Digital Transformation in Recruitment: Best Practices in the Portuguese Market

Bernardo Braga e Castro

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Abstract
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Author: Bernardo Braga e Castro

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The "war for talent" is leading organizations to focus on recruitment process agility and employer branding as a way to successfully recruit the best individuals. For this, companies are increasingly turning to implementing new technological developments in their recruitment and selection processes. This dissertation focuses on identifying the impact these technologies can cause, and what the best practices are for implementing them into recruitment processes, from the perspective of the internal recruiters. For this, a qualitative analysis was conducted through researching existing literature and conducting semi-structured interviews with recruiters. The results show that the implementation of automatic CV screening, asynchronous video interviewing and assessment games have a positive impact on recruitment processes, namely through increased accuracy of assessment, shortening the process duration, increasing diversity among recruits and enabling higher candidate pools. Companies are also focusing on increased software integration and gathering of recruitment metrics for continuous process improvement. For the successful implementation of these changes, recruiters see organizational culture as a key factor.

Sumário
Título: Transformação Digital no Recrutamento: Melhores Práticas no Mercado Português

Autor: Bernardo Braga e Castro

Palavras-chave: Tecnologia em Recrutamento, Triagem de CV, Entrevistas em Vídeo, Avaliações

A "guerra pelo talento" está a levar a que as organizações se foquem na agilidade do processo de recrutamento e em employer branding para recrutar os melhores candidatos. Para tal, as empresas estão a recorrer cada vez mais à implementação de novas tecnologias nos seus processos de recrutamento e seleção. Esta dissertação foca-se em identificar o impacto que estas tecnologias podem causar, e quais as melhores práticas para a sua integração em processos de recrutamento da perspetiva dos recrutadores internos. Para tal, uma análise qualitativa foi conduzida através da investigação da literatura existente e da condução de entrevistas semiestruturadas com recrutadores. Os resultados mostram que a implementação de triagem de CV automática, entrevistas em vídeo assíncronas e jogos de avaliação têm um impacto positivo em processos de recrutamento, nomeadamente através de um aumento na precisão das avaliações, encurtamento da duração do processo, aumento da diversidade entre recrutados e permitir um volume de candidaturas maior. As empresas também se estão a focar em aumentar a integração de software e a coleta de métricas de recrutamento para melhoria contínua dos processos. Para a implementação bem-sucedida destas alterações, os recrutadores vêm a cultura organizacional como um fator chave.

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Chapter 1 – Introduction

1.1 Context and Problem Statement

In July 2018, the US labour market reached a tipping point – there were more open jobs than unemployed people (Jobvite, 2018). This means increased competition between recruiters and a lower percentage of successful vacancy fillings for companies. For this, recruiters are investing in employer branding, especially through social media and review-aggregation websites – 75% of respondents identified Glassdoor as important for candidate attraction. Another finding is that 67% of employers say their main current challenge is the lack of quality of candidates (Jobvite, 2018), leading employers to focus on increasing the quality of hires and retention rate over other considerations such as time and cost per hire.

One of recruiters' main strategic priorities for 2019 is embracing digital transformation, with 39% of respondents to Bullhorn's Global Recruitment Insights and Data research (Bullhorn, 2019) pointing to this. This appears as the third priority, just after candidate sourcing and improved candidate experience. The same study found that 84% of global recruitment firms feel that digital transformation should be beneficial to their business, and that they need to embrace it to maintain competitiveness in the market, with 80% of them mentioning it is their main operational hurdle, even ahead of pricing and margin pressure and increased competition. A combination of all these concerns signifies that companies worldwide are struggling to find fitting candidates for their vacancies, while having to sift through increasing numbers of applications. This makes their selection processes longer and costlier, all the while worrying to adapt their brand image to attract the right people. It is no wonder then that firms are looking to new technologies, with the belief that by implementing new tools they would be able to crunch costs, reduce hiring latency and find better fitting candidates. This makes the implementation of new technologies more and more a strategic necessity for firms, and soon will become a factor for survival.

1.2 Research Questions

The aim of this research is to provide examples for the best practices when implementing new digital technologies into recruitment and selection processes, and to measure what their impact can be.

This is achieved by firstly identifying what is a general recruiting process and what are the main performance metrics employed, while also defining how companies' asses a candidate's fit with

the job description and the organization during their selection process. Secondly, by uncovering which technologies are most being sought, looking at existing examples of companies already employing them in their recruiting processes, and what are the factors for successful implementation.

Thus, the following research questions are assessed:

RQ1: How is a general recruitment process designed?

RQ2: What are the technologies currently in use in recruitment and what is their impact?

RQ3: What are the best practices when integrating technology into recruitment?

1.3 Scope of Analysis

The scope of this study is restricted to the recruitment and selection functions of Human Resources Management and analysed from the recruiter's perspective, not evaluating the point-of-view of the candidates directly. The companies approached for this research are located in Portugal and thus the results should be seen as reflective of the development of the Portuguese recruitment industry and thus not necessarily globally applicable.

Accordingly, the insights are developed for strategic implementation and not technical, meaning that the research focuses on the strategic implications and business-level deployment of these technologies, not focusing on overly technical analyses of the technologies themselves.

Chapter 2 – Literature Review

2.1. Recruitment Process

Employee recruitment can be defined as activities that influence the number and types of applicants who apply for a position, stay in the applicant pool, and accept a job offer (Breaugh, 2008). The goal of recruitment is bringing employees with the desired attributes into the company, and thus the aim of a recruitment process is to assess the candidate's skill for the job and their fit with the organization, so the right candidate fills the right job opening.

A comprehensive model for a recruitment process (Breaugh, 2008) suggests that before outlining a strategy and starting to undertake recruitment activities, the employer should define what the recruitment objectives are. These can be split into pre- (e.g. number of vacancies, number of candidates or their characteristics) and post-hire (e.g. job performance, satisfaction and retention rate), and will serve to design an optimal strategy to fulfil the recruitment goals. The strategy outlines matters such as the timings of the recruitment process, where to recruit, how to reach and appeal to the targeted profiles, and who will be doing the recruitment (e.g. the employer itself or a third-party entity).

The next stage refers to the sourcing activities, such as posting to job boards or having events at universities. Traditional recruitment sources include advertisements, referrals by acquaintances, agencies, internal job postings, walk-ins, campus visits, and job fairs (Zottoli & Wanous, 2000). But in the last 20 years, online recruitment has become the go-to, as official company websites, online job boards, as well as social networking websites are frequently used for this purpose (Acikgoz, 2019), due to the possibility of conveying plenty of information in a simple, cost-effective and appealing way when compared to traditional sources.

