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An integrated model of factors influencing project managers' motivation — Findings from a Swiss Survey

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Abstract

The imperative need for increasing project managers' motivation is a major concern for organizations. We developed and evaluated an integrated model of factors influencing project managers' motivation, the 'Motivational Factor Inventory' (MFI). The MFI consists of 47 items grouped in 6 motivational dimensions. These dimensions are: 1) interpersonal interaction, 2) task, 3) general working conditions, 4) empowerment, 5) personal development, and 6) compensation. Results of this study showed that the MFI was a valid instrument and that all identified items were relevant for project managers' motivation. A clearly defined, interesting task, working with a supportive and goal oriented team, getting the necessary information and financial and personnel resources, and having the possibility to influence important decisions have been identified as the most important motivators for project managers working in Switzerland. Factors related to compensation were the least important motivators. Results are discussed, and practical conclusions and recommendations for further research are formulated.

Keywords: Project management; Motivation; Human factor; Performance; Management; Model validation

1. Introduction

All over the world, projects have become a means to enhance organizational performance and competitiveness (Gällstedt, 2003). The use of project work is a clear trend in businesses and organizations, which makes project management a rapidly developing discipline in modern service societies (Belout and Gauvreau, 2004; Ekstedt et al., 1999). Despite the developments in project management, 65% of today's projects do not reach their objectives (Hass, 2007). Productivity surveys and war game exercises conducted by DeMarco and Lister (1999) amongst more than 500 IT project managers and team members showed that the absence of motivation is the most frequent cause of a project's failure. Motivation is seen as a central factor in successful project management (McConnell, 1996; Sharp et al., 2007; Verma, 1996). Managers and employees who lack motivation perform poorly, even though they may have excellent technical and project management skills (Germann, 2004; Wiley, 1997). Hence, the imperative need for discovering, comprehending, and increasing project managers' motivation is a major concern for organizations (Adams and Ruiz Ulloa, 2003; Kim, 2006; Watson, 1994).

The goal of this study was to develop and empirically test an integrated model of motivational factors for project managers, the 'Motivational Factor Inventory' (MFI), and evaluate the importance of this inventory for project managers working in Switzerland. In the following, we will first emphasize on the importance of work motivation with a focus on project management, then present results from previous studies on work related motivators in general and for project managers in

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particular, before introducing the MFI and results of the empirical study.

2. Motivation at work

The word motivation is coined from the Latin word "movere" which means to move. Motivation is defined as an internal driver that activates and directs behavior (Sansone and Harackiewicz, 2000). From early on, the concept of motivation has been utilized to explain types of behavior, for example, basic biological needs or drives connected to survival and procreation (e.g., hunger or thirst) and extrinsic rewards or punishments. These types of explanations suggest that behavior is motivated by the need or desire to achieve particular outcomes (e.g., promotion, recognition, or avoidance of punishment) (Sansone and Harackiewicz, 2000). Thus, motivation energizes and guides behavior toward reaching a particular goal and is intentional and directional (Nel et al., 2001). Several authors postulated that without motivation even the most talented people will not deliver to their potential, and that motivated people perform way above the level expected of their intelligence and academic ability (Bateman and Snell, 1999; Germann, 2004; Snell, 1999; Woodall et al., 1997). Motivation has more positive effects on output factors (e.g., reaching project goals in time) than other aspects (Boehm, 1981; Hall et al., 2009).

Different motivation theories describe why and how human behavior is activated and directed. These motivation theories can be divided into two main categories: a) content theories (e.g. Maslow's (1943, 1954) hierarchy of needs; Alderfer's (1972) ERG theory; McClelland's (1961) three needs theory; or Herzberg et al. (1959) two factor theory) and b) process theories (e.g. Adams' (1963) equity theory; Vroom's (1964) expectancy theory; Locke's (1968) goal setting theory; or Skinner's (1969) reinforcement theory). Content theories define motivation in relation to the needs of individuals (e.g., being motivated through the need of achievement or the need of power) and explain why it is important to consider individual needs of employees with regard to work motivation. While Maslow (1943) argued that individual needs exist in a hierarchical order (physiological needs, security needs, social belongingness needs, self-esteem needs, and self-actualizing needs) and that unsatisfied needs motivate behavior, whereby lower-level needs have to be satisfied before higher-level needs become motivational (e.g., lower-level needs such as an adequate pay to take care of the family and safe working conditions have to be satisfied, before higher level needs such as the desire of social belongingness or increased responsibility become motivational), Alderfer (1972) argued in his ERG Theory, that the need for 'existence' (E) (comparable to Maslow's physiological and security needs), for 'relatedness' (R) (comparable to Maslow's social belongingness and self-esteem needs), and 'growth' (G) (comparable to Maslow's self-actualization needs) can have motivational character simultaneously. McClelland (1961) argued that individuals learn needs throughout their socialization and vary in their needs for affiliation, power, and achievement. As a consequence, managers should try to identify and focus on the need-dominance of their employees and structure the work environment and recognition strategy accordingly, in order to create a motivating working environment. Herzberg et al. (1959) identified two sets of factors that have an influence on employees' motivation: hygiene factors (e.g., working conditions, quality of supervision, compensation, status) and motivation factors (e.g., recognition, achievement, responsibility, hierarchical and personal growth). Based on his research he concluded that the presence of hygiene factors would mainly prevent employees from being dissatisfied, while only the presence of motivation factors would lead to higher work motivation. As a consequence, managers have to ensure that employee's hygiene factors are met in order to have a satisfied workforce; if they want to motivate their employees to exert additional effort, they need to focus on motivation factors by increasing employees' autonomy and responsibility, recognizing their work and offering professional development opportunities. In sum, content theories suggest to focus on individual needs and to match individual needs to job requirements (e.g., people with high growth needs are more motivated to solve challenging tasks) in order to improve employees' work motivation.

