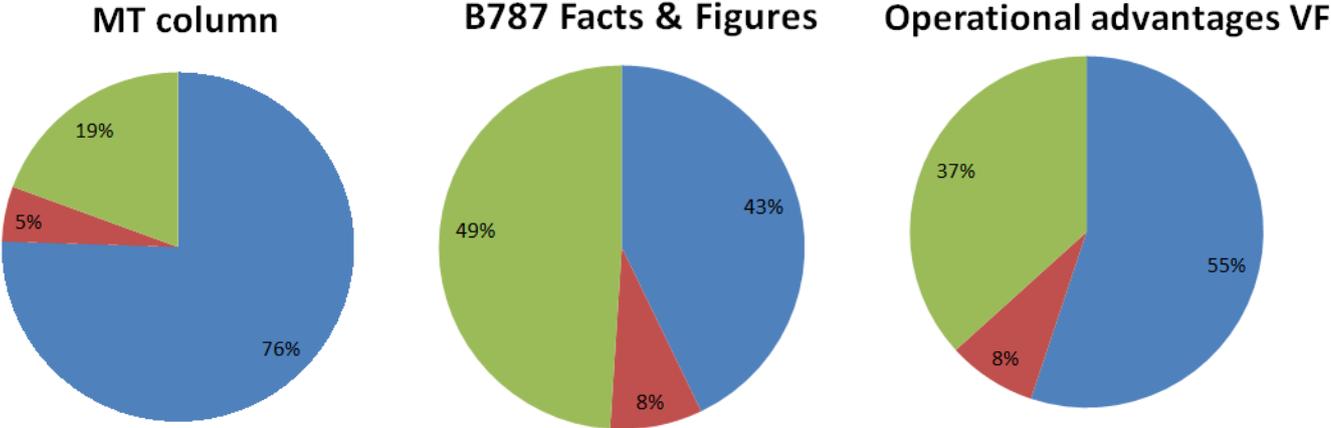
Concluding, change information is significantly negatively related to expected increase in job demands and positively related to expected increases in job resources but those relations are not moderated by regulatory fit, a non-fit or framing, partially supporting both *H5a* and *H5b*.

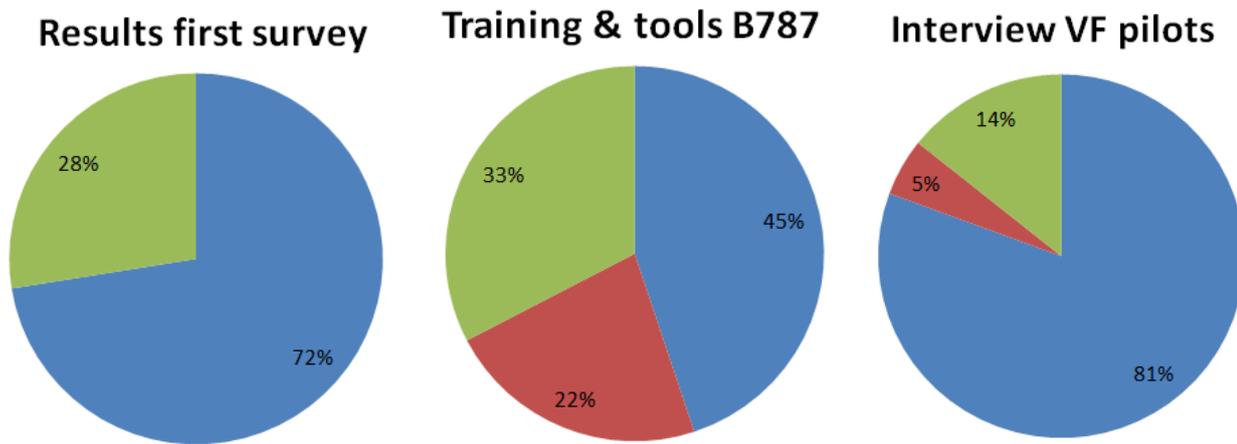
**5.3. EFFECT OF CHANGE INFORMATION INTERVENTION**

The communication offensive consisted of six items as described in section 4.2.3. The content of these items is shown in Appendix G. General experience of these intervention items was checked in T2 survey questions and results are presented in Figure 9. On average 70% of intervention items has been read by respondent and 62% of respondents found these items useful. According to survey response, pilots found the column by management and the interview with VF pilots most useful sources of change information, while they found the training and tools items least useful in adapting to change.

**How did you perceive the respective communication item?**

- Read + useful
- Read + not useful
- Not read





**Figure 9**  
Pilot's experience of intervention items

Respondents at T1 and T2 were matched using the anonymous key, creating a panel group, with change scores ( $\Delta$ ) on each construct. Within this panel group, constructs at T1 were significantly correlated with the same construct at T2, as can be seen in Appendix F, Table 30. Paired sample t-tests indicated that for M1 the constructs work-home conflict, work pressure, experienced promotion framing and exhaustion significantly increased at T2, while scores on the constructs work engagement and adaptive performance did significantly decrease. A possible explanation is that the summer period is the busiest period within the aviation industry leading to more working hours or stressful working conditions. For M2 paired sample t-tests moreover indicated that scores on expected increases in work-home conflict increased at T2. A possible explanation is that the B787 pilot force was too small during the intervention months, leading to a situation where VF pilots were mostly flying the B787 instead of a 50%/50% mix of B777 and B787. VF pilots therefore experienced more rostering issues, which is likely to increase work-home conflict. Pilots did not report an increase of experienced change information before and after the intervention since paired sample t-tests do not indicate a difference on scores by respondents within the panel group. This indicates that there was no stimulating effect of the intervention. Within the panel group all pilots have at least read an intervention item. All pilots were thus at least to a certain degree exposed to the intervention, excluding the possibility of identifying a control group within the panel group.

As an alternative, linear regression analysis and independent sample t-tests were performed to identify relations between having read intervention items and  $\Delta$  of change information in T2. A new variable was created within the panel group dataset, counting the number of intervention items read. Using linear regression with number of intervention items read as independent variable and  $\Delta$  change information as dependent variable, it was found that having read more intervention items was not significantly related to an increase of change information ( $\beta = 0,06$ ;  $p = 0,55$ ). Results of the linear model are presented in Appendix F, Table 31. Second, effects of having read a specific intervention item were tested by using independent sample t-tests where scores on  $\Delta$  change information were compared between pilots having read or not having read a specific item from the panel group. Independent sample t-tests found no differences in  $\Delta$  change

information between the two groups, indicating that having read the respective item did not stimulate change information. Results are shown in Appendix F, Table 32. Third, it was checked whether having read specific intervention items stimulates  $\Delta$  change information using a linear regression model. Having read a specific intervention item was coded as a dummy variable, creating in total six dummy variables that were included as independent variables in linear regression with the scores of  $\Delta$  change information as dependent variable. Possible results should be interpreted with caution since items that show a larger diversity in being read are more likely to be related to a range of outcomes. When for example all pilots have read a certain intervention item it is not possible to detect a relation with possible outcomes. Outcomes show no significant relations between having read any of the intervention items and scores on  $\Delta$  change information. Results of the regression analysis are presented in Appendix F, Table 35. Moreover a change in experience of promotion or prevention framing of change information did not have a significant effect on  $\Delta$  change information. Experiencing more promotion or prevention framing did thus not alter the experience of change information during the intervention period. Concluding no evidence is found that the intervention offensive stimulates pilot's experience of change information as a resource, rejecting the first relation of *H8*.

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### 5.3.1. INTERVENTION AND CURRENT WORKING CONDITIONS

M1 was again modelled using SEM now using the dataset with change scores on construct from the panel group. The model as generated in AMOS is shown in Appendix C, Figure 15. SEM analysis did not found a significant relation between  $\Delta$  change information with  $\Delta$  meaning-making ( $\beta = 0,061$ ;  $p = 0,45$ ), which is contrary to expectations of *H8*. This is supported by a low bivariate correlation between  $\Delta$  change information with  $\Delta$  meaning-making ( $r = 0,07$ ;  $p = 0,67$ ).

As an alternative, linear regression analysis was used to check whether having read more intervention items was related to  $\Delta$  meaning-making using the variable number of intervention items read as independent variable and  $\Delta$  meaning-making as dependent variable. Having read more intervention items was not significantly related to an increase in meaning-making ( $\beta = -0,15$ ;  $p = 0,14$ ) as can be seen in Appendix F, Table 31. T-tests were as well performed to check for differences on mean scores of  $\Delta$  meaning-making between pilots that did or did not read a specific intervention item. T-tests indicated that the group of pilots having read the infographic with B787 facts & figures did score significantly lower on  $\Delta$  meaning-making. Having read other items is not significantly related to differences in  $\Delta$  meaning-making. Results are shown in Appendix F, Table 33. Linear regression analysis investigating effects of having read a specific intervention item supports this finding. Dummy variables of having read a specific item are included as independent variables and having read the infographic with B787 facts and figures is negatively related to  $\Delta$  meaning-making ( $\beta = -0,93$ ;  $p = 0,03$ ). The results should however be interpreted with caution since the group of pilots that did not read the infographic with B787 facts and figures was as well largest allowing for more statistical relations to be found in the data compared to other intervention items. Outcomes of this regression analysis are presented in Appendix F, Table 36. Concluding,  $\Delta$  change information is not related to  $\Delta$  meaning-making and having read more or specific intervention items did not increase scores on  $\Delta$  meaning-making.

SEM analysis did find that  $\Delta$  meaning-making is positively related to  $\Delta$  adaptive performance ( $\beta = 0,16$ ;  $p = 0,05$ ) as well that  $\Delta$  change information is positively related to  $\Delta$  adaptive performance ( $\beta = 0,23$ ;  $p < 0,01$ ). Linear regression analysis however found no significant effects of  $\Delta$  change information ( $\beta = 0,23$ ;  $p = 0,17$ ) and  $\Delta$  meaning-making ( $\beta = 0,16$ ;  $p = 0,32$ ) on  $\Delta$  adaptive performance, when included as independent variables in a linear regression model together with  $\Delta$  work engagement,  $\Delta$  exhaustion and adaptive performance (T1) to control for their effects. Outcomes of the linear regression model are Appendix F, Table 37. This difference is likely due to the smaller sample size used for linear regression, since for SEM modelling the sample size was doubled by duplicating cases, as described in the method section, to meet sample size requirement to conduct SEM modelling. Conclusions are therefore primarily drawn on the linear regression model. These results are not supporting *H8*. Concluding, the change information offensive was not able to significantly alter experienced change information and  $\Delta$  change information was not found to be related to  $\Delta$  meaning-making and  $\Delta$  adaptive performance.

### 5.3.2. INTERVENTION AND EXPECTED CHANGES WORKING CONDITIONS

M2 was as well again modelled using SEM with change scores from the panel group dataset. The models as generated in AMOS is shown in Appendix C, Figure 16. Model scores show that  $\Delta$  change information is negatively related to  $\Delta$  expected increases in work-home conflict ( $\beta = -0,49$ ;  $p < 0,01$ ), and positively related to  $\Delta$  expected increase in development opportunities. ( $\beta = 0,34$ ;  $p < 0,01$ ).  $\Delta$  Change information is not related to  $\Delta$  expected increase in work pressure ( $\beta = -0,05$ ;  $p = 0,53$ ). The significance of these relations is supported by linear regression models where  $\Delta$  change information was used as independent variable and the  $\Delta$  scores of respective increases of job demands/resources were used as dependent variables. Outcomes of these models are presented in Appendix F, Table 39.

Within the SEM model  $\Delta$  expected increases of job demands is not related to  $\Delta$  adaptive performance ( $\beta = 0,02$ ;  $p = 0,99$ ) while  $\Delta$  expectations about increases in development opportunities are significantly related to  $\Delta$  adaptive performance ( $\beta = 0,33$ ;  $p < 0,01$ ). Linear regression analysis was used as an alternative method to check for possible effects of  $\Delta$  expected increases of individual job demands on  $\Delta$  adaptive performance. Correlations indicate that  $\Delta$  expected increases of individual job demands are significantly correlated to  $\Delta$  adaptive performance, as shown in Appendix F, Table 38. Linear regression analysis confirmed these low correlations since none of the  $\Delta$  increases in individual job demands are significantly related to  $\Delta$  adaptive performance. Standard errors are large (probably occurring due to small sample size) compared to estimated  $\beta$  effects leading to confidence intervals overlapping with a zero value. Linear regression analysis confirmed the positive path within the SEM model between  $\Delta$  expectations of increases in development opportunities and  $\Delta$  adaptive performance Results of regression analysis of individual  $\Delta$  increases in job demands and  $\Delta$  resources on  $\Delta$  adaptive performance are presented in Appendix F, Table 41.

Based on these scores *H9a* is supported (with exception of the stimulating effect of the intervention) while *H9b* should be partly rejected since the proposed relations between  $\Delta$  change

information to  $\Delta$  expected increases in job demands is only significant for an increase in work-home conflict and no effect between  $\Delta$  scores of increase in job demands and  $\Delta$  adaptive performance are found.

