

PROJECT MANAGERS PROFILES

KEYWORDS

IT project manager recruitment • IT project success • IT project manager qualifications

FOCUS

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in IT project manager recruitment

1. INTRODUCTION - A BUNDLE OF DEMANDS ON IT PROJECT MANAGERS

IT projects are known to fail at a higher rate than other projects, and often is the project management questioned and pointed out as a kind of scapegoat (Avots, 1969, Gillard & Price, 2005; Ruuska & Vartiainen, 2003; Thomas & Mengel, 2008); the relevance is far from certain but often taken for granted. Still, there are various failure reasons connected to the IT sector, and information systems (IS) that could be blamed as well, which require specific methods for analyzing these (Fortune & White, 2006). Examples of reasons, or rather of critical success factors, are support from top management (Simonsen, 2007), realistic goals, continuously planning updates, feedback, and performance monitoring. Further, the fast pace of technical developments, problems to get relevant requirement criteria from the customers, who are not sufficiently initiated in current technical issues that are necessary for the project, could also negatively influence the success rates of IT projects. Lin and Parinyavuttichai (2015) state that IT projects', currently ongoing, risk escalation must be substantially countered. Thomas and Mengel (2008) highlights that project managers must be able to handle chaos, uncertainty, and complexity. Nevertheless, IT project risks in abundance, the IT project managers and the project management are still in focus for critique when it comes to dealing with unsuccessful IT projects. Hence, the qualifications and the requirements on the IT project managers are often huge, there are many versions of what should be needed (e.g. Blaskovics, 2016), not always agreed on. The project outcomes are expected to be successfully delivered to the customers, which besides fulfilling time and budget specifications (e.g. Antvik & Sjöholm, 2012), also should meet other demands on the products. The IT project managers' personality could be in focus (e.g. Marcusson & Lundqvist, 2016; Saade' et al., 2015), levels of leadership that could enhance the team members' relationships (Yang et al., 2011), and whether a core competence view is applied or not (e.g. Lundqvist & Marcusson, 2015a; Marcusson & Lundqvist, 2015b). For IT project managers four attitudes are particularly put forward, i.e. stake-

holder-centric, technical oriented, planning based and strategic-oriented; each with five success criteria, i.e. time, cost, quality client satisfaction and stakeholder satisfaction (Blaskovics, 2016). A project manager work close with the project sponsor, which makes it a necessity that these communicate actively (Burga & Rezanja, 2017) and influence / are influenced by inter-relationships with managers and employees in the organizations (Chiocchi & Giuliani, 2017). This could be expressed according to Bertsche (2014, p. 50): "The project manager and the sponsor are the ultimate power couple: They're stronger together than apart". Such relationship requires a delicate act of balancing trust and mutual respect with current obligations end engagements. The project manager earns the sponsor's confidence by structured and timely delivered information (PMI, 2013). The project manager's work tasks mainly involve five processes, i.e. to initiate, plan, perform, monitor and control, and to finish (ibid.). Or as Axelos (2017, p. 9) put it: "Project management is the planning, delegating, monitoring and control of all as-

• ABSTRACT •

Many descriptions are available about the qualifications IT project managers are supposed to hold in order to be fully eligible and fit for employment. Sometimes these knowledge demands are apprehended as scary in a way that actually reject people from taking on a journey for such a job career. This research concerns how IT project managers in Swedish public authorities regard the demands on their profession; 46 questions regarding these matters are answered (survey 2016) by 82 individuals. The four most prominent requirements turned out to be: 1) experience from project management, 2) self-sufficiency 3a) being social, and on shared third place 3b) being co-operative. The three demands counted from the bottom ranking, concerned holding project management certifications. The findings are useful for practice because it could play down excessively described expectations and put the light on highly relevant requirements instead. For research, the findings provide input to further research.

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pects of the project, and the motivation of those involved, to achieve the project objectives within the expected performance targets for time, cost, quality, scope, benefits and risk'. IPMA (2015a, 2015b) highlights professionalism and discipline to uphold the standards and guidelines.