While content theories focus on individual needs, process theories define motivation in terms of a rational cognitive process (e.g., being motivated through a challenging goal). Process theories focus on behavior as a result of a conscious decision-making process. Adams (1963) for instance postulated in his equity theory that individuals compare their own efforts and rewards with efforts and rewards of others. Perceived inequity has a negative influence on motivation (e.g., leading to reduced working efforts or requests for higher compensation). Vroom (1964) argued that individuals choose working behaviors which they believed to have positive outcomes. According to this theory, a person is motivated to show a certain behavior, if he/she expects that increased efforts will improve performance and that improved performance will lead to valued rewards or outcomes. Locke's (1968) goal setting theory focuses on the importance of specific and challenging goals in achieving motivated behavior. He argues that specific (measurable) and challenging (difficult but not impossible to achieve) goals are more motivational than vague and easy to achieve goals. Skinner (1969) postulated in his reinforcement theory that the consequences of a behavior are the main reasons why a person is behaving in a certain way. Behavior that is reinforced is most likely to continue, while behavior that is not rewarded or punished is unlikely to be repeated. Hence, managers can improve employees' performance by modifying their behavior based on reinforcing desired and punishing undesired behavior. In sum, process theories suggest to emphasize on goal setting and reward processes, to link reward systems to performance, and to check the system for equity between different individuals and groups.

For project managers, both categories of motivation theories are of utmost importance and relevance; their individual needs (e.g., their need for belonging to a group, empowerment, and achievement) as well as their rational cognitive processes (e.g., their evaluation of goal setting processes or reward systems) play an important role with regard to their work motivation. In order to identify specific content and process related motivators for project managers, we need to understand the nature of their work. Project work leads to additional pressure such as fluctuating workloads, uncertain requirements, or multiple role demands.

Project managers have to deal with peaking workloads, making it difficult to achieve a work-life balance. Particularly, the temporary nature of project work is a challenge for project managers. Often, there is an uncertainty about future assignments, including the nature of the assignment, its location, and future work colleagues (Turner et al., 2008). In addition, project managers' daily practice is often associated with inadequate resources, unclear objectives, lack of upper management support and changing priorities (Dolfi and Andrews, 2007). All these aspects are in contrast to the classical characteristics of a line manager's work in an organization where the emphasis is not on projects but on routine products and services and where job requirements are well-defined and stable (Keegan and Turner, 2003). A project manager needs to be flexible, goal oriented and staged, in direct contrast to routine operations management, where the processes need to be stable, activity-oriented and continuous. Turner and Mueller (2003) identified three key pressures in projects that are frequently not met in functional organizations:

1. The uncertainty. Projects are subject to uncertainty: it is uncertain that plans will deliver the required project outcomes or desired beneficial change.
2. The need for integration. Projects create a need for integration (e.g., of the available resources; between different parts of the project; of the project into the business).
3. The urgency. Projects are subject to urgency of delivering the desired outcomes within the desired timeline.

These key pressures illustrate that project managers are confronted with specific work characteristics that are somewhat different from classical line managers. Therefore, we believe that identifying content and process related motivators for project managers is important in order to be able to create a motivating working environment. Our focus is hereby on factors that can be influenced by the organization, rather than on factors related to personal variables of the project manager. The reason for this approach is that organizational and work related factors can be actively influenced by senior management, while personal variables of project managers are relatively stable (e.g., personality) or emerge over time (e.g., experience, age) and cannot be influenced by the organization to the same degree. Hence, an understanding of organizational and work related factors seems to be the most powerful approach to identify strategies that have a positive impact on project managers' motivation. However, results from several studies showed that personal related variables such as personality (e.g., Dolfi and Andrews, 2007; Mueller and Turner, 2009; Mumford et al., 2000), experience (e.g., Lee-Kelly and Leong, 2003), or age (e.g., Clark et al., 1996; Eskildsen et al., 2004; Hansson et al., 1997; Kooij et al., 2010) have an influence on work motivation and performance. Therefore, the effectiveness of organizational and work related motivational factors has to be understood based on individual personal differences.

3. Studies on general job-related motivation

The search for motivational factors to improve working conditions and working productivity has a long history. Over the past sixty years, there have been numerous surveys on what motivates employees in their job (e.g., Beecham et al., 2008; Dwivedula and Bredillet, 2010; Hall et al., 2009; Heimovics and Brown, 1976; Labor Relations Institute, 1946; Nicholson, 2003; Peterson, 2007; Pinder, 1998; Procaccino and Verner, 2006; Sharp et al., 2009; Wiley, 1997). Most of these studies have focused on how managers can increase their team members' motivation.

The Labor Relations Institute (1946) of New York published ten relevant job-related motivational factors from a survey focusing on preferred job reward factors of employees in the industrial sector. The factors were: 1) full appreciation of work done, 2) feeling of being in on things, 3) sympathetic understanding on personal problems, 4) job security, 5) good wages, 6) interesting work, 7) promotional growth in organization, 8) personal loyalty to employees, 9) good working conditions, and 10) tactful disciplining. It was one of the first surveys conducted to address the challenges of employees' motivation (Hersey and Blanchard, 1982). Subsequently, many researchers replicated the study (Fisher and Xue Ya Yuan, 1998; Keller, 1978; Kovach, 1980, 1987, 1995; LeDuc, 1980; Nevis, 1983; Silverthorne, 1992). Collectively, findings from these surveys indicated that good wages and full appreciation of achieved work were ranked among the top motivational factors (Baddoo et al., 2006). The importance of wages and rewards was also confirmed by survey results from Jurkiewicz et al. (1998) with 296 employees from the public and private sector and by survey results from Wiley (1997) with 460 employees from the industrial sector.

Based on results of a survey with 1005 managers and technical employees in an insurance company, Ferratt and Short (1986) developed a motivational checklist that identified five central needs of employees: 1) need for guidance (e.g., help and advice, showing the way), 2) social needs (e.g., friendly companionship with others), 3) esteem needs (e.g., being respected), 4) achievement needs (e.g., the possibility to accomplishing something) and 5) power needs (e.g., possession of controlling influence). It is interesting to note that monetary aspects such as good wages were not identified as one of the central motivational needs by Ferratt and Short (1986). Beecham et al. (2008) created a list of 22 motivators for software engineers based on a review of 92 research papers. The most frequently named motivators were: 1) the need to identify with the task, 2) having clear goals, 3) a personal interest in the topic, 4) understanding the purpose of the task, 5) understanding how the task fits in with the whole, 6) having job satisfaction, and 7) working on identifiable pieces of work. A clear career path and a variety of tasks were also recognized as highly motivating factors for engineers in this research.