Moreover effects of having read individual intervention items on  $\Delta$  expected increase in task complexity and  $\Delta$  expected increase in work pressure was checked using linear regression analysis and independent sample t-tests. Linear regression analysis with six dummy variables of having read a specific intervention item as independent variable and  $\Delta$  expected increase in task complexity as dependent variable found that having read the interview does decrease  $\Delta$  increased task complexity ( $\beta = -1,460$ ;  $p = 0,05$ ). This is however not supported by independent sample t-tests, that did not found a significant difference in mean change scores of increase in task complexity between the group that did and did not read the interview. The regression result is likely to be 'spurious' since only two pilots within the panel group ( $N= 46$ ) indicated to not have read the interview, creating an unreliable sample. Outcomes of the linear regression models and independent sample t-tests are presented in Appendix F, Table 40 and Table 34.

## 6. DISCUSSION AND CONCLUSIONS

### 6.1. DISCUSSION

This study focused on declaring and stimulating individual adaptive performance of employees looking at the employee's perspective. Adaptive performance was studied in relation with the job demands-resources model that is built around employee well-being. The study found that experience of job demands (work-home conflict, work pressure) was positively related to exhaustion. Job resources (development opportunities, social support, change information) were found to be positively related to work engagement and meaning-making. Change information was positively related to meaning-making as well directly. Predicting adaptive performance from these outcomes within a SEM or linear regression model however revealed exhaustion was not significantly related to adaptive performance (despite positive correlations) whereas change information, meaning-making and work engagement were positively related to adaptive performance. Contrary to expectations a promotion or prevention regulatory fit or non-fit did not moderate the relation between change information and meaning-making as well as change information and adaptive performance.

Besides predicting adaptive performance from the job demands-resources model it was also found that expectations about increases in job demands and job resources due to the change are respectively negatively and positively related to adaptive performance as well. Experience of change information as a job resource was negatively related to these expected increases in job demands (for work-home conflict and work pressure) while it was positively related to expected increases in job resources (for development opportunities). These relations were as well not moderated by a regulatory prevention/promotion fit.

The intervention on change information did not increase scores of experienced change information between T2 and T1 as well as scores on meaning-making between T2 and T1. A change score in experienced change information was positively related with changes in expected increases in development and increases in work-home conflict. Only a change in expected increases in development opportunities was found to be related to a change score in adaptive performance.

#### **Adaptive performance from current working conditions**

In general, it can be stated that job resources are of main importance to show adaptive behaviour as they are the driving force for processes that stimulate adaptive performance. Change information as a job resource appears to be of special importance during periods of change. Change information stimulates adaptive performance both directly and indirectly via work engagement and meaning-making, making it the most important job resource within this study. This is in line with literature that states that change information is able to create openness to change (Wanberg & Banas, 2000), makes employees more certain about the change (Kramer et al., 2004) and trigger meaning-making (van den Heuvel et al., 2013). To increase effectiveness of communication, the tone should be adjusted to the intended audience (Clampitt, 2013). Regulatory fit theory confirms this and states that a fit between an individual's regulatory focus and a situational prevention framing has positive outcomes (Aaker & Lee, 2006). The

effectiveness of change information as a job resource was however not moderated by regulatory fit within this study, contrary to expectations. No studies are found, to my best knowledge, where moderating effects of regulatory fit are investigated. Petrou and Demerouti (2010) however tested moderating effects of regulatory focus between job demands/resources and outcomes like openness to change. They found that individual promotion focus did moderate relations between job demands and resources with openness to change. Petrou et al. (2015) found that for especially prevention focused individuals more is at stake during periods of change and this group was most in need of a regulatory fit. Within this study only checking moderating effects of regulatory fit for pilots scoring high on prevention/promotion focus did not reveal significant effects as well. Only effects of experienced situational promotion framing style did show positive correlations with outcome variables, but no moderating effects were again found. Since correlations between experiencing a promotion framing style and change information, meaning-making and adaptive performance are positive, promotion framing seems to be beneficial in adapting to changes but it does not influence strength of the relations between change information and outcomes. Pilots seem to be less sensitive for whether the framing style matches with their personal focus and they seem to rely more on internal standards than external influences. According to Hormann and Maschke (1996) pilots have, in general, a well-balanced personality and Shinar (1995) states that pilots possess a self-identity to experience challenges or demands without dissonance, which might declare why a regulatory fit does not strengthen the relation between change information and outcomes in meaning-making and adaptive performance.

Experiencing job resources is positively related to work engagement which in turn stimulates adaptive behaviour. This is in line with literature that links job resources to work engagement (Bakker & Demerouti, 2007). Work engagement in its turn has found to be related to extra-role behaviour (Bakker et al., 2004). Engaged workers are prepared to go the extra mile, have high levels of energy and are enthusiastic about their work (Bakker & Demerouti, 2008). This seems to be of special importance when facing challenges to change and therefore increasing adaptive performance. Based on correlations development opportunities and social support were most important job resource in stimulating work engagement, which is in line with literature (Bakker & Demerouti, 2007). A remarkable finding was that task complexity was considered to be a job demand, but did as well show a positive correlation with work engagement. Even in an environment where safety is the highest priority their appears to be a need for experiencing challenges/difficulties in one's daily work. It should be noted that work engagement is limited to dedication to work to better fit with working conditions of airline pilots flying intercontinental flights.

Meaning-making was as well found to be a stimulator of adaptive performance, which is in line with literature. Being able to find meaning is thus both helpful to coop with the change (Cash & Gray, 2000) as well as creating willingness to change (van den Heuvel et al., 2009) (van den Heuvel et al., 2013). Regression analysis and correlations did found that meaning-making is positively related to work engagement while this relation was not significant in the SEM model. The non-significant path in AMOS might possibly occur due to statistical modelling. Literature has as well found mixed results on the relation between meaning-making and work engagement. Aktouf (1992) found that a lack of meaning in one's personal work may lead to disengagement

and experience of personal resources predicts work engagement (Xanthopoulou et al., 2009). The study by van den Heuvel et al. (2009) did however not find a significant relation of meaning-making with work engagement, although bivariate correlations were significant and of moderate strength which could occur due to 'masking' variables. This might as well have been the case within this study where job resources and in specific change information, that were included in the regression model as predictors of work engagement, are positively correlated with meaning-making as well. The relation between job resources and meaning-making was not predicted in the initial research model but appeared to be significant and improved the model after inclusion. Xanthopoulou et al (2009) found that job resources could predict personal resources. May, Gilson and Harter (2004) state that when people experience more job resources this may help them in finding meaning. This supports the inclusion of the relation between job resources and meaning-making within the model.

Contrary to expectations, exhaustion does not significantly degrade adaptive performance. Job demands are positively related to exhaustion as in line with Bakker and Demerouti (2007). Exhaustion shows a significant negative bivariate correlation with adaptive performance but when combined with other predictor variables of adaptive performance, a non-significant relation was found. Other predictor variables from the motivational process better declared outcomes on adaptive performance as identified by low semi-partial correlation scores between exhaustion and adaptive performance compared to other predictor variables. Griffin et al. (2007) did propose that employee adaptivity was a distinct dimension of work-role performance, while exhaustion has only been negatively related to in-role performance (Bakker et al., 2004) which can declare why exhaustion is of less influence in explaining outcomes on adaptive performance.

### **Adaptive performance from expected increases in working conditions**

Expectations regarding to how the change may influence working conditions have been classified as increases in job demands and increases in job resources. Expected increases of job demands due to the change are experienced as disadvantages that come with the change and they were found to diminish adaptive performance. According to conservation of resources theory people try to protect resources they currently have (Hobfoll, 1989) and losing one of these resources may therefore be experienced as a loss, which may reduce willingness to change (Gourville, 2006). Where task complexity as a job demand does not show a correlation with adaptive performance an expected increase in task complexity does negatively correlate with adaptive performance. In a safety oriented working environment an increase of task complexity may increase uncertainty regarding one's ability to cope with the changes diminishing adaptive performance, in line with the ability fit theory by Choi and Price (2005). An increase of work-home conflict does show the strongest negative correlation with adaptive performance and this appears to be the most important dis-satisfier to start VF.

An expected increase in job resources on the other hand was found to stimulate adaptive performance. Conservation of resources theory states that people try to obtain potential resources (Hobfoll, 1989) and this may therefore be perceived as an advantage to change. An increase of development opportunities does most strongly correlate with adaptive performance. An expected increase in social support did not have any effects on adaptive performance. A possible explanation is that pilots already reported high scores on current experienced social

support creating less need for an extra gain. Pilots do moreover work in temporary teams and because of the large size of the pilot pool they do not often fly with the same colleagues which may create less need for social support of colleagues. M2 does as well show stronger relations for increases in job resources than increases in job demands. It seems again a motivational process is stronger and necessary to overcome disadvantages that come with a change.

Change information has an effect on pilot's expectations regarding the change, such that it decreases expected increases in job demands due to the change and increases expected increases in job resources. Kramer et al. (2004) found that employees that experience change information from managers during periods of change experience less uncertainty during the change. When experiencing uncertainty or ambiguity this may provide a ground for rumours and anxiety about the change (Jick, 1993) and therefore increasing expectations about increasing job demands that come with the change. On the other hand change information may help to see benefits in the change (Sonenshein & Dholakia, 2012) therefore increasing expectations of increases in job resources due to the change. Also for these relations no moderating effect of regulatory fit was found as in line with the relations between change information and meaning-making/adaptive performance. As mentioned before this might occur due to a stable character of pilots being less influenced by a fit between external influences and internal preferences.

### **Change information intervention**

Change information has an important function as a job resource, stimulator of adaptive performance, meaning-making and expected increases in job resources while it diminishes expected increases in job demands. A change information offensive was therefore chosen as intervention within this study. Based on statistics it is concluded that the intervention was not able to influence experience of change information, nor a promotion or prevention framing. While pilot's experience of individual intervention items was mostly positive, no statistical relations with outcomes were found. A lack of a statistical relations between the intervention and experienced change information could occur because pilots have as well been exposed to general company information during the intervention. Although survey questions focused on B787 information it is likely that these perceptions are influenced by other company or work-related information. During the intervention it became apparent that the B787 pilots' force was understaffed which meant VF pilots were mostly flying only the B787 instead of a mix of the B777 and B787. As well a discussion raised about interpretation of employment terms a drafted in a collective labour agreement. Kotter and Schlesinger (2008) state that a good relationship between management and employees is an important pre-requisite for effective communication since employees may not always believe what they hear. Employees may as well develop negative attitudes towards the change from propagating rumours (DiFonzo & Bordia, 1998). These pilot's concerns may therefore have influenced the effectiveness of the intervention.

Using  $\Delta$  scores between T2 and T1 for the panel group it was found that  $\Delta$  adaptive performance was only stimulated by a  $\Delta$  expected increase in development opportunities which in turn was stimulated by  $\Delta$  change information. Since sample size was small ( $N = 46$ ) other potential predictors reported too large standard errors compared to effect sizes, which might restrict less strong predictors from becoming significant. Effect sizes of  $\Delta$  increases in job demands might be lower since the panel group sample consisted mostly of VF pilots (68%) which is an increase

compared to T1 (33,4%). This may have led to a less strong relation between increase in job demands and adaptive performance as they already made the decision to start VF. Since both T1 and T2 data indicated that expectations of increases in working conditions are related to adaptive performance the importance of these expectations should not be degraded based on the findings of changes in these constructs.

Summarizing there are three sources that affect adaptive performance. A diminishing source that originates from expected disadvantages (increases in job demands) that accompany the change and two stimulating sources being the experience of job resources, leading to work engagement and meaning-making, and expecting advantages of the change. Luckily these stimulating processes are 'stronger' than the diminishing process. It seems that adaptive performance is mostly stimulated by the positive, motivational processes with which you can overcome the negative, health impairment processes.

## **6.2. THEORETICAL CONTRIBUTIONS**

In this paragraph the theoretical implications of this study are discussed. As stated before, the perspective of the employee is not always taken into account, which is believed to be a reason why so many changes initiatives are unsuccessful. Because of this gap well-being was chosen as a measure to take into account the employee's perspective by using the job demands-resources model. This study contributed to possible outcomes of the model since it can be used to explain adaptive performance. As well the motivational process within this model was extended in this study by including change information and meaning-making. A positive relation between change information, meaning-making and adaptive behaviour over time has been found by van den Heuvel et al. (2013) but in this study these relations were integrated with the motivational process of the model. Van den Heuvel et al. (2009) identified meaning-making as a personal resource and stated more research should be done on predictor variables. In this study predictor variables of meaning-making were extended by predicting meaning-making with change information, as in line with van den Heuvel et al. (2013), and experience of job resources. At the origin of the job demands-resources model lie experience of current job demands and resources. This study however extended the use of job demands and job resources in that employees form expectations about changes in working conditions which also influences adaptive performance.

By predicting adaptive performance from a model also a contribution was made to adaptive performance literature. Jundt et al. (2015) stated that more research was necessary on motivational and contextual factors that could declare adaptive performance and how these different factors interact instead of studying single relationships between a predictor and adaptive performance. Importance of studying adaptive performance from multiple predictor variables was shown in this study by finding a significant correlation between exhaustion and adaptive performance but a non-significant relation when adaptive performance was predicted from the model where unique contributions of predictors compared to outcomes are important.

Besides using a model to predict adaptive performance, adaptive performance literature was as well extended by using a combination of objective and subjective ratings on adaptive performance Van den Heuvel et al. (2013) reported future research should go beyond self-

reported ratings to determine adaptive performance. Within this study adaptive performance was made up of a factor score of both an objective score (volunteering for the change) and a subjective score (adaptive behaviour) to aim for maximum validity in measuring adaptive performance. Using only an objective score within the SEM model was not possible due to it being a binary {0,1} score but independent sample t-test were used to compare construct means between the objective volunteering versus non-volunteering group. These outcomes were in line with correlations between constructs and adaptive performance.

