

LEADING BLUE COLLAR WORKERS

A PRACTICE ORIENTED RESEARCH TO IMPROVE
LEADERSHIP WITHIN A MECHANISTIC ORGANISATION



UNIVERSITY OF TWENTE.

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UNIVERSITY OF TWENTE.

UNRESTRICTED VERSION

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Note: This is a unrestricted version which means that some information is unavailable.

MANAGEMENT SUMMARY

This study examined the effect of leadership and feedback on employee commitment and departmental performance in order to give recommendations for leadership improvements. A practice oriented research was carried out among the five production departments of company X, the Netherlands.

It was argued by transformational theorists that the best leaders are both relations-oriented and task-oriented. In other words, the best leaders are both transformational and transactional. However, previous research indicated that leaders need to become more transformational to be effective. This can be explained by the model of the Full Range of Leadership. The transformational leadership behaviours (i.e. Idealized Influence, Inspirational Motivation, Intellectual Stimulation and Individualized Consideration) are seen as most effective, followed by Contingent Reward (CR), Management-by-Exception Active (MBE-A), Management-by-exception Passive (MBE-P), and Laissez Faire (LF) which is the most ineffective leadership behaviour. Furthermore, the transformational leadership behaviours and CR are seen as active leadership behaviours, and MBE-P and LF are seen as passive leadership behaviours. Management-by-Exception Active belongs also to active leadership domain, but in contrast to transformational leadership and CR, MBE-A could be ineffective. Feedback is an essential part of the process of leading employees towards performance and behaviour. Theories of transformational leadership indicated that most leaders engage in transactional leadership (i.e. CR, MBE-A and MBE-P) behaviours by providing feedback contingent on performance and that exceptional leaders go beyond this and also engage in transformational leadership behaviours. Therefore, feedback was also included in this research.

The effectiveness of leadership could be measured in many ways. However, in this study it had been chosen to measure the effectiveness of the supervisors by means of the key performance indicators (KPI's) and employee commitment. Moreover, because it was suggested that besides global foci, like organisational commitment, also foci of work related commitment should be considered, three foci of commitment were included as criterion variables: job commitment, departmental commitment, and organisational commitment. Furthermore, it was argued that supervisors would have the strongest influence on affective commitment, which is the employees' *desire* to remain, and that organisations benefit the most from affective committed employees. Company X was also interested in the employees' feeling of *obligation* to remain, also known as the normative base of commitment. Therefore, the affective and normative bases of job commitment, departmental, and organisational commitment were included.

In order to measure the effect of leadership and feedback on employee commitment, a questionnaire was developed. This questionnaire included the 32 items of the Multifactor Leadership Questionnaire, 11 of the Feedback Environment Scale, and 40 items that present the six employee commitment scales. In total X employees responded, which was a response rate of 60%. Because the effects of the leadership behaviours on the criterion variables needed to be examined, it had been chosen to analyse the results on supervisor level (n=27).

The leadership components are interdependent, which means that there are correlations between the components. In this research, it seemed that MBE-A was positively intercorrelated with transformational leadership and CR. Those leadership behaviours were seen as active leadership behaviours, and MBE-P and LF formed together passive leadership. Because of the interdependence between the leadership behaviours, active and passive leadership were combined into one independent variable: total leadership (i.e. active leadership and non-passive leadership). In this way, it was possible to create a more simple model and to differentiate the supervisors into three groups (i.e. high, middle, and low) based on their mean leadership score. Also the two measured feedback dimensions were combined into one independent variable, and the employee commitment dimensions were reduced into one dependent variable.

The results confirmed that leadership and feedback are closely related. Moreover, the more active a supervisor behaves, the more inclined the supervisor is to deliver consistent useful feedback. It was also expected that active leadership would be positively related to employee commitment. However, this relation was weak and it appeared that only feedback was having a direct positive effect on employee commitment. Moreover, feedback explained 20% of the total variation in employee commitment and mediates the relation between leadership and employee commitment. This means that the more active a supervisor behaves, the more inclined the supervisor is to deliver consistent useful feedback, and the more committed the employees are. It should be noticed that two supervisors behaved more passively and were less inclined to deliver consistent feedback, but their subordinates were relatively highly committed. When excluding those influential supervisors from the analysis, it seemed again that feedback was mediating the relation between leadership and employee commitment, but the total variation explained by feedback on employee commitment became 40%. In conclusion, feedback is a more important predictor of employee commitment than leadership, but leadership does matter because of the strong relation with feedback.

Unfortunately, there were no relations found between leadership and feedback and the KPI's. Nevertheless, it seemed that employee commitment was having a positive association with the overall equipment efficiency, the costs of capital expenditures and cost reductions. But it should be noticed that those associations were measured on departmental level, which means that those relations cannot be determined with certainty.

In conclusion, transformational leadership, Contingent Reward and Management-by-Exception Active are effective leadership behaviours to lead blue collar workers in this mechanistic organisation. Therefore, it can be concluded that the supervisors who behave more passive and are less inclined to deliver consistent and useful feedback, need to improve their feedback skills and leadership behaviours to become more effective. However, none of the supervisors scored excellent on feedback and leadership, so there is still room for improvement for those supervisors as well. A first step is to improve the feedback skills of the supervisors because feedback is closely related to leadership and is an important predictor of employee commitment. It is important that the supervisors learn to give useful and consistent feedback in a way that subordinates accept the feedback and have a willingness to respond to the feedback. It is probable that the supervisors become more active when they improve their feedback skills, but a second step is to improve the leadership behaviours of the supervisors. The leadership behaviours of the supervisors can be gradually improved according to Full Range of Leadership model, and their leadership profiles can be used as the starting point for leadership improvements. The supervisors who behave more passively need to become more active and the more active supervisors can improve their leadership to become eventually more relations-oriented. Both feedback and leadership can be improved by on-the-job training or off-the-job training.

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PREFACE

In 2007, I started with the premaster Business Administration at the University of Twente. It was a bumpy road, but in the second trimester of 2009 I could move on to the master Business Administration. More specifically, I started with the track Human Resource Management, and this report is the last important part to complete the master program.

I completed the higher vocational education study Human Resource Management in 2006. Throughout those four years, I noticed that I was particularly interested in the design and development of organisations. I decided that I want to solve complex business problems and assist organisations to improve their operations. However, this goes generally hand in hand with implications for the employees. In order to broaden my knowledge and my career possibilities, it was a logical step to continue with a master study: nothing ventured, nothing gained.

At the end of 2009, I searched for a master assignment. I really wanted to perform an assignment within a production organisation, because I already took a look behind the scenes of service organisations. In the short, I found an interesting assignment at company X. In the preliminary talk, it became clear that company X wanted to improve leadership. In November 2009, I participated in an international leadership conference in Prague where my interest in leadership was sparked. So, I seized the opportunity this assignment offered with both hands.

I started with the assignment in the beginning of February 2010. The realisation of my assignment and research was not possible without the help and the participation of a lot of people. First of all, I want to thank company X and my supervisors for giving me the opportunity and for their support and significant contribution. I also want to thank the working group for their active participation and meaningful input. Besides, I want to thank the supervisors and employees of the production departments that were willing to participate in the research and the people who provided information.

Then, the tower of strength, my first supervisor Maarten van Riemsdijk. He gave me in the beginning a push in the right direction, gave me meaningful advices and feedback and mental support. Thanks for all the help. I also want to thank Harry van der Kaap for being my second supervisor and for the support with the data analysis.

Finally, I want to thank my parents, family and friends for giving their support, showing their trust, and for distracting my mind when this was necessary.

Deventer, October 8th, 2010

Yara Peters

1 INTRODUCTION

The project as described in this thesis is performed for the Human Resource department of company X and is concerned with the improvement of leadership behaviours within the production departments of that company. In this chapter the context of the project will be described. First, the organisation will be described by means of the website of company X and internal documents and data. Second, the reason for the start of the project will be explored and described. Finally, the outline of this report will be considered.

1.1 ABOUT THE ORGANISATION

[This information is restricted and unavailable.]

1.2 REASON FOR THE START OF THE PROJECT

An employee engagement survey was performed by Towers Perrin within every plant of company X in 2008. The aim of the survey was to measure, understand and improve engagement at all levels and across all functions (Towers Perrin Employee and Organisational Surveys, n.d.). The survey could help company X to make the right decisions about workforce investments and programs to achieve higher productivity, better customer relationships, stronger financials and sustained business growth (Towers Perrin Employee and Organisational Surveys, n.d.). Benchmarks could be performed because Towers Perrin has a large database of global, national, demographic, job function and industry sector norms (Towers Perrin Employee and Organisational Surveys, n.d.).

The questions of the survey were concerned with eleven categories: customer-orientation, safety, engagement, continuous improvement, teamwork, my job, pay and reward, leadership, leaders, communication and development (Report Employee Survey, 2008). The self-administered questionnaire was completed electronically by 200 respondents of company X and the opinions and attributes of the respondents were collected. The questions were focussed on the respondents' feelings about something and on the respondents' characteristics (Saunders et al., 2007). The key drivers for engagement were leadership, my job, and pay and reward (Report Employee Survey, 2008). Those key drivers had a strong relation with employee engagement and the results of the survey indicated that company X should pay attention to these categories to improve the engagement of employees (Report Employee Survey, 2008). The results indicated that the categories leadership, leaders, communication and development scored below the Towers Perrin - ISR Netherlands National Norm (i.e. the norm of Dutch organisations) and company X wants to improve these categories.

The working group leadership was established and analysed the available data and results of the report of Towers Perrin and concluded that:

- Some questions were not well formulated and some concepts did not have a clear conceptualisation. For instance, the respondents were asked to give their opinion about senior management, management and their supervisor. However, it was not clear which management levels were measured because the management levels within company X are for instance the plant manager, department managers, quality managers, technical managers and shift leaders.
- The exact data and results were not available. The report of Towers Perrin could not give a breakdown of results into departments and functions because of an inadequate response. Therefore, it is not clear which units are measured and analysed.

In conclusion, the internal validity and internal consistency cannot be guaranteed based on the report of Towers Perrin and it is also not clear what the exact problems are. Raw data is not available to the company, so

further analysis is not possible. Therefore, the employee survey mostly indicates that leadership needs to be improved and it that is the start of the project.

1.2.1 EXPLORATION OF THE PROBLEM

The report of the employee survey gives some insights in the aspects that leave room for improvement regarding leadership and leaders. The results indicate that the key values of the company are not clear, the decisions made by management do not correspond with these key values, and the values and norms are not clear enough to use on a daily basis. The vision set by senior management is not inspiring, objectives are not clear, and senior management does not communicate well with the employees. The respondents thought that management is not having a good insight in work problems and that the contact between management and employees is unsatisfactory. Departmental activities are not managed well enough; moreover, the respondents think that their leader is not a good leader. The leaders are not open to suggestions for change and do not actively act to these suggestions (Report Employee Survey, 2008).

Company X is taking some actions for improvement by means of the results of the employee survey. The working group communication improved the written communication, like the communication boards in the hall ways and the establishment of a monthly paper to provide information about activities but also about the performance. Furthermore, company X tries to formulate and communicate the values, norms and objectives more clearly, so that a translation to departmental and individual level is possible. Leaders are participating in a training program about performance interviews in order to implement these interviews in the short term. The first assessment interviews need to take place before June 2010. The interviews will give the leader and employee the opportunity to discuss expectations and to identify and formulate individual objectives. The supervisors also need to participate in a social skills training.

Besides the working group leadership, there is also a working group established to improve leadership on the national level. This working group is concerned with leadership of all Dutch plants and departments. They want to determine the desired leadership behaviours and competencies from the top level (i.e. the plant managers) of the Dutch plants and undertake necessary actions. An external advisor will be hired to guide this project.

To elaborate the problems regarding leadership within company X, unstructured in-depth interviews were conducted with the working group members, and a meeting with the working group took place to see what the problems are with regard to leadership according to them. The members mentioned some practical problems, like upholding the rules and discipline. Some leaders do not hold their subordinates accountable when they exceed those rules, or they are indeed exceeding those rules by themselves. It seems that some leaders are not good 'role models'. Furthermore, most decisions are made centrally and changes are implemented top down. It is also indicated that leaders are too much focussed on results instead of people. However, the main problem appears to be that it is not clear what leadership behaviours are expected from the leaders because Towers and Perrin did not define the desirable leadership behaviours specifically enough.

The working group considered situational leadership which identifies four types of appropriate leadership styles that correspond to four levels of subordinate maturity from the Situational Leadership Theory (SLT): directing, coaching, supporting, and delegating. However, it is questionable if this theory is appropriate, which will be explained in the next chapter. As mentioned before, the results of the employee survey suggest that leadership is a key driver for employee commitment and should be developed to improve employee commitment. Therefore, the working group determined that the leadership behaviours should be studied as it could contribute to the employee commitment and hence to the overall performances.

1.3 RESEARCH OBJECTIVE AND RESEARCH QUESTIONS

The research objective is to give recommendations for leadership improvement within the production departments of company X to build commitment and improve performances. The following main research question is formulated:

In which way could company X improve the leadership behaviours of the supervisors within the production departments in order to build commitment and improve performance?

In order to answer this research question, several sub questions need to be formulated. First, it is important to know what is known in the literature about leadership, employee commitment, performance, and the expected relations between these subjects. This will be elaborated in the next chapter and then a conceptual research model will be developed and sub questions will be formulated.

The methods used in this study will be elaborated in chapter 3. The results will be analysed in chapter 4 and the conclusions and recommendations will be discussed in chapter 5.

2 THEORETICAL FRAMEWORK

This project will be performed in the context of Human Resource Management (HRM). “HRM refers to all those activities associated with the management of work and people in firms and in other formal organisations” (Boxal & Purcell, 2008, p. 1). As described before, the research objective of this project is to give recommendations for leadership improvement within the production departments of company X to build commitment and improve performance. Although management and leadership are often used as interchangeable concepts, leadership is a broader concept than management (Hersey & Blanchard, 1988). Management could be seen as a type of leadership in which the achievement of organisational goals is dominant, and leadership occurs when someone tries to influence the behaviour of an individual or group, for one’s self interest or the interest of others, congruent or not with organisational goals (Hersey & Blanchard, 1988). Moreover, leadership considers “discretionary activities and processes that are beyond the manager’s role requirements as mandated by rules, regulations, and procedures” (Bass & Bass, 2008, p. 653). Leaders are for instance concerned with the interpersonal interaction and positive working relations, and managers on the other hand are concerned with activities like planning, coordinating and staffing (Bass & Bass, 2008). This project is concerned with the broader concept of leadership. In this chapter, theories about leadership, commitment and performance will be discussed in order to develop a research model.

2.1 LEADERSHIP THEORY

In 2008, Bass and Bass described in their handbook of leadership that there are many possible ways to define leadership. The definition of leadership depends on the purposes to be served and several types of leaders can be distinguished according to some of these definitions on the basis of role, function, or context (Bass & Bass, 2008). The essence of the several definitions is that leadership could be seen “as the interaction among members of a group that initiates and maintains improved expectations and competence of the group to solve problems or to attain goals” (Bass & Bass, 2008, p. 26). Furthermore, the emergence and consequences of leadership can be explained by different theories, and the interaction between the variables that are expected to be involved can be illustrated by various models (Bass & Bass, 2008). Hersey and Blanchard (1988) reviewed several models and theories of leadership. They describe that attitudinal models and theories, like the theory X and theory Y of McGregor (1960) and the managerial grid of Blake and Mouton (1964), suggest that there is ‘one best’ style of leadership. In contrast, situational theorists argue that there is no ‘one best’ style of leadership and that successful and effective leaders can adapt their style to the situation (Hersey & Blanchard, 1988).

The situational leadership theory considers the emergence of leadership as the result of situational factors like time, place, and circumstance (Hersey & Blanchard, 1988). The situational leadership model of Hersey and Blanchard (1988) is based on the interplay among the amount of task behaviour and relationship behaviour of the leader, and the readiness level of followers. Moreover, the emphasis is on the behaviour of the leader in relation to followers and which leadership style should be used depends on the readiness level (i.e. the ability an individual or group brings to a particular task or activity and the willingness to accomplish a specific task) of the people the leader is attempting to influence. So contrary to the attitudinal models and theories, the model of Hersey and Blanchard (1988) is focused on behavioural dimensions and it illustrates how people behave instead of what the attitudes are towards tasks and relations. Other examples of behavioural theories of leadership are the path-goal theory (House & Mitchell, 1974), LMX theory (Graen & Cashman, 1975), and the normative decision theory (Vroom & Yetton, 1973).

The situational leadership theory of Hersey and Blanchard has undergone several revisions according to Thompson and Vecchio (2009). The authors tested three versions of the situational leadership theory to see if the theory is a good predictor of subordinate performance and attitudes. Their findings did not provide clear support for the theory, in any of its versions (Thompson & Vecchio, 2009). Additionally, Bass and Riggio (2006)

noticed that situational factors are important to consider, but leadership has also its impact regardless of situational contingencies. In other words, the emergence and effectiveness is influenced by situational contingencies, but it should not depend on it. The situational leadership theory is also focused on task-oriented versus relations-oriented leadership, which is according to Bass and Bass (2008) one of the opposing leadership styles. Other opposing leadership styles are autocratic versus democratic leadership, directive versus participative leadership, and initiation versus consideration leadership (Bass & Bass, 2008). It is suggested that relations-oriented, participative, and considerate leadership can be included in democratic leadership and the opposing leadership styles in autocratic leadership (Bass & Bass, 2008). Contrary to the opposing leadership styles, Bass and Riggio (2006) argued that the best leaders are both transactional and transformational where the opposing styles are integrated which is more effective (Bass, 1998, as cited by Bass & Bass, 2008). Transactional leadership is more task-oriented, autocratic and directive, and transformational leadership is more relations-oriented, democratic and participative (Bass & Riggio, 2006). Contrasting to the situational leadership theory, there is not a focus on task-oriented versus relations-oriented leadership because transformational leaders can be both (Bass & Riggio, 2006). The transformational leadership theories also emphasise emotions and values instead of rational processes that are emphasised by the traditional leadership theories (Yukl, 1999).

The transformational leadership theory is one of the most recent and important leadership theories (Mesu, Van Riemsdijk & Sanders, 2009). Previous research revealed that transformational leadership can be found in all parts of the globe, in every sector, and in all forms of organisations and settings (Bass & Riggio, 2006). Although the best leaders integrate a highly task-oriented and a highly relations-oriented leadership approach, it is also argued that leaders need to become more transformational to be more effective (Bass & Riggio, 2006). The effectiveness of leadership can be measured with measures of organisational and individual outcomes. The results of previous studies suggest that transformational leadership is positively related to organisational performance and leader effectiveness (i.e. subordinate satisfaction, motivation, and performance), and that commitment and loyalty to an organisation can be built through transformational leadership (Bass & Riggio, 2006). According to Podsakoff et al. (1990), followers of transformational leaders are better organisational citizens when they trust their leader and when they are satisfied with their leader. This will result in a follower motivation to do more than they are expected to do (Bass & Riggio, 2006). Furthermore, transformational leadership contributes to coping with stress and crisis conditions, and transformational leaders could also develop the leadership competences of their followers, and its helps them to start and implement change processes (Bass & Riggio, 2006). For this project, two outcomes will be measured to see which leadership styles are effective: the individual outcome commitment and the organisational outcome performance. This will be explained later on.