4. Studies on project managers' motivation

Project work is often said to be motivating due to set terms and clear goals, which results in clear process related motivators. Still, project delivery tends to involve tight deadlines, and interactions with groups with multiple interests, implying high pressure on the individuals involved (Gällstedt, 2003). There are fewer studies that focused on specific factors motivating project managers (e.g.,

Sharp et al., 2007; Tampoe and Thurloway, 1993). Often, it is postulated that project managers have to be self-motivated and be able to motivate their project team members in order to have high performing teams (Verma, 1996). This postulate of 'self-motivated project managers' is an oversimplification of the important issue of project managers' motivation and underlines the fact that the focus is on how project managers can motivate their team members rather than on what motivates project managers.

Tampoe and Thurloway (1993) identified five motives and drivers for project managers and project teams, based on written feedback from 98 project managers and team members in R&D and IT organizations: 1) mutuality (e.g., mutual support, loyalty), 2) recognition for personal achievement (e.g., personal growth and recognitions through financial incentives and status), 3) belonging (e.g., supportive, cohesive, and friendly team relationships), 4) bounded power (e.g., authority and control), and 5) creative autonomy (e.g., opportunity to use own creativity and potential). Based on a literature review, Verma (1996) suggests the following important motivational factors for project managers: 1) project culture (the attitudes and behavior of a particular organization), 2) project reward system (the way an organization is rewarding employees), 3) work content (the task itself and its content), 4) environment (the totality of surrounding conditions), 5) supervision (way of overseeing the performance or operation of a person or group), 6) previous success (personal achievements in the past), 7) competition (the possibility of competing as for profit or a prize) and 8) believing in what one does (to feel confident about own work). In addition, factors such as career development, a sense of belonging and making a contribution to the entire system, receiving positive feedback, and having autonomy were also identified as important motivational factors for project managers, e.g., by Linberg (1999) based on structured interviews with software project developers or by Mak and Sockel (2001) based on research investigating the latent constructs of work motivation among 130 information systems project developers.

5. An integrated model of motivators for project managers

The above-mentioned studies were based on different methodological approaches and were of various scopes: some focused on motivational factors in general while others focused on specific groups of professionals such as software engineers; some results were based on employee-surveys, others on written/oral structured or unstructured feedbacks, and some on literature reviews and meta-analysis. However, despite the differences in methodology and scope, these studies share several common identified motivators. Our attempt was to develop a content driven, statistically valid and reliable model of organizational, work related factors which influence project managers' motivation, integrating findings from the rich tradition of research in this field. In order to develop such an integrative, statistically reliable model, we chose a four-step approach. First, all organizational, work related motivational factors from the above-mentioned studies were listed next to each other. Second, the individual factors were clustered into different dimensions based on content-proximity. A first version of the clusters was developed by the authors of the study, which was subsequently revised by two external subject-matter experts in work motivation. In a meeting between the authors and the external subject-matter experts, the final allocation of each factor to a dimension was agreed. At this stage, all factors were clustered into six dimensions. In the third step, redundancies on the individual factor level were eliminated and several factors were reformulated in order to have a cohesive formulation of the items in each dimension. In step four, the labels of the six identified dimensions were defined, based on the content of the factors represented in each dimension: 1) Interpersonal Interaction, 2) Task, 3) General Working Conditions, 4) Empowerment, 5) Personal Development, and 6) Compensation.

The goal of this four step approach was a) to include all previously identified relevant motivators into one model and b) to define the right number of dimensions and items within the model. This second goal required to balance content (inclusiveness), complexity (number of dimensions and items with regard to practical usability of the model), and statistical (potential to fulfill empirical validation criteria) requirements. The novelty of this research lies in the empirical validation of an integrative, content driven model focusing on specific motivational aspects for project managers. Such a model increases the statistical as well as practical reliability of findings with regard to project managers' motivation compared to single item questions or not empirically validated models. In the following, the six dimensions are described in more details.

5.1. Dimension 1: interpersonal interaction

Having positive interpersonal interactions is an essential motivator for project managers (Ferratt and Short, 1986; Tampoe and Thurloway, 1993; Verma, 1996). Project managers need to deal with conflicting interests of various groups. They have to establish a positive communication with all involved people, and they need to interact with individuals with different interests and at different levels. In short, they have to be able to manage human interactions within the project team as well as within and outside the organization (Seiler and Lent, 2005). Hence, experiencing positive interactions within the team, with the superior and in general are seen as basic requirements for project managers' motivation. Interpersonal interaction is a content related motivator, fulfilling the need for positive, supportive relationships. We divided 'Interpersonal Interaction' into three sub-dimensions:

Interpersonal Interaction with Team: This sub-dimension focuses on the relationship between the project manager and his/her project team members. It includes aspects such as working with a cohesive, supportive team that is committed to the project, has a will to achieve results, and is capable to handle difficult situations.

Interpersonal Interaction with Superior: This sub-dimension focuses on the relationship between the project manager and his/her superior. It includes aspects such as obtaining the right balance between direction and freedom, receiving open and fair feedback, having a superior with an open and supportive mindset, as well as a generally positive relationship with the superior.

General Aspects of Interpersonal Interaction: This sub-dimension integrates other relevant aspects related to interpersonal interactions of project managers. Experiencing loyalty and support in all relations and working in a trustworthy environment are seen as basic conditions for positive interactions and are important motivators for project managers. In addition, it includes aspects such as communication flow, direct client contact, enjoying prestige and social status, and being respected as a professional.

5.2. Dimension 2: task

Projects are often said to be motivating due to their process-related motivational aspects of set terms and clear goals (Gällstedt, 2003). Findings from previous studies indicate that the task has a motivational component (Beecham et al., 2008; Verma, 1996). If the task is seen as important, interesting and understandable, it can create a positive influence on project managers' motivation. Because different aspects of the task can be sources of motivation, we formulated two sub-dimensions within this dimension.

