



boostrs

THE IMPORTANCE OF SOFT SKILLS IN THE JOB MARKET

An analysis of the soft skills
demand by job, function
and seniority level

Contents

0.	Executive Summary	03
<hr/>		
1.	Introduction	04
<hr/>		
2.	Context	06
	2.1. The origin of soft skills	06
	2.2. The rise of soft skills	06
	2.3. Soft skills in today's job market	07
<hr/>		
3.	Study	08
	3.1. Data	08
	3.2. Methods	09
<hr/>		
4.	Results	10
	4.1. Job diversity	10
	4.2. How many soft skills are typically required for a job?	10
	4.3. Which soft skills are most (and least) requested by recruiters?	10
	4.4. Which soft skills are required for the jobs most commonly present in companies?	12
	4.5. What is the link between soft skills and the most common corporate functions?	14
	4.6. Do the soft skills required depend on the seniority level of the position?	16
<hr/>		
5.	Conclusion	18
<hr/>		
6.	References	19
<hr/>		
7.	Appendices	21

Executive summary

The recruitment market is gradually shifting its focus from requiring knowledges to requiring skills.

Soft skills, in particular, have become crucial for employers when it comes to assessing which candidates will best fit within a given team or within the larger company setting. The present study examines the link between soft skills and recruitment; its aim is two-fold:

- (1) First, we sought to define a compact set of soft skills based on the most frequent job requirements put forward by employers.
- (2) Second, we aimed to identify the main soft skills required for a given job.

For the first point, we have identified a set of 38 soft skills which are most frequently encountered in job postings. With this in hand, we proceeded to analyze 850,000 job postings, keeping track of which soft skills are required for which job.

Our results confirm that soft skills are indeed essential to recruitment: nearly 90% of job postings require soft skills. On average, a job posting requires 4 soft skills, while 10% of the job postings require 10 soft skills or more.

Based on the patterns observed in the job posting data, we find that there is a core of eight fundamental soft skills which are essential to most jobs. These are communication (written and oral), time management, decision-making and judgment, team spirit, adaptability, analytical skills and autonomy.

Beyond these fundamental soft skills, there are other, specific, soft skills which tend to be required in different jobs and functions. For example, for the Sales function, two of the most sought-after soft skills are “ambition” and “handling conflicts”.

The number of soft skills required varies with the job function corresponding to the position recruited for: as an example, the Human Resources function requires the greatest number of soft skills (25) among all corporate functions.

We also find that the soft skills required depend on the seniority of the position. As an example, senior management positions require more autonomy, initiative, people management, self-confidence, and strategic thinking.

In summary, this research presents a methodology for analyzing soft skills in recruitment. These results can help human resources professionals to optimize the content of their job advertisements and candidates to select and apply for the offers that best match their profile.

This study is a continuation of our investigation of the connection between jobs, skills and employment [1, 2].

1. Introduction

« Soft skills predict success in life... they causally produce that success. »

This is the conclusion drawn by James J. Heckman (Nobel Prize winner in economics and expert in the economics of human development) and his collaborators based on research on the importance of personality in economic and social life [3]. Indeed, in recent years, soft skills have been attracting increasing attention – whether in the field of recruitment, general management, career development, and virtually any other aspect of professional life.

For the sake of clarity, the notion of soft skills can be understood by considering its sub-terms:

" **Skill** " : refers to a person's ability to perform certain tasks or the knowledge required to perform those tasks.

" **Soft** " : designation illustrates the non-technical nature (as opposed to the “hard” qualifier commonly employed for technical skills).

Soft skills have the following characteristics:

- They include interpersonal qualities and personal attributes,
- They are rather transversal [4] and are generally not job-specific,
- They are traditionally not formally taught in the standard education curricula [5].

Table 1 below shows some examples of soft skills:

Personal skills	Interpersonal skills
Autonomy Adaptability Attention to detail	Managing feedback Negotiation Networking

Table 1. Examples of soft skills - personal and interpersonal.

Among the various international organizations which monitor the evolution of skills, the World Economic Forum has undertaken some of the most comprehensive research on soft skills to date. In particular, its studies have revealed that by 2022, the most sought-after soft skills are expected to be: analytical thinking and innovation, active learning and learning strategies, and creativity, originality and initiative [6].

In this research, we examined soft skills from the perspective of recruiters.