In conclusion, there are several leadership theories but the best leaders are both task-oriented and relations-oriented. Therefore, this project will be concerned with the transformational leadership theory. There is not one best style, the emergence and effectiveness of leadership is also influenced by situational factors or contingencies. The transformational leadership theory will be further described and explained in the next section, including these contingencies.

2.1.1 TRANSFORMATIONAL LEADERSHIP THEORY

In 1978, Burns conceptualised leadership as one dimensional and in either transactional or transformational. Bass and Riggio (2006) argued that transactional and transformational leadership are complementary and multidimensional constructs and Burns agreed on this (Bass & Bass, 2008). Transactional leaders lead through social exchange and they reward or discipline the follower, based on performance (Bass & Riggio, 2006). They clarify the responsibilities, the tasks, and the performance objectives of the followers, and make the benefits to the self-interest of the followers for fulfilment clear (Epitropaki & Martin, 2005). They operate within the boundaries of an existing system or culture, like to avoid risks, and like to monitor current activities against

prior performances (Epitropaki & Martin, 2005; Lowe et al., 1996). Transformational leaders, on the other hand, do more than set up simple exchanges or agreements (Bass & Riggio, 2006). They stimulate and inspire followers to achieve excellent results and to develop their own leadership capacity (Bass & Riggio, 2006). They act as mentors and pay attention to the individual developmental, learning and achievement needs of each subordinate, and they provide meaning, challenge, a sense of mission and higher vision, gain respect and trust, and acts as role models for their employees (Epitropaki & Martin, 2005).

The two leadership dimensions are complementary because transactional leadership provides direction and focus (Hinkin & Schriesheim, 2008) and the transformational leader could make use of transactional strategies (Lowe, Kroeck & Sivasubramanian, 1996). In fact, transactional leadership could be seen as a requirement for transformational leadership to be effective because a lack of direction and focus could result in confusion and ambiguity (Hinkin & Schriesheim, 2008). In addition, transformational leadership is likely to be ineffective in the total absence of transactional relationships between leaders and subordinates (Lowe et al., 1996). Bass and Riggio (2006) argued that the best leaders are both transactional and transformational, but transformational leadership is seen as the most effective leadership style. The transformational approach to leadership “assumes that it is the leader’s transformational behaviour that is the key to improving leadership effectiveness” (Podsakoff, MacKenzie & Bommer, 1996, p. 261).

The Full Range Leadership (FRL) model differentiates three typologies of leadership behaviour: transformational, transactional and laissez-faire leadership, and their components (Bass & Riggio, 2006). There are four dimensions of transformational leadership and can be conceptualised as follows (Bass & Bass, 2008; Bass & Riggio, 2006):

- **Idealized Influence (II):** Leaders are admired, respected and trusted. Followers identify themselves with their leader and want to emulate; the leader serves as a role model. The leader considers followers’ needs over its own needs and is willing to take and share risks and is consistent in conduct with underlying ethics, principles and values. Idealized influence consists of two factors: the leaders’ behaviours and the elements that are attributed to the leader by followers and others.
- **Inspirational Motivation (IM):** Transformational leaders behave in ways that motivate and inspire those around them by providing a meaning and challenge to their followers’ work. Enthusiasm and optimism are displayed, and they create clearly communicated expectations that followers want to meet and also demonstrate commitment to goals and the shared vision.
- **Intellectual Stimulation (IS):** Transformational leaders stimulate their followers’ effort to be innovative and creative by questioning assumptions, reframing problems, and approach old situations in new ways. There is no ridicule or public criticism of individual member’s mistakes or ideas.
- **Individualized Consideration (IC):** Transformational leaders pay attention to each individual’s need for achievement and growth by acting as a coach or mentor. Individual differences in terms of needs and desires are recognised. A two-way exchange in communication is encouraged, and management by walking around workspaces is practiced. Moreover, individual consideration is practiced when new learning opportunities are created along with a supportive climate.

The three dimensions of transactional leadership can be conceptualised as follows (Bass & Riggio, 2006; Bass et al., 2003; Bass & Steidlmeier, 1999; Hinkin & Schriesheim, 2008):

- **Contingent Reward (CR):** Contingent reward leadership involves the leader assigning or obtaining follower agreement on what needs to be done with promised or actual rewards offered in exchange for satisfactorily carrying out an assignment. It is a timely positive response to desired performance.
- **Management-by-Exception Active (MBE-A):** The leader monitors subordinate behaviour, deviances from standards, mistakes, and errors in the follower’s assignments and takes corrective action as necessary. Standards for compliance will be specified, and when followers are being out of compliance with those

standards, the leader may punish them. MBE-A may be required and effective in some situations, for example when safety is important.

- **Management-by-Exception Passive (MBE-P):** The leader undertakes interventions after mistakes are happen or when problems arise. The leader will wait passively for deviances, mistakes and errors to occur before taking corrective action with negative feedback or reprimands. MBE-P can be required when the span of control is high.

Laissez-Faire leadership can be conceptualised as follows (Bass & Riggio, 2006; Bass et al, 2003; Hinkin & Schriesheim, 2008):

- **Laissez-Faire (LF):** Laissez-faire leadership is the avoidance or absence of leadership, and is the most inactive and ineffective leadership style. It represents a non-transaction. Laissez-faire leaders avoid decision making, give up responsibility, and do not use their authority. The leader takes no action after mistakes are happen.

The Multifactor Leadership Questionnaire (MLQ) is an instrument which considers the FRL to measure transformational and transactional leadership behaviours (Bass & Riggio, 2006). In 1997, Bass and Riggio revised the MLQ of 1990, and developed the MLQ (5x). Every leader displays each style to some amount, but the optimal profile (see also figure 2) could be achieved when a leader displays the transformational components most frequently and laissez-faire leadership least frequently (Bass & Riggio, 2006). It seems that the four transformational leadership components and CR are effective and belong to the active part of the FRL, and MBE-A lies somewhat in the middle and can work depending on the circumstances (Bass & Riggio, 2006). MBE-P and LF are seen as ineffective leadership behaviours and belong to the passive part of the FRL. Moreover, there is some substantial overlap between the MBE-P and LF leadership (Den Hartog et al., 1997; Hinkin & Schriesheim, 2008). Leaders who tend to use MBE-P also tend to use LF, and the two measures are difficult to distinguish for respondents because the items are focused on the same passive leadership domain. Den Hartog et al. (1997) argued that the distinction between MBE-P and LF cannot be measured clearly with the MLQ. Mesu et al. (2009) included the transactional components separately rather than as a combination because MBE-P seems to be more closely related to LF than to MBE-A and CR could be highly intercorrelated with the transformational components (Lowe et al., 1996).

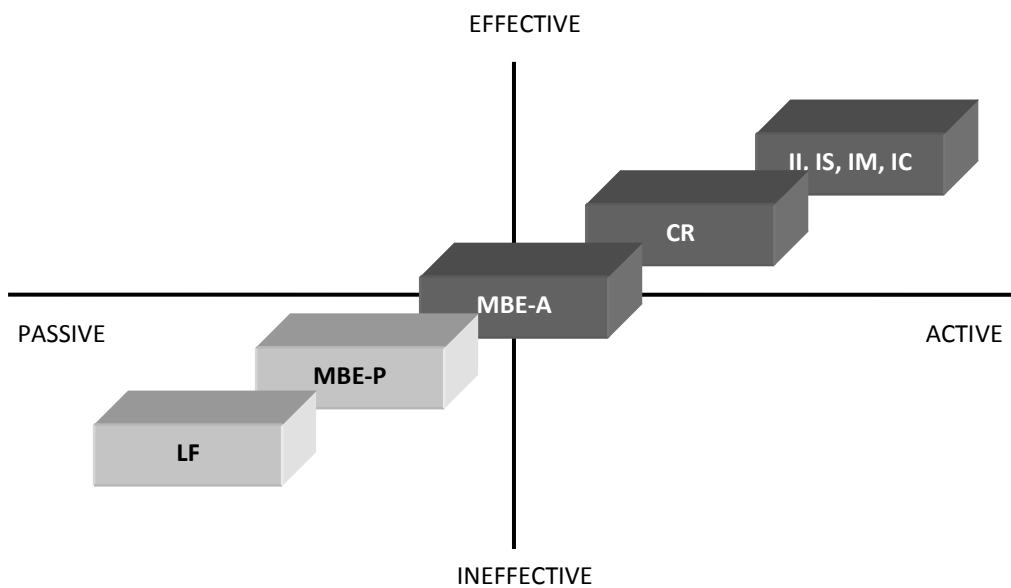


Figure 1: The model of the Full Range of Leadership: Optimal profile (Bass & Riggio, 2006, p. 9).

2.1.2 FEEDBACK

Feedback provided by the leader plays an important role in individual behaviour and performance (Ashford & Tsui, 1991). It involves an interaction between a supervisor and a subordinate, and the Leader Member Exchange (LMX) is part of the social context of feedback because supervisors differentiate among their subordinates (Steelman, Levy & Snell, 2004). Theories of transformational leadership hypothesise that most leaders engage in transactional forms of leader behaviour by providing feedback contingent on performance and that exceptional leaders go beyond this and also engage in transformational forms of leader behaviour (MacKenzie et al., 2001). Kerr and Jermier (1978) described that “task-provided feedback is often: (1) the most immediate source of feedback given the infrequency of performance appraisal sessions; (2) the most accurate source of feedback given the problems of measuring the performance of others; and (3) the most self-evaluation evoking and intrinsically motivating source of feedback given the controlling and informational aspects of feedback from others” (p. 379). However, as described by Shea and Howell (1999), when feedback mechanism about the adequacy of performance is unavailable, relations-oriented leadership is likely to be more important.

Supervisory feedback can be conceptualised as positive output feedback, negative output feedback, positive behavioural feedback, and negative behavioural feedback (Jaworski & Kohli, 1991). The feedback types influence performances, behaviour and the satisfaction with the supervisor. Positive output and behavioural feedback is positively related to performance and satisfaction (Jaworski & Kohli, 1991). Both positive and negative feedback have an information role. Positive feedback has an information value because it indicates what a person does well so that such behaviour can be repeated (Ashford & Tsui, 1991), and negative feedback has an information role because it enables subordinates to improve poor performance (Jaworski & Kohli, 1991). Besides the informational function, positive feedback has also a motivational function; it reminds subordinates that their performance is being monitored and that future rewards are contingent upon performance, and therefore it motivates them to perform at higher levels (Jaworski & Kohli, 1991).

Steelman et al. (2004) recognised more facets of feedback in addition to positive and negative feedback and developed the Feedback Environment Scale (FES) to help inform the feedback process in organisations. The feedback environment consists of the contextual or situational characteristics of the feedback process and not only the amount and availability of positive and negative feedback (Steelman et al., 2004). The FES postulates two factors: the supervisor source and co-worker source, and seven facets: (1) source credibility (i.e. feedback source’s expertise and trustworthiness), (2) feedback quality (i.e. the consistency and usefulness of the feedback), (3) feedback delivery (i.e. the intention of the source to deliver feedback), (4) favourable feedback (i.e. the perceived frequency of positive feedback), (5) unfavourable feedback (i.e. the perceived frequency of negative feedback), (6) source availability (i.e. the perceived amount of contact between supervisor and/or co-worker and the ease with which feedback can be obtained), and (7) promotes feedback seeking (i.e. the extent to which the environment is supportive or unsupportive of feedback seeking). The authors developed 63 items to measure the seven facets for both factors, whereof 32 supervisor items which are relevant for this project. Not all 32 items can be used because of the length of the questionnaire; some items need to be dropped out.

The first item, source credibility, is related to trust. Trust in the leaders has become an important issue in the study of leadership (Bass & Bass, 2008) and transformational leaders appeared to generate more trust than transactional leaders (Den Hartog et al., 1997). Moreover, the transformational leadership behaviours account for more variance in follower trust in comparison to the leadership substitutes (Podsakoff et al., 1996). However, the results of previous research of the influence of trust in the supervisor on the relationship between leadership and criterion variables are ambiguous. For instance, the study of Podsakoff, MacKenzie, Moorman, and Fetter (1990) showed that trust strongly moderates between leadership and the criterion variable organisational citizenship behaviour (OCB). Contrary to these results, the results of the study of Mesu et al. (2009) indicated that there was no significant moderating or mediating effects of trust on the criterion

variables in-role (IRB) and extra-role behaviour (OCB). Besides, trust is also somewhat included in the transformational leadership behaviour Idealized Influence. Therefore, it seems efficient to exclude this item.

As mentioned before, most leaders engage in transactional forms of leader behaviour by providing feedback contingent on performance and that exceptional leaders go beyond this and also engage in transformational forms of leader behaviour (MacKenzie et al., 2001). The authors described two forms of feedback, positive feedback which is related contingent reward and negative feedback which is related to contingent punishment and management-by-exception. Negative feedback could be seen destructive criticism when the feedback is only given when something goes wrong (Bee & Bee, 1996) and therefore is probably related to the passive leadership behaviours. This means that the fourth item favourable feedback and the fifth item unfavourable feedback of Steelman et al. (2004) are comparable to the leadership components that are included in the MLQ. Therefore, it seems to be efficient to exclude these feedback items. It has also been chosen to exclude the sixth item source availability and the seventh item promotes feedback seeking.

What remains is the second and third facet; feedback quality and feedback delivery. Steelman et al. (2004) described that high-quality feedback is more useful than low-quality feedback. The quality of feedback refers to the informational value of feedback which is important because it influences the acceptance and willingness to respond to the feedback (Steelman et al., 2004). Feedback delivery also includes this; the more considerate the feedback source, the more likely a subordinate accepts and responds to the feedback (Steelman et al., 2004). The information value is important because it is suggested that individuals are satisfied with feedback when it provides valuable information that is useful for performing their tasks (Steelman et al., 2004). Mesu (in press) includes the items of feedback quality and feedback delivery and one item of source credibility in his leadership research. These translated 11 items will also be included in this research.

So far, the different leadership typologies and components are described. Although it is suggested that leaders should become more transformational to be effective, the emergence and effectiveness is also influenced by contextual factors which will be described in the next section.

2.2 CONTEXTUAL FACTORS

As mentioned before, transformational leadership can be found in all parts of the globe, in every sector, and in all forms of organisations and settings (Bass & Riggio, 2006). However, there are factors or contingencies that affect the emergence and effectiveness of transactional and transformational leadership; there is not 'one best' way (Bass & Riggio, 2006). In this section, the different factors that could have an influence on the emergence and effectiveness of leadership will be discussed. Bass and Riggio (2006) mentioned several factors that could influence the effectiveness of a leader, like the characteristics of subordinates, tasks and organisations, also known as leadership substitutes. Finally, to comply with the request of the principal of the project, organisational culture will be included in this project. Organisational culture could have direct effects on organisational or individual outcomes and interactive effects with leadership.

2.2.1 LEADERSHIP SUBSTITUTES

The relationship between leader behaviour and subordinate satisfaction, morale and performance is influenced by a variety of individual, task, and organisational characteristics that act as substitutes or neutralizers for leadership (Kerr & Jermier, 1978). A substitute is defined "to be a person or thing acting or used in place of another" and "it may be used to describe characteristics which render relationship and/or task-oriented leadership not only impossible but also unnecessary", and a neutralizer "is able to paralyze, destroy, or counteract the effectiveness of something else" (Kerr & Jermier, 1978, p. 395). Howell, Dorfman and Kerr (1986) noticed that the individual, task and organisational characteristics could also enhance the relationships between particular leader behaviours and subordinate outcomes. Bass and Bass (2008) also mentioned that

the characteristics could supplement the leader-outcome relationship without cancelling or enhancing the leader's direct effects. In short, the leadership substitutes could be moderators that affect the nature of the relationship between two other variables, without necessarily being correlated with either of them (Howell et al., 1986). Besides the moderating effect of contingencies, they could also act as explanatory variables; substitute variables could predict variances and may give an explanation for these variances (Yukl, 1994).

Previous research found that the effects of transactional and transformational leader behaviour were moderated by situational variations (Podsakoff, Niehoff, MacKenzie, & Williams, 1993a; Podsakoff, MacKenzie, & Fetter, 1993b; Podsakoff, MacKenzie & Bommer, 1996). The findings indicated that several criterion variables were significantly influenced by at least one group of substitute variables and at least one group of leader behaviours. However, the results of the different studies are not consistent. Podsakoff and colleagues argued that it is untimely to conclude that the substitutes for leadership do substitute for leadership or not because a careful examination of the factors that might have disguised the moderating effects of the substitute variables is needed. Although it is suggested by Bass and Riggio (2006) that the effects of substitutes for leadership are important to examine because they do matter, in the scope of this project, the leadership substitutes will not be examined because of the small sample size.

2.2.2 ORGANISATIONAL CULTURE

Leadership effects on organisational outcomes occur only under some conditions, "the situation makes the hero" (Tsui et al., 2006, p. 115). Factors as the characteristics of individuals, tasks or organisations can act as substitutes for leadership, but also organisational culture could be seen as an organisational condition (Tsui et al., 2006). "An organisational culture is the glue that holds the organisation together as a source of identity and distinctive competence" (Bass & Avolio, 1992, p. 15). There is an interplay between culture and leadership. Leaders create and reinforce norms and behaviours within the culture. Moreover, "norms develop because of what leader stress as important, how they deal with crisis, the way they provide role models, and whom they attract to join them in their organisations" (Bass & Riggio, 2006, p. 100). Leaders contribute to the essence of an organisation's culture through their actions and behaviours (Tsui et al., 2006). The organisational culture also affects the development of leadership because leaders need to pay attention to the rites, beliefs, values, and assumptions embedded in the organisational culture (Bass & Riggio, 2006). Bass and Riggio (2006) argued that it is important to understand the nature of an organisation's culture because organisational culture can have direct effect on organisational outcomes and interactive effects with leadership. Organisational culture is for instance related to both performance at the firm level and commitment at the individual level (Tsui et al., 2006).

Organisations could maintain cultures that are characterised by transactional and transformational leadership (Bass & Avolio, 1992). Organisations should move in the direction of more transformational qualities in their culture while also maintaining effective transactional qualities (Bass & Avolio, 1992). Bass and Avolio (1992) developed the Organisational Description Questionnaire (ODQ) to measure the transactional and transformational elements in the organisational culture and to understand how transformational and transactional leadership interact with elements of organisational culture. Although the ODQ of Bass and Avolio seems to be an appropriate measure in the context of this project and the discussed leadership behaviours, the items that are included in the questionnaire are somewhat abstract. Considering the respondents, production employees, the formulation of the questions of the ODQ could be too difficult for them to understand. Given the limit of time, it is not desirable to revise the questions and to test them. This means that another measurement of organisational culture should be determined.