Congruence of the Task with Occupational Aptitude and Disposition: Includes aspects such as having the opportunity to use own skills and abilities, having a variety of work, working on important tasks and having the feeling to contribute to society at large.
Clear Task, Goals and Results: Includes having a clear project goal as well as clear understanding of what to do, producing identifiable results and seeing progress in current project.

5.3. Dimension 3: general working conditions

Various incidents such as valuable resources being taken away, design-loops going in circles, or prioritizing other projects may change or influence project goals, project processes, or the project organization, increase the level of stress, and have a negative impact on project managers' motivation (Gällstedt, 2003; Tampoe and Thurloway, 1993; Verma, 1996). Positive general working conditions, such as getting the necessary resources, adequate work place, or job security are seen as basic necessary requirements for high job performance and have a positive impact on project managers' motivation. Hence, this dimension is a content related motivator; project managers are motivated when their needs for good working conditions are fulfilled. The following four sub-dimensions summarize motivational aspects related to general working conditions:

Resources: Includes aspects as getting the necessary financial and personnel resources, having access to all needed information and having the companies support for the right balance between workload and private life.
Working Environment: Includes adequate working place with a state of the art working environment.
Job Security: Includes having a secure job as well as a stable, long-term employment.
Processes: Includes adequate administrative processes, organizational rules and policies.

5.4. Dimension 4: empowerment

Based on previous research (Beecham et al., 2008; Linberg, 1999; Mak and Sockel, 2001), empowerment is one of the central motivators for project managers. Project managers' daily practice is often associated with inadequate resources, unclear objectives, lack of upper management support and changing priorities (Dolfi and Andrews, 2007). In order to deal with all the pressures and problems possibly arising during a project, the ability to influence or make decisions and exercise leadership is important for project managers' motivation. This dimension includes content related aspects (e.g., desire to influence decisions in order to be able to achieve goals), as well as process related aspects (e.g., being in charge/empowered is motivating).

5.5. Dimension 5: personal development

Several studies showed that having learning opportunities in project work is an important factor for employees to take over responsibilities in projects (Beecham et al., 2008; Ferratt and Short, 1986; Tampoe and Thurloway, 1993). Moreover, Huemann (2010) found that the opportunity to offer learning opportunities through project work is a competitive advantage for organizations to attract employees. Turner et al. (2008) stated that project managers' work has to be linked to their career development, and that it has to help them to achieve their career goals. As such, this dimension includes factors related to opportunities for further education, promotion, career advancement, professional experience, and personal growth. Motivational factors related to personal development are content related (e.g., desire for personal growth), as well as process related (e.g., being ready to work hard if this leads to professional advancement and learning opportunities).

5.6. Dimension 6: compensation

The dimension 'Compensation', which includes materialistic and non-materialistic rewards as well as wages, has consistently been shown to have an impact on employees' motivation (Baddoo et al., 2006; Locke, 1991; Wiley, 1997). The assumption is that a certain degree of compensation is important for project managers' motivation as recognition for their willingness to perform under such challenging conditions. Compensation can be a content-related motivator when it is seen as fulfilling general needs for surviving or it can be a process-related motivator when it is seen as receiving an adequate salary for the achieved outcomes.

Table 1 summarizes findings from studies (reviewed in the earlier sections) used to support our six motivational dimensions.

6. The 'Motivational Factor Inventory' (MFI)

Based on the six motivational dimensions, we identified motivators that describe specific work related aspects. We formulated 47 items, grouped into the six dimensions — the 'Motivational Factor Inventory' (MFI). Table 2 lists all items grouped into the respective dimension/sub-dimension.

Table 1
Overview of the above cited Studies related to the Six Dimensions of the 'Motivational Factors Inventory' (MFI).

1	2	3	4	5	6
Interpersonal interaction	Task	General working conditions	Empowerment	Personal development	Compensation
Ferratt and Short (1986): social needs, need for guidance, esteem needs	Beecham et al. (2008): need to identify with the task/ having clear goals/personal interest in the topic/ understanding the purpose of the task/understanding how the task fits in with the whole/having job satisfaction/ working on identifiable pieces of work/variety of tasks	Gällstedt (2003): negative effects on motivation through incidents as missing resource (personnel financial or temporal)/ changing priorities, preferences or prematurely closing of the project	Ferratt and Short (1986): power needs	Beecham et al. (2008): a clear career path	Baddoo et al. (2006); Locke (1991); Wiley (1997): wages and rewards
Labor Relations Institute (1946) replicated by Fisher and Xue Ya Yuan (1998); Keller (1978); Kovach (1980, 1987, 1995); LeDuc (1980); Nevis (1983); Silverthorne (1992): full appreciation of work done/tactful disciplining, personal loyalty to employees	Ferratt and Short (1986): achievement needs	Labor Relations Institute (1946) replicated by Fisher and Xue Ya Yuan (1998); Keller (1978); Kovach (1980, 1987, 1995); LeDuc (1980); Nevis (1983); Silverthorne (1992): sympathetic understanding on personal problems/job security/ good working conditions	Linberg (1999); Mak and Sockel (2001): having autonomy	Labor Relations Institute (1946) replicated by Fisher and Xue Ya Yuan (1998); Keller (1978); Kovach (1980, 1987, 1995); LeDuc (1980); Nevis (1983); Silverthorne (1992): promotional growth in organization	Labor Relations Institute (1946) replicated by Fisher and Xue Ya Yuan (1998); Keller (1978); Kovach (1980, 1987, 1995); LeDuc (1980); Nevis (1983); Silverthorne (1992): good wages
Linberg (1999); Mak and Sockel (2001): receiving positive feedback	Gällstedt (2003): having clear goals and set terms	Linberg (1999); Mak and Sockel (2001): belonging and making a contribution to the entire system	Tampoe and Thurloway (1993): bounded power	Huemann et al. (2007); Linberg (1999); Mak and Sockel (2001); Turner et al. (2008): career development	Verma (1996): project reward system/competition
Tampoe and Thurloway (1993): mutuality/belongings, recognition for personal achievement	Labor Relations Institute (1946) replicated by Fisher and Xue Ya Yuan (1998); Keller (1978); Kovach (1980, 1987, 1995); LeDuc (1980); Nevis (1983); Silverthorne (1992): feeling of being in on things/interesting work	Verma (1996): project culture/environment			
Verma (1996): supervision	Tampoe and Thurloway (1993): creative autonomy Verma (1996): work content/ previous success/believing in what one does				

Table 2
Motivational Factor Inventory (MFI).