Taken altogether, the motivational process stimulating pilot well-being is of vital importance to adapt to changes. Change information and meaning-making function as stimulators as well and function partly parallel to the motivational process. Adaptive performance is decreased when pilots expect that job demands will increase due to the change.

### **6.3. LIMITATIONS**

A number of limitations should be mentioned. The study was conducted only within a pilot workforce. Pilots have non-standard employment conditions because they are not working within an office setting and have variable duty times. There is moreover no direct face to face relation with their supervisor and they work with a large variety of different colleagues. Therefore generalizability of these conclusions across employees in general may be limited.

Due to the operational environment in which the study was conducted it was not possible to use a randomly selected control group. Pre-test and post-test data could therefore not be compared for groups that experienced the change information intervention and no intervention. To correct for this, the second survey consisted not only of questions that measure change information but also contextual job circumstances in order to correct for possible changes in these circumstances between T1 and T2. Still it is probable that not all circumstances could be captured within the set of job demands and job resources, leaving part of the variance in scores unexplained. Problems with amount of qualified crew to fly on the B787 and B777, which occurred between T1 and T2 may have influenced pilot's perceptions on VF beyond job demands and job resources. The pilots within panel group are mostly VF volunteers, being probably the more 'enthusiastic' pilots. Furthermore it seems possible that questions concerning B787 change information are as well 'spoiled' by having read other company information during the intervention period. This makes it difficult to measure the unique effect of B787 change information. Therefore conclusions on the intervention are less robust and require more future research to become generalizable for all types of employees.

Because T1 and T2 mostly use the same questions, T1 could as well influence scores of T2 by altering employee behaviour. T1 and T2 data were matched using an anonymous key and the amount of matches was unfortunately low, leading to a small sample size of the panel group. Diversity of data was as well low because most respondents were VF pilots and most intervention items have been read. This makes it difficult to find statistical effects of having read a specific intervention item and effects that were found should be interpreted with caution. These analyses can as well be the result of someone's personal interest in having read a specific intervention item instead of measuring actual reading effects.

Finally due to the duration of this master thesis it was not possible to again measure adaptive performance after a larger time period, for example T3, to measure for long-term effects of change information.

#### **6.4. PRACTICAL IMPLICATIONS**

Many organizational change models, like the three stage model of Lewin, view employees as a source of resistance during periods of change. In general change is stressful and demanding and therefore adaptation to change can be inhibited by an inability or unwillingness to respond to the change (Monsell, 2003). Improving employee adaptation to change is important because of the high failure rates of change initiatives and the economic challenges that organizations currently face (Chung, Bekker, & Houwing, 2012) making it a relevant topic for management.

People are trying to protect resources they currently possess and they try to search for ways to gain new resources (Hobfoll, 2001). This study therefore found that when an expected gain in resources is larger than expected losses in job resources or increase in job demands, an innovation is likely to become adopted. Employees will in these circumstances be willing to change because they perceive it will provide them benefits (Sonenshein & Dholakia, 2012). Most easy to stimulate adaptation to change is thus making it attractive from an employee's perspective. This can be done by accompanying the change by an increase in job resources like providing extra preparation time to pilots starting VF or giving them more roster flexibility and popular flight destinations to diminish expected increases in job demands. Change information can also be used to alter expectations regarding changes. Management should therefore present the change as a development opportunity instead of a threat. Change information should as well focus on providing clarity around the change in a timely manner to persist anxiety and rumours to develop that might increase expectations about increases in job demands due to the change.

It might not always be possible to accompany changes with more benefits than downsides, making it more difficult to create willingness to change. However even when a change does not bring advantages to employees they can be willing to change. In these circumstances employee well-being becomes of main importance. Employees that are engaged in their work are committed to the organization (Bakker & Demerouti, 2008) and prepared to go the extra mile by showing extra role behaviour (Bakker et al., 2004). Moreover engaged workers score better on a variety of beneficial organizational outcomes (Bakker & Demerouti, 2008). To stimulate engagement employees should have access to sufficient job resources (change information, development opportunities, feedback, supervisor support and social support) by giving them a more central role in the organization and giving attention to them during interaction moments with pilots during for example simulator training sessions.

A job resource to which managers should give special attention during periods of change is change information. It stimulates adaptive performance directly as well as indirectly via meaning-making. In longitudinal analysis it was found that an increase of experienced change information can increase scores on expectations in development opportunities and decrease scores on expected increases in job demands. It could however not be identified which specific information items were most beneficial in creating a change information offensive. Managers should however

focus on giving qualitative information since communicating more did not stimulate outcomes. For the use of a framing style it seems a promotion framing is most beneficial in contributing to the motivational process.

## **6.5. SUGGESTIONS FOR FUTURE RESEARCH & CONCLUSIONS**

This study has focused primarily on adaptive performance as the willingness and motivation to cooperate with changes. In this context it seems interesting to identify how adaptive performance and pilot well-being are related to objective simulator/flying performance during the simulator training (DT) and regular line operations, which will be investigated in a future study.

In this study no clear outcomes of the change information intervention were found. Knowing how to stimulate change information is beneficial since it was found that influence change scores on expected increases in job demands and resources due to the change. An increase of expected increases in job resources was found to increase change scores on adaptive performance. Such a study type should be of a more experimental setting to measure 'unique' intervention effects, since in this study pilots were as well exposed to general organizational information during the intervention. Based on literature described in this study change information should consist of communicating a MT vision, benefits for the operator, the rationale behind the change (organizational benefits) and a story about early-movers that have already changed.

Finally it seems interesting for future research to investigate effects of using personal versus impersonal information items. Kramer et al (2004) reported that large organizations (with little room for personal contact) often rely on mass-produced information. Using a certain type of information might moderate the relation between change information and adaptive performance, change information and meaning-making and change information and expectations about increases in job demands/resources due to the change. This study proposed that regulatory fit could moderate relations between change information and meaning-making and adaptive performance as well as relations between change information and expected increases in job demands/resources but no statistical evidence was found. It seems interesting to perform further investigation into whether regulatory fit and framing operate as independent predictors of outcomes or can function as moderator or mediator variables in the relation between change information and outcomes across a wider range of employees.

Concluding this study found that adaptive performance can be predicted by a model focused around employee well-being. Taking into account the employee's perspective during organizational changes is thus important and may facilitate willingness to change and improve implementation of changes. Employees that have become engaged workers are likely to show adaptive behaviour by themselves, while the rest of the workforce should be stimulated to change by giving change information aimed at emphasizing the need and benefits of the change together with reducing uncertainty about the change. Finally changes should as much as practical be accompanied by a potential gain in job resources.

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# APPENDIX A: INFORMATION ITEM CLASSIFICATION

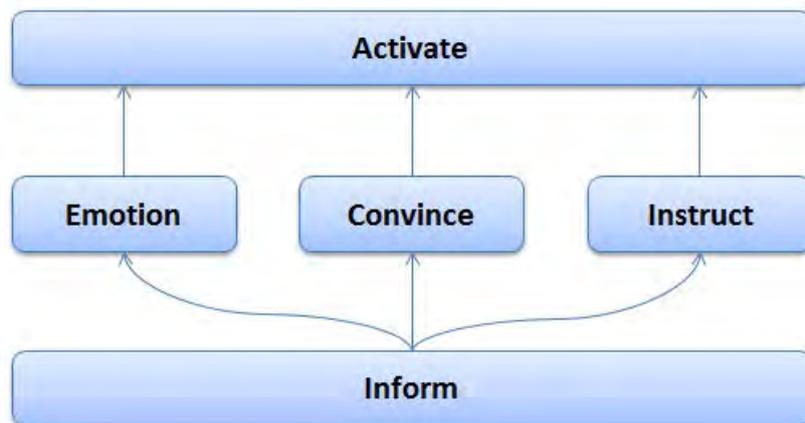


Figure 10  
Framework classifying communication items

Table 4  
Classifying communication items

Classification	Question
<i>Inform</i>	The reader knows that...
<i>Convince – facts</i>	The reader believes that...
<i>Convince – opinions</i>	The reader will find...
<i>Instruct</i>	The reader is able to...
<i>Emotion</i>	The reader feels...
<i>Activate</i>	The reader plans to...

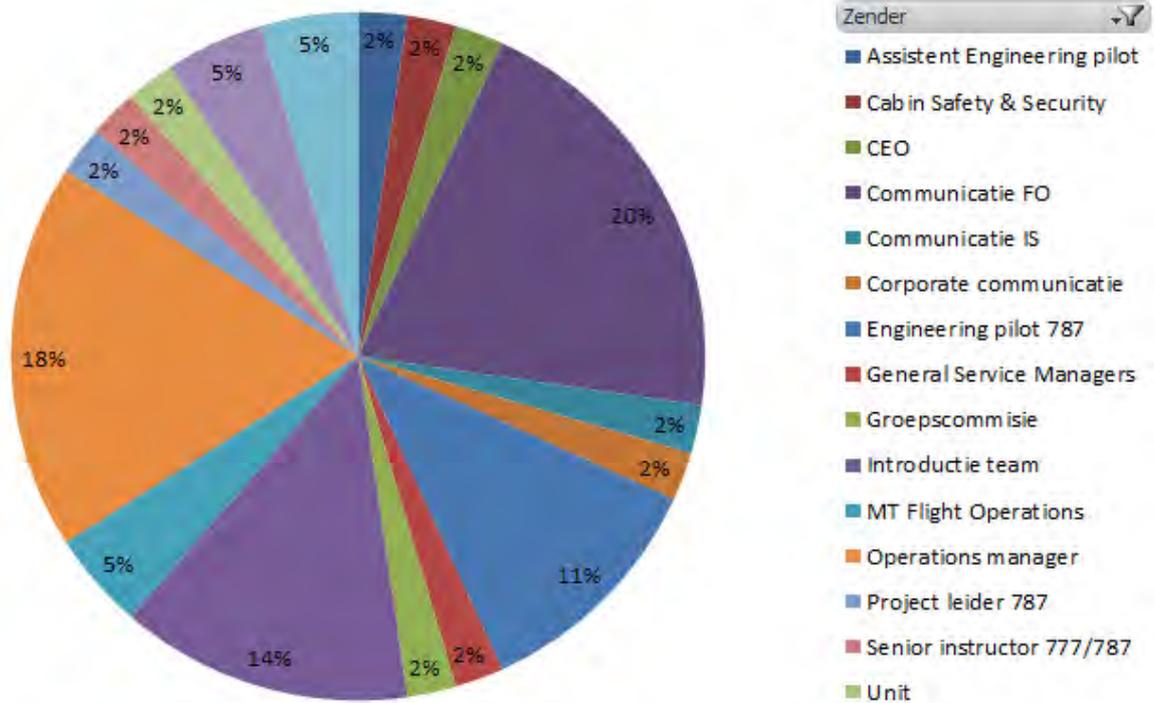


Figure 11  
Distribution of senders of information items

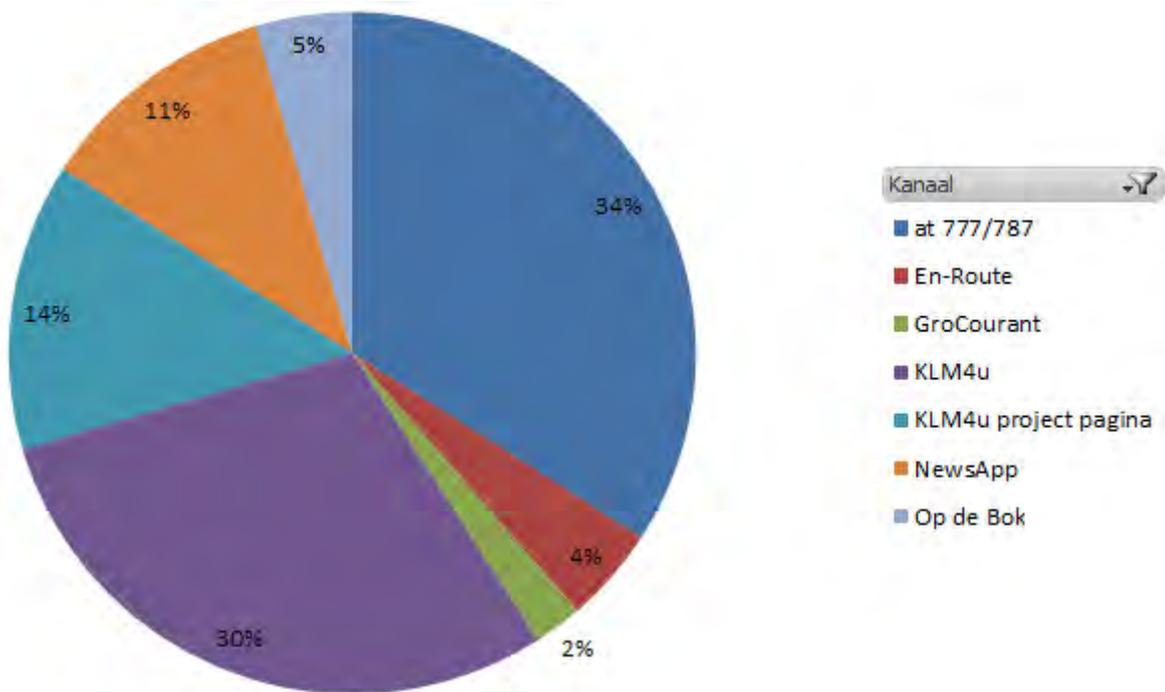


Figure 12  
Distribution of information channels used

## APPENDIX B: COMPARING MEANS

**Table 5**  
Comparing construct means T1 - Nonvolunteering vs Volunteering VF

<i>Construct T1</i>	<i>Equal variances can be assumed</i>	<i>Difference means</i>	<i>p</i>
Task Complexity <sup>1</sup>	Yes (p=0,177)	0,077	0,240
Work-Home Conflict <sup>1</sup>	Yes (p = 0,456)	0,390	0,000
Work Pressure <sup>1</sup>	Yes (p = 0,643)	0,166	0,047
Development Opportunities <sup>1</sup>	Yes (p = 0,799)	-0,240	0,022
Social Support <sup>1</sup>	Yes (p = 0,592)	-0,051	0,562
Change communication <sup>1</sup>	Yes (p = 0,261)	-0,446	0,000
Meaning making <sup>1</sup>	Yes (p = 0,683)	0,298	0,003
Work Engagement <sup>1</sup>	No (p = 0,013)	-0,384	0,001
Exhaustion <sup>1</sup>	Yes (p = 0,529)	0,544	0,000
Increase Task Complexity <sup>2</sup>	No (p = 0,016)	0,174	0,130
Increase Work-Home Conflict <sup>2</sup>	No (p = 0,026)	0,446	0,000
Increase Work Pressure <sup>2</sup>	Yes (p = 0,211)	0,421	0,001
Increase Development Opportunities <sup>2</sup>	No (p = 0,000)	-0,658	0,000
Increase Social Support <sup>2</sup>	Yes (p = 0,231)	-0,103	0,365