An alternative measurement for organisational culture is provided by Cameron and Quinn (2005) who developed the Organisational Culture Assessment Instrument (OCAI) to diagnose the culture of an organisation. The OCAI is based on the Competing Values Framework (CVF) which is one of the most influential

and extensively used quantitative research models in the area of organisational culture research (Yu & Wu, 2009). The CVF makes clear that achieving valued outcomes in each of the four quadrants is crucial for organisational effectiveness over the long term (Cameron, Quinn & DeGraff, 2006). Moreover, leaders should consider multiple outcomes in each of the quadrants and the CVF guides leaders in identifying which elements within the organisation can be emphasised and to what degree (Cameron et al., 2006). The four culture types or effectiveness criteria are: the hierarchical culture, the market culture, the clan culture, and adhocracy (Cameron & Quinn, 2005). The culture types are related to two value dimensions. The first dimension “differentiates effectiveness criteria that emphasise flexibility, discretion, and dynamism from criteria that emphasise stability, order, and control” and the second dimension “differentiates effectiveness criteria that emphasise internal orientation, integration, and unity from criteria that emphasise an external orientation” (Cameron & Quinn, 2005, p. 34). The value dimensions result in four quadrants: the internal process model, the open systems model, the rational goal model, and the human relations model (Quinn & Rohrbaugh, 1983) which represents the four culture types. Cameron and Quinn (2006, as cited by Yu & Wu, 2009, p. 38) summarized the implications of each culture type as follows:

- The hierarchy culture (internal process model) has a clear organisational structure, standardised rules and procedures, strict control, and well defined responsibilities.
- The market culture (rational goal model) focuses on the transactions with the environment outside the organisation instead of on the internal management. The organisational goal is to earn profits through market competition.
- The clan culture (human relations model) is full of shared values and common goals, an atmosphere of collectivity and mutual help, and an emphasis on empowerment and employee involvement.
- The adhocracy culture (open systems model) is like a temporary institution, which is dismissed whenever the organisational tasks are ended and reloaded rapidly whenever new tasks emerge.

These culture types can be linked to leadership behaviour. The clan and adhocracy culture facilitate transformational leadership, and the hierarchy and market culture facilitate transactional leadership. With the inclusion of organisational culture in the research, it can be determined how transactional and transformational leadership behaviours interact with the organisational culture (Bass & Riggio, 2006).

2.3 LEADERSHIP EFFECTIVENESS

So far, the different leadership behaviours are described and which variables could influence the emergence and effectiveness of those leadership behaviours. In this section, the effectiveness of leadership will be elaborated. The effectiveness of leadership can be measured in several ways. In the previous sections, it is mentioned that individual and organisational outcomes can be used to measure the effectiveness of particular leadership behaviours. In this research, leadership should be improved to build commitment and to improve performance. In other words, commitment and performance will be seen as outcome variables or criterion variables. Commitment is the individual outcome; it refers to the commitment of employees. Although performance could also be an individual outcome, in this project performance will be included as an organisational outcome. It seems that there is also a relation between these two variables. Several studies described that performance is positively influenced by commitment.

2.3.1 PERFORMANCE

Performance could be seen as a behaviour where the people’s actions have an impact on the organisation’s goals according to Wright, Gardner and Moynihan (2003). House (1999) described that there is too much emphasis on the effects of leaders on individual followers and that the effects of leaders on group and organisational performance are under-represented in the empirical literature. Previous studies that are focused on leadership and performance measures, like the studies of Podsakoff and colleagues as described in the

section about leadership substitutes, are indeed mostly focused on the effects of leadership on individual outcomes.

For instance, Wright et al. (2003) differentiated three categories of individual job behaviour that are relevant to organisational performance: in-role behaviour or task proficiency (i.e. the behaviour expected of employees, largely based on job requirements and commonly accepted norms), extra-role behaviour or organisational citizenship behaviour (i.e. the behaviour beyond the requirement of the job and which has a positive effect on organisational performance), and counter-productive or dysfunctional behaviour (i.e. in-role or extra-role behaviours that are specifically or implicitly aimed at harming the organisation). Besides these individual outcomes, they also included performance measures that are tracked by the organisation as indicators of organisational success. These measures are workers compensation expenses divided by sales, quality (i.e. 100.000 pieces per error), shrinkage (i.e. percentage of inventory loss, like spoilage), productivity (i.e. payroll expenses divided by the number of pieces), operating expenses (e.g. delivery and selling), and profitability (i.e. the operating pre-tax profit of business unit). The research of Wright et al. (2003) examined the effects of organisational commitment on a variety of important organisational performance outcomes. Employees who are committed to the organisation should be encouraged to display higher quality in-role behaviour (e.g. following safety rules), a greater volume of positive extra-role behaviour (e.g. go beyond the job to develop more efficient ways of working), engage in less counter-productive behaviour (e.g. steal or damage goods), and eventually this will result in operating performance and profitability. Even though the authors included organisational performance measures, the relation between commitment and organisational performance is measured indirectly.

Yukl (2008) argued that leaders can improve the performance of an organisation by influencing financial performance determinants. Yukle (2008) described that task-oriented behaviours are most useful for improving efficiency (e.g. improve productivity, reduce costs by eliminating unnecessary activities), change-oriented behaviours are most useful for improving adaptation (e.g. articulating an inspiring vision), and relations-oriented behaviours are most useful for improving human resources and relations (e.g. reduce stress, facilitate performance by individuals and teams). However, Yukle (2008) noticed that efforts to improve human resources and relations could reduce efficiency. For instance, providing a high level of compensation and benefits will increase employee satisfaction and willingness to remain in the organisation, but when an organisation is too generous it is difficult to remain efficient because an organisation must avoid unnecessary costs to achieve high efficiency (Yukl, 2008). Efforts to improve adaptation could also have negative effects on human relations. For instance, changes that are necessary to deal with external environment could result in sacrifices and unpopular changes that affect employees (Yukl, 2008). Nevertheless, Yukl (2008) suggested that leaders who understand the complex relationships and recognise potential tradeoffs and synergies can often find ways to avoid negative side effects and enhance more than one performance determinant at the same time.

The performance indicators that will be measured in this project are the key performance indicators (KPI's). The KPI's of company X can be differentiated in financial figures, manufacturing figures, and other KPI's (see also the table 2). The KPI's can be scored by means of the difference between the actual performance and the budgeted performance. The KPI's can be measured on the departmental level, and even some can be measured on team level. These KPI's are absenteeism and the number of accidents. It will be investigated if there is a relation between the leadership behaviours and the outcome variables, and which leader behaviours lead to the best results. As mentioned before, this relationship could be influenced by situational factors. In addition, performance could also be influenced by commitment. Therefore, it also needs to be examined if commitment has an influence on the relation between leadership behaviours and performance.

Table 1: KPI's Company X.

Financial figures	Manufacturing figures	Other KPI's
This information is restricted and unavailable.		

2.3.2 COMMITMENT

In 1979, Mowday, Steers and Porter distinguished the attitudinal commitment (i.e. the identification of the individual with an organisation and its goals and needs to maintain membership in order to facilitate these goals) which could include an exchange relationship, and behavioural commitment (i.e. the actions of individuals to link themselves to the organisation). Torka (2003) described that these approaches are concerned with the development of commitment what will be left aside in this research. Meyer and Herscovitch (2001) reviewed the various definitions of commitment in the literature and describe that all definitions in general make a reference to the fact that commitment is a stabilising force that gives direction to behaviour. As Torka (2003) described, commitment is not a behaviour, but more something that serves as a handle to explain one or more behaviours.

At first sight, most researches focussed on organisational commitment. However, other forms of commitment are also important to consider (Torka, 2003). Previous studies "demonstrated the importance of distinguishing among foci and bases of commitment", where foci of commitment "are the individuals and groups to whom an employee is attached, and bases of commitment are the motives engendering attachment" (Becker & Billings, 1993, p. 177).

2.3.2.1 BASES OF COMMITMENT

In 1974, Porter, Steers, Mowday and Boulian defined organisational commitment as "the strength of an individual's identification with and involvement in a particular organisation" (p. 604). They characterise organisational commitment by three factors: "(a) a strong belief in and acceptance of the organisation's goals and values; (b) a willingness to exert considerable effort on behalf of the organisation; (c) a definite desire to maintain organisational membership" (Porter et al., 1974, p. 604). It is an active relationship between the individuals who are willing to give something of themselves in order to contribute to the organisation's well being (Mowday et al., 1979). It involves a one-dimensional model (Meyer & Herscovitch, 2001). Moreover, the research of Porter et al. (1974) and Mowday et al. (1979) was not focused on the underlying dimensions of psychological attachment to the organisation (Allen & Meyer, 1990; O'Reilly & Chatman, 1986).

O'Reilly and Chatman (1986) and Allen and Meyer (1990) recognised the similarities and differences in the existing one-dimensional conceptualisations and measurements of organisational commitment and developed a multidimensional conceptualisation and measurement. O'Reilly and Chatman (1986) described that the construct of organisational commitment as developed by Mowday et al. (1979) has an important place in organisational behaviour research, but they also argued that this research was not focused on the underlying dimensions of psychological attachment to the organisation. The psychological attachment can be seen as a reflection of "the degree to which the individual internalises or adopts characteristics or perspectives to which the individual internalises or adopts characteristics or perspectives of the organisation" (O'Reilly & Chatman, p. 493). The approach recognised that there are underlying dimensions or bases that may vary within and across individuals and it differentiates the state of attachment. Three independent dimensions of commitment are used as the bases for one's psychological attachment to an organisation: compliance or instrumental involvement for specific extrinsic rewards; identification or involvement based on a desire for affiliation; and internalisation or involvement predicated on congruence between individual and organisational values (O'Reilly & Chatman, 1986). Allen and Meyer (1990) conceptualised attitudinal commitment "as a psychological state that reflects employees' relationship to the organisation" (p. 2) and their three component model exists of: (1)

affective organisational commitment (i.e. the employees' emotional attachment to, identification with, and involvement in the organisation), (2) continuance commitment (i.e. commitment based on the costs that employees associate with leaving the organisation), and (3) the normative commitment (i.e. the employees' feelings of obligation to remain with the organisation).

There are similarities and differences in the existing multidimensional frameworks, including the three component model of Allen and Meyer (1990) and the model of O'Reilly and Chatman (1986) (Meyer & Herscovitch, 2001). The differences are caused by details concerning the nature of the stabilising force that gives direction to behaviour, but there are also considerable similarities in the nature of the mindsets (Meyer & Herscovitch, 2001). The dimensions identification and internalisation of O'Reilly and Chatman (1986) are comparable to affective commitment of Allen and Meyer (1990) (Meyer & Herscovitch, 2001). Most models include the affective dimension and contribute to a mindset that is characterised by a desire to follow a course of action (Meyer & Herscovitch, 2001). Most models also include the mindset of continuance commitment that is characterised by the course of action of the perceived cost of failing to do so. As mentioned before, Allen and Meyer (1990) see normative commitment as a separate dimension, but Meyer and Herscovitch (2001) described that normative commitment is not always clearly distinguished in other models. However, they differentiated normative commitment from affective and continuance commitment. Meyer and Herscovitch (2001) described that commitment “ (a) is a force that binds an individual to a course of action of relevance to a target and (b) can be accompanied by different mind-sets that play a role in shaping behaviour” (p. 299). These mindsets are affective, continuance and normative commitment.

Affective commitment can be measured with the Organisational Commitment Questionnaire (OCQ) and developed scales for the other two bases of commitment (Allen & Meyer, 1990). The OCQ was developed by Porter and his colleagues and was based on the three factors of Porter et al. (1974) and Mowday et al. (1979). Therefore, affective commitment is comparable to organisational commitment as defined by Porter et al. (1974). Cook and Wall (1980) developed another three component measure because they thought that the scale of OCQ was designed for American employees, and that the phrasing of items was not appropriate for British blue collar workers. The measure of Cook and Wall included identification (i.e. the internalisation of the organisation's goals), loyalty (i.e. affection, wish to stay) and involvement (i.e. the willingness to invest personal effort as a member of the organisation, for the sake of the organisation). The measure for blue collar workers of Cook and Wall (1980) is also psychometrically adequate and stable according to Allen & Meyer (1990). However, it is suggested by Peeters and Meijer (1995, as cited by Torka, 2003) that the OCQ of Porter and colleagues and the scales of Cook and Wall are not appropriate to use for semi- and unskilled production workers. Based on interviews with metal workers, Torka (2003) developed homogeneous and reliable commitment scales, which will be explained later on.

2.3.2.2 FOCI OF COMMITMENT

Up to now, three bases of commitment are differentiated when considering organisational commitment, namely affective, normative, and continuance commitment. However, it is argued that local foci are psychologically more proximal than are global foci for most employees, and local foci are more effective than global foci in monitoring, rewarding, and influencing employee behaviour (Becker, Billings, Eveleth & Gilbert, 1996). Moreover, a distinction among individual foci and bases of commitment helps to explain the variance in key variables that explained by commitment to organisations (Becker et al., 1996). In 1993, Meyer, Allen and Smith examined the generalisability of the three component model of Meyer and Allen (1991). Meyer and Allen (1991) argued that affective, normative, and continuance commitment should be considered to achieve a better understanding of an employee's relationship with an organisation because each component develops as the result of different experiences and has different implications for on-the-job behaviour. Meyer et al. (1993) expected that the three component model could also be applied in other domains. In their study, they focused on the occupational commitment, also known as career or profession commitment in the literature. Affective

commitment can be seen in this domain as a strong desire to remain in the occupation, normative commitment refers to a sense of obligation to remain, and continuance commitment refers to the high costs associated with leaving the occupation (Meyer et al., 1993). The results of the research provided preliminary evidence for the generalisability of the three component model of commitment.

Other studies also indicate that different foci of commitment are important to consider. Several studies relate commitment to job performance, but the results are somewhat ambiguous. Previous research indicates that commitment to organisations is positively related to job satisfaction, motivation, and attendance, and negatively related to absenteeism and turnover (Becker, Billings, Eveleth & Gilbert, 1996). Moreover, the results of the research of Meyer et al. (1989) indicated that affective commitment is positively related to job performance and organisational citizenship behaviours (OCB) (Podsakoff et al., 2000), and continuance commitment was negatively related to job performance (Meyer et al., 1989). Meyer et al. (1989) stated that organisations may benefit from affective commitment, in terms of reduced turnover and superior performance, and when commitment is mostly continuance, the benefits of reduced turnover may be achieved at the price of relatively poor performance. Contrary to these findings, Torka (2003) described that previous research indicates that commitment with the organisation is not a requirement to achieve the desired employee behaviours and that affective commitment with the organisation is not significantly correlated with performance. Torka (2003) argued that the desired outcomes of commitment, like performance, are more related to tasks than to the organisation. This means that organisations are not only interested in the organisational commitment of employees, but especially in the commitment regard to tangible, task related objects, and therefore, other forms of commitment should be taken into account (Torka, 2003). And more specifically, foci of work related commitment should be considered.

Somers and Birnbaum (1998) identified five foci of work related commitment: the job, the organisation, the work group, the career, and work values, but not all forms of work related commitment are directly linked to performance. Only commitment to the job, career, and the organisation are directly linked to performance (Somers & Birnbaum, 1998). Therefore, their study was concerned with relations between job, career and organisational commitment and job performance of hospital employees. They defined the several concepts with the use of previous studies. Job commitment was defined “as psychological absorption in work activities”, and career commitment was defined as “one’s attachment to and willingness to remain in one’s present career” (p. 622). To define organisational commitment, they referred to affective and continuance commitment as described before. The authors used three dimensions of job performance: task proficiency (i.e. in-role performance), performance not tied to formal reward systems that benefits organisations (i.e. extra-role performance), and performance that is detrimental to organisations (i.e. the number of disciplinary actions). The results indicate that job commitment is related to extra-role performance and career commitment is positively related to task proficiency. Affective and continuance commitment are unrelated to the three dimensions of job performance.

The findings of Somers and Birnbaum (1998) are different from the results of Meyer et al. (1993), where organisational and occupational commitment contribute independently to the prediction of important organisational-relevant outcome variables. Moreover, organisational affective commitment correlated positively with the reported supervisor evaluation of performance, and organisational continuance commitment correlated negatively. The occupational commitment components were not significantly related with the reported supervisor evaluation of performance (Meyer et al., 1993). Becker et al. (1996) predicted that commitment to supervisors is positively related to job performance and is even more strongly linked to in-role performance than organisational commitment. They used the multidimensional model of O’Reilly and Chatman (1986). The results indicate that overall commitment to supervisors is more strongly associated with performance than commitment to organisations. However, identification and internalisation, also comparable to affective commitment, are related with in-role performance. The study of O’Reilly and Chatman (1986) indicated that identification and internalisation are also positively related to extra-role performance.

In 2003, Torka studied the relation between contract relationship and commitment of metalworkers. Torka (2003) interviewed the metalworkers to identify the general commitment mind-set. The results indicated that job commitment, commitment to the department, organisational commitment, and commitment to colleagues are the four most mentioned foci. The bases of commitment that are differentiated are the three bases of commitment: affective, continuance and normative. Torka (2003) mentioned that the OCQ of Porter et al. and the scales of Cook and Wall are not appropriate to use and therefore new commitment measures were developed based on the employee interviews. The measurement consists of 16 constructs of commitment scales, namely four foci (organisational, department, job, colleagues) and four bases (affective, normative, and two dimensions for continuance commitment). This measurement is homogeneous and reliable (Torka, 2003).

In conclusion, there are three bases of commitment: affective, normative, and continuance commitment. Besides organisational commitment there are also other foci of commitment that are important to consider. Because the units of analysis of this project are comparable to the metal workers of the study of Torka (2003), the scales seem appropriate to use. However, commitment to colleagues will not be included in this project. Furthermore, not all four bases will be included. It is suggested by Bass and Riggio (2006) that transformational leaders have the strongest influence on affective commitment. In 1995, Bycio et al. indicated that transformational leadership components are indeed strongly positively related with affective commitment and those relations are significant larger than those involving continuance and normative commitment. They also expected that continuance commitment was positively related with contingent reward, but it appeared that continuance commitment was not positively associated with contingent reward. There were significant positive correlations between normative commitment and transformational scales, but these relations were small. Based on this, the affective bases will be included. Also the normative scales will be included because the principal of the project is also interested in the employees' feelings of obligation to remain working in the company, and the results of Bycio et al. (1995) also showed that there are small positive correlations between normative commitment and the transformational scales. The effectiveness of the leadership behaviours will be related to the level of commitment of the employees. It will be examined if there are direct linkages between the leadership behaviours and employee commitment, and which leadership behaviours have the highest committed employees.

2.4 CONCEPTUAL RESEARCH MODEL AND RESEARCH QUESTIONS

The several concepts are discussed and a conceptual research model can be developed (figure 3). The (a) leadership behaviours could have an influence on the criterion variables: affective and normative employee commitment (i.e. organisational, departmental and job commitment) and organisational/departmental performance (KPI's). It is expected that transformational leadership and Contingent Reward have a positive influence on the criterion variables because, as explained in section 2.1, they are seen as effective leadership behaviours. As mentioned before, Management-by-Exception Active could be effective in some situations and because company X is a mechanistic organisation, it is expected that MBE-A also has a positive influence on the criterion variables. Furthermore, it is expected that Management-by-Exception Passive and Laissez Faire have a negative influence on employee commitment and performance because those leadership behaviours are seen as passive and ineffective leadership behaviours.

The relation between the leadership behaviours and the criterion variables could be influenced by (b) feedback and (c) organisational culture. Moreover, leadership is a behaviour and supervisors use feedback when they lead their subordinates. Therefore, it is expected that there is an interplay between leadership and feedback. It is also expected that feedback has a direct positive influence on the criterion variables and possibly influences the effectiveness of the leadership behaviours. As mentioned before, organisational culture is a contextual factor and there is an interplay between leadership and organisational culture. Moreover, organisational culture could moderate the effect of leadership on the criterion variables and could also have a direct effect.