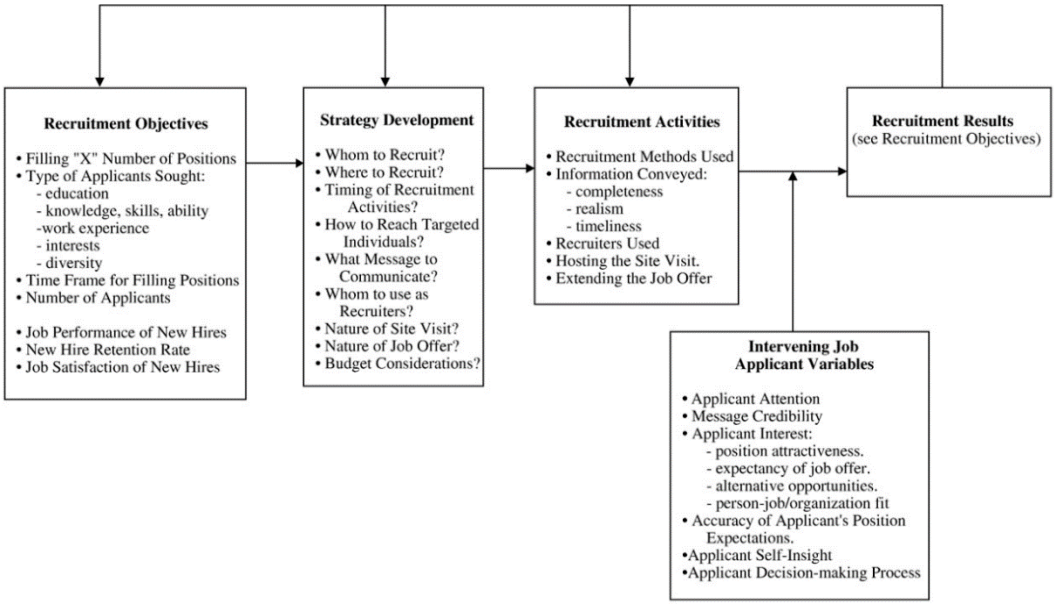

Figure 1 Recruitment process model (Breaugh, 2008)

One area where this model lacks depth is the variety of recruitment activities that exist between receiving an application and extending a job offer.

A model that goes into more detail on this selection process (Yakubovich & Lup, 2006) separates it into three stages: objective selection, subjective selection and self-selection. The first refers to decisions made based on objective or measurable criterion. This can refer to the definition of the desired profile through quantitative criteria (e.g. degree, GPA, number of years of experience), or the usage of tests that have a quantitative outcome calculated. These can be reasoning, logic or skill assessments related to the vacancy. These commonly come first in the selection process, as they can serve as initial cut-off points to thin out the applicant pool.

The second stage is subjective selection, where the recruiter will make decisions such as which candidates to pursue and what order to approach them in, based on their perception of the fit between the candidate and the organization, the job or the team (Kristof-Brown, Zimmerman, & Johnson, 2005). The subjectivity arises after the objective selection is complete, where all the remaining candidates should have the desired qualifications for the job, and recruiters must build their perception of the candidate's personality and fitness for the job. This can be achieved through individual interviews, group dynamics, or other assessments that require social interaction, such as case-solving interviews.

The later stage, self-selection, refers to the candidate's continuing desire to pursue the job opportunity. It is parallel to the recruitment process and culminates in the moment the job offer is accepted by the candidate, as they can abandon their application at any point. It is not dependent on the organization but can be influenced by continually attracting the applicant over the duration of the process.

Without looking further into applicant variables, the last stage of Breaugh's (2008) model is evaluating the outcome of recruitment and selection against the key metrics defined in the beginning, inducing the feedback loop for future recruitment efforts.

2.1.1. Metrics

Some of the valuable and commonly used metrics, according to a market survey (JobVite, 2016), are the time-to-hire (measured between the first official communication of the recruitment necessity and the acceptance of the job offer), cost-per-hire, performance of hire, retention rate, satisfaction of hiring manager and the number of referral hires per total or per a certain period of time. These are to be later confirmed by the interviews.

2.1.2. Fit

One important concept to define is fit, as it is what a recruitment process seeks in candidates. Person-Environment (PE) fit is broadly defined as the compatibility between an individual and a work environment that occurs when their characteristics are well matched (Kristof-Brown et al., 2005). At work, PE fit is broken down into several levels, one being the relationship between a person's characteristics and the characteristics of the job tasks themselves. This is the domain of person– job (PJ) fit, which can take two forms "The first is the demands-abilities fit, in which employees' knowledge, skills, and abilities are commensurate with what the job requires. The second form of PJ fit occurs when employees' needs, desires, or preferences are met by the jobs that they perform." (Kristof-Brown et al., 2005). As for person-organization (PO) fit "the emphasis is on the compatibility between commensurate individual and organizational characteristics". Recruiters will assess these levels of fit during the selection stage, but job seekers will also base themselves on these perceptions when applying to jobs, and when accepting offers.

2.2. Current uses of technology in recruitment

2.2.1 Applicant Tracking Systems and CV Screening

One current major use of software in recruitment are Applicant Tracking Systems, which are applications that allow recruiters to manage a large volume of applicants, providing a database for resumes and other application information together (Mukherjee, Bhattacharyya, & Bera, 2014). These can be provided by online job boards, integrated into the company's own HR information system as modules or as standalone applications. Data can be collected internally, included in the company's website or directly from the online resume boards. They function by creating databases of resumes, parsing information for recruiters to browse more easily, and keeping track of each applicant's status within the recruitment process (Lee, 2007).

Another feature that is becoming increasingly common is the automatic screening of CVs, where a machine learning algorithm will extract information from the resumes using natural language processing techniques going beyond simply searching for keywords. This can then be automatically compared with the job description provided by the company, ranking the candidates on how much they match based on their experience and background. (Faliagka & Ramantas, 2012).

2.2.2 Assessment Games

While not necessarily technology, it is a common mention that companies are increasingly turning to games as replacement to assessment tests in their recruitment processes. This fits into the definition of serious games, as it refers to the use of games with a primary goal other than entertainment (Armstrong, Landers, & Collmus, 2015). Recruiters seem to confuse it with gamification, which is a methodology relating to the usage of game design elements outside of a gaming context (Deterding, Dixon, Khaled, & Nacke, 2011). What this means in theory is the implementation of characteristics like scores, levels, time constraints, leader boards and resource limitations to systems outside of games. Despite assessment games using some of these mechanics, they are still games.

