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SOFT SKILLS INFLUENCE IN PROJECT MANAGERS IN THE CLOUD SPACE

KATHERINE SILVA
Harrisburg University of Science and Technology

PROGRAM: PROJECT MANAGEMENT

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KATHERINE R. DA SILVA M.

HARRISBURG UNIVERSITY OF SCIENCE AND TECHNOLOGY

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ABSTRACT

In technology companies, Project Managers (PM) are being required to develop a set of soft skills, in addition to their technical expertise, in order to positively influence project's outcomes and succeed in their professional careers. New technologies known as "Cloud", "Cloud computing", and "Cloud technology" are being adopted by companies to organize their projects with top technology, and their people with the skills required to work with them.

The present work examines academic research and available literature associated to the soft skills related to project management and project managers in the Cloud space in order to identify the top soft skills influencing project success in Cloud, and establish the baseline to create a training program that Cloud companies can use to reinforce and/or develop required soft skills.

The present work does not undermine the importance of technical knowledge to perform projects with success, but presents a case on the most important soft skills required in the successful practice of project management in Cloud organizations, and provide insights for future work in the development of a soft skills training program that project managers could take and benefit to succeed in their PM roles in Cloud projects.

Keywords: Project management in technology, Soft skills, Project success, Importance of soft skills, Project management in Cloud.

1. INTRODUCTION

One of the key success factors for project managers is the development of soft skills (Troukens, 2013). Moreover, Troukens elaborates on how the soft skills represent the glue that makes the project teamwork together and creates a favorable work environment. Technology companies arguably have the best tools, systems, processes, and mechanisms in place.

Skills required performing excellent project management roles in technology, and most field areas, are divided between soft skills and hard skills. The percentage needed between the soft ones and hard ones depend on the literature, but the presence of both types of skills is relevant. In Zachary's work, it is highlighted the relationship between the technical skills and the leadership ones required to manage a project. He states that the overall goal of project managers should be to develop team dynamic and establish professional relationships so everyone is willing to work and successfully finish the project (Zachary, 1984).

A different study by Abyad (2013), found the following:

> Numerous studies have shown that the core skills for any successful project
> manager are the ability to develop a successful 'high performing' team, and
> communicate effectively to influence key stakeholders. These soft skills are very
> hard to achieve competence in. This reframing is important because well over
> 90% of project failures can be directly attributed to people issues, including
> headline disasters including the original Hubble Space Telescope launch and
> Challenger. (p. 20)

Many organizations used to perceived project management as the process of using technical methods to manage projects. However, more organizations are starting to take into

consideration the multiple leadership skills that successful project managers have. Moreover, the combination of technical and soft skills while continuously developing their leadership attributes makes project managers excellent candidates at the executive level (Hildebrand, 2016).

It is key, according to Decker (2014), "how to ensure that companies are staffed with the talent required to drive successful projects" (p.1). It can be inferred from Decker's work that attention and time have. The same situation happens in Techn been invested in interviewing and hiring project managers considering the strong technical background, years of experience, and more recently, soft skills.

Companies in different industries perform and have different priorities in the way they manage projects. The same situation happens in Technology, and all the different areas we can find in it. The present work will explore the Cloud space of Technology. According to Armbrust et al. (2010):

> Cloud computing, the long-held dream of computing as a utility, has the potential
> to transform a large part of the IT industry, making software even more attractive
> as a service and shaping the way IT hardware is designed and purchased.
> Developers with innovative ideas for new Internet services no longer require the
> large capital outlays in hardware to deploy their service or the human expense to
> operate it. (p. 50)

Companies in the Cloud space concentrate their efforts on the product development, and that is the reason the following work examines the research conducted on the considerations that companies must evaluate when training project managers. It does not undermine the importance of technical expertise to perform projects with success, but presents a case on the most important

soft skills required in the successful practice of project management, and provide Cloud companies with the mechanism to identify and measure the impact of project managers soft skills on managing successful projects.

2. PROBLEM STATEMENT AND JUSTIFICATION

The role of Project Managers directly influences the project outcomes due to their responsibilities during each phase of the project. Some studies affirm that project managers highly influence the success of the project (Jha & Lyer 2007; Wateridge 1997). IT companies in Cloud with a focus in project and/or product development, organize and allocate their resources according to project's complexity, level of experience required for the project, and availability on its employees. However, Guillart (2009) indicates, "As the field of research surrounding project management continues to grow, it is becoming more evident that success in the role of project manager cannot be attained with a technical skill set only" (p.723). Moreover, Guillart states, "The need for excellent interpersonal, or soft skills, are necessary requisites for success" (p.728). These two different approaches in resource allocation open the debate on the role of project management soft skills in project success.

The more traditional technical skills of project managers have been questioned because how little it is talked about "soft" skills (Zhang, et. al., 2013). There is a problem when IT companies allocate their project managers when only considering hard skills, previous experience, and technical knowledge, because they are not considering the people skills required to manage and motivate the project team to successfully develop a project. Project managers can develop and improve competencies in order to build and establish a more productive

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environment for the team. Although, in the process of deciding and assigning team members to a project, there is almost no public research considering the project manager's soft skills and its potential influence on project outcome. Azim et al. (2010) study found the following:

'Hard' project management skills help to organize, plan and manage, and track changes during the course of the project. However, understanding of project complexity and its contributing factors helps practitioners to understand the dynamic, social and complex contexts of projects, thus highlighting the importance of "soft" skills. (p. 387)

Ignoring the direct influence of soft skills in project success when allocating project management resources could potentially result in companies spending more time and resources in projects, affecting team dynamics, and/or missing deadlines. For instance, a project manager with relevant expertise might be able to successfully understand project priorities, but project success might in jeopardy if project managers don't have the required soft skills to influence and motivate the project team assigned to him or her. In the end, the project success is directly influenced by how collaborative the project team could be when led by its project manager (Cech & Chadt, 2015).

According to Guillart (2009), "The list of additional skills and abilities contributing to project success seems endless" (p.726). Moreover, she lists a number of personal and interpersonal soft skills including flexibility and the ability to delegate, and understanding employee motivation and team behavior. The Association of Project Management (APM) (2006) emphasizes the importance of soft skills, and provides a list of factors related to it:

- Communication

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- Teamwork

- Leadership

- Conflict Management

- Negotiation

- Human Resource Management

- Behavioral Characteristics

- Learning and Development

- Professionalism and Ethics

Since there is arguably not enough real data and information on the direct relationship between project managers expertise and project success in the Cloud space, the present work investigates the most relevant competencies (soft skills) that companies need to train their project managers to achieve project success. In this way, IT companies in Cloud will have available resources to understand and incorporate soft skills training for all the project managers and project teams.