Dimension	Items/motivational factors
1 Interpersonal Interaction	
Interpersonal interaction with team	Working with enthusiastic people
	Working with individuals who have a will to achieve results
	Being part of a cohesive and supportive team
	Working in a team capable to handle also difficult situations
	Sharing common project goals within the team
Interpersonal interaction with superior	Having a good relationship with my superior
	Having superiors who are open towards changes
	Being free from destructive/disruptive supervision
	Being hold accountable for my work in a fair way
	Experiencing support and encouragement in professional aspects
Interpersonal interaction, general aspects	Experiencing mutual support between project managers and line managers in my organization
	Experiencing good communication flow
	Experiencing loyalty (in all relations)
	Working in an trustful environment
	Obtaining recognition for my work efforts
	Having direct client contact
	Being respected as a professional
2 task	
Congruence of the task with occupational aptitude and disposition	Working on important tasks
	Having the opportunity to use own skills and abilities
	Having a variety of work
	Contributing to society at large
Clear tasks, goals and results	Seeing progress in current project
	Producing identifiable pieces of work
	Clear understanding of what to do
	Having clear project goals
3 General working conditions	
Resources	Getting the necessary financial resources to complete the task
	Getting the necessary personnel resources
	Having access to all needed information
	Having the companies support for the right balance between workload and private life
Working environment	Having a state of the art working environment
	Having an adequate working place (office, space)
Job security	Having a secure job
	Having stable, long-term employment
Processes	Having adequate administrative processes
	Having adequate organizational rules and policies
4 Empowerment	Having the opportunity to contribute to decisions
	Having the authority to make important decisions
	Having the opportunity to influence the departments or organizations actions
	Having the opportunity to influence roles and staffing of my project team.
5 Personal development	Having the opportunity for further education
	Having the opportunity for promotion and career in the organization
	Having the opportunity to acquire experience
	Having the opportunity for personal growth
6 Compensation	Having a performance-based total compensation
	Getting materialistic rewards above expectations
	Having an adequate total compensation
	Getting non-materialistic rewards

7. Method

7.1. Sample

The sample consisted of 282 project managers between 25 and 66 years old (M=44.22, SD=8.74; 256 males, 26 females) working in Switzerland. Out of 282 project managers, 84.0% (n=237) were Swiss, 5.3% (n=15) were Germans and the remaining 10% were from various countries such as Austria, France, Luxembourg, Netherlands, Belgium, Italy, Tschech Republic, and Morocco. The average years of work experience was 12.63 years (SD=7.85). A total of 83.7% (n=236) of the participants had either a professional education with project management certification or a higher education (Bachelor, Master).

7.2. Instrument

An online-version of the 47 item 'Motivational Factor Inventory' (MFI) was used (see Table 2). Participants were asked to indicate the degree to which these items have an impact on their motivation to perform their job. Each item was rated on a 6-point Likert-scale ranging from 1 (no impact) to 6 (very high impact).

7.3. Data collection

E-mail invitations with a link to the online questionnaire were sent to 1287 project managers from different organizations in Switzerland. A total of 138 e-mail addresses were not valid. 282 participants responded to the questionnaire (response rate = 24.5%). The only available information about the target population was their name and email address. This limited the possibilities to control for non-response biases. No difference in gender representation was found between the target population (91.1% male) and the study participants (90.8% male). Age distribution of study participants represented an expected curve (participants were between 25 and 66 years old, M = 44.22, SD = 8.74). The response rate of 24.5% was above the average response rate of 19% in web-surveys found in a meta-analysis by Shih and Fan (2007). These results indicate a low probability for systematic non-response biases.

7.4. Data analysis

Convergent validity: Structural equation models were built and confirmatory factor analysis was utilized to determine convergent validity of the MFI. We used maximum likelihood estimation and the path coefficients are standardized beta weights (β). Following values and fit indices were used to test the fit of the structural equation model:

$\chi 2$/df is the minimum discrepancy, divided by its degrees of freedom. In the present study, $\chi 2$/df values of 2.5 and below were an indicator for reasonable fit (Carmines and McIver, 1981).

A Tucker–Lewis coefficient (TLI) of close to 1 indicated a very good fit (Bentler and Bonett, 1980).

The comparative fit index (CFI; Bentler, 1990) is identical to the McDonald and Marsh (1990) relative noncentrality index (RNI). CFI values close to 1 indicated a very good fit.

The root mean square error of approximation, called RMS by Steiger and Lind (1980), and RMSEA by Browne and Cudeck (1993), takes model complexity into account. In the present study, RMSEA values of .05 and below are indicators for close fit and values of .08 and below are indicators for acceptable fit (Browne and Cudeck, 1993; Jöreskog and Sörbom, 1993; Kline, 1998).

Internal Consistency/Reliability of the MFI: Internal consistency/reliability of the MFI was assessed using Cronbach's alpha (α). Typically, a scale is defined as reliable if the Cronbach's α value is above .70 (DeVellis, 2003). However, Cronbach's α is sensitive to the number of items in a scale. For scales with few items (such as the dimension 'Compensation'), it is not uncommon to see low Cronbach's α values. In this case, it is more appropriate to report the mean inter-item correlation between the items. An optimal range for the inter-item correlation is between .20 and .40 (Briggs and Cheek, 1986).

Motivational factors for project managers in Switzerland: Descriptive statistics were used to determine the importance of each motivational dimension and individual motivator. Paired-samples t-tests were performed to examine the differences between the six dimensions. Applying linear regression, we controlled for the influence of the personal variable 'age' on organizational and work related motivators.

8. Results

8.1. Convergent validity of the MFI

This is an *a priori* study. Results of the structural equation models showed that all six models had a good fit with the observed data. The fit indexes demonstrated good to excellent convergent validity and all factor loadings were significant (.32–.91, $p < .01$) (see Table 3).