Yet another perspective on IT project manager skills is whether he / she needs project management (PM) certifications or not. The certification organizations (e.g. IPMA 2015a, 2015b; PMI 2013, 2015; PRINCE2, 2017) not surprisingly, advocate PM certifications. Lindgren and Packendorff, (2009) and Morris et al. (2006) put forward that these certifications could help to play down project managers' stress, as career models often do, and could also be an important step of project management professionalization. The latter could be particularly helpful for those who lack other formal educations (Morris et al., 2006). One recruitment study however, found that PM certifications were mentioned as qualification requirement in 4.3 percent, and as additional qualification in 11.7 percent (Lundqvist & Marcusson, 2015a), and another one found that certifications were demanded in 20.5 percent of the ads. (Ahsan et al, 2013). Further, heavy critique is directed towards PM certifications that primarily

concern the certifications relevance per se, the research in the field of project management standards, and connections to project success, which is hard to prove (Crawford, 2000, 2005; Löwenfeldt, 2009; Morris et al. 2006). Still, PM certifications are known to prove project managers' knowledge about project methods, i.e. to be qualified for the job even though there sometimes are requirements concerning knowledge about the current sector as well that could be more prominently demanded than project method skills.

The purpose of this research is to explore how IT project managers apprehend the demands that are put on their profession in order to get a picture of which requirements that are seen as more relevant than others are. This is important since there are a bundle of demands on the IT project managers (often connected to the technological part of IT projects too) that could reject, otherwise suitable, individuals from applying for these jobs, and maybe even from choosing this career path in the first place. The IT project managers' opinions are especially interesting since they are actively working in this field and therefore being initiated to judge about what is more and what is less important criteria. The principal motivation to scrutinize these opinions is in order to gain more knowledge for appointing the "right" individuals as IT project managers, which is one of the cornerstones for successful IT projects. Not least important since IT projects are known to have an especially low success rate compared to other types of projects, and projects in the public sector show "few signs that any lessons have been learnt" (Brouwer, 2011). Hence, the subject is relevant for IT projects in both private and public sector. Further, the research on recruitment of IT project managers is scarce, which highlights a gap in IT project management research. A prior study among public sector IT project managers showed that they to higher degree prefer informal interaction and agile approaches for knowledge transfer (Karagoz et al., 2016). This research scrutinizes Swedish IT project managers, active in the public sector.

Hence, the research question is: How do IT project managers, in Swedish public sector, apprehend the qualification criteria that are put on their profession?

2. PRIOR RESEARCH ABOUT IT PROJECT MANAGER RECRUITMENT

IT project success is to a big part considered to depend on the IT project manager's achievements. There are not that many studies about this subject; in this section, some research that are considered relevant are presented.

--- 2.1 Intelligence analytical methods ---

Dodangeh et al. (2014) propose that choosing the most appropriate candidate for an appointment requires intelligence analytical methods. The human resources regarding to carry out such are not satisfactorily reliable since they are too vague and uncertain, mainly due to fuzziness. Statistical and experimental techniques are not adequate. Instead, multicriteria decision-making (MCDM) techniques, i.e. a new linguistic reasoning, should be applied as a means to enhance and further develop a better selection procedure as a complement to traditional human resource selection (ibid.). Dainty et al. (2005) developed a competency-based model for predicting performance concerning project managers' performance that focus on core competencies. The findings show that "self-control" and 'team leadership' were the most predictive behaviors of effective project management performance within the framework' (ibid. p. 2), and these could therefore be helpful to search for in recruitment situations.

--- 2.2 Delphi panel ---

Keil et al. (2013) started out from 48 project manager skills that their respondents (Delphi panelists) should categorize and after three rounds, 19 of these stood out as more important than the remaining. These 19 were comprised into seven categories: 1) communication, 2) team management, 3) project management, 4) people skills, 5) personal characteristics, 6)

organizational, and 7) problem solving (presented in the ranking order; based on mean rank). Besides, the ranking of categories, the 19 skills were ranked and the top-five were: 1) leadership (from the team management category), 2) verbal communication (team management), 3) scope management (project management category), 4) listening (communication), and 5) project planning (project management). Follow-up interviews after the panels resulted in motives for why these five were considered important (ibid.). Keil et al. (2013) suggest that these findings are carefully considered when IT project managers are groomed and recruited.