Decker (2014) states, "Without talented, motivated individuals, project management processes mean nothing" (p.1). In that way, it can be inferred that, if project teams and project managers struggle to find the way to work collaboratively as a team, such projects have a higher probability to fail, affecting company's growth. When looking to train project managers in technology, there are not soft skills training programs for Project Managers in the Cloud space.

Limitations

The present study will look to research the influence of soft skills in the Cloud space in Project Managers by creating and conducted questionnaires and interviews. However, the results

and conclusions presented in the study will be based in a relatively small sample size (n=20). For this reason, it is recommended that this study is carried out on a much larger scale.

On the other hand, the final result of this work is the proposal of a soft skills' development program to be implemented in Cloud technologies companies. The implementation of such programs remains dependent on third-party companies, making it challenging evaluating the success or failure of the proposed approach.

Deliverable

The expected result from this work is to identify the key soft skills necessary for Project Managers in the technology Cloud space and to develop a required soft skills' development program to be implemented in the industry. Based on existing research, key soft skills will be picked from the PMBOK and literature review to the following success factor:

A. Productivity: Completion time and quantity of outcome

B. Product Development Success: features and innovation

C. Resource Optimization

D. Work environment: Motivation and employee satisfaction

E. Work output quality

Moreover, a formal report with responses from the questionnaires will provide details on the soft skills that Project Managers perceive as important in their roles.

Type of work

Primary research will be conducted through questionnaires. Questionnaires will be designed to understand how project managers working in the Cloud space are being trained, how soft

skills are included or not in their training, and how they perceive soft skills in the technology space. Secondary research will be used to identify the top soft skills to be included in the questionnaires.

3. LITERATURE REVIEW

Background

As reported by Bloch, Blumberg, and Laartz (2012) around 45% of technology projects run over budget, 7% over time, an around 56% actually deliver with what they estimated at the beginning (2012). Two reasons for previous failures are attributed to the rate: projects missed the targets or projects didn't deliver the expected business requirement (Marando, 2012).

For Marando (2012) "Projects very often fail. They are late, over-budget, and/or they fail to deliver the product they were designed to produce" projects failures. Fifty percent of the reasons have higher influence by soft skills than hard skills: inadequate communication, cultural disconnection, poor alignment between the project team and the business, insufficient leadership, and deficient communication (including progress tracking and reporting) (Winters, 2003).

Research by Muzio, Fisher, Thomas, and Peters (2007) states that "it has been recognized that screening for and developing nontechnical 'soft' skills in project managers and other employees is critical for the continued success of any complex, fast-changing organization" (p.30). On the other hand, the 5th edition of the PMBOK Guide presents a list of areas that have been demonstrated to be necessary in the project execution. From the PMBOK Guide (2013), "The project manager needs to be aware of and influence, when possible, human resource factors that may impact the project. These factors include team environment, geographical locations of team members, communications among stakeholders, internal and external politics, cultural issues, organizational uniqueness, and others factors that may alter project performance" (p. 256).

Importance of Soft Skills

Trejo (2016) shows there is a direct relationship between project success and soft skills' development through emotional intelligence (p. 67). Ravindranath (2016) explores the importance of soft skills in Business Administration. His work advocates for the inclusion of soft skills trainings as a requirement in business programs in order to develop better students and professionals (2016).

According to Sumner, Bock, and Giamartino (2006), "The psychological orientation of IT professionals influences their project leadership styles because effective leadership includes 'soft skills', such as the ability to manage people and effective communications" (p. 43). However, some studies indicate that most professionals in IT had deficient soft skill (Sumner, Bock & Giamartino, 2006). The lack of soft skills has been closely related with project failure, and research done by the Standish Group (2012) show that the lack of soft skills contributes to each of the ten project failure factors described in the study (Marando, 2012, p. 4). Furthermore, research done by Dvir, Sadeh, and Malach-Pines (2006) analyses the relationship between the diverse personalities of project managers, the type of project they are involved in, and project success in order to conclude that "Project managers' personality and management style and the types of projects they manage is crucial for projects' success" (p.36).

Similarly, as reported by Thamhain (2004) "For this reason, staffing projects with managers who have the 'right competencies' is crucial to achieve organizational goals, to maintain competitive advantage and to ensure that the organization's projects will achieve the expected performance".

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Soft Skills

Successful project managers feature a wide set of soft skills, ranging from intrapersonal to interpersonal abilities. Troukens, in his work, lists a set of skills that he considers to be the core competencies to master. Communication, negotiation, coaching and motivation, and decision-making are examples of the soft skills that will allow project managers to optimize their chances of success in different type of projects in the Technology field (Troukens, 2013).

From the aforementioned list, it can be appreciated that the author was interested mainly in the skills that come in to play when project managers interact with other people. However, Ravindranath (2016) includes a set of intrapersonal skills like creativity and flexibility when he states that "There are some sets of dimensions that have been identified related to soft skills and project management: Communication Skills, Team building skills, Flexibility and Creativity skills, Leadership skills, and Stress and Conflict Management" (p.17).

On the other hand, rather than directly pointing at project managers skills set, research has been conducted using a different approach and looking into the critical factors linked to project success. Additionally, to listing the traditional set of factor including cost and time, soft skills have also been including in this list of success factors. For instance, Alias, Zarina, Yusof, and Aris's (2014) study found the following:

Project Management can be seen as being about managing change (Cleland, 1995; Bourne and Walker, 2004) and project managers should consider themselves as change agents adding to the Project Management role an additional focus on so-called 'soft' aspects of relationship management (Bourne and Walker, 2004). Moreover, according to Bourne and Walker (2004) in most organizations, project

managers are accountable for the successful delivery of complete projects.

Increasingly, this success depends on project managers' processing and utilizing

skills and competencies that may initially appear contradictory. A successful

project manager must demonstrate flexibility and competency in many areas, hard

and soft skills, introverted and reflective, extroverted and social behavior. (p. 63)

Similarly, Ihuah, Kakulu, and Eaton include communication and leadership as two soft skills in

their research where they compared critical success factors mentioned by eight different authors.