The research objective is to give recommendations for leadership improvement within the production departments of company X to build commitment and improve performances. The main research question that was formulated is:

In which way could company X improve the leadership behaviours of the supervisors within the production departments in order to build commitment and improve performance?

Based on the theoretical framework and the conceptual framework, the following sub questions are formulated in order to answer the main research question:

1. **What leadership behaviours are displayed by the supervisors of the production departments of company X?**
2. **In which way are the leadership behaviours influencing employee commitment and performance, and which leadership behaviours are effective in the production departments of company X?**
3. **What is the quality of the feedback given by the supervisors and in which way is feedback related to the leadership behaviours and the criterion variables?**

It will be investigated what the leadership behaviours are of the supervisors within the five production departments and how effective these behaviours are by means of the level of commitment of the employees and the performance indicators. Because feedback is closely related to leadership, it needs to be investigated in which way feedback is given by the supervisors and what the effect is of feedback on the criterion variables. Subsequently, the supervisors can be compared to each other to see which leadership behaviours are effective. Finally, the leadership behaviours of the supervisors can be compared with the determined leadership behaviours to see in what way the leaders can improve their leadership behaviours.

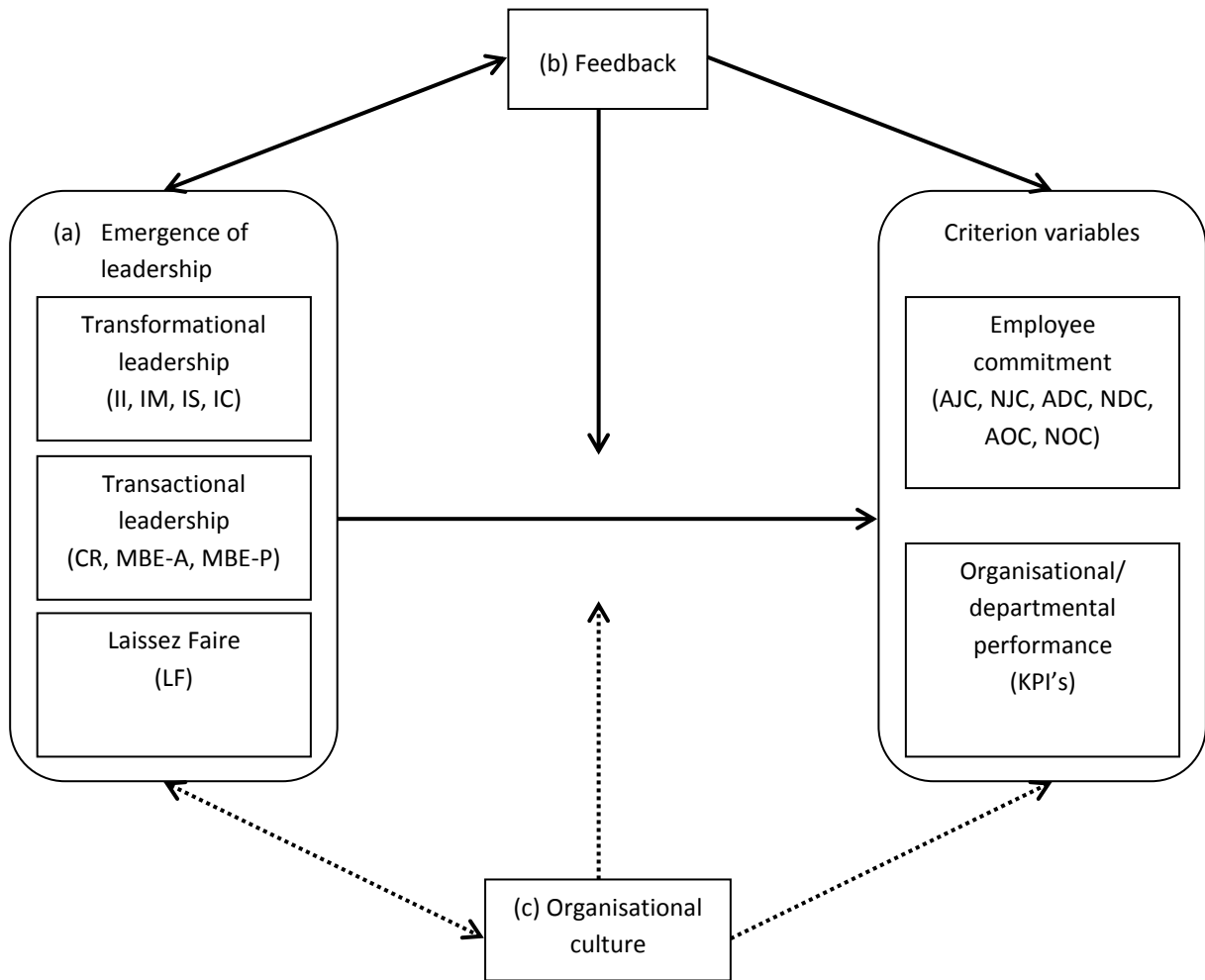


Figure 2: Developed conceptual research model.

3 METHODS

3.1 SAMPLE AND PROCEDURE

For this project, a sample was taken from five production departments of company X. Three levels of supervisors were differentiated: (1) the plant manager, (2) the department managers who report to the plant manager, and (3) the foremen, and the technical and quality assistants who report to their department managers.

The research took place in May and June 2010. All the supervisors of the departments were asked to cooperate and to complete the questionnaire by themselves. The supervisors were also asked to inform their employees about the research and to motivate and stimulate them to participate in the research. It was possible for the supervisors to ask the researcher to inform their employees personally in (shift) meetings. The plant manager and the department managers were informed by the researcher and the third level supervisors of the Department 1 department, the Department 2 department, and the Department 4 department were also personally informed. Those supervisors informed their employees by themselves in (shift) meetings. The employees of the Department 3 department were personally informed by the researcher in a department meeting and the three teams of the Department 5 were informed in their weekly shift meetings. Besides this, the researcher walked around the production departments to see what the progress was and to draw attention to the questionnaire. The researcher also answered questions about the research. The supervisors gave the employees the time to fill in the questionnaire at work. Some supervisors even stopped the production lines. However, the participation was voluntary, so the employees were not forced to participate. Furthermore, the respondents were encouraged to answer all questions honestly and it was guaranteed that their responses were strictly confidential.

Of the X employees, X employees (including supervisors and temp workers) completed the questionnaire. This is a response rate of 60% which is good (Babbie, 2007). There were some respondents who did not fill in their personal information completely. The reason for this could be that they think that the information could be misused. This means that this information is not available of all X employees. The characteristics of the respondents can be found in table 3 and a specification per department can be found in appendix A.

When specifically looking to the supervisors, there is one plant manager who is responsible for all production departments, and there are four department managers. The Department 4 is not having a department manager at this moment because the previous department manager left a few months ago and there was no replacement. There are 15 foremen, 5 technical assistants, 4 quality assistants, 1 coordinator, 1 production manager, and 1 head of logistics. So in total, there are 32 supervisors. Of all 32 supervisors, 9 supervisors had less than three subordinates of their team who completed the questionnaire. Those supervisors will be excluded for further analysis which means that 23 supervisors had enough response. The two foremen of the Department 5 department lead three teams. Therefore, on 50% of the questionnaires the name of foreman 1 was filled in and on the other 50% the name of foreman 2 in order to give both foremen an equal chance to be rated. Also the shift numbers were already filled in to see possible differences between the teams. The three technical team supporters (i.e. sort of working foremen) were asked to fill in the sections with regard to their direct supervisor for both foremen. It has been chosen to include the two supervisors and three teams separately to create a larger sample (n=27).

Table 2: Characteristics respondents.

Characteristics	Respondents in %
<i>[This is information is restricted and unavailable.]</i>	

3.2 NON-RESPONSE

When looking to the response per department and per supervisor, most supervisors had a response of more than 50%. Department 3 had a very low response (26%). This low response could have several reasons. First, recently the production lines and about ten employees of the company X plant of X were moved to this department which could have caused some irregularities and resistance to complete the questionnaire. Second, some employees made known that they did not want to complete the questionnaire because it was not fully anonymous and they thought that the questionnaire could be misused. Although it was communicated that only the researcher could gain insight into the personal information and that the reports would be made in a way so that it is not possible to associate the results with personal answers, the employees remained suspicious. The non-response of the other departments could also be explained by this. Other reasons could be that employees are ill or they were on a holiday when the questionnaires were handed out. Some employees explained that they thought that nothing will happen with the results and they are somewhat 'research tired'. Another important reason could be that the respondents who participated are more committed to the organisation in comparison to the non-respondents, or the other way around. However, this cannot be proven. Respondents could be more unsatisfied with their supervisor than the non-respondents and feel called to make their opinion known. It should also be noticed that there are some questionnaires that are returned empty. It could be that the employees are encouraged to participate but they actually did not want to participate. However, the exact reason for the empty questionnaires remained unclear, but it should not be ignored because it could be a signal.

To see if the non-responses caused biases, the characteristics of the respondents were compared with the workforce. Only the employees in the pay of company X were selected because there was no information available of the employees that were not in the pay of company X. There was also no information available of the educational level of the workforce, so unfortunately it could not be examined if the observed counts are consistent with the actual distribution of the workforce. The results of the chi-square goodness-of-fit test showed that the observed counts are consistent with the distribution of the workforce (see also appendix B). Therefore, it can be concluded that the sample is representative with respect to the given characteristics.

3.3 MEASURES

The data were gathered with the use of a questionnaire. The first part of the questionnaire contained general questions where the respondents were asked to fill in their function, the department where they were working, the name of their direct supervisor, their gender (i.e. male or female), their age, their highest completed education (i.e. primary education, lower vocational education, lower general secondary education, intermediate vocational education, higher general secondary education, higher vocational education, and university), the number of years of service, the type of contract (i.e. in the pay of company X with a permanent contract, in the pay of company X with a temporary contract, not in the pay of company X, and a student), and their occupational status (i.e. fulltime or part-time). The leadership behaviours were measured with the MLQ (5x) (Bass & Avolio, 2004) on a 5-point Likert scale ranging from never to very frequently. The feedback scales were measured with the translated scales of the FES (Steelman et al, 2004) of Mesu (in press) on a 5-point Likert scale ranging from strongly disagree to strongly agree. The commitment scales of Torka (2005) were used and were measured on a 5-point Likert Scale ranging from strongly disagree to strongly agree. Organisational culture was measured with the OCAI (Cameron & Quinn, 2005) with the use of a response scale in which the respondents divided 100 points among all alternatives (Cameron & Quinn, 2005).

The original scales of employee commitment and organisational culture display a pattern. For instance all first questions of the six groups of the OCAI displayed clan culture. To prevent that respondents automatically fill in their scores, the alternatives were mixed first. The same is true for the commitment scales.

4 ANALYSIS AND RESULTS

In this chapter, the results will be analysed and discussed. First, a missing values analysis, a factor analysis, and an internal consistency reliability analysis will be performed to determine the variables that eventually be used for further analysis. Second, the descriptive statistics will be analysed to get a first impression. Finally, the aggregated and individual effects on the criterion variables will be analysed.

4.1 MISSING VALUES ANALYSIS

Missing values are the variables that do not have valid values for all cases (Huizingh, 2007). The reasons for this are various; for instance, respondents refused to answer a question or they were unable to answer a question (Huizingh, 2007). A missing value analysis (MVA) addresses several concerns caused by incomplete data. A complete overview of the results of the MVA can be found in appendix C.

It seemed that the data with regard to the personal information was not missing completely random. However, as mentioned in the previous chapter, the sample is representative with respect to the given characteristics. When looking to the leadership part, some respondents did not answer all 32 questions, but the data were missing completely at random. The same is true for the questions with regard to feedback. The data with regard to employee commitment were not missing completely at random. However, the missing values percentages of the commitment items varied between 0-1.9%. The organisational culture part had relatively the highest number of missing values, but the pattern is completely random. So, based on the MVA it can be concluded that there is no reason for concern.

4.2 FACTOR ANALYSIS

The psychometric properties of the scales used in this research need to be examined before the impact of the leadership behaviours on employee commitment and KPI's can be assessed. This will be done by an exploratory factor analysis. This makes it possible to reduce the dimensions. The major findings will be described and an extensive description of the results can be found in appendix D.

The eight leadership dimensions of transformational, transactional and Laissez Faire leadership were loaded on one single factor. The four dimensions of transformational leadership (II, IS, IM, IC) and two dimensions of transactional leadership (CR and MBE-A) loaded positively on a single factor, and one dimension of transactional leadership (MBE-P) and Laissez faire loaded negatively on a single factor. As mentioned before, previous research found some substantial overlap between the passive leadership behaviours (i.e. MBE-P and LF) and Contingent Reward could be highly intercorrelated with the transformational components. Bass and Riggio (2006) also mentioned the interdependence between the leadership behaviours. In this research a clear distinction could be made between active and passive leadership, where the transformational leadership behaviours, Contingent Reward and Management-by-Exception Active are seen as active leadership behaviours, and Management-by-Exception Passive and Laissez Faire as passive leadership behaviours. Because of the interdependence between the leadership behaviours, a supervisor who behaves more actively will probably behave less passively, and a supervisor who behaves more passively will behave less actively. This means that the extent of active leadership can be calculated by taking the mean of active leadership plus one minus passive leadership (i.e. non-passive leadership). To create a more simple model, the eight dimensions will be reduced into one variable, named total leadership, which indicates the extent of active leadership.

Second, the results of the factor analysis indicated that the items of the three feedback dimensions (i.e. source credibility, feedback quality, and feedback delivery) loaded on a single factor. Therefore, we reduce the feedback dimensions into one variable as well for further analysis, namely feedback. Third, the items of the six employee commitment dimensions were loaded on one single factor too, so these dimensions can also be reduced into one variable, namely employee commitment. However, there is a difference between the bases

and foci of commitment, so also the effects on the affective and normative bases will be measured and the effects on the foci of employee commitment. Finally, there were some problems with the factor analysis of the four typologies of organisational culture. The items did not load on their intended factors and some items were not loaded above 0.3. The results of the internal consistency reliability analysis, which will be discussed in the next section, could possibly provide more information about the problematic results.

4.3 INTERNAL CONSISTENCY RELIABILITY

Reliability refers to consistency (Saunders et al., 2007). The consistency of scales is usually measured using Cronbach's alpha and it is desirable that the Cronbach's alpha is at least 0.60 (Baarda, De Goede, & Van Dijkum, 2003). The Cronbach's alpha's for all the 20 scales, the number of items (N of items), the number of valid respondents (N of resp.), the mean scores, and the standard deviations (SD) can be found in appendix E. The reliability analysis also gave the Cronbach's alpha when an item was deleted. The last two columns show the new number of items when an item was deleted and the new alpha.

The results of the internal consistency reliability analysis indicated that most scales had a standardised Cronbach's alpha of at least 0.60. The internal consistency of Individualized Consideration increased from 0.739 to 0.813 by deleting one item. However, it has been chosen to include all four items of IC. The results of the internal consistency reliability analysis of the organisational culture scales show some difficulties. Three scales had an alpha below 0.60, and even when items were deleted the alpha of two scales remained low. Because the results of the factor analysis, as discussed in the previous section, also showed some difficulties, it has been chosen to exclude organisational culture from further analysis.

4.4 REVISED CONCEPTUAL RESEARCH MODEL

At the end of the second chapter, a conceptual research model was developed. The purpose of the research is to investigate the effects of the eight leadership dimensions (i.e. independent variables) on the six employee commitment dimensions and key performance indicators (i.e. dependent variables), and in which way feedback and organisational culture are influencing this relation. However, the factor analysis and internal consistency reliability analysis called for an alternation in the variables that will be used for further analysis. An overview and a description of the remaining constructs can be found in appendix F.

Because organisational culture is excluded from further analysis, only the upper part of the first conceptual model remains. This means that for further analysis first (a) the relation between the independent variable (i.e. leadership) and the dependent variables (i.e. employee commitment and KPI's) will be examined. Second, (b) the relation between leadership and feedback will be examined, and (c) the effect of feedback on the dependent variables. Finally, (d) we will investigate if feedback has a mediating effect on the relation between leadership and the criterion variables.

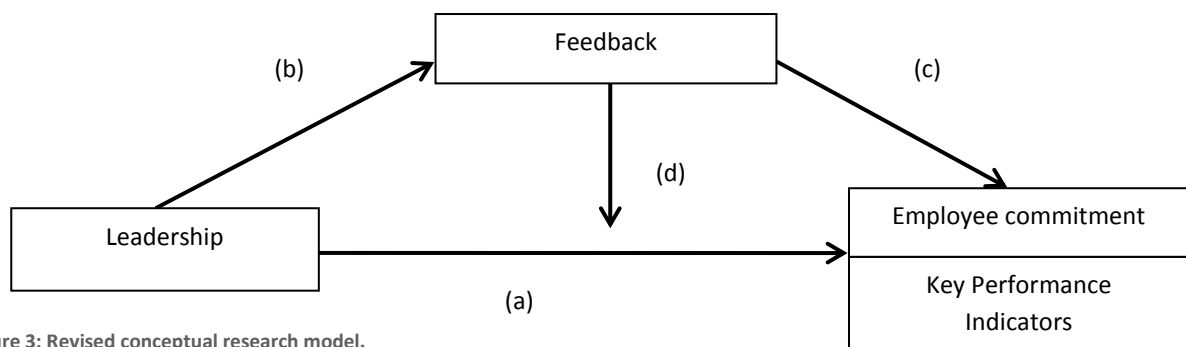


Figure 3: Revised conceptual research model.

4.5 DESCRIPTIVE STATISTICS

First, the data will be explored by looking to the data values of leadership, feedback and employee commitment. This can be done by measuring the central tendency and the dispersion. The mean scores (M) are calculated per department (n=5) and per supervisor (n=27). It is also important to look at the extent to which the data values for a variable are spread around their mean (Saunders et al., 2007). The spread can be described by using the standard deviation (SD). When the data values are close to the mean, then the mean is more typical than if they vary widely (Saunders et al., 2007). Before the data can be explored, the original scales were transformed from a 5-point scale into a 10-point scale.

Table 4 shows the mean scores and the standard deviations for all departments (total) and per department. When looking to the mean scores for total leadership, there are differences between the departments. To see if total leadership, feedback and employee commitment differ significantly between the departments, a one-way analysis of variance or one-way ANOVA is performed (see also the last row of table 4). The *F*-statistic represents the differences. If the likelihood of any difference between the departments occurring by chance alone is low, this will be represented by a large *F*-statistic with a probability of less than 0.05, which is statistically significant (Saunders et al., 2007). It appears that total leadership differs not significantly between the departments ($F=1.50$, $df=4$, $p=.20$), feedback differs significantly between the five departments ($F=4.19$, $df=4$, $p<.01$), and employee commitment differs significantly between the departments ($F=3.65$, $df=4$, $p<.01$).

Table 3: The differences in total leadership, feedback and employee commitment between the departments.