In order to test the full model integrating all six dimensions, we reduced the complexity by building the means of each dimension. As all six dimensions had a high internal reliability and demonstrated good to excellent convergent validity, this reduction of complexity for statistical testing is admissible. Fig. 1 shows that the model fits well with the observed data, $\chi 2$ (1, n = 282) = .471; $\chi 2$/df = .471; CFI = 1.00; TLI = 1.00; RMSEA = .000. All factor loadings were significant (.74–.84, $p < .01$).

8.2. Internal consistency/reliability of the MFI

Cronbach's α values for five of the six dimensions ranged from .74 to .92 (Interpersonal Interaction: α = .92; Task: α = .74; General Conditions: α = .82; Empowerment: α = .82; and Personal Development: α = .75), demonstrating good to excellent internal consistency. Cronbach's α value for the dimension 'Compensation' was .65. As this scale consisted of 4 items only, we used the inter-item coefficient for reliability check. The mean inter-item correlation for the dimension 'Compensation' was .33 and fulfilled the criterion for internal scale reliability.

Table 3
Convergent validity of the MFI.

Dimension	$\chi 2$	$\chi 2/df$	CFI	TLI	RMSEA
1 Interpersonal interaction	(113, n = 282) = 221.02	1.96	.93	.95	.058
2 Task	(19, n = 282) = 16.66	.88	1.00	1.00	.000
3 General working conditions	(31, n = 282) = 66.72	2.15	.94	.96	.064
4 Empowerment	(1, n = 282) = 1.08	1.08	1.00	1.00	.017
5 Personal development	(1, n = 282) = .03	.03	1.00	1.00	.000
6 Compensation	(1, n = 282) = .03	.03	1.00	1.00	.000
Full mfi model	(1, n = 282) = .471	.471	1.00	1.00	.000

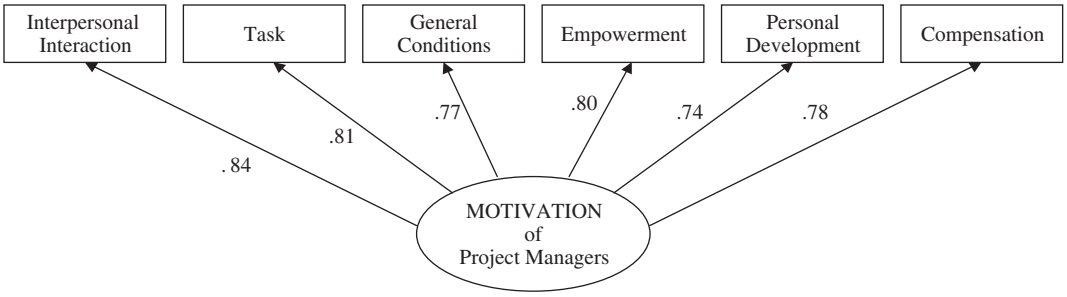

Fig. 1. Integrated model of motivational dimensions of the MFI[1].

8.3. Motivators for project managers

The dimension 'Task' (M=5.10, SD=.525) was rated as the most important dimension, followed by 'Interpersonal Interaction' (M=5.00, SD=.616), 'Empowerment' (M=4.91, SD=.752), 'Personal Development' (M=4.73, SD=.769), 'General Conditions' (M=4.54, SD=.654), and 'Compensation' (M=4.11, SD=.785). Table 4 presents the results of the paired-sample t-tests, indicating that there were significant differences between all six dimensions.

Table 5 presents the means and standard deviations of the motivational dimensions and sub-dimensions. The sub-dimension '*Clear Task, Goal and Results*' (M=5.26, SD=.641) was rated as the most important dimension, followed by '*Interaction with Team*' (M=5.07, SD=.712), '*Resources*' (M=4.98, SD=.678), '*General Aspects of Interpersonal Interaction*' (M=4.97, SD=.630), '*Interaction with Superior*' (M=4.94, SD=.682), '*Congruence of the Task with Occupational Aptitude and Disposition*' (M=4.92, SD=.611), and '*Empowerment*' (M=4.91, SD=.752).

Table 6 lists the top ten individual motivators. The top three motivational factors were: 1) 'Clear understanding of what to do' (M=5.31, SD=.886), 2) 'Working in a trustful environment' (M=5.31, SD=.839), and 3) 'Working with individuals who have a will to achieve results' (M=5.29, SD=.901). Closer examinations of the top ten motivators showed that majority of these items were from dimension 2 (Task) — 5 items, followed by dimension 1 (Interpersonal Interaction) — 3 items.

Table 7 lists the ten lowest motivators. The item 'Getting materialistic rewards above expectations' (M=3.77, SD=1.181) was rated as the least important motivational factor, followed by the item 'Getting non-materialistic rewards' (M=3.77, SD=1.238). Examinations of the least important motivators revealed that majority of the items were from dimension 3 (General Conditions) — 5 items, followed by dimension 6 (Compensation) — 3 items.

As discussed previously, the focus of our study was on organizational and work related motivators rather than on personal related variables. However, as research showed that personal variables influence the perception of organizational and work related motivators (Dolfi and Andrews, 2007; Mueller and Turner, 2009; Lee-Kelly and Leong, 2003; Clark et al., 1996; Eskildsen et al., 2004; Hansson et al., 1997; Kooij et al., 2010), we controlled for the influence of the personal variable 'age'. We used linear regression to identify the influence of project managers' age on motivation. Age had a significant effect on the dimension 'Personal Development' (explaining 3.2% of the variance; $p<.01$; $r=-.178$), meaning that the dimension 'Personal Development' had a significant higher motivational impact on younger than on older project managers. Age had also a significant effect on the sub-dimension 'Resources'. After a closer examination, the effect was resulting from the single item 'Having the companies support for the right balance between workload and private life' (explaining 9.6% of the variance; $p<.01$; $r=-.309$). This means that a good work-life balance had a significant higher motivational impact on younger than on older project managers.

