

Soft Skills in Online Job Advertisements

An analysis of British online job ads for Project Managers and System Engineers

Mémoire réalisé par
Noémie Grandjean

Promotrice
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Année académique 2016 -2017
Master en communication multilingue

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Acknowledgements

First of all, I am very grateful to my supervisor, Professor Sylvie De Cock, for her precious guidance, her availability and the time that she invested in my dissertation. She was of great help throughout the drawing up of this thesis.

I would also express my gratitude to Alexandra for the corrections that she brought to this dissertation.

Special thanks go to my mum, Simon and Sophie for their insightful comments and moral support.

Finally, I would like to warmly thank my dad, Megan, Quynh-Anh and Lara for believing in me and for their support.

Abstract

In the working world, soft skills are nowadays considered as important as hard skills. Whereas hard skills are technical skills, soft skills are personal attributes that enable someone to work better. Job advertisements are one medium by which employers communicate which skills they expect from candidates. This thesis aims at identifying and analysing soft skills in 120 online job-advertisements. It focuses on one country, the United Kingdom, and four positions, namely non-senior / senior Project Managers and non-senior / senior System Engineers. Job advertisements were selected on four different job boards. The main purposes are to investigate which soft skills are frequent in those job adverts and how they are referred to. The theoretical part deals with the scientific literature about soft skills in the workplace as well as online job adverts. In the practical part, the process used to classify the soft skills found in the job ads is explained. The analysis highlights the major findings.

Dans le monde du travail, les "soft skills" (compétences personnelles) sont de nos jours considérées comme aussi importantes que les "hard skills" (compétences techniques). Alors que les "hard skills" sont des compétences techniques, les "soft skills" sont des caractéristiques personnelles qui nous permettent de mieux travailler. Les offres d'emploi sont un des moyens utilisés par les employeurs pour communiquer ce qu'ils attendent des candidats en termes de compétences. Ce mémoire a pour but d'identifier et d'analyser les "soft skills" de 120 offres d'emploi en ligne. Les offres d'emploi proviennent d'un seul pays, la Grande-Bretagne, et concernent uniquement les métiers d'ingénieur système et de chef de projet, à des positions hiérarchiques non-senior et senior. Les offres d'embauche ont été sélectionnées sur quatre sites d'emploi différents. Les objectifs principaux de ce mémoire sont de trouver quelles "soft skills" sont fréquentes dans les offres d'emploi sélectionnées et de voir comment elles sont exprimées. La partie théorique reprend la littérature scientifique concernant les "soft skills" en milieu de travail et les offres d'emploi en ligne. Ensuite, dans la partie pratique, on décrit le processus utilisé pour classer les "soft skills" trouvées dans les offres d'emploi. L'analyse met en avant les principaux résultats.

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List of Abbreviations

CIPD	The Chartered Institute of Personnel and Development
HR	Human Resources
NSP	non-senior Project Manager
NSS	non-senior System Engineer
SP	senior Project Manager
SS	senior System Engineer
UK	The United Kingdom

Introduction

Nowadays, our modern and dynamic society offers a multitude of opportunities to both employers and candidates to find the perfect fit for their company's success or for their career path respectively. Newspapers, recruitment agencies, social networks, job websites, job fairs and career events are, among others, tools that make it possible for recruiters to contact job-seekers. Job advertisements are the classical way to start the hiring process. Mc-Kenna and Beech, authors of "The essence of Human Resource Management" (1995), state that "what appears in the advertisement should assist rather than hinder the applicant in deciding whether or not he or she is interested in joining the organization"¹.

This thesis does not focus on the art of recruiting through job advertisements. However, they are used as a basis for analysing one element that may be identified in them: soft skills. Soft skills, also known as life skills, people skills or 21st century skills, are "personal attributes that enable someone to interact effectively and harmoniously with other people"². As explained by Schultz (2008), considered as inferior to hard skills (technical skills) some decades ago, they are now seen as an essential competitive advantage to succeed in today's labour market.

This thesis aims at identifying and analysing soft skills in online job-advertisements. It focuses on one country, the United Kingdom, and four positions, namely non-senior / senior Project Managers and non-senior / senior System Engineers. The main purposes are to investigate which soft skills are frequent in those job adverts and how they are referred to.

This dissertation is divided into four main sections. The first chapter is devoted to a literature review of soft skills in the workplace. The second chapter concentrates on online job adverts. The research questions, methodology and hypotheses are discussed in the third chapter. The methodology consists in (1) describing how online job adverts were selected, (2) explaining how a bank of soft skills was created on the basis of published papers, (3) how soft skills were classified, and finally (4) outlining how the data was analysed.

¹ Mc-Kenna, E. F., & Beech, N. (1995). *The essence of human resource management*. London: Prentice Hall.

² Soft skills. (2017). In *English Oxford Living Dictionaries*. Retrieved July 19, 2017, from https://en.oxforddictionaries.com/definition/soft_skills.

The fourth chapter deals with the analysis. The results are discussed through the three research questions formulated in chapter three. Finally, a conclusion rounds off this MA thesis by putting in a nutshell the main points of the investigation.

Theoretical part

1 Soft skills in the workplace

In scientific literature, it is often said that soft skills are unquestionably indispensable to succeed in working life (Mishra, 2014) (Deepa and Seth, 2013) or even to maintain an enriching social life (Deepa and Seth, 2013). This chapter is divided into three sections and gives some explanations about what soft skills are. The first section draws a distinction between hard and soft skills and suggests some definitions. The second section focuses on the importance of soft skills in the corporate world, from entry-level jobs to top managers. Finally, the third section concentrates on skill problems.

1.1 Soft skills and hard skills

There appears to be consensus in the literature that skills can be categorised into either hard or soft skills (Mishra, 2014). Hard skills are presented as quantifiable, measurable, observable as well as teachable (Mishra, 2014). They are illustrated, for example, by achievements listed in education, work experience or knowledge sections of a curriculum vitae (<http://dictionary.reference.com/browse/skills> cited in Robles, 2012). According to Robles (2012), hard skills involve knowledge, technical expertise, abilities and aptitudes to do something well.

On the other hand, soft skills, also known as applied, 21st-century or people skills (Robles, 2012), are character traits, attitudes and behaviours. They are seen as non-technical, intangible and pertaining to personality (<http://dictionary.reference.com/browse/skills> cited in Robles, 2012) (Conrad and Leigh (1999), cited in Murti (2014)). They are harder to assess and described with more complexity than hard skills (Murti, 2014). As stated by Schulz (2008), it is difficult to list them exhaustively because it depends on the context: a skill can be viewed as a soft skill in a specific activity and as a hard skill in another. For example, analytical skills can be perceived as hard skills when they are connected to the tasks of a scientist. They can be seen as soft skills when they are linked to the tasks of a communications officer. In the literature, many definitions can be found: some are more general, others are more specific and divide soft skills into several categories (e.g. integrity, numeracy, orientation, global skills, leadership skills, presentation skills, customer relationships, interpersonal sensitivity, personality development, persuasion and negotiation by Parasuraman & Prasad (2015) or interpersonal, intellectual and communication skills by Bosley (2007, cited in Dabke (2015)).

It is worth emphasizing that, despite the great variety of definitions of soft skills, a number of core characteristics are shared by these definitions. Deepa and Seth (2013), Mishra (2014), Oxford Dictionary (2017), Muir (2004, cited in Deepa and Seth (2013)) and Rao (2012, cited in Deepa and Seth (2013)) all state that soft skills are the abilities to work, communicate, interact and deal with others. Schultz (2008), Robles (2012), Oxford Dictionary (2017), Moss and Tilly (1996, cited in Murti (2014)), Perreault (2004, cited in Deepa and Seth (2013)) define them as "personal attributes". A number of terms are recurrent in most of the definitions: non-technical, interpersonal and intrapersonal qualities, personality, common sense, positive and flexible attitudes, leadership skills, integrity and talents.

Additionally, many authors mention that soft skills are key elements for successful workers because they make it possible to handle pressure in the framework of our competitive corporate world (Mishra, 2014). A second core characteristic concerns the relationship between the productivity of a company and soft skills: soft skills are said to increase the efficiency of an organization (Mishra, 2014) because they bring an added-value to relationships and services (James and James (2004) cited in Mishra (2014)). Schultz (2008), Sutton (2002, cited in Deepa and Seth, (2013)) and Wilhelm (2004, cited in Deepa and Seth, (2013)) explain that soft skills are essential for job interviews because they differentiate candidates and are an advantage for the ones who possess them. Conrad and Leigh (1999, cited in Murti (2014)), Deepa and Seth (2013), Robles (2012), Klaus (2010, cited in Robles (2012)), James and James (2004, cited in Deepa and Seth (2013)), Hillage (2002, cited in Murti (2014)) and Dabke (2015) agree and add that they are extremely important throughout the whole professional life.

In my opinion, three definitions capture soft skills rather well and sum up what can be found in the literature. The first one is by Ghosh (2012, cited in Mishra (2014:51)) and presents a psychological perspective: "Soft skills are a process of development of the human psyche and personality so that a person becomes more social and acceptable to the society at large, including the corporate world."³

³ Ghosh B N (2012), "Soft Skill Development: An Introductory Overview", in B N Ghosh, *Managing Soft Skills for Personality Development*, Tata McGraw Hill Education Private Limited, New Delhi.

Robles (2012) illustrates the diversity of soft skills by discussing ten categories:

- Communication
- Courtesy
- Flexibility
- Integrity
- Interpersonal skills
- Positive attitude
- Professionalism
- Responsibility
- Teamwork
- Work ethic

It should be noted that other authors use different classifications but Robles' categorisation is arguably the most relevant and detailed. Each category will be discussed later (cf. section 3.2.2 (*Creation of a bank of soft skills*)).

Finally, Muir (2004, cited in Deepa and Seth (2013)) completes Ghosh's definition with the idea that soft skills can be regarded as attitudes and behaviours: "Soft skills are attitudes and behaviours displayed in interactions among individuals that affect the outcomes of various interpersonal encounters."⁴ This last definition underlines the connection between soft skills and interpersonal interactions (Deepa and Seth, 2013).

To sum up this section, skill is described in the Oxford Dictionary as "*ability to do something well*" (Mishra, 2014). To do a good job, people arguably need a good mix of hard and soft skills. Whereas these two sets of skills interconnect and complement one another (Robles, 2012), they are not learned in the same way. Soft skills are developed through relationships (Schultz (2008), cited in Murti (2014)). They are linked to ideas and beliefs (Mishra, 2014) and are consequently harder to learn and to modify. On the other hand, hard skills are connected with technique (Mishra, 2014). They are thus easier to acquire and enhance over time (Robles, 2012). Nowadays, due to globalization and progress in technology, hard skills are not sufficient to convince at a job interview or to get a promotion within a company (Mishra, 2014). That is why soft skills are now regarded as a competitive advantage (Schulz, 2008).

⁴ Muir C (2004), "Learning Soft Skills at Work", *Business Communication Quarterly*, Vol. 67, No. 1, pp. 95-101.

1.2 **Soft skills: their importance in the corporate world**

As Klaus (2010, cited in Robles (2012)) points out, hard skills usually help you to obtain an interview for a future job but soft skills are indispensable to get and keep the position. According to a study carried out by the Stanford Research Institute and the Carnegie Mellon Foundation (Deepa and Seth, 2013), three quarters of long-term job successes are due to people skills. The remaining quarter represents jobs that need hard skills to be sustainable.

First of all, even if some publications list soft skills that are presented as the most relevant when working in companies, it is important to note that relevance of soft skills depends on the context and the job (Schulz, 2008). For example, Mishra (2014) explains that the level of seniority in an organization can be connected with the skills that are seen as desirable. For the workforce, hard skills seem more important than soft skills. At the middle level of the hierarchy, employees need as many soft skills as hard skills. Finally, at the top level of a company, managers require a few more soft skills than hard skills (Rao (2010), cited in Mishra (2014)). Deepa and Seth (2013) conducted a study among one hundred Indian mid-level and top-level executives in order to investigate, among other things, whether work experience or soft skills were seen as more significant by human resources. Questionnaires were sent, collected and analysed. The question was "What ratio would you offer to soft skills and work experience (1) for considering lower-level management positions, (2) for considering middle-level management positions and (3) for considering higher management positions"⁵. The respondents had to mark for each statement the ratio 40:60, 50:50 or 60:40. Concerning entry-level jobs and top-level management, soft skills are reported to be more important than work experience (60:40). For middle-management positions, the findings suggest that both have the same importance (50:50) (Deepa and Seth, 2013).

In this dissertation, which is focused on the United Kingdom, Harvey and Knight (1996, cited in Deepa and Seth (2013)) found that British employers give priority to soft skills when taking on graduates for entry-level jobs because work attitudes are the most important for them. They want people who can be trained and deal with change. The Confederation of British Industry (Cappelli, 2015) approves this idea in its 2013 report. It is said that work attitudes are the first

⁵ Deepa, S., & Seth, M. (2013). Do Soft Skills Matter? – Implications for Educators Based on Recruiters' Perspective. *IUP Journal Of Soft Skills*, 7(1), 7-20.

important criterion for British employers when hiring graduates. The second and third important criteria are then the diploma and prior work experience.

More generally, Mishra (2014) identifies four soft skills appearing to be the most substantial for recruiters: communication skills, a problem-solving attitude, interpersonal skills and the ability to work as part of a team. This is based on what Mishra found in studies of eight researchers (Oblinger *et al.* (1998), Harvey *et al.* (1997), Johnson (2006) as cited in Seth and Seth (2013), Mintzberg (1994), Carnevale *et al.* (1990), Bill (2004) as cited in Seth and Seth (2013), Caudrin (1999) and John (2009)). Another general observation is that if two applicants have the same kind of hard skills and experience, the selection will be made easier in comparing their soft skills (Perreault (2004), cited in Deepa and Seth (2013)) because hard skills and experience are considered as basic requirements (Deepa and Seth, 2013). Sometimes, applicants for entry-level jobs do not have a lot of experience. Aware of that, employers offer training to them in order to develop or improve their soft skills (Deepa and Seth, 2013).

1.3 Skill problems (skills gap, shortage and mismatch)

Skill problems are very common in the corporate world, and it is therefore not so easy to hire someone who matches with employer's expectations. Employers can also have difficulties detecting what kind of skills employees really need to bring an added-value to the company, according to Cappelli (2015). Generally, skill problems are divided into three categories: skills gap, shortage and mismatch (Cappelli, 2015).

Skills gap refers to skills that are missing in someone. The hypothetical cause is that the education system is inadequate to develop some skills. According to the Institute of Directors (2010, in Cappelli (2015)), young staff would have to fill in gaps in leadership, sales, communication and customer-handling skills. More particularly in the United Kingdom, as mentioned in the 2015 employer skills survey by the UK Commission for employment and skills (2016), management of time, prioritisation of tasks, customer-service skills and team-working are the four soft skills that generally have to be improved. The British Association of Graduate Recruiters adds to this list verbal and numerical reasoning (Schultz, 2008). Second, **skills shortage** relates to a shortfall in candidates for some particular vacancies.

The last problem, **skills mismatch**, which is the most frequent in western countries, applies to cases where experience is not suitable for a specific job: either applicants do not have enough prior experience or they have too much experience for the proposed job. Cappelli (2015) speaks about oversupply and undersupply of skills.

In the literature, skills problems are often discussed in connection with entry-level positions. It is pointed out that soft skills are very important to choose between candidates that begin a career. It is often underlined that these newcomers do not have the right skills to be successful in the work market (Deepa and Seth, 2013). A study conducted in India by Deepa and Seth (2013) shows that 82 % of employers believe that education is out of step with the corporate world. 85 % of the respondents think that to improve employees' soft skills, it would be ideal to integrate them into the school or university curriculum. It is suggested that educational institutions and companies should work together to shape the transition from students into workers, through, for example, apprenticeships (Cappelli, 2015). It is also worth noting that school leavers' lack of people skills can also be a question of maturity and experience. Work experience and the development of soft skills can be seen to go hand in hand. That is one of the reasons why the following is found in many job adverts, even for entry-level positions: "at least three years of work experience". It appears to be impossible for new graduates to meet this requirement. However, the aim of such a sentence is to make sure that the young people interviewed have at least some preparation for the world of work. The number of years of experience does not have a huge importance (Dehaas, 2014).

Cappelli (2015) reports that two different approaches concerning people skills are used when recruiting. The first one is to select a candidate and to train them to acquire the right skills. The second one is to find a good match from the selection process. It is harder to find a new employee with the skills needed, but if it is the case, employers save money and time afterwards. It is also easier to train someone to obtain hard skills than soft skills. According to Dehaas (2014), that is why hirers would prefer to take on people having the necessary soft skills and to train them in the hard skills required. The approach chosen by human resources also depends on the scarcity of applicants: if there is a job shortage in a field, a newcomer can be more easily hired and trained to obtain the right skills. On the other hand, as stated by Cappelli (2015), if thousands of people apply for the same job, the HR department will take the person with the higher skills. Nevertheless, Schultz (2008) points out that training sessions may not be enough to develop soft skills because they represent so few hours in comparison

with the habits that people have developed for years. To be successful, people have to be convinced that training will help them to improve. If it is not the case, the sessions are not helpful. However, once a person has recognized that their skills have to be improved, the process is more straightforward. When a shortfall has been identified, people tend to be ready to work to remove it.

Mavromaras *et al.* (2013, cited in Cappelli (2015)) explains that there is a tendency towards overqualification in skills in the United Kingdom. This leads to employee dissatisfaction because they are paid less than if all their skills were taken into consideration to fix wages (Mavromaras *et al.* (2013, cited in Cappelli (2015))). To remedy this, Sutherland (2012, cited in Cappelli (2015)) argues that the British government should support companies to hire highly skilled workers instead of promoting further policies for developing skills. Finally, the United Kingdom is not doing so badly compared to other countries: in 2013, Manpower, a recruitment firm, carried out a study called 'The talent shortage survey'. The UK ranked 38th (out of 41 countries) in a report about hirers' complaints concerning skill problems (Manpower (2013), in Cappelli (2015)).

2 Online Job Adverts

In section 2.1 (*The Internet: sources of job information for job seekers*), it will be described firstly how the Internet has changed the way of finding a job / hiring someone. Secondly, some advantages and disadvantages concerning online recruitment will be mentioned. Thirdly, a study concerning e-recruitment methods will be outlined. In section 2.2 (*Overview of the different kinds of Internet research tools in the UK*), some job research tools used in the UK will be highlighted.

2.1 The Internet: sources of job information for job seekers

Some decades ago, the Internet revolution transformed many aspects of our society in almost all industries, at work, in our private life, ... In the mid-1990s, human resources also began to use the Internet to recruit candidates more efficiently (Parry & Tyson, 2008). As described by Gale (2001), at the start, online recruitment was used only to find applicants for specific technical jobs. Nowadays, most businesses, irrespective of their size and sector, post on the web in an attempt to find the perfect candidate. In 2006, the Chartered Institute of Personnel and Development (CIPD) indicated that already 64 % of British firms hired through the Internet (Parry & Tyson, 2008). Mihelich (2014) states "E-recruiting is an outdated term. That's because e-recruiting is recruiting in 2014."⁶ However, Parry & Tyson (2008) explain that, even if e-recruiting is very popular, it is not the only tool used by companies and candidates to hire a new worker / find a job. The reason why they do not take on exclusively online is that the success is mixed. Online recruitment has many advantages, but also some disadvantages. Both will be cited in the next paragraph. Feldman and Klaas (2002, cited in Parry & Tyson (2008)) mention that headhunters and newspapers feared for their revenue. In the end, they had no choice but to adapt their working methods to new technologies: Headhunters surf on the net to target prospective employees. Newspapers, for which recruitment advertisement is essential earnings (Johnson, 2003), have gone online and have created an employment rubric. Recruitment firms also had to give up their traditional way of proceeding in order to survive. Coleman (2001) argues that if they want to keep going, they have to stay up-to-date with the latest online technologies. They do not have to consider job

⁶ Mihelich, M. (2014). E-recruiting: Dead and Alive. *Workforce*, 93(5), 44-48.

boards (like Monster, for example) as threats, but they have to work with them. A last transformation mentioned by Mihelich (2014) is the human participation in the recruiting process. Some specialists have thought that e-recruitment would reduce human activity. However, it appears that it is the contrary. It involves more workers.

The main advantages of online recruitment are listed below:

- **Cheaper.** Gale (2001) argues that using the Internet to recruit is cheaper than working with newspapers or recruitment firms. The Chartered Institute of Personnel and Development (CIPD) supports this statement. In 2006, they carried out a study on e-recruitment among British organisations. The findings reveal that 71 % of the interviewees recruited online because it was more affordable than through other channels (Parry & Tyson, 2008).
- **No space limitations.** Gale (2001) explains that when a company wants to post a job ad in a newspaper, the price depends on the advert's length: the longer it is, the more expensive it is. This is not the case on the Internet. Thus, jobs are described with more details.
- **Accessibility.** For smaller companies as much as for bigger companies, the Internet is a tool that can be used inexpensively. In posting ads in newspapers, smaller firms have a disadvantage compared to bigger organisations: their budget is more limited. Thus, their ads are shorter and attract potentially fewer candidates. This downside disappears with the Internet (Gale, 2001). Besides, having access to more potential candidates is a significant advantage highlighted by 60 % of companies which responded to the 2006 CIPD survey (Parry & Tyson, 2008).
- **Speed of action.** Gale (2001) states that companies identify future candidates more quickly using e-recruitment rather than newspapers or recruitment agencies. Marcia Wheatley, HR director of an association called ACPA, adds that online recruitment is faster than newspapers, because when she had to post a job ad in a newspaper, she had to call the newspaper's editorial office to dictate her job ad. Moreover, she had to phone not later than three days before having the ad in the newspaper (Gale, 2001). It was not very flexible. Thus, Marcia Wheatley prefers publishing job advertisements online because they are completed within one day maximum (Gale,

2001). Another advantage cited by Parry & Tyson (2008) is the speed with which job seekers apply online for positions and thus, the time needed for the whole hiring process is reduced. Finally, the 2006 survey of the CIPD mentions that 47 % of the responding organisations recruit online because the task of finding candidates is shortened. In this way, they can focus on and improve other steps of the whole hiring process (Parry & Tyson, 2008).