--- 2.3 Literature study, interviews, and focus groups ---

Fisher (2011) studied what skills and behaviors an effective project manager should possess and found management of people to be the most important, particularly as concerns IT project management. His study includes a literature review, individual interviews, and focus groups. Fisher's (ibid.) research ended up in the following list of skills and behaviors: understanding behavioral characteristics, leading others, influencing others, authentic behavior (e.g. show open concern for others, provide empowerment, understand others, and accept others for who they are), conflict management, and cultural awareness. A prior step i.e. after the literature review and individual interviews (before the focus groups) ranked the following skills as highly important: managing emotions, building trust, communicate effectively, motivating others, influencing others, and being culturally aware. Additionally, team building was ranked as being important. Nevertheless, Fischer also point out that project managers need both technical skills and people skills: "The adoption and application of people skills are not a panacea for success" (ibid. p. 1001). Still, the soft skills that are related to knowledge about how to handle people from various perspectives are highlighted as those that are necessary to complement the technical skills, the project management applications and methods included.

-- 2.4 Analysis of project manager ads. in Australia and New Zealand --

Ahsan et al. (2013) studied advertisements (ads.) for project managers and took a starting point in the 15 most desired and cited KSA dimensions (i.e. knowledge, skills, & abilities) from the literature, that were ranked as follows: 1) leadership, 2) effective communication, 3) project technical expertise, 4) team building and management, 5) planning skill, 6) flexibility, 7) organizational skill, 8) decision-making skill, 9) management skill, 10) delegation, 11) analytical abilities, 12) problem solver, 13) coping with situations, 14) interpersonal skills, and 15) stakeholder management. 762 job advertisements in Australian and New Zealand were collected of which 52.5 percent originated from information and communication technology industry. The analysis of the ads. resulted in the following ranking list of KSAs (across countries and industries): 1) communication (61.68%), 2) technical skills (43.57%), 3) stakeholder management (41.73%), 4) cost management (37.40%), 5) time management (32.68 %), 6) educational background (28.61%), 7) planning (26.12%), 8) leadership (24.41%), 9) team build and management (22.57%), and 10) certification (20.47%). Ahsan et al. (2013) compared the findings from the ads. (i.e. the demand side) with the literature findings (i.e. the supply side) and found that cost management, time management, educational background, and certification were not ranked in the literature but in the analyzed ads. The findings are recommended as helpful for human resource personnel standing before recruitment tasks, not least in order to formulate the job ads. adequately (ibid.).

--- 2.5 Analysis of IT project manager ads. in Sweden ---

A longitudinal study analyzing 325 job ads. for IT project managers found that PM certifications were not particularly sought after from the employees; 4.3 percent of the ads. mentioned them as qualification requirement, and 11,7 percent as additional qualification (Lundqvist & Marcusson, 2014). The study findings stressed the following as principal project manager tasks: to lead (45.1%), plan (19.9%), report (16.4%), cooperate (9.7%), to communicate (4.9%), participate in product development (2.1%), and to educate (1.9%) Lundqvist & Marcusson, 2015a). The ads. sometimes lacked information and the work tasks that the IT project man-

ager were supposed to handle were not mentioned in 32.3 percent of the ads., personality traits were not mentioned in 21.8 percent of the ads., and 17.8 percent lacked from information about knowledge / education; experience was not mentioned in 6.2 percent of the ads. (Marcusson & Lundqvist, 2015c). The top three qualifications from the study were: project management experience (80.3%), academic degree / education (66.8%), and language knowledge/skill (54.2%) (Marcusson & Lundqvist, 2015b). The five most important personality traits according to advertisement (Marcusson & Lundqvist, 2016) is 1) driven (38.5%), 2) communicative (32.0%), 3) structured (21.2%), 4) self-sufficient (20.0%), and 5) social ability (19.1%). The findings from the longitudinal study of IT project manager ads. led to the suggestion to apply a core competence lens when it comes to recruitment and training of IT project managers (ibid.). Such an approach will help the employers that are about to recruit to focus on the most important issues instead of throwing around a lot of qualification requirement without relevance to the core competences that are needed. If the project core competences are not acknowledged the chances for successful outcomes from the projects will consequently be severely lowered (ibid.). Another suggestion from the study is that qualifications that are related to basic, general, and standardized project management knowledge (e.g. provided by certification organizations) does not need to be particularly focused in the recruitment ads. It is argued that it would be more practical and efficient to primarily put forward project, company, and sector specific demands (Marcusson & Lundqvist, 2015c).