Impact on Industry

The development of soft skills is not only influencing the project outcome, but it is also

having an impact on project manager's career development and the technology industry.

Research has identified a link between the skills required for successful project managers and the

qualities that make them successful IT professionals. According to Hildebrand (2006), "some

industries already recognize project managers' potential. 'Project managers are moving to the

senior level in industries where project management has been effective and has become part of

the culture" (p.14).

Cloud Computing is a key influencer for the Information and Technology (IT) industry

and related industries in the technology field, since it affects how companies are running their

business and the way they interact with their stakeholders. The quick expansion of Cloud is

influencing the way companies develop and distribute software and infrastructure (Nieuwenhuis,

Ehrenhard, & Prause, 2018).

When analyzing the technology industry, IT companies are always looking for better,

faster and more efficient ways to do things. However, changing and upgrading technology in

projects can take unplanned costs. Nowadays, Cloud represents an attractive technology solution for ongoing projects that need to optimize costs. Based on Katona (2015), "To make the most of this maturing technology, many organizations are looking to increase efficiency and productivity by integrating disparate Cloud services and applications, as well as existing on-location servers" (p.1).

Cloud Computing

The National Institute of Standards and Technology (NIST) (2011) defines Cloud Computing:

> Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This Cloud model is composed of five essential characteristics, three service models, and four deployment models. (p.2)

In the same publication from the NIST, it is mentioned and explained the five essential characteristics: On-demand self-service, Broad network access, Resource pooling, Rapid elasticity, and Measured service. The three layers or service models are Software as a Service (SaaS), Platform as a Service(PaaS), and Infrastructure as a Service (IaaS). Lastly, the four deployment Models refer to the Cloud being provisioned to specific people: private Cloud, community Cloud, public Cloud, and hybrid Cloud (Mell & Grance, 2011, p. 3).

Business Transformation with Cloud

According to Lewerke David, "The Cloud has transformed the way we do business. It's broken down communication barriers, enabling a mobile workforce where IT teams can solve business problems and create new revenue opportunities that wouldn't have been possible just a few years ago" (p.1). On the same page, MacDonald (2011) says that the "move to the Cloud has promised better, faster, and cheaper capabilities" (p.1).

Conforming to Dillon and Scanlon (2011), Projects in Cloud and companies moving their infrastructure to Cloud or to a multi-Cloud environment has become more popular due to the benefits they will get out of Cloud such as collaboration, productivity, business solutions, infrastructure on-demand, and development platforms (Dillon & Scanlons, 2011).

Project Cloud Collaboration

Dillon and Scanlon (2011) define Project Cloud Collaboration by saying "Collaborative software unites the virtual workforce and attempts to make the experience of working together as natural and productive as working in the same physical location" (p.1). Developing team building and collaboration applications (mobile and web) to increase productivity has been the focus of many Cloud applications and, with the growing Cloud industry, more powerful and complex integrations are available for project teams (Dillon & Scanlon, 2011, p. 2).

The Downside

The 2014 Intermedia SMB Cloud Landscape Report found that Small and Medium Size companies use 14.3 Cloud-based applications while employees use 5.5 every work day. Based on

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the report, having so many available applications is a challenge for companies and it is affecting

productivity (Intermedia, The Business Cloud, 2014, p. 9).

As it is mentioned in the report (2014):

> The key is to prioritize everything that IT is doing and look at the stuff that's
>
> going to provide a competitive advantage to the company. List everything—even
>
> the really mundane stuff like updating spam filters or installing new antivirus
>
> software on laptops. Offload the items that don't provide a competitive advantage
>
> to the Cloud—keep your IT staff, if you even have any, for really high value stuff
>
> that grows your business. (p. 14)

The Project Manager role in Cloud projects

Pocatilu, P., Alecu, F., and Vetrici, M. state that a technology project in the Cloud space is a temporary effort to create a system and/or application on top of a Cloud architecture. As most projects, in order to have a high quality Cloud project, the outcome needs to be within scope, on time and within the agreed budget. It is the project manager's responsibility to manage the demands, the duration of the project, the available resources and the costs associated to each element. (Pocatilu, Alecu, & Vetrici, 2010, p. 45).

Moreover, Peter Ross (2011) talks about how Information Communication and Technology (ICT) workers in Cloud projects will need to shift their technical role to one in which allows communication and collaboration with stakeholder (different providers), in order for them to have and/or develop the skill set required in the Cloud industry. He mentioned that the 'relationship management' skill should be added to the required skills set that every successful ICT worker needs to have. However, Ross (2011) mentioned that it represents a

change in the role and new challenge for companies since "In particular ICT worker skill sets will require a greater focus on 'soft' or intangible skills including communication and interpersonal skills; attributes that are not always linked to this classification of workers" (p.69).

How to Measure

Research has demonstrated a clear relationship between how soft skis are used in project management to achieve a successful project. However, the literature studied relied mostly on empirical data or results in which many factors played a role. Nevertheless, this is to be expected due to the nature of the work and the challenges that present quantifying soft skills and their impact.

Monteiro de Carvalho and Rabechini (2015) present a method for gathering the necessary data to feed into their predicting model. In their data collection efforts, they divided the work into two phases, phase one is described as collecting data from the literature to help design their model and establishes their hypothesis. Phase two consisted of a survey-bad research in which they involved project management professionals (Monteiro de Carvalho & Rabechini, 2015).

Similarly, Alias, Zarina, Yusof and Aris, used questionnaires in order to develop future pilot studies that would allow them to test their hypothesis on the relation between soft skills and project success (Alias, Zarina, Yusof & Aris, 2014). These proven research methods will be the base for data collection in this work.

4. METHODOLOGY

The literature points towards an overall positive effect of a number of soft skills such as leadership and people management in project outcome. Moreover, emotional intelligence as a whole has been directly correlated to project success (Trejo, 2016). This new wave of research and findings can be attributed to the change in the workplace mentality. Long gone are the days of baby boomer's traditional work models, and younger generations prefer intrinsic (during working hours) work values, rather than extrinsic (as a consequence of working) work values (Cennamo, 2008).

This movement has led an initiative of including soft skills in many fields (Ravindranath, 2016), particularly project managers working in the Cloud industry, who their role is to not only manage projects but people as well. On the other hand, it can be challenging for Cloud technology companies to find enough talent with the technical and soft skills, and based on Peter Ross study (2011) it can be concluded that the shortage of information, communication and technology professionals in technology companies is encouraging them to train their existing workforce (Ross, 2011, p. 70).