- **Creation of links.** With the Internet, it is possible to create many interconnections. It can be an advantage for recruiting. For example, as explained by Barbara Ling, author of "The Internet Recruiting Edge", it is useful to provide a link to the company's website in job ads. It enables job seekers to have access to information about the company with a single click (Gale, 2001).
- **Target candidates.** Parry & Tyson (2008) and Gale (2001) agree that it is easier to target ideal candidates using the Internet rather than using newspapers. Marcia Wheatley claims that if recruiters choose the suitable sites to post their job ads, the audience is more specific and specialized (Gale, 2001).
- **Easiness and efficiency.** Gardyn (2000) states that e-recruitment works better than classifieds in newspapers or services of employment agencies. From the job seekers' point of view, the Internet is also an easy tool to find jobs. The British job board Jobsite communicated in 2002 (cited in Paton (2002)) that 84 % of job applicants considered online ads to be the simplest way to apply for positions. 82 % found the web the easiest tool to identify new employment opportunities. Finally, 55 % thought it the best method to be hired.

However, there are also some disadvantages:

- To attract the right candidates, Barbara Ling explains that job ads have to include attractive information. At the start, as recruiters were used to preparing very short adverts for newspapers, it was difficult for some of them to write more detailed online job advertisements. Perry (2006) adds that the words used in ads are crucial because it is through them that candidates find the ad. Indeed, job-applicants search for ads by using search engine technology and thus, keywords.

- Some authors cited above find that the Internet makes it possible to have access to more job seekers. However, Parry & Tyson (2008) highlight the drawback of this: recruiters can sometimes receive many inappropriate applications. Quantity does not always mean quality. Moreover, if there are many candidates selected, the hiring process can be slower.

Parry & Tyson conducted a survey on how e-recruitment was used in the UK. It was carried out quarterly from 1999 to 2006. 16,000 employers participated in it. They all worked for organizations of more than 25 employees and were all responsible for decisions concerning recruitment. In order to have a representative sample, Parry & Tyson chose companies from different regions, industries and sizes. The questions raised were about all aspects of recruitment (methods, difficulties, etc.). Some questions were more focused on e-recruitment. For example, employers were asked if they used a corporate website (the company's own website) or commercial websites (job sites on which they can post their advertisements) to advertise and if they found them to be successful. Aside from the survey, fifteen interviews were carried out with employers who were responsible for the recruitment decision-making and who used e-recruitment methods. Five providers of online recruitment technology were also interviewed. The aim of doing additional interviews was to complete the survey data. Finally, Parry & Tyson received 25,224 answers over six years. Some of the results are described below:

- The main reasons / advantages why some organizations decided to use e-recruitment are the reduction of the recruitment budget, improvement of the hiring process both for job-seekers and human resources employees and staying up-to-date compared to competitive companies.
- The participants were asked if e-recruitment was successful. It appears that recruitment agencies were perceived as more successful than advertising on corporate or commercial websites. It was already mentioned above that employers sometimes receive many unsuitable applications when e-recruiting. They are inappropriate because candidates lack the skills required for the job, experience or are not allowed to work within the country. Even if employment agencies are more expensive than e-recruitment, outsourcing recruiting tasks to employment agencies is a good compromise for some companies.

- Several respondents think that online recruitment is more adapted for some job-seekers, namely knowledge workers and middle managers than for others, namely older workers, manual workers or very high-level managers.
- Parry & Tyson asked questions about advertising on commercial job boards and on corporate web sites. It seems that commercial job sites are more suitable for larger businesses, services organisations and companies that have difficulties hiring staff than for private-sector organisations. Corporate websites appear to be more appropriate for larger businesses than for private-sector organisations.

Additional results deal with how human resources can enhance their use of e-recruitment. Four tips are given below.

- **Attract people to their corporate website.** As small companies are not famous, they have many more difficulties than well-known organisations to have people checking their website. Advertising on job boards is very helpful to drive traffic to a company's web site. The trick is to include a link in the ad to their business web site.
- **Automate tasks.** E-recruiting requires a lot of work, particularly if many job-seekers apply for the same position. There are some systems that post automatically the same ad on various job boards. Then, the system makes a first selection and sends the more interesting applications to the human resources department. This can lead to cost savings, as there are fewer administrative tasks to be done by employees. For example, one respondent stated that the system he used had enhanced the effectiveness of the hiring process in his company by 60 per cent.
- **Creation of a reserve list of candidates.** Only one candidate is selected for a position. However, it does not mean that only one job applicant is talented. That is why companies can create a "talent pool" with the remaining applications. This could be generated automatically by computers. When a new vacancy opens up, the human resources department can search for a candidate in the reserve list. Many companies which participated in the survey and which answered that they were successful in using e-recruitment used the web in this way.

- **Branding and providing more information to job-seekers.** Another trick to reduce the number of inappropriate applications is to provide more information to candidates. It can be done through company corporate website's posts, such as articles describing the mission and values of the company or videos describing how the working atmosphere is, who the potential future colleagues are, etc. Thanks to this amount of information, it makes it easier for candidates to know if the position and company could suit them or not. One of the respondents even created a short online automatic test that advised job-seekers whether or not they should try their luck in applying for the position. These information contents also strengthen the company's brand.

In a nutshell, the major finding of this research carried out by Parry & Tyson from 1999 to 2006 is that e-recruitment can be successful for any types of businesses, even if some respondents answered that they found online methods to be appropriate only for large organizations, white-collar workers or middle / high-level positions. The most important point to be successful in using online recruitment is to follow a strategy suitable for the organization's size and sector.

To briefly sum up this section, Boydell (2002, cited in Parry & Tyson (2008)) considers the Internet as a "recruiting revolution". Cappelli (2001, cited in Parry & Tyson (2008)) mentions that the Internet has fundamentally reshaped corporate recruiting: recruitment has become cheaper, faster and more accessible. Birchfield (2002, cited in Parry & Tyson (2008)) adds that the way people look for jobs has radically changed with the Internet. It is rare nowadays to look for a job for life. People enter the job market knowing that they will change jobs several times before they stop work. Thus, online applications, which are very fast (faster than before) fit perfectly with the way people see the working world (Coleman, 2001). Finally, Mihelich (2014) states that the success of a hiring strategy is determined by a very good company brand and recruiters that can detect and get in touch with talented people.

2.2 Overview of the different kinds of Internet research tools in the UK

From job boards to social networking sites and from company websites to online newspapers, there are numerous ways to find a job online. Seven different Internet research tools used in the UK will be briefly highlighted in this section.

1 Job boards

Job boards are websites on which recruiters and employers can directly post job advertisements. Job boards are used gratis by job seekers. Most of them give job-applicants the opportunity to apply online and to get email notifications of new job adverts based on their personal criteria (United Kingdom Career Guide, 2013). On some of them (e.g. Monster), candidates can also post their resume without applying for a specific position. Then, recruiters can consult the resume database using keyword searches. Mike Williams, a corporate recruiter, explains that he prefers using the resume database instead of posting an ad, because it is this way that he finds more skilled applicants (Gale, 2001). Coleman (2001) adds that employers sometimes do not advertise directly on job boards. They outsource this task to recruitment agencies because they know better on which job boards the ad is best placed and how to write it. In the United Kingdom, there are various job boards. They are either general (they cover all industry fields and types of organizations) or specialized (for example, they can focus on a level of seniority (Executives on the Web), a grade (Phdjobs.com), a location (London Careers) or a type of job (accountingJOB)). To conduct my analysis, I have worked only with job boards because they provide a huge amount of job ads for many different positions. In section 3.2.1 (*Selection of job adverts on specific job sites*), they will be mentioned and described.

2 Company websites

Corporate websites are company websites. Some organizations have a career page on which they post job ads for new vacancies. Adams (2014) advises candidates to surf directly on corporate websites if they know for which company they would like to work.

3 Online newspapers

In the United Kingdom, there are national and regional newspapers. Many job ads are advertised in them. Most newspapers have an online version. For example, "Metro" is a free newspaper available in public transport and online. It advertises job ads, taking into account commuting distances (United Kingdom Career Guide, 2013).

4 Staffing agency, temporary help firms and executive recruiters

The aim of staffing agency and temporary help firms is to place people in permanent, non-permanent, full-time or part-time positions. The best way to quickly find a job through them is to register with several agencies. Many of them are international, such as Robert Walters, Michael Page, Manpower and Adecco (United Kingdom Career Guide, 2013).

Executive recruiters are focused on placing people in senior positions. They have client companies that ask them to find suitable candidates for them. Thus, executive recruiters are paid by companies searching for new associates. Job-seekers can send their CVs to executive recruiters (United Kingdom Career Guide, 2013).

Both temp agencies and executive recruiters have many online services: online registrations, job searches, tips on how to find a job, etc.

5 Government Employment resources

The British government has its own employment websites. The government is an important source of employment. For example, approximately three-quarters of people who work outside the capital city and the south-east of England are civil servants (United Kingdom Career Guide, 2013).

6 Social networking sites: LinkedIn, Twitter and Facebook

Cassata (2015) points out one of the results of the "2014 Job Seeker Nation Report" which is that after personal connections, the second best way to find your "favourite job" is online social networks. Jones (2016) mentions that social networks are a great source of job-seekers, even if they were created for social relations at the start. Cassata (2015) explains that the ideal

is to try to find someone in your connections (1) who works for the company where you want to apply or (2) who knows someone who works for that company. It is that way that you best use social networking sites. Jones (2016) indicates that online profiles (on Facebook or LinkedIn for example) are now used as CVs.

LinkedIn is known as the most popular social network to find a job. LinkedIn proposes job ads that may be in line with your LinkedIn profile (on your profile page, you can give information about your education, competencies, hobbies, etc.) (United Kingdom Career Guide, 2013). Jones (2016) mentions that job seekers can apply directly with LinkedIn. Cassata (2015) adds that a lot of job advertisements are posted in LinkedIn and nowhere else. Thus, LinkedIn is a good tool to use when searching for a job.

Facebook and Twitter are also social networks that can be employed to find a new job. However, it is not always easy to know how to use them efficiently. Concerning Facebook, Adams (2014) explains that the recruiting site "Glassdoor", which has numerous job ads (almost like a job aggregator (see below)), enables job seekers to know which Facebook friends and friends of their friends are part of a company. Thus, it is very useful to combine the usage of Facebook and Glassdoor.

7 Job aggregators

Google, Indeed and SimplyHired are job aggregators. It means that they gather numerous job ads coming from job boards, newspapers, company websites, etc. in one place. To limit the job search, filters can be used to classify jobs by type, salary, location, title, etc. Adams (2014) explains that job seekers can use them, but have to try not to waste too much time on them because they are not very specific.

Practical part

3 Data and Method

3.1 Research questions

My research questions are the following:

- 1 Are the soft skills found in the scientific literature identical / similar to the ones observed in the British online job advertisements?
- 2 How are the soft skills referred to in the adverts?
- 3 In British online job adverts, are there any differences between the soft skills mentioned for senior / non-senior Project Manager and System Engineer positions? If so, what are they?

The analysis will be focused on the possible differences between two jobs, namely Project Manager and System Engineer, which are completely different, and two seniority levels, namely senior and non-senior. A comparison will also be drawn between the core, semi-peripheral and peripheral skills discussed in the academic literature and the soft skills appearing in the selected job advertisements.

I chose to focus on the jobs of Project Manager and System Engineer because these are two specific jobs from two very distinct disciplines. In the article "What is Project Management?" (n.d., 2016), it is said that Project Managers work within the field of Management and work by projects. Their tasks are not routine, as each project is temporary and unique. Thus, a team that carries out a project is composed of different people each time. The main goals of Project Management are to finish projects on time while respecting clients' expectations and budget. Project Managers are usually portrayed as organized, motivated and focused on achieving goals. In the article "Who are Project Managers?" (n.d., 2016), it is also said that they need to be able to adapt to change. They are sometimes seen as agents of change themselves. In the article "What is Project Management?" (n.d., 2016), it is also explained that the job of Project Manager was at first informal. In other words, it was not recognized as a job in itself. It became an official profession in the 1950s. I decided to select this job because it seems that Project Managers require many soft skills, as it is described in the article "Who are Project Managers?" (n.d., 2016) that they have to work in teams, under pressure and they need to be organized.

By contrast, according to Raphaël Javaux and Anthony Gerontitis (two computer specialists, personal communication), workers from the Information Technology sector may not need so many soft skills. I decided to focus on adverts for System Engineers in particular because they are apparently very independent (R. Javaux, personal communication, August 2016) and very concentrated on the machine (A. Gerontitis, personal communication, June 2017). According to these two specialists, the job of System Engineer does not require a lot of soft skills. In addition, that job is very different from that of a Project Manager. In the article "What is Systems Engineering?" (n.d., 2016), it is mentioned that System Engineers' goal is to create successful systems⁷ through an interdisciplinary approach. Systems are successful if they meet the business and technical needs of clients. To achieve this goal, System Engineers must have a clear understanding of the difficulties of a situation before working on solutions. They can understand issues, describe clients' needs, document requirements, develop processes, launch and test new systems as well as validate them. To complete their tasks, they need to have hard skills such as "management of multidimensional mathematical models"⁸. These explanations seem vague and particularly general. Anthony Gerontitis (personal communication, June 2017) has given a more concrete description of System Engineer's tasks in specifying that they are in charge of, among other things, controlling and handling servers, email boxes and the SharePoints⁹ of companies.

The level of seniority of workers is also taken into consideration. In other words, the analysis is also focused on the potential differences in soft skills, depending on senior or non-senior positions in companies. The reason why the thesis concentrates on senior and non-senior instead of junior positions is that I have not found enough job advertisements at a junior level: I have only found seven job ads concerning junior Project Managers and six concerning junior System Engineers. Sixty job ads for senior positions (30 for senior Project Managers and 30 for senior System Engineers) have been collected. I do not think that this result means that there are fewer jobs for junior than for senior positions. I only took job ads for which it was

⁷ A system is a construct or collection of different elements that together produce results not obtainable by the elements alone. The elements, or parts, can include people, hardware, software, facilities, policies, and documents; that is, all things required to produce systems-level results. The results include system-level qualities, properties, characteristics, functions, behaviour and performance. The value added by the system as a whole, beyond that contributed independently by the parts, is primarily created by the relationship among the parts; that is, how they are interconnected (Rechtin, 2000). What is Systems Engineering? (n.d.). Retrieved December 1, 2016, from <http://www.incose.org/AboutSE/WhatIsSE#Top>.

⁸ What is Systems Engineering? (n.d.). Retrieved December 1, 2016, from <http://www.incose.org/AboutSE/WhatIsSE#Top>.

⁹ A Share Point is a tool to create websites. It is used as a secure place to store, organize, share and access information from any device (Microsoft, 2017). What is Share Point? (2017). Retrieved June 6, 2017, from <https://support.office.com/en-us/article/What-is-SharePoint>.

mentioned in the title that it was either for senior or for junior positions. Therefore, my assumption is that the term "junior" is rarely used in the title of job ads, whereas the word "senior" is often explicitly mentioned.

What junior, non-senior and senior actually mean is a question which needs to be raised. In the Longman Business English dictionary, the adjective "junior" is defined as "having a low or lower rank in an organization or a profession"¹⁰. In the Oxford Business English Dictionary for Learners of English, junior means "having a lower rank in an organization or profession than others"¹¹. The Macmillan English Dictionary for Advanced Learners proposes different definitions: "a junior person does not have a lot of responsibility or power in their job" and "someone who has less responsibility or experience in their work than another person"¹². "Having a high position in an organization, company, etc."¹³ and "having a higher rank in an organization or a profession than others"¹⁴ are the definitions that are found for "senior" in the first two dictionaries cited here above. The Cambridge Dictionary Online gives a different meaning to the word "senior" in specifying that it is someone who is "older and more experienced than the other members of a team"¹⁵. Concerning the term "non-senior", I only found one definition on Wiktionary and it means "not senior". Its synonym is "junior".¹⁶ These definitions suggest that these terms are very general and relative. To attempt to better capture the adjectives "senior" and "non-senior", in the empirical analysis of this study a comparison will be made between the definitions of these terms mentioned above and which features (e.g. salary and experience) tend to co-occur with the terms in the selected job adverts.

To be able to explore possible differences in soft skills requirement for senior / non-senior Project Managers and System Engineers in online adverts, it was decided to control the geographical variable and to limit the investigation to the United Kingdom only.

¹⁰ Junior. (2007). In *Longman Business English Dictionary* (p. 287).

¹¹ Junior. (2005). In *Oxford Business English Dictionary for learners of English* (p. 302).

¹² Junior. (2007). In *Macmillan English Dictionary for Advanced learners* (p. 818).

¹³ Senior. (2007). In *Longman Business English Dictionary* (p. 488).

¹⁴ Senior. (2005). In *Oxford Business English Dictionary for learners of English* (p. 496).

¹⁵ Senior. (2017). In *Cambridge Dictionary*. Retrieved from <http://dictionary.cambridge.org/dictionary/english/senior?q=Senior>.

¹⁶ Non-senior. (2016). In *Wiktionary, the free dictionary*. Retrieved from <https://en.wiktionary.org/wiki/nonsenior#Adjective>.

3.2 **Methodology**

This section concentrates on methodology and is divided into four parts: First, the online job sites that I chose for the selection of job advertisements are described as well as the selection process itself. The second section is devoted to the creation of a bank of soft skills based on the scientific literature and to its manual analysis based on the frequency of keywords and phrases. This analysis was used to attempt to classify soft skills into core, semi-peripheral and peripheral skills. This is described in the third section. Finally, the process of analysing job advertisements is outlined.

3.2.1 **Selection of job adverts on specific job sites**

I have worked with four different job sites: <http://www.fish4jobs.co.uk>, <http://www.monster.co.uk>, <http://www.executivesontheweb.com> and <http://www.cwjobs.co.uk/>. First, Fish4jobs is a British website that is part of Trinity Mirror, one of the UK's biggest multimedia corporations (Trinity Mirror, 2016). A wide range of sectors are represented on it. According to the United Kingdom Career Guide (2013), Fish4jobs is one of the largest national job sites. I opted for it because it is a British site (and not an international one). Second, Monster is a large American company that defines itself as "a global online employment solution provider for people seeking jobs as well as the employers"¹⁷. Nowadays, it is the worldwide job site leader and it has become an important element in recruitment processes (Backhaus, 2004): Job seekers can find more than 80,000 job adverts on it every day (Backhaus, 2004). Because of its popularity, I found it quite interesting to work with. Moreover, it is said that companies write their job adverts themselves (Backhaus, 2004), which seems particularly relevant for the diversity of the study. In view of the focus of my study on job ads in the UK, only British ads were taken into consideration. Third, Executivesontheweb is specialized in job adverts for senior job seekers, in all job sectors. According to the United Kingdom Career Guide (2013), it is recognized as the best of its kind in the UK. Its main criterion is the salary: jobs for senior job seekers must have a salary level exceeding £ 40,000 per annum (United Kingdom Career Guide, 2013). It is a British company, but it is also active in Europe and the Middle East. Fourth, CWJobs is reportedly the IT job site leader in the UK, as mentioned on its website. It offers jobs across

¹⁷ Monster Worldwide, Inc. SWOT Analysis. (2016). Monster Worldwide SWOT Analysis, 1-8.

all kinds of organizations. CWJobs is part of Totaljobs Group Ltd, which is a big British recruitment company that is a subsidiary of a large European online job board company, StepStone (CWJobs, 2016). The main reason why a specialized IT job site was used is that it was more difficult to find System Engineer job adverts than Project Manager job adverts on classic job sites like Monster or Fish4jobs.

The selection of the job adverts themselves will now be explained. To have a representative sample, thirty non-senior Project Manager and thirty non-senior System Engineer job ads were collected, and the same number of senior Project Manager and System Engineer job ads were selected from the four job sites described above. Accordingly, the total sample is made up of 120 job adverts. These advertisements were selected according to different criteria that will be mentioned below. Table 1 shows the distribution of the 120 adverts.

	Fish4jobs	Monster	Executives ontheweb	CWjobs	Total
Non-senior Project Managers	17 ads	13 ads			30 ads
Non-senior System Engineers	2 ads	15 ads		13 ads	30 ads
Senior Project Managers		21 ads	9 ads		30 ads
Senior System Engineers	1 ad	18 ads		11 ads	30 ads

Table 1 – Distribution of the 120 job advertisements

For each job site, I defined different selection criteria because they have their own search parameters. First, to collect non-senior Project Manager adverts from the Fish4jobs job site, I used the keywords "Project Manager". Ads were subsequently filtered by relevance. Then, I chose all the ads which featured the heading "Project Manager". I excluded ads that included the terms "senior" or "junior". On the Monster job site, I used the keywords "Project Manager". Ads were sorted by date (from the most to the least recent date). Only the ads from "today" with the heading "Project Manager" were selected. As Monster is a worldwide job

site, job ads were also filtered by country to select only those for the United Kingdom. As for the selection on Fish4jobs, I disregarded ads featuring the words "senior" or "junior".

When it comes to selecting non-senior System Engineer advertisements on Monster, the same criteria as those mentioned above for Project Manager ads were used excluding the "sort by date" criterion because I found no advert "posted today". I therefore filtered by relevance. The selection on CWJobs and on Fish4jobs was also conducted in the same way. That is to say that the keywords were "System Engineer" and the results were sorted by relevance. If the heading of an ad contained the words "System Engineer", the ad was included in the sample, except if the terms "junior" or "senior" were mentioned. It is worth noting that, on Fish4jobs, only two System Engineer job ads out of fifteen pages were selected. It is a very small amount compared to the other websites (Monster and CWJobs) and suggests that Fish4jobs may feature more general (less specialised) job ads.

For the selection of senior Project Manager advertisements, I used two different job sites: Executivesontheweb and Monster. As mentioned earlier, the first one is specialized in jobs for senior positions. This site makes it possible to choose a discipline and I selected the section "Project / Programme Management". Then, for the job title, I mentioned "senior Project Manager", and "UK" for the location. Even if "senior" was indicated in the search criteria, all the displayed ads did not have "senior" in their heading. In order to limit the number of ads, I decided to take into account only the ads that had "senior" in their title. The selection of senior Project Manager ads was completed by 21 adverts found on Monster.

Concerning the selection of senior System Engineer adverts on Monster, Fish4jobs and CWJobs, the same criteria as for non-senior System Engineer ads were applied. The only difference was the terms used: it was necessary to have the word "senior" in the heading. It is interesting to note that only one advert was found on Fish4jobs.

Table 2 includes the selection criteria for each website and each kind of advert.