3. METHOD

--- 3.1 Data collection and analysis of the data ---

The survey behind this research is based on a prior designed questionnaire that was originally used in 2007. The questionnaire as such consisted of 146 questions of which 53 questions (background questions and sub-questions), which are applied for this research about the demands on IT project managers. All Swedish authorities, i.e. 535, were contacted and asked about contact information for their IT project managers, since they were the target group for the survey. Of these 535 authorities, 50.3 percent (269) answered to the request and should forward a message to the individual that with knowledge about the IT project managers (49.7% did not answer), so they in turn could point out the individuals that worked as IT project managers. Of those that answered to the initial request (205) it was 73 (36%) that actually did participate, and 104 questionnaires were sent to 73 different authorities, from which 82 IT project managers took part in the survey. Some of those that answered but did not participate said that their authority were not suitable for participating since they had outsourced their IT or stood right before an outsourcing of the IT department. The data was collected during 2016; a similar questionnaire had been used in 2007 (Marcusson, 2008), and the prior usage is behind a decision to not carry out a pilot for the questionnaire, even though some new questions had been added. The questions were answered by a 1 – 5 scale (5 represents the most positive alternative).

To start with the means were calculated that resulted in a ranking list of the demands that the IT project managers had rated according to the 1– 5 scale. After that correlation tests were carried out. Cohen's (1988) suggestions are applied as the guideline, medium strength is between $r = .30$ to $r = .49$, beneath $r = .30$ represent weak correlations, above $r = .49$ are considered as strong correlations. IBM SPSS Statistics 22 was used for the data processing.

--- 3.2 Profile of the respondents ---

There were 104 questionnaires sent out to the public authorities, to which 82 individuals answered, with a response rate at 79 percent. The respondents were appointed in 73 authorities. There were 56.1 percent male and 43.9 percent female participants, born between 1951 and 1985 (median 1967). The remaining respondent profile is summarized in **Table 1** (N=82).

A sum up of **Table 1** shows that something that stands out regarding the respondent profile is that there were many individuals with rather short employment at the authority and at the same time, there were many who have several years of experience. A majority was employed in bigger authorities (78.1%). In addition, fewer hold cer-

Questions	Variables	Percent %
What type of public authority do you work in?	Other	37.8
	Municipality	25.6
	County council/Region	15.9
	University	13.4
	Supervising authority	7.3
What is the emphasis of the authority? (multiple-choice item)	Other	29.3
	Education/Competence development	34.1
	Health and medical service	26.8
	Law	18.3
	Inspection and controlling	17.1
	Infrastructure	9.8
	National defense/Police/Fire department	4.9
	Research and development	6.1
	Event	1.2
	Period of employment with the authority?	0-3 years
4-6 years		19.5
7-10 years		13.4
11-20 years		19.5
21 years		8.5
How many years of employment in this occupation?	0-3 years	9.8
	4-6 years	9.8
	7-10 years	11.0
	11-20 years	35.4
	21 years	34.1
How many are employed in this authority?	1-50	2.4
	51-100	3.7
	101-250	9.8
	251-500	6.1
	501-1000	17.1
1001-	61.0	
Do you hold a project management certificate?	Yes, IPMA	8.5
	Yes, PMI	3.7
	Yes, other	26.8
	No	61.0

TABLE 01. The profile of the respondents (N=82)

tificates (39%) than do not (61%). The sub-questions concerning the demands on the IT project managers are accounted for in detail in Appendix A.

--- 3.3 Critique of the method ---

A main problem with this research is that it was rather problematic to reach the individuals that were responsible for the IT departments, so they could inform the IT project managers that in turn announced their willingness to participate. It is possible that this somewhat complicated procedure led to that some of the possible participants never got the message. The IT departments are often overloaded with work and a task like this, i.e. a request for participation in a research survey, could easily be less prioritized than other tasks that were more pressing to take on immediately.

4. FINDINGS AND DISCUSSION

--- 4.1 Experience is the most demanded and certification the least ---

It is obvious to everyone that have ever read job ads. for IT project managers that these are flooded with extensive information about all the qualifications that are needed. As if that was not enough, they are often imaginatively embroidered with an overload of personality traits and expectations of prior achievements as project manager. Still, the actual tasks that would be the most relevant are often not mentioned. The IT managers, who are those who are actually initiated, and therefore can relate to these demands, ranked experience as IT project manager highest, followed by being self-efficient, social, and co-operative (**table 2**). The qualifications that are included in the ranking list below (from the survey) are often mentioned also in the literature (section 1 and 2). **Table 2** shows the ranking list of the respondents' opinions about the demands on IT project managers concerning experience, personality, and knowledge (the mean scores relate to the 1– 5 scale). IT projects are known to fail more than other project types. Hence, the interest in which of all the demands that surround the IT project managers' profession that preferably should be announced as qualification requirements in case of IT project manager vacancies.