	Total leadership M (SD)	Feedback M (SD)	Employee commitment M (SD)
Department 1	[This information is restricted and unavailable.]		
Department 2			
Department 3			
Department 4			
Department 5			
Total			
Difference between departments	($F=1.50$, $df=4$, $p=.20$)	($F=4.19$, $df=4$, $p<.01$)	($F=3.65$, $df=4$, $p<.01$)

It also needs to be examined if the data values are different between the supervisors within the departments. The results of the one-way ANOVA are presented in table 5. It appears that there are significant differences between the leadership behaviours of the supervisors of the Department 1, Department 4, and Department 5 departments. Feedback differs significantly between the supervisors of all departments. Furthermore, it seems that employee commitment only significantly differs between the employees of the supervisors of the Department 4 department. The table in appendix G presents the mean scores and the standard deviations per supervisor.

Table 4: The differences in total leadership, feedback and employee commitment between the supervisors within the departments.

	Total leadership	Feedback	Employee commitment
Department 1	($F=6.70$, $df=4$, $p<.01$)	($F=5.12$, $df=4$, $p<.01$)	($F=1.37$, $df=4$, $p=.28$)
Department 2	($F=1.85$, $df=6$, $p=.10$)	($F=2.94$, $df=6$, $p=.01$)	($F=0.80$, $df=6$, $p=.58$)
Department 4	($F=9.80$, $df=4$, $p<.01$)	($F=5.71$, $df=4$, $p<.01$)	($F=3.26$, $df=4$, $p=.02$)
Department 5	($F=5.59$, $df=7$, $p=.04$)	($F=4.12$, $df=4$, $p<.01$)	($F=1.43$, $df=4$, $p=.23$)

Note: There are no values for the Department 3 department because there is only one valid supervisor.

It is also questionable if total leadership, feedback and employee commitment differ significantly between the managers (i.e. plant manager and department managers) and the other supervisors. An independent sample t-test is performed to assess the likelihood of these supervisors being different (see also table 6). Although the t-test assumes that the data are normally distributed, Saunders et al. (2007) argued that this can be ignored

without too much problems. The mean total leadership scores of the managers is significantly higher ($t=2.48$, $df=11$, $p=.03$) than for the other supervisors. It also seems that the mean feedback scores for the managers is significantly higher ($t=2.93$, $df=11$, $p=.01$) than for the other supervisors. Finally, the mean employee commitment scores for the managers is also significantly higher ($t=2.64$, $df=25$, $p=.02$) than for the other supervisors. This means that, on average, the managers behave more active in comparison to the other supervisors, and are more inclined to deliver consistent and useful feedback. The subordinates of the managers are also more committed than the employees of the other supervisors. The results of the independent sample t-test suggest that there were no significant differences between the supervisors who work in three or four shifts and the supervisors who only work day shifts. Because only feedback differs significantly between the departments and because there are significant differences between the leadership behaviours of the supervisors within the departments, it seems to be relevant to perform further analysis on supervisor level.

Table 5: The differences in total leadership, feedback and employee commitment between the managers and other supervisors.

	Total leadership M (SD)	Feedback M (SD)	Employee commitment M (SD)
Managers	[This information is restricted and unavailable.]		
Other supervisors			
Difference	($t=2.48$, $df=11$, $p=.03$)	($t=2.93$, $df=11$, $p=.01$)	($t=2.64$, $df=25$, $p=.02$)

As discussed before, the factor analysis showed that active and passive leadership were loaded on the same factor. As shown in figure 5, there seems to be a negative relation between active and passive leadership. In other words, the higher the score on active leadership, the lower the score on passive leadership. To get a clear view of the differences between the 27 supervisors, active and passive leadership are transformed into the extent of active leadership (named total leadership), which is the mean of active leadership and non-passive leadership (i.e. 1 minus the mean for passive leadership). This makes it possible to differentiate the 27 supervisors into three groups: (1) high ($M \geq X$), (2) middle ($M = X > X$), and (3) low ($M \leq X$).

[This information is restricted and unavailable]

Figure 4: Relations between active leadership and passive leadership, and between total leadership and feedback.

Table 7 shows the mean scores and standard deviations of total leadership and feedback for the three groups of supervisors. The mean scores confirm the pattern of the scatter plot because the supervisors of group 1 behave on average more actively in comparison to the other two groups and have on average the highest score for feedback. On the other hand, the supervisors of group 3 have on average the lowest scores. The results of the one-way ANOVA, which are also presented in table 7, indicate that there are significant differences in the extent of active leadership and feedback between the three groups.

Table 6: The differences in total leadership, feedback and employee commitment between the three groups of supervisors.

	Total leadership M (SD)	Feedback M (SD)	Employee commitment M (SD)
Group 1 high	[This information is restricted and unavailable.]		
Group 2 middle			
Group 3 low			
Difference between groups	($F=38.01$, $df=2$, $p<.01$)	($F=40.90$, $df=2$, $p<.01$)	($F=3.07$, $df=2$, $p=.07$)

The last column of table 7 presents the mean scores and standard deviations of employee commitment for the three groups. It seems that there are no significant differences between the commitment of the employees of the three groups of supervisors ($F=3.07$, $df=2$, $p=.07$). To get a first impression of the relation between leadership and employee commitment, and feedback and employee commitment, a scatter plot has been made (figure 6). As can be seen, there is some kind of pattern. Moreover, there is a somewhat positive relation

between total leadership and employee commitment, and between feedback and employee commitment. Remarkably, two supervisors scored low on total leadership and on feedback, but their employees are relatively highly committed. One explanation could be that the commitment of their employees depends on other factors. However, the exact reason remains unclear so this calls for further investigation by the company. A box plot of total leadership of the three groups can be found in appendix H, where the scores of the two supervisors are marked as outliers in group 3. The two supervisors affect the distribution of leadership and will affect the results, so this should be taken into account in further analysis.

[This information is restricted and unavailable.]

Figure 5: Relations between total leadership and employee commitment, and feedback and employee commitment.

As mentioned before, total leadership consists of active leadership and non-passive leadership and those leadership behaviours consist of transformational leadership, Contingent Reward, Management-by-Exception Active and Passive, and Laissez Faire. To give an impression of the different leadership behaviours per group, the means and standard deviations are presented in table 8. The results of the one-way ANOVA analysis indicate that there are significant differences between the three groups of supervisors. It seems that the supervisors of group 1 engage more in the transformational leadership behaviours than the supervisors of group 2 and 3. The same is true for CR and MBE-A. However, both supervisors of group 1 and 2 scored higher on MBE-A than on CR and transformational leadership. The supervisors of group 3 engage more in the passive leadership behaviours in comparison to the supervisors of group 1 and 2. This means that it is expected that the supervisors of group 3 are less effective because, as mentioned in chapter 2, the passive leadership behaviours are seen as most ineffective. Besides, the scatter plot and table 7 somewhat indicated that the employees of the more passive supervisors are less committed than the employees of the more active supervisors. In addition, as shown in table 7, the supervisors of group 3 are also less inclined to deliver consistent useful feedback in comparison to the supervisors of group 1 and 2.

Table 7: Differences in the leadership behaviours between the three groups of supervisors.

	II, IM, IS, IC M (SD)	CR M (SD)	MBE-A M (SD)	MBE-P M (SD)	LF M (SD)
Group 1 high	[This information is restricted and unavailable.]				
Group 2 middle					
Group 3 low					
Difference between groups	(F=20.32, df=2, p<.01)	(F=12.23, df=2, p<.01)	(F=7.22, df=2, p<.01)	(F=24.83, df=2, p<.01)	(F=22.72, df=2, p<.01)

Finally, employee commitment includes the affective and normative bases of commitment and three foci of commitment (i.e. job, department and organisation). Overall, the employees are more normatively committed than affectively committed. Furthermore, the employees are mostly committed to their jobs, rather than to their department, and less committed to the organisation. This is not strange, because job commitment and departmental commitment are local foci which are psychologically more proximal than the global focus organisational commitment.

In the next section, the relations between leadership, feedback and employee commitment will be examined to investigate the strength and direction of those relations.

4.6 AGGREGATE EFFECTS ON CRITERION VARIABLES

For further analysis, the data is aggregated. Aggregating means that groups of cases are combined in order to analyse them at a less detailed level (Huizingh, 2007). In this research, it means that the cases are combined per supervisor (n=27). It should be noticed that it is desirable to have 10 to 20 observations per variable

(Statsoft Inc., 2010). As mentioned before, in total there are 15 variables (i.e. the eight leadership dimensions, feedback and six employee commitment dimensions) and 27 cases. So unfortunately it is not possible to achieve 10 till 20 observations per variable. This means that the aggregated estimates of the regression line could be very unstable and unlikely to replicate when this study will be conducted again (Statsoft Inc., 2010). However, it will be tried to measure the effects of leadership and feedback on the criterion variables. First, a more simple model will be examined, and second the individual effects to see if there are differences.

4.6.1 LEADERSHIP, FEEDBACK AND EMPLOYEE COMMITMENT

As shown in the revised conceptual research model, the relations between (a) leadership and employee commitment, (b) leadership and feedback, (c) feedback and employee commitment, and (d) the influence of feedback on the relation between leadership and employee commitment need to be examined. Correlation can be used to measure the strength of a linear association between two quantitative variables (De Veaux, Velleman, & Bock, 2008). There are two types of correlation: bivariate and partial (Field, 2009). A bivariate correlation is a correlation between two variables and a partial correlation is a correlation between two variables while controlling the effect of one or more additional variables. The bivariate correlations between total leadership, feedback and the employee commitment will be calculated to see if there are negative and/or positive correlations. The Pearson correlation (represented by the letter *r*) is used to assess the strength of the relationship between three variables. A perfect positive relation will be represented with a value of 1+ and a perfect negative relationship will be represented with a value of -1 (Saunders et al., 2007). A value of 0 represents that the variables are independent. Usually, there is a correlation when the *p*-value is below 0.05. However, because of the small sample size (*n*=27), correlations with a significance of 0.1 will also be accepted.

The correlation matrix of total leadership, feedback and employee commitment (table 9) shows that total leadership is strongly positively related with feedback (*r*=.92, *df*=25, one-tailed *p*<.01), and positively related with employee commitment (*r*=.30, *df*=25, one-tailed *p*=.07). However, the relation between feedback and employee commitment is more strong (*r*=.49, *df*=25, one-tailed *p*<.01) than the relation between total leadership and employee commitment. Those positive relations were also shown in the scatter plots in the previous section. However, the correlation matrix indicates that feedback is more important when it concerns employee commitment.

Table 8: Pearson correlations for total leadership, feedback and employee commitment (*n*=27).

	Total leadership	Feedback
Total leadership	1	.92 ***
Feedback	.92 ***	1
Employee commitment	.30 *	.49 ***

N=27; ****p*<0.01 (1-tailed); ***p*<0.05 (1-tailed); **p*<0.10 (1-tailed)

To estimate if there is a linear relationship between employee commitment (i.e. the explained variable) and total leadership and feedback (i.e. explanatory variables), a regression analysis needs to be performed. The regression analysis gives information about the predictive power of variables (Field, 2000). In other words, the regression analysis fits the predictive model to the data and uses that model to predict values of the dependent variable from one or more independent variables (Field, 2000). In contrast to the correlation coefficient, the coefficient of determination (represented by *R*²) enables the assessment of the strength of the relationship between a quantifiable dependent variable and one or more quantifiable independent variables (Saunders et al., 2007). Because there are two independent variables (i.e. total leadership and feedback), a multiple regression analysis needs to be performed to see if the variation in employee commitment dimensions could be explained by the leadership behaviours and/or feedback. Because feedback had the highest correlation with employee commitment, feedback was entered on the first step of the stepwise multiple regression analysis and total leadership was entered in the second step (Howitt & Cramer, 2003). The results can be found in table 10

where R^2 is the coefficient determination (i.e. the squared value of the (multiple) correlation coefficient) which explains the variation of the dependent variable(s) by the model (Huizingh, 2005). Also the regression coefficients are shown, represented by B. Furthermore, the t -values and the corresponding p -values are presented to illustrate the significant influence on employee commitment.

Table 9: Multiple regression analysis for employee commitment (n=27) .

Dependent	Independent	R^2	B	t-value (p-value)
Employee commitment	(Constant)	.20	5.32	9.13 ($p < .01$)
	Feedback		.25	2.51 ($p = .02$)

N=27

When regressing feedback and total leadership on employee commitment, it appears that only feedback is having a direct positive effect on employee commitment and explains 20% of the variation in the criterion variable ($F_{1,25}=6.28, p=.02$). The correlation matrix showed that there was a strong positive relation between total leadership and feedback. The total variation explained by total leadership on feedback can be calculated by squaring the correlation coefficient which results in the coefficient of determination (Howitt & Cramer, 2003). Total leadership explains 85% of the variance in feedback ($F_{1,25}=15.43, p < .01$). This means that feedback is mediating (i.e. intervening) the relation between total leadership and employee commitment. The model is given in figure 8 including the total variation explained in percentages.

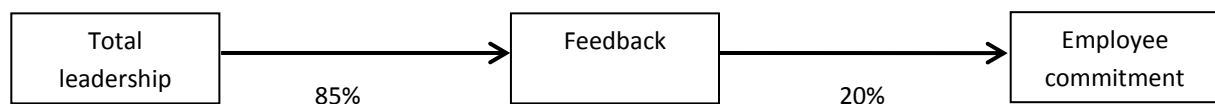


Figure 6: Model with remained relations after regression analysis with feedback as a mediator (n=27).

As mentioned in the previous section, there were two supervisors who belong to the third group with a low score on total leadership but their subordinates scored relatively high on employee commitment. When excluding those supervisors from the analysis, the correlations become stronger (see also table 11).

Table 10: Pearson correlations for total leadership, feedback, and employee commitment (n=25).

	Total leadership	Feedback
Total leadership	1	.90 ***
Feedback	.90 ***	1
Employee commitment	.53 ***	.63 ***

N=25; *** $p < 0.01$ (1-tailed); ** $p < 0.05$ (1-tailed); * $p < 0.10$ (1-tailed)

When looking to the results of the stepwise multiple regression analysis (table 12), it appears that only feedback is having a direct significant positive effect on employee commitment and explains 40% of the total variance in employee commitment ($F_{1,23}=142.41, p < .01$). The total variance explained by feedback increased with 20% with regard to the previous model (n=27). Total leadership is still strongly correlated with feedback and accounts for 81% of the total variance in feedback ($F_{1,23}=95.38, p < .01$). So although the correlations became stronger, it appears again that feedback mediates the relation between total leadership and employee commitment and is an important predictor of employee commitment (see also figure 8).

Table 11: Multiple regression analysis for employee commitment (n=25).

Dependent	Independent	R^2	B	t-value (p-value)
Employee commitment	(Constant)	.40	4.27	6.70 ($p < .01$)
	Feedback		.41	3.93 ($p < .01$)

N=25

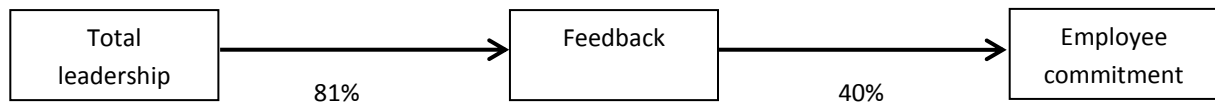


Figure 7: Model with remained relations after regression analysis with feedback as a mediator (n=25).

In conclusion, the relations between leadership, feedback and employee commitment seem to be more complicated in reality. The two extreme supervisors are influential, because the relations became stronger when omitting them from the analysis (De Veaux et al., 2008). However, the model remains the same; feedback is mediating the relation between total leadership and employee commitment. The results indicated that total leadership has no direct significant effect while feedback is having a significant positive influence on employee commitment. However, it does not mean that leadership does not matter because leadership and feedback are closely connected. Feedback was conceptualised as the usefulness and consistency of the feedback and the intention to deliver feedback. In other words, the more active a supervisor behaves, the more inclined the supervisor is to deliver consistent useful feedback and the more committed the employees are.

4.6.2 LEADERSHIP, FEEDBACK AND KPI'S

To see if the leadership behaviours are related to performance, the relation between leadership and the KPI's will be examined. Table 13 shows the actual, the budgeted, and the difference between the actual and budgeted results of eight KPI's per department. This means that the data needs to be aggregated on departmental level (n=5). The figures are based on the actual results from January until May 2010 and the budgeted year results until May. Unfortunately, not all KPI's were available. For example, the absentee rates per team were not available on time and therefore, absenteeism cannot be included in this study.

[This information is restricted and unavailable.]

Table 12: Results key performance indicators January until May 2010.

[This information is restricted and unavailable.]

There is actually no significant relation between leadership and the KPI's or feedback and the KPI's. This could be caused by the fact that it was needed to aggregate the data on departmental level (n=5) because the KPI's were not available on supervisor level. As mentioned before, there were no significant differences in leadership between the departments. Another reason could be that the relation is influenced by another variable. Therefore, the relations between employee commitment and the KPI's will be explored.

To examine the relation between employee commitment and the KPI's, Spearman's rho (denoted with rho) is used, which is the correlation of the two rank variables (De Veaux et al., 2008). Spearman's rho is measuring the consistency of the trend between the variables. The results indicated that there is a statistically significant positive correlation between employee commitment and OEE (rho=.800, df=3, p=.05), between employee commitment and CAPEX (rho=.900, df=3, p=.02), and there is a weak positive correlation between employee commitment and CRED (rho=.700, df=3, p=.09).

So although there were no significant relations between leadership and feedback and the KPI's, leadership had an effect on feedback, and feedback was having an effect on employee commitment. So indirect, there could be a relation (see also figure 9). However, it should be kept in mind that this analysis is only based on five cases. Besides, other (situational) factors could also influence the results. Therefore, the results give an indication of the possible relations, but future research is necessary to confirm the possible relations.

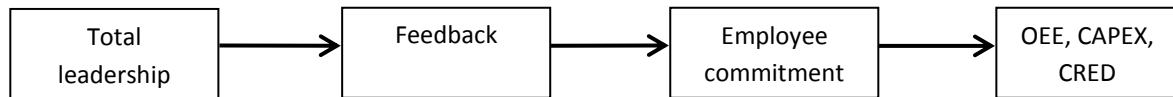


Figure 8: Model with the possible relations with the KPI's as dependent variables (n=5).

4.6.3 INDIVIDUAL EFFECTS

As explained before, total leadership consists of active leadership and non-passive leadership. Moreover, the factor analysis showed that a clear distinction could be made between the active leadership behaviours and passive leadership behaviours. The transformational leadership behaviours (i.e. II, IM, IS and IC), Contingent Reward and Management-by-Exception Active are active leadership behaviours, and Management-by-Exception Passive and Laissez Faire are passive leadership behaviours. The criterion variable employee commitment consists of two bases of commitment (i.e. affective and normative), and three foci of commitment (i.e. job, departmental and organisational commitment). In section 4.6.1, a more simple model was created with the independent variables total leadership and feedback, and the dependent variable employee commitment. The results indicated that the more active a supervisor behaves, the more the supervisor is inclined to deliver consistent and useful feedback, and the more committed the employees are. Feedback was mediating the relation between leadership and employee commitment. In this section, the individual relations will be explored to see if the results confirm the more simple model.

First, active leadership has a significant and positive relation with employee commitment ($r=.378$, $df=25$, $p=.30$). Passive leadership has a negative relation with employee commitment, but this relation is not significant ($r=-.214$, $df=25$, $p=.14$). When regressing both feedback and active leadership on employee commitment, it appears that only feedback is having a significant influence on employee commitment. This confirms the relations as shown in the more simple model (see also figure 7). When excluding the two extreme supervisors ($n=25$), it appears that only feedback is having a significant positive effect on employee commitment. So, this confirms the more simple model (see also figure 8).