<sup>1</sup>N = 314, <sup>2</sup>N = 256

**Table 6**  
Comparing construct means T2 - Nonvolunteering vs Volunteering VF

<i>Construct T2</i>	<i>Equal variances can be assumed</i>	<i>Difference means</i>	<i>p</i>
Task Complexity	Yes (p=0,316)	-0,325	0,003
Work-Home Conflict	Yes (p=0,833)	0,016	0,934
Work Pressure	Yes (p=0,920)	-0,005	0,973
Development Opportunities	Yes (p=0,753)	-0,200	0,245
Social Support	Yes (p=0,885)	-0,084	0,618
Change communication	Yes (p=0,231)	-0,260	0,150
Meaning making	Yes (p=0,769)	-0,123	0,433
Work Engagement	No (p=0,015)	-0,532	0,043
Exhaustion	Yes (p=0,684)	0,589	0,009
Increase Task Complexity	Yes (p = 0,827)	0,146	0,370
Increase Work-Home Conflict	Yes (p = 0,593)	0,225	0,188
Increase Work Pressure	Yes (p = 0,409)	0,327	0,072
Increase Development Opportunities	No (p = 0,000)	-0,944	0,000

N = 135

## APPENDIX C: AMOS SEM MODELS

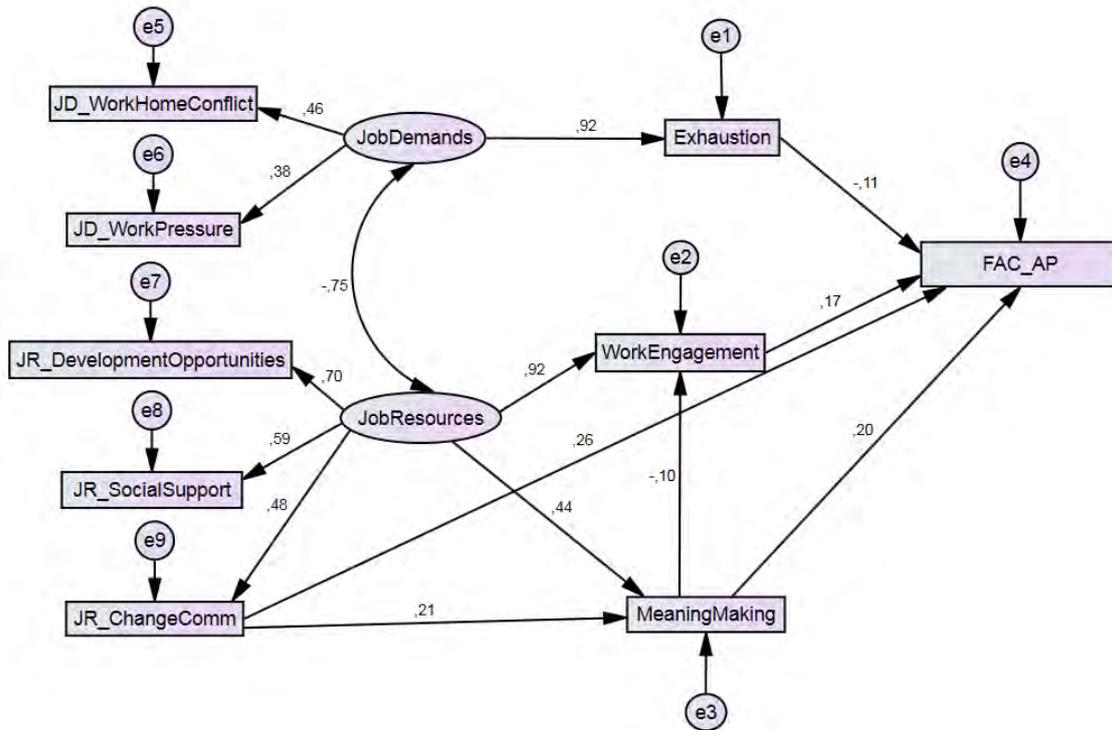


Figure 13  
AMOS SEM Model M1 based on T1

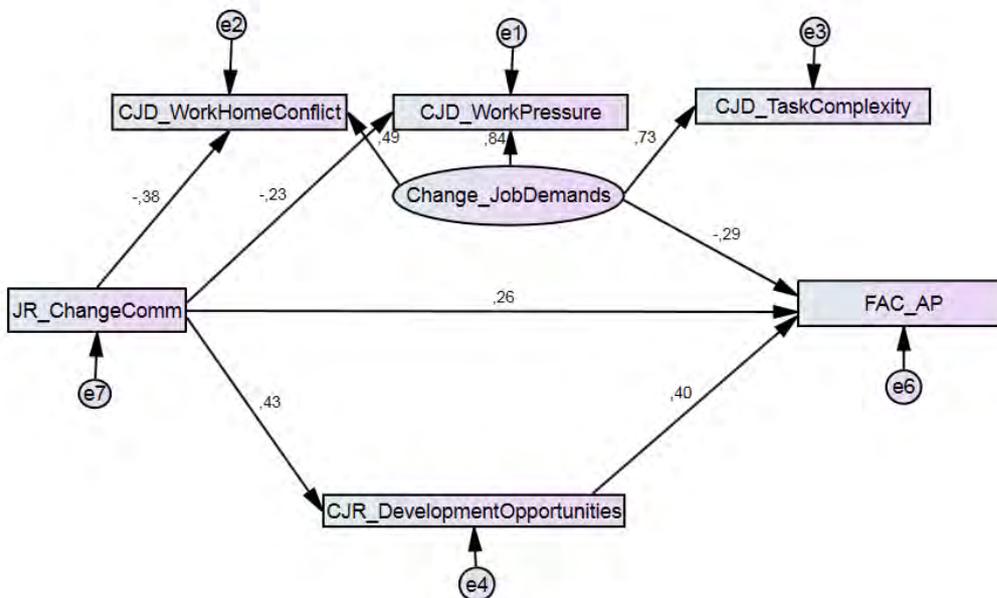


Figure 14  
AMOS SEM Model M2 based on T1

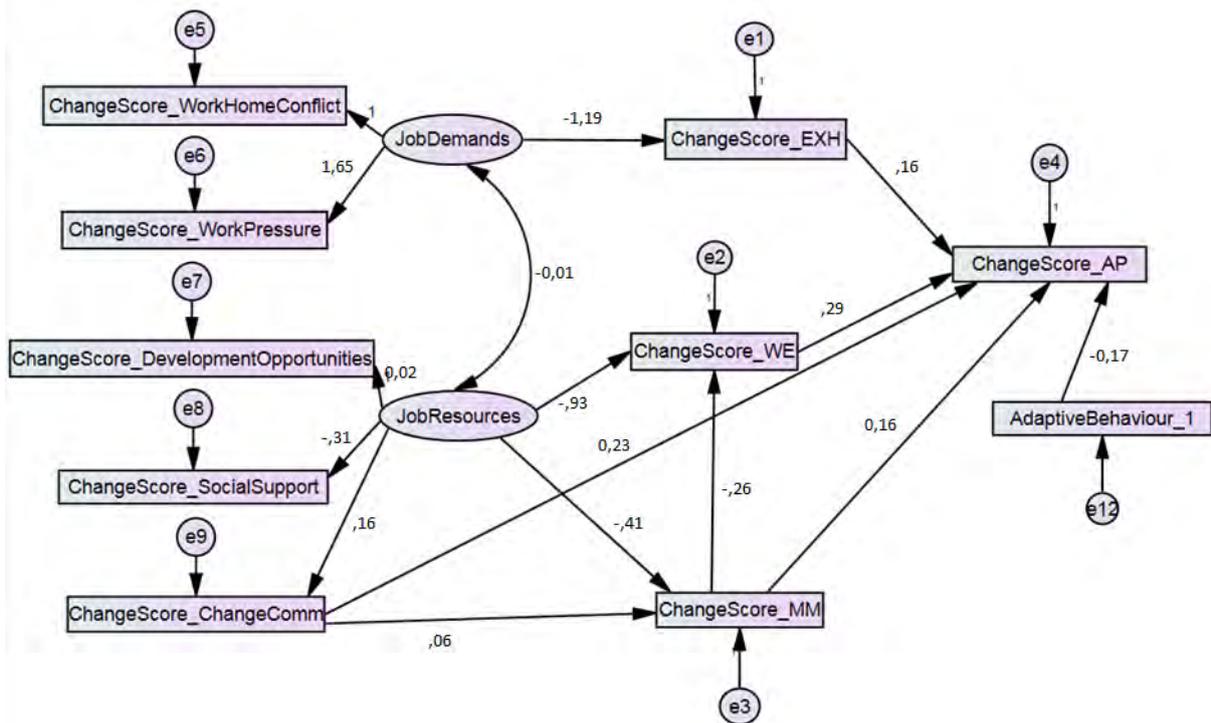


Figure 15  
 AMOS SEM Model M1, based on change scores panel group

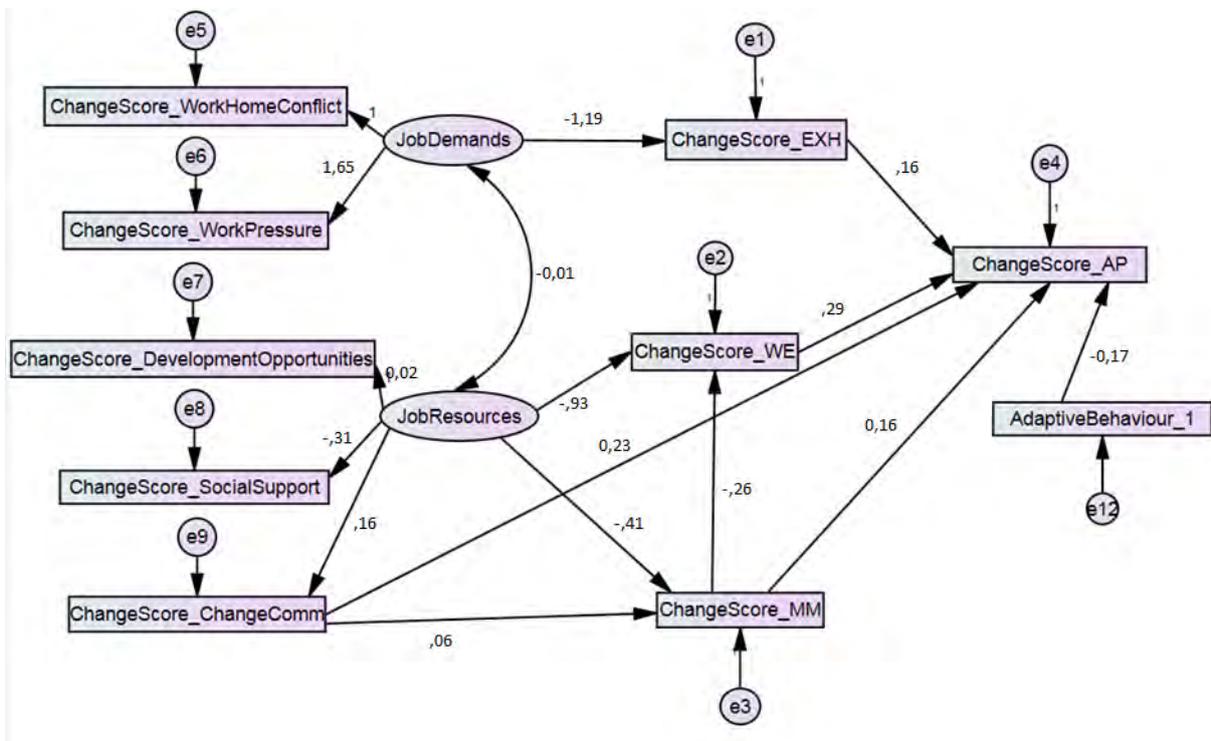


Figure 16  
 AMOS SEM Model M2, based on change scores panel group

## APPENDIX D: MODEL RELATIONS

Table 7

Linear regression analysis T1 - DV: Adaptive Performance; IV: Change Information, Meaning-making, Work Engagement and Exhaustion