The aim of the present work will be to study the role of soft skills in project managers in the Cloud space. Therefore, it will be required to do a qualitative study. The solution approach in this work will consist in:

(1) Identifying top ten soft skills directly related to project success

(2) Creating a questionnaire to gather data coming from Project Managers professionals working in or with Cloud technology

(3) Identifying the right people for the study

(4) Collecting minimum 20 responses

(5) Analyzing results

(6) Reporting and making recommendations

As previously mentioned in this work, the ten soft skills to be considered in this research will be selected from previous research and selected literature review. The author will examine the prevalence of certain skills across multiple sources, and its role played on each study.

In order to select the skills to be included in the questionnaires, a comparison between the *Interpersonal Skills of a Project Manager* listed in the PMBOK, and the core themes used in the paper *A review of the soft side in project management: concept, trends and challenges* by Cardoso et al., will be done. The list of soft skills to be added to the questionnaire will be the combination of both pieces of literatures. With it, the questionnaires will contain five questions around soft skills, and three specific questions will have a list with all the soft skills previously identified.

Once the definitive list is formed, the author will combine existing research and newly generated data from questionnaires to relate the aforementioned soft skills to desired success factors in project management. The success factors to study can range from the work environment and team dynamics, to project implementation and success.

Given that around 16% of projects in software development are completed within the timeframe and budget estimated in small and medium-size companies, and around 9% in large corporations and enterprises (Standish Group, 2014), a less traditional approach must be taken at the time of selecting success factors in project management in software development when using Cloud technologies. For instance, there are a number of cases in which certain departments (in

technology companies), such as research and development, take on projects in which the expected outcome is for the project to be eventually terminated, but that does not mean that the project manager(s) working on those projects were not successful.

Existing research already presents some success factors, but new research must be conducted in order to validate existing factors and find new ones directly related to Cloud technology projects. Many authors including Alias, Zarina, Yusof and Aris (2014), and Monteiro de Carvalho and Rabechini (2015) have already proven methods for collecting data on the project management subject.

Similarly, questionnaires will be the method of choice when attempting to qualitatively measure the impact the selected soft skills have had in companies working with Cloud technology, and where and when have the aforementioned success factors come into light. The questionnaire will be directed at project managers, influencers, and employees with direct project and program management experience in technology companies related to Cloud. The technology to be used for the questionnaires will be Google Forms.

5. RESULTS AND FINDINGS

Following the methodology, the author first identifies the soft skills related to project success to be included in the questionnaires.

Top soft skills selection

As shown in Table 1, it was decided on ten soft skills by combining the ones listed in the previous literature review used for this project.

PMBOK	CORE THEMES	Soft Skills to be included in the questionnaire
Leadership	Communication	Communication
Team building	Leadership	Teamwork and Team Building
Motivation	Team Relationship	Leadership
Communication	Conflict Management	Stress and Conflict Management
Influencing	Organization Management	Negotiation
Decision making	Motivation	Human Resource Management
Political and cultural awareness	Self-confidence	Flexibility and ability to delegate
Negotiation	Training	Understanding employee motivation
Trust building	Knowledge	Team behavior
Conflict management	Decision-making	Coaching
Coaching	Empathy	

Table 1: Soft Skills to be included for the study

About the participants in the questionnaire

The questionnaire was sent to specific professionals working with Cloud technologies and with background and/or experience in Project Management (3 years minimum). The only personal information that was collected from our target audience was the number of years of experience working with Cloud technologies and their current role.

The average number of years of experience with Cloud technologies within the sample is almost 5 years (4.91), as you can see in Figure 1:
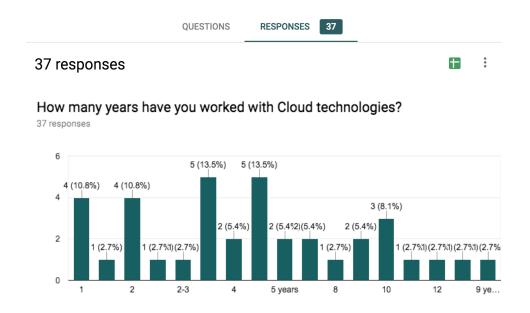

Figure 1: Results from the first question: How many years have you worked with Cloud technologies?

Out of the 37 people, we were able to take insights from Project Managers experts working in different fields within their companies. Those main departments are Marketing, Engineering (technical roles), and Sales & Operations. The field areas distribution can be seen in Figure 2.
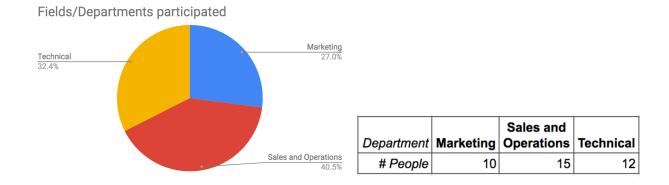
Department	Marketing	Sales and Operations	Technical
# People	10	15	12

Figure 2: Distribution on the Project Managers field areas/departments

Key titles from professionals that took the questionnaire are: Program Manager, Project Manager, Partner Program Manager, and Sales Manager.

The Questionnaire

The questionnaire was created to have specific questions around the interviewers' perception on soft skills, about their perception of soft skills when working in and with Cloud technology, and about the on-demand pieces of training they receive at work, as well as their desire to be trained with specific soft skills. For that reason, the questionnaire has three sections:

1. About the perception of Soft Skills.

2. About Cloud

3. About the available pieces of trainings in the workspace

The questionnaire was sent to 55 professionals working in Cloud companies, with Project Management experience in technology, who could be working in different business areas in the latest company (not necessary Project Management), but their roles are highly influenced by

their project management experience and/or skills. Out of the 55 questionnaires sent, it was collected 37 responses (67% response rate).

About perception of Soft Skills. In this section there were three questions:

1. In the first question, we asked participants to check "Yes" or "No" if they agree with the following statement: "It is all about the human factor and the experience of the skilled project manager, which are crucial to providing the glue for the entire team to work and perform together in harmony. You can have the best tools, systems, and processes, but if the people do not manage to work together, you're in for failure" (Troukens, 2013).

    The 37 people answered "Yes", meaning that 100% agreed that they can have the best systems and processes in places but they will fail if people do not work well together.