Table 2 makes it obvious that except experience of project management (highest ranked), and of IT (ranked as no. 10) as well as knowledge of the Swedish language (ranked as no. 9) various personality traits are among the demands that are highest ranked; of the 17th highest ranked demands, 14 of these are personality traits. Dodangeh et al. (section 2.1), Kiehl et al. (section 2.2), Fisher (section 2.3), Ahsan et al. (section 2.4), and Marcusson and Lundqvist / Lundqvist and Marcusson (section 2.5) have all ranked so called soft skills, and primarily leadership and communication skills as the most important qualification for being a successful project manager. More technically focused skills are mostly somewhat lower ranked. Even if Ahsan et al. (section 2.4) found technical skills to be the second most desired skill when they analyzed ads. The result from this research's ranking does however show a slightly different picture since experience from project management is highest ranked. Still, this is not easily interpreted since there are both technical and human parts in project management experiences and with that comes a possibility that some respondents only thought about the soft skills also in that case. However, the fact that the softer parts are distinctly pointed out among the demands for personality traits, makes it very likely that project management experience at least covers both parts. It is interesting that PM

Rank	Demands	Mean
1	Experience: as project manager	4.35
2	Personality: self-efficient	4.16
3a	Personality: social	4.15
3b	Personality: co-operative	4.15
4	Personality: responsible	4.12
5	Personality: driven	4.11
6	Personality: structured	4.09
7	Personality: communicative	4.00
8	Knowledge: Swedish language	3.99
9	Personality: engaged	3.93
10	Experience: Information Technology (IT)	3.89
11	Personality: leadership qualities	3.87
12	Personality: flexible	3.82
13	Personality: team spirit	3.76
14	Personality: customer oriented	3.72
15	Personality: good listener	3.71
16	Personality: prestige less / humble	3.70
17	Personality: analytical	3.56
18	Personality: full of initiative	3.54
19	Personality: interactive	3.52
20	Experience: project method / project model	3.40
21	Experience: leadership	3.39
22	Knowledge: project management	3.30
23a	Experience: Information Systems (IS)	3.29
23b	Personality: Creative	3.29
24	Knowledge: project method / project model	3.13
25	Personality: businesslike	3.12
26	Knowledge: English language	2.99
27	Experience: small projects	2.98
28a	Experience: sector/branch/office	2.94
28b	Experience: large/complex projects	2.94
29	Experience: following up on projects	2.89
30a	Experience: budget responsibility	2.88
30b	Knowledge: academic education in IS/IT	2.88
31a	Experience: agile projects	2.85
31b	Knowledge: project method / project model	2.85
32	Knowledge: sector / branch / office	2.76
33	Experience: group development	2.70
34	Knowledge: academic education in sector / branch / office	2.45
35a	Experience: the internet	2.35
35b	Knowledge: sector / branch / office (other than academic)	2.35
36a	Experience: business development	2.18
36b	Experience: project portfolio	2.18
37	Knowledge: PM certification from PMI, IPMA, PRINCE2 or GAPPS	1.76
38	Knowledge: PM certification from other educator than those mentioned above	1.70
39	Knowledge: PM certification from a company, other than those mentioned above	1.56

TABLE 02. The apprehended importance of the demands on IT project managers (N=82)

certifications are not more after-sought, neither in this research's findings (bottom-three), nor in prior studies (section 2), since PM certifications are often raised as critical in various

literature often with coupling to the PM certification organs, such as PMI (2013, 2015), IPMA (2015a, 2015b), and PRINCE2 (2017). After all, the PM standardization organizations have gained a lot of status during the years since their appearance in the middle and late 1960s (Lundqvist & Marcusson, 2014). These organizations' status and their propagation of the certifications included, are therefore to be expected, and there are other voices too that stress PM standards and certifications' value as status providers (e.g. Lindgren & Packendorff, 2009; Morris et al, 2006). Still, the connections between certified project managers and successful projects are difficult to prove (e.g. Crawford, 2000, 2005; Löwenfeldt, 2009). The latter could be a reason that IT project managers do not find the demands for PM certification (of any kind) as being important.