	Fish4jobs	Monster	Executives Ontheweb	CWjobs
NSP¹⁸ ads	• Keywords: Project Manager • Sort by: relevance • Heading: Project Manager	• Keywords: Project Manager • Location: UK • Sort by: date (posted today) • Heading: Project Manager		
NSS¹⁹ ads	• Keywords: System Engineer • Sort by: relevance • Heading: System Engineer	• Keywords: System Engineer • Location: UK • Sort by: relevance (only the first page) • Heading: System Engineer		• Keywords: System Engineer • Sort by: relevance • Heading: System Engineer
SP²⁰ ads		• Keywords: senior Project Manager • Location: UK • Sort by: date (posted today) • Heading: senior Project Manager	• Section: Project / Programme Management • Keywords: senior Project Manager • Location: UK • Heading: senior Project Manager	
SS²¹ ads	• Keywords: System Engineer • Sort by: relevance • Heading: senior System Engineer	• Keywords: senior System Engineer • Location: UK • Sort by: relevance (first five pages) • Heading: senior System Engineer		• Keywords: senior System Engineer • Sort by: relevance • Heading: senior System Engineer

Table 2 – Criteria used for the selection of job advertisements

¹⁸ NSP for non-senior Project Manager.

¹⁹ NSS for non-senior System Engineer.

²⁰ SP for senior Project Manager.

²¹ SS for senior System Engineer.

To sum up, four different job sites were used to select advertisements. On Fish4jobs and Monster, which are more global, job adverts were found for each profession and each level of seniority. Executivesontheweb is only focused on ads for senior positions. The fourth job site, CWJobs, deals only with jobs in the Information Technology sector. It was necessary to have a job site specialized in IT because it was more difficult to find job adverts for System Engineers than for Project Managers. Concerning the sample, 120 job adverts were selected. Both jobs and seniority levels are equally represented. Due to the different search parameters of each job site, some selection criteria were quite different per job site and per job. However, the same criteria were used as far as possible.

3.2.2 Creation of a bank of soft skills

A set of soft skills is needed to analyse the 120 job ads. The idea is to have a list of soft skills coming from the literature and then to compare them with those in job advertisements. To develop the database, I took as a basis the "Top 10 Soft Skills Needed in Today's Workplace"²². Authors have many ways of classifying soft skills. I could have taken the list of another researcher, but I find that Robles (2012) broadly embraces soft skills in listing them in ten main categories. Moreover, each category gathers sub-soft skills. They add precision to the database. Dabke (2015) also uses Robles' list as a reference to conduct a study about interns' soft skills. Table 3 displays the top 10 soft skills that are regarded as essential by business executives.

²² Robles, M. M. (2012). Executive Perceptions of the Top 10 Soft Skills Needed in Today's Workplace. *Business Communication Quarterly*, 75(4), 453-465. doi:10.1177/1080569912460400.

The Top 10 Soft Skills Needed in Today's Workplace	
Categories	Sub-soft skills
Communication	oral, speaking capability, written, presenting, listening
Courtesy	manners, etiquette, business etiquette, gracious, says please and thank you, respectful
Flexibility	adaptability, willing to change, lifelong learner, accepts new things, adjusts, teachable
Integrity	honest, ethical, high morals, has personal values, does what's right
Interpersonal skills	nice, personable, sense of humour, friendly, nurturing, empathetic, has self-control, patient, sociability, warmth, social skills
Positive attitude	optimistic, enthusiastic, encouraging, happy, confident
Professionalism	businesslike, well-dressed, appearance, poised
Responsibility	accountable, reliable, gets the job done, resourceful, self-disciplined, wants to do well, conscientious, common sense
Teamwork	cooperative, gets along with others, agreeable, supportive, helpful, collaborative
Work Ethic	hard working, willing to work, loyal, initiative, self-motivated, on time, good attendance

Table 3 – The Top 10 Soft Skills Needed in Today's Workplace, Robles (2012)

This list has been inserted in an Excel sheet. My goal was to determine which main and sub-soft skills appear to be regarded as the most significant based on the number of papers that mention them. For example, if ten papers mention *responsibility* and five others talk about *professionalism*, in this study, *responsibility* is seen as more important than *professionalism*. To do so, I skimmed through the articles of my bibliography and when a soft skill was identified in a paper, it was entered in the Excel sheet. However, if *flexibility*, for example, was mentioned six times in the same paper, it was entered only once in the Excel sheet.

For soft skills already present in Robles' list (2012) or for their synonyms (e.g. *etiquette* and *follows rules*, *inquiring and curious mind*, *hard working*, *persistence* and *determination*, etc.), I counted up how many other authors discussed them. This is illustrated in Table 4. *Courtesy* is one of Robles' categories. The sub-soft skills of the category *courtesy* are in white. *Follow rules* was added next to *etiquette* because it is considered as a synonym. The figures represent the number of papers that mention the respective soft skills at least once: six papers speak about *etiquette* and *follows rules*, one paper speaks about *manners*, etc..

Courtesy		7
Etiquette	Follows rules	6
Manners		1
Business etiquette		1
Gracious		1
Says please and thank you		1
Respectful		1

Table 4 – Example 1 of the bank of soft skills

For soft skills not mentioned by Robles (2012), either (1) they were included in one of Robles' existing categories if they could be seen to be related (for example, *body language* and *reading and comprehension*, which cannot be found in Robles' list, were included in *communication*, as can be seen in green in Table 5), or (2) they were added to the final set (see below Table 6) if they could not be included in any of Robles' categories (for example, *leadership*, *management*, *organize*, *cultural awareness*, *stress tolerance*, etc.).

Communication	23
Speaking capability	3
Presenting	3
Written	2
Listening	2
Reading and comprehension	1
Body language	1

Table 5 – Example 2 of the bank of soft skills

The reason why some soft skills were not put into Roble's categories (e.g. *leadership*, *management*, *organize*, *cultural awareness*, *stress tolerance*, etc.) is twofold: either they are supra-skills that require several soft skills from different categories or I found it difficult to decide to which category they could be added. *Leadership* is an example of a supra-skill. It involves motivating a team (in Robles' category *positive attitude*), taking initiative (in Robles'

category *work ethic*), being responsible (in Robles' category *responsibility*), being positive (in Robles' category *positive attitude*), etc. It is arguably a mix of soft skills.

At the end of this process, the set contains 114 different soft skills: Robles' ten categories with their sub-soft skills (cf. Table 3), those that I added to each category (as in Table 5), and 30 other soft skills that could not be included in any of Robles' categories. These are shown in Table 6. Robles' ten categories are those for which the figures are on a coloured background. Sub-soft skills have the same coloured background as their categories. Soft skills on a white background are the 30 additional soft skills. The figures represent the number of papers that point out the respective soft skills (e.g. communication is mentioned in 23 different papers under study). Soft skills are listed in decreasing order of frequency of mention.

Communication	23
Interpersonal skills	20
Work ethic	17
Teamwork	16
Responsibility	16
Resourceful	13
Leadership	11
On time	9
Management	9
Flexibility	9
Conflict solver	8
Self-motivated	8
Positive attitude	8
Courtesy	7
Etiquette	6
Integrity	6
Planning resources	6
Initiative	5
Teachable	5
Critical thinking skills	5
Intrapersonal skills	5
Customer relationships	5
Persuasion and negotiation	5
Project management	5
Professionalism	5
Sociability	4

Emotional intelligence	4
Hard working	4
Gets along with others	4
Confident	4
Appearance	4
Self-supervising	4
Awareness of how business works	4
Organize	4
Commercial awareness	4
Speaking capability	3
Presenting	3
Empathetic	3
Common sense	3
Decision-making	3
Coaching, teaching, training and instructing	3
Prioritise tasks	3
Written	2
Listening	2
Good attendance	2
Efficiency	2
Reliable	2
Gets the job done	2
Wants to do well	2
Accepts new things	2
Inquiring	2
Enthusiastic	2
Encouraging	2
Personal energy	2
Ability to measure	2
Impact and influence	2
Self-esteem	2
Supervision	2
Delegating	2
Reading and comprehension	1
Body language	1
Nice	1
Personable	1
Sense of humour	1
Friendly	1
Nurturing	1

Has self-control	1
Patient	1
Warmth	1
Social skills	1
Extroverted	1
Willing to work	1
Loyal	1
Personal effectiveness	1
Accountable	1
Self-disciplined	1
Conscientious	1
Cooperative	1
Agreeable	1
Supportive	1
Helpful	1
Collaborative	1
Adaptability	1
Willing to change	1
Lifelong learner	1
Adjusts	1
Personality development	1
Demonstrating resilience	1
Optimistic	1
Happy	1
Manners	1
Business etiquette	1
Gracious	1
Says please and thank you	1
Respectful	1
Honest	1
Ethical	1
High morals	1
Has personal values	1
Does what's right	1
Businesslike	1
Well-dressed	1
Poised	1
Caring about seeing the company succeed	1
Ability to conceptualize	1
Having a personal vision and goal	1

Evaluating and monitoring one's own performance	1
Working under pressure / stress tolerance	1
Structured thinking	1
Common knowledge	1
Imagination	1
Passion	1
Cultural awareness	1
Networking	1

Table 6 – The set of 114 soft skills; legend: communication in pink, interpersonal skills in cyan, work ethic in blue, teamwork in orange, responsibility in green, flexibility in grey, positive attitude in red, courtesy in yellow, integrity in purple, professionalism in black and the 30 additional skills in white. The figures represent the amount of papers that point out the respective soft skills.

With regard to Robles' categories (2012), as they are considered as categories, the respective figures also include their sub-soft skills (cf. Table 3). It is important to give this information, because it has an impact on the results. An example of this is the category *interpersonal skills* and its sub-soft skill *empathetic*. Twenty papers are taken into account for *interpersonal skills* (cf. Table 6). However, if only papers that use the term *interpersonal skills* explicitly had been taken, the number would have been 17, instead of 20. The reason for this difference is that among 20 papers, three lay the emphasis on a specific and precise sub-soft skill only, namely *empathetic*, without mentioning its category, in this case, *interpersonal skills*. The categories *work ethic* and *responsibility* are the most representative of this phenomenon because they move from ranks 9 and 6 to 17 and 16 respectively. For more details see Appendix 1. Appendix 1 shows the two different ways of counting: a paper is counted up either (1) if the category is explicitly mentioned (for example, *interpersonal skills*) or (2) if one of the sub-soft skills of the category represents it (for example, *nice*, *personable*, *friendly*, *empathetic*, *nurturing* will be counted as interpersonal skills and thus will be counted for the category *interpersonal skills*, even if the term *interpersonal skills* is not explicitly mentioned in the paper).

Through Table 6, it can be noticed that some of Robles' sub-soft skills are mentioned more frequently than some categories because authors tend to point out a precise, but non general soft skill. A very good example of this is Robles' sub-soft skill *resourceful*. Thirteen researchers mention it in their work. Hence, it receives more attention than the categories *flexibility* (9), *positive attitude* (8), *courtesy* (7), *integrity* (6) or *professionalism* (5).

3.2.3 Classification

The section above explained how soft skills were identified and how they were listed from the most frequent to the least frequent based on how often they are mentioned in the papers under study.

The next phase was to group the 114 soft skills cited in Table 6 into three subsets, namely core, semi-peripheral and peripheral soft skills, from the most frequently mentioned to the least frequently mentioned in the papers under study. It has been decided to do so for two reasons: firstly, it makes the soft skills' hierarchy clearer and secondly, it will facilitate comparisons with the soft skills identified in the job adverts. To add further clarity, Figure 1 displays only 40 soft skills, namely Robles' ten categories and the 30 other soft skills that could not be included in any of Robles' categories. The 74 remaining sub-soft skills (114-40) are represented by Robles' ten categories (for example the sub-soft skills *businesslike*, *well-dressed*, *appearance* and *poised* are represented by the Robles' category professionalism).

The little yellow circle is comprised of the core skills. They are the top 10 % of the 40 soft skills. The grey circle includes the semi-peripheral skills. They represent the following 27 % of the 40 soft skills. The orange circle contains the peripheral skills. They account for the remaining 63 % of the 40 soft skills. This distribution (10 % - circa 30 % - circa 60 %) has been chosen to better highlight soft skills that appear very frequently in the papers under study. Another distribution, for example 20 % - 30 % - 50 %, would arguably not make a clear distinction between the three subsets. The figures in brackets represent the number of articles that mention that soft skill in their work.

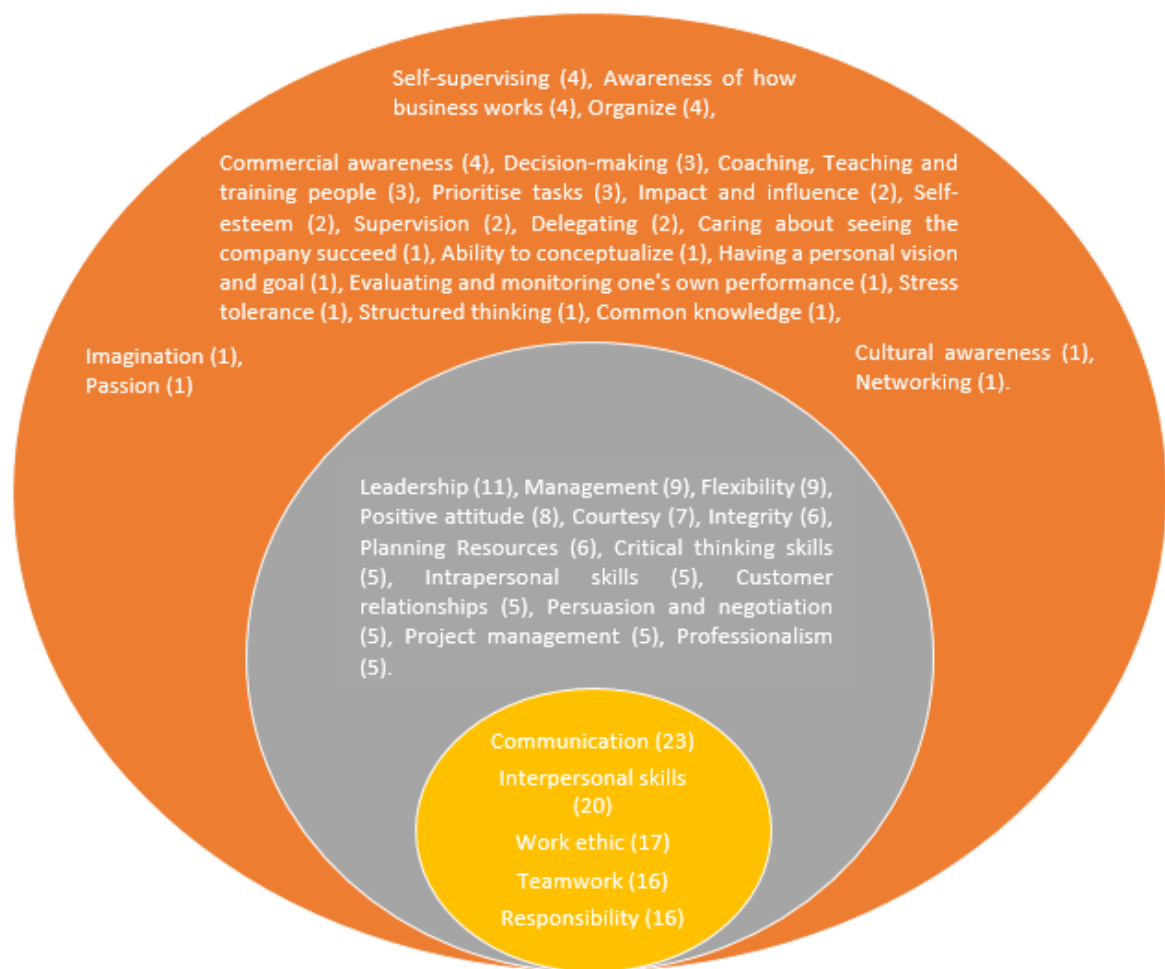


Figure 1 – Basis for the comparison of soft skills

The core skills are five of Robles' categories (*communication, interpersonal skills, work ethic, teamwork, responsibility*). The semi-peripheral skills consist of Robles' other five categories (*flexibility, positive attitude, courtesy, integrity and professionalism*) and of eight other soft skills that could not be added to any of Robles' categories, namely *leadership, management, planning resources, critical thinking skills, intrapersonal skills, customer relationships, persuasion and negotiation* and *project management*. The peripheral skills include the rest of the other soft skills. Figure 1 is the basis used to make a comparison between the soft skills mentioned in the literature and the soft skills found in the job advertisements.

3.2.4 Analysis of job advertisements

The first step in analysing job advertisements was to identify the soft skills mentioned in them. I manually highlighted the sentences, phrases or words concerning them. I subsequently counted all the words used to refer to soft skills. This makes it possible to determine the proportion of words used to denote soft skills in the adverts under study compared to the total amount of words. Hard skills were also counted to know which proportion they represented compared to soft skills. Figure 2 is a job advertisement taken as an example. It shows how soft and hard skills were identified.

PROJECT MANAGER



Recruiter Interaction Recruitment plc
Location London
Salary £38k - 40k per year
Posted 19 Oct 2016
Closes 16 Nov 2016
Ref 256060
Contact Martin Lively
Sectors Construction & Skilled Trades, Carpentry, Construction, Site
Contract Type Permanent
Hours Full Time

Send |
 Save |
 [APPLY](#)

My client, a well established contractor who specialise in both Residential and Commercial construction and refurbishment, are currently recruiting for a Project Manager to join their young and exciting team.

Were looking for experience, enthusiasm and energy and most of all a willingness to get things done and be a pro-active member of the team.

This is what were looking for:

- Eye for detail
- Organisational skills
- People & management skills
- Good knowledge of building
- Estimating Experience
- Computer literacy
- Excellent communication & time management skills
- Recognised qualifications are preferred
- Proven track record for delivering projects
- Building Knowledge and experience

Featured Courses

IOSH Managing Safely Including Exam
 Online

http://www.fisadvice/training/courses/?tc_courseid=9

CIW Internet Business Associate Training (1D0-

· Knowledge of basements is
beneficial but not essential.

If you feel you would be well suited for
this position please do not hesitate to
contact Martin Lively at
martin.lively@interactionrecruitment.c
o.uk or on 01223 311735

[Share](#)

Figure 2 – Counting of soft and hard skills in a job advert

Hard skills are in green and soft skills are in yellow. The strings "Were [sic] looking for experience" is not underlined because it is devoted to neither soft skills nor hard skills. The same goes for "and experience".

The second step was to record the soft skills mentioned in each job ad in an Excel sheet containing the 114 soft skills identified in the literature. The purpose here was to explore similarities and differences between the ads and the literature regarding how soft skills are communicated. Table 7 shows an extract from the Excel sheet. The first column gathers the soft skills found in the papers under study. Columns **NSP 6**, **7**, **8** and **9** mean **n**on-**s**enior **P**roject Manager and are the codes given for each job advert. These columns are filled in with words or phrases linked to soft skills found in the ads.

	NSP 6	NSP 7	NSP 8	NSP 9
Communication		"The ability to communicate effectively at all levels with businesses throughout Europe"	"An effective communicator"	"Excellent communication"
Speaking capability	"Excellent verbal communication skills"	"Spoken English language skills"		
Presenting	"Presenting to large groups of volunteers"			

	NSP 6	NSP 7	NSP 8	NSP 9
Written	"Excellent written communication skills"	"Written English language skills"		
Listening				
Reading and comprehension				
Body language				

Table 7 – Extract from the Excel comparison table

Once all the soft skills from the four groups of job advertisements, namely ads for (1) non-senior Project Managers, (2) non-senior System Engineers, (3) senior Project Managers and (4) senior System Engineers, were added to the Excel sheet, they were counted and gathered to proceed in the same manner as for Figure 1 (see section 3.2.3 (*Classification*), p. 51). It means that for each group of job advertisements, soft skills are categorized into core, semi-peripheral and peripheral skills. This makes it possible to compare the soft skills mentioned across the groups of job advertisements and in the literature (cf. Figure 1). In short, the list of 114 soft skills drawn up based on the literature was used to analyse the soft skills found in the job advertisements. Afterwards, the soft skills identified in the ads were divided into core, semi-peripheral and peripheral skills.

3.3 Hypotheses related to the third research question

After reading the literature, I am able to formulate some hypotheses about the overall expected results for the third research question, namely "In British online job adverts, are there any differences between the soft skills mentioned for senior / non-senior Project Manager and System Engineer positions? If so, what are they?". A number of hypotheses can be put forward firstly concerning the level of seniority and secondly regarding the two different jobs. In this section, the terms core, semi-peripheral and peripheral skills are used. They always refer to Figure 1, namely the skills found in the literature and used as a basis for comparison.

It is not unreasonable to assume that soft skills are very important both for non-senior and senior positions. As Deepa & Seth (2013) and Robles (2012) point out, soft skills are essential at each level of seniority of a company and are required to become professionally successful. Dabke (2015) agrees and adds that their role is key from the new employees lacking

experience to senior managers. Deepa & Seth (2013) and Schultz (2008) also believe that soft skills are not only important to get a job, but they also are a competitive advantage in order to be promoted later. I expect that semi-peripheral and peripheral skills will be more frequently found in job ads for senior positions than for non-senior positions because there might well be some sort of "soft skills" progression depending on the level of seniority. Mainly core skills may be required for non-senior positions because these skills are principal and general, whereas more detailed soft skills, namely semi-peripheral and peripheral skills may well be needed for senior positions. In the quantitative analysis, I expect soft skills to be mentioned slightly more frequently for non-senior than for senior positions because Wilhelm (2004, cited in Deepa & Seth (2013)) and an Assistant Manager interviewed by Deepa & Seth (2013) report that soft skills are more fundamental to the success of non-senior employees than for those in higher positions. I use the adverb "slightly" as opinions diverge regarding the importance of soft skills in top management jobs. For example, Rao (2010, cited in Mishra (2014)) suggests that top management needs more soft skills than hard skills, whereas workers at the lower level of a company require more hard skills. Deepa & Seth (2013) carried out a study among Indian companies and found that the respondents, mid-level and top-level executives, answered that they regarded soft skills to be equally important for entry-level employees and for top management.

Secondly, it can be assumed that recruiters will pay a little more attention to candidates' soft skills for Project manager positions than for System Engineer jobs. Soft skills will be more specific and more will be needed for Project Managers. Soft skills will probably also be required for System Engineer positions, but they are likely to stay general, like the core skills mentioned through the scientific literature. As shown in the literature review (see section 1.1 (*Soft skills and hard skills*)) and as highlighted by James and James (2004, cited in Deepa & Seth (2013)) and Sutton (2002, cited in Deepa & Seth (2013)), soft skills have become central in all kinds of jobs and even in technical domains. However, System Engineers need a high knowledge content because their environment is always rapidly changing and thus they need to keep their hard skills up to date (Davis, 2006). Because they work in a multidisciplinary context (mathematics, science, computer, technology, business, ...), it can be difficult for them to focus on both hard skills, still at the heart of engineering science, and soft skills, equally essential to work with effectiveness in a multi-curricular environment (Nguyen, 1998). It is noteworthy that saying that System Engineers need soft skills differs from what I have heard from two computer specialists (Anthony Gerontitis and Raphaël Javaux, personal communication). That is why it will be quite interesting to uncover what recruiters mention

about hard and soft skills in job advertisements: will the analysis confirm what is explained in the literature or what is described by two specialists?