2.2.3 Video Interviewing

An increasingly popular instrument in recruitment processes are asynchronous video interviews, where applicants will record themselves replying to a questionnaire designed by the recruiter. These differ from regular video interviews in the sense that the candidate is not

actually conversing with someone, instead replying in a limited timeframe to questions appearing on screen (Brenner, Ortner, & Fay, 2016). The similarity to regular interviews is in the fact that candidates are not informed of the questionnaire before the interview, and thus are ideally giving unprepared responses to the questions posed.

These interviews can be analysed at a later date at the recruiter's convenience, evaluating the video as they would a face-to-face interview. But with the development of AI it is now possible that the interviews are automatically assessed by an algorithm. Platforms evaluate personality and aptitude indicators, by analysing the interviewee's voice, pitch and facial expressions, and evaluate not only the content of the interview but also how effectively they communicate (Hamilton, 2017). Using a combination of machine learning and natural language processing techniques to compare the interview results with the predefined ideal candidate for the role, these algorithms can immediately output a fit level (Suen, Chen, & Lu, 2019).

These three innovations in recruitment - CV Screening, Video Interviewing and Assessment Games - will serve as the focus of the analysis.

2.3. Enablers

The technologies described above are possible by the development of these technological enablers.

2.3.1 Big Data

Big data refers to "datasets whose size is beyond the ability of typical database software tools to capture, store, manage, and analyse." (Manyika et al., 2011). It is also proposed that this definition is purposefully subjective so it can be fluid over time – the amount of data required to be considered "big data" should increase continually with the development of technologies – and across industries, as the amount of data gathered in certain industries, by nature, can be fairly larger than in others.

The generation of data has exploded over the past few years, with the penetration of smartphones, social networks and the widespread use of the internet by an increasing number of devices. It is estimated that the total amount of data generated will reach 40 zettabytes (40 trillion gigabytes) by the year 2020, effectively doubling every two years since 2010 and at a growing pace (Gantz & Reinsel, 2012).

When properly assessed and applied, Manyika et al. (2011) propose that big data will inevitably impact decision-making, not only by automating low-to-mid-level decisions, but by augmenting the general process. This notion of augmented decision-making stems from organizations already employing data analysis on large datasets, that allows them to assess performance measures more accurately. This in turn can result in a new level of operational optimization, increasing revenues and
reducing costs, boosting productivity and driving efficiency and quality (Manyika et al., 2011). Another practical use is segmentation, as the employment of big data can help create highly specific microsegments, helping to develop new products and services. One example is Netflix's recommendation algorithm: by analysing ratings, searches and viewing statistics of their users, they are able to make recommendations better suited to the preferences of their users, delivering a personalized experience for each user. Recommendations account for 80% of content streamed (InsideBigData, 2018a). This extended to original content, as Netflix used the data for the most popular movies and shows on its platform to decide which content to produce that would appeal most to its audience. Netflix estimates that this usage of data saves them around $1 billion a year in customer retention (InsideBigData, 2018b), and this is highly applicable to recruitment, selection and employee retention.

2.3.2 Machine Learning

Machine Learning, a subset of Artificial Intelligence, refers to the ability of systems learning for themselves, by looking for patterns in large pools of data and changing their future behaviours (Shalev-Shwartz & Ben-David, 2014), mimicking the human brain by effectively learning through experience. These systems analyse a training dataset, and in turn will output a program that can perform a certain task. What machine learning's current state of development allows in practicality is three things: delivering better results comparatively to current tools and methods, asking new questions of the existing data, and opening up new types of data to analyse that previously were not possible, such as images, audio and video (Evans, 2018). This allows the analysis of very large pools of data or observing patterns that are too complex for humans, delivering both faster and more accurate results, but it is limited to the task it is trained for.

2.3.3 Natural Language Processing

Through a combination of machine learning and big data, several techniques arise. One that is especially relevant is natural language processing, which as the name implies is able to analyse

human language, be it written or spoken, and mimic it. This is used in a wide array of applications, from smart voice assistants in smartphones to marketing to evaluate the public's online response to products and campaigns. One of the main applications is sentiment analysis, which extracts subjective information from text and is able to assess if the sentiment is positive or negative, its strength, and the object of said sentiment (Manyika et al., 2011).

Chapter 3 – Methodology and Data Collection

In order to study the research question at hand both primary and secondary data were collected.

3.1 Secondary Data

The secondary data used in this study mostly took the form of academic papers and recent industry reports. Firstly, on the topic of recruitment, to serve as reference to the academic perspectives on how recruitment is defined, what role it serves and how it is conducted by organizations. Then, with a basis on the industry reports, to understand what main challenges the industry professionals are faced with, what concerns decisions makers have, and what are their organization's responses to combat them.

On the side of technology, the aim is to pinpoint which technologies the recruitment industry is looking into and actively investing in, to achieve a light understanding on how they function and their current state of development, and what their impact is. Some secondary data will also be presented during the analysis.

3.2 Primary data

The collection of primary data for this study was done through four interviews. The first interview was conducted with a recruitment industry professional with the role of leading the Careers and Talent Office of a university, dealing on a day-to-day basis with recruiters seeking to employ students and graduates, and actively helping them with their recruitment processes and employer branding. The other three interviews were done with recruitment experts working at multinational companies, that were chosen due to their perceived high recruitment volume and leading industry positions. The interview participants are listed on Table 1.

Participant #	Name	Position	Organization	Revenues
Participant 1	Maria João Santos	Head of Careers and Talent	Católica-Lisbon School of Business and Economics	N/A
Participant 2	Tiago Almeida	Head of Recruitment	Energias de Portugal, S.A. (EDP)	€3.317 Million Euro (EBITDA FY 2018)
Participant 3	Prefers not to say	Learning and Recruitment Specialist	Large FMCG Company	Over €1.000 Million

Participant 4	Prefers not to say	Resourcing Specialist	Large Telecom Company	Around €1.000 Million

Table 1 Interview Participants

The interviews were conducted on the phone, in Portuguese, between July and August of 2019. They lasted from 45 minutes to 1 hour, and were mostly conducted on a semi-structured fashion, as to assure the topics being studied were discussed but to also allow for free-flowing conversation. The translated interview script is present in Appendix 1, and in Appendix 2 are the summarized findings of the interviews.

Chapter 4 – Results' Analysis

4.1 Recruitment

4.1.1 Recruitment Process Configuration

The companies interviewed seem to mostly differentiate between two types of recruitment processes: cyclical, such as yearly internship or traineeship programs, and one-off situations for filling occasional vacancies. All three companies conducted both kinds.