The correlation matrix (appendix I), indicates that there are significant correlations between active leadership, feedback, and the two bases of commitment. The results of the multiple regression analysis, as presented in table 14, show that only feedback is having a significant positive effect on affective commitment and explains 14% of the total variation in affective commitment ($F_{1,25}=4.03$, $p=.06$). Feedback is also having a significant influence on normative commitment and explains 16% of the total variation in normative commitment ($F_{1,25}=4.59$, $p=.04$). The correlation matrix showed that there are no significant relations between the two leadership behaviours and job commitment. However, feedback is having a significant influence on job commitment and explains 11% of the total variation ($F_{1,25}=3.21$, $p=.085$). Active leadership, passive leadership, and feedback are correlated with departmental commitment. However, only feedback is having a significant positive influence on departmental commitment and explains 27% of the total variation in this foci of commitment ($F_{1,25}=9.26$, $p<.01$). Finally, there are no significant relations between the independent variables (i.e. active and passive leadership, and feedback) and organisational commitment. This could be explained by the fact that supervisors have less influence on the commitment of employees with the organisation in comparison to job and departmental commitment, because local foci are more effective in monitoring, rewarding, and influencing employee behaviour than global foci (Becker et al., 1996).

Table 13: Multiple regression for the bases and foci of commitment.

Dependent	Independent	R^2	B	t -value (p -value)
Affective commitment	(Constant)	.14	5.20	7.94 ($p < .01$)
	Feedback		.22	2.01 ($p = .06$)
Normative commitment	(Constant)	.16	5.71	9.19 ($p < .01$)
	Feedback		.23	2.14 ($p = .04$)
Job commitment	(Constant)	.11	6.43	10.27 ($p < .01$)
	Feedback		.19	1.79 ($p = .09$)
Departmental commitment	(Constant)	.27	4.66	6.72 ($p < .01$)
	Feedback		.36	3.04 ($p < .01$)

N=27

When excluding the two extreme supervisors from the analysis ($n=25$) it appears that the variation explained by the independent variable on the dependent variable increased. The results also indicate that feedback mediates the relation between leadership and organisational commitment (see also appendix J). This means that the more active a supervisor behaves, the more the supervisor is inclined to deliver useful feedback, and the more committed the employees are with the organisation.

So far, the results of the individual effects confirm the mediating effect of feedback as explained in section 4.6.1. When looking to the correlations between the two leadership behaviours and feedback, and the six employee commitment dimensions, it appears that active leadership and feedback have a significant positive relation with affective job commitment ($r=.345$, $df=25$, $p=.04$), affective departmental commitment ($r=.377$, $df=25$, $p=.03$), normative departmental commitment ($r=.439$, $df=25$, $p=.01$), and a weak relation with normative organisational commitment ($r=.276$, $df=25$, $p=.08$). Passive leadership has also a significant negative relation with normative departmental commitment ($r=-.320$, $df=25$, $p=.05$). The results of the multiple regression analysis are shown in table 15. Again, only feedback is having a significant positive influence on AJC, ADC and NDC. Feedback explains 19% of the variation in affective job commitment ($F_{1,25}=5.83$, $p=.02$), 18% of the variation in affective departmental commitment ($F_{1,25}=5.60$, $p=.03$), and 30% of the variation in normative departmental commitment ($F_{1,25}=10.69$, $p < .01$). This means that the more active a supervisor behaves, the more the supervisor is inclined to deliver consistent and useful feedback, the more the employees have a desire to remain in their jobs and with their department and the more the employees have a feeling of obligation to remain within their department (figure 10). When excluding the two extreme supervisors ($n=25$) it appears that feedback is also mediating the relation between leadership and NJC, AOC and NOC (see also appendix J).

Table 14: Multiple regression analysis for the employee commitment dimensions.

Dependent	Independent	R^2	B	t -value (p -value)
AJC	(Constant)	.19	4.95	6.34 ($p < .01$)
	Feedback		.32	2.42 ($p = .02$)
ADC	(Constant)	.18	4.91	6.70 ($p < .01$)
	Feedback		.29	2.37 ($p = .03$)
NDC	(Constant)	.30	4.42	5.80 ($p < .01$)
	Feedback		.42	3.27 ($p < .01$)

N=27

In conclusion, the more simple model indicated that feedback mediates the relation between leadership and employee commitment. The results of the individual effects confirmed this model. However, it seemed that feedback had the greatest influence on departmental commitment while it was expected that feedback had the greatest influence on job commitment. The effect on organisational commitment did not follow which could be explained by the fact that this is a global focus. However, feedback has a direct positive effect on organisational

commitment when the two extreme supervisors are excluded. But the effect on organisational commitment is less strong than the effect on departmental and job commitment.

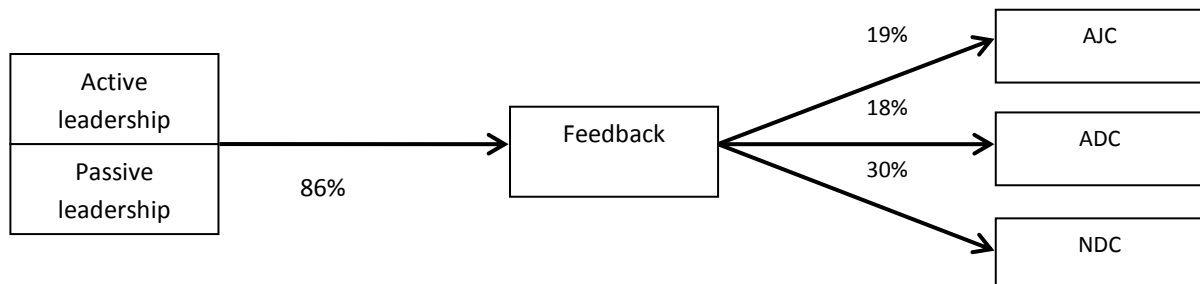


Figure 9: Model of the remaining relations after regression analysis with feedback as a mediator (n=27).

Finally, active leadership can be differentiated into transformational leadership, Contingent Reward and Management-by-Exception Active, and passive leadership can be differentiated into Management-by-Exception Passive and Laissez Faire. The active leadership behaviours have a significant positive relation with feedback, and the passive leadership behaviours have a significant negative relation with feedback. Transformational leadership has the strongest positive relation with feedback ($r=.906$, $df=25$, $p<.01$), followed by Contingent Reward ($r=.865$, $df=25$, $p<.01$) and Management-by-Exception Active ($r=.707$, $df=25$, $p<.01$). Transformational leadership has also a significant positive relation with employee commitment ($r=.456$, $df=25$, $p<.01$), and the same is true for Contingent Reward ($r=.392$, $df=25$, $p=.02$). Remarkably, MBE-A is not having a significant relation with employee commitment, but MBE-A can be seen as an effective leadership behaviour because it has a positive relation with feedback, and feedback was having a significant positive effect on employee commitment. The negative relations between the passive leadership behaviours and employee commitment were not significant. When regressing transformational leadership and Contingent Reward together with feedback on employee commitment, it appears that only feedback was having a significant positive effect on employee commitment. Another regression analysis is performed to see what the effects of the leadership behaviours are on the six employee commitment dimensions. The results are shown in table 16. The effect of feedback on AJC and NDC as presented in figure 10 are confirmed. Remarkably, transformational leadership is having a direct positive effect on affective departmental commitment and explains 20% of the variation in ADC ($F_{1,25}=6.32$, $p=.02$). This means that the more transformational a supervisor behaves, the more the employees have a desire to remain with the department. When excluding the two extreme supervisors (n=25) it appears that, besides feedback is mediating the relation between the leadership behaviours and NJC, transformational leadership is also having a direct effect on AOC and NOC (see also appendix J). This means that the more transformational a supervisor behaves the more the employees have a desire and a feeling of obligation to remain with the organisation.

Table 15: Multiple regression analysis for the employee commitment dimensions.

Dependent	Independent	R^2	B	t-value (p-value)
AJC	(Constant)	.19	4.95	6.34 (p<.01)
	Feedback		.32	2.42 (p= .02)
ADC	(Constant)	.20	4.91	7.10 (p<.01)
	Transformational leadership		.31	2.52 (p= .02)
NDC	(Constant)	.30	4.42	5.80 (p<.01)
	Feedback		.42	3.27 (p<.01)

N=27

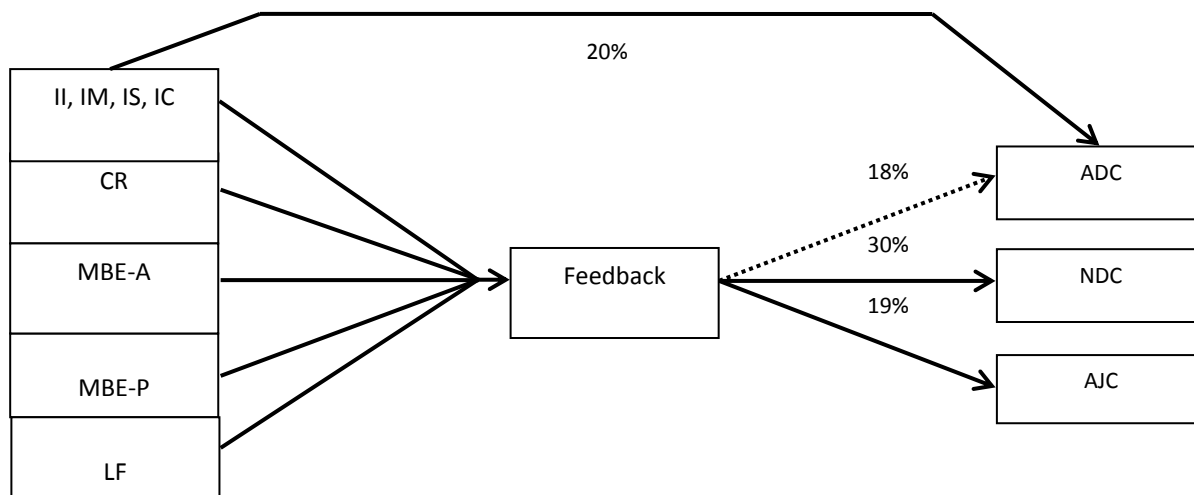


Figure 10: Model of the remaining relations after regression analysis with feedback as a mediator (n=27)

Because transformational leadership has the strongest positive relation with feedback and also has the strongest positive relation with employee commitment, it can be concluded that transformational leadership is the most effective leadership style, followed by CR and MBE-A. Because of the negative relation between the passive leadership behaviours and feedback, it can be concluded that MBE-P and LF are ineffective leadership behaviours. This was also expected. In section 4.5, the supervisors were differentiated into three groups based on their mean score for total leadership. The supervisors of group 3 engage more in the passive leadership behaviours and are less inclined to deliver consistent and useful feedback in comparison to the other supervisors. The subordinates of the supervisors of group 3 were also less committed than the employees of the supervisors of group 1 and 2. So this confirms that the passive leadership behaviours are ineffective because of the low-quality of the feedback, and those supervisors are less effective than the supervisors of group 1 and 2.

The supervisors of group 1 behave more active in comparison to the supervisors of group 2. They are also more inclined to deliver consistent and useful feedback. However, there was nearly a difference in employee commitment (see also appendix H). This can be explained by the fact that active leadership includes transformational leadership, CR and MBE-A. As shown before, comparatively the supervisors of group 1 and 2 mostly engage in Management-by-Exception Active, followed by transformational leadership and Contingent Reward. When correlating total leadership with feedback for both groups, it appears that the relation between total leadership is less strong for group 1 ($r=.52, df=7, p<.10$) than for the supervisors of group 2 ($r=.80, df=7, p<.01$). One explanation is the fact that there was less variability (see also table 7) in the mean scores for feedback for group 1 in comparison to group 2. Another explanation could be that MBE-A was included in active leadership together with transformational leadership and CR. But as mentioned before, MBE-A has only a significant positive relation with feedback and not with employee commitment. When correlating MBE-A with feedback for the two groups, it appears that there is no significant correlation between MBE-A and feedback for group 1, and MBE-A ($r=.55, df=7, p<.05$) is significantly correlated with feedback for group 2. This could indicate that the supervisors of group 1 are less inclined to deliver feedback when they engage in the Management-by-Exception Active leadership style in comparison to the supervisors of group 2.

4.6.4 SUMMARY RESULTS

The more simple model showed that feedback was mediating the relation between total leadership and employee commitment. This means that the more active a supervisor behaves, the more the supervisors is inclined to deliver consistent and useful feedback, and the more committed the employees are. There were no direct relations found between the independent variables and the KPI's, which could be caused by the fact that

the data needed to be aggregated on departmental level (n=5) while there were no significant differences in the leadership behaviours between the departments. However, employee commitment was having a positive association with three KPI's which could indicate that there is an indirect relation between leadership, feedback and the KPI's.

When total leadership was differentiated into active and passive leadership and employee commitment into the bases and foci of commitment, it seemed that feedback was also mediating the relation between leadership and affective commitment, normative commitment, job commitment and departmental commitment. There were no significant relations with organisational commitment. As mentioned before, this could be explained by the fact that organisational commitment is a global focus, and supervisors have less influence on it than on the local foci (i.e. job commitment and departmental commitment). Besides, the employees were less committed to the organisation than to their jobs and department because the global foci are psychologically less proximal than the other two foci. However, when excluding the two extreme supervisors, feedback also had a significant positive effect on organisational commitment, but this effect was less strong than the effect on the local foci. The effect of feedback and the two leadership behaviours (i.e. active and passive) on the employee commitment dimensions was also examined. The results indicated that feedback was mediating the relation between leadership and affective job commitment, affective departmental commitment and normative departmental commitment. When excluding the two extreme supervisors, feedback was also having a direct positive effect on normative job commitment, affective organisational commitment and normative organisational commitment. When differentiating active and passive leadership into the eight leadership components, feedback was having a direct significant positive effect on normative job commitment and normative departmental commitment, and transformational leadership was having a direct positive effect on affective departmental commitment.

5 DISCUSSION AND CONCLUSION

The research objective of this study was to give recommendations for leadership improvement within the production departments of company X to build commitment and improve performances. To achieve this objective, first a literature study was performed in order to explore what is known about leadership, feedback, employee commitment and performance. Second, an empirical study was performed to see in what way the supervisors behave in the current situation, and what the influence of the leadership behaviours and feedback were on the criterion variables. In this chapter, the conclusions and recommendations of this study will be described.

5.1 DISCUSSION

The Full Range of Leadership model showed that the four transformational leadership behaviours and Contingent Reward belong to the effective and active domain, Management-by-Exception Active could belong to the active domain but could be ineffective or effective, and Management-by-Exception Passive and Laissez belong to the ineffective and passive domain of the FRL. The factor analysis showed that in this study MBE-A can be included into the active domain together with the transformational leadership behaviours and Contingent reward, which means that active and passive leadership could be differentiated. As explained before, it seems not unusual that active and passive leadership could be differentiated. There is a substantial overlap between MBE-P and LF, and MBE-P is more closely related to LF than to MBE-A (Den Hartog et al., 1997; Hinkin & Schriesheim, 2008; Lowe et al., 1996). CR could be highly intercorrelated with transformational leadership (Lowe et al., 1996), especially when the reward is more psychological (Antonakis, Avolio, & Sivasubramaniam, 2003). Because the eight leadership dimensions were loaded on one single factor, it was even possible to create one variable (i.e. total leadership), which indicated the extent of active leadership behaviour.

It was argued that feedback is related to leadership because leaders use feedback to lead their subordinates. As described by Shea and Howell (1999) who refer to Bass (1985), relations-oriented leadership is likely to be more important when feedback mechanisms are unavailable. Moreover, most leaders engage in transactional forms of leader behaviour by providing feedback contingent on performance. The active leadership behaviours had a positive relation with feedback, and the passive leadership behaviours had a negative relation with feedback. Which means that the more active a supervisor behaves, the more the supervisors is inclined to deliver consistent and useful feedback. Moreover, it also seemed that transformational leadership had the strongest relation with feedback, followed by CR, MBE-A, MBE-P, and LF. So it seemed that leaders also engage in transformational leadership behaviours when they provide feedback. This could be explained by the fact that transformational leadership and transactional leadership are complementary (Hinkin & Schriesheim, 2008). Moreover, as explained in the theoretical framework, positive feedback is related to Contingent Reward and negative feedback is related to contingent punishment and management-by-exception (MacKenzie et al., 2001). Positive feedback reinforces 'good' performance and behaviour and negative feedback corrects and improves 'poor' performance and behaviour (Bee & Bee, 1996). Besides the informational function of positive and negative feedback, positive feedback is also having a motivational function (Jaworski & Kohli, 1991). Positive feedback encourages subordinates to commit to a personal plan to improve performance and behaviour, and feedback is also linked to the learning process (Bee & Bee, 1996). Contingent Reward could be seen as relations-oriented leadership (i.e. transformational leadership) when the reward is more psychological, and transformational leaders could provide feedback to stimulate, inspire, motivate and support their subordinates to achieve excellent results.

Both feedback and active leadership were positively related to employee commitment. However, the results of the stepwise multiple regression analysis indicated that only feedback was having a direct positive effect on employee commitment. This means that effectiveness of a supervisor, in other words the level of commitment

of the employees, mostly depends on the quality of the provided feedback. However, leadership does matter because the more active a supervisor behaves, the more the supervisor is inclined to deliver consistent and useful feedback. Besides, the better the quality of the feedback, the more the employees have a desire and a feeling of obligation to remain. So feedback is mediating the relation between leadership and employee commitment and is more important when it concerns employee commitment.

There were no significant relations found between the independent variables (i.e. total leadership and feedback) and the KPI's. As discussed before, this could be caused by the fact that leadership and feedback had to be measured on departmental level, while there were no significant differences in leadership behaviours between the departments. Another explanation could be that this relation is influenced by a third variable. Employee commitment was positively related to the overall equipment effectiveness, cost of capital expenditures and cost reductions. The results indicate that leadership and feedback could have an indirect effect on the KPI's and that employee commitment is mediating this relation. Norrits-Wats and Levy (2004) found that an employee's perception of his/her supervisor feedback environment was strongly related to employees' level of affective commitment, which leads to higher levels of OCBs. Therefore, they explained that it is important for organisations to be aware of the employee perceptions of the feedback environment.

However, the sample of this research was very small and other factors could have an influence on the results. Therefore, future research is needed to examine the possible relations between feedback, employee commitment and performance indicators.

The employees were overall more normatively committed, which means that the employees feel somewhat more of an *obligation* rather than a *desire* to remain with their jobs, department and organisation. When employee commitment was differentiated into affective and normative commitment, feedback was still the only independent variable that was having a direct positive effect on those two bases of commitment. Bass and Riggio (2006) argued that leaders have the strongest influence on affective commitment, but the percentage of the total variation explained by feedback on normative commitment was somewhat higher. Feedback was also mediating the relation between leadership and job commitment and departmental commitment. There were no significant effects found on organisational commitment. As explained earlier in this chapter, the employees are less committed to the organisation. This can be explained by the fact that organisational commitment is psychologically less proximal than job commitment and departmental commitment (Torka, 2003). It is also not strange that supervisors have less influence on this global focus of commitment, because other factors have possibly a stronger influence, for instance the organisational characteristics of the leadership substitutes that were mentioned in chapter 2. However, it was suggested by Norrits-Wats and Levy (2004) that when employees perceive a favourable feedback environment, they may be more committed to the organisation. Feedback was having a significant effect on organisational commitment when the two influential supervisors were excluded from analysis, but feedback still had a greater effect on the local foci of commitment.