For the role of Project Manager, a strong emphasis is generally placed on soft skills. Napier, Keil & Tan (2009) point out that the ideal Project Manager is quick to adapt, flexible, effective and organised, is able to manage a team, knows how to negotiate, gets on with people and has strong interpersonal skills, among other things. Skulmoski & Hartman (2010, cited in Ahsan, Ho & Khan (2013)) add to these skills communications skills, being a leader and working in the most professional approach. In short, soft skills appear to be at the core of the job of Project Manager.

In short, the four hypotheses are the following:

- 1 More soft skills will be found in the Project Manager ads than in the System Engineer ads.
- 2 There will be slightly more soft skills in the job adverts for non-senior positions than for senior positions.
- 3 Semi-peripheral and peripheral skills will be more frequently found in the job ads for Project Managers than in the job ads for System Engineers.
- 4 Semi-peripheral and peripheral skills will be more frequently found in the job ads for senior positions than in the job ads for non-senior positions.

4 Discussion of the results

4.1 Introduction

120 job adverts were analysed in order to answer the three research questions, namely (1) "Are the soft skills found in the scientific literature identical / similar to the ones observed in the British online job advertisements?", (2) "How are the soft skills referred to in the adverts?" and (3) "In British online job adverts, are there any differences between the soft skills mentioned for senior / non-senior Project Manager and System Engineer positions? If so, what are they?" One section is devoted to each research question. A final section describes three additional observations. Before discussing the findings related to these questions, a brief description of the job advertisements analysed will be provided.

Job adverts generally consist of three sections: a heading with the title of the position and the name of the company or the recruitment agency (the name of the company is not always mentioned); a job summary with basic information (recruiter, location, salary, job category, sectors, education level, job type (e.g. part-time, full-time, permanent, temporary), career level (non-manager, manager), years of experience, reference code, contact information, date posted, ...); and a body text.

The body text is built very differently from one job advert to another: brief, long, with or without bullet points, with or without different sections, ... Among the 120 job ads under study, the shortest is made up of 149 words (see Figure 3 below) and the longest comprises 977 words (see Figure 4 below). The average length is 377 words.

Systems Engineer - Avionics, Safety Critical, DOORs

Apply on your phone

Cheltenham (/jobs/in-cheltenham), Gloucestershire (/jobs/in-gloucestershire)

£30000.00 - £40000.00 per annum

Experis Ltd (/jobs-at/experis/jobs)

Permanent

Expires today



Send

APPLY (/JOB/66992949/APPLY?ENTRYURL=%2FJOBS%2FSYSTEMS-ENGINEER%236699294

Systems Engineer

at/experis/jobs)

Experis are looking for a Systems Engineer to join our consultancy on a permanent basis. You will have the opportunity to work with large, blue chip organisations and gain vital exposure to a wide variety of projects.

Responsibilities

- Verification of requirements
- Producing verification plans, system test procedures, and qualification test procedures
- Working across the full systems engineering lifecycle
- Working to safety critical standards

Skills

- Full Systems Lifecycle experience
- Industry experience within Aerospace, Displays, Electrical power systems, avionics
- Safety Critical Standards - DO178-B, ARP4754, DO-254
- DOORs requirements management

If you are interested in this position, please apply above. You can also email me at or call 0161 924 3688

Contact: Matthew Swift

Reference: CWJobs/J351255A

Job ID: 66992949

Figure 3 – Job ad n° 2 for a non-senior System Engineer

About Electus Recruitment

Electus has been introducing leading technical and engineering organisations to highly skilled candidates in the Aerospace, Defence, Energy & Infrastructure sectors since 2003. Quality and service are at the core of our business and we are members of the Association of Professional Staffing Companies. Electus has also been ISO9001 accredited since 2004. Each and every candidate and client is vitally important to our success and we do our utmost to ensure they have a great experience with us.

We use the best technology & search techniques to leverage the physical and digital spaces to give us a global talent pool. Utilising our superior sector knowledge, we have tailored our services to provide pinpoint support throughout the hiring process. Our teams of industry qualified experts possess deep understanding of the sectors in which we specialise developing niche networks of highly skilled individuals.

Senior Satellite & Systems Engineer

Apply now

Your record in Satellite and Systems Engineering within the Defence market could make an immediate impact with my client. Your ability to provide a systems approach in the fields of Satellite, Radio Frequency (RF) communications within various functions would be fundamental to the continuing growth of this company.

Working within the Defence market, you will provide a systems approach to specialist engineering design and support services in the fields of Satellite, Radio Frequency (RF) communications and general engineering. Along with an excellent remuneration package, this role offers a career in consulting, continuing professional improvement and various career development opportunities.

Below are some further details on the role. At the bottom of the page is where you can apply.

Senior Satellite & Systems Engineer

About the job:

A customer facing role reporting to the Head of Programmes and Engineering
To transition the current engineering team into an integrated project engineering team that efficiently supplies the engineering design and support services required to deliver projects.
To provide both a system and a specialist satellite engineering capability to the integrated project engineering team.
To identify, create and apply appropriate team training and mentoring packages to support the transition to an integrated project engineering team.
To create and document the engineering processes required to facilitate the creation of an integrated project engineering function.
Control and allocation of engineering resource to provide the Prime Contract Programme Office (PCPO) and Solutions team with appropriate resource to facilitate task, minor project and major project requirement collection, design, production, deployment, test, acceptance and support as required.
To support the PCPO and the Solutions team as required in the preparation of estimates, bid documentation, specification, pricing, tender, Gate and proposal documents for new opportunities.
Be a source of technical expertise in RF antenna systems and associated equipment, including radiation hazard.
To contribute to complex and diverse projects and bids within the communications arena for a broad range of security and defence sector custom
The role will also include work on other RF systems from RF switching, coaxial feeder, RF over fibre to antennas working at frequency ranges of LF through to microwave.
Provision of technical expertise in RF antenna systems and associated equipment.
Design, procurement, management and supervision of the implementation of antenna systems and associated equipment
Travel abroad and in the UK when necessary.

About you:

Hold a relevant engineering degree or alternatively HNC/HND qualification desirable
Chartered Engineer (CEng) or Incorporated Engineer (IEng) status registered with the Engineering Council in an appropriate engineering discipline.
Possess 5-years' experience in an antenna systems engineering role, working with systems similar to those used in the high power communications and broadcast industry.
Possess 5-years' experience in the antenna engineering project environment working to deadlines using quality

- **Company:**
Electus Recruitment Solutions Limited
- **Location:**
Gloucestershire, SW GL208LP
- **Job Status/Type:**
Full Time
Permanent
- **Job Category:**
Engineering
- **Occupations:**
RF/Wireless Engineering
- **Industries:**
Electronics, Components, and Semiconductor Mfg
Engineering Services
- **Education Level:**
Unspecified
- **Reference Code:**
HQ00012279_1470838666

procedures.
 Knowledge of how to perform RF testing on these and other RF systems.
 Have the knowledge and skills needed to work on international projects in a multi-disciplined, multi-tasking team environment.
 Have a general understanding of project management systems and processes.

<http://jobview.monster.co.uk/senior-satellite-systems-engineer-job-gloucestershire-south-west-uk-170732935.aspx?mescoId=1700190001001&jobPosition=7> 1/2

10/08/2016

Senior Satellite & Systems Engineer Job in Gloucestershire GL208LP, South West UK

[Back to Job Search Results](#)

APPLY

Management) 2015

Possess (or be willing to gain) an adequate knowledge of Construction regulations and be able to represent the client in the role of Principle Designer.
 A good working knowledge of Microsoft Project, Word, PowerPoint, SharePoint and Excel.
 Good commercial awareness and an understanding of contract and commercial management.
 Whilst the majority of work will be on receive only systems knowledge of transmission systems is also highly desirable.
 Knowledge of control systems related to communications systems is also desirable such as PC based control and monitoring and satellite antenna drive systems
 Knowledge of HF and V/UHF RF based communication systems.
 Experience of working with antenna systems, feeders, combiners and matrix system

Senior Satellite & Systems Engineer
 Gloucestershire

The role will not be available for long so please apply ASAP to avoid disappointment.

Keywords: Satellite, Systems, Engineer, HF, VHF, UHF, RF, Military, Communication, Antenna, Broadcast, RF Testing, RF Switching, Ground Station, DV Clearance

Due to the nature of work undertaken at our client's site, incumbents of these positions are required to meet special nationality rules and therefore these vacancies are only open to sole British NATIONALS. Applicants who meet this criteria will also be required to undergo security clearance vetting, if not already security cleared to a minimum DV level.

Electus Recruitment Solutions provides specialist engineering and technical recruitment solutions to a number of high technology industries. We thank you for your interest in this vacancy. If you don't hear from us within 7 working days please presume your application has been unsuccessful on this occasion. You are of course free to resubmit your CV/details in the future and we shall assess your suitability at that time.

This is a permanent position

Electus Recruitment Ltd is acting as an Employment Agency in relation to this vacancy.

Figure 4 – Job ad n° 17 for a senior System Engineer

Job summaries in Figures 3 and 4, surrounded by a yellow frame, are different. In Figure 3, only information about the location, the salary, the recruiter, the job type and the date is mentioned. In Figure 4, details about the job category, the type of occupation, the sectors and the education level are also found. With regard to the body text, both adverts are made up of different sections (in Figure 3, *responsibilities* and *skills*; in Figure 4, *about the job* and *about you*) and in both of them, some parts of the text are expressed in bullet points.

In Figure 3, the company name is mentioned (i.e. Experis), but no further information is given about it. In Figure 4, whereas the company name is not mentioned (it is only written that it is within the Defence market), two paragraphs describe the recruitment agency (i.e. Electus Recruitment) at the top of the page. Another major difference between the two adverts is that in Figure 4, what the company can offer is mentioned:

"Along with an excellent remuneration package, this role offers a career in consulting, continuing professional improvement and various career development opportunities."

It is not the case for Figure 3. These two job adverts illustrate that one job advertisement may differ significantly from another. However, the majority of them provide the following information in the same order:

- 1 **Job overview** with very general information about the position and the company. The company's description is sometimes very vague and the company name is often absent (the company name is mentioned in only 48 out of 120 job ads). For example, it is possible to find only some adjectives about it: "the company client is a widely known organisation" (NSP 1)²³, "this rapidly growing Digital Marketing Agency" (NSP 3)²⁴, "my client, a global software and solutions provider" (NSP 18)²⁵.
- 2 **Duties** are generally written in the form of bullet points.
- 3 **Candidate's requirements**, i.e. what the company is looking for: skills, knowledge and / or experience. Requirements are also often indicated using bullet points.
- 4 **What the company can offer**, i.e. all the advantages that the candidate gets in return for their talent: training, pension, car allowance, health insurance, good conditions for maternity / paternity leave, etc.
- 5 **Hiring process**, i.e. how to apply.

Soft skills can be found mostly in the first three sections, namely *job overview*, *duties* and *candidate's requirements*.

²³ The code "NSP 1" means the job ad n° 1 for a non-senior Project Manager.

²⁴ The code "NSP 3" means the job ad n° 3 for a non-senior Project Manager.

²⁵ The code "NSP 18" means the job ad n° 18 for a non-senior Project Manager.

4.2 First research question: Are the soft skills found in the scientific literature identical / similar to the ones observed in the British online job advertisements?

As explained in section 3.2.4 (*Analysis of job advertisements*), to simplify the comparison between the soft skills found in the literature and the ones identified in the job advertisements, soft skills were categorized into three subsets: core, semi-peripheral and peripheral skills (cf. section 3.2.3 (*Classification*)). Robles' categories (cf. section 3.2.2 (*Creation of a bank of soft skills*)) were used to analyse the soft skills found in the job ads for (1) non-senior Project Managers (henceforth NSP), (2) senior Project Managers (henceforth SP), (3) non-senior System Engineers (henceforth NSS) and (4) senior System Engineers (henceforth SS). If some of them could not be included in any of Robles' categories, they were simply added to the list as independent skills. To divide the soft skills into the core, semi-peripheral and peripheral skills, the distribution 10 %, 30 %, 60 % was applied (cf. section 3.2.3 (*Classification*)). The top 10 % of the soft skills identified the most frequently in the ads for, for example, senior Project Managers, represent the core skills. The following 30 % represent the semi-peripheral skills and the remaining 60 % account for the peripheral skills.

Tables 8, 9 and 10 show the three subsets of soft skills, i.e. core, semi-peripheral and peripheral soft skills found in the five sections under study, i.e. (1) the scientific literature, (2) the NSP ads, (3) the SP ads, (4) the NSS ads, and (5) the SS ads. When comparing the five sections, the number of soft skills by subset is not the same. The reason why there are, for example, more core skills for one section than for another is that more different soft skills were found for some sections than for others. As the three subsets were defined by calculating 10 %, 30 % and 60 % of the total amount of soft skills, the numbers of soft skills per subset are not the same. For example, there are five core skills in the NSP ads because 47 different soft skills were found in the ads for this section (five is the round number of 10 % of 47). There are three core skills in the NSS ads because three is the round number of 10 % of 27 (27 is the number of different soft skills found in the ads for non-senior System Engineers).

It is noteworthy that twenty-one soft skills that were not identified in the scientific literature appear in the job advertisements, as semi-peripheral and peripheral skills. These are the following: *identification of risks and opportunities, plan, coordinate, analytical skills, multi-*

tasking, creativity (they are semi-peripheral skills); *pragmatism/practical approach, methodical, innovative, autonomy, commercial acumen, facilitate, brave and fearless, maturity, skills in people management, self-reliance, manipulation skills, ingenuity, focused, abstract thinking and rationally minded* (they are peripheral skills).

Soft skills found in the scientific literature	NSP soft skills	SP soft skills	NSS soft skills	SS soft skills
Core skills				
Communication	Communication	Communication	Communication	Communication
Responsibility	Responsibility	Responsibility	Responsibility	Responsibility
Teamwork	Teamwork		Teamwork	Teamwork
Work ethic	Work ethic			
Interpersonal skills				
	Management	Management		
				Flexibility

Table 8 - Comparison table of the soft skills found in the papers under study and those found in the job adverts: the core skills

Table 8 shows that *communication* and *responsibility* are defined as core skills in every section. *Teamwork* and *work ethic* are partially represented: *teamwork* is not a core skill in the SP section. *Work ethic* is seen as a core skill for only two sections: soft skills found in the scientific literature and in the NSP ads. *Interpersonal skills* are not found often enough in the job advertisements. As a result, they are not part of the core skills in any sections. Two other competencies appear in the job ads, namely *management* and *flexibility*. They were also identified in the papers under study, but for this section, they are part of the semi-peripheral skills (see Table 9 below).

Soft skills found in the scientific literature	NSP soft skills	SP soft skills	NSS soft skills	SS soft skills
Semi-peripheral skills				
Customer relationships	Customer relationships	Customer relationships	Customer relationships	Customer relationships
Flexibility	Flexibility	Flexibility	Flexibility	
Positive attitude	Positive attitude	Positive attitude		Positive attitude
Leadership	Leadership	Leadership		Leadership
Management			Management	Management
Integrity				Integrity
Persuasion and negotiation	Persuasion and negotiation			
Courtesy				
Planning Resources				
Intrapersonal skills				
Project management				
Professionalism				
Critical thinking skills				
	Interpersonal skills	Interpersonal skills	Interpersonal skills	Interpersonal skills
		Work ethic	Work ethic	Work ethic
	Coaching, teaching, training, guiding, mentoring	Coaching, teaching, training, guiding, mentoring		Coaching, teaching, training, guiding, mentoring
	Identification of risks and opportunities	Identification of risks and opportunities		
	Plan			Plan
	Coordinate			Coordinate
	Organize		Organize	
			Passion	Passion
		Supervision / oversee		Supervision / oversee
			Analytical skills	Analytical skills
	Multi-tasking			
	Impact and influence			
	Awareness of how business works			
		Self-supervising / independent / self-starter		
		Teamwork		
				Creativity

Table 9 - Comparison table of the soft skills found in the papers under study and those found in the job adverts: the semi-peripheral skills

Table 9 includes the semi-peripheral skills. *Customer relationships* is the only semi-peripheral skill that is common to all sections. *Flexibility*, *positive attitude* and *leadership* are part of the semi-peripheral skills in the scientific literature. In most of the other sections (NSP, SP, NSS, SS), in three out of four sections, these skills are also seen as semi-peripheral skills.

Management, integrity and persuasion and negotiation are not often represented as semi-peripheral skills in the job advertisements, as they are semi-peripheral skills in only one or two out of four sections (in the NSS and SS ads, in the SS ads and in the NSP ads, respectively). While *courtesy, planning resources, professionalism and critical thinking skills* are semi-peripheral skills in the scientific literature, they are not semi-peripheral skills in any job advertisements' sections. The reason for this is that, in the job ads, they are seen as peripheral skills (see Table 10 below). By contrast, *intrapersonal skills*, which are semi-peripheral skills in the literature, are not identified in any job advertisements. Therefore, it is not part of any job advertisements' subsets (core, semi-peripheral or peripheral skills).

The last sixteen lines of Table 9 show semi-peripheral skills in some of the four job ad sections (NSP, SP, NSS, SS). On the one hand, ten of these soft skills are semi-peripheral in some job ad sections, but not in the section *soft skills found in the scientific literature*. It is noteworthy that, although these ten skills were also identified in the papers under study, they were classified either in the core skills (three of them, namely *interpersonal skills, work ethic and teamwork*) or in the peripheral skills (seven of them, namely *coaching, teaching and training people, organize, passion, supervision, impact and influence, awareness of how business works and self-supervising*). On the other hand, six other soft skills, namely *identification of risks and opportunities, plan, coordinate, analytical skills, multi-tasking and creativity* are semi-peripheral skills in some job ad sections, but they were not found in the papers under study. In other words, they were discovered on the basis of the job advertisements only. Comments on the differences and similarities between the skills in the NSP, SP, NSS and SS sections will be made in the section answering the third research question, that is to say "In British online job adverts, are there any differences between the soft skills mentioned for senior / non-senior Project Manager and System Engineer positions? If so, what are they?"

Soft skills found in the scientific literature	NSP soft skills	SP soft skills	NSS soft skills	SS soft skills
Peripheral skills				
Self-supervising	Self-supervising		Self-supervising	Self-supervising
Commercial awareness	Commercial awareness	Commercial awareness		Commercial awareness
Decision-making	Decision-making		Decision-making	Decision-making
Prioritise tasks	Prioritise tasks		Prioritise tasks	Prioritise tasks
Caring about seeing the company succeed	Caring about seeing the company succeed	Caring about seeing the company succeed	Caring about seeing the company succeed	
Organize		Organize		Organize
Impact and influence		Impact and influence	Impact and influence	
Supervision	Supervision / oversee		Supervision / oversee	
Delegating	Delegating	Delegating		
Stress tolerance	Stress tolerance			Stress tolerance
Passion	Passion	Passion		
Coaching, teaching and training people			Coaching, teaching, training, guiding, mentoring	
Having a personal vision and goal	Having a personal vision and goal			
Networking				Networking
Ability to conceptualize	Ability to conceptualize			
Awareness of how business works				
Self-esteem				
Evaluating and monitoring one's own performance				
Imagination				
Structured thinking				
Common knowledge				
Cultural awareness				
	Courtesy	Courtesy	Courtesy	Courtesy
	Professionalism	Professionalism	Professionalism	Professionalism
	Pragmatism / practical approach	Pragmatism / practical approach		Pragmatism / practical approach
	Innovative	Innovative		Innovative
	Integrity	Integrity	Integrity	
	Methodical		Methodical	Methodical
		Multi-tasking	Multi-tasking	Multi-tasking
	Creativity	Creativity		
	Autonomy		Autonomy	
	Analytical skills	Analytical skills		
	Commercial acumen	Commercial acumen		
	Planning resources	Planning resources		
	Facilitate	Facilitate		

			Identification of risks and opportunities	Identification of risks and opportunities
		Persuasion and negotiation		Persuasion and negotiation
		Coordinate	Coordinate	
	Brave and fearless			
	Maturity			
	Skills in people management			
	Critical thinking skills			
	Self-reliance			
		Plan		
		Manipulation skills		
			Leadership	
			Positive attitude	
			Ingenuity	
				Focused
				Abstract thinking
				Rationally minded

Table 10 – Comparison table of the soft skills found in the papers under study and those found in the job adverts: the peripheral skills

Table 10 displays the peripheral skills. *Self-supervising, commercial awareness, decision-making, prioritise tasks* and *caring about seeing the company succeed* are peripheral skills coming from the papers under study that are also considered as peripheral skills in most sections, in three out of four job ad sections. Peripheral skills in the section *soft skills found in the scientific literature*, *organize, impact and influence, supervision, delegating, stress tolerance* and *passion* are less represented in job ad sections (in two out of four job ad sections). *Coaching, teaching and training people, having a personal vision and goal, networking* and *ability to conceptualize* are present in only one job ad section out of four. However, there is a difference between them: *Coaching, teaching and training people* is seen only as a peripheral skill for the NSS section and the *soft skills found in the scientific literature* section. By contrast, it is present in all the other sections (NSP, SP, SS) as a semi-peripheral skill (cf. Table 9). Thus, this soft skill is generally well represented in the job advertisements. It is not the case for *having a personal vision and goal, networking* and *ability to conceptualize* because they are present in only one job ad section, across all soft skill subsets (core, semi-peripheral, peripheral skills).

Self-esteem, evaluating and monitoring one's own performance, imagination, structured thinking, common knowledge and *cultural awareness* were found in the papers under study, but they were not identified in any job advertisements. By contrast, *pragmatism/practical*

approach, methodical, innovative, autonomy, commercial acumen, facilitate, brave and fearless, maturity, skills in people management, self-reliance, manipulation skills, ingenuity, focused, abstract thinking and rationally minded were found in the job advertisements, but not in the scientific literature. Finally, *integrity* and *persuasion and negotiation* are seen as peripheral skills in most of the job ad sections, whereas they are considered as semi-peripheral skills for the section about the soft skills found in the scientific literature.

In a nutshell, out of the forty soft skills identified in the papers under study (see column *soft skills found in the scientific literature* in Tables 8, 9 and 10), thirty-three were found in some of the job advertisements. In other words, 80 % of the soft skills found in the papers under study are also present in the job advertisements analysed. As can be seen from Table 11 below, seven soft skills were not detected in the job ads and twenty-one soft skills that were not identified in the scientific literature appear in the job advertisements, as semi-peripheral and peripheral skills.