<i>DV: Adaptive Performance</i>	<i>B</i>	<i>Std. error</i>	<i>P</i>
Constant	-2,679	0,465	0,00
Change information	0,295	0,063	0,00
Meaning-making	0,225	0,061	0,00
Work engagement	0,167	0,061	0,01
Exhaustion	-0,098	0,054	0,07

*N* = 314

Table 8

Linear regression analysis T2 - DV: Adaptive Performance; IV: Change Information, Meaning-making, Work Engagement and Exhaustion

<i>DV: Adaptive Performance</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	-1,421	0,751	0,06
Change information	0,208	0,098	0,04
Meaning-making	0,115	0,112	0,31
Work engagement	0,127	0,102	0,22
Exhaustion	-0,192	0,093	0,04

*N* = 135

Table 9

Linear regression analysis T1 - DV: Work Engagement; IV: Meaning-making, Change information, Social Support and Development Opportunities

<i>DV: Adaptive Performance</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	1,152	0,280	,000
Meaning-making	0,113	0,056	,046
Change information	0,137	0,056	,014
Social Support	0,317	0,064	,000
Development opportunities	0,465	0,055	,000

*N* = 314

## APPENDIX E: INTERACTION EFFECTS

**Table 10**

**Linear regression analysis T2 – DV: Adaptive Performance; IV: Change Information, Prevention Fit and Change Information x Prevention Fit**

<i>DV: Adaptive Performance</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	0	0,082	0,996
Change information	0,272	0,096	0,006
Prevention Fit (difference)	0,359	0,122	0,004
Change information x Prevention Fit	-0,013	0,159	0,935

N = 135

**Table 11**

**Linear regression analysis T2 – DV: Adaptive Performance; IV: Change Information, Promotion Fit and Change Information x Promotion Fit**

<i>DV: Adaptive Performance</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	0,001	0,085	0,991
Change information	0,619	0,123	0,007
Promotion Fit (difference)	0,062	0,110	0,576
Change information x Promotion Fit	0,121	0,156	0,439

N = 135

**Table 12**

**Linear regression analysis T2 – DV: Adaptive Performance; IV: Change Information, Non Prevention Fit and Change Information x Non Prevention Fit**

<i>DV: Adaptive Performance</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	-0,009	0,084	0,915
Change information	0,358	0,127	0,005
Non Prevention fit (difference)	0,183	0,087	0,04
Change information x Non Prevention Fit	-0,185	0,133	0,166

N = 135

**Table 13**

**Linear regression analysis T2 – DV: Adaptive Performance; IV: Change Information, Non Promotion Fit and Change Information x Non Promotion Fit**

<i>DV: Adaptive Performance</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	-0,002	0,087	0,9865
Change information	0,341	0,127	0,008
Non Promotion fit (difference)	0,011	0,139	0,937
Change information x Non Promotion Fit	0,024	0,167	0,884

N = 135

**Table 14****Linear regression analysis T2 – DV: Meaning-making; IV: Change Information, Prevention Fit and Change Information x Prevention Fit**

<i>DV: Meaning-making</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	4,431	0,065	0,000
Change information	0,202	0,101	0,049
Prevention Fit (difference)	0,018	0,085	0,838
Change information x Prevention Fit	-0,157	0,146	0,283

N = 135

**Table 15****Linear regression analysis T2 – DV: Meaning-making; IV: Change Information, Promotion Fit and Change Information x Promotion Fit**

<i>DV: Meaning-making</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	4,438	0,065	0,000
Change information	0,178	0,098	0,074
Promotion Fit (difference)	0,057	0,087	0,513
Change information x Promotion Fit	0,174	0,132	0,188

N = 135

**Table 16****Linear regression analysis T2 – DV: Meaning-making; IV: Change Information, Non-Prevention Fit and Change Information x Non-Prevention Fit**

<i>DV: Meaning-making</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	4,434	0,065	0,000
Change information	0,195	0,108	0,074
Non Prevention fit (difference)	0,063	0,086	0,467
Change information x Non Prevention Fit	-0,073	0,124	0,559

N = 135

**Table 17****Linear regression analysis T2 – DV: Meaning-making, IV: Change Information, Non-Prevention Fit and Change Information x Non-Promotion Fit**

<i>DV: Meaning-making</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	4,445	0,065	0,000
Change information	0,208	0,098	0,036
Non Promotion fit (difference)	0,058	0,158	0,712
Change information x Non Promotion Fit	-0,138	0,262	0,599

N = 135

**Table 18****Linear regression analysis T2 – DV: Increase work-home conflict; IV: Change Information, Prevention Fit and Change Information x Prevention Fit**

<i>DV: Increase work home conflict</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	3,694	0,067	0,000
Change information	-0,353	0,075	0,000
Prevention Fit (difference)	0,111	0,084	0,185
Change information x Prevention Fit	0,068	0,686	0,494

N = 135

**Table 19**

**Linear regression analysis T2 – DV: Increase work-home conflict; IV: Change Information, Promotion Fit and Change information x Promotion Fit**

<i>DV: Increase work-home conflict</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	3,691	0067	0,000
Change information	-0,351	0,076	0,000
Promotion Fit (difference)	0,031	0,412	0,681
Change information x Promotion Fit	-0,031	0,085	0,711

N = 135

**Table 20**

**Linear regression analysis T2 – DV: Increase work-home conflict, IV: Change Information, Non-Prevention Fit and Change Information x Non Prevention Fit**

<i>DV: Increase work-home conflict</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	3,691	0,068	0,000
Change information	-0,355	0,074	0,000
Non Prevention fit (difference)	-0,01	0,077	0,917
Change information x Non Prevention Fit	-0,014	0,080	0,860

N = 135

**Table 21**

**Linear regression analysis T2 – DV: Increase work-home conflict; IV: Change Information, Non-Promotion Fit and Change Information x Non-Promotion Fit**

<i>DV: Increase work-home conflict</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	3,690	0,067	0,000
Change information	-0,365	0,074	0,000
Non Promotion fit (difference)	0,097	0,075	0,197
Change information x Non Promotion Fit	0,018	0,078	0,822

N = 135

**Table 22**

**Linear regression analysis T2 – DV: Increase work pressure; IV: Change Information, Prevention Fit and Change Information x Prevention Fit**

<i>DV: Increase work pressure</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	2,834	0,074	0,000
Change information	-0,294	0,096	0,003
Prevention Fit (difference)	-0,058	0,114	0,612
Change information x Prevention Fit	-0,010	0,162	0,951

N = 135

**Table 23**

**Linear regression analysis T2 – DV: Increase work pressure, IV: Change Information, Promotion Fit and Change Information x Promotion Fit**

<i>DV: Increase work pressure</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	2,836	0,074	0,000
Change information	-0,302	0,095	0,002
Promotion Fit (difference)	-0,032	0,098	0,745
Change information x Promotion Fit	0,126	0,120	0,294

N = 135

**Table 24****Linear regression analysis T2 – DV: Increase work pressure; IV: Change Information, Non Prevention Fit and Change Information x Non Prevention Fit**

<i>DV: Increase work pressure</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	2,832	0,074	0,000
Change information	-0,295	0,099	0,004
Non Prevention fit (difference)	-0,041	0,097	0,675
Change information x Non Prevention Fit	-0,044	0,124	0,726

N = 135

**Table 25****Linear regression analysis T2 – DV: Increase work pressure; IV: Change Information, Non-Promotion Fit and Change Information x Non-Promotion Fit**

<i>DV: Increase work pressure</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	2,827	0,075	0,000
Change information	-0,314	0,094	0,001
Non Promotion fit (difference)	0,027	0,131	0,835
Change information x Non Promotion Fit	0,122	0,178	0,496

N = 135

**Table 26****Linear regression analysis T2 – DV: Increase development opportunities; IV: Change Information, Prevention Fit and Change Information x Prevention Fit**

<i>DV: Increase development opportunities</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	3,704	0,077	0,000
Change information	0,378	0,115	0,001
Prevention Fit (difference)	0,020	0,097	0,839
Change information x Prevention Fit	0,072	0,150	0,630

N = 135

**Table 27****Linear regression analysis T2 – DV: Increase Development Opportunities; IV: Change Information, Promotion Fit and Change Information x Promotion Fit**

<i>DV: Increase development opportunities</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	3,703	0,077	0,000
Change information	0,365	0,108	0,001
Promotion Fit (difference)	-0,069	0,094	0,462
Change information x Promotion Fit	0,206	0,126	0,104

N = 135

**Table 28****Linear regression analysis T2 – DV: Increase Development Opportunities; IV: Change Information, Non-Prevention Fit and Change Information x Non Prevention Fit**

<i>DV: Increase development opportunities</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	3,699	0,080	0,000
Change information	0,382	0,116	0,001
Non Prevention fit (difference)	-0,001	0,094	0,989
Change information x Non Prevention Fit	-0,037	0,108	0,734

N = 135

Table 29

Linear regression analysis T2 – DV: Increase Development Opportunities, IV: Change Information, Non-Promotion Fit and Change Information x Non Promotion Fit

<i>DV: Increase development opportunities</i>	$\beta$	<i>Std. error</i>	<i>p</i>
Constant	3,696	0,077	0,000
Change information	0,375	0,117	0,002
Non Promotion fit (difference)	-0,107	0,090	0,236
Change information x Non Promotion Fit	0,094	0,088	0,288

*N* = 135

## APPENDIX F: COMMUNICATION INTERVENTION

**Table 30**  
Comparing construct means by paired sample t-test: T2 – T1

<i>Pair</i>	<i>N</i>	<i>Correlation</i>	<i>p</i>	<i>Mean difference</i>	<i>p (two-tailed)</i>
TaskComplexity_2 & TaskComplexity_1	46	0,662	0	-0,098	0,115
WorkHomeConflict_2 & WorkHomeConflict_1	46	0,804	0	0,486	0
WorkPressure_2 & WorkPressure_1	46	0,326	0,027	0,225	0,043
DevelopmentOpp_2 & DevelopmentOpp_1	46	0,72	0	0,014	0,876
SocialSupport_2 & SocialSupport_1	46	0,79	0	-0,145	0,063
ChangeComm_2 & ChangeComm_1	46	0,417	0,004	-0,138	0,351
Prevention_2 & Prevention_1	32	0,523	0,002	0,198	0,100
Promotion_2 & Promotion_1	32	0,569	0,001	0,213	0,041
MeaningMaking_2 & MeaningMaking_1	46	0,435	0,002	0,168	0,157
WorkEngagement_2 & WorkEngagement_1	46	0,794	0	-0,246	0,011
Exhaustion_2 & Exhaustion_1	46	0,728	0	0,341	0,006
AdaptiveBehaviour_2 & AdaptiveBehaviour_1	46	0,76	0	-0,254	0,003
Incr_TaskComplexity_2 & Incr_TaskComplexity_1	46	0,56	0	-0,02174	0,837
Incr_WorkHomeConflict_2 & Incr_WorkHomeConflict_1	46	0,638	0	0,38406	0
Incr_WorkPressure_2 & Incr_WorkPressure_1	46	0,681	0	0,16667	0,165
Incr_DevelopmentOpp_2 & Incr_DevelopmentOpp_1	46	0,615	0	0	1
ChangeComm_2 & ChangeComm_1	46	0,417	0,004	-0,13768	0,351
Prevention_2 & Prevention_1	32	0,523	0,002	0,19792	0,100
Promotion_2 & Promotion_1	32	0,569	0,001	0,2125	0,041
AdaptiveBehaviour_2 & AdaptiveBehaviour_1	46	0,76	0	-0,25362	0,003

**Table 31**  
Linear regression analysis – DV: Change scores Change Information, Meaning-making, Adaptive Performance; IV: Number of intervention items read

<i>DV: Change score of change communication</i>	$\beta$	<i>Std. Error</i>	<i>t</i>	<i>p</i>
(Constant)	-0,269	0,475	-0,566	0,57
Number of items read	0,059	0,100	0,595	0,55
<i>DV: Change score of meaning-making</i>	$\beta$	<i>Std. Error</i>	<i>t</i>	<i>p</i>
(Constant)	0,665	0,465	1,430	0,16
Number of items read	-0,147	0,098	-1,503	0,14
<i>DV: Change score of adaptive performance</i>	$\beta$	<i>Std. Error</i>	<i>t</i>	<i>p</i>
(Constant)	0,524	0,469	1,115	0,271
Number of items read	-0,116	0,099	-1,173	0,247

*N* = 46

**Table 32****Independent sample t-test communication items on change score change information**

*DV: Change score experienced change information*

<i>Intervention item read</i>	<i>Equal variances assumed</i>	<i>Difference means</i>	<i>p (two tailed)</i>
MT Column read	Yes (p = 0,289)	0,489	0,232
B787 facts and figures read	Yes (p = 0,233)	0,262	0,380
Operational advantages of VF read	Yes (p = 0,692)	-0,146	0,638
Feedback survey number 1 read	Yes (p = 0,201)	-0,105	0,789
Training and ToolsB787 read	Yes (p = 0,734)	-0,160	0,613
Interview with VF pilots read	Yes (p = 0,119)	0,344	0,635