More specifically, by analyzing 850,000 job postings, we sought to answer the following questions:

- **How many soft skills does a job typically require?**
- **Which soft skills are most (and least) requested by recruiters?**
- **Which soft skills are required for the jobs most commonly present in companies?**
- **What is the link between soft skills and the most common corporate functions?**
- **Do the soft skills required depend on the seniority level of the position?**

2. Context

2.1. The origin of soft skills

The origins of soft skills trace back to the US Army, who, in the 1960s and 1970s was the first to identify and develop the concept of soft skills.

In 1968, the US Continental Army Command (CONARC) officially introduced its “Systems Engineering of Training” concerning “job-related skills involving actions affecting primarily people and paper” [7].

The term “soft skills” appeared for the first time in a 1972 army training manual [8]. That same year, a CONARC conference on soft skills was held. Speaking at this conference, Dr. Paul Whitmore, defined soft skills as “important job-related skills that involve little or no interaction with machines and whose application on the job is quite generalized”[9].

The notion of “soft skills” was gradually adopted thereafter beyond the realm of the military and today is widespread in society. Today, 50 years after they were identified, soft skills are very much a “hot topic” in almost every walk of life. The question begs itself: why have soft skills become so important?

2.2. The rise of soft skills

Until very recently, career success in a given position appeared to be based solely on the technical ability to perform certain tasks.

As a result, recruiters and companies systematically placed technical skills at the heart of the candidate search and evaluation process.

However, the workplace has considerably evolved since the 1970s. For one, companies have experienced an acceleration in the pace of economic and technological changes.

Their effects have been significant in several ways [10], not in the least in regards to the skills sought by organizations.

While technical skills are important, especially digital literacy, they are no longer sufficient. Soft skills are seen as the key for people and organization to adapt and stay relevant in today’s fast-changing landscape.

We list below the main drivers of change experienced in the workplace, along with the importance of soft skills to each:

1. The type of work performed by people is changing:

With constant technological progress, the type of work performed by people is continually changing as technologies evolve and machines take on an increasing number of human tasks [11]. Recruiters are therefore increasingly looking for candidates with the adaptability and the learning mindset required to keep up with these changes.

2. The work becomes increasingly collaborative:

The evolution towards a tertiary economy has given rise to new, more collaborative professions. “Work in knowledge-based economies is increasingly accomplished by teams of people with complementary expertise and roles, as opposed to individuals doing isolated work in an industrial setting” [11][12]. Recruiters are therefore more and more looking for candidates with strong interpersonal skills and the ability to work in teams.

3. Careers paths become increasingly fragmented:

Workers today are significantly more likely to change career fields or jobs than they were in the past, and one-company careers are becoming extinct. The advent of digital removed the barriers of entry in many industries, and small and medium-sized companies have flourished, creating numerous jobs in the process. Faced with this evolution, recruiters are looking for flexible and adaptable candidates who can move with ease between successive roles, functions, or companies [10].

2.3. Soft skills in today's job market

As previously mentioned, soft skills are a major differentiating factor for employability and professional success today.

This is true for almost all fields, regardless of the sector. To illustrate this trend, recent research has highlighted the importance of soft skills in many areas [13] such as analytics and operations research/management science (OR/MS) [14], accounting [15], information systems (IS) [16], finance [17], project management [18] or leadership [19].

Among the most pervasive areas is project management, which itself was shown to be highly dependent of soft skills. A qualitative study of project management professionals by Azim et al. (2010) highlighted the fact that the key to managing complex projects lies in soft skills: “75% of participants surveyed stated that interpersonal skills are the most important factor in managing project complexity.” [13][20].

To conclude, economic and technological changes have generated new skill needs for individuals and organizations. While technical skills continue to be important, they are no longer sufficient, and differentiation between candidates relies increasingly on soft skills. Looking to the future, this trend can only continue as automation is expected to displace most of the technical tasks carried by people [1].

3. Study

In order to quantify the link between soft skills and recruitment we analyzed a large dataset of job postings. Specifically, we sought to extract the soft skill requirements provided by recruiters and identify the specific soft skill needs related to different jobs, functions and seniority levels.

3.1. Data

To conduct this study, we used a database of 850,000 job postings [21]. The structure of the data is detailed in Appendix 1.

To understand the nature of the jobs, we used a proprietary data set (“Boostrs database”) that combines several major repositories such as ESCO [22], O*NET [23], ISCO [24], ROME [25] and others. Each job is standardized and accompanied by a certain number of alternative titles that allow it to be more readily identified.

Concerning soft skills, we have considered the personal and interpersonal skills listed in the aforementioned repositories, as well as those considered in the research by Calanca et al [26].