9. Discussion

Findings from the present study showed that the MFI is a statistically reliable and valid instrument and that all 6 dimensions and 47 items were relevant motivational factors for project managers in Switzerland. The least important dimension (Compensation) had a mean of 4.11 and the lowest rated item had a mean of 3.77, which is above the mean of the 6-point Likert scale. These results showed that content related motivators (being motivated through fulfilled needs) as well as process related motivators (being motivated by a positive cognitive evaluation of the situation) were important for project managers. However, there were significant differences between the importance of the dimensions. Task, team, and resource related aspects were the most important motivational factors, followed by factors related to empowerment. A clear, understandable, identifiable and interesting task, working in a trustworthy environment, working in a reliable, result-oriented team, getting the necessary information and resources to complete a task as well as having the opportunity to influence important decisions were the most important motivators for project managers. If a project manager is not satisfied with the task itself, the work attitude of his/her team, and has little influence on important decisions, it is unlikely for him/her to have a high work motivation. This illustrates that the motivation of project managers is highly dependent on external factors (e.g., task, team, resources, and empowerment) and not only the result of a general ability of 'self-motivation'. As such,

[1] *Note. Maximum Likelihood Estimation was used. Path coefficients are standardized beta weights. $\chi 2=.471$; $df=1$; $p=.492$; $\chi 2/df=.471$; CFI=1.00; TLI=1.00; RMSEA=.000, and n=282.*

Table 4
Mean differences between dimensions.

Dimension	1	2	3	4	5
1 Task					
2 Interpersonal interaction	t (262)=4.51 p<.01				
3 Empowerment	t (270)=4.82 p<.01	t (268)=2.44 p<.05			
4 Personal development	t (269)=9.80 p<.01	t (268)=6.86 p<.01	t (276)=4.32 p<.01		
5 General working conditions	t (267)=16.90 p<.01	t (263)=15.34 p<.01	t (271)=8.54 p<.01	t (270)=4.54 p<.01	
6 Compensation	t (267)=21.54 p<.01	t (264)=19.91 p<.01	t (272)=17.82 p<.01	t (271)=14.20 p<.01	t (268)=10.32 p<.01

company management can positively influence the motivation of project managers by improving the relevant factors such as formulating clear project goals, expectations, and responsibilities; involving project managers in important decisions related to the project (e.g., when it comes to staffing, budgeting, or project goal changes); giving them access to important information and a high degree of autonomy on how to run the project; creating a sense of trust; and by supporting them in creating a cohesive and result oriented project team (e.g., by promoting project work in the organization, by allocating the best people to projects, by compensating project work accordingly, by providing time and other resources for team development in the early phase of projects, and by celebrating project success with the project team). This underlines that content as well as process related motivational strategies are important in improving project managers' motivation. Project managers should be seen as strategic partners of senior management, integrated in decision making and supported in their needs to create a high performing team and achieving their project goals, not only as 'cost centers', responsible for delivering the (more or less clearly) defined project outcomes.

An interesting finding was the relatively low importance of the cluster 'Compensation'. This result was unexpected as wages and rewards have been identified as important motivational factors in previous studies (e.g., Baddoo et al., 2006; Locke, 1991; Wiley, 1997). However, it cannot be concluded that compensation is generally not an important motivator as only 8.9% of the participants in the present study indicated that their salary was inadequate, while 63.6% stated that they had a very good or good salary, and 27.5% indicated that their salary was in the average range. A possible explanation is that compensation appears to lose its motivational importance when a person is satisfied with the salary. We tested this assumption by comparing the motivational impact of this dimension on project managers who were not satisfied with their salary (n=24, M=4.51, SD=.84) to those who were satisfied (n=174, M=4.10, SD=.79). Results of a paired sample t-test showed significant differences (t (196)=12.38, p<.05), indicating that this dimension had a significant higher motivational impact on project managers that were not satisfied with their salary. This illustrates that compensation is not a factor that motivates employees in their job but rather a factor that causes dissatisfaction if it is not there (Herzberg et al., 1959). Hence, adequate salary can be seen as an important factor keeping project managers' motivation high; however, it is a relatively ineffective motivator when they are satisfied with their salary.

As the goal of our research was to develop an instrument that identifies motivational factors for project managers which can be influenced by senior management in an organization, we focused on organizational and work related motivators, and not on personal variables related to motivation (such as personality, age, etc.). Yet, research showed that personal variables have an influence on the perception of the importance of organizational and work related motivators (Dolfi and Andrews, 2007; Mueller and Turner, 2009; Lee-Kelly and Leong, 2003; Clark et al., 1996; Eskildsen et al., 2004; Hansson et al., 1997; Kooij et al., 2010). Results of our study showed that a project manager's age influenced the evaluation of the importance of some motivational factors. In particular, results of the dimension 'Personal development' were influenced by the variable age. Learning experiences, promotion, career development, and professional

Table 5
Means and standard deviations of the motivational dimensions and all sub-dimensions.

Dimension/sub-dimension	n	M	SD
Task: clear task, goals and results (sub-dimension 2b)	277	5.26	.641
Interpersonal interaction: team (sub-dimension 1a)	275	5.07	.712
General conditions: resources (sub-dimension 3a)	276	4.98	.678
Interpersonal interaction: general aspects (sub-dimension 1c)	274	4.97	.630
Interpersonal interaction: superior (sub-dimension 1b)	279	4.94	.682
Task: congruence of the task with occupational aptitude and disposition (sub-dimension 2a)	275	4.92	.611
Empowerment (dimension 4)	279	4.91	.752
Personal development (dimension 5)	278	4.73	.770
General working conditions: processes (sub-dimension 3d)	279	4.45	.922
General working conditions: job security (sub-dimension 3c)	280	4.15	1.206
General working conditions: working environment (sub-dimension 3b)	278	4.14	.920
Compensation (dimension 6)	274	4.11	.785

Table 6
Means and standard deviations of the top ten motivators.

Item	n	M	SD	Dimension
1 Clear understanding of what to do	278	5.31	.886	2
2 Working in a trustful environment	279	5.31	.839	1
3 Working with individuals who have a will to achieve results	279	5.29	.901	1
4 Having clear project goals	279	5.29	.892	2
5 Producing identifiable pieces of work	280	5.28	.852	2
6 Having access to all needed information	277	5.21	.845	3
7 Having the opportunity to contribute to decisions	279	5.19	.798	4
8 Having the opportunity to use own skills and abilities	278	5.16	.787	2
9 Seeing progress in current projects	280	5.16	.840	2
10 Being part of a cohesive, supportive team	280	5.09	.942	1

Table 7
Means and Standard Deviations of the Ten Lowest Motivators.