	Soft skills not detected in the job ads	Soft skills not detected in the scientific literature, but appearing in the job ads
Semi-peripheral skills	Intrapersonal skills	Identification of risks and opportunities
		Plan
		Coordinate
		Analytical skills
		Multi-tasking
		Creativity
Peripheral skills	Self-esteem	Pragmatism/practical approach
	Evaluating and monitoring one's own performance	Methodical
	Imagination	Innovative
	Structured thinking	Autonomy
	Common knowledge	Commercial acumen
	Cultural awareness	Facilitate
		Brave and fearless
		Skills in people management
		Self-reliance
		Manipulation skills
		Ingenuity
		Maturity
		Focused
		Abstract thinking
		Rationally minded

Table 11 – soft skills appearing only in the scientific literature or only in the job advertisements

As can be seen from Tables 8, 9 and 10, soft skills are sometimes classified very differently (as core, semi-peripheral or peripheral skills) across the five sections (NSP, NSS, SP, SS and

soft skills found in the scientific literature). For example, interpersonal skills, which are core skills in the section *soft skills found in the scientific literature*, are semi-peripheral skills in the four job ad sections. *Courtesy* and *professionalism*, which are semi-peripheral skills in the section *soft skills found in the scientific literature*, are peripheral skills in the four job ad sections.

It is interesting to note that, sometimes, soft skills can be described in the same way both in the scientific literature and in job advertisements, and sometimes differently. It is illustrated by Figure 5, which is an extract from an ad for a senior System Engineer.

Confident and effective dealing with Customers and End Users
 Good written verbal and interpersonal communication skills as well as motivation, integrity, professionalism, flexibility, commitment and innovation
 Excellent analytical and problem solving skills

Figure 5 – Extract from job ad n° 28 for a senior System Engineer

The words in yellow are soft skills that are expressed in exactly the same manner as in the scientific literature. *Confident*, *written communication skills*, *integrity*, *professionalism* and *flexibility* can be found in Robles' paper "Executive Perceptions of the Top 10 Soft Skills Needed in Today's Workplace" (2012). *Effective* is mentioned in Deepa and Seth's article "Do Soft Skills Matter?" (2013), *verbal communication skills* in "Content analysis of OR job advertisements to infer required skills" by Sodhi & Son (2010), *motivation* in "Acquisition of Corporate Employability Skills: A Study with Reference to Engineering Graduates" by Parasuraman & Prasad (2015) and *problem solving skills* in "Employability Skills That Recruiters Demand" by Mishra (2014).

The words in blue are soft skills that differ from what was seen in the papers under study. Many authors speak about interpersonal skills and communication skills, but they are rarely combined to form *interpersonal communication skills*. *Commitment* reflects Robles' sub-soft skill *hard working* (in the category *work ethic*). The definition of *commitment* is "enthusiasm for something and a determination to work hard at it"²⁶ and could thus be considered as a synonym of *hard working*. Finally, the words in pink, namely *innovation* and *analytical skills* were not found in the papers under study.

²⁶ Commitment. (2017). In Macmillan Dictionary. Retrieved July 6, 2017, from <http://www.macmillandictionary.com/dictionary/british/commitment>.

The first research question, namely "Are the soft skills found in the scientific literature identical / similar to the ones observed in the British online job advertisements?" can be answered by saying that they are not always identical. The following remarks highlight the differences between the soft skills found in the job ads and in the papers under study. Each point focuses on a specific soft skill.

1 Project management

Project management is seen as a soft skill in two papers under study (Schultz (2008) and Ahsan, Ho & Khan (2013)). However, in the job advertisements, it could arguably be considered as a hard skill. In most ads, some elements around the term *project management* hint that it appears to be regarded as a rather technical skill (e.g. course in, certification, tools and methodologies). I have not considered *project management* as a soft skill because in most cases, it is obviously presented as a hard skill. Figures 6, 7, 8 and 9 are extracts from job ads and illustrate this phenomenon. Words concerning *project management* are in yellow.

Required Skills:

- Qualification: B.Arch or BE in Civil Eng with course in Project management
- A certification in Project Management would be a distinct advantage (PRINCE2, PMP)

Figure 6 – Extract from job ad n° 3 for a senior Project Manager

MUST HAVE experience within the PACKAGING GRAPHICS / PACKAGING ARTWORK / POS / POP industry
MUST HAVE onsite experience - have been in a client facing role
MUST HAVE some technical knowledge around printing processes and colours
Excellent project management skills including a good level of Excel ability and natural organisational skills
Confident personality in order to communicate with the client face to face.
Must be happy with an admin led role, attention to detail is a must.

Figure 7 – Extract from job ad n° 21 for a senior Project Manager

Key Duties & Responsibilities:

- *3+ years of experience of successfully managing the end to end project delivery of both IT and business change projects
- *Experience of working for large blue chip clients, ideally within consultancy, logistics, retail, telecoms or financial services
- *Strong knowledge of project management tools and methodologies, including Prince 2, PMI and MS Project
- *Experience leading teams of up to 10 people or more

Figure 8 – Extract from job ad n° 25 for a senior Project Manager

Project Management experience is required

* A sound knowledge of project management theory, and the key areas of project management.

* Ability to grasp concepts of a technical nature quickly, with a sound understanding of the underlying business environment.

* Ability to multi-task, managing several projects concurrently.

Figure 9 – Extract from job ad n° 1 for a non-senior Project Manager

2 Imagination

Imagination, which was listed as a peripheral skill in the section *soft skills found in the scientific literature*, does not appear in the job advertisements under investigation. However, two very similar terms can be found in the ads, namely *creativity* and *innovative*. According to dictionary definitions, *imagination* is "the ability to think of clever and original ideas, possibilities, or solutions"²⁷ and *creativity* is "the ability to create new ideas or things using your imagination"²⁸. *Innovative* is "inventing or using new ideas, methods, equipment etc."²⁹. The definitions show that their meaning is only slightly different. It was more appropriate to keep the terms *creativity* and *innovative*, as the word *imagination* was never detected in the job ads. Some examples of what was found in the ads about this skill are:

- "They look for people who share their passion for **creativity** [my emphasis] and [...]" (NSP 3)
- "[...] nurture these relations with [...] **creative** [my emphasis] flair [...]" (NSP 13)
- "and [...] **create innovative** [my emphasis] solutions to suit future business needs" (NSP 15)
- "[...] you will be expected to **generate new ideas** [my emphasis] [...]" (SS 2)
- "As employers we value talent, integrity, **innovation** [my emphasis] and results [...]" (SS 9)

²⁷ Imagination. (2017). In *Macmillan Dictionary*. Retrieved July 6, 2017, from <http://www.macmillandictionary.com/dictionary/british/imagination>.

²⁸ Creativity. (2017). In *Macmillan Dictionary*. Retrieved July 6, 2017, from <http://www.macmillandictionary.com/dictionary/british/creativity>.

²⁹ Innovative. (2017). In *Macmillan Dictionary*. Retrieved July 6, 2017, from <http://www.macmillandictionary.com/dictionary/british/innovative>.

- "Arup is a place where **creativity, innovation** [my emphasis] and exciting technical challenges are always possible" (SS 16)
- "[...] should be **creative** [my emphasis] [...]" (SP 3)
- "[...] **creating innovative** [my emphasis] and cost efficient solutions [...]" (SP 15).

3 Organize

Organize is a peripheral skill in the section *soft skills found in the scientific literature*. In the job advertisements, the verbs *facilitate*, *plan* and *coordinate* were also cited. These verbs were not found in the literature. While analysing them, I firstly considered them as synonyms of the verb *organize*. However, as some of them were more frequent than *organize*, it was finally decided to distinguish them. For the section SS, for example, *coordinate* and *plan* are semi-peripheral, whereas *organize* is a peripheral skill. When the definitions are compared, the specificities and subtleties are highlighted.

Organize: "To prepare or arrange an activity or event"³⁰.

Plan: "To think carefully about a series of actions that you need to take in order to achieve something"³¹.

Facilitate: "To make it possible or easier for something to happen"³².

Coordinate: "To organize the different parts of a job or plan so that the people involved work together effectively"³³.

Organize focuses on the action of preparing what is needed for an event. *Plan* emphasises the mental aspect of preparing something. *Facilitate* mentions the fact of reducing or overcoming difficulties to achieve something. *Coordinate* highlights the action of putting tasks, things or / and people together to work effectively. As there are nuances between the four terms, they were distinguished from each other.

³⁰ Organize. (2017). In *Macmillan Dictionary*. Retrieved July 7, 2017, from <http://www.macmillandictionary.com/dictionary/british/organize>.

³¹ Plan. (2017). In *Macmillan Dictionary*. Retrieved July 7, 2017, from http://www.macmillandictionary.com/dictionary/british/plan_2.

³² Facilitate. (2017). In *Macmillan Dictionary*. Retrieved July 7, 2017, from <http://www.macmillandictionary.com/dictionary/british/facilitate>.

³³ Coordinate. (2017). In *Macmillan Dictionary*. Retrieved July 7, 2017, from http://www.macmillandictionary.com/dictionary/british/coordinate_1.

4 Work ethic and interpersonal skills

Work ethic is one of Robles' categories and a core skill in the sections NSP and *soft skills found in the scientific literature*. For the other sections (SP, SS, NSS), it is a semi-peripheral skill. The interesting element concerning this soft skill is that the exact term *work ethic* is never used in the job advertisements. *Work ethic* is always represented by its sub-soft skills (on time, self-motivated, hard working, efficiency, initiative, good attendance, willing to work, loyal and personal effectiveness). The reverse is true for *interpersonal skills*. The term *interpersonal skills* is predominantly mentioned and its sub soft-skills (conflict solver, sociability, emotional intelligence, empathetic, nice, personable, sense of humour, friendly, nurturing, has self-control, patient, warmth, extroverted) are hardly ever identified in the job ads.

To sum up this section concerning the first research question ("Are the soft skills found in the scientific literature identical / similar to the ones observed in the British online job advertisements?"), the answer is that it depends on which soft skill and which job advertisement. 80 % of the items on the list of soft skills drawn up from the papers under study are represented in the job advertisements. Twenty-one new soft skills were identified in the job ads. It is also worth pointing out that some skills recognized as soft skills in the scientific literature can arguably be seen as hard skills in the job ads (e.g. *project management*). When it comes to terminology, the diversity is high. The same term can be found both in the scientific literature and in the job advertisements, a synonym of the "basic" soft skill (coming from the scientific literature) can be identified in the job ads or a phrase can illustrate a soft skill. An example with the skill *flexibility* is given.

- The term found in the scientific literature:
Flexibility (One of Robles' categories)
- The same term is found in the job advertisements:
"[...] as well as motivation, integrity, professionalism, **flexibility** [my emphasis], commitment and innovation." (SS 28)
- A synonym of *flexibility* is found in the job ads:
"[...], but must **be flexible** [my emphasis] to travel." (SP 25)
- A phrase that illustrates *flexibility*:
"[...] you will **work with highly availability** [my emphasis] [...]" (NSS 3)

Diversity has been highlighted with the soft skills *imagination, organize, work ethic* and *interpersonal skills*. Other soft skills could have been taken as examples (*conflict solver, supportive, personality development, delegating*, etc.). However, the purpose was not to provide an exhaustive list of the specificities, but to be aware of such phenomena. In terms of frequency, the categorization into core, semi-peripheral and peripheral skills makes it easier to show that some soft skills are more frequent in some sections than in others (soft skills coming from the scientific literature, NSS, SS, NSP, SP).

4.3 Second research question: How are the soft skills referred to in the adverts?

This section explores how soft skills are referred to in the adverts. Some soft skills will be focused on and taken as examples to illustrate that it was not always easy to identify / recognize them in the job ads. Two phenomena concerning most ads will be highlighted: repetitions of soft skills and co-occurrence of soft skills within a sentence. Finally, seven soft skills will be highlighted because they emerge as particularly noteworthy from the analysis. The first point is about identifying soft skills in job ads. As mentioned above, it is not always straightforward to recognize them because the line between describing a duty or fact and a soft skill can sometimes be vague. Here are some examples:

- **Flexibility**

The two sentences below explicitly describe the fact that the candidate has to be flexible:

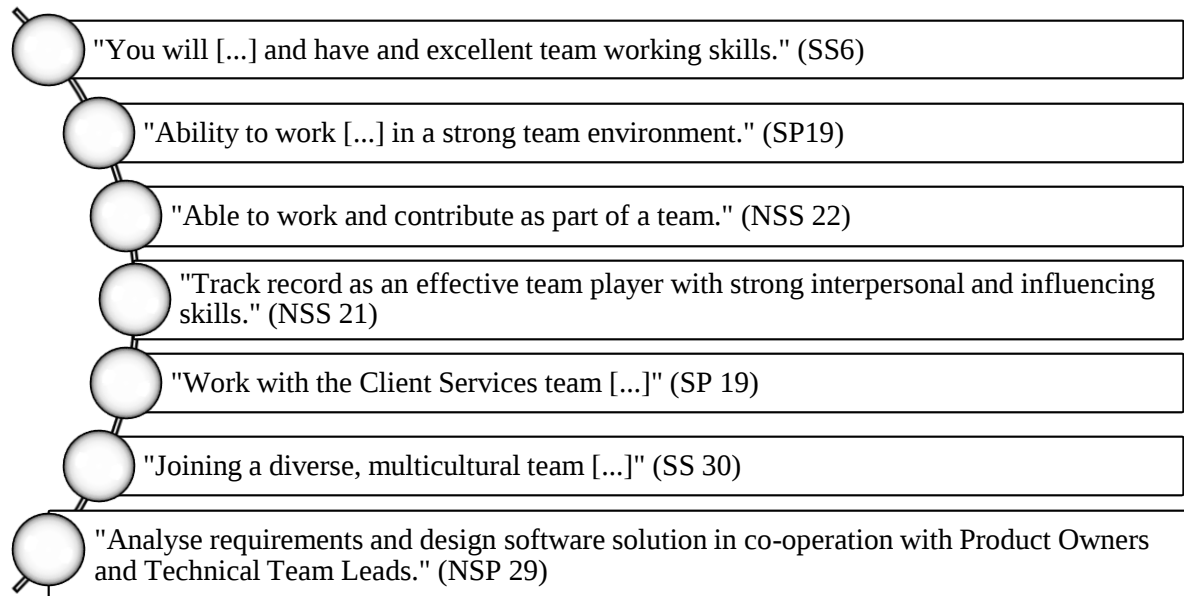
- "The successful Project Manager will be managing the end to end delivery of client projects based mainly in London, **but must be flexible to travel** [my emphasis]." (SP 25)
- "Be willing **to work flexible hours** [my emphasis] when necessary." (NSS 14)

The two following sentences also describe *flexibility*, but tacitly and are regarded as instances of *flexibility*.

- "Ability to meet tight timelines and work during off-business hours as needed." (NSS 16)
- "Travel abroad and in the UK when necessary." (SS17)

- **Teamwork**

The same phenomenon appears with the soft skill *teamwork*. Hereafter, seven extracts are displayed, from the most explicit to the least explicit. They were all regarded as instances of *teamwork*.



- **Gets the job done / achievement and action**

Gets the job done / achievement and action are sub-soft skills from the Robles' category *Responsibility*. In the job ads, *gets the job done* or *achievement and action* are never mentioned using these exact words; they are referred to differently. The following five examples show that sometimes actions (in bold in the examples) can and should be interpreted as soft skills (and they were in this study): some of the terms used in the ads are closely related to the terms found in the literature (e.g. get the job done → get things done).

"Ensuring that the assigned projects are **effectively managed** and delivered to time, cost and quality." (NSP 4)

"[...] a willingness to **get things done** [...]" (NSP 9)

"[...] and **drive with a commitment to deliver** high quality projects." (SP 14)

"[...] and see them [tasks] **through to completion** [...]" (SS 26)

"We are looking for a **delivery focused** Senior Project Manager [...]" (SP 20)

It should be pointed out that there are instances of repetitions of soft skills in one and the same job ad. This phenomenon is rather frequent and is illustrated by job ad n° 2 for a non-senior Project Manager.

PROJECT MANAGER - BIRMINGHAM BASED

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APPLY 



BCT Resourcing

Recruiter	BCT Resourcing
Location	Birmingham, West Midlands
Salary	£50,000 - £55,000 per annum
Posted	14 Oct 2016
Closes	11 Nov 2016
Ref	1326535
Sector	Accountancy, Banking & Financial Services, Management
Contract Type	Permanent
Hours	Full Time

Position: Project Manager

Location: Birmingham

Salary: £50000 - £55000 per annum

Job type: Full time

The company client is a well respected business who are now recruiting a skilled and tenacious Project Manager to be part of their talented team based in Birmingham. **The role holder will be responsible for managing the delivery of high quality projects which span over multiple business areas.** The main focus for this role will be to ensure the project objectives and business requirements are delivered. This is an exciting opportunity for career progression.

Main responsibilities for this position will include:

- * Applying and adhering to the Project Management principles and processes and ensuring that they are effectively applied throughout the lifecycle of the project, through to project closure and operational handover.

- * **Effective resolution of issues.**

- * Supporting, guiding, **motivating** and **facilitating the project teams through the project processes.**

- * Identification and management of risks and opportunities.

- * **Communication of project progress to management and project stakeholders.**

Essential experience, knowledge and abilities for this role:

- * A financial services background is an advantage
- * At least three years of dedicated Project Management experience is required
- * A sound knowledge of project management theory, and the key areas of project management.
- * Ability to grasp concepts of a technical nature quickly, with a sound understanding of the underlying business environment.
- * Ability to multi-task, managing several projects concurrently.
- * The ability to understand the big picture and strategic objectives, displaying organisational sensitivity.
- * The ability to take ownership and display high levels of responsibility and initiative.
- * Excellent communication skills, both formal and informal.
- * Ability to manage people, with strong interpersonal and relationship building skills.
- * Excellent facilitation and presentation skills.

Skill set required:

- * Strong negotiation skills.
- * A person who possesses strong leadership traits, who can work with a minimum of supervision.
- * A high level of maturity and ability to handle oneself under pressure.
- * A methodical problem solver with the ability to motivate and influence others to deliver according to tight deadlines.
- * An eagerness to organise and lead, showing discipline and pragmatism, drive and a sense of urgency.
- * An enthusiasm for continuous

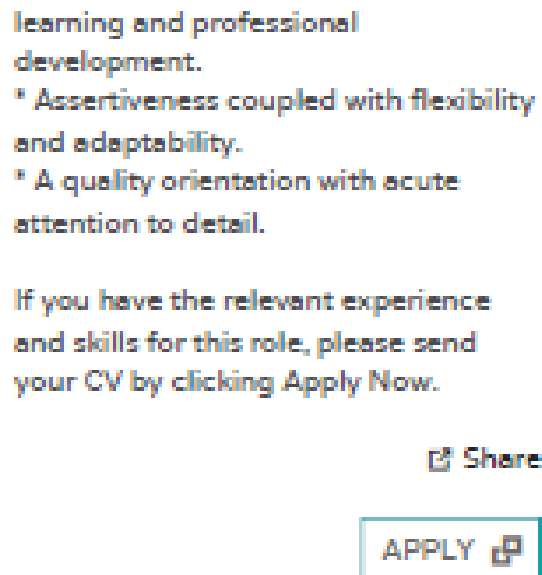


Figure 10 – Job ad n° 2 for a non-senior Project Manager

The sentences in pink illustrate the soft skill *responsibility*. Green is for *problem solving attitude* (sub-soft skill from Robles' category *responsibility*), blue is for *motivating* (sub-soft skill from Robles' category *positive attitude*), red is for *facilitate*, yellow is for *communication* and grey is for *leadership*.

Extracts from job ad n° 2 for a non-senior Project Manager (see first column of Table 12) also illustrate that within a sentence it is possible to find different soft skills (my analysis in the second column):

"(1) supporting, (2) guiding, (3) motivating and (4) facilitating the project teams through the project processes"	(1) from the category <i>teamwork</i> (2) coaching, teaching, training, guiding, mentoring (3) from the category <i>positive attitude</i> (4) facilitate
"(1) excellent facilitation and (2) presentation skills"	(1) facilitate (2) from the category <i>communication</i>
"a person who possesses (1) strong leadership traits, (2) who can work with a minimum of supervision"	(1) leadership (2) self-supervision
"(1) a high level of maturity and (2) ability to handle oneself under pressure"	(1) maturity (2) working under pressure / stress tolerance

Table 12 – sentences with different soft skills

"a (1) methodical (2) problem solver with (3) the ability to motivate and (4) influence others to (5) deliver according to (6) tight deadlines"	(1) methodical (2) from the category <i>responsibility</i> (3) from the category <i>positive attitude</i> (4) impact and influence (5) from the category <i>responsibility</i> (6) from the category <i>work ethic</i>
"an eagerness to (1) organise and (2) lead, (3) showing discipline and (4) pragmatism, (5) drive and (6) a sense of urgency".	(1) organize (2) leadership (3) self-disciplined (4) pragmatism / practical approach (5) from the category <i>work ethic</i> (6) from the category <i>work ethic</i>
"ability to (1) manage people, with (2) strong interpersonal and (3) relationship building skills"	(1) management (2) from the category <i>interpersonal skills</i> (3) from the category <i>interpersonal skills</i>

Table 12 – Sentences with different soft skills

The next five points concentrate on specific soft skills. They are focused on because the way they are referred to in the job ads arguably shows how they can be interpreted.

1 Responsibility

This soft skill is often followed by complements in the ads. These additions can describe tasks, soft or hard skills. I did not systematically count the complements while identifying the soft skills in the ads. For example, if it was written "you will be responsible for..." followed by a hard skill, I did not count the complements (I only counted "responsible for"), as it was a hard skill. Some extracts are shown below. The first two extracts show the soft skill *responsibility* followed by hard skills (in bold in the examples).

- "[...] responsible for **the design, architecture and development of the system and the interfaces** [my emphasis]." (NSS 20)
- "You will be responsible for **developing complex software solutions** [my emphasis] for a new range of Audio Platforms." (SS 1)

By contrast, in the two next extracts, the complements express soft skills (in bold in the examples).

- "Take responsibility for **client relationships** [my emphasis] on delivery of projects to ensure retention and growth accounts." (SP 14)
- "The role of the Senior System Engineer also includes the responsibility of [...] **liaising with the customers** [my emphasis] [...]" (SS 4)

The complements can also simply refer to tasks which were not counted as soft skills (in bold in the examples). This is expressed in the next two extracts.