When the influence of leadership and feedback was examined on the employee commitment dimensions separately, it appeared that only feedback was having a direct positive effect on affective job commitment, and on affective and normative departmental commitment. However, the two extreme supervisors influenced the results because when those supervisors were excluded, feedback was mediating the relation between leadership and all six employee commitment dimensions. To see which leadership behaviours are the most effective, another regression analysis was performed. Again feedback was mediating the relation between the leadership behaviours and affective job commitment and normative departmental commitment. But remarkably, transformational leadership was having a direct positive effect on affective departmental commitment. When excluding the two extreme supervisors, feedback was also having a direct positive effect on normative job commitment, but transformational leadership had a greater effect on affective and normative organisational commitment. This means that the effectiveness of the transactional leadership behaviours and Laissez Faire depends more on the quality of feedback, but that transformational leadership in itself is also effective when it concerns affective departmental commitment, and affective and normative

organisational commitment. However, as explained before, transactional leadership is a requirement for the effectiveness of transformational leadership (Hinkin & Schriesheim, 2008; Lowe et al., 1996).

5.2 CONCLUSIONS AND RECOMMENDATIONS

5.2.1 CONCLUSIONS

The main research question of this study was: 'In which way could company X improve the leadership behaviours of the supervisors within the production departments in order to build commitment and improve performance?'. The results indicated that the more active a supervisor behaves, the more inclined the supervisor is to deliver useful and consistent feedback, and the more committed the employees are. Moreover, the results indicated that transformational leadership, Contingent Reward, and Management-by-Exception Active are effective leadership behaviours to lead the blue collar workers within this mechanistic organisation. The 27 supervisors were differentiated into three groups (i.e. 1 high, 2 middle, 3 low), based on their mean score for total leadership. The supervisors of group 1 scored higher on feedback than the supervisors of group 2, and the supervisors of group 2 scored higher on feedback in comparison to the supervisors of group 3. The results indicated that the extent of active leadership has a significant positive relation with feedback, but that only feedback has a direct positive influence on employee commitment. Therefore, it was expected that the employees of the supervisors of group 1 were more committed than the other employees, and that the employees of the supervisors of group 2 were more committed than the employees of the supervisors of group 3. However, it seemed that the employees of the supervisors of group 2 were just as committed as the employees of the supervisors of group 1. This could be explained by the fact that active leadership consists of the transformational leadership behaviours, but also CR and MBE-A were included. However, the more passive a supervisor behaves, the less inclined the supervisor is to deliver useful and consistent feedback, and it also seemed that the employees of the supervisors of group 3 were less committed than the other employees. This means that especially those supervisors need to improve their feedback skills and leadership behaviours. In other words, those supervisors need to become more active which means that they should engage more in the active transactional leadership behaviours and in the transformational leadership behaviours. However, none of the supervisors scored excellent on leadership and feedback, so there is still room for improvement for all others as well.

5.2.2 RECOMMENDATIONS

Feedback is an essential part of the process of leading employees towards performance and behaviour. As explained before, feedback is also an important predictor of employee commitment and mediates the relation between leadership and employee commitment. Therefore, it is recommendable that the supervisors improve their feedback skills. They need to learn in what way they can provide information about behaviour and performance in such a way that the subordinates accept the feedback and have a willingness to respond to it (Steelman et al., 2004). The information that the subordinates receive must be useful and not redundant with information that is already available (Steelman et al., 2004). It is also important that a supervisor provides consistent feedback. Feedback should not only be provided when something goes wrong and there needs to be agreed standards against which to measure or performance (Bee & Bee, 1996). It is also important that feedback motivates the subordinates to perform at higher levels. This means that the supervisors need to learn how to provide positive feedback, because positive feedback has besides an informational function also a motivational function. There are also some useful feedback rules that can be applied (Koopmans, 2007): (1) indicate what you observed, (2) deliver the feedback as soon as you observed the behaviour, (3) deliver the feedback specifically and restrict the feedback to facts, (4) if necessary, describe your own feeling as an extra to the feedback, (5) make use of I-messages instead of YOU-messages, and (6) verify if the receiver understood the feedback.

As mentioned before, feedback is closely related to the leadership behaviours. The more active a supervisor behaves, the higher the quality of the feedback, and the more passive a supervisor behaves the less inclined the supervisor is to deliver consistent and useful feedback. Three groups of supervisors were differentiated based on their total leadership score. Group 1 consists of the more active supervisors and group 3 consists of the more passive supervisors. The supervisors of group 1 were relatively more inclined to deliver consistent and useful feedback than the supervisors of group 2. The supervisors of group 3 provide less consistent and useful feedback in comparison to the other two groups. This means that especially the supervisors of group 3 could improve their feedback skills. However, as described before, the other supervisors could also improve their feedback skills. Because of the strong relation between leadership and feedback, the quality of feedback could also be improved through leadership improvements. When for instance the supervisors of group 3 become more active, they probably automatically improve their feedback skills. But leadership could also be improved through feedback improvements, which is recommendable because of the direct effect of feedback on employee commitment. When the supervisors of group 3 learn how to provide feedback, improve their feedback skills, and frequently give consistent and useful feedback but not only when something goes wrong, there is a good chance that the supervisors become more active.

During the research, it was also suggested by some employees that they wish that their supervisors were not only focused on the results, but become more relations-oriented. This lament is supported by the results of this research because transformational leadership is the most effective leadership style. The supervisors can improve their leadership behaviours step by step, and their leadership profile can be used as the starting point for improvement. Those leadership profiles include the individual scores for the leadership behaviours. Supervisors who mostly engage in the passive leadership behaviours and avoid leadership (i.e. Laissez Faire) and/or only take corrective action when something goes wrong (i.e. Management-by-Exception Passive) should become more active. A first step is to monitor subordinate behaviour and performance more actively and take corrective action as necessary (i.e. Management-by-Exception Active). Important is that the supervisors provide consistent and useful feedback, and not only when something goes wrong. When the supervisors engage less in the passive leadership behaviours and became more active, they can assign or obtain follower agreement on what needs to be done with promised or actual rewards offered in exchange for their performance (i.e. Contingent Reward). A supervisor could reward an employee with extrinsically rewards (e.g. bonus), but a more cheap and effective reward is a psychologically reward. Positive feedback could be a psychologically reward and, as explained before, positive feedback has a motivation function. It was suggested that affective committed employees perform better and are motivated. O'Reilly and Chatman (1986) described that intrinsic (i.e. psychological) rewards will be more relevant for affective commitment, and extrinsic rewards will be more relevant for continuance commitment (i.e. the perceived costs that employees associate with leaving the organisation). So when the supervisors reward the employees more intrinsically, including positive feedback, there is a good chance that the desire of the employees to remain increases.

Finally, the supervisors can become more relations-oriented. They can pay attention to the individual needs for achievement and growth and act as a coach (i.e. Individualized Consideration). A two-way exchange in communication is encouraged. This could mean that also employees could learn how to give feedback. However, then it is also important that the supervisors learn how to receive feedback. The supervisors can also stimulate their followers' effort to be innovative and creative (i.e. Intellectual Stimulation) and motivate and inspire them by providing a meaning and challenge to their work (i.e. Inspirational Motivation). Eventually, the followers will identify themselves with their supervisor and want to emulate; the supervisor serves as a role model.

The question arises in which way the supervisors could improve their feedback skills and leadership behaviours. Bass and Bass (2008) described that leadership, and therewith feedback, can be improved by off-the-job leadership training or on-the-job leadership training. Off-the-job leadership training can be obtained from didactic (e.g. lectures and reading) and experiential training (e.g. discussions and role playing) (Bass & Bass, 2008). Although lectures are not very popular with training directors, lectures do have a positive value (Bass &

Bass, 2008). Lectures can arouse audiences, provide information, and can stimulate the participants to think about leadership and feedback. However, those lectures are more effective if combined with guided discussions of the issues, particularly if attitudes have to change before the new ways of leading are accepted or adopted by the participating supervisors (Bass & Bass, 2008). For example, the supervisors can discuss common leadership problems and exchange and evaluate each other's solutions to such problems. It is recommendable that when company X decides to improve leadership with an off-the-job training that this training fits with this research. In other words, the training needs to be focused on transformational leadership, or relations-oriented and task-oriented leadership. As argued by Wilderom (2001), there are all sorts of leadership courses and training, but frequently under guise of trends. "Nowadays, people listen rather to a management guru than to a minister" and the question is if supervisors actually improve their leadership (Wilderom, 2001). Most supervisors participated in a social skills training as mentioned in the introduction. Situational leadership forms a part of this training. As mentioned in the second chapter, there is no clear support for the situational leadership theory. However, Bass and Bass (2008) argued that situational leadership training can profitably be followed by transformational leadership training.

The supervisors could also improve their leadership behaviours and feedback skills in their own workplace, also known as on-the-job training and development. Leadership learning and development may occur during the performance of regularly assigned duties and may be as effective as formalised training programs (Bass & Bass, 2008). During the on-the-job training, the supervisors may be coached by their immediate supervisors and receive special project assignments. As argued by Bass and Bass (2008), experience is the best way to learn leadership. Feedback is also essential during programs of leadership training. The feedback from colleagues is about one's transformational performance and transactional processes and could be very useful because discrepancies between self and colleagues and self and norms could be used to generate ideas and plans for improvement (Bass & Bass, 2008). As shown before, there were some supervisors who scored high on active leadership and low on passive leadership, and provide high-quality feedback. Those supervisors could be a role model for the supervisors who behave more passive than active so that the more passive supervisors could learn from them. So meetings between team leaders could be organised where the supervisors could learn from the best. It is also possible that the supervisors observe each other and give feedback. In this way, the supervisors can learn from each other and become aware of their own leadership behaviours. An additional benefit is that in this way the supervisors also can practice giving and receiving feedback.

Company X should also take the feedback skills and leadership behaviours into account when they recruit and select new supervisors. In the past, it happened that experienced employees with a great know-how of the production process and technology were appointed as supervisors. In the future, someone should not only be appointed as supervisor based on the experience and know-how, but also based on his/hers feedback skills and leadership behaviours. As mentioned in the introduction, an external advisor was hired to assist the plant managers of the Dutch plants with the formulation of supervisor competences. It is important that those competences fit with the results found in this research. Those competences can be used for the recruitment and selection of new hires, but also in the performance and assessment interviews of the supervisors and employees. In this way, the direct supervisor could give feedback about the feedback and leadership competences of the supervisor in question. But also employees could give their immediate supervisor feedback.

5.2.3 LIMITATIONS

A limitation of this study was the small sample size, which means that the results cannot directly be generalised to all supervisors of company X or to the supervisors of the other Dutch plants. Nine supervisors of company X were excluded from this research because they had no or not enough response. It is possible that the leadership behaviours of those supervisors differ from the 23 participating supervisors. However, the results indicated that active leadership is more effective and that feedback is an important predictor of employee

commitment, so it is recommendable to improve the leadership behaviours and feedback skills of all supervisors of the production departments of company X.

Another limitation of this study was that some questions of the questionnaire were too difficult for the employees. For instance, the OCAI that was included in the questionnaire appeared to be too complicated and the internal consistency reliability analysis also indicated that this part was not reliable. Therefore, it has been chosen to exclude the culture part from the research.

As mentioned before, there were no relations found between leadership, feedback and the KPI's. Unfortunately it was not possible to measure the KPI's on team level. Perhaps if the KPI's were available on team level, there could be significant relations between leadership and performance and this could give more insights in the effectiveness of supervisors and their leadership behaviours. The relation between employee commitment and the KPI's was also examined, and indicated that employee commitment had a positive association with OEE, CAPEX, and cost reductions. However, the number of cases was only 5, so it is questionable if this caused errors.

5.2.4 RELEVANCE AND FUTURE RESEARCH

PRACTICAL RELEVANCE

This research was mostly practice-oriented. As mentioned in the introduction, it was not clear what the exact bottlenecks and points for improvement were to improve the leadership behaviours of the supervisors of the production departments. This research answered the main question of the client. The study showed what leadership behaviours have a positive effect on employee commitment and that feedback is very important. Because the effects were examined on supervisor level, it was possible to make an overview of the individual leadership scores. In this way, the client has insight in the effectiveness of the supervisors and what leadership behaviours and feedback need to be improved per supervisor. The supervisors and their leadership behaviours were evaluated within the working group. The results corresponded with their expectations and image of the supervisors. So it could be said that this study confirmed the clients' expectations.

All 23 supervisors will receive a report with their leadership profile and scores for the variables that were included in the questionnaire in order to give them insight in their own leadership behaviours. When company X gets busy with the actual improvement of the feedback skills and leadership by the use of training, the reports could serve as the start and as input for personal action plans.

SCIENTIFIC RELEVANCE AND FUTURE RESEARCH

There has been little research to the influence of leadership and feedback on criterion variables. This research indicates that leadership and feedback are connected and that feedback is important or maybe more important with regard to employee commitment. However, a weakness of this study was the small amount of supervisors (n=27) which means that the results of this study cannot directly be generalised. Future research should investigate what the effect of leadership and feedback is on other criterion variables and if positive and negative feedback are really making a difference. Possibly it is possible to observe feedback skills and leadership behaviours to get a more clear view of the extent that supervisors use feedback and in which way they behave.

The aim of this study was to examine the effect of leadership behaviours on KPI's. Unfortunately, the KPI's were not available on team level. However, it could be that there is a relation between leadership, feedback and organisational or departmental performance. The results of Spearman's rho indicated that employee commitment has a positive association with the overall equipment effectiveness, cost of capital expenditures and cost reduction. However, because of the small number of cases it cannot be determined with certainty that

there is a relation. Future research should examine if there is a direct or indirect relation between leadership, feedback, employee commitment and financial and/or manufacturing figures.

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APPENIX A CHARACTERISTICS SAMPLE PER DEPARTMENT

Table A: Characteristics sample per department.

[This information is restricted and unavailable.]

APPENDIX B REPRESENTATIVENESS SAMPLE

Table B: Chi-square test characteristics respondents.

Characteristics	Observed	Expected	χ^2
Gender	Male		.88
	Female		
			(Chi-Square=.88, <i>df</i> =1, <i>n</i> =183, <i>p</i> =.35)
Age	<30 years		2.93
	30-49 years		
	<50 years		
			(Chi-Square= 2.93, <i>df</i> =2, <i>n</i> =177, <i>p</i> =.23)
Years of service	<5 years		2.11
	5-14 years		
	15-24 years		
	>25 years		
			(Chi-Square= 2.11, <i>df</i> =3, <i>n</i> =179, <i>p</i> =.55)
Contract type	In the pay of company X with a permanent contract		.28
	In the pay of company X with a temporary contract		
			(Chi-Square= .28, <i>df</i> =1, <i>n</i> =183, <i>p</i> =.60)
Occupational status	Fulltime		2.442
	Part time		
			(Chi-Square= 2.44, <i>df</i> =1, <i>n</i> =182, <i>p</i> =.12)

APPENDIX C MISSING VALUES ANALYSIS

PERSONAL INFORMATION

The univariate statistics provided a first look at the extent of missing data. It seems that function name had the greatest number of cases with missing values (9.1 %) and the variable department had the lowest number of cases with missing values (5%). The separate-variance t-test table helped to identify the variables whose pattern of missing values may be influencing the quantitative variables. It seems that older respondents and respondents who had done more years of service were less likely to report the name of their direct supervisor. The same is true for the level of education and the occupational status. The other way around seems true for the years of service because it seems that younger employees were less likely to report the number of years of service and their function.

The cross tabulations showed that the numbers of missing values were not varying very much between the functions of the employees. However, it appears that employees of the Department 5 department were less likely to report their age, years of service, and their function name. The employees of the Department 3 department were less likely to report the name of their supervisor and their level of education. When looking to the cross tabulation per supervisor, it seems that one team was less likely to report their age, years of service, and their function name. The same is true for the employees who completed lower general secondary education, intermediate vocational education, and higher general secondary education. Finally, employees who had a permanent contract were less likely to report their personal information.

When running the Little's MCAR test, it seems that the data were not completely missing random ($\alpha=0.000$), which confirms the findings as described above.

LEADERSHIP DIMENSIONS

The item with regard to moral and ethical consequences (item 20) had the greatest number of missing values (4.3%). Because of this low percentage, it was omitted to exclude variables with less than 2% missing to perform further analysis. All departments had missing values, but the Department 3 department had the greatest number of missing values. Respondents who completed primary education, higher general secondary education, higher vocational education or a university study were more likely to answer the questions. Respondents who were older than 29 years were less likely to answer the questions. However, the data were missing completely at random ($\alpha=0.451$).

FEEDBACK

The missing values of the feedback items were all below the 5%, so therefore it was omitted to exclude variables with less than 2% missing. The respondents of the Department 2 department and the Department 3 department were less likely to answer the questions. The respondents who completed a higher education were more likely to answer the questions. Respondents in the age groups of 30-39 and 50-59 were less likely to answer the questions. Although there seem to be some pattern, the data were missing completely at random ($\alpha=0.232$).

COMMITMENT

The missing values percentages of the commitment items varied between 0% and 1.9%. However, the data were not missing completely at random ($\alpha=0.000$). Therefore, all variables were included to perform further analysis. When looking to the departments it seems that there were only a few missing values. The Department 1 and the Department 3 department had the greatest number of missing values. Respondents who completed an intermediate vocational education were less likely to answer the questions. Respondents in the age groups

of 40-49 years and 50-59 years were also less likely to answer the questions because only these age groups had missing values.

ORGANISATIONAL CULTURE

It appears that the first items and the last items were mostly answered and the items in the middle had the greatest number of missing values (6.2 % and 6.7%). It could be that the employees thought that the method of dividing points or the questions were too difficult. It seems that the cross tabulation confirms this because there were no missing values for the respondents who completed a higher vocational education or a university study. The respondents who completed primary education, lower vocational education had the greatest number of missing values. Furthermore, the Department 3 department had the greatest number of missing values (varying from 13.3% to 20%) and the Department 1 department had the lowest number of missing values (varying from 0 to 4%). It also appeared that older employees were less likely to answer the questions. However, the pattern of the missing values is completely random ($\alpha = 1.000$).

APPENDIX D FACTOR ANALYSIS

LEADERSHIP BEHAVIOURS

First, it was tried to load all eight dimensions of transformational, transactional and Laissez Faire leadership on eight factors. Unfortunately, the dimensions did not load on the intended factors. Previous studies found varying results of the support for the first-order factors. Antonakis et al. (2003) represented an overview of the published studies testing the factor structure of the MLQ. They identified 14 studies that have generated conflicting claims regarding the factor structure of the MLQ and the number of factors that best represent the model. One reason for this could be that the psychometric properties are invariant across different contexts (Antonakis et al., 2003). Moreover, the effectiveness of the leadership behaviours could depend upon the context in which they are measured (Antonakis et al., 2003). It was also argued that leadership behaviours could be different among high-and low-level leaders (Antonakis et al., 2003).