2. In the second question, we listed the ten Soft Skills to be included for the study that we showed in Figure 1 and asked participants to select (check) the ones they think are necessary to possess as a Project Manager in the cloud space. We also add the options of "All the above", and "Other" with space for participants to let us know which one(s). Results can be seen in Figure 3, while the key findings are:

    - The one with more checks was **Communication** with 27 unique votes, and 11 votes through the "all of the above" option, representing 100% of agreement.

    - In the second place, **Flexibility and ability to delegate** got 25 checks and 11 votes through the "all of the above" option meaning that 97.3% of the sample agreed with it.

    - In the third place, we have three soft skills options that got 22 checks and 11 votes through the "all of the above" option: **Leadership, Stress and Conflict**

Management, and **Negotiation**, representing 89.2% of the sample who agreed with it.

- The fourth one with more checks was **Teamwork and Team Building** with 21 checks and 11 votes through the "all of the above" option representing the 86.5% of the sample who agreed with it.

The rest of the soft skills received less than eighty five percent of people agreeing with it:

- ○ **Coaching and Understanding employee motivation** received 17 checks and 11 votes through the "all of the above" option.

- ○ **Team Behavior** received 15 checks and 11 votes through the "all of the above" option.

- ○ The "**All of the above**" option received 11 checks.

- ○ As "**other**", we were able to capture the following ones: multi-tasking, critical analysis, maintaining the delivery process, growth mindset, relate well to others, multicultural engagement, organization.

Please select from the list below the soft skills you think are necessary
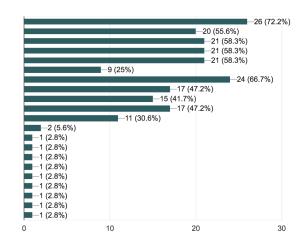to possess as a Project Manager in the cloud space:

36 responses

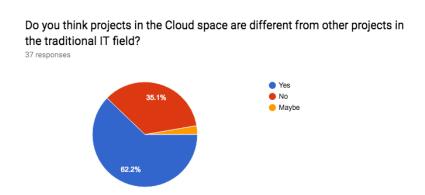*Figure 3: Results of the Soft Skills necessary for Project Managers in the cloud space*

3. The third question was an open one for participants to elaborate on how the previous
    selected soft skills could influence team communication in Cloud projects. Responses can
    be seen in the Appendix A. When analyzing responses, we can highlight that the previous
    soft skills influence team communication in Cloud projects by:

    ○ Improving Communication

    ○ Maximizing use of resources

    ○ Understanding motivations will help with prioritization, compensate the team,
      cooperation, and learning process

    ○ Establishing trust

    ○ Delivering value to all stakeholders

    ○ Leading by example

    ○ Ensuring the team stays agile and motivated

    ○ Managing stress

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○ Providing and receiving feedback

○ Having a complete view of every situation and decision to make

○ Designing a culture for innovation

○ Having a high performing team

○ Improving teamwork and efficiency

○ Getting things done

About Cloud. In this section, six questions were asked to understand how the work of project management is in the Cloud space. The questions asked were:

1. About the challenges Project Managers have to deal when working with people in cloud projects. Responses were:

   ● **Communication with Stakeholders** received 22 checks and 9 votes through the "All of them" option, representing 83.8% of agreement.

   ● **Cloud knowledge** received 17 checks and 9 votes through the "All of them" option, representing 70.3% of agreement.

   ● **Working with remotes teams** received 13 and 9 votes through the "All of them" option, representing 59.5% of agreement.

   ● **Early adoption of cloud in the marketplace** received 10 and 9 votes through the "All of them" option, representing 51.4% of agreement.

   ● **Leadership skills** received 8 and 9 votes through the "All of them" option, representing 45.9% of agreement.

2. About Project Management perception between IT projects and Cloud projects. The

responses can be seen in Figure 4.

Figure 4: Response from the question around how different are traditional IT projects and Cloud Projects

3. About Project Management perception on specific soft skills to be a successful Project

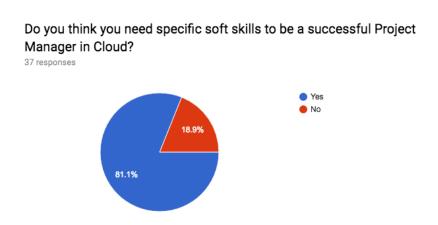   Manager in Cloud. The responses can be seen in Figure 5.

Figure 5: Responses to the question about Project Managers' perception on specific soft skills required to

be a successful Project Manager in Cloud.

4. The following question was dependent on the previous option. Project Managers who

   selected "No" were asked why they think they didn't need specific soft skills to be a

successful Project Manager in Cloud, and the ones that selected "Yes" were asked why they think they need specific soft skills. Full responses can be found in the Appendix B. Some highlights are:

- 18.9% don't think they need specific soft skills in a Cloud environment. The overall justification was that as a project manager you need to have a similar set of soft skill to succeed on any (or all) IT projects

- The rest of people believe you need specific soft skills when working in Cloud and that's because:

  ○ The industry is growing and there needs to be constant communication between stakeholders.

  ○ You need them to manage and influence your team towards a common goal.

  ○ In order to penetrate the marketplace, you need a creative, trained and motivated team.

  ○ You need them in order to work with people from different backgrounds and locations.

  ○ Creating a sense of urgency in a fast-paced environment.

5. In the last question of the Cloud section, it was asked to select the all the options that might apply to how can soft skills positively influence projects in the Cloud space. More than 85% agreed that soft skills influence in a positive way by improving communication, finishing project on time, achieving project objectives, mitigating project conflict and helping with budget management. Responses can be found in Figure 6.
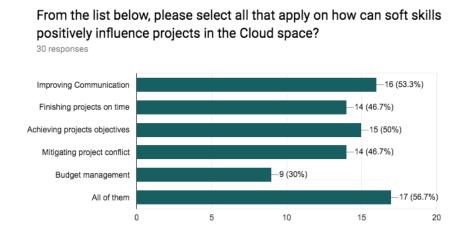
From the list below, please select all that apply on how can soft skills positively influence projects in the Cloud space?

30 responses

Improving Communication	16 (53.3%)
Finishing projects on time	14 (46.7%)
Achieving projects objectives	15 (50%)
Mitigating project conflict	14 (46.7%)
Budget management	9 (30%)
All of them	17 (56.7%)

Figure 6: Responses to the question about the positive influence of some soft skills in Cloud projects

About available pieces of trainings in the workspace. In this third and last section of the questionnaire, five questions were asked.