- "The Project Manager will be responsible for **the requisitioning** [my emphasis] (trigger the need for purchasing of equipment, components)." (NSP 10)
- "The Senior Project Manager will take full responsibility for **the selection and leasing of new commercial properties** [my emphasis]." (SP 3)

Furthermore, it has been noted that the skill *management* (in bold in the examples) follows regularly the idea of *responsibility*. The two extracts below are examples of that.

- "You will be responsible for **the management of** [my emphasis] multiple software focused Technology projects through the full project lifecycle." (NSP 29)
- "The role of the Senior System Engineer also includes the responsibility of **managing** [my emphasis] the other system engineers, [...]" (SS 4)

Finally, Figure 11 illustrates that *responsibility* sometimes heads a whole section in a job ad.

As a Project Manager you will be responsible for:

- Delivery of all projects as per contractual requirements, on time, to quality and cost whilst delighting the customer
- Delivery of all projects using the industry standard process
- Create effective project teams, working with technical team leads, if appropriate to deliver successful projects
- Managing bids for new work
- Work with technical teams to obtain information to produce a project plan in Oracle PRA and maintain this plan through the life of the project
- Ensure requirements are being managed, recorded and signed off in the designated tool for the project
- Maintain a risk register of threats and opportunities for the programme and validate contingency costs against these
- Review the finances on a monthly basis with the financial director and meet the project forecasting system update timescales
- Manage the resource requirements of the projects working with the resourcing function

Figure 11 – Extract from job ad n° 23 for a non-senior Project Manager

In short, concerning the soft skill *responsibility*, it is important to pay attention to their additions in order to understand how recruiters interpret it.

2 Communication

Concerning the soft skill *communication*, it has been observed that the adjective *excellent* co-occurs with it from time to time. To be precise, *excellent communication* occurs in 14 job ads (cf. examples in Table 13). In 29 % of the cases, *excellent communication* is identified in the job ads. Each extract shows the soft skill *communication* with a different adjective. In the right column, you can see the number of ads where the words co-occur.

Extracts	Frequency
"You will have <u>excellent</u> [my emphasis] personal communication skills [...]" (SS 2)	14
" <u>Strong</u> [my emphasis] organisational, [...] and communication skills essential." (NSS 24)	4
" <u>Good</u> [my emphasis] communication skills." (NSP 20)	4
"You must also have [...] <u>superb</u> [my emphasis] communication skills." (SS 12)	3
" <u>Great</u> [my emphasis] communication skills." (SP 15)	2

Table 13 – The soft skill *communication* and its co-occurring adjectives

Another observation is that recruiters tend to put together *communication* and *interpersonal skills*, which are presented as linked. Four extracts illustrate this below.

- "Good written, verbal and interpersonal communication [my emphasis] skills [...]" (SS 28)
- "Good interpersonal skills with the ability to communicate [my emphasis] effectively with all levels of users, suppliers and technical staff in a patient and helpful manner." ((NSS 15)
- "Excellent interpersonal [my emphasis] skills and a strong communicator [my emphasis] through all media types." (SP 19)
- "[...] So excellent interpersonal [my emphasis] and communication [my emphasis] skills are essential." (SS 15)

It is also possible to notice the link between communication and interpersonal skills in some papers under investigation. For example, Deepa and Seth (2013) link *communication* and *interpersonal skills* in their definition of soft skills:

"Soft skills' is an umbrella term covering various survival skills such as **communication and interpersonal skills** [my emphasis], emotional intelligence, leadership qualities, team skills, negotiation skills, time and stress management and business etiquettes."³⁴

Ahsan, Ho & Khan (2013) mention that Stevenson & Starkweather (2010) consider that *communication* is part of *interpersonal skills*:

"In a survey among IT recruiters in the United States, it is found that project managers are recruited based on critical core competencies in the areas of leadership and **interpersonal skills (ability to communicate** [my emphasis] at multiple levels, verbal skills, written skills, ability to deal with ambiguity, and change) (Stevenson & Starkweather, 2010)."³⁵

³⁴ Deepa, S., & Seth, M. (2013). Do Soft Skills Matter? – Implications for Educators Based on Recruiters' Perspective. *IUP Journal Of Soft Skills*, 7(1), 7-20.

³⁵ Ahsan, K., Ho, M., & Khan, S. (2013). Recruiting Project Managers: A Comparative Analysis of Competencies and Recruitment Signals From Job Advertisements. *Project Management Journal*, 44(5), 36-54. doi:10.1002/pmj.21366.

However, in the same paper, Ahsan, Ho & Khan (2013) consider *interpersonal skills* as a sub-category of *communication*:

"In our analysis, 'communication' skills cover sub-categories such as reporting, presenting, relations management, and interpersonal skills."

Finally, Amy Castro (2016) uses the term "interpersonal communication" to define a

"[...] one-on-one communication between two people. [...]. Interpersonal communication includes skills such as empathy, listening, nonverbal communication, word choice, context, social awareness, self-management, and tailoring a message to the receiver."³⁶

3 On time

On time is a sub-soft skill from the category *work ethic*. None of the 120 job advertisements mention that candidates have to be punctual themselves. When this soft skill is referred to, it concerns meeting deadlines for tasks. This idea is illustrated by the following different expressions (in bold in the following extracts):

- "Delivery of projects **on time** [my emphasis] [...]" (SP 19)
- "Must be able to **work under project deadlines** [my emphasis] [...]" (SS 23)
- "Good organisational and **time management skills** [my emphasis]" (NSS 15)
- "Ensuring they [projects] **complete within the agreed time scale** [my emphasis]" (NSP 14)

- "Ability to **meet tight timelines** [my emphasis]" (NSS 16)
- "[...] and develop schedule to **ensure timely completion** [my emphasis] of project" (SP 16).

³⁶ Castro, A. (2016). Does Your Next Generation of Leaders Possess These Critical Communication Skills?. *Government Executive*, 1.

It is also interesting that the skill *on time* often co-occurs with the idea of respecting budgets and delivering top-quality work. Figures 12, 13 and 14 show examples in context.

The position;

- Ensuring that the assigned projects are effectively managed and delivered **to time, cost and quality**
- Ensure all Health and Safety requirements are adhered to highlighting exceptions to senior management

Figure 12 – Extract from the job ad n° 4 for a non-senior Project Manager

Purpose:

As a Project Manager you have the responsibility to manage the delivery of concurrent projects **within budget, time and quality requirements**. You operate with a large degree of autonomy in managing your projects, your key objectives are delivery, quality and business success whilst engineering and promoting a collaborative team focused approach.

Figure 13 – Extract from the job ad n° 20 for a non-senior Project Manager

My client is currently exploring the market for experienced **Senior Embedded System Engineers** with exceptional experience in C++ or C#. Within this position the successful candidate will be responsible to the Head of Equipment & Products for executing allocated Software Work Packages **within agreed cost, time and quality constraints**. The successful Senior Embedded System Engineer will be responsible for demonstrating that the developed product meets all specified customer requirements

Figure 14 – Extract from the job ad n° 3 for a senior System Engineer

4 Customer relationships

Customer relationships could have been added to Robles' category *interpersonal skills*. The definition of *interpersonal skills* is "the ability to create good relationships between yourself and other people"³⁷. However, while analysing the job advertisements, I realised that *customer relationships* are arguably more than interpersonal skills and so it could be considered as a supra soft skill (cf. section 3.2.2 (*Creation of a bank of soft skills*), p. 44). The following extracts represent several elements which make up *customer relationships* (in bold).

"Maintain excellent **communication with the client** [my emphasis] [...]" (NSP 16).

It refers to Robles' category *communication*.

³⁷ Interpersonal skills (2017). In *Macmillan Dictionary*. Retrieved July 9, 2017, from <http://www.macmillandictionary.com/dictionary/british/interpersonal>.

"We are looking for a highly motivated and well organised Software Project Manager to join our team **to work with our clients** [my emphasis] to plan and deliver successful projects." (NSP 17)

"**Provide support to customers** [my emphasis] as and when required." (NSP 28)

The two extracts above refer to Robles' category *teamwork*. "To work with our clients" can be interpreted as teamwork as it is working with people. "Provide support to customers" also refers to teamwork because it is a sub-soft skill of Robles' category *teamwork* (cf. Table 3, p. 45).

The following extract illustrates that *interpersonal skills* can sometimes be concentrated on customers only. Thus, it refers to Robles' category *interpersonal skills*.

"[...] **building strong relationships with** [my emphasis] external and internal **customers** [my emphasis]" (NSS 28).

5 Analytical skills, leadership and management: borderline skills

These three skills could be called "borderline skills" as depending on the context they can be interpreted as soft skills, hard skills or even a mix of both. There is however sometimes not enough information to determine whether we are dealing with either a soft or a hard skill.

Analytical skills seen as ...	Extracts	Job ads
Soft skills	"[...] the ability to critically analyse opportunities [...]"	NSP 15
Hard skills	"Strong data analysis."	SP 26
	"Analysing validation results, you'll identify any anomalies and determine their root cause."	SS 12
Not enough information to know if they are soft or hard skills	"Good analytical skills and motivation by problem solving."	NSS 28
	"An industry leading gambling company is seeking a highly motivated, analytical systems engineer to join their expanding retail channel team."	NSS 11

Table 14 – Analytical skills

Table 14 gives examples of cases where *analytical skills* were regarded (1) as soft skills because what follows *analytical skills* refers to an action that arguably does not require technical skills, (2) as hard skills because the tasks described seem technical, or (3) where it was impossible to determine if it was regarded as hard or soft skills because not enough information was provided (these cases were therefore excluded from the counts).

The examples below illustrate that it is not rare that the skill *problem solving attitude* (from Robles' category *responsibility*) goes with *analytical skills*:

- "You regularly need to exercise excellent **analysis and problem solving skills** [my emphasis]." (NSS 15)
- "[...] forward thinking **problem solver and analytical** [my emphasis] [...]" (SP 3)
- "Evidence of **analytical** [my emphasis], investigative and **problem solving abilities** [my emphasis]." (NSP 17)

Tables 15 and 16 include examples of cases for the skills *management* and *leadership*. It is worth pointing out that when the management and leadership of people are mentioned, *management* and *leadership* are seen as soft skills. By contrast, where things, products or tasks are mentioned, they are seen more as hard skills. It is hardly surprising that *management* and *leadership* are seen as soft skills when they concern management / leadership of people as Deepa and Seth (2013) explain that there is a connection between soft skills and interpersonal interactions. Moreover, Muir (2004, cited in Deepa and Seth (2013)) defines soft skills as "attitudes and behaviours displayed in interactions among individuals that affect the outcomes of various interpersonal encounters."³⁸

³⁸ Muir C (2004), "Learning Soft Skills at Work", *Business Communication Quarterly*, Vol. 67, No. 1, pp. 95-101.

Management seen as ...	Extracts	Job ads
A soft skill	"Ability to manage people, with strong interpersonal and relationship building skills."	NSP 1
	"Managing and developing a small team."	NSP 6
A hard skill	"Managing the logistical arrangements."	NSP 7
	"[...] manage the specification, configuration and integration of these components as part of the overall solution."	NSS 17
Not enough information to know if it is a soft or hard skill	"Identification and management of risks, issues & changes."	SP 19
	"Manage the full project life cycle of assigned projects."	SP 14

Table 15 – Management

Management is regarded as a soft skill when it is surrounded with elements that do not seem to require many technical skills. It is regarded as a hard skill when the description of technical tasks follows it. When it is considered as neither a soft skill nor a hard skill, it is because (1) not enough information was provided to determine it or (2) the line between technical / non-technical skills was too thin.

Table 16 is about the skill leadership. Comments done for *management* could be transposed to *leadership*. However, it is essential to note the difference between management and leadership.

- Management: "The control and operation of a business or organization."³⁹
- Leadership: "The position of being the leader or being in charge of an organization, country etc."⁴⁰

Management emphasizes an aspect of control, whereas leadership concentrates more on being in charge of people or of an organization.

³⁹ Management. (2017). In *Macmillan Dictionary*. Retrieved July 27, 2017, from <http://www.macmillandictionary.com/dictionary/british/management>.

⁴⁰ Leadership. (2017) In *Macmillan Dictionary*. Retrieved July 27, 2017, from <http://www.macmillandictionary.com/dictionary/british/leadership>.

Leadership seen as ...	Extracts	Job ads
A soft skill	"The ability to lead others, balancing directive, coaching and facilitative leadership styles."	SS 9
	"Managing, leading and motivating a team of consultants."	SP 30
A hard skill	"You will support, enhance and provide technical leadership on the current hardware and software technologies and actively provide leadership in developing ICD's, SDK's for existing and future embedded hardware."	SS 22
	"Experience in roles that demonstrate technical leadership and application of system engineering skills, with a track record of delivery."	SS 28
Not enough information to know if it is a soft or hard skill	"We're looking for an experienced Senior Project Manager with change experience across multiple projects to lead a major business transformation (people, process, systems) within a business growing at the moment."	SP 29
	"Exceptional leadership abilities."	SP 9

Table 16 - Leadership

To conclude this section and to answer the second research question (namely "How are the soft skills referred to in the adverts?"), the first point to highlight is that there is a fine line between describing a soft skill and describing a task requiring soft skills. To what extent can we determine whether the words refer to a soft skill? Depending on the context, it is sometimes very clear that recruiters search for a candidate that possesses particular soft skills. However, it is not always the case. Soft skills can also be referred to in a tacit, implicit way. This was illustrated by *flexibility*, *teamwork* and *gets the job done*.

The second point is that there are similarities among the ads in the way soft skills are referred to. For example, it is not rare that recruiters use repetitions to give importance to some soft skills. In most cases, the same words are not reused. Recruiters take either synonyms or different turns of phrase. It is also noticed that specific soft skills co-occur in many job advertisements, as they are connected. Some adjectives are also frequently linked to some skills (and they can be found together in many ads).

The third and final point relates to the meaning given to some skills by recruiters. A skill considered as soft in the scientific literature can arguably be interpreted as hard in some job ads. The boundary between hard and soft skills is not always straightforward. That is why we call some soft skills "borderline soft skills".

4.4 Third research question: In British online job adverts, are there any differences between the soft skills mentioned for senior / non-senior Project Manager and System Engineer positions? If so, what are they?"

To answer the last research question, I will take the hypotheses formulated in section 3.3 (*hypotheses related to the third research question*) as a starting point.

The first hypothesis is that more soft skills will be found in the Project Manager ads than in the System Engineer ads because System Engineers need many hard skills (more than for Project Managers) and they have fewer opportunities to develop their soft skills. This hypothesis is confirmed by my quantitative results (cf. Figure 15). I first set out to calculate the proportion of words used to refer to soft skills in the ads out of the total number of words in the ads (per type of ad under study).

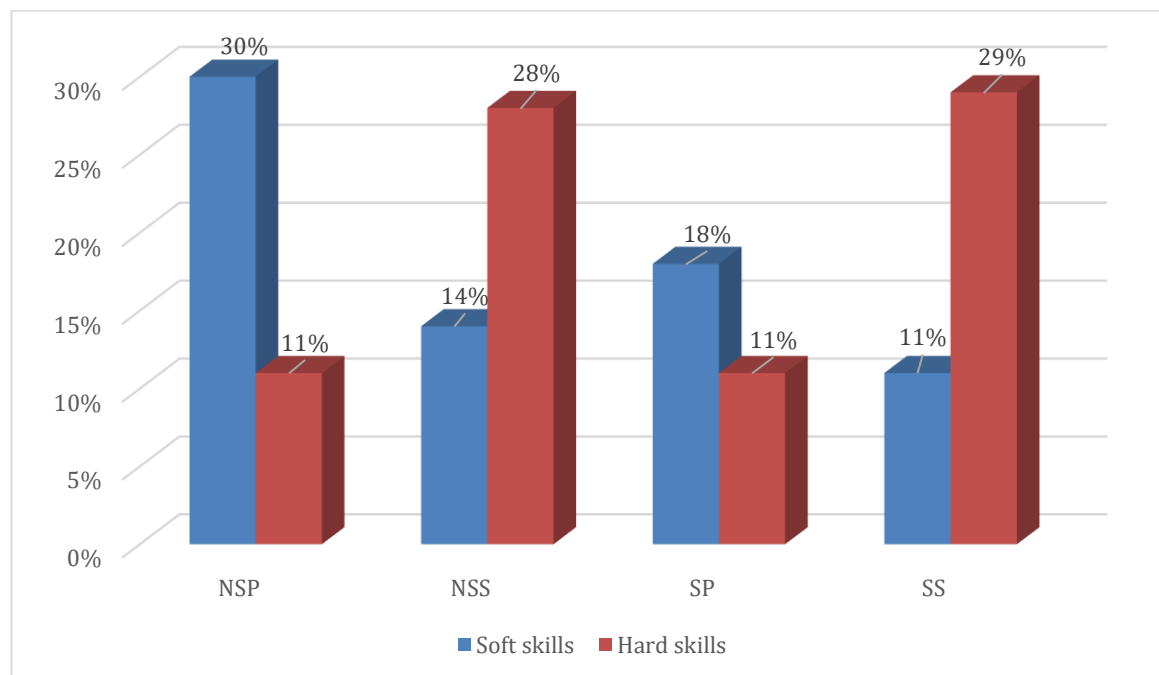


Figure 15 – Proportion of words referring to soft skills in the job ads

As is clear from Figure 15, almost twice as many words are used to talk about soft skills in Project Manager job ads as in System Engineer ads: on average 24 % in Project Manager ads $((30 \% + 18 \%) / 2)$ vs 12,5 % in System Engineer ads $((14 \% + 11 \%) / 2)$. When zooming in on the ads for non-senior Project Managers and System Engineers, it emerges that there are

almost twice as many terms used to refer to soft skills in the non-senior Project Manager ads (30 %) as in the non-senior System Engineer ads (14 %). However, for senior positions, the difference is less marked, with 18 % of the words in the ads used to denote soft skills in the Project Manager ads compared with 11 % in the System Engineer ads.

The second hypothesis, namely that there will be slightly more references to soft skills in the job adverts for non-senior positions than for senior positions, is also supported by my findings. Indeed, entry-level employees need more soft skills because soft skills are a competitive advantage to be differentiated from another candidate or to get a promotion. When results for both jobs are averaged and only levels of seniority are taken into account (NSS with NSP and SS with SP), 22 % $((30 \% + 14 \%) / 2)$ of the words in the ads for non-senior positions refer to soft skills vs 14,5 % $((18 \% + 11 \%) / 2)$ in the ads for senior positions. When results are taken separately (NSP vs SP and NSS vs SS), the **difference** in the proportion of words used to denote soft skills is greater in the Project Manager ads than in the System Engineer ads: 30 % in the ads for non-senior Project Managers vs 18 % in the ads for senior Project Managers (**a 12 % difference**) compared with 14 % of words to denote soft skills in the ads for non-senior System Engineers vs 11 % in the senior System Engineer ads (**a 3% difference**).

Figures about hard skills are also given because it is interesting to see the soft / hard skills ratio. The percentage of hard skills is the same for each job (NSP and SP - NSS and SS): the amount of words used to refer to hard skills for both the non-senior and senior Project Manager ads, is on average 11 %. In the System Engineer ads, that percentage (hard skills) is as follows: 28 % (for non-senior positions) and 29 % (for senior positions). There are almost three times as many words used to refer to hard skills in the System Engineer job advertisements as in the Project Manager job ads. When observing the hard / soft skills ratio per section (NSP, NSS, SP, SS), in the ads for non-senior Project Managers, there are almost three times more words to denote soft skills (30 %) than hard skills (11 %). It is the opposite in the ads for senior System Engineers: 29 % of words refer to hard skills vs 11 % to soft skills. Concerning the non-senior System Engineer ads, they contain twice as many words referring to hard skills (28 %) than to soft skills (14 %). Finally, the difference is less marked (only 7 %) between words denoting soft skills (18 %) and hard skills (11 %) in the senior Project Manager job ads.

In short, the non-senior Project Manager ads contain the most terms that refer to soft skills (30 %). They are followed by the senior Project Manager ads (18 %), the non-senior System Engineer ads (14 %) and the senior System Engineer ads (11 %).

	Soft skills
Non-senior Project Manager ads	30 %
Senior Project Manager ads	18 %
Non-senior System Engineer ads	14 %
Senior System Engineer ads	11 %

Table 17 – Proportion of words referring to soft skills

The third hypothesis is that semi-peripheral and peripheral skills will be more frequently found in the job ads for Project Managers than in the job ads for System Engineers because as there are more words that refer to soft skills in Project Manager ads, they might be more specific and varied than soft skills for System Engineers. The semi-peripheral and peripheral skills mentioned in the hypothesis are those from the scientific literature (cf. Figure 1, p. 52).

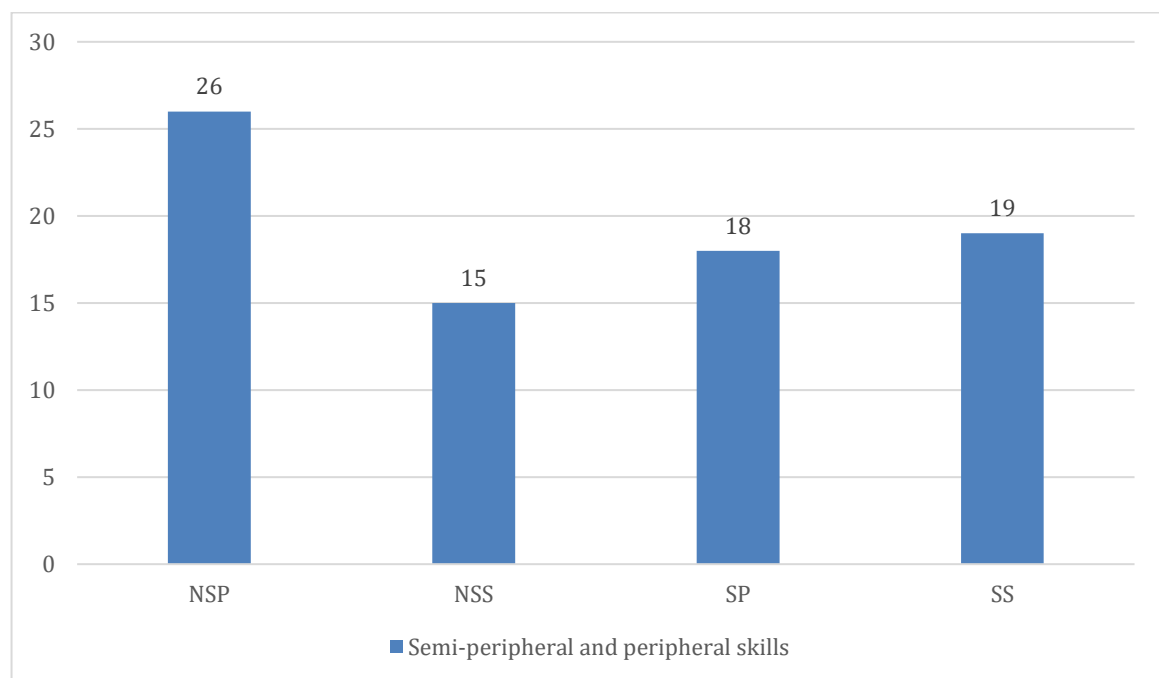


Figure 16 – Semi-peripheral and peripheral skills in job ads

Based on Tables 8, 9 and 10 (cf. section 4.2 (*First research question: Are the soft skills found in the scientific literature identical / similar to the ones observed in the British online job advertisements?*)) and as can be observed from Figure 16, this hypothesis is confirmed if both levels of seniority are grouped (NSP and SP – NSS and SS): the Project Manager ads contain 44 semi-peripheral and peripheral soft skills coming from the papers under study (26+18), whereas the System Engineer ads include 34 semi-peripheral and peripheral skills (15+19). If levels of seniority are taken separately, the hypothesis holds for ads for non-senior positions (26 semi-peripheral and peripheral soft skills in the ads for non-senior Project Managers as opposed to 15 semi-peripheral and peripheral soft skills in ads for non-senior System Engineers), but it is not supported in the ads for senior positions (19 such soft skills in the senior System Engineer ads and 18 such soft skills in the senior Project Manager ads).