Using this approach, we established a list of 38 soft skills (Table 2 below), of which 24 are personal skills, and the other 14 are interpersonal skills. Standard definitions for these 38 soft skills are provided in Appendices 2 and 3.

Personal skills

Ability to work under pressure
 Adaptability
 Ambition
 Analytical skills
 Attention to detail
 Autonomy
 Creativity and innovation
 Critical mindset
 Decision-making and judgement
 Dedication
 Drive for results
 Ethical behavior

Hardworkingness
 Initiative
 Learning skills
 Memory skills
 Multitasking
 Positive mindset
 Patience
 Perseverance
 Rigor
 Self-confidence
 Strategic thinking
 Time management

Interpersonal skills	
Active listening	Negotiation skills
Building rapport with someone	Networking
Client orientation	Oral communication
Emotional intelligence	People management
Handling conflicts	Teaching skills
Influencing	Team spirit
Managing feedback	Written communication

Table 2. List of soft skills used in this analysis.

3.2. Methods

In order to conduct this study, two key steps were required to process the data:

→ **Job title identification within job postings, i.e. mapping the job title present in each advert to a standard job title in our database.**

This step is highly complex because each company, department or recruiter have its own particular approach to naming a job. Put differently, there is very little standardization in the naming of jobs.

For example, a study conducted by LinkedIn and Stanford researchers on job classification [27] identified no less than 40,000 different alternative titles to the job title "software engineer". Thus, the magnitude of this hurdle is significant.

→ **Soft skills extraction from job postings, i.e. mapping the soft skill variants present in each advert to the 38 standard soft skills of Table 2.**

This exercise is difficult for two reasons. First, the text of the job postings is generally unstructured, and there is, as a rule, no well-defined section talking about soft skills.

Second, there exist numerous possibilities to refer to each single soft skill; more details on this point are given in Appendix 4.

4. Results

4.1. Job diversity

The sample studied presents a wide variety of jobs. Indeed, the analysis of job titles using our algorithm allowed us to identify 1,701 distinct jobs, each associated with 20 or more job postings.

Table 3 displays the main jobs by volume of job postings in the database (9% of total job postings):

Job	Number of job postings
Software developer	19.3k
Commercial sales representative	17.5k
Nurse coordinator	14.8k
IT system administrator	13.4k
Cargo vehicle driver	10.9k

Table 3. Main jobs present in the database, by number of job postings.

4.2. How many soft skills are typically required for a job?

The vast majority of job postings (88%) contains at least one soft skill. On average, a job posting mentions 4 soft skills, and 10% of the postings contain 10 soft skills or more.

These numbers confirm the importance of soft skills to recruiters.

4.3. Which soft skills are most (and least) requested by recruiters?

Figure 1 shows the frequency with which each soft skill appears in our sample, expressed as a percentage of the total number of job postings.

The analysis of the main soft skills required shows that recruiters are mainly looking for people who:

- Know how to communicate,
- Are organized,
- Make decisions,
- Have team spirit.

On the other hand, the soft skills least required from candidates ($\leq 1\%$ of all job offers) are:

- Ambition,
- Patience,
- Networking,
- Perseverance,
- Memory skills.

These skills are important for a narrower range of positions. For example, "memory skills" is essential for waiters, live performers or actors in theaters, but is an optional skill for most jobs, including those listed in Table 3.