For cyclical processes, companies define the number of vacancies based on need or the process's capacity and will spend from 3 to 6 months filling them. They have a structured approach with several stages serving as gates for the regularly large number of applications, distributed over the predefined duration of the program. Time isn't as much a constraint, as these programs are designed to allow a set number of candidates through each stage (given the capacity of the program) and deadlines are usually met. The strategy for such programs is reviewed on a yearly basis, and due to the fact that these programs target university students or recent graduates, recruiters feel the need to vary their communication strategies and messages as to not cause saturation for repeating candidates. For this effect it is common that companies will use their own websites/platforms for applications and information, changing the design on a yearly basis

Seeing the example of Interview 3's trainee program, it is divided into four steps, with the first two being objective and the final two subjective in their nature. It starts with the application page, where candidates will be asked for their CVs, and immediately they will be asked to undertake the first assessment stage, that consists of online games and a video interview. If they achieve a sufficient score on both tests and are in line with the company's requirements, they are moved on to the next stage, that consists of another game to test their general knowledge and assess their personality. All of these are objective assessments in the sense that each will yield a result on a scale of high-medium-low performance, without any human input from the recruiter. Then, if successful on a combination of these tests, the candidate will go through to the final two stages consisting of traditional face-to-face interviews with HR and finally with the board of the company.

For one-off vacancies, the HR department approaches the team leader with whom the vacancy arises in order to define the desired candidate profile. The example of EDP (Interview 2) is that after this kick-off meeting HR will have a set period of working days to generate a list of potential candidates, either by the company's own database or, if insufficient, through external

recruiters. The recruitment strategy is usually predefined depending of the general type of candidate, in the sense of what job platforms to advertise on and the type of message to reach the desired applicants. The ad respondents, combined with the potential candidates from the existing database and from the external recruiters, are invited for psychological assessment and a HR interview, where the final shortlist is compiled and sent to the team leader for the final interview, again following the objective-subjective evaluation.

According to all recruiters interviewed, the typical recruitment process in Portugal still follows the general structure mentioned in the literature review, with the selection stage following the objective-subjective order of evaluation. Thus, a model can be defined implementing the previously seen structures of recruitment (Breaugh, 2008) and selection (Yakubovich & Lup, 2006). Figure 2 is a visual representation of this general recruitment model.

Figure 2 Integrated recruitment model

4.1.2 Metrics

The metrics mentioned during the interviews were:

- fill rate,
- time-to-fill,
- conversion rates from recruitment activities and sources,
- the number of candidates for each step of the process (in-process conversion rates),
- dropout rates,
- candidate satisfaction.

Metrics such as time-to-fill and fill rate are of bigger concern when recruiting for one-off vacancies. Interviewee 4 only mentioned measuring the fulfilment of the external recruitment timing (26 days starting with the kick-off meeting until receiving the final shortlist of candidates), whereas Interviewee 2 mentioned the existence of a desired time-to-fill for the whole process until the acceptance of the job offer (around 5 weeks, where the first 4 are dependent on the external recruiter as well).

The remaining metrics concern the quality of the process. As previously mentioned, for cyclical processes the number of candidates moving on from each phase is predetermined by the processes' capacity, but one factor that may affect this are dropouts, as some candidates could go through to the next phase but give up on the process for any number of reasons. This can be because they were hired somewhere else but could also be due to dissatisfaction with the recruitment process itself or a shift in their perception of the company. For this effect, companies measure candidate satisfaction with their recruitment process. Some of the ways this is measured are

- by asking the candidate about the likelihood of recommending the company or the specific recruitment process to a colleague (Interviewee 1),
- informally in conversation with the candidates that make it through the later stages (Interviewee 3),
- using surveys that ask about the overall satisfaction with the process and specifically of the performance of the external recruiters and the company's HR department (Interviewee 4).

4.1.3 Challenges and Concerns

The "war for talent" was mentioned across all interviews. The fact that the job market is overflowing with demand for quality candidates is a concern for all organizations, and Interviewee 1 posits that this is making bigger, older and more complex companies worry that their recruitment process might be too long and bureaucratic, a fear confirmed by Interviewee 2. This is leading these companies to focus on changing their recruitment methods towards more agility and flexibility. Interviewee 3 mentions that they cannot feel certain that a preferred candidate will join the company up until the moment the contract is signed, as dropping out of the process and even rejecting a job offer are more frequent than expected. Interviewee 1 also mentions that the problem does not seem to be that there are not sufficient candidates in the

market, is that there is a mismatch between the competencies of the candidates and what companies are looking for. Another factor mentioned is that companies still mostly use the same criteria for quality when recruiting, e.g. the candidate's GPA, and this is making them all target the same limited pool of candidates.

Other concerns mentioned were the intention of increasing diversity in the workplace and improve employer branding among younger generations (Interviews 1, 2 and 4), as well as inadequacies when working with external recruitment partners (Interviews 2, 3 and 4)

4.2 Technologies

As mentioned previously, the core of this analysis will surround the topics of CV Screening, Assessment Games and Video Interviewing. Table 2 summarizes the current usage or ongoing implementation of these technologies in the companies equivalent to Interviews 2, 3 and 4, as Interviewee 1 works at a university and not as a recruiter.

	CV Screening	Assessment Games	Video Interviews
Company 2	Implementing	Implementing	Not planned
Company 3	Using	Using	Using
Company 4	Implementing	Not planned	Using

Table 2 Technologies in use in interviewed companies

4.2.1 CV Screening

As long as the CV is the preferred method of summarizing a candidate's profile, experiences and skills, CV screening will be a necessary part of recruitment. The companies interviewed are at different stages when it comes to automating the CV screening process, despite the idea that it is still not very common in recruitment processes in Portugal (Interviewee 1). The major advantage seems to come to cyclical processes, as seen above are subject to a far higher volume of applicants. But advantages such as easier browsing and immediate matching analysis are to be felt across the board.

Company 3 is the only one from the sample employing an automated CV screening software for over 2 years now, and they say that the way their trainee recruitment process is set up would be otherwise impossible had they not implemented an automated system. This software is proprietary and was specifically designed considering the global profile of trainees the company

seeks, and thus is used in all the geographies the company is present in. As mentioned before these cyclical processes have semi-strict deadlines for each stage, and so considering the high volume of applications they receive every year, having to manually sift through them would make the process even longer. The duration of the process is already a concern according to the feedback of the candidates.

Company 2 currently uses a Human Capital Management software called SAP Success Factors, which includes an ATS component to it. Starting in September, they will start using an automated CV Screening module on it that is set to greatly improve their operation, in the sense that it is expected to reduce the currently human-led task of screening resumes and eliminating redundancies from 1-2 working days down to 10 minutes. In addition, it will automatically output a percentage of the fit between the CV and the desired candidate profile. Interviewee 2 feels that the greatest impact when starting to use this module will come in the lower reliance on external partners, as he mentions that the expectation is a reduction of 25-30% on yearly external recruitment costs, not counting the internal savings of reducing the time-to-fill. The savings stem from finding suitable candidates from the internal databases faster and more frequently, decreasing the "tendency" to trigger an external recruitment process.