The fourth hypothesis is that semi-peripheral and peripheral skills will be more frequently mentioned in the job ads for senior positions than in the job ads for non-senior positions as there might well be some sort of "soft skills" progression depending on the level of seniority. The hypothesis is not verified except for the System Engineer ads: 19 semi-peripheral and peripheral soft skills are found in the senior System Engineer ads, whereas 15 such soft skills are identified in the non-senior System Engineer ads. Otherwise for the Project Manager job advertisements (non-senior: 26 / senior: 18) or when both jobs are grouped (non-senior: 41 / senior: 37), there are more semi-peripheral and peripheral soft skills in the ads for non-senior positions than for senior positions.

In a nutshell, semi-peripheral and peripheral skills were identified mostly in the non-senior Project Manager ads (26). Senior System Engineer and Project Manager ads follow with respectively 19 and 18 semi-peripheral and peripheral skills. Finally, the section with the least semi-peripheral and peripheral skills (the number is 15) is the ads for non-senior System Engineers.

	Number of semi-peripheral and peripheral skills
Non-senior Project Manager ads	26
Senior System Engineer ads	19
Senior Project Manager ads	18
Non-senior System Engineers	15

Table 18 – Number of semi-peripheral and peripheral skills in each job ad section

To complete our answer to the third research question, a comparison is made between the four different sections, namely NSP, NSS, SP and SS. The aim is to observe the similarities and differences in soft skills: which soft skills are core, semi-peripheral or peripheral in some sections and not in others, which soft skills are not identified in some sections, etc. In this regard, Tables 8, 9 and 10 are taken as a basis for the comparison and are included again here (without the column "soft skills found in the scientific literature").

1 Core skills

NSP soft skills	SP soft skills	NSS soft skills	SS soft skills
Communication	Communication	Communication	Communication
Responsibility	Responsibility	Responsibility	Responsibility
Teamwork		Teamwork	Teamwork
Management	Management		
Work ethic			
			Flexibility

Table 19 – Comparison table of the soft skills found in the job adverts: the core skills

Two soft skills are core skills in every section, namely *communication* and *responsibility*. *Teamwork* is absent only from the SP section. In the SP section, *teamwork* is considered as a semi-peripheral soft skill. *Management* appears more frequently in the Project Manager ads than in the System Engineer ads: it is a core skill in the NSP and SP sections, whereas it is a semi-peripheral skill in the System Engineer ad sections (NSS and SS).

2 Semi-peripheral skills

NSP soft skills	SP soft skills	NSS soft skills	SS soft skills
Customer relationships	Customer relationships	Customer relationships	Customer relationships
Interpersonal skills	Interpersonal skills	Interpersonal skills	Interpersonal skills
Positive attitude	Positive attitude		Positive attitude
Leadership	Leadership		Leadership
Coaching, teaching, training, guiding, mentoring	Coaching, teaching, training, guiding, mentoring		Coaching, teaching, training, guiding, mentoring
Flexibility	Flexibility	Flexibility	
	Work ethic	Work ethic	Work ethic
		Management	Management
Identification of risks and opportunities	Identification of risks and opportunities		
		Passion	Passion
		Analytical skills	Analytical skills
Organize		Organize	
	Supervision / oversee		Supervision / oversee
Plan			Plan
Coordinate			Coordinate
Persuasion and negotiation			
Multi-tasking			
Impact and influence			
Awareness of how business works			
	Self-supervising / independent / self-starter		
	Teamwork		
			Integrity
			Creativity

Table 20 - Comparison table of the soft skills found in the job adverts: the semi-peripheral skills

Only two soft skills are semi-peripheral skills in each section. They are *customer relationships* and *interpersonal skills*. *Positive attitude*, *leadership* and *coaching, teaching, training, guiding, mentoring* are semi-peripheral skills in three out of the four sections. These three skills were not often identified in the non-senior System Engineer ads. That is why, for this section, they are considered as peripheral skills. *Flexibility* is a semi-peripheral skill except in the SS section, in which it is a core skill. *Work ethic* is a semi-peripheral skill except in the NSP section, in which it is a core skill. *Identification of risks and opportunities* is seen as a semi-peripheral skill in the Project Manager job ads, whereas it is considered as a peripheral skill in the System Engineer job ads. It is the reverse for the skills *passion* and *analytical skills*: they are more frequently identified in the System Engineer job ads (semi-peripheral

skills) than in the Project Manager ads (peripheral skills). It is also possible to find similarities when analysing the levels of seniority: *organize* is a semi-peripheral skill for non-senior positions. It is more rarely found in the job ads for senior positions (peripheral skill). In the ads for senior positions, *supervision / oversee* is more often identified (semi-peripheral skill) than in the ads for non-senior positions (peripheral skill). *Plan* and *coordinate* are semi-peripheral skills for the NSP and SS sections and they are peripheral skills in the SP section. Concerning the NSS section, *coordinate* is seen as a peripheral skill but *plan* was not identified in such job ads. Finally, *awareness of how business works* was found only in the ads for non-senior Project Managers.

3 Peripheral skills

NSP soft skills	SP soft skills	NSS soft skills	SS soft skills
Courtesy	Courtesy	Courtesy	Courtesy
Professionalism	Professionalism	Professionalism	Professionalism
Self-supervising		Self-supervising	Self-supervising
Decision-making		Decision-making	Decision-making
Prioritise tasks		Prioritise tasks	Prioritise tasks
Methodical		Methodical	Methodical
Commercial awareness	Commercial awareness		Commercial awareness
Pragmatism / practical approach	Pragmatism / practical approach		Pragmatism / practical approach
Innovative	Innovative		Innovative
Caring about seeing the company succeed	Caring about seeing the company succeed	Caring about seeing the company succeed	
Integrity	Integrity	Integrity	
	Multi-tasking	Multi-tasking	Multi-tasking
Creativity	Creativity		
	Organize		Organize
	Persuasion and negotiation		Persuasion and negotiation
	Impact and influence	Impact and influence	
	Coordinate	Coordinate	
Stress tolerance			Stress tolerance
Delegating	Delegating		
Commercial acumen	Commercial acumen		
Planning resources	Planning resources		
Facilitate	Facilitate		
Passion	Passion		
Analytical skills	Analytical skills		
Autonomy		Autonomy	
Supervision / oversee		Supervision / oversee	
		Identification of risks and opportunities	Identification of risks and opportunities

NSP soft skills	SP soft skills	NSS soft skills	SS soft skills
Having a personal vision and goal			
Ability to conceptualize			
Brave and fearless			
Maturity			
Skills in people management			
Critical thinking skills			
Self-reliance			
	Manipulation skills		
	Plan		
		Ingenuity	
		Coaching, teaching, training, guiding, mentoring	
		Leadership	
		Positive attitude	
			Networking
			Focused
			Abstract thinking
			Rationally minded

Table 21 - Comparison table of the soft skills found in the job adverts: the peripheral skills

Courtesy and *professionalism* are peripheral skills common to all sections. *Self-supervising*, *decision-making*, *prioritise tasks* and *methodical* are peripheral skills in three sections (NSP, NSS and SS). They are not peripheral skills in the senior Project Manager ads because, in this specific section, either they are seen as semi-peripheral skills (it is the case only for *self-supervising*) or they were not identified in such ads. *Commercial awareness*, *pragmatism / practical approach* and *innovative* are peripheral skills, except in the NSS section. The only reason is that they were simply not present in the job ads for non-senior System Engineers. *Caring about seeing the company succeed* and *integrity* are not peripheral skills in the SS section. The first skill does not appear in such job ads and the second skill is seen as a semi-peripheral skill in this section. *Multi-tasking* is considered as semi-peripheral in the NSP section and as peripheral in the other sections. *Creativity* is a peripheral skill in the Project Manager ads and a semi-peripheral skill in the senior System Engineer ads. *Persuasion and negotiation* is peripheral in the job ads for senior positions and semi-peripheral in the ads for non-senior Project Managers. It was not identified in the ads for non-senior System Engineers. *Impact and influence* is considered as peripheral in the SP and NSS sections, as semi-peripheral in the NSP section and it does not appear in the ads for senior System Engineers. *Stress tolerance* is a peripheral skill in the NSP and SS sections. It was not detected in the ads for the SP and NSS sections.

Delegating, commercial acumen, planning resources and facilitate were found only in the job ads for Project Managers. *Autonomy* was identified only in the ads for non-senior positions. Some skills appear only in one specific section: the skills *awareness of how business works, having a personal vision and goal, ability to conceptualize, brave and fearless, maturity, skills in people management, critical thinking skills* and *self-reliance* can be found only in the non-senior Project Manager ads. *Manipulation skills* was identified once in an ad for a senior Project Manager. *Ingenuity* appears only once in an ad for a non-senior System Engineer. The peripheral skills *networking, focused, abstract thinking* and *rationally minded* were detected only in the senior System Engineer ads.

To sum up this section, it can be noted from the four hypotheses that (1) more soft skills were found in the job ads for Project Managers than in the job ads for System Engineers and that (2) more soft skills were identified for non-senior positions than for senior positions. Thus, the first two hypotheses have been confirmed.

Concerning the first hypothesis, it is hardly surprising that more soft skills are found in the Project Manager ads than in the System Engineer ads because soft skills are at the core of the job of Project Manager and hard skills are at the core of the job of System Engineer. This is confirmed in the literature: Napier, Keil & Tan (2009) define Project Managers in citing only soft skills such as quick to adapt, flexible, effective, organised, management of a team, know how to negotiate, get on with people and strong interpersonal skills. Skulmoski & Hartman (2010, cited in Ahsan, Ho & Khan (2013)) do the same and enumerate only soft skills such as communication, leadership and working in the most professional approach. They leave little room for hard skills. It is the reverse with the job of System Engineer: Raphaël Javaux (personal communication, August 2016) and Anthony Gerontitis (personal communication, June 2017), two computer specialists, think that System Engineers do not require many soft skills because they are very concentrated on the machine. In the literature, Nguyen (1998) argues that it would be better if System Engineers had soft skills in order to work with effectiveness. However, as explained by Davis (2006), it is difficult for them to acquire soft skills, because they need to keep their many hard skills up-to-date. System Engineers lack time to focus on both hard and soft skills.

Concerning the second hypothesis, more soft skills were identified for non-senior positions than for senior positions. Wilhelm (2004, cited in Deepa & Seth (2013)) and an Assistant Manager interviewed by Deepa & Seth (2013) support my findings in reporting that soft skills

are more fundamental to the success of non-senior employees than for those in higher positions. However, authors are divided about this idea. For example, Deepa & Seth (2013) carried out a study among Indian companies and found that the respondents, mid-level and top-level executives, answered that they regarded soft skills to be equally important for entry-level employees and for top management.

The third and fourth hypotheses were partially supported, depending on whether the results of the four sections (NSP, NSS, SP, SS) were taken separately or grouped together (for the third hypothesis: NSP and SP sections together and NSS and SS sections together. For the fourth hypothesis: NSP and NSS sections together and SP and SS sections together). I expected that there would be more semi-peripheral and peripheral skills in Project Manager ads because there would be more soft skills for this job. However, it is confirmed only for the non-senior positions. I also expected to find more semi-peripheral and peripheral skills in the job ads for senior positions than for non-senior positions, but it is not the case. Hard skills were also examined and, unsurprisingly, hard skills are more frequently found in the System Engineer job ads than in the Project Manager job ads.

From the in-depth analysis, it can be concluded that only two soft skills are shared by the NSS, NSP, SS and SP sections for each subset: *communication* and *responsibility* for the **core skills**; *customer relationships* and *interpersonal skills* for the **semi-peripheral skills**; *courtesy* and *professionalism* for the **peripheral skills**. The reason why only two soft skills are shared per subset is that some soft skills are more frequent in some sections than in others. It does not mean, however, that these soft skills are completely absent from some sections. For example, *teamwork* is present in all sections (NSP, NSS, SS and SP), but it is very frequent (= core skill) in the NSP, NSS and SS sections and frequent in the SP section (= semi-peripheral skill). In fact, most soft skills can be found in all four sections but they do not belong to the same core, semi-peripheral or peripheral subsets.

Only eight soft skills were identified in the NSP section and in no other sections. Concerning the SP and NSS sections, only one soft skill was identified in these sections and not in the NSP and SS sections. For the last section (SS), four soft skills were identified in it and in no other sections.

Soft skills that are unique in each section			
NSP section	SP section	NSS section	SS section
Awareness of how business works	Manipulation skills	Ingenuity	Networking
Having a personal vision and goal			Focused
Ability to conceptualize			Abstract thinking
Brave and fearless			Rationally minded
Maturity			
Skills in people management			
Critical thinking skills			
Self-reliance			

Table 22 - Soft skills that are unique in each section

In section 1.2 (*Soft skills: their importance in the corporate world*), it is mentioned that Mishra (2014) identifies four soft skills appearing to be the most substantial for recruiters: communication skills, a problem-solving attitude, interpersonal skills and the ability to work as part of a team. It can arguably be said that the findings support this statement: communication is very frequent in each section (NSP, NSS, SP and SS), as it is a core skill in every job ad section. Problem-solving attitude is a sub-soft skill of the category *responsibility*. It is more frequent in the non-senior System Engineer and Project Manager ads and less frequent in the senior System Engineer and Project Manager ads. Interpersonal skills are frequent for each position, as they are semi-peripheral skills in every job ad section. Teamwork is very frequent in three out of four job ad sections (NSP, NSS and SS sections) and frequent in the SP section.

In the paper "What is Project Management?" (n.d., 2016), the three main goals of the job of Project Manager seem to be to finish projects on time, to respect clients' expectations and to respect the budget. In the article "Who are Project Managers" (n.d., 2016), Project Managers are also portrayed as organized, motivated and focused on achieving goals. They also need to be able to adapt to change. These descriptions include plenty of soft skills. Each soft skill is displayed in Table 23 and is commented with what was found in the job ads.

To finish projects on time	The findings support that <i>on time</i> arguably seems important for the job of Project Manager because it is very frequent in the job ads (see section 4.5.1 (<i>Frequent sub-soft skills</i>))
To respect clients' expectations	<i>Customer relationships</i> are semi-peripheral skills in each job ad section. Thus, it is frequent to find them in the Project Manager ads.
To respect the budget	In section 4.3 (<i>Second research question: How are the soft skills referred to in the adverts?</i>), it is explained that the idea of respecting budgets often co-occurs with the soft skill <i>on time</i> .
Organized	It is surprising to see that <i>organized</i> is not so frequent in the SP ads as it is considered as a peripheral skill. However, it is a semi-peripheral skill in the NSP ads.
Motivated	<i>Motivated</i> is a sub-soft skill of the category <i>work ethic</i> . It is more frequent in the NSP ads (present in 9 job ads) than in the SP ads (present in 2 job ads). This situation is hardly surprising, as you have to prove your worth if you want to get a promotion. If you are a senior Project Manager, you have arguably already proved your worth.
Focused on achieving goals	It is a sub-soft skill of the category <i>responsibility</i> . <i>Responsibility</i> is a core skill of all job ad sections. <i>Focused on achieving goals</i> is the main sub-soft skill of <i>responsibility</i> in the NSP section and the second sub-soft skill in the SP section. Thus, it is very frequent in the Project Manager job ads.

To adapt to change	<i>Adaptability</i> and <i>willing to change</i> are sub-soft skills of the category <i>flexibility</i>. According to the paper "Who are Project Managers?", they are characteristics of a Project Manager. However, they are not often found in the NSP and SP sections: In the NSP section, <i>willing to change</i> is not in the ads and <i>adaptability</i> is in four job ads. In the SP section, <i>adaptability</i> is not in the ads and <i>willing to change</i> is in three job ads.
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Table 23 – Characteristics of a Project Manager

Such a table could not be done for System Engineers because this job was not described with specific soft skills in the papers under study.

Finally, it can be concluded that, in British online job adverts, there are differences between the soft skills mentioned for senior / non-senior Project Manager and System Engineer positions. This section is concluded with several final comments: more ***analytical skills*** were unsurprisingly identified in the System Engineer ads (= semi-peripheral skills) than in the Project Manager ads (= peripheral skills) because System Engineers need to have a very logical reasoning to develop processes, launch and test new systems and manage multidimensional mathematical models, as explained in the paper "What is Systems Engineering? (n.d., 2016). ***Analytical skills*** were not highlighted in the literature about Project Managers. It was also expected that the soft skill ***supervision / oversee*** was more often identified in the senior job ads than in the non-senior job ads because supervising is arguably one of the key roles of a senior position. This soft skill is semi-peripheral in the SP and SS sections and peripheral in the NSP and NSS sections. It was surprising to identify the soft skill ***passion*** more often in the System Engineer ads (passion is a semi-peripheral skill) than in the Project Manager ads (passion is a peripheral skill). However, it suggests that maybe the System Engineer job requires more passion than other jobs because System Engineers have to continuously keep their knowledge and know-how up-to-date. This requires a great deal of effort. ***Coaching, teaching, training, guiding, mentoring*** is a semi-peripheral skill in the NSP, SP and SS sections (and a peripheral skill in the NSS section). It was unexpected to find this skill frequently in the NSP section because, in my opinion, this skill is more required for senior positions as someone who is senior is "more experienced than the other members of a

team"⁴¹. Thus, senior people could teach, coach, train, guide or mentor less experienced workers.

4.5 Additional remarks

In this section, three additional points will be discussed. The first concerns sub-soft skills that have a great deal of weight in their respective category. The second discusses two job advertisements that are linked. The third concerns the features that tend to co-occur in the senior job ads.

4.5.1 Frequent sub-soft skills

Some sub-soft skills (cf. Table 6, p. 47)) have a big impact on their category. It means that it is particularly thanks to them that their respective category has gained importance and is mentioned as core skills (or semi-peripheral skills in some cases). Table 24 gives an example for the main sub-soft skill *on time* in the category *work ethic*. This example comes from the NSP section.

Work ethic (= name of the category)	0
on time	27
self-motivated	9
hard working / persistence / determination	7
proactive	4
results focused	4
initiative	3
efficiency	2
willing to work	2
loyal	0
personal effectiveness	0
good attendance	0

Table 24 – The main sub-soft skill *on time* and its frequency in the NSP section

The sub-soft skill *on time*, in blue, was identified 27 times in the job ads for non-senior Project Managers. Compared to the other sub-soft skills of the category *work ethic*, *on time* stands

⁴¹Senior. (2017). In *Cambridge Dictionary*. Retrieved from <http://dictionary.cambridge.org/dictionary/english/senior?q=Senior>.

out. That is why it is the main sub-soft skill of the category *work ethic*. The second sub-soft skill most frequently identified is *self-motivated*. It occurs only nine times.

In Tables 25, 26 and 27, other such sub-soft skills are mentioned. They are given by section, as the situation is not the same from one section to another.

In the job ads for non-senior System Engineers

Flexibility (= name of the category)	4
professional development (training, further career)	12
travelling	3
available (extra hours, weekends)	3
investigative	1
teachable	0
accepts new things	0
inquiring	0
adaptability	0
willing to change	0
lifelong learner	0
adjusts	0
personality development	0
demonstrating resilience	0

Table 25 – The main sub-soft skill *professional development* and its frequency in the NSS section

In the job ads for senior Project Managers

Work ethic (= name of the category)	0
on time	9
hard working / persistence / determination	4
self-motivated	2
efficiency	2
proactive	2
willing to work	2
initiative	1
personal effectiveness	1
results focused	1
good attendance	0
loyal	0

Table 26 – The main sub-soft skill *on time* and its frequency in the SP section

In the job ads for senior System Engineers

Flexibility (= name of the category)	1
professional development (training, further career)	10
travelling	3
inquisitive	2
available (extra hours, weekends)	1
adaptability	1
adjusts	1
teachable	0
accepts new things	0
inquiring	0
willing to change	0
lifelong learner	0
personality development	0
demonstrating resilience	0

Table 27 – The main sub-soft skill *professional development* and its frequency in the SS section

It is noteworthy that in the Project Manager job ads, this phenomenon always occurs with the sub-soft skill *on time*. In the System Engineer job ads, it always happens with the sub-soft skill *professional development*. These two sub-soft skills arguably seem important for these jobs.

4.5.2 Job ads n° 4 and n° 5 for a senior System Engineer

The job ad n° 4 for a senior System Engineer was published by Anthony James Consulting, which is an employment agency. The job ad n° 5 for a senior System Engineer was published by another recruitment firm, Computappoint. While analysing both ads, it was noticed that they were about the same job. They are illustrated in Figures 17 and 18. The words in yellow highlight the fact that these job ads are for the same job in the same company.

< Back to search results (/JobSearch/Results.aspx?s=header&sp=%2fJobSearch%2fResults.aspx&Keywords=Senior+System+Engineer&Radius=10&_id=1470839029547#66252556)

< (/JobSearch/JobDetails.aspx?s=header&sp=%2fJobSearch%2fResults.aspx&Keywords=Senior+System+Engineer&Radius=10&_id=1470839029547&JobId=66308785)

> (/JobSearch/JobDetails.aspx?s=header&sp=%2fJobSearch%2fResults.aspx&Keywords=Senior+System+Engineer&Radius=10&_id=1470839029547&JobId=66276054)

Senior System Engineer

Apply on your phone

Portsmouth (PO3), Portsmouth

From £35,000 to £40,000 per annum

Anthony James Consulting (/jobs-at/anthony-james-consulting/jobs)

Permanent

Expires today

Send

APPLY (/JOB/66252556/APPLY?S=HEADER&SP=%2FJOBSEARCH%2FRESULTS.ASPX&KEYWORDS=SENIOR+)

Senior System Engineer - Portsmouth - IT Services **Consultancy**

35,000K - 40,000K base + 25 days holiday, Pension, life insurance, health insurance.