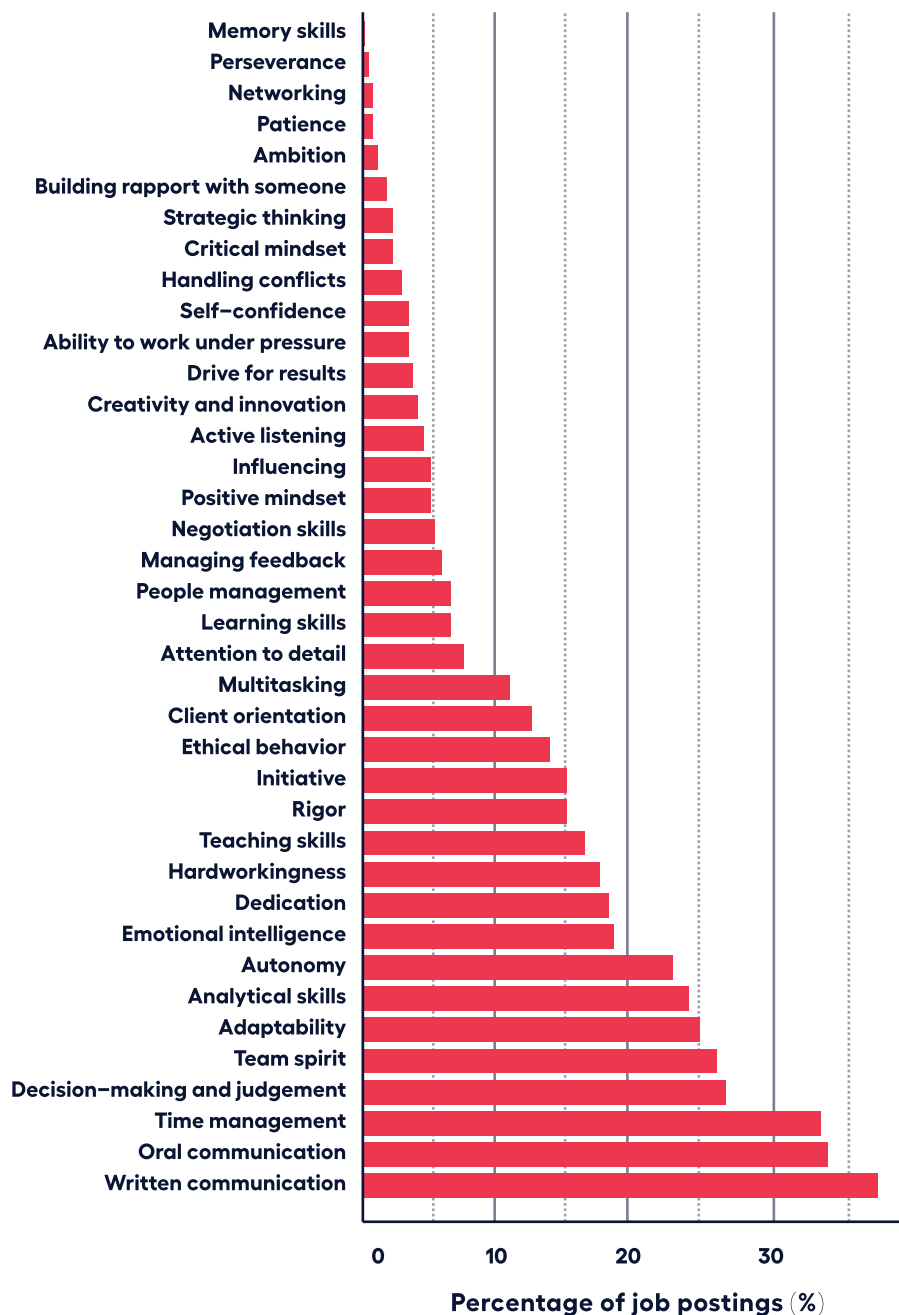


Figure 1: Soft skills classified according to their frequency of occurrence.

4.4. Which soft skills are required for the jobs most commonly present in companies?

To answer this question, we extracted the most required soft skills for some of the typical jobs found in companies.

Specifically, we selected five jobs illustrating different work functions within a company at various seniority levels. Table 4 shows the most frequently requested skills for these five jobs.

Job	Top 5 soft-skills
Legal service manager	Written communication Oral communication Time management Team spirit Negotiation skills
Human resources director	Oral communication Time management Written communication Decision-making and judgement Analytical skills
Web developer	Written communication Analytical skills Team spirit Oral communication Time management
Chief marketing officer	Time management Written communication Oral communication Decision-making and judgement Analytical skills
Sales manager	Oral communication Written communication Negotiation skills Teaching skills Analytical skills

Table 4. List of the five soft skills most in demand by recruiters for a selection of five jobs.

It is apparent that certain skills are found in the top five of almost all jobs in Table 4. These core skills are listed in Table 5.

Fundamental soft skills	
Written communication	Team spirit
Oral communication	Adaptability
Time management	Analytical skills
Decision-making and judgement	Autonomy

Table 5. List of fundamental soft skills.

Shell model of skills

A closer look at the soft skills in Table 5 reveals that these are personal and interpersonal skills acquired early on, throughout childhood and early school years. These skills form indeed a fundamental basis for any work environment, as they guarantee that the most basic professional requirements are satisfied: being punctual, writing emails, working in a team, etc.

Based on this observation, we can conceptually represent the universe of soft skills as a series of successive layers - from the fundamental soft skills listed above to soft skills which are more optional in nature and depend on the work performed. For example, not all jobs require personnel management, negotiation, networking, etc., but all jobs require at least a subset of the fundamental skills. Figure 2 provides a better visualization of this concept.