N = 46

**Table 33****Independent sample t-test communication items on change score meaning-making**

*DV: Change score experienced change meaning-making*

<i>Intervention item read</i>	<i>Equal variances assumed</i>	<i>Difference means</i>	<i>p (two-tailed)</i>
MT Column read	Yes (p = 0,070)	-0,699	0,085
B787 facts and figures read	Yes (p = 0,369)	-0,643	0,027
Operational advantages of VF read	No (p = 0,011)	-0,298	0,425
Feedback survey number 1 read	Yes (p = 0,175)	0,076	0,845
Training and ToolsB787 read	Yes (p = 0,394)	-0,252	0,423
Interview with VF pilots read	Yes (p = 0,681)	1,020	0,156

N = 46

**Table 34****Independent sample t-test communication items on change increase task complexity**

*DV: Change score increase task complexity*

<i>Intervention item read</i>	<i>Equal variances assumed</i>	<i>Difference means</i>	<i>p (two-tailed)</i>
Interview with VF pilots read	Yes (p = 0,827)	1,231	0,085

N = 46

**Table 35****Regression analysis – DV: change score change information, IV: communication items read**

*DV: Change score experienced change information*

<i>Intervention item read</i>	$\beta$	<i>Std. Error</i>	<i>t</i>	<i>p</i>
(Constant)	-0,532	0,773	-0,688	0,50
MT Column read	0,626	0,478	1,309	0,20
B787 facts and figures read	0,807	0,442	1,824	0,08
Operational advantages of VF read	-0,918	0,470	-1,953	0,06
Feedback survey number 1 read	-0,109	0,398	-0,275	0,78
Training and ToolsB787 read	-0,037	0,372	-0,099	0,92
Interview with VF pilots read	0,271	0,762	0,356	0,72

N = 46

**Table 36****Regression analysis –DV: change score meaning-making, IV: communication items read**

<i>DV: Change score meaning-making</i>					
<i>Intervention item read</i>	$\beta$	<i>Std. Error</i>	<i>t</i>	<i>p</i>	
(Constant)	-0,414	0,488	-0,848	0,399	
MT Column read	-0,745	0,302	-2,468	0,016	
B787 facts and figures read	-0,93	0,279	-3,332	0,001	
Operational advantages of VF read	0,587	0,297	1,977	0,051	
Feedback survey number 1 read	-0,036	0,251	-0,142	0,888	
Training and ToolsB787 read	-0,085	0,235	-0,361	0,719	
Interview with VF pilots read	1,333	0,481	2,773	0,007	

N = 46

**Table 37****Regression analysis – DV: Change score Adaptive Performance; IV: change scores Change Information, Meaning-making, Work Engagement, Exhaustion and T1 score Adaptive Performance**

<i>DV: Change score adaptive performance</i>					
<i>Change scores independent variables</i>	$\beta$	<i>Std. Error</i>	<i>t</i>	<i>p</i>	
(Constant)	0,725	0,970	0,748	0,459	
Change Information	0,229	0,165	1,391	0,172	
Meaning-making	0,156	0,155	1,008	0,320	
Work Engagement	0,292	0,170	1,724	0,092	
Exhaustion	0,156	0,170	0,914	0,366	
Adaptive Performance T1	-0,171	0,226	-0,756	0,454	

N = 46

**Table 38****Correlation change scores M2**

<i>Correlations</i>	<i>20</i>	<i>21</i>	<i>22</i>	<i>23</i>	<i>24</i>
20 ChangeScore_ChangeInformation	1				
21 ChangeScore_AP	0,312*	1			
22 ChangeScore_Incr_TaskComplexity	-0,296*	-0,160	1		
23 ChangeScore_Incr_WorkHomeConflict	-0,537**	0,040	0,180	1	
24 ChangeScore_Incr_WorkPressure	-0,140	-0,040	,374*	0,070	1
25 ChangeScore_Incr_DevelopmentOpp	0,355*	0,250	-0,170	-,470**	-0,220

N = 46; \*\* Correlation significant at p&lt;0,01; \* Correlation significant at p&lt;0,05.

**Table 39**  
**Regression analysis – DV: change scores increase job demands/resources, IV: change score change communication**

<i>Dependent Variable Change Scores</i>	<i>Independent Variable Change Scores</i>	<i>Constant</i>	$\beta$	<i>Std. Error</i>	<i>p</i>
Increase job demands (factor)	Change information	0	-0,139	0,151	0,363
Increase Task Complexity	Change information	0	-0,275	0,145	0,065
Increase Work-Home Conflict	Change information	0	-0,518	0,129	0,000
Increase Work Pressure	Change information	0	-0,142	0,149	0,347
Increase Development Opportunities	Change information	0	0,343	0,142	0,02

N = 46

**Table 40**  
**Regression analysis - DV: change score increases job demands/resources, IV: communication items read**

<i>DV: Change score increase task complexity</i>	$\beta$	<i>Std Error</i>	<i>p</i>
(Constant)	-1,195	0,719	0,10
MT Column read	-0,877	0,444	0,05
B787 facts and figures read	-0,19	0,411	0,65
Operational advantages of VF read	0,439	0,437	0,32
Feedback survey numer 1 read	0,663	0,37	0,08
Training and ToolsB787 read	-0,273	0,346	0,44
Interview with VF pilots read	1,46	0,708	0,05
<i>DV: Change score increase in work pressure</i>	$\beta$	<i>Std Error</i>	<i>p</i>
(Constant)	-0,678	0,797	0,40
MT Column read	-0,548	0,493	0,27
B787 facts and figures read	0,032	0,456	0,95
Operational advantages of VF read	0,041	0,484	0,93
Feedback survey number 1 read	0,224	0,41	0,59
Training and ToolsB787 read	-0,096	0,383	0,80
Interview with VF pilots read	1,021	0,785	0,20

N = 46

**Table 41**  
**Regression analysis - DV: Change score adaptive performance, IV: change scores individual job demands/resources**

<i>DV: Change score adaptive performance</i>	$\beta$	<i>Std. Error</i>	<i>p</i>
(Constant)	0,000	0,142	1,00
ChangeScore_Incr_TaskComplexity	-0,152	0,159	0,34
ChangeScore_Incr_WorkHomeConflict	0,190	0,161	0,25
ChangeScore_Incr_WorkPressure	0,049	0,159	0,76
ChangeScore_Incr_DevelopmentOpp	0,373	0,161	0,03

N = 46

## APPENDIX G: COMMUNICATION ITEMS

### Management column (in Dutch)



We willen jullie de komende tijd een aantal artikelen aanbieden over het variant vliegen. Wat we zoal bereikt hebben, wat onze plannen zijn, hoe het gaat en hoe leuk en interessant het is, voor zowel jullie als vlieger als voor het bedrijf. Raak je geïnteresseerd? Laat het ons weten of geef je op voor de Difference Training.

Inmiddels zijn we een half jaar bezig met variant-vliegen (23 nov 2015 is de eerste B787 lijnvlucht vertrokken). Sinds april hebben we al 5 B787 toestellen binnen de vloot waarmee het een steeds grotere invulling gaat geven aan het KLM netwerk. Naarmate er meer kisten binnenkomen gaan we als bedrijf en vliegers steeds meer de voordelen ervaren van het variant-vliegen.

In onze historie als pioniers in de luchtvaart en als oudste luchtvaartmaatschappij zijn we de eerste airline die variant-vliegt met de B777 en B787. Dat is iets waar we trots op mogen zijn! Boeing kijkt met belangstelling naar onze B777/787 variant operatie. Ongetwijfeld zullen andere operators met de tijd steeds nieuwsgieriger worden.

We willen sneller, eenvoudiger en goedkoper opereren. Investeren in onze klant. Een grotere common-type ICA vloot, past heel goed binnen een nieuwe, innovatieve, efficiënte, flexibele en klantgerichte KLM.

Voor ons als vlieger is variant vliegen een uitdaging in ons werk: het vliegen op 2 types kan ons werk interessanter en afwisselender maken door het leren omgaan met een nieuw stuk techniek. Ook is de afwisseling door toename van routes en bestemmingen een aantrekkelijke kant van ons werk. De hele wereld als je werkomgeving. Vliegen naar alle windstreken. Hoe mooi is dat?

Is variant vliegen nou moeilijk? Levert het meer complexiteit en dus meer werkdruk op?

De Difference Training, de DT, is een training en geen examen. We bieden verschillende tools om je te ondersteunen in het variant-vliegen: een operational summary, een difference handout, een specifieke Type Recurrent, en sinds kort bieden we via de Ipad ook de Aerosim CBT aan. De

DT wordt als een leuke training ervaren. De HUD is soms even wennen, maar zij die er aan gewend zijn, vinden het prachtig en missen de HUD nu op de B777.

We monitoren de occurrences, de Flight Data Monitoring exceedences, de ASR's, de VFOR's en de VSR's. De eerste ervaringen zijn goed. Daar zijn we, met dank aan alle variant vliegers, heel trots op. De technische inzetbaarheid van de B787 ziet er ook goed uit en de feedback van onze passagiers is zeer positief.

Het indelen is met een zo grote Unit en met een variant vliegoperatie complexer geworden. Een variantvlieger moet exposure hebben en houden op beide vliegtuigtypes. VICI helpt ons gelukkig in te delen volgens de CAO. We zijn hard bezig om een Crewbids systeem te maken, waarmee de vlieger op een eenvoudige manier meer grip krijgt op zijn of haar indeling en dus op zijn of haar werk en vrije tijd.

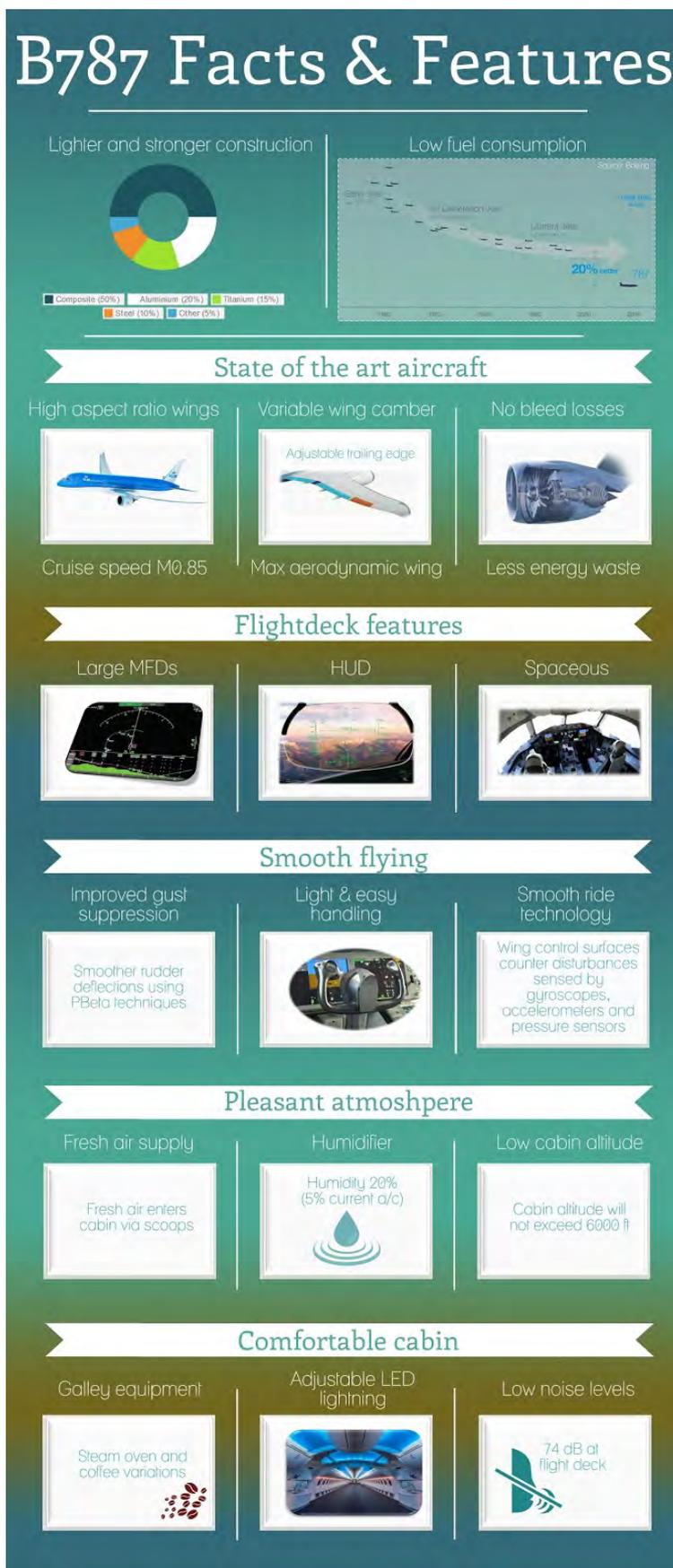
Wat zijn onze vooruitzichten? Eind van dit jaar hebben we al 8 B787 toestellen. In totaal hebben we 21 B787 vliegtuigen besteld. Dat maakt het samen met uiteindelijk 29 B777 toestellen een hele grote ICA divisie met voor de vlieger een ieder wat wils en vooral groot route-aanbod.

De komende weken zullen we jullie, zoals aangegeven, nog meer informatie over het variantvliegen aanbieden. Wordt vervolgd...