1. In the first question, it was asked about the number of general trainings those professionals receive in a year. Responses can be found in Figure 7.
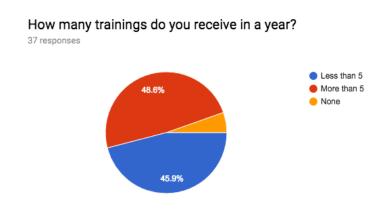
How many trainings do you receive in a year?

37 responses

- Less than 5
- More than 5
- None

48.6%

45.9%

Figure 7: Responses reflect the number of trainings interviewers receive in a year

31

2. In the second question, we asked about the type of trainings they receive, with the goal of understanding if those trainings were designed to help developing and/or improving employees' soft skills. Responses can be seen in Figure 8.

Are you provided with trainings that can help you develop/improve your soft skills?
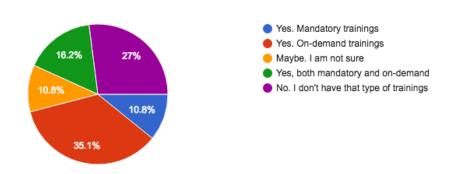37 responses

- Yes. Mandatory trainings
- Yes. On-demand trainings
- Maybe. I am not sure
- Yes, both mandatory and on-demand
- No. I don't have that type of trainings

16.2%
27%
10.8%
10.8%
35.1%

Figure 8: Responses on the type of trainings interviewers receive

3. In the following two questions, it was asked if interviewers were taking advantage of on-demand trainings and if yes, the number of trainings they used to take in a year. Answers can be found in Figures 9 and 10.
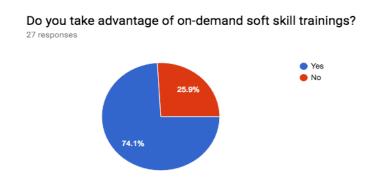

Do you take advantage of on-demand soft skill trainings?
27 responses

- Yes
- No

25.9%
74.1%

Figure 9: Distribution of people taking or not soft skills on-demand trainings
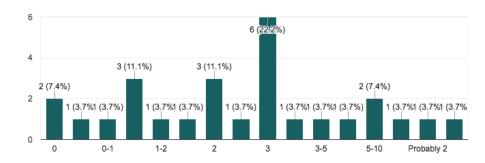
How many do you take in a year?
27 responses

Figure 10: Responses on number of trainings professionals -who received trainings- take in a year

Out of the 9 people that are not receiving or taking the soft skills type of trainings, we can highlight some of the reasons:

- The company has different priorities

- Preference on taking technical trainings

- Lack of awareness about soft skills importance

- Difficult to see the return of investment

For more details please refer to Appendix C.

4. In the following question, it was asked, from a scale of 1-5, how important interviewers think trainings are to develop soft skills in the Cloud Space. The average response was 3.9 out of 5. Results can be seen in Figure 11.

In a scale from 1 to 5, how important are trainings to help you develop soft skills in the Cloud space?

37 responses

Figure 11: Responses on how important trainings are to develop soft skills in Cloud

5. In the following question, it was asked if the interviewers would like to receive trainings to develop and/or improve soft skills. 97.3% said they would like to receive this type of trainings as it is represented in Figure 12.

Would you like to receive trainings to develop and improve soft skills?

37 responses

Figure 12: Distribution between the participants that would like to receive or not soft skills trainings

6. In the last question from this section and questionnaire, we asked participants about the

    soft skill(s) they would like to be trained on. Distribution within the responses can be
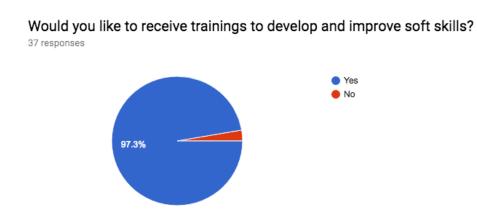
    seen in Figure 13, and between the options provided to participants, it is highlighted that:

    ● **Negotiation** was the skill with more votes. It has 20 checks and 6 ones through

      the "all of them" option, representing 70.3%.

    ● **Stress and Conflict Management** was the second soft skill with more votes. It

      has 17 checks and 6 ones through the "all of them" option, representing 62.2%.

    ● **Leadership** was the third soft skill with more votes. It has 16 checks and 6 ones

      through the "all of them" option, representing 59.5%.

    ● Next, we have **Communication** with 45.9% of the votes**, Understanding**

      employee motivation with 43.2% of the votes, **Flexibility and ability to**

      delegate with 40.5% of the votes, **Teamwork & Team Building** and **Team**

      behavior with 37.8% of the votes, **Behavioral Characteristics** with 35.1% of the

      votes, and lastly **Human Resource Management** with 29.7% of the votes.

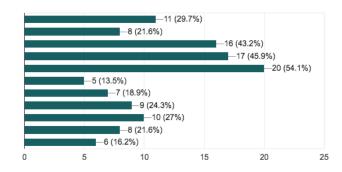## Which soft skills would you like to be trained on?
37 responses

Figure 13: Soft skills participants would like to receive trainings in

To summarize the work and results coming through the questionnaire, there is clear evidence on the role played by soft skills in technology projects, and in this particular case, in Cloud projects. Based on the sample, it can be inferred that not all the Program and Project Managers are receiving trainings to develop and/or improve their soft skills. However, it is shown to be a common request, and based on the responses, a clear ask to Cloud companies. Moreover, there is indication that through the creation of a set of trainings to improve soft skills focused on technology professionals in the Cloud space with project management responsibilities will help them to improve team and stakeholders communication, mitigate conflicts, improve negotiation skills, and help them to finish projects on time, and on budget.

6. CONCLUSION

As it was highlighted at the beginning of the present work, there is a problem when technology companies in the Cloud space allocate their Project and Program managers when only considering hard skills, previous experience, and technical knowledge. The problem is rooted in that these type of companies are missing the soft skills required to manage priorities, communications, and motivations within the project team to successfully develop projects. The objective of the present thesis is to explore and analyze Project Manager's perspective in different business units: Marketing, Operations and Sales, and Engineering, with the goal to understand the role of soft skills, awareness on their influence in Cloud projects, and to assess the type of technical and non-technical trainings they were receiving in Cloud companies.