Figure 2: Shell model representation of soft skills: The core is made up of the fundamental soft skills, while the outer layer contains soft skills which tend to be specific only to certain types of jobs.

Interestingly, even though they are very common and perhaps expected, core skills are almost always explicitly requested by recruiters in the job postings they advertise.

4.5. What is the link between soft skills and the most common corporate functions?

Since most candidates possess the core skills, we investigated whether certain soft skills are more likely to help candidates stand out from the competition given the nature of the open role.

To do this, we looked for soft skills which stand out significantly in different corporate functions. We thus created 15 groups of jobs, or “functions”, (see Table 6, first column) corresponding to the corporate functions most frequently encountered in the company and comprising an average of five jobs per function.

In order to determine the soft skills specific to each function, we first calculated the average frequency of appearance of each soft skill in all the job postings. Then, for each function, we identified the soft skills whose frequency significantly exceeds the average frequency.

As an example, let us consider the “Administration” function, which includes jobs such as secretary and administrative assistant. Compared to the soft skills required in the other functions, the soft skills which are significantly more required for administrative jobs are:

- (1) Memory skills,
- (2) Emotional intelligence,
- (3) Attention to detail,
- (4) Multitasking.

By repeating this procedure for the other functions, we were able to identify the soft skills requirements which stand out the most for each function (Table 6).

Beyond the most differentiating two soft skills per function listed in Table 6, an extended analysis makes it possible to identify, for each function, all the soft skills that exceed the average frequency of appearance, i.e. the function’s “specific” soft skills.

It is thus possible to measure the number of specific soft skills that recruiters are looking for in each of these functions.

Work funtion	Specific soft skill 1	Specific soft skill 2
Administration	Memory skills	Emotional intelligence
Digital	Self-confidence	Learning skills
Finance	Memory skills	Rigor
General Management	Strategic thinking	Decision-making and judgement
Human resources	Teaching skills	Building rapport with someone
Legal	Learning skills	Team spirit
Marketing & Communication	Positive mindset	Drive for results
Operations & After-sales services	Perseverance	Ability to work under pressure
Production & Maintenance	People management	Hardworkingness
Purchasing	Critical mindset	Negotiation skills
Quality	Active listening	Critical mindset
Research and Development	Learning skills	Analytical skills
Sales & Account Management	Ambition	Handling conflicts
Strategy & Consulting	Influencing	Creativity and innovation
Supply chain, Distribution & Logistics	Handling conflicts	Adaptability

Table 6. List of the most differentiating soft skills for 15 of the functions most frequently encountered in a company.

Figure 3 shows how the number of specific soft skills varies across the functions considered in this analysis.

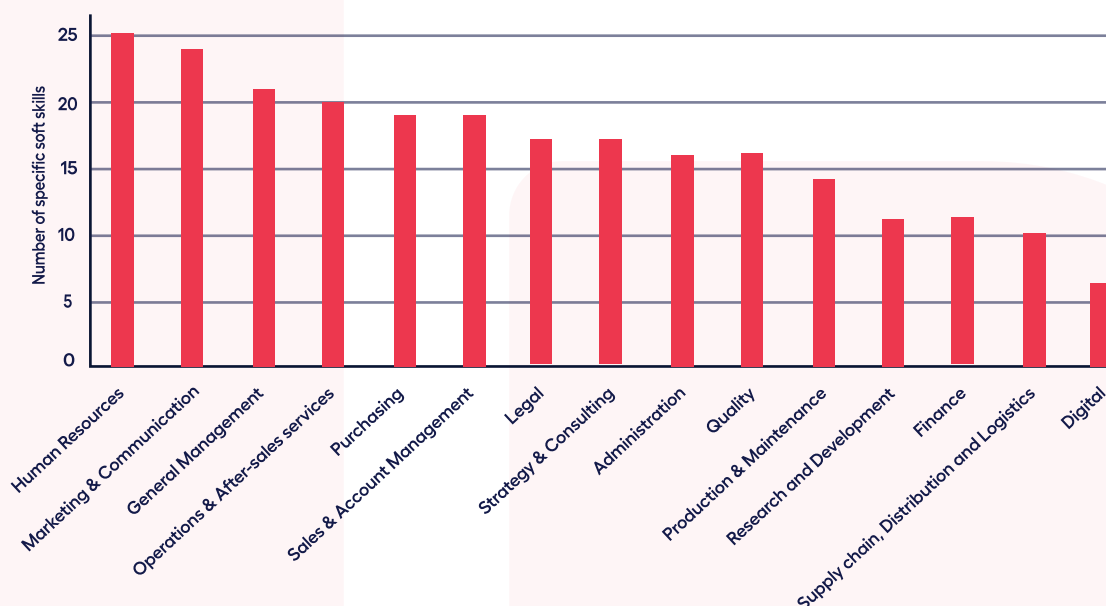


Figure 3: Number of specific soft skills required for 15 of the most frequently encountered functions in a company.