--- 4.2 Correlations - of interest and of no interest ---

4.2.1 Many strong correlations with the top-three demands on IT project managers

The demands that have been particularly focused are those that are ranked top-three (figure 2), only the strong two-tailed correlations on the $p < .001$ level are accounted for.

Experience as a project manager (ranked as the number 1 demand) showed strong correlations with: experience of IT ($r = .601$), large/complex projects ($r = .516$), and with the personality traits: being driven ($r = .580$), structured ($r = .520$), self-efficient ($r = .579$), co-operative ($r = .591$) and being engaged ($r = .512$). Experience of IT is inherent for an IT project manager, so it is not surprising that there is a strong correlation. Another angle of this is that as regards technical certifications there are plenty of them in the IT sector even if there are no strong correlations between experience as project manager and holding PM certifications. Nevertheless, Ahsan et al. (section 2.4) found that project technical expertise was on the third place of the most sought-after qualifications according to their literature review, however, their analysis of job ads. found technical skills on the second place.

Self-efficient personality (ranked as number 2) showed strong correlations with: experience of project management ($r = .579$), and with the personality traits: being driven ($r = .765$), communicative ($r = .724$), structured ($r = .727$), social ($r = .856$), leadership quality ($r = .736$), interactive ($r = .589$), co-operative ($r = .724$), responsible ($r = .693$), full of initiative ($r = .532$), having team spirit ($r = .514$), being a good listener ($r = .507$), being engaged ($r = .663$), prestige less/humble ($r = .598$), customer-oriented ($r = .548$), and being flexible ($r = .554$). Dodangeh et al. (section 2.1) found self-control as one of the most important behaviors of project management, and could be categorized as similar to self-efficient. Self-efficiency is also one of the top-five personality traits in another research that scrutinized ads. (section 2.5), and was mentioned in 20 percent of the ads. Being capable to lead oneself seem to be a factor of importance.

Social personality (ranked as number 3a) showed strong correlations with: being driven ($r = .677$), communicative ($r = .693$), structured ($r = .680$), self-efficient ($r = .856$), having leadership quality ($r = .742$), being interactive ($r = .678$), co-operative ($r = .697$), responsible ($r = .698$), being businesslike ($r = .505$), full of initiative ($r = .549$), having team spirit ($r =$

569), being a good listener ($r = .548$), engaged ($r = .612$), customer-oriented ($r = .568$), prestige less/humble ($r = .619$), and being flexible ($r = .577$). These correlations show that there are many personality traits that are strongly correlated with being social. The five studies presented in section 2, all found critical qualification criteria that could be regarded as belonging to the demands that correlate to social personality in this research, e.g. team leadership (section 2.1), being skilled in communication / being communicative (sections 2.2, 2.3, 2.4, and 2.5).

Co-operative personality (ranked as number 3b) showed strong correlations with: experience of project management ($r = .591$), being driven ($r = .642$), communicative ($r = .689$), structured ($r = .695$), self-efficient ($r = .724$), social ($r = .697$), having leadership quality ($r = .633$), responsible ($r = .775$), having team spirit ($r = .563$), being engaged ($r = .631$), and customer-oriented ($r = .525$). Being co-operative as an IT project manager deserves to be seriously acknowledged and attended to; it could be regarded as a core competence as an IT project manager due to several necessary questions that concern the technical side of the project and the information systems as well. Hence, there is a need for at least some understanding of IS/IT issues (sections 2.3 and 2.4), which touches the delicate question of why IT projects are more unsuccessful than others are (even if there are other valid explanations too). Further, complexity is inherently an issue in IT projects that is yet another perspective for which co-operative abilities are prerequisites.

4.2.2 The bottom-three demands only correlate strongly with themselves

Regarding the statistically significant correlations with the bottom-three demands, only the strong two-tailed correlations on the $p < .001$ level are accounted for. Just a glance at these findings is enough to grasp that various kind of PM certifications are solely strongly correlated with each other in this research. A finding that is on the one hand expected due to prior research findings (Lundqvist & Marcusson, 2014; Crawford, 2000, 2005; Löwenfeldt, 2009; Morris et al., 2006), and on the other hand surprising since it is often proclaimed in the literature that PM certifications are decisive for successful projects (IPMA, 2015a, 2015b; PMI, 2013, 2015; and PRINCE2, 2017).