Company 4 is also implementing SAP Success Factors at the moment, with full integration expected by December, but until then their CV screening process is undertaken by an online ATS named Taleo. Taleo requires the candidate to fill in a form, separating information into different fields, which makes the information on candidates organized for recruiters to more easily browse, but at the expense of the candidate experience. Company 4, concerned with improving their candidate recruitment experience and their employer branding in general, is seeking to change this.

4.2.2 Assessment Games

As mentioned in the literature, despite not being technological development, companies mention the usage of games instead of traditional assessment tests as part of their digital transformation strategy (Interviewee 1). Being enabled by the increased and smarter use of analytics in recruitment, companies see them as advantageous as candidates prefer them over traditional assessment (Interviewee 3).

Again, Company 3 has been using games as their primary assessment method for over 2 years. Their first stage of assessment includes a number of games with the intent of assessing

characteristics such as numeric reasoning, situational judgement and risk aversion. The second stage is an experience programmed to assess the personality of the candidate and their general knowledge. The feedback they get from candidates is overwhelmingly positive, as they do not feel that they are being tested in that moment, and the dynamism makes them expectant of the next part of the recruitment process.

Company 2 are in the process of implementing a game approach within their internship recruitment process. To be led by an external partner, the game they will be using consists of gathering a group of candidates in the same space and have them solve a puzzle together through digital means. They expect this to gather the same level of data as their previous traditional assessment methods, with the added component of evaluating the group dynamic, while being more attractive to a younger target applicant.

4.2.3 Video Interviewing

Interviewing is also perceived as a crucial step in recruitment, as it serves to grip the candidate's social and relational skills. The necessity of using it in recruitment processes poses two main concerns: the time it takes, as traditional interviews require physically being present in the same space or spending the same amount of time on a call, and the high degree of subjectivity and potential biased decision making. The introduction of asynchronous video interviews, with automatic screening by AI, represents a potential solution. Major advantages include the possibility of having an interview step earlier in the recruitment process, essentially serving as an early cut-off point that is not purely based on a requirement or a test. This blurs the line between objective and subjective assessments defined in the model previously seen in figure 2, although the consensus from the interviews seems to be that asynchronous video interviews will never replace actual interviewing, being more of a relatively effortless addon to the recruitment process.

Company 3 makes the case for using Asynchronous Video Interviews, as they say it allows them to narrow down the large volume of applications while still giving most candidates a chance of showing their personality and conversational skills. The output of this system is a grade scaled as high-medium-low on how well the candidate performed, which allows recruiters to prioritize which candidates to invite for the next stages. Their implementation of the technology was specifically built for assessing the trainee profile, and despite not taking any formal metrics on its performance they are satisfied. Company 4 are also employing video

interviewing in their cyclical "youth" recruitment processes, although in a slightly different way. The recorded interviews are watched by a specialized team in Hungary, that grades them simply as pass or fail. Because both companies operate in many geographies, all of the interviews are conducted in English for both the AI algorithm and the centralized team to analyse.

4.2.4 Example 1 – The Unilever Case

An interesting example of the adoption of all the aforementioned technologies is the case of Unilever. The international fast-moving consumer goods company receives 1.8 million applications a year, out of which they hire around 30.000 people globally (Marr, 2018). To tackle the extreme volume of applications, Unilever decided to overhaul their recruitment methods towards a more digital approach. Starting with the application phase, they replaced CVs with LinkedIn integration (HireVue, 2017a). For assessments, they partnered with Pymetrics, a recruitment AI specialist, to develop a platform with games to replace their assessments. Then, for the second stage, they partnered with HireVue to develop a system of asynchronous video interviews, automatically analysed by AI. (HireVue, 2017b). Both partnerships had the mission of developing ways to measure behavioural cues indicative that candidates would be more likely to succeed at Unilever. Another inclusion was the automated feedback that all candidates received, both accepted and rejected, including their profiling and why it did not fit in with Unilever's parameters for those not continuing with the process. The result was that, in a year, around 70.000 hours of interviewing and evaluating candidates were saved, the time-to-hire was reduced by 90%, and over 80% of candidate feedback was positive.

4.2.5 Example 2 – Search Technologies

Search Technologies, part of Accenture Applied Intelligence, is a technology services firm specialized in search and big data analytics solutions. They worked together with two large recruitment firms to employ big data analysis techniques such as text mining and semantic analysis to match candidate profiles to job descriptions, with their theory being that the key factor in evaluating a candidate would be their likelihood of being successful at the function they were being recruited for (Nelson, n.d.). Through these big data techniques, they were able to go beyond simply browsing through resumes for key words and extract more metrics to compare to the job description. By also including historic data from the companies' databases

regarding past hires and past jobs, wages and the company's preferences, they were able to go beyond the recruiter's perspective of candidate fit and calculate a probability for each candidate getting hired by a specific hiring manager for a specific job, indicating the expected success of each candidate's skillset on the job.

The results were a 6% increase in fill-rate, which for the recruitment companies meant a revenue increase of around $200 Million in a year, while also reducing the time-to-fill by 50% and advertising expenditure by 20%, as well as increasing recruiter productivity by 20%.

4.3 Best Practices

In order to improve the applicability of this research, a summarization of the best practices gathered from the interviews and examples is presented.

4.3.1 Technology Impact on Industry Concerns

Firstly, it is important to correlate the concerns mentioned in the interviews with the recruiters' perceptions on how the innovations described above can help solve them. Table 3 presents a summarized visualization.

	CV Screening	Assessment Games	Video Interviews
Recruitment Speed	X	X	X
Increasing Diversity / Eliminating Bias	X		X
Improving Employer Branding		X	X

Table 3 Technology's effect on recruiter concerns

From the examples seen, it can be concluded that using Automatic CV Screening software over traditional methods makes it easier for companies to find the best applicants faster, and by prioritizing them they can potentially close recruitment processes faster. Programming the algorithms to not extract any information regarding gender, age or background is a major stride in eliminating the existence of conscious and unconscious biases that can arise during manual CV screening. This also applies to the initial perception of a candidate's fit to the company, as algorithms can point to certain profiles being a match with the job description that recruiters could be ignoring before. Despite the fact that candidates seem to be favourable to online recruitment methods (Sylva & Mol, 2009), and that a case can be made that increased diversity

is very advertisable and desirable within younger generations, the effect on employer branding does not seem to be the focus when employing CV screening technologies.