For example, the Sales & Account Management function requires 19 specific soft skills. The most important skills are ambition, handling conflicts, initiative and client orientation, followed by negotiation skills and building rapport with someone.

As seen in Figure 3, among the different functions, Human Resources requires the widest range of soft skills. One possible explanation for this observation is that the HR function requires extensive contact with internal and external colleagues. By contrast, the Digital function may conceivably require a higher share of individual work and consequently a lower amount of interaction with customers or colleagues.

4.6 Do the soft skills required depend on the seniority level of the position?

For this question we defined seniority levels according to a global 6-level system [28].

In order to measure the importance of each soft skill, we classified the skills according to their frequency of appearance in each of the 6 seniority levels:

- Operators
- Technicians
- Engineers
- Coordinators
- Managers
- Directors & above

We then focused on identifying the soft skills which exhibit the greatest variation in their skill ranking across the seniority range. To quantify this effect, we measured the difference between the highest and lowest ranking of each soft skill within the different seniority groups.

For example, Initiative was ranked 10th for the highest seniority level and 18th for the lowest, a difference of 8 ranks.

For the 3 lowest seniority levels, operators, technicians and engineers, there is little change in rankings from one level to the next. There is therefore no significant change between these levels.

On the other hand, significant differences are observed for the three highest seniority levels, which concern jobs involving people management: coordinators, managers and directors & above (Figure 4):

- Autonomy (+10 ranks)
- Strategic thinking (+9 ranks)
- Self-confidence (+8 ranks)
- Initiative (+6 ranks)
- People management (+6 ranks)