A qualitative type of study was used in order to identify the top soft skills influencing project success in the Cloud space, designing a questionnaire to gather Project Managers perspective on the soft skills identified, and collecting responses about the available trainings in Cloud companies. The analysis on the responses allowed the present thesis to demonstrate and justify the creation of new trainings that will help Project Managers in different units within the Cloud companies to develop and improve identified soft skills required for the specific work they do when working in Cloud projects.

Existing research, along with the present work provides the foundation for the training that needs to be created by listing and prioritizing the soft skills required and insights on how those soft skills represent a priority for them in their work.

It is important to expand the study to all different units in companies associated with Cloud companies, to have a richer base to develop targeted programs in which Project and

Program Managers can learn, improve, and test the soft skills required in their roles. Potentially, the study of the impact of a new soft skills training program could scale and become a mandatory area in the professional career development of Project Managers in Cloud.

Finally, we can conclude that Project Managers working in the Cloud space find beneficial receiving soft skills training in order to develop and improve their negotiation, stress and conflict management, leadership, communication and teamwork skills required in every aspect and business unit related to a project in Cloud.

7. RECOMMENDATIONS

The following recommendations are based on the present thesis:

1. Limited access to Cloud Project Managers Database. It is recommended to extend the research and get insights from project and program managers working in the big Cloud players in the marketplace: Amazon AWS, Microsoft Azure, and Google Cloud; as well as smaller Cloud companies: software startups creating solutions with Cloud technology.

2. The outcome on present thesis was to understand the value that could bring a training in soft skills with the assumption that those that of trainings were not available or mandatory for project managers in companies working with Cloud technologies. It is recommended to work closely with an agency/company dedicated to the professional trainings creation in order to design one that best fit the insights collected in this thesis.

3. It is recommended to do a secondary qualitative type of research and do in-person interviews with a percentage on the Project Managers sample. In this way, we could collect more data and insights that will guide the team in charge of creating the soft skill program training.

4. Research and qualitative study targeting the Project Managers in the present study but after making them taking and applying new knowledge as part of the soft skills training program. It is recommended to do a qualitative study using questionnaires, to understand the value that the Project Managers can actually see three months, six months, nine months and a year after they took the first soft skill training program.

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Appendix A

Question: How can the previously selected soft skills influence team communication in Cloud projects?

Responses below:

1. *The cloud industry is growing so fast that lacking soft skills will affect communication between all the different and new stakeholders joining conversations around Cloud. It is key to have teams with technical expertise and soft skills*

These skills are necessary for cloud projects to be successful in a timely manner and making the best use of resources

Knowing the personalities and human aspect enables the project manager to deal with any human roadblocks to the project and keep the process focused on the cloud project they are working on.

If you understand employee's motivation (Why are they here and how can you help her/him achieve the goals), she/he will be more likely to collaborate and prioritize your asks.

Team building helps establishing trust which leads to better communication. Cloud projects can be technically opinionated, so a lot of coaching is necessary to get all team members in the same page, improving communication.

Finish iterations faster, build a high quality product and increase value delivers to stakeholders and clients

In cloud the ecosystem is really open and we are in the fastest growing business in history, Leadership and learning how to coach is important, by leading is leading by example. Also we need to consider negotiation and this happens in many instances, of course in front of customers but also between teams as we growth so fast negotiating internal resources becomes critical. Coaching is big as this is a new service a new way of selling and there is no experience in the market for this so having constant checkpoints is important to ensure they are applying the right skills on the sales process.

Cloud projects tend to be transformation in nature, complex, and have many different stakeholders. As a result, having soft skills will help navigate through natural reactions from individuals around change management, assessing risk, and going at the speed at which cloud projects need to be executed. For instance, if you cannot leverage soft skills to communicate why it's worthwhile to take X risk in a Cloud project, you will not be successful.

The Cloud Industry is still in a nascent stage: it's not just the technology that's evolving and taking shape, it's also the consequent team structures. Being in a constant state of flux can be stressful and difficult to manage without these soft skills. Communication is critical in ensuring the team stays agile, motivated and does not get adversely affected by changes.

The whole purpose of Cloud is to scale without boundaries. Communication between the team is key when delivery scales. Maintaining a tracker / playbook with defined activities and then working with the team to ease the stress, delegate and maintain timelines are the required soft skills.

Stress and conflict management helps in creating a stress-free team that is able to communicate better and work in harmony.

Understanding their motivation team motivation makes sure an agreement is made in Cloud projects.

A pgm or project manager often acts as the glue of the team; this is achieved through verbal and nonverbal communication to drive different individuals and teams with potentially competing priorities and business goals towards a mutually, and company, beneficial outcome.

It will orchestrate the Norming and Performing phases of team collaboration

It can increase/decrease clarity within the team.

They are crucial to effectively complete projects

I think soft skills translate across industries and projects. These skills are crucial in order to not only succeed in executing a project, but conveying that project and its value to your team and

your customers.

be able to receive timely feedback from all stakeholders to make adjustments in the project and achieve goals.

PgM success usually comes down to selling, convincing those around you that your program is needed for overall success of the organization. Getting buy in at each level or x-functional team is crucial.

Cloud projects often involve a diverse group of resources with different background/skill-sets: technical, sales, marketing, project management. As such, it is key that communication channels stay open. furthermore, is very important to understand the goals & roles of each team member in the project.

Cloud projects are new and usually they innovate, there is not to much experience in teams when they execute this projects; therefore, communication and flexibility are key skills.

Because Cloud Technologies must move fast to maintain competitive edge, Cloud PMs must be able to elicit urgency without increasing stress (stress and conflict mgmt.), understand team motivations (team behavior), compel stakeholders to take part even if there is no direct reward (flexibility, delegation, motivation) and collect solid data which is not even yet recorded at times by conducting surveys, interviews etc. (communication). Without soft skills it will be difficult to engage the resources needed for this task. "We like to do business with those we like" is important to remember.

When it comes to doing a particular task across globe the common factors are compensation, learning and power. Beyond this, people do go out of their way to do more in the form of innovation and achieving targets ahead of time. Strong leadership is key as they make the decisions.

Everyone needs to be on the same team. They may have differences to the approach of the project, but in the end if they cooperate, understand each other, willing to flex and communicate at all times, I make working over the cloud infinitely easier.