Project management certification from PMI, IPMA, PRINCE2 and GAPPS (third lowest ranked demand) showed strong correlations with: certification from other educators that certify project managers ($r = .665$) and from other companies that certify project managers ($r = .727$).

Project management certification from other educators than PMI, IPMA, PRINCE2 and GAPPS (second lowest ranked demand) showed strong correlations with: project management certification from PMI, IPMA, PRINCE2, and GAPPS ($r = .665$), and certifications from companies that certify project managers ($r = .782$), and having experience from project portfolio ($r = .508$).

Project management certification from another company (lowest ranked demand) showed strong correlations with: project certifications from PMI, IPMA, PRINCE2, and GAPPS ($r = .727$), certifications from other project management educators ($r = .782$), and having experience from project portfolio ($r = .509$).

This research points in a direction that holding of PM certificates is not among the critical demands for IT project manager recruitments.

4.2.3 Weak correlations with the respondent profile

In this section, there are not any strong correlations; most statistically significant correlations are weak and only comprehensively mentioned, whereas a medium strong correlation is accounted for in detail. The fact that there are only weak cor-

relations (on the $p < .05$ level) between the respondent profile regarding if they held PM certifications or not, and the demands that the respondents gave their opinions about, gave an even more convincing answer to the low importance of these certifications. Not even those who held PM certifications themselves thought that these were important. The remaining of the respondent profile did only correlate medium strongly in one case, i.e. between years of employment as an IT project manager and having a flexible personality.

Holding project management certifications. The answers to the question about whether the respondents held any certifications (or not) showed some weak two-tailed correlations on the $p < .05$ level regarding the opinions about: the importance of holding certifications from IPMA, PMI, PRINCE2 and GAPPS, of being a good listener, having experience from large/complex projects, business development, IS, and of group development, being capable to take on responsibility, and having leadership qualities.

Years of employment in the current authority showed some weak correlations ($p < .05$) with opinions about project manager demands of: experience of project management, of IT, agile projects, leadership, budget responsibility, following up on projects and of business development. Further, some weak correlations with: academic education in IS/IT, and with the following personality features: being social, customer oriented, structured and being prestige less/humble.

Years of employment as an IT project manager (i.e. in the occupation) showed some weak correlations ($p < .05$) with demands of: holding project management certifications, and having knowledge, and experience of the sector/branch/office.

The gender of the respondents showed one weak correlation with the demand of a self-efficient personality.

The respondents' year of birth showed a medium strong correlation with the opinions about the demand of a flexible personality ($p < .05$, $r = .353$, $n = 82$). Weak correlations with the demands of: being engaged, creative and being full of initiative.

The **counts of employees** in the authorities did not correlate statistically significantly with any of the opinions about the demands on project managers.

The findings from this research point in the same direction and are summarized in the conclusion section below. Taken together they could provide a basis for which criteria that are relevant to point out in IT project manager recruitment. All with the aim to play down overwhelming

5. CONCLUSIONS AND FURTHER RESEARCH PROPOSAL

The research question is: How do IT project managers, in Swedish public sector, apprehend the qualification criteria that are put on their profession?

The answer comprises several parts that still could be summarized into the following conclusion: Experience as an IT project manager was regarded to be the most important requirement, closely accompanied by personality traits, i.e. self-efficiency, being social, and being co-operative, that are often mentioned as critical for being a good project manager. The ranking list also provided information about the qualifications that were apprehended as the least important. The bottom-three on the ranking list are all about PM certifications.

Future research in this area should be qualitatively carried out with deep interviews in order to be more specific, and to have the opportunity to go more in

details with the qualifications and demands that are usually raised as important. Even those that were not regarded as important by the IT project managers themselves (i.e. holding PM certifications) are interesting to know more about since they are still promoted as critical in some contexts. Additionally, the standards represented by the PM certifications could be a starting point for recruitment, more or less taken for granted, and therefore could leave place for what is significant for a specific project/branch/organization. Particularly since the project appointments are often temporary, and when they are more permanent, e.g. in an organization that often apply projects, it is still relevant according to the branch/organization. Further, the fact that many of the authorities participating in this research had outsourced, or should do so in a near future, was something that possibly could have given information about why the outsourcing was on the table. That would probably have required another questionnaire, but should maybe had been done in order to get an even more complete picture of the public authorities and the IT project managers' opinions. IT project managers' foremost strength is to have experience from prior IT projects, which could be a tricky thing since you need to start somewhere. Hence, it is particularly important to dig deeper for further knowledge about which of the bundles of demands that should be decisive and focused on.