Regarding the use of games as an assessment form, the main benefit comes in the form of improved employer branding. As Interviewee 2 mentioned, if a candidate values a digital experience as positive and their recruitment process is more enjoyable because of it, they will have a better perception of the recruiting company and is more likely to recommend it to colleagues through word-of-mouth. The improvement in speeding up the recruitment process is only applicable if a company is replacing traditional paper-based assessments with online games, or if they can also substitute the need for conducting a group dynamic evaluation as is the case with Company 2.

Video Interviews seem to be the most impactful of the three, as they arguably represent the biggest shift. By implementing them in an early stage along with the other assessments, companies are able to add an extra set of criteria for narrowing down candidate pools even further before calling them in for personal interviews. The amount of time saved is considerable, as demonstrated by the Unilever case. The increase in diversity is only applicable for companies using machine learning algorithms to evaluate the interviews, as these ideally are programmed to not look at gender or age cues, removing some of the potential bias of the interview process. The improvement in employer branding follows the same line as game-based assessments, as the usage of video interviewing is also a digital method.

4.3.2 Software Integration and Usage of Metrics

Regarding the collection and usage of metrics, Interviewee 2 mentioned it as an increasingly crucial activity for recruiters, and Interviewee 4 says it is a priority for them, with the aim of improving the process continuously. It is interesting to verify that Company 3, which has the most matured and broad adaptation of technology, is the one less concerned with formal metrics collection. As Interviewee 3 mentions, they are not using any of the common metrics listed above other than comparing the total number of applications on a yearly basis, as well as conversational feedback with the candidates reaching the final stage.

Linked with metrics, one important factor to consider is the impact of integrating different software solutions employed in managing recruitment. Interviewee 4 mentioned that this is something they are actively investing in with the migration to SAP Success Factors in the near future, as they are currently employing separate apps with no transference of data between them. This was in fact the first thing mentioned when asked about the usage of technology in their

recruitment process, as they had previously mentioned that centralizing data and improving its visualization was perceived as very important for the development of their process. Interviewee 2 claimed that migrating to a single integrated software was the biggest change felt since joining the company, greatly reducing the amount of redundant work in the department and increasing both the availability and reliability of information. In fact, Interviewee 2 went as far as classifying this move as having a bigger impact than their expected impact of implementing both the CV screening function and the game assessment step.

As seen with the example of Search Technologies, the accumulation of data can be fundamental when developing and implementing new technologies into recruitment. That that data is centralized, easily accessible and transferrable is important as well, as in their example they were able to empower their recruitment model with the usage of data that was not perceived to relate to recruitment directly, i.e. wages and performance data of current employees.

4.3.3 The Future of Recruitment

When asked about how they perceived the evolution of the recruitment process for the near future, all interviewees were consensual on some aspects. The tendency is for the process to become increasingly automated, requiring less human intervention on menial and repetitive tasks, pushing the first contact between candidate and recruiter until later into the process. Despite this, is it important to maintain a constant accompaniment of the processes even when they require no human intervention, as the idea of a potential overreliance on technology exists. The ethical point-of-view of the usage of technology in recruitment, and regulatory changes such as the recent GDPR are monitored concerns as well.

Interviewee 1 postulated that the recruitment function should require less people, but all interviewees agree that there will always be a need for a final human contact and decision. This means that the role of recruitment, and Human Resources Management in general, is becoming increasingly more strategic, and thus requires an open mind from decision makers to accept this shift from an administrative or support function. It is important to consider the organizational culture in regards to how it accepts these changes to both technology and the role of HR. Interviewee 2 mentions that the current changes they are enacting are already a major step for the company, as it is a very big organization in the Portuguese context and being previously public he feels they there is some traditionalism and aversion to change. In contrast, Company 3 are very open to innovation, constantly seeking technological development in their business areas, and so it is no different for the HR department.

All things considered, these changes should bring about an improved distribution of workers in organizations and outside, as recruitment can also serve to show applicants when a company is not adequate to their profile despite their belief of fit. Examples like Unilever, of providing feedback to candidates even when rejecting them, communicating to them how their profile was evaluated to be during the process, can bring about an increased level of self-perception to candidates. By using these powerful technologies for purposes other than the internal usage of the company, all organizations can help in better distributing workers in society.

4.3.4 Potential Scenario

As a way to summarize the above analysis, a recruitment scenario is proposed where a company uses the described technologies to their current full potential.

- The need for recruitment is communicated from the hiring manager to the recruiter. This is done through the company's HR Information System, effectively initiating the recruitment process and starting to count the time-to-fil.
- When the recruiter and hiring manager are debating the ideal candidate, they use the current employees' performance data and previous recruitment data and are able to identify their best performers' profiles and look for candidates that behave similarly. By diving into their own employees' performance data, matching it to their personalities and preferences, they can develop predictive models that can be applied during recruitment to produce a percentage of successful adaptation to the firm, and the outlook of that hire's future performance. This could be expanded even further by including data from the hiring process, including candidates that were not hired to serve as comparison.
- When the profile is decided, the recruiter can input it into the CV screening software and start the search on an internal database of employees, former employees and former applicants. If the need for an external recruitment partner is felt, this profile is immediately communicated to them.
- All applications received on all recruitment channels used are automatically directed to the CV screening system and a profile is created for each candidate, detailing the matching percentage with the job description, as well as the expected performance in the company by comparing to the existing data. These profiles can be sorted, ranking them on said percentages and are constantly updated with each successful stage passed.

- Upon successful application, candidates immediately receive links for the online assessment games and video interview. The results feed directly into the profile within the internal system.
- As soon as the recruiter identifies the existence of sufficient adequate profiles they can close the applications. They can then decide on a cut-off criterion to be applied on the already existent profiles, based on the results of the various assessments. All rejected profiles are immediately given feedback automatically, mentioning in what stages their results were not sufficient and describing their profile as perceived by the company's criteria.
- The highest-ranking candidates can be contacted on a rolling basis, inviting them for all personal evaluation stages the recruiter sees necessary. Each subjective assessment phase has a standardized evaluation form, allowing for easy input into the system.
- When recruitment is finalized, the profile of the chosen candidates can be later built upon using their performance data gathered while working for the company, allowing for checking against the expected performance measured during recruitment. The data from candidates not chosen should be kept in the database to further improve the system's performance, while complying with all necessary regulations.

Chapter 5 – Conclusion

5.1 Conclusion

The aim of this research was to study what is a general model for recruitment processes currently in use, which technologies are impacting recruitment, and what can organizations do to be successful when implementing changes to their process.