They allow for you to take in the complete story (multiple viewpoints, anecdotal evidence etc) prior to making a decision. Additionally these soft skills enable individuals to understand the impact of a decision at an individual and group level prior to launch. Strength in these soft skills will lead to a smarter decision and comms strategy which could include focus groups, tailored comms and feedback loops- driving smoother change management.

Cloud projects tend to have more remote teams, which requires clear communication skills. These teams also typically run in an agile environment, which facilitates fast actions, but necessitates strong leadership skills to prevent production silos.

Design a culture for innovation

My opinion is that ultimately you either have a highly performing team or not and the soft skills you bring to the table as a PgM have a direct influence on this.

As a globally dispersed team, many project managers in Cloud work with stakeholders from all parts of the world many of whom have goals/priorities that may not always align with that of the project manager. Being able to communicate openly and transparently, as well as being able to push when necessary, is critical to push projects forward.

Understanding change is difficult and moving to a new model takes patience

It can affect (for good and for bad) the entire project not only in Cloud but in any field. It's important for the team to feel someone is leading the project and keeping track of the deliverables.

In my experience, communication is always the first thing to go when something goes wrong or if people are too overworked or stressed. Lack of communication can be a sign of burnout or stressers. Lots of communication can indicate things are going well.

All of them can be used together to get the team focused on the goal, rather than each other.

Improve team efficiency.

Technology teams, especially cloud teams, are often comprised of individuals with varied skill

sets, varied abilities to communicate and varied levels of ability to work with others. It is paramount for a project manager to be able to navigate the sea of individuals in order to to drive to a common outcome without sacrificing the product or solution deliverable. All of the skills above are necessary components for a project manager in order to achieve results. A project manager must have a portfolio of skills, as Cloud is a complex topic that is not often understood by all. Boiling Cloud and associated project artifacts down into a common language that is understood by all is critical to success.

Communication and teamwork is key. Typically on cloud projects team members are virtual and rarely in the same location. It is essential to have over communicated and work together.

Getting things done together as a team, avoiding burnouts, managing conflicts and roadblocks.

I think that the right use of all those skills will make the work team feel they are working WITH you as a leader and not doing the work FOR you as a simple boss.

Appendix B

Question: Why don't you think you don't need any specific soft skills?

1. *Per my understanding, Project management as a field will not differ much in terms of the soft skills required: e.g. breaking down projects into small tasks, identifying owners and timelines, stakeholder management, relationship building, project measurement, etc. The subject matter will, of course, be different but the approach to project management is largely similar.*

2. *Because essentially to manage effective projects the soft skills would be the same, what would change are the technical skills*

3. *I think you need the same main soft skills in Cloud as you do anywhere else. They're necessary, however none strike me as specifically needed over others.*

4. *IT projects will vary, true. However, as a project manager you need to have a similar set of soft skill to succeed on any (or all) IT projects*

5. *You need them for any project to be successful. Cloud is not special.*

6. *Projects are projects. Getting work done is all about the people.*

7. *Same soft skills are needed regardless of the Cloud vs traditional IT space.*

Question: Why do you think soft skills are required to succeed as a Project Manager in Cloud?

1. *Because the industry is growing and changing really fast and there needs to be constant communication*

2. *Because of the different stakeholders we have to deal with on a daily basis*

3. *As the quote at the beginning of the survey mentioned, you're dealing with people. People issues can get in the way of product advancement.*

4. *There is no exact science or mechanisms to cloud-native solutions and they are frequently paired with complex production-level objectives like high performance, high availability and reliability. Managing a team towards these common objectives requires a lot of competence on soft skills.*

5. *The work now is not about repetition, is about finding new ways to penetrate an*

enterprise market that is saturated. This means that the salesforce required for the Cloud space needs to be creative, constantly motivated and trained

6. *Most Cloud projects are not transactional...they heavily influence culture, processes, and business priorities for an organization. These require things beyond numbers and figures. They require leadership, strong communication, and empathy so that you can influence the right people and execute projects.*

7. *Soft skills are required because it streamlines delivery.*

8. *Soft skills are necessary to succeed in any field as we mostly tend to work with people. Knowing how to work with people is probably the most important skill in your professional life.*

9. *They are pivotal for team collaboration and orchestration. The PM is the quarterback of the team, the leader and as such he needs to be able to coordinate the right team members at the right time*

10. *Because they are necessary to shift the culture from on premise to the cloud.*

11. *Because you need to influence an array of stakeholders. A project manager is like an orchestra director who needs to align every musician to play a symphony.*

12. *Program can be amazing, but will not be successful without top down buy in.*

13. *You need to manage people.*

14. *First statement sums up but essentially comes to ability to move fast while motivating others to do the same, without adding stress.*

15. *Resources come from various backgrounds and locations. The chances are that they are working in different time zones as well. All of this means that strong project management is key.*

16. *Response time, understanding the software you're using in the cloud and being able to manipulate it to your team, being flexible, defining items clearly*

17. *Communication, Adaptability, Teamwork, Leadership, Empathy, Stress/Conflict Management, Storytelling, Sales/Negotiation, Organization, People Management*

18. *Because cloud projects move quickly and involve various systems and tools, soft skills play an important role in keeping all teammates and activities moving forward collectively - rather than siloed.*

19. *Generalizing technical processes to all kind of audience. Communicate clearly why cloud.*

20. *See above - note about high performing teams*

21. *Creating a sense of urgency in a fast-paced environment*

22. *Negotiation and persistence*

23. *You are still dealing with people from stakeholders to the project team members.*

24. *Because of the complexity of what the cloud is and what the cloud offers, I think soft skills are what essentially make or break a project. An effect PM with a solid toolbox of soft skills will either move a project forward or cause it to be a failure.*

25. *Soft skills are required for any project manager because I see it is how a high level of output is achieved. A project manager needs to be more than a administrative person but motivated a drive.*

26. *because if you can't communicate with your team, if you can't motivate them then you are on your own.*

Appendix C

Question: Why do you think you are not receiving this type of trainings?

1. *My business doesn't seem them as valuable.*

2. *I'm not in or aiming at a management role*

3. *Miss understanding or lack of awareness about the importance of these soft skills*

4. *It's either implied that you come to the company with these skills (and that they are*

static). Or since it's harder to measure the return on those trainings, they are not prioritized.

5. *Mainly focused on technical trainings*

6. *Not a priority of the company at work at*

7. *Not actively looking*

8. *There are tons of classes for mechanical skills and not many worth beans on soft skills.*

9. *Not part of company culture.*