The main implication for research is as input to further, deepened studies about the most relevant recruitment criteria; for practice the foremost implication is to attract the best individuals without making them hesitate because of too many, and rather imprecise, qualification demands.

To sum up, the top-three demands (table 2) correlated strongly (cf. Cohen, 1988) with principally seven demands (table 3), i.e. four beside themselves: Experience of IT, driven, responsible, and leadership quality. Except experience of IT these represent human skills.

Top-three demands	Strongly correlated demands		
1 Experience of project management	Experience of IT (r = .601)	Co-operative (r = .591)	Driven (r = .580)
2 Self-efficient	Social (r = .856)	Driven (r = .765)	Leadership quality (r = .736)
3a Social	Self-efficient (r = .856)	Leadership quality (r = .742)	Responsible (r = .698)
3b Co-operative	Responsible (r = .775)	Self-efficient (r = .724)	Social (r = .697)

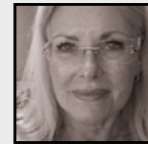
TABLE 03. The top-three demands' principal correlations

Correlations with the bottom-three demands- are solely among themselves (strong though), and the correlations with the respondents' profile showed only weak correlations, except one medium strong correlation. Hence, project management experience, whatever that may comprise, experience of IT, which is more or less inherent in IT project management, and having human skills that are foremost connected to leadership, being co-operative, self-efficient, responsible, driven, and to have social skills seems to be factors that should be highlighted in IT project management recruitment. The main reason for this research was to find the critical and decisive qualification criteria that would be helpful for presenting clearly reachable demands. These should be used instead of the common bundle of demands that actually could scare the most experienced IT project managers in that they are overwhelmingly in their presenting of almost everything, both high and low, as well as a lots of synonyms. ♦

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APPENDIX A - QUESTIONNAIRE

The questions from the questionnaire that were actually used are listed below. These questions are sub-questions to a complementary question, compared with a prior study where the whole of this questionnaire was originally applied (Marcusson, 2008), and concern the IT project managers' opinions about the demands on IT project managers. The questions about the participant's background data (the profile) are included; the profile of the participants is available in sub-section 3.2.

- What is your gender?
- Your year of birth?
- What type of public authority do you work in?
- What is the emphasis of the authority? (multiple-choice item)
- Period of employment with the authority?
- How many years of employment in this occupation?
- How many are employed in this authority?

--- Which are the demands of a new project manager? ---

- Project management certification from IPMA, PMI, GAPPS or Prince2?
- Project management certification from education company (other than above)?
- Project management certification from company (other than above)?
- Experience of project management?
- Experience of the sector / branch / office?
- Experience of Information Technology (IT)?
- Experience of project method / project model?
- Experience of agile projects?
- Experience of large / complex projects?
- Experience of Information Systems (IS)?

APPENDIX

- Experience of Internet?
- Experience of leadership?
- Experience of project portfolio?
- Experience of business development?
- Experience of following up on projects?
- Experience of small projects?
- Experience of group/team development?
- Experience of budget responsibility?
- Academic education in IS/IT?
- Academic education in the sector / branch / office?
- Education in project method / project model?
- Knowledge in Swedish (language)?
- Knowledge in English (language)?
- Knowledge about the sector / branch / office?
- Knowledge about project method / project model?
- Personality: driven?
- Personality: communicative?
- Personality: structured?
- Personality: self-sufficient?
- Personality: social ability?
- Personality: leadership qualities?
- Personality: interactive?
- Personality: co-operative?
- Personality: responsible?
- Personality: businesslike?
- Personality: full of initiative?
- Personality: creative?
- Personality: team spirit?
- Personality: good listener?
- Personality: engaged?
- Personality: customer oriented?
- Personality: prestige less / humble?
- Personality: flexible?
- Personality: analytical?

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