The results show that recruitment processes follow a similar structure regarding the order of the stages used. These vary in their complexity in accordance to the volume of applicants. When recruiting in a cyclical fashion, companies tend to use more objective assessment in the initial stages of the process to reduce the candidate pool, without fully replacing later subjective evaluations. This need to handle increasingly larger number of applicants is one of the main drivers of the implementation of technological approaches. Along with this, companies are concerned with the speed of their recruitment processes, improving their employer branding within younger generations and increasing diversity within the company. The state of the job market points to increased competition for top talent, and organizations are finding it crucial to invest in how they are perceived by their desired candidates. The implementation of technology in recruitment is seen as the right direction to respond to these concerns. For that purpose, companies are investing in automatic resumé screening systems, asynchronous video interviewing empowered by artificial intelligence, and replacing traditional assessment tests with games.

The usage of automatic CV screening technologies enables companies to more quickly find the candidates that more closely resemble their desired profiles, ranking them with objective methods, and excluding information that could be subject to bias in an early stage.

Introducing an AI-powered video interviewing step into the early stages of the process also allows for the reduction of biased decisions and therefore increased diversity in the company. It also constitutes an extra step when comparing to a more traditional recruitment process, as it does not replace any, and thus adds another criterion for a recruiter's decision-making. If fully automated, it has a positive effect on the process's timeline if fully automated as it helps reduce the candidate pool even further, while at the same time presenting the candidate with an extra chance to stand out and show their profile in a different way.

By replacing traditional assessment tests with games, companies are able to gather the same amount of data on a candidate while making the process more enjoyable. This makes participants more comfortable and act more naturally, making the results more accurate. These can be conducted online for increased process speed or by gathering a group of candidates, including into the analysis a social and personal component.

Companies are also actively investing in integrating recruitment systems, aiming at reducing the need for migrating data between different applications. The tendency is full integration into one single software solution composed of different modules, as it increases the accuracy and reliability of data, as well as easy access to it. The gathering of more datapoints is also a concern for companies, as metrics are seen as key to continually improving their processes.
Regarding the future of the recruitment function, companies are heading towards more automation of repetitive tasks. This is already seen as crucial to the way the processes are currently conducted and should remain so, and so the necessity for human contact with the candidates is being pushed further back in the recruitment timeline. Thus, the role of recruiters and HR professionals is becoming increasingly strategic when compared to what was seen as simply administrative before. This shift in the perception of HR and the increased reliance on digital processes require a flexible and adaptive organizational culture to succeed.

5.2 Limitations and Future Research

Due to the limited sample size of this study, the results must not be generalized to be absolute best practices when applying and using technology in recruitment and selection. Nevertheless, considering the size and competitiveness of the companies included in the sample as well as the results presented in the examples, there seems to be potential for replicability into the wider market, as the availability of these technologies is increasingly global, as are the presented recruitment processes. Greater variation should come from market characteristics, as well as the companies' own perception of the need for and impact of these technologies, which should present an interesting study. To the same regard, studying in greater detail the impact of ethical concerns such as overreliance and data protection regulations on the usage of technology in recruitment should also prove to bring interesting conclusions.
Regarding the technologies chosen, these were found to be the most represented in the Portuguese market at the time of the study. This selection could vary when investigating other markets, depending on different levels of technology adoption both in recruitment and in the companies in general.

This study is limited to the perspective of recruiters hiring for their own companies. As such, it would be valuable to study the perspectives of external recruiters, and the companies advancing the technological developments mentioned. It should also be fruitful to investigate how the

usage of recruitment technologies internal to the company impacts the contracting of external partners, as Company 2 is an example of.

It would also be interesting to study the perspective of candidates when they are faced with these sorts of developments in recruitment processes, considering their perceptions of the companies and their preferences, as well as their side of the recruitment timelines.

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Appendices

Appendix 1 – Interview Script

Before starting the interview, a brief contextualization on the research and its structure were given. The interviews were semi-structured to enable for free-flowing conversation.

1. Recruitment

    a. Describe your general recruitment process
        i. Mention frequency, duration, phases and assessments used.
    b. What are the objectives you establish, and what metrics do you use to evaluate the recruitment process?
    c. How has this process changed recently for your company?
    d. What are the main problems or concerns you are faced with right now?

2. Technology

    a. Do you utilize technology in your recruitment process?
        i. Which technologies?
    b. What is the impact of the current use of these technologies in the metrics you use?
    c. What is the expected potential you see in the usage of technology in recruitment?
        i. How will technology affect the way you work?
    d. What are your investment perspectives in technology?

Appendix 2 – Summarized Interview Findings

Interview 1

Maria João Santos, Head of Careers and Talent at Católica-Lisbon SBE

Recruitment

- Recruitment and selection processes are mostly still comprised of an initial CV screening, assessment tests and a series of interviews. Usually the first interview is with an HR officer, and the subsequent ones with the head of the business unit the recruit would be integrating and the management of the company.
- Some of the most common KPIs for recruitment and selection are time-to-fill, conversion from recruitment activities into actual applications, dropouts / no responses, efficacy of different sources and satisfaction with the recruitment process (usually through likelihood of recommending to someone else).
- The "war for talent" is making bigger, older or more complex organizations worry that their recruitment processes are too long, making them slow to answer and too bureaucratic. They are seeking to increase their agility and flexibility to compete with faster companies, and there is also a big focus on employer branding.
- Some companies are not capable of filling all the positions they have available, but not because there aren't enough job seekers. There is a mismatch in competencies. Companies still mostly focus on a student's GPA as their main criteria for quality, so most companies will target the same small group of students.

Technology

- Automatic CV screening technologies are still uncommon in Portugal.
- Video Interviews are increasingly more common, as companies find them a very efficient way of managing the initial interviewing step of the process, giving more equality to candidates in the sense that recruiters can interview more people.
- Companies using gamification approaches to assessment testing are also multiplying. Companies feel that games can attain the same level of information as traditional assessment tests, but with an added social component. Other advantages include a better candidate experience, and companies also see it as a way of reducing early-stage bias.
- Companies use Applicant Tracking Systems very commonly, but these often don't integrate well with the organizations' own IT platforms.
- Overall impact of these technologies is positive. Some companies have been successful with an increased amount of applications and better candidate satisfaction with the recruitment experience, others not so.
- In the future, technologies will become more common and partake in more parts of the recruitment and selection process. It should eliminate more menial and routine tasks of the job, but it should always require at least a final human contact with the candidate, and a human decision. This means the role should require less people. The industry should have

the necessary acceptance for this change, but lastly it will fall on the organizations' management to reposition the role of Human Resources into a more strategic one.
- The existence of various biases could help both accelerate and decelerate the adoption of technologies, as technologies could have a crucial role in the eliminating biases from these processes.