Excellent opportunity for a Senior System Engineer to join a dynamic **IT Infrastructure Technology Services organisation/consultancy** who supply high calibre resources to a variety of blue chip clients (Financial Services/Insurance/Banking/Telecoms).

This role is for a senior system engineer within managed services **performing remote build services of physical & virtual servers with the additions of extra server resources and software as required by the customers**. All builds should be built to defined SLAs based on standard operating procedures, each build requires multiple validation processes to be documented and approved to ensure identical builds are performed to the high level standard demanded.

The role of the Senior System Engineer also includes the responsibility of managing the other system engineers, ensuring build demands are met, liaising with the customers, maintaining reports and work flows of the entire build services we offer. Also ensure quality of delivery to clients to ensure client satisfaction, and best position the company for additional business and work with the account manager to ensure opportunities and issues are handled effectively.

Key Responsibilities for the Senior System Engineer:

- Build physical and virtual servers to predefined OS levels **(AIX, Linux, Windows)**
- Add extra software, resources to each build as required by each build request
- Follow validation processes to ensure builds all built to correct spec within SLA timelines
- Run calls & meetings as required to liaise with customer on build progress
- Manage system engineers, allocate build demands to ensure optimal turnaround of requests
- Ensure build requests are managed end to end from initial request thought to completion and handover
- Create and maintain reports showing build demand, requests and billing quantities
- Maintain and create as required all build technical processes and SOP documents
- Mentor peers and junior staff in the organization where needed
- Identify opportunities for extending business opportunities

Experience required for the Senior System Engineer:

- Minimum of 5 years IT background and experience
- Minimum of 2 years experience managing a technical team and demand throughputs

Send

APPLY (/JOB/66252556/APPLY?S=HEADER&SP=%2FJOBSEARCH%2FRESULTS.ASPX&KEYWORDS=SENIOR+)

Figure 17 – Job ad n° 4 for a senior System Engineer

< Back to search results (/JobSearch/Results.aspx?s=header&sp=%2fJobSearch%2fResults.aspx&Keywords=Senior+System+Engineer&Radius=10&_=1470838906847#66308785)
 < () > (/JobSearch/JobDetails.aspx?s=header&sp=%2fJobSearch%2fResults.aspx&Keywords=Senior+System+Engineer&Radius=10&_=1470838906847&JobId=66252556)



Senior System Engineer - Consultancy - Perm - Portsmouth - £40K

(/jobs-
 Portsmouth, Hampshire

£35000 - £40000 per annum

ComputAppoint (/jobs-at/computappoint/jobs)
 at/computappoint/jobs)

Permanent

Today

Send

APPLY (/JOB/66308785/APPLY?S=HEADER&SP=%2FJOBSEARCH%2FRESULTS.ASPX&KEYWORDS=SENIOR+)

Senior System Engineer - Consultancy - Permanent - Portsmouth - £Up to £40K

Skills: AIX/ Linux/ Windows

My client is a leading IT Managed Service Consultancy who is looking for a Senior System Engineer to join on a permanent basis in their Portsmouth office.

The System Engineer will be performing remote build services of physical & virtual servers with the additions of extra server resources and software as required by the customers. The role will also include the responsibility of managing the other system engineers, ensuring build demands are met.

The role requires an enthusiastic and motivated candidate who wants to enhance and develop a strong technical skillset.

Essential Skills:

- AIX
- Windows
- Linux
- Experience performing remote build services
- Extensive server experience

Skills: AIX/ Linux/ Windows

Senior System Engineer - Consultancy - Permanent - Portsmouth - £Up to £40K

Computappoint is acting as an Employment Agency in relation to this vacancy.

Send

APPLY (/JOB/66308785/APPLY?S=HEADER&SP=%2FJOBSEARCH%2FRESULTS.ASPX&KEYWORDS=SENIOR+)

Figure 18 – Job ad n° 5 for a senior System Engineer

The location, salary, job type (permanent), company type (consultancy) and some skills are the same in both job ads. These elements are arguably sufficient to say that it is for the same job in the same company. Moreover, two sentences are almost identical in the body text. It is interesting to compare these two job ads because it shows that recruiters can describe one and the same job very differently. Job ad n° 4 is longer as it contains 377 words (vs 175 words in job ad n° 5). There are more soft skills (25 %) and fewer hard skills (16 %) in job ad n° 4 than in job ad n° 5. For job ad n° 5, it seems curious that the ratio is reversed: 16 % of soft skills

and 23 % of hard skills. This suggests that job ad n° 4 is more focused on soft skills than job ad n° 5. This last remark also illustrates the fact that sometimes there are more soft skills than hard skills in the System Engineer job ads. In section 4.4 about the third research question, it was said that there are more hard skills than soft skills in the System Engineer ads and more soft skills than hard skills in the Project Manager ads on average. However, there are exceptions (like job ad n° 4).

4.5.3 Senior job ads' features

In section 3.1 (*research questions*), it has been attempted to differentiate the terms "non-senior" and "senior" through definitions. The Cambridge Dictionary Online specifies that "senior" means "older and more experienced than the other members of a team"⁴². When comparing with what is written in the job ads, the fact that someone has more experience when they are senior is arguably confirmed. Table 28 shows the years of experience referred to in the job adverts. Even if almost every job ad mentions that experience is required, it is not always exactly specified how many years. Years of required experience are mentioned in 12 out of 30 senior System Engineer job advertisements, in 10 out of 30 senior Project Manager job adverts, in 4 out of 30 non-senior System Engineer job adverts and in 8 out of 30 non-senior Project Manager job adverts.

Experience				
Years of experience	SS job ads	SP job ads	NSS job ads	NSP job ads
2+ years	2	2	2	4
5+ years	9	7	2	4
7+ years	1	1		

Table 28 – years of experience in the job ads

It is observed from Table 28 that more than five years of experience are on average required for senior positions (in ten senior System Engineer ads and in eight senior Project Manager ads). More than five years of experience are also required in some non-senior job advertisements, but in fewer job ads than for senior positions (in two non-senior System Engineer ads and in four non-senior Project Manager ads). More than five years of experience can seem to be hard to have for a candidate searching for a non-senior position. However, Dehaas (2014) explains that the aim of such a sentence is to make sure that job-seekers interviewed have at least some preparation for the world of work.

⁴²Senior. (2017). In *Cambridge Dictionary*. Retrieved from http://dictionary.cambridge.org/dictionary/english/senior?q=Senior_

"Having a high position in an organization, company, etc."⁴³ was another definition of "senior" given in the Longman Business English Dictionary. It was arguably thought that the higher the position is, the higher the salary. Table 29 shows the amounts of salary that are promised in the job ads. Information about the salary is given in most job advertisements: in 23 out of 30 senior System Engineer job ads, in 21 out of 30 senior Project Manager ads, in 19 out of 30 non-senior System Engineer job ads and in 18 out of 30 non-senior Project Manager job ads.

Salaries				
Salaries per annum	SS job ads	SP job ads	NSS job ads	NSP job ads
£ 25,000 – 40,000	8	1	7	8
£ 40,000 – 55,000	10	3	10	7
£ 55,000 – 70,000	5	12	2	3
£ 70,000 – 85,000		4		
£ 85,000 – 100,000		2		

Table 29 – Salaries in the job ads

It is observed from Table 29 that salaries are higher for senior Project Manager positions (salaries are less than £ 55,000 per annum in only four out of 21 job advertisements). In the other job ad sections, namely SS, NSS and NSP job ad sections, salaries are on average less than £ 55,000 per annum. Thus, the assumption that salaries are higher for senior positions than for non-senior positions is confirmed for the job of Project Manager, but not especially for the job of System Engineer. The job board Executivesontheweb (cf. section 3.2.1 (*Selection of job adverts on specific job sites*)) is specialised in senior positions. According to the United Kingdom Career Guide (2013), Executivesontheweb uses the salary as a criterion to determine if the job is for a senior candidate. It says that senior candidates must have a salary level exceeding £ 40,000 per annum. In the job ads under study, it is arguably confirmed for senior Project Managers, but not entirely for senior System Engineers as eight out of 23 job ads inform that the salary is under £ 40,000 per annum.

⁴³ Senior. (2007). In *Longman Business English Dictionary* (p. 488).

General conclusion

The aims of this dissertation were to examine soft skills in job advertisements and investigate which soft skills were the most frequent and how they were referred to. To this end, the study was limited to British job ads for non-senior and senior Project Managers and System Engineers. In a future study, other advertisements could be used: ads from different countries, adverts for manual work (blue-collar jobs, craftsmen, ...) versus "intellectual" work (white-collar jobs, engineers, teachers, ...), adverts for only one type of job, etc. These various options could lead to other interesting results.

This thesis sought to provide firstly a brief overview of the discussion on soft skills and job adverts in literature. Secondly, the following three research questions were formulated:

- (1) Are the soft skills found in the scientific literature identical / similar to the ones observed in the British online job advertisements?
- (2) How are the soft skills referred to in the adverts?
- (3) In British online job adverts, are there any differences between the soft skills mentioned for senior / non-senior Project Manager and System Engineer positions? If so, what are they?

In an attempt to answer these questions, it was decided to select online job ads, create a bank of soft skills based on the literature, classify soft skills into core, semi-peripheral and peripheral skills and analyse them in job ads. These steps were designed to be as objective as possible. Four hypotheses were also formulated about the overall expected results for the third research question. Finally, in the fourth chapter, the results of the analysis were discussed across the three research questions. A fourth section highlighted additional observations.

The findings showed that the soft skills *responsibility*, *teamwork* and *communication* are the most frequent both in the literature and in the job ads under study. Recruiters seek out people able to work and communicate with others and who can act responsibly. How the three subsets, namely core, semi-peripheral and peripheral skills, were defined impacted on this result. Carried out differently, it could have shown, for example, more core skills common to the five sections (NSS, SS, NSP, SP and the soft skills found in the scientific literature). The

way the soft skills were classified into core, semi-peripheral and peripheral skills could therefore be regarded as one of the limitations of this study.

Another observation was that there was great diversity regarding how soft skills are referred to: to describe a soft skill, the same words as in the scientific literature, synonyms or different turns of phrase were used. This very much depends on the soft skill analysed. The line between hard and soft skills was not always obvious. Most of the soft skills found in published papers were also present in job advertisements. It is important to note that some of these skills seem to be considered differently: some of the skills clearly presented as soft skills in the literature were arguably seen as hard skills in the job ads. Elements surrounding these specific soft skills enabled us to note this phenomenon.

Regarding the two levels of seniority, namely non-senior and senior, it should be pointed out that more soft skills were identified for non-senior than for senior positions. However, the senior / non-senior distinction is not necessarily clear-cut or straightforward: a non-senior position in a company can be considered as a senior position in another company, depending on the corporate culture. Therefore, a future research project could compare soft skills required for junior and senior positions, these being better differentiated. This idea was the first in mind when starting the research. It was abandoned, however, because, job ads for junior positions turned out to be rather rare.

Finally, depending on the jobs under investigation, soft skills were more frequent or less frequent than hard skills in the job advertisements. The comparison between Project Manager and System Engineer ads revealed that more soft skills were identified in job advertisements for Project Managers. It seems that recruiters do not enhance soft skills for jobs requiring many technical skills, such as System Engineers. However, we should be careful not to overgeneralize this observation. To either refute or confirm this hypothesis, it could be interesting to replicate the study and analyse job ads for other technical positions. Another possibility would be to participate in job interviews for System Engineers and to observe if recruiters highlight soft skills. What is reflected in job ads does not necessarily reflect what is crucial for recruiters. Nevertheless, as explained by Mc-Kenna and Beech, "what appears in the advertisement should assist rather than hinder the applicant in deciding whether or not he or she is interested in joining the organization."⁴⁴

⁴⁴ Mc-Kenna, E. F., & Beech, N. (1995). *The essence of human resource management*. London: Prentice Hall.

References

- About us. (2016). (n.d.). Retrieved November 24, 2016, from <https://www.cwjobs.co.uk/about-us>.
- Adams, S. (2014). Secrets Of Making The Most Of Job Search Websites. *Forbes.Com*, 13.
- A. Gerontitis, personal communication, June 2017.
- Ahsan, K., Ho, M., & Khan, S. (2013). Recruiting Project Managers: A Comparative Analysis of Competencies and Recruitment Signals From Job Advertisements. *Project Management Journal*, 44(5), 36-54. doi:10.1002/pmj.21366.
- Askehave, I. (2010). Communicating leadership: A Discourse Analytical Perspective on the Job Advertisement. *Journal Of Business Communication*, 47(3), 313-345. doi:10.1177/0021943610365310.
- Backhaus, K. B. (2004). An exploration of corporate recruitment descriptions on Monster.com. *Journal Of Business Communication*, 41(2), 115-136. doi:10.1177/0021943603259585.
- Blackman, A. (2006). Graduating Students' Responses to Recruitment, Advertisements. *Journal Of Business Communication*, 43(4), 367-388. doi:10.1177/0021943606291705.
- Cappelli, P. H. (2015). Skill Gaps, Skill Shortages, and Skill Mismatches: Evidence and Arguments for the United States. *Industrial & Labor Relations Review*, 68(2), 251-290. doi:10.1177/0019793914564961.
- Cassata, C. (2015). Getting that new job takes shine. *Officepro*, 75(3), 12-15.
- Castro, A. (2016). Does Your Next Generation of Leaders Possess These Critical Communication Skills?. *Government Executive*, 1.
- Challa Ram Phani, S. S. J. (2007, January 8). The top 60 soft skills at work. Retrieved March 23, 2017, from <http://www.rediff.com/getahead/2007/jan/08soft.htm>.
- Coleman, A. (2001). The Web gets personnel. *Director*, 54(8), 70.
- Commitment. (2017). In *Macmillan Dictionary*. Retrieved July 6, 2017, from <http://www.macmillandictionary.com/dictionary/british/commitment>.
- Coordinate. (2017). In *Macmillan Dictionary*. Retrieved July 7, 2017, from http://www.macmillandictionary.com/dictionary/british/coordinate_1.
- Creativity. (2017). In *Macmillan Dictionary*. Retrieved July 6, 2017, from <http://www.macmillandictionary.com/dictionary/british/creativity>.
- Dabke, D. (2015). Soft Skills as a Predictor of Perceived Internship Effectiveness and Permanent Placement Opportunity. *IUP Journal Of Soft Skills*, 9(4), 26-42.

- Davis, D. C., & Woodward, B. (2006). An analysis of skills required of graduates of an information systems program. *Information Technology, Learning & Performance Journal*, 24(2), 11-21.
- Deepa, S., & Seth, M. (2013). Do Soft Skills Matter? – Implications for Educators Based on Recruiters' Perspective. *IUP Journal Of Soft Skills*, 7(1), 7-20.
- Dehaas, J. (2014). Are you experienced?. *Maclean's*, 127(13/14), 46-49.
- Dembeck, C. (2001). Rev up your job search!. *Journal Of Property Management*, 66(5), 52.
- Does Your Next Generation of Leaders Possess These Critical Communication Skills? Government Executive - February 02, 2016.
- Evans, J. (2011). Wider appeal. *People Management*, 47-50.
- Facilitate. (2017). In *Macmillan Dictionary*. Retrieved July 7, 2017, from <http://www.macmillandictionary.com/dictionary/british/facilitate>.
- Gale, S. F. (2001). Internet Recruiting: Better, Cheaper, Faster. *Workforce* (10928332), 80(12), 74.
- Gardyn, R. (2000). The Future of Fine Print. *American Demographics*, 22(5), 26.
- Going Global Career & Employment Resource Guide for United Kingdom. (2013). *United Kingdom Career Guide*, 1-260.
- Gray, A. (2017). Goodbye, maths and English. Hello, teamwork and communication?. Retrieved July 10, 2017, from *World Economic Forum*: <https://www.weforum.org/agenda/2017/02/employers-are-going-soft-the-skills-companies-are-looking-for/>.
- How to find out your style of leadership. (2011). Retrieved May 27, 2017, from <https://www.kent.ac.uk/careers/sk/leadership.htm>.
- Imagination. (2017). In *Macmillan Dictionary*. Retrieved July 6, 2017, from <http://www.macmillandictionary.com/dictionary/british/imagination>.
- Innovative. (2017). In *Macmillan Dictionary*. Retrieved July 6, 2017, from <http://www.macmillandictionary.com/dictionary/british/innovative>.
- Interpersonal skills (2017). In *Macmillan Dictionary*. Retrieved July 9, 2017, from <http://www.macmillandictionary.com/dictionary/british/interpersonal>.
- Job Search Resources. (2011). *United Kingdom Career Guide*, 1-40.
- Johnson, B. (2003). Will print be ousted by e-recruitment?. *Marketing Week*, 26(37), 14.
- Jones, K. (2016). Sorting Out Sourcing: Finding the Candidates You Need. *Workforce Solutions Review*, 7(6), 31-32.
- Junior. (2007). In *Longman Business English Dictionary* (p. 287).

- Junior. (2007). In *Macmillan English Dictionary for Advanced learners* (p. 818).
- Junior. (2005). In *Oxford Business English Dictionary for learners of English* (p. 302).
- Leadership. (2017) In *Macmillan Dictionary*. Retrieved July 27, 2017, from <http://www.macmillandictionary.com/dictionary/british/leadership>.
- Management. (2017). In *Macmillan Dictionary*. Retrieved July 27, 2017, from <http://www.macmillandictionary.com/dictionary/british/management>.
- McKenna, E. F., & Beech, N. (1995). The essence of human resource management. *London: Prentice Hall*.
- Microsoft (2017). What is SharePoint?. Retrieved June 6, 2017, from <https://support.office.com/en-us/article/What-is-SharePoint-97b915e6-651b-43b2-827d-fb25777f446f>.
- Mihelich, M. (2014). E-recruiting: Dead and Alive. *Workforce*, 93(5), 44-48.
- Mishra, K. (2014). Employability Skills That Recruiters Demand. *IUP Journal Of Soft Skills*, 8(3), 50-55.
- Monster Worldwide, Inc. SWOT Analysis. (2016). *Monster Worldwide SWOT Analysis*, 1-8.
- Murti, A. B. (2014). Why Soft Skills Matter. *IUP Journal Of Soft Skills*, 8(3), 32-36.
- Napier, N. P., Keil, M., & Tan, F. B. (2009). IT project managers' construction of successful project management practice: a repertory grid investigation. *Information Systems Journal*, 19(3), 255-282. doi:10.1111/j.1365-2575.2007.00264.x.
- Nguyen, D. (1998). The Essential Skills and Attributes of an Engineer: A Comparative Study of Academics, Industry Personnel and Engineering Students. *Global J. of Engng. Educ.*, Vol. 2, No.1.
- Non-senior. (2016). In *Wiktionary, the free dictionary*. Retrieved July 7, 2017, from <https://en.wiktionary.org/wiki/nonsenior#Adjective>.
- O'Brien, J. (2003). Chapter 4: Research Is Key. *Next Step: The Real World*, 17.
- Organize. (2017). In *Macmillan Dictionary*. Retrieved July 7, 2017, from <http://www.macmillandictionary.com/dictionary/british/organize>.
- Parasuraman, J., & Prasad, N. H. (2015). Acquisition of Corporate Employability Skills: A Study with Reference to Engineering Graduates. *IUP Journal Of Soft Skills*, 9(2), 22-43.
- Parry, E., & Tyson, S. (2008). An analysis of the use and success of online recruitment methods in the UK. *Human Resource Management Journal*, 18(3), 257-274. doi:10.1111/j.1748-8583.2008.00070.x.
- Paton, N. (2002). E-recruitment: does it work?. *Personnel Today*, 20.

People. (n.d.). Retrieved November 24, 2016, from <http://www.trinitymirror.com/our-company>.

Perry, M. (2006). Spotlight on ... online recruitment. *Personnel Today*, 37.

Plan. (2017). In *Macmillan Dictionary*. Retrieved July 7, 2017, from http://www.macmillandictionary.com/dictionary/british/plan_2.

R. Javaux, personal communication, August 2016.

Robles, M. M. (2012). Executive Perceptions of the Top 10 Soft Skills Needed in Today's Workplace. *Business Communication Quarterly*, 75(4), 453-465. doi:10.1177/1080569912460400.

Schulz, B. (2008). The importance of Soft Skills: Education beyond academic knowledge. *Journal of Language and Communication*, June 2008, 146-154. Retrieved November 15, 2016, from <http://ir.polytechnic.edu.na/bitstream/handle/10628/39/the%20importance%20of%20soft%20%20skills-education%20beyond%20academic%20knowledge.pdf;jsessionid=4186FE8BA02D26ABFD6222A3E3BD0907?sequence=1>.

Senior. (2017). In *Cambridge Dictionary*. Retrieved July 7, 2017, from <http://dictionary.cambridge.org/dictionary/english/senior?q=Senior>.

Senior. (2007). In *Longman Business English Dictionary* (p. 488).

Senior. (2007). In *Macmillan English Dictionary for Advanced learners* (p. 1351).

Senior. (2005). In *Oxford Business English Dictionary for learners of English* (p. 496).

Sodhi, M. S., & Son, B. (2010). Content analysis of OR job advertisements to infer required skills. *Journal Of The Operational Research Society*, 61(9), 1315-1327. doi:10.1057/jors.2009.80.

Soft skills. (2017). In *English Oxford Living Dictionaries*. Retrieved July 19, 2017, from https://en.oxforddictionaries.com/definition/soft_skills.

UK Commission for employment and skills (2016). *Employer Skills Survey 2015*. Retrieved November 15, 2016, from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/525449/UKC004_Summary_Report__May_.pdf.

What is Project Management? (n.d.). Retrieved December 1, 2016, from <http://www.pmi.org/about/learn-about-pmi/what-is-project-management>.

What is Systems Engineering? (n.d.). Retrieved December 1, 2016, from <http://www.incose.org/AboutSE/WhatIsSE#Top>.

Who are Project Managers? (n.d.). Retrieved December 1, 2016, from <http://www.pmi.org/about/learn-about-pmi/who-are-project-managers>.

Appendices

Appendices may be found on the CD-ROM attached to this dissertation.

This CD-ROM includes:

Appendix 1 – Soft skills in the literature: two different ways of counting them

Appendix 2 – NSP job ads

Appendix 3 – SP job ads

Appendix 4 – NSS job ads

Appendix 5 – SS job ads