Item	n	M	SD	Dimension
47 Getting materialistic rewards above expectations	277	3.77	1.181	6
46 Getting non-materialistic rewards	277	3.77	1.238	6
45 Having a state of the art working environment	280	3.93	1.073	3
44 Having a performance-based total compensation	280	4.05	1.177	6
43 Having a secure job	280	4.08	1.305	3
42 Having the opportunity for promotion and career in the organization	280	4.14	1.216	5
41 Having stable, long-term employment	280	4.22	1.244	3
40 Having an adequate working place (office, space)	278	4.36	1.061	3
39 Having adequate administrative processes	279	4.39	1.004	3
38 Contributing to society at large	279	4.48	1.150	2

experience have been identified as important motivators in previous research (Beecham et al., 2008; Huemann, 2010; Turner et al., 2008). Results from the present study indicated that motivational factors related to learning opportunities were more important for younger than for older project managers. From a content related perspective, these results can be explained by the assumption that more experienced project managers focus less on career and personal development as they have acquired significant knowledge and may have achieved their career goals and are satisfied (or dissatisfied) with regard to their achievements, while younger project managers are still seeking for opportunities to learn, advance their career, and get promoted. Therefore, the opportunity for personal development is more motivating for younger than for older project managers.

Another factor that was influenced by the age of project managers was the importance of the companies support for the right balance between workload and private life: younger project managers evaluated this factor higher than older project managers. An explanation for this result is that the discussion about an adequate balance between work and private life has increased in the past years. The younger generation is not only focusing on a successful career but on a successful, healthy, and balanced life in general. Therefore, younger people tend to focus more on a balance between their workload and private life. Another explanation is that social changes have an impact on this result. It is more common among younger families in Switzerland that both husband and wife are working (in contrast to the traditional model where the husband works and the wife stays at home), resulting in both sides having to fulfill their tasks at work as well as at home. Therefore, work and private life have to be planned, organized and balanced in a more detailed way.

Even though personal related variables cannot be influenced directly, it is important for organizations to understand the relevance of these variables in relation to motivational strategies. As age, personality, and other personal variables influence the perception of motivational factors, organizations cannot apply a 'one size fits all' approach, but have to define a differentiated set of actions dependent on the needs and goals of each project manager. For some, learning and development opportunities may have a higher motivational impact, while for others compensation or supportive superior may be more important. This shows that besides general motivators, such as clear goals and expectations, getting the necessary resources, having a supportive and goal-oriented team, and the possibility to influence important decisions, each project manager is sensitive to a specific set of motivational factors.

Some limitations of the present study have to be addressed. The goals of the study were to develop a content driven, statistically reliable and valid instrument, which is user-friendly and can be applied in any organization by researchers, management trainers, and senior management. The combination of these goals led to a number of challenges. First, the range of motivational factors had to be as diverse as possible in order to cover all important domains, and yet had to be clustered in a manageable number of dimensions in order to make the model understandable and to formulate generalizable conclusions. Second, it was difficult to allocate some items that were important from a content perspective into a single dimension. This resulted in minor overlaps between some dimensions (e.g., the item 'Experiencing support and encouragement in professional aspects' (sub-dimension 'General aspects of interpersonal interaction') loaded on the dimension 'Personal development' as well). In such cases, we allocated the item to a specific dimension based on content related aspects followed by statistical fit. Third, the number of items had to be large enough to build scales and sub-scales, and yet the questionnaire had to be as short as possible for practical purposes. Therefore, we could not formulate the same motivators in several similar ways; each motivator was addressed only once. This typically has a negative impact on scale reliability. Despite these problems, the empirical validation of the questionnaire showed satisfying results.

A second limitation is that the focus of the study was mainly on organizational and work related motivators. These variables can actively be influenced by the organization. However, in order to understand which of these variables has the greatest effect on motivation, individual needs and goals of each project manager have to be analyzed. In the present study, we controlled for age and found that this variable had effects on the importance of some motivational factors. It can be assumed that other personal related variables (such as personality, tenure in the organization, career goals, job satisfaction, etc.) have an impact on the evaluation of the MFI.

A third limitation is related to the generalizability of the results. Motivational factors are context related (Kovach, 1987; Verma, 1996). Therefore, we assume that the importance of the six motivational dimensions varies between different countries, cultures, and economical backgrounds. More than 90% of our sample indicated that they had a good or fair salary and that they were happy with their working environment in general. In addition, 83.7% had a higher education and/or attended courses in project management. Such a situation is likely to be different in other countries. Hence, factors such as wages, education, or general working conditions may be more important in an environment where these factors are not positively evaluated.

Replication of the present study in other countries can provide more insights into the topic of contextual differences related to project managers' motivation. Such research would provide important insights for organizations and project management education, as many projects are either global in nature or staffed with international work force.

Another important aspect related to the generalizability of the results is the question of the influence of the function and nature of the task on motivation. Are there, for instance, systematic differences between project managers and line managers? Are IT project managers motivated by different factors than project managers in other business areas? These questions need to be addressed in future research in order to find more insights with regard to specific motivators for project managers.

10. Conclusions

This study presents an integrated model of motivators for project managers, the 'Motivational Factor Inventory' (MFI). Results showed that the MFI focuses on relevant motivators, and that the instrument is reliable and valid.

In general, an interesting task, a cohesive, goal oriented team, receiving the necessary resources, and the possibility to influence important decisions are the most important motivator for project managers in Switzerland. This underlines, that organizations can actively influence project managers' motivation. Results also showed that differences in personal variables (such as age, satisfaction with salary) influenced the evaluation of some motivational factors. In addition, it can be assumed, that contextual differences (e.g., culture, education, working conditions) as well as functional differences (e.g., project manager vs. line manager; IT project manager vs. business project manager) influence the evaluation of the MFI. Future research needs to address these important questions related to personal, contextual, and functional variables with regard to project managers' motivation. Answers to these and other questions are highly relevant for practitioners and management educators as they would provide important insights on how different groups of managers in different contexts can be motivated effectively.

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