Eimerd Bult

Vice President B777/787

## Infographic B787 Facts and Features (in Dutch)

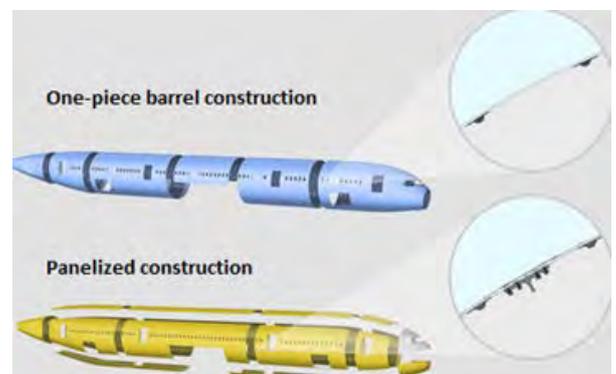


Verschillende Facts & Features maken de B787 tot een zeer efficiënt en comfortabel toestel. Boeing beschrijft dit als het ‘Dreamliner effect’ “The 787’s unparalleled fuel efficiency and range flexibility enables carriers to profitably open new routes as well as optimize fleet and network performance. And for their passengers, an experience like none other in the air, with more comfort and less fatigue”

Welke materialen en technieken gaan schuil achter dit Dreamliner effect?

### Romp

De romp sectie van de B787 is grotendeels van composiet gemaakt. De romp wordt lichter en sterker door het gebruik van composiet en heeft geen last van ‘vermoeiing’ of ‘corrosie’. De cabinedruk kan hierdoor ook lager worden gehouden waarmee er meer zuurstof in de lucht zit. De romp is opgebouwd uit zogenaamde ‘one-piece-barrel’ secties (zie blauwe romp in afbeelding) wat ten opzichte van een traditionele paneel-constructie (zie gele romp in afbeelding) resulteert in minder bevestigingsmiddelen en daarmee een lager gewicht en minder onderhoud.



## **Vleugels**

Ook de vleugels van de B787 bestaan grotendeels uit composiet waarmee vleugels met een grotere 'aspect ratio' kunnen worden geconstrueerd. In combinatie met de 'raked wing tips' is een zeer aerodynamische vleugel gemaakt die vergeleken met een B777 harder kan vliegen bij gelijke cost index. De vleugelvorm wordt tijdens de kruisvlucht bovendien verder geoptimaliseerd door cruise flaps waarmee weerstand en brandstofverbruik verder afnemen. Naast aerodynamisch is de vleugel ook nog eens comfortabel. Spoilers en ailerons dempen een beweging in de vleugel zodat deze minder effect heeft in de cabine. Het resultaat is een snelle, zuinige en comfortabele vlucht.

## **Motoren**

Onze B787 toestellen zijn uitgerust met General Electric GENx motoren gecertificeerd met 74.100 lbs take-off thrust. Ook in de motoren is het gebruik van composieten uitgebreid met een composiet fan case. De composiet fanbladen zijn efficiënter ontworpen en teruggebracht van 22 naar 18 fanbladen ten opzichte van de GE90 motoren op de B777 waarmee de motor minder 'noise impact' heeft op de omgeving. De nacelle is ontworpen zodat de luchtstroom erlangs langer laminair blijft stromen en aan de achterkant reduceren chevrons het geluid voor een stillere cabine. Het resultaat is een zuinigere en stillere motor waarmee we de impact op onze omgeving verminderen.

## **Systemen**

De B787 gebruikt geen bleed air/pneumatische systemen waardoor brandstofverbruik afneemt en maintenance kosten worden verminderd. Air conditioning, cabinedruk, hydraulische druk en wing anti-ice worden allen elektrisch aangestuurd.

## **Cockpit**

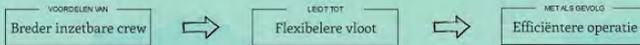
Door het vernieuwende ontwerp van de B787 cockpit is het bijzonder prettig werken. De werkomgeving biedt meer ruimte, grotere ramen, minder droge lucht, en prettige, comfortabele stoelen met meer functies. Door de grote displays is meer informatie te presenteren, zoals de VSD en de AUX display. CPDLC is verder geïntegreerd en de HUD maakt een unieke combinatie van buiten kijken met primaire vlieg informatie mogelijk. Daarnaast vliegt de B787-9 aanmerkelijk rustiger en stuurt deze soepel. Kortom een genot om in te mogen werken.

## Operational advantages of VF (in Dutch)

# Slimmer & flexibeler werken

## door Variant - vliegen

De B787 is ontworpen vanuit de gedachte dat deze als een variant van de B777 gevlogen kan worden. Concreet betekent dit dat crew tegelijkertijd op een B777 en B787 kan vliegen.



Een efficiëntere operatie door variant - vliegen begint al tijdens de infasering van de B787 en de voordelen nemen toe naarmate er meer B787 vliegtuigen in onze vloot vliegen.

2015

November

## INFASERING

### 1 Inzetbaarheid

Tijdens infasering met slechts enkele vliegtuigen in de vloot kan de B787 al direct op meerdere routes worden ingezet, afgewisseld met een B777. De utilisatie van de B787 wordt zo verhoogd.

### 2 Verstoringen

Verstoringen opvangen binnen een type met een kleine vloot is eenvoudiger doordat een B777 een B787 kan vervangen zonder crew-restricties.



Variant-vliegen verhoogt dus de inzetbaarheid van de B787 gedurende de infasering.

2016

Oktober

## NA 1 JAAR

Eén jaar na de infasering vliegen er 8 B787 vliegtuigen binnen de vloot. Hiermee nemen de voordelen van variant-vliegen toe. Ook krijgen vliegers toegang tot een groot ICA netwerk.

### 1 Maatwerk op ICA

Stoelcapaciteit kan op dagbasis worden ingepland in de dienstregeling met een B787-9, B777-200 of B777-300 op basis van de verwachte vraag.

### 2 Flexibiliteit

Operations Control kan tijdens de dagelijkse operatie gemakkelijker inspringen op veranderingen omdat de B777 en B787 grotendeels uitwisselbaar zijn op routes zonder crewrestricties.



## TOEKOMSTVISIE

Voorlopig staan orders gepland voor nog 10 B787-9 en 6 B787-10 vliegtuigen waarmee de B787 samen met de B777 een grote common type ICA vloot vormt, bestaande uit 50 vliegtuigen. Door schaalvoordelen kunnen nieuwe kansen ontstaan om slimmer te gaan werken. Als vlieger vormt het bovendien een mooie uitdaging in ons vak en krijgen we toegang tot een groot en gevarieerd routenetwerk.



Je kunt je via KLM4u maandelijks opgeven voor de Difference Trainingen die 3 maanden later gepland staan.

Het concept variant-vliegen draait om slimmer en flexibeler werken. Als vliegers zijn we tegelijkertijd inzetbaar op zowel de B777 als de B787. Doordat we breder inzetbaar zijn creëren we een grote common-type ICA vloot, kunnen we onze vloot flexibeler inzetten en een efficiëntere operatie realiseren.

### Infasering

Tijdens infasering van de B787 vliegen er slechts enkele vliegtuigen in de vloot. Een kleine vloot kan normaal gesproken slechts op een klein routenetwerk en een beperkt aantal omlopen worden ingezet. Wanneer je een bestemming dagelijks wilt aanvliegen met slechts 1 vliegtuig kun je alleen bestemmingen aanvliegen met een omloop korter dan 24 uur zodat het vliegtuig de volgende dag weer beschikbaar is om dezelfde omloop te vliegen. Tijdens infasering kan het vliegtuig daarom niet naar de mogelijkheden worden ingezet en is de utilisatie laag. Door variant-vliegen worden deze inefficiënties verminderd en kan de B787, ondanks de kleine vloot al direct op meerdere bestemmingen worden ingezet samen met de B777 waarmee de utilisatie wordt verhoogd.

*Variant-vliegen verhoogt dus de inzetbaarheid van de B787 gedurende de infasering.*

### Na 1 jaar

Het eerste jaar na infasering vliegen er 8 B787 toestellen binnen onze vloot die worden ingezet op 15 bestemmingen, deels afgewisseld met de B777. Door de gezamenlijke inzet van de B777 en B787 kunnen we op variant-stations de stoelcapaciteit op

dag basis beter inplannen op verwachte vraag.

Ook wordt de operatie flexibeler. Operations Control kan tijdens de uitvoering gemakkelijker inspringen op veranderingen omdat de B777 en B787 uitwisselbaar zijn op variant-stations. Mocht een B787 onverwachts overboekt raken dan kan daarop worden ingespeeld door een B777 in te zetten op de omloop en vice versa kan een B787 worden ingezet op een B777 omloop bij een tegenvallende verkoop van stoelen. We besparen zo op kosten voor omboeken en voorkomen onnodig brandstofgebruik door met een te groot vliegtuig te vliegen. Bovendien zijn de B777 en B787 uitwisselbaar op variant-stations waarmee we meer opties creëren om verstoringen zo goed mogelijk op te vangen.

*Variant-vliegen verbetert dus de inzet van capaciteit en de robuustheid van ons netwerk.*

### **Toekomst**

In totaal vliegen er gepland straks 21 B787 vliegtuigen en 29 B777 vliegtuigen in de vloot waarmee we een grote common-type ICA vloot hebben, bestaande uit 50 vliegtuigen. Een grote vloot kan efficiënter in het routenetwerk worden ingezet. We kunnen zo gaan profiteren van de schaalvoordelen van een grote vloot en tegelijkertijd flexibel onze capaciteit inzetten over het netwerk. Voor ons als vliegers brengt het een nieuwe uitdaging in ons vak en krijgen we bovendien toegang tot een groot en gevarieerd routenetwerk.

*Een common-type ICA vloot brengt schaalvoordelen en flexibiliteit op een groot ICA netwerk*

## Feedback first survey (in Dutch)

Afgelopen januari tot en met maart zijn alle vliegers binnen de 777/787 unit uitgenodigd om deel te nemen aan de enquête over variant-vliegen. Deze enquête is afgenomen in het kader van een afstudeeronderzoek door Wouter Veldhuis, S/O B777. Wouter zal een toelichting geven over zijn eerste bevindingen.

Net als veel nieuwe collega's heb ik een periode moeten overbruggen tussen de afronding van de vliegopleiding en indiensttreding bij KLM. Deze heb ik met een studie Technische Bedrijfskunde aan de TU Eindhoven ingevuld en in het kader van mijn afstudeerscriptie doe ik dit onderzoek.

Doel van dit onderzoek is om inzicht te krijgen in waarom vliegers wel of niet enthousiast zijn over variant-vliegen en zich opgeven voor de Difference Training. Een aantal uitkomsten aan de hand van de eerste enquête zijn hieronder weergegeven.

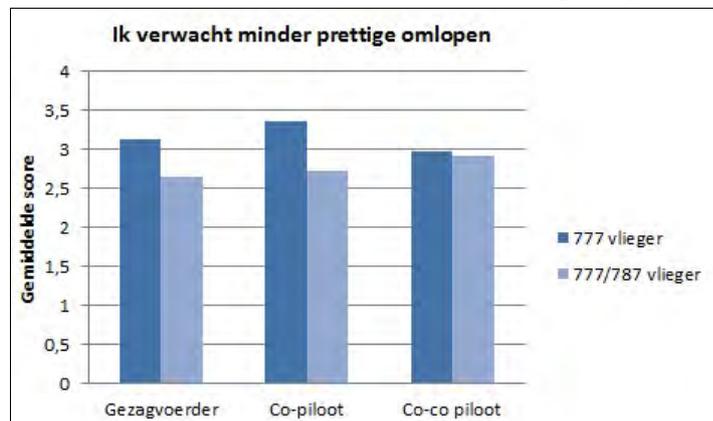
### Respons

De enquête is ingevuld door 314 vliegers en ik wil iedereen bedanken voor de medewerking. Van deze vliegers was:

- 46% Captain (hiervan was 37% variant-vlieger)
- 37% First Officer (hiervan was 32% variant-vlieger)
- 17% Second Officer (hiervan was 24% variant-vlieger)

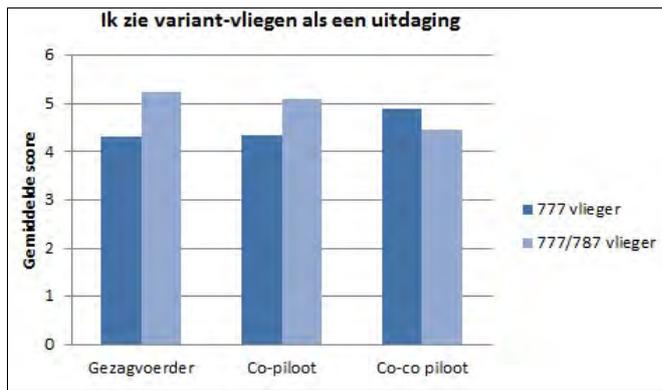
### Nadeel variant-vliegen

Grootste nadeel blijkt te zijn dat we minder prettige omlopen verwachten door variant-vliegen.



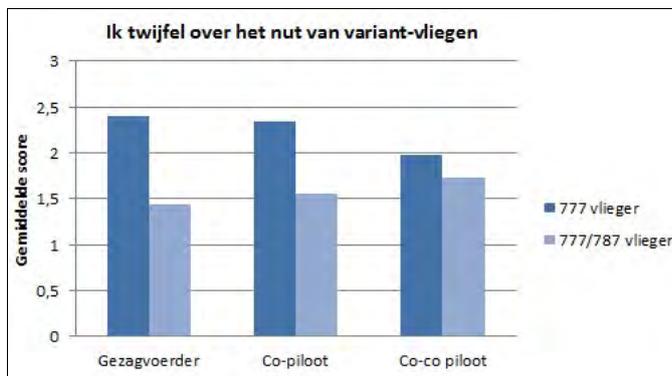
### Voordeel variant-vliegen

Grootste voordeel blijkt te zijn dat we variant-vliegen als een uitdaging in ons werk zien.