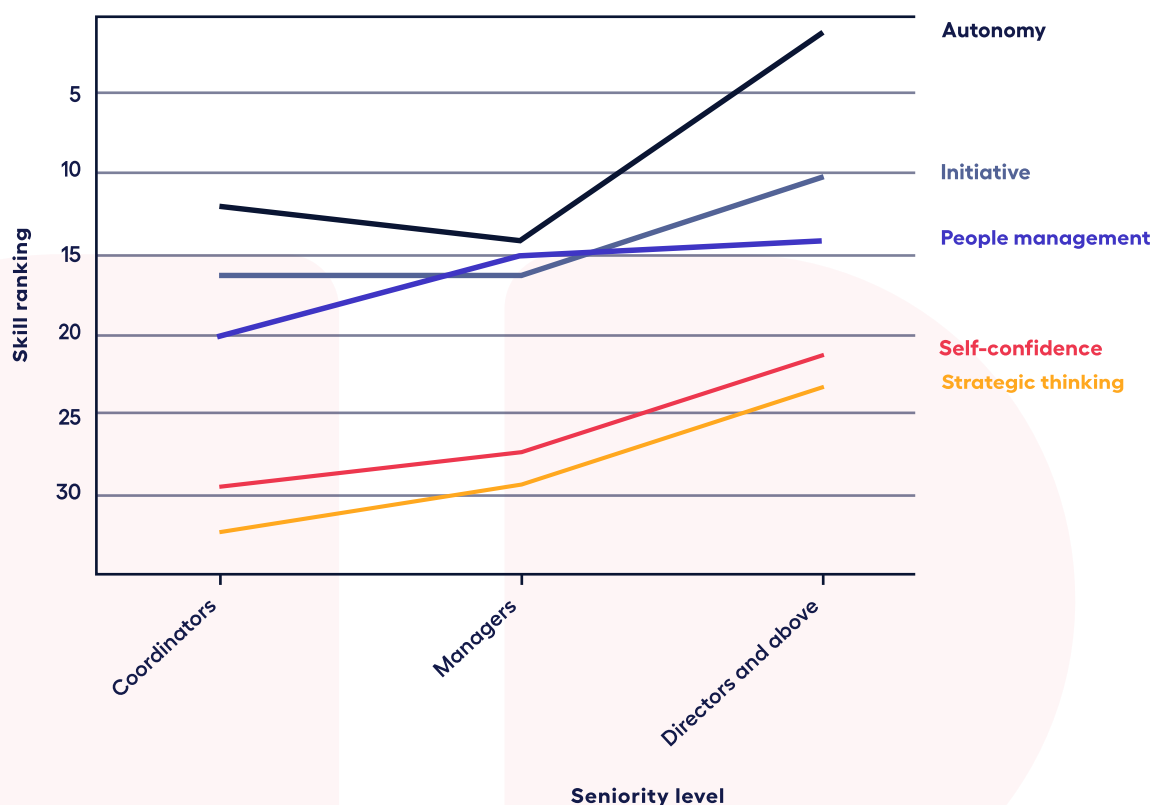


Figure 4. The most important variations in soft skill requirements according to the level of seniority: autonomy, initiative taking, staff management, self-confidence and strategic thinking.

In addition, the need for certain soft skills decreases with increasing seniority. This is the case, for example, for time management (-8 ranks), managing feedback (-7 ranks) and teaching skills (-5 ranks).

These observations could be explained by the fact that, as they progress in ranks, managers are increasingly able to delegate these types of activities to support staff or direct reports.

In conclusion, as was the case for the corporate functions, we find that the soft skills required by recruiters vary according to the seniority level of the job to be filled.

5. Conclusion

In this study, we measured the importance of soft skills in recruitment.

First, we have identified a compact set of 38 which are most frequently demanded by employers.

Second, by analyzing 850,000 job postings, we showed that soft skills are indeed essential to recruitment: nearly 90% of job postings contain soft skills. On average, a job posting requires four soft skills, and a tenth of all job postings require ten soft skills or more.

Furthermore, we have found that there exists a base of eight fundamental soft skills which are essential for nearly any job. These are communication (written and oral), time management, decision-making and judgment, team spirit, adaptability, analytical skills and autonomy.

Beyond the fundamental soft skills, we found that certain soft skills, referred to as “specific” skills, are more often requested in certain jobs and corporate functions than in others. For example, compared to the soft skills required in the other functions, the soft skills which are significantly more required in the Sales & Account Management are ambition and handling conflicts.

In addition, we found that the number of specific soft skills varies by function. As an example, the Human Resources function requires the largest number of specific soft skills (25 out of 38 total).

Finally, we found that the soft skills required also change according to the seniority level of the job. For example, senior management positions require more autonomy, initiative, people management, self-confidence, and strategic thinking.

In conclusion, this study demonstrates and quantifies the link between soft skills and recruitment. We hope that these results will help human resources professionals to optimize the content of their job advertisements and candidates to select and apply for the offers that best match their profile.

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7. Appendices

Appendix 1. Data structure

In the database used for this analysis [21], job postings are primarily free text, in which one or more of the following sections are easily identifiable:

- Job title
- Required qualifications and previous experiences
- List of responsibilities (duties) for the position
- Company description
- Additional information (which may include salary, place of work, and other miscellaneous items)

On the other hand, we note that job titles, like most other job characteristics, are not standardized. Each employer is free to use its own terms. For example, the same job may be found under several different job titles (e.g. “administrative assistant” vs “secretary”), depending on the specific job posting and employer.

Appendix 2. Personal soft skills definition

Personal skills	
Ability to work under pressure	Dealing with pressure from unexpected circumstances at work.
Adaptability	Alter one's attitude or behaviour to accommodate modifications in the workplace.
Ambition	Wish and determination to achieve success, either in the personal or professional domain.
Analytical skills	Ability to analyze and research a problem or a topic, to decompose it in smaller pieces and develop an in-depth understanding about it.
Attention to detail	Being thorough and careful about detail in completing work tasks.
Autonomy	Developing one's own ways of doing things, guiding oneself with little or no supervision, and depending on oneself to get things done.
Creativity and innovation	Ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.
Critical mindset	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to solving problems.
Decision-making and judgement	Considering the relative costs and benefits of potential actions in order to choose the most appropriate one.
Dedication	Strong attachment, support and loyalty for one's workplace.
Drive for results	Establishing and maintaining personally challenging achievement goals and exerting effort toward achieving these.
Ethical behavior	Adherence to moral and ethical principles.
Hardworkingness	Ability to put extensive amounts of effort and care into one's work.
Initiative	Willingness to take on responsibilities and challenges.
Learning skills	Show a positive attitude towards new and challenging demands that can only be met via lifelong learning.
Memory skills	Store information such as words, numbers, pictures and procedures for later retrieval.
Multitasking	Executing multiple tasks at the same time, being aware of the key priorities.
Positive mindset	Way of thinking that focuses on the good aspects of work and the positive results they can generate.