As described before, there is some substantial overlap between the passive leadership behaviours (i.e. MBE-P and LF) and Contingent Reward (CR) could be highly intercorrelated with the transformational components. Table D-1 shows that Contingent Reward and Management-by-Exception Active are intercorrelated with the transformational behaviours because the six dimensions were loaded on one single factor. Management-by-Exception Passive and Laissez-Faire were also loaded the same single factor. Moreover, the passive dimensions loaded negatively factor 1. Therefore, it seems that the eight leadership dimensions can be reduced into one variable, namely total leadership, which is the mean of active leadership and non-passive leadership.

Table D-1: Factor analysis of leadership scales. Loadings <0.30 are not shown.

	Scale item	Factor 1	
Transformational leadership	1 Values and beliefs (II)	.448	Active leadership
	2 Sense of purpose (II)	.742	
	3 Moral and ethical consequences (II)	.359	
	4 Sense of mission (II)	.708	
	5 Future (IM)	.695	
	6 Accomplished (IM)	.680	
	7 Compelling vision (IM)	.826	
	8 Confidence (IM)	.795	
	9 Re-examines critical assumptions (IS)	.641	
	10 Differing perspectives (IS)	.729	
	11 Different angles (IS)	.704	
	12 Suggests new ways (IS)	.726	
	13 Teaching and coaching (IC)	.758	
	14 Treats me as an individual (IC)	.700	
	15 Different needs (IC)	.700	
	16 Develop strengths (IC)	.796	
Transactional leadership	17 Provides assistance (CR)	.723	Passive leadership
	18 Who is responsible (CR)	.513	
	19 What one can expect to receive (CR)	.731	
	20 Expresses satisfaction (CR)	.808	
	21 Focuses on irregularities (MBE-A)	.313	
	22 Concentrates on mistakes (MBE-A)	.657	
	23 Keeps track (MBE-A)	.498	
	24 Directs my attention (MBE-A)	.324	
Laissez Faire	25 Fails to interfere (MBE-P)	-.334	Passive leadership
	26 Waits for things (MBE-P)	-.704	
	27 "If it ain't broke. don't fix it." (MBE-P)	-.693	
	28 Problems chronic (MBE-P)	-.693	
Laissez Faire	29 Avoids getting involved (LF)	-.640	Passive leadership
	30 Is absent (LF)	-.612	
	31 Avoids decisions (LF)	-.607	
	32 Delays responding (LF)	-.563	

FEEDBACK

In the factor analysis of the feedback dimensions, it was tried to load the item of source credibility (SC) and the items of feedback quality (FQ) and feedback delivery (FD) on one single factor. The results of the factor analysis as presented in table D-2, indicated that it was possible to reduce the three dimensions of feedback into one dimension. Therefore, it has been chosen to reduce the feedback dimensions into one variable for further analysis, namely feedback.

Table D-2: Factor analysis of feedback scales including Source Credibility (SC), Feedback Quality (FQ), and Feedback Delivery (FD). Loadings <0.30 are not shown.

Scale item	Factor 1
1 Familiar with performance (SC)	.686
2 Useful feedback (FQ)	.815
3 Feedback helpful (FQ)	.850
4 Value feedback (FQ)	.818
5 Helps to do job (FQ)	.785
6 Information meaningful (FQ)	.680
7 Supportive (FD)	.771
8 Considerate feelings (FD)	.680
9 Thoughtless manner (FD)	.600
10 Treatment (FD)	.651
11 Tactful (FD)	.718

COMMITMENT

Employee commitment was measured with six dimensions and therefore it was tried to load these dimensions on six factors. The items of the affective job commitment dimension were loaded on factor 2, the items of normative job commitment were loaded on factor 3. Three items of affective departmental commitment were loaded on factor 2, one item was loaded on factor 5 and one item was loaded on factor 6. The items of normative departmental commitment were loaded on factor 1. Two items of affective organisational commitment were loaded on factor 2 and four items were loaded on factor 4. The normative organisational commitment items were all loaded on factor 1. It seems that the affective scales are somewhat intercorrelated and the same is true for the normative scales. It was also tried to load the dimensions on one single factor. As shown in table D-3, the dimensions can be reduced into one variable, namely employee commitment. When grouping the scales in job commitment, departmental commitment and organisational commitment, it appears that the normative dimensions can be differentiated from the affective dimensions (see also table D-4, 5 and 6). So, this means that although the employee commitment dimensions were not loaded on their intended factors, a clear distinction can be made between the three foci of commitment and their bases. However, to create a more simple model, employee commitment will be used for further analysis first.

Table D-3: Factor analysis of commitment scales. Loadings <0.30 are not shown.

	Scale item	Factor 1
Affective job commitment	1 Job interesting	.614
	2 Pleasure in work	.676
	3 Desire to carry out job	.555
	4 Proud on job	.744
	5 Enjoy work	.680
Normative job commitment	6 Provide craftsmanship	.436
	7 Good performance important	.425
	8 Responsible for error in product	.462
	9 Responsible for product	.607
	10 Responsible for improvements product	.651
	11 Working accurate	.497
	12 Being observant	.459
	13 Satisfy others important	.618
Affective commitment department	14 Closely involved	.644
	15 Mutual relations	.418
	16 Proud on department	.756
	17 Feeling home	.703
	18 Take negative talks seriously	.617
Normative commitment department	19 Responsible for mistakes/failures department	.744
	20 Responsible for department matters	.699
	21 Responsible for all products of the department	.617
	22 Adopt targets department	.742
	23 Responsible for changes department	.737
	24 Responsible for improvements department	.758
	25 Responsible for reputation department	.774
Affective commitment organisation	26 Proud on organisation	.734
	27 Sense of belonging to company 'family'	.705
	28 Pleasant organisation	.776
	29 Organisation means a lot	.751
	30 Feeling home	.759
	31 Sense of belonging to company	.665
	32 Acceptance other jobs	.243
Normative commitment organisation	33 Responsible mistakes/failures organisation	.748
	34 Responsible organisation matters	.791
	35 Responsible for products of the organisation	.687
	36 Adopt company targets	.757
	37 Responsible changes organisation	.734
	38 Responsible improvements organisation	.780
	39 Responsible reputation organisation	.788
	40 Desire to remain	.585

Table D-4: Factor analysis of job commitment scales. Loadings <0,30 are not shown.

	Scale item	Factor 1	Factor 2
Affective job commitment	1		.758
	2		.780
	3		.502
	4	.352	.720
	5		.762
Normative job commitment	6	.634	
	7	.643	
	8	.687	
	9	.711	
	10	.645	.310
	11	.662	
	12	.734	
	13	.617	.354

Table D-5: Factor analysis of departmental commitment. Loadings <0.30 are not shown.

	Scale item	Factor 1	Factor 2
Affective commitment department	14	.304	.656
	15		.329
	16	.324	.767
	17	.328	.654
	18	.454	.467
Normative commitment department	19	.700	.367
	20	.699	.317
	21	.545	
	22	.706	.340
	23	.758	.346
	24	.677	.460
	25	.704	.411

Table D-6: Factor analysis of organisational commitment scales. Loadings <0.30 are not shown.

	Scale item	Factor 1	Factor 2
Affective commitment organisation	26	.321	.715
	27	.385	.751
	28	.362	.657
	29	.412	.747
	30	.381	.676
	31	.444	.641
	32		.393
	Normative commitment organisation	33	.591
34		.690	.446
35		.677	.392
36		.668	.424
37		.813	
38		.815	
39		.639	.486
40		.646	

ORGANISATIONAL CULTURE

It was tried to load the four dimensions of organisational culture on four factors. As shown in table D-7, the clan culture was mostly loaded on factor 1 and the hierarchy culture was mostly loaded on factor 4. However, one item of the clan culture loaded below 0,3 and the same was true for two items of the hierarchy culture. Of both the adhocracy and the market culture, only two items were loaded above 0.3. The two items of adhocracy were loaded on factor 3, one item of the market culture dimension was also loaded on factor 3, and one item of market culture was loaded on factor 4. So the four dimensions of organisational culture were not loaded on their intended factors.

Table D-7: Factor analysis of organisational culture scales. Loadings <0,30 are not shown.

	Scale item	Factor 1	Factor 2	Factor 3	Factor 4
Clan Culture	1 Personal place	.417			
	2 Leader mentor				
	3 Management style teamwork	.491			
	4 Organisation glue loyalty and mutual trust	.581			
	5 Emphasise on human development	.471			
	6 Success human development	.531			
Adhocracy	7 Dynamic entrepreneurial place		.373		
	8 Leader entrepreneur				
	9 Management style innovation				
	10 Organisation glue commitment to innovation				
	11 Emphasise new resources		.379		.351
	12 Success unique or new products				
Market	13 Results oriented place				.782
	14 Leader results-oriented				
	15 Management style hard-driving competitiveness				
	16 Organisation glue achievement				
	17 Emphasise competitive actions				
	18 Success winning in marketplace		.401		
Hierarchy	19 Controlled and structured place				
	20 Leader coordinator			.569	
	21 Management style stability in relations			.640	
	22 Organisation glue formal rules and policies			.364	
	23 Emphasise stability			.335	
	24 Success efficiency				

APPENDIX E INTERNAL CONSISTENCY RELIABILITY

Table E: Internal consistency reliability of the 20 scales.

Scale	Dimensions	N of items	N of resp.	Mean	SD	Alpha α	New N of items	New α
Transformational leadership behaviour	Idealized Influence (II)	4				.689		
	Inspirational Motivation (IM)	4				.854		
	Intellectual Stimulation (IS)	4				.787		
	Individualized Consideration (IC)	4				.739	3	.813
Transactional leadership behaviour	Contingent Reward (CR)	4				.779		
	Management-by-exception Active (MBE-A)	4				.682		
	Management-by-exception Passive (MBE-P)	4				.760		
Laissez Faire	Laissez Faire	4				.799		
Feedback	Feedback Quality	6				.906		
	Feedback Delivery	5				.832		
Job commitment	Affective commitment	5				.856		
	Normative commitment	8				.887		
Commitment to the department	Affective commitment	5				.787		
	Normative commitment	7				.909		
Organisational commitment	Affective commitment	7				.896		
	Normative commitment	8				.931		
Organisational Culture	Clan culture	6				.606		
	Adhocracy culture	6				.291	5	.364
	Market culture	6				.565	5	.676
	Hierarchy culture	6				.340	1	.390

APPENDIX F OVERVIEW AND DESCRIPTION CONSTRUCTS

INDEPENDENT VARIABLES

The results of the factor analysis indicated that the eight leadership components of the three leadership typologies can be reduced into:

- Active leadership** Active leadership includes the four components of transformational leadership (II, IM, IS, IC) and two components of transactional leadership (CR and MBE-A). Active leadership can be conceptualised by means of the conceptualisations of the six leadership dimensions as mentioned in chapter 2. In short: active leaders are admired, respected and trusted by their followers (II) and behave in ways that motivate and inspire those around them by providing a meaning and challenge to their followers' work (IM). They stimulate their followers' effort to be innovative and creative (IS) and active leaders pay attention to each individual's need for achievement and growth by acting as a mentor or coach (IC). Furthermore, active leaders assign or obtain follower agreement on what needs to be done with promised or actual rewards offered in exchange for satisfactorily carrying out an assignment (CR) and they monitor subordinate behaviour, deviances from standards, mistakes and errors in the follower's assignments and take corrective action as necessary (MBE-A).
- Passive leadership** Passive leadership includes one component of transactional leadership (MBE-P) and Laissez Faire leadership. In short, passive leaders undertake interventions after mistakes are happen or when problems arise (MBE-P) or they even avoid leadership (LF).
- Total leadership** Total leadership is the extent of active leadership which means that total leadership is the mean of active leadership and non-passive leadership (i.e. 1 minus passive leadership).

INDEPENDENT OR MEDIATING VARIABLE

The three feedback dimensions (i.e. Source Credibility, Feedback Quality and Feedback Delivery) can be reduced into one variable, namely:

- Feedback** Feedback includes one item of SC, 5 items of FQ and 5 items of FD. Feedback can be described as the usefulness and consistency of the feedback and the intention to deliver feedback.

DEPENDENT VARIABLES

The criterion variables (or dependent variables) are the six employee commitment dimensions and the key performance indicators (KPI's). The employee commitment dimensions can be defined as follows:

- Affective job commitment (AJC)** AJC is the employees' emotional attachment to, identification with, and involvement in their jobs.
- Normative job commitment (NJC)** NJC is the employees' feeling of obligation to remain in their jobs.

Affective departmental commitment (ADC)	ADC which is the employees' emotional attachment to, identification with, and involvement in their department.
Normative departmental commitment (NDC)	NDC is the employees' feeling of obligation to remain with their department.
Affective organisational commitment (AOC)	AOC is the employees' emotional attachment to, identification with, and involvement in their organisation.
Normative organisational commitment (NOC)	NOC is the employees' feeling of obligation to remain with the organisation.

The KPI's that were available are:

Production numbers	The difference between the actual and budgeted production numbers (i.e. number of produced goods) per department.
Overall Equipment Effectiveness (OEE)	The difference between the actual and budgeted overall equipment effectiveness (i.e. method of judging the effectiveness of how operations equipment is used based on time, quality and speed) in percentages per department.
Labour Efficiency (LE)	The difference between the actual and budgeted labour efficiency (i.e. the differences between the budgeted labour time and the actual labour time used) in percentages per department.
Spoilage (SPOIL)	The difference between the actual and budgeted spoilage (i.e. an activity which does not add value) in percentages per department.
Full Time Employee (FTE)	The difference between the actual and budgeted number of full time employees (i.e. employees working 38 hours a week) per department.
Maintenance (MAIN)	The difference between the actual and budgeted maintenance (i.e. how organisations try to avoid failure by taking care of their physical facilities) in Euros per department.
Cost of Capital Expenditures (CAPEX)	The differences between the actual and budgeted cost of capital expenditures (i.e. the costs of fixed assets that will last for more than one budgeted year) in Euros per department.
Cost Reductions (CRED)	The difference between actual and budgeted cost reductions in Euros per department.

APPENDIX G INDIVIDUAL SCORES

Table G. Individual scores.

[This information is restricted and unavailable.]

APPENDIX H DISTRIBUTION FOR THE THREE GROUPS OF SUPERVISORS

[This information is restricted and unavailable.]

APPENDIX I CORRELATIONMATRIX VARIABLES

Table I: Pearson correlations of all variables (n=27).

	1	2	3	4	5	6	7	8	9
1 Total leadership	1								
2 Active leadership	.875 ***	1							
3 Transformational leadership	.881 ***	.967 ***	1						
4 Contingent Reward	.826 ***	.975 ***	.969 ***	1					
5 Management-by-Exception Active	.771 ***	.889 ***	.760 ***	.783 ***	1				
6 Passive leadership	-.977 ***	-.779 ***	-.782 ***	-.727 ***	-.701 ***	1			
7 Management-by-Exception Passive	-.958 ***	-.747 ***	-.767 ***	-.686 ***	-.666 ***	.975 ***	1		
8 Laissez Faire	-.951 ***	-.774 ***	-.760 ***	-.733 ***	-.703 ***	.978 ***	.907 ***	1	
9 Feedback	.922 ***	.878 ***	.906 ***	.865 ***	.707 ***	-.873 ***	-.839 ***	-.865 ***	1
10 Employee commitment	.296 *	.378 **	.456 ***	.392 **	.208	-.214	-.215	-.203	.448 ***
11 Job commitment	.186	.235	.303	.251	.099	-.138	-.124	-.145	.337 **
12 Affective job commitment	.309 *	.345 **	.415 **	.363 **	.187	-.249	-.235	-.250	.435 **
13 Normative job commitment	-.035	.022	.075	.033	-.053	.055	.067	.041	.125
14 Departmental commitment	.382 **	.434 **	.521 ***	.458 ***	.234	-.304 *	-.303 *	-.291 *	.520 ***
15 Affective departmental commitment	.327 **	.377 **	.449 ***	.399 **	.206	-.250	-.250	-.238	.428 **
16 Normative departmental commitment	.391 **	.439 **	.530 ***	.462 ***	.234	-.320 *	-.318 *	-.307 *	.547 ***
17 Organisational commitment	.068	.228	.277 *	.242	.116	.007	.003	.010	.216
18 Affective organisational commitment	-.011	.137	.142	.133	.112	.084	.076	.087	.092
19 Normative organisational commitment	.130	.276 *	.357 **	.305 *	.103	-.064	-.063	-.062	.296 *
20 Affective commitment	.248	.332 **	.390 **	.346 **	.193	-.170	-.167	-.165	.373 **
21 Normative commitment	.215	.309 *	.395 **	.333 **	.129	-.152	-.148	-.150	.394 **

N=27; ***p<0.01 (1-tailed); **p<0.05 (1-tailed); *p<0.10 (1-tailed)

APPENDIX J RESULTS REGRESSION ANALYSIS

Table J-1: Multiple regression analysis active and passive leadership, feedback and employee commitment.

Dependent	Independent	R ²	B	t-value (p-value)
Employee commitment	(Constant)	.40	4.27	6.70 (p<.01)
	Feedback		.41	3.93 (p<.01)
Affective commitment	(Constant)	.31	4.15	5.74 (p<.01)
	Feedback		.39	3.23 (p<.01)
Normative commitment	(Constant)	.39	4.48	6.74 (p<.01)
	Feedback		.42	3.80 (p<.01)
Job commitment	(Constant)	.35	5.16	7.83 (p<.01)
	Feedback		.39	3.55 (p<.01)
Departmental commitment	(Constant)	.36	3.80	4.59 (p<.01)
	Feedback		.49	3.62 (p<.01)
Organisational commitment	(Constant)	.27	3.99	5.90 (p<.01)
	Feedback		.32	2.90 (p<.01)
AJC	(Constant)	.36	3.65	4.12 (p<.01)
	Feedback		.52	3.56 (p<.01)
NJC	(Constant)	.25	6.68	11.96 (p<.01)
	Feedback		.25	2.74 (p= .01)
ADC.	(Constant)	.21	4.42	4.92 (p<.01)
	Feedback		.37	2.50 (p= .02)
NDC	(Constant)	.45	3.17	3.64 (p<.01)
	Feedback		.62	4.30 (p<.01)
AOC	(Constant)	.20	4.37	6.57 (p<.01)
	Feedback		.27	2.42 (p= .02)
NOC	(Constant)	.25	3.60	4.32 (p<.01)
	Feedback		.38	2.77 (p= .01)

Table J-2: Multiple regression analysis of the leadership behaviours, feedback and employee commitment dimensions.

AJC	(Constant)	.36	3.65	4.12 (p<.01)
	Feedback		.52	3.56 (p<.01)
NJC	(Constant)	.25	6.68	11.96 (p<.01)
	Feedback		.25	2.74 (p= .01)
ADC.	(Constant)	.22	4.42	5.13 (p<.01)
	Transformational leadership		.39	2.61 (p= .02)
NDC	(Constant)	.45	3.17	3.64 (p<.01)
	Feedback		.62	4.30 (p<.01)
AOC	(Constant)	.25	4.25	6.82 (p<.01)
	Transformational leadership		.30	2.79 (p= .01)
NOC	(Constant)	.33	3.35	4.40 (p<.01)
	Transformational leadership		.45	3.38 (p<.01)