### Vertrouwen in variant-vliegen

Het vertrouwen in het nut van variant-vliegen heeft ook een belangrijke invloed op ons enthousiasme.

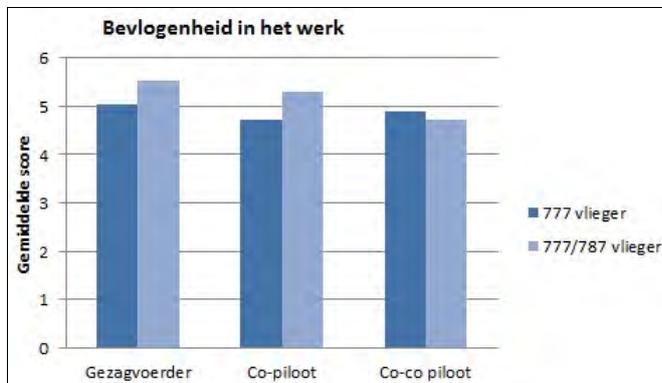


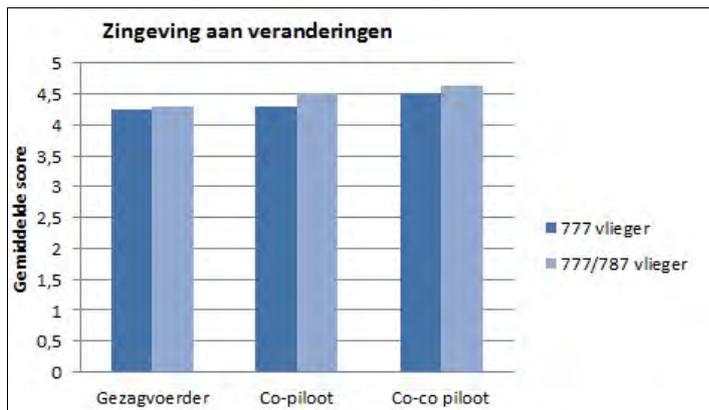
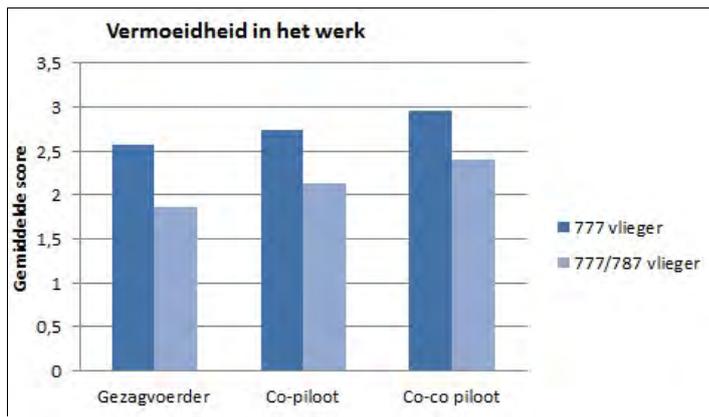
Het overall patroon is, met uitzondering van S/O's, dat variant-vliegers meer uitdaging zien, minder achteruitgang in omlopen verwachten en meer het nut zien van variant-vliegen. Bij S/O's zijn deze verschillen minder sterk aanwezig.

### Persoonlijke verschillen

Daarnaast blijken persoonlijke verschillen ook van invloed te kunnen zijn op het enthousiasme om te gaan variant-vliegen.

Variant-vliegers zijn meer bevlogen (met uitzondering van S/O's) en ervaren minder vermoeidheid in hun werk. De algemene veranderingsgezindheid is bij iedereen hoog en hierin zijn nauwelijks verschillen tussen de groep variant-vliegers en niet variant-vliegers te ontdekken.





## Deel 2 van de enquête

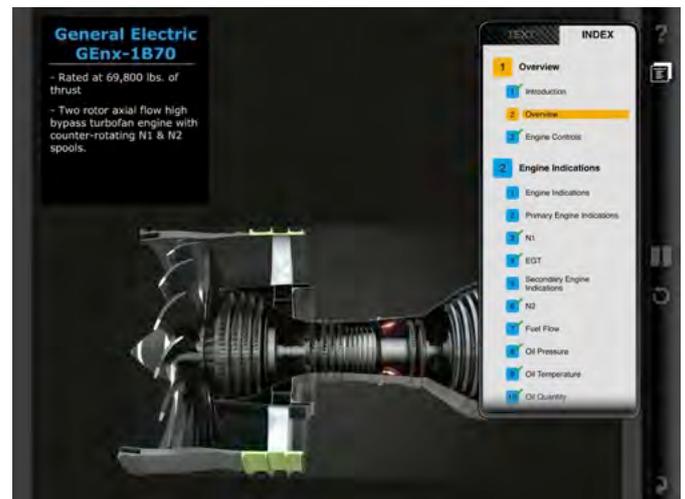
Binnenkort volgt deel 2 van de enquête over variant-vliegen nu er meer B787 toestellen in de vloot vliegen en er meer bekendheid over het concept is zodat we veranderingen over de tijd kunnen meten. Iedereen die de eerste enquête heeft ingevuld wil ik graag vragen ook deel 2 van de enquête in te vullen. Om betrouwbare statistische conclusies te kunnen trekken uit de data en een goede afspiegeling van het korps te krijgen is het van belang dat de groep die zowel deel 1 als deel 2 van de enquête heeft ingevuld zo groot mogelijk is. Ik hoop jullie respons weer tegemoet te zien! Alvast bedankt!

## Training and tools for the B787 (in Dutch)

Met de komst van de B787 Dreamliner binnen de gelederen van KLM kwam er een moderne nieuwe jet in service. Daarnaast ook de mogelijkheid om variant te gaan vliegen met de B777. Dit concept kennen we nog uit de tijd van de B737 PG en NG. Kortom reden genoeg om nog eens goed te kijken naar de opzet van de training voor de toekomstige B777/787 variant vliegers.

De grote winst van het variant vliegen zit natuurlijk in een kortere cursus. Geen volledige type kwalificatie cursus, maar een cursus die gebaseerd is op de verschillen tussen de B777 en de B787. Opvallende verschillen zijn de aanwezigheid van de Heads Up Display (HUD), grote displays, het ontbreken van bleed air, enz. Vanzelfsprekend is een deel van de cursus theoretisch (CBT en FCOM's) en is er een praktisch deel op de simulator.

Eén van de belangrijkste onderdelen van een omscholing, in dit geval de Difference Training B777 to 787, is de CBT. Tot de komst van de B787 was de CBT een CD-rom die je thuis op een PC kon bekijken, maar met de komst van een modern vliegtuig moest ook dit onderdeel moderner worden aangepakt. Dus is er nu een App voor op de iPad. Deze Ethos App is door Aerosim ontwikkeld en biedt je de gelegenheid om zowel on- als offline de CBT te bekijken. Dit is tevens zeer handig om current te blijven en je voor te bereiden op een vlucht of simulator sessie.



Tijdens de simulator training maken de kandidaten kennis met het Briefing Station, een virtuele B787 cockpit waarop zowel de kandidaten als de instructeur systemen kunnen schakelen en demonstreren. Hierdoor kom je beter voorbereid in de simulator en wordt kostbare simulator tijd bespaard. Om de kandidaten goed te ondersteunen tijdens hun cursus, maar ook zeker in de operatie zijn er nog een tweetal andere documenten die de verschillen tussen de B777 en de B787 goed onder de aandacht brengen. Er is een 61 pagina tellend document, genaamd het 787-9 and 777 FCOM Differences Handout, waarin in een korter overzichtelijke wijze de verschillen in de systems en limitations wordt aangegeven. Een handig document wat je bij wijze van spreken in de bus naar de luchthaven kunt doorkijken om je te verdiepen in de praktische verschillen. Als tweede document hebben we Operational Summary, een opsomming van de meest belangrijke operationele verschillen voor de variant die je gaat vliegen. Dit document wordt aan de vliegers aangeboden d.m.v. de Aviobook App en is goed te gebruiken als leidraad om in een crew briefing de Threats & Errors te bespreken.

Het variant vliegen van de B777 en de B787 is een geweldige ervaring, waarin je kennismakt met een airliner van de nieuwe generatie die erg pilot friendly is. Via de nieuwe training tools, zoals de CBT op iPad en het Briefing Station bij de simulator, wordt je op een moderne efficiënte manier in staat gesteld een prachtig nieuw vliegtuig te leren vliegen.

## **Interview with VF pilots (in Dutch)**

Variant vliegen? Gezagvoerder Paul Schulpen en first officer Remco van de Wijngaard zagen de uitdaging wel zitten en meldden zich snel aan. Na het volgen van de Difference Training wisselen zij nu met veel plezier vluchten met de B777 en B787 af. Zij delen graag hun ervaringen.

Nieuwsgierigheid naar een nieuw toestel is wat beide vliegers over de streep trok. Remco: “Vliegen is per definitie leuk en als ik de kans krijg om een nieuw toestel te vliegen, pak ik die aan. Na 10 jaar vliegen met de B777 wilde ik graag weer een nieuwe uitdaging. En dan is de B787 Dreamliner momenteel wel een van de modernste kisten. Bovendien is variant vliegen niet nieuw voor me omdat ik dat al bij de B737 unit had gedaan. En dat beviel prima”

### **Nieuwe cockpit**

De Difference Training was volgens Schulpen en Van de Wijngaard goed te doen. Paul: “Net als bij het vliegen zelf is een goede voorbereiding cruciaal. Je doet de DT er niet even bij. Je moet flink wat theorie en de CBT doorwerken. Daar ben ik wel een week regelmatig mee bezig geweest. Ik vind dat niet erg omdat werken in een nieuwe cockpit me voldoende inspireert. Het is even wennen dat de B787 meer schermen en minder fysieke knoppen heeft. Ook de zithouding is anders. Door de HUD zit je iets verder naar voren. Dat went echter snel. Het enige minpunt is het lawaai van de ventilators in de cockpit. Zeker op langere vluchten is dat niet prettig.” Naast een andere bediening is voor Van de Wijngaard de HUD de meest in het oog springende verandering. “Daar moet je even mee leren werken. Tijdens de start en landing is de HUD zeker een voordeel. Dat ligt anders tijdens het kruisen of taxiën in het donker. Dan is de toegevoegde waarde naar mijn idee minder.”

### **Exposure**

Beide vliegers verwachten op termijn een afwisselender routebereik door het variant vliegen. Remco: “Dat heeft nog wel wat tijd nodig. Nog niet alle 787’s zijn in gebruik waardoor de keuze in het aantal bestemmingen nog beperkt is. Voorkeuren aangeven en krijgen, werkt nog niet optimaal. Als de toestellen op termijn flexibeler worden ingezet, verandert dat vanzelf. Voorlopig is het zaak om zoveel mogelijk exposure te hebben om het vliegtuig goed in de vingers te krijgen. Daarom vlieg ik nu relatief veel B787. Dat is nu okay en die variatie in bestemmingen komt vanzelf.”

### **Goede support**

De variatie van het vliegen zelf is volgens Paul een mooie uitdaging op zich. “Het maakt mijn werk nog leuker nu ik ook de B787 vlieg. Ik merk dat variant vliegen met deze toestellen heel goed werkt. Allereerst omdat we gewoon goed getraind zijn en vanuit de unit de juiste tools, handboeken en checklists beschikbaar zijn. Verder is het omgaan met ‘non-normals’ voor de B777 en B787 hetzelfde. Op dat gebied kom je geen verrassingen tegen.” Remco vult aan. “Ik vind de ondersteuning heel goed. Dat geldt voor de instructie en de handouts. Je moet de verschillen bij zo’n nieuw vliegtuig zelf ervaren. Daar is echter voldoende aandacht voor. Er wordt goed geluisterd naar onze feedback en als je wilt kun je extra sim-beurten aanvragen. Ik heb er zin in om meer af te gaan wisselen.”

### **Indeelperikelen**

Onze unit groeit en groeit en telt momenteel bijna 900 vliegers. Een goede indeling maken wordt hierdoor een echte uitdaging maar gelukkig hebben we hierbij hulp van VICI. Echter

door een aantal factoren heeft de verzoekenregeling en de honorering hiervan enigszins onder druk gestaan. Niet alleen het feit dat we krap in de sterkte hebben gezeten en nog zitten, voor zowel de B777 als de B787 door een hoog ziekteverzuim, maar ook door een interpretatieverschil tussen KLM en VNV over de inzet van de  $\frac{3}{4}$  vlieger afspraak uit het laatste cao-protocol. We krabbelen nu langzamerhand uit dit dal en zijn bezig met een groot aantal maatregelen, waaronder extra afspraken met de VNV en het opleiden van extra S/O's met externe instructie vanuit de A330 en B747 Unit.

Nu het aantal B787 bestemmingen toeneemt, zien we ook dat meer verzoeken op B787 vluchten worden gedaan. Hiermee ontstaat meer balans in het aantal verzoeken op B777 en B787 vluchten. Dit alles moet ervoor zorgen dat de druk op de verzoekenregeling vermindert.