Personal skills

Patience	Being able to wait for someone or something which has been delayed without becoming frustrated.
Perseverance	Persistence in the face of obstacles.
Rigor	Maintaining a well-reasoned, consistent and disciplined approach in one's progress toward an objective.
Self-confidence	Understanding one's own abilities and relying on these to deal with various situations.
Strategic thinking	The ability to think broadly (big-picture thinking) and interpret situations in the larger business context and on the long-term basis.
Time management	Maintain an overview of all the incoming tasks in order to prioritise the tasks, plan their execution, and integrate new tasks as they present themselves.

Appendix 3. Interpersonal soft skills definition

Interpersonal skills	
Active listening	Focus fully on the interlocutor and actively show verbal and nonverbal signs of listening.
Building rapport with someone	Understand and create a link with people from different cultures, countries, and ideologies without judgements or preconceptions.
Client orientation	Actively looking for ways to help others, be it clients or partners.
Emotional intelligence	Social perceptiveness. Being aware of others' reactions and understanding why they react the way they do.
Handling conflicts	Mediate in conflicts and tense situations by acting between parties, such as service users, important others like families, and institutions, striving to effect an agreement, reconcile, and resolve problems.
Influencing	Persuading others to change their minds or behavior.
Managing feedback	Provide feedback to others. Evaluate and respond constructively and professionally to critical communication from colleagues and customers.
Negotiation skills	Settle differences with others and reach an agreement through compromise by either party while avoiding argument and dispute.
Networking	The developing of contacts or exchanging of information with others in an informal network, as to further a career.
Oral communication	Talking to others to convey information effectively.
People management	Manage employees and subordinates, working in a team or individually, to maximise their performance and contribution. Schedule their work and activities, give instructions, motivate and direct the workers to meet the company objectives. Monitor and measure how an employee undertakes their responsibilities and how well these activities are executed. Identify areas for improvement and make suggestions to achieve this. Lead a group of people to help them achieve goals and maintain an effective working relationship among staff.
Teaching skills	Teaching others how to do something.
Team spirit	Coordinating with others / adjusting actions in relation to the others' actions.
Written communication	Communicating effectively in writing as appropriate for the needs of the audience.

Appendix 4. Further details on the analysis method

As detailed in Section 3.2, the two main challenges of this research study were the job title identification and the soft skills extraction.

JOB TITLE IDENTIFICATION

The two main obstacles to correctly identifying/classifying job titles were spelling errors in the designation of the jobs and the lack of standard terms used to describe the job titles. As an example, some job titles were too generic (such as "Manager"), or on the contrary too specific (such as "Secretary to the Director - College").

Job title identification was carried out in two stages:

- **Job title preprocessing:** we first removed terms that were unrelated to the nature of the job to obtain a "clean" version of the job titles. For example, the job title "Hotel Front Desk - Texas (nights and weekends)" was changed to "Hotel Front Desk Clerk".
- **Job title matching:** we then calculated a matching score between the "clean" job title and all the job titles in our database. This matching score is based on the word representation given by FastText [29].

In the previous example, the job title "Hotel Front Desk Clerk " had the greatest similarity with the "Front Desk Receptionist" which is an alternate title for the standard job of "Receptionist".

SOFT SKILL EXTRACTION

For the extraction of soft skills, we faced the same difficulties as for the job title identification, but with the additional complexity that a soft skill can appear in different sections of a job posting.

To identify the different ways of designating a soft skill, we relied on the work of Calanca et al. [26], which we extended by automatically generating combinations of keywords specific to the skills.

For example, the job postings data show that the skill people management can be found under different verb-noun combinations, with verbs such as "manage", "supervise", "coordinate", "lead", and nouns such as "people", "staff", "team", "personnel", "group of"...

We have thus mapped all these variations ("managing people", "managing a team", "leading a team", ...) so as they link back to people management. There are on average 50 such variations for each soft skill. All these variations are used to isolate the soft skills present in each job posting.

Thus, by matching job titles with our standard jobs and extracting the soft skills present in the job postings, we can consequently associate soft skills to jobs.

In order to ensure the statistical relevance of our results, we disregarded the soft skills-to-jobs associations with fewer than 20 occurrences.

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