Interview 2

Tiago Almeida, Head of Recruitment at EDP

Recruitment

- The recruitment processes vary, but a general one starts with finding the need, and from there they will check the internal database if they have enough potential candidates from former recruitment processes. If not, they will contact an external recruitment partner, place an ad in the most adequate platforms, and compile a longlist. The candidates listed are contacted for psychological testing led by the external partner. The candidates that make it through are interview by EDP's HR department, and later with the working unit leader.
- This whole process is fully managed using an ATS (SAP Success Factors). This platform allows to measure KPIs directly, which they see as an increasingly crucial activity. Some of the KPIs measured are the ads' conversion rates, the advancement rates of each stage of the process, time-to-fill (from internal request to formal acceptance of the job offer – desired is around 5 weeks, maximum is 90 days), and the fill rate on a trimester basis.
- This process hasn't changed within EDP as of recently, so Tiago has been hired to lead the digital transformation of the recruitment function.
- The main concern, and one of the motivating factors for the planned transformation, is the need to make the EDP brand more attractive for the current generation of graduates, as the feedback implies that it isn't.

Technology

- Starting September 2019, EDP are implementing an automated CV screening algorithm within their ATS, that will be able to reduce the currently human-led task from 1-2 working days to 10 minutes. It will also output a percentage of each CV's match with the job requirements. The algorithm will have a machine learning component to it, making it increasingly accurate. It will also greatly reduce the reliance on external sourcing partners, as it will allow the recruiter to understand sooner if their database is sufficient. This is estimated to save 25-30% of the yearly costs from using external recruiters, not counting the cost savings of the reduced time-to-fill. The expected impact of this is 4 on a scale of 1 to 5.
- Also starting September 2019, EDP will start using games as assessment testing in their coming internship recruitment, through an external recruiter. The process will consist of getting 6 applicants together in a room and solve a puzzle through an app. They expect to measure the same amount of data as the assessments they used previously, plus the group dynamic component, with the same cost to the company. They expect this to greatly impact the company's attractivity with the young target group, through word-of-mouth. The expected impact is a 3.

- They use Skype interviews, but are currently not planning on using video interviewing, as they prefer to prioritize the aforementioned technologies.
- One great stride they have taken recently is the full integration of the related processes within the ATS, as there used to be some dispersion. This greatly reduces the amount of work and makes the information more reliable and readily available. The perceived impact of this is a 5.
- Tiago believes that integrating these technologies will be unavoidable in the future of HRM. Machines should soon take the bulk of repetitive tasks such as searching and triage but should never fully eliminate the need for the human component of interviewing to assess the fit of a candidate and make the final hiring decision. Recruitment firms will not disappear as some believe, but they have to adapt to the technological changes and become more strategic.
- The ongoing implementation of technologies into the recruitment process is already perceived as a big step for a group like EDP, that stems from a public service and is very large, complex and bureaucratic with 12000+ employees. It is a big investment considering the amount of processes affected and should serve to break some of the traditionalism of the group.

Interview 3

Name Withheld, Learning and Recruitment Specialist at a Multinational FMCG company

Recruitment

- Being an international company, the local offices follow the decisions of the HQ. Recruitment methods are mostly standardized worldwide.
- They have several different processes, and the most complex one is for the trainees. The following descriptions are mostly for the recruitment of trainees
- 1- It starts online with submitting their CVs, they take no other information. They have an algorithm that extracts the information from their CV (it is programmed to take no information regarding age or gender). The only extra thing they ask is about the years of working experience, as the program is aimed at people with less than 3. It is immediately followed by a set of assessments and a video interview. AI will churn the video and decide right away if it is a pass or a fail according to company's pre-defined criteria, and the recruiters can choose whether to view them or not if they feel the need. First stage also assesses spoken English performance (VI).
- 2- Those that pass this phase are introduced to a second stage, third party-made, that will evaluate general knowledge and personality through some online questions and quizzes.
- 3 - According to these results, HR will start the actual interviews. Prioritizing the ones with the best results, they also call some of the candidates that had varying performances (e.g. average in the first tests but having stellar performance in the remaining evaluations).
- 4 - The final phase is an assessment centre, where candidates are interviewed the board.
- They've been using these platforms (CV screening, online tests, Video Interview) for the past 3 years. The idea is to reach people faster, in a more digital way.
- Objectives – the trainee program runs every year, and the recruitment needs will be decided depending on the volume of business, ongoing projects and turnover.

- Metrics – the VI platform they use outputs candidate metrics automatically and they compare them to their own quantitative outputs ("grids") from the HR interview. The digital outputs can be grouped into High, Medium and Low levels, and if a candidate can reach an overall positive combination of results, they can be considered for an interview. The company wants to increase diversity, and not standardize their recruitment to only include candidates with high performance on the tests. They do not utilize any of the "common" recruitment metrics, at least not in a formal way. They simply run their recruitment process from December until May, with onboarding starting in September. They do compare the number of applicants from year to year.
- Obstacles – candidates are faced with many different opportunities and up until the moment of formal job acceptance they can be snatched up by a different organization offering them a higher wage or different conditions. When using third-party recruiters (not for the trainee program) they have some difficulties communicating with recruitment consultancies regarding the exact profile they seek. Often shortlists will be inadequate to the company's working culture, and reports will be severely biased where all candidates "sold" by the recruiters will be touted as the best, as external recruiters gain by offering larger quantities of candidates. Another issue is inconsistent information regarding wages and conditions. They are trying to combat this by using face-to-face briefings between the area leaders and the third-party recruiters, to give a higher detail on the desired candidate's profile and job.

Technology

- The tech platforms used in recruitment are owned and developed by the company.
- VI – It was built with the specific purpose of evaluating the *trainee* profile. They have two attempts at the recording. It is evaluated by AI first, but it can happen that the performance in the VI and the actual interview will differ so much that they will want to see the video interview as well.
- Online tests – They are games. One of the aspects candidates mention is the interactivity and dynamism, and they mention they don't feel like they are doing a traditional assessment test. These are done within the company's own platform.
- They haven't measured the impact formally, just through informal candidate feedback (the interviewee is unaware if this only applies to the Portuguese branch or globally). The feedback though is overwhelmingly positive, and candidates mention they become curious as to what the next stage of the process will bring. The negative feedback is that the process still takes too long, due to having many different phases, but they find it understandable because it is demanding, although going through the whole process can also assure some level of interest and compromise from candidates.
- Advantages – because it is very digital, especially in the early stages, it requires much less human involvement from the recruiter's side. They monitor and are accessible to candidates if any problems arise, but in general the first contact with the candidates is the invitation for the HR interviews. This means they are able to interview all the candidates they want to, as they would not be able to go through the same amount of applications without the use of technology and automatic systems.
- Company wise, it would be unthinkable to do this form of recruitment, with this number of candidates and within the same timeframe, without the aid of technology. Especially because the platforms are specific to the kind of candidates sought, as it reduces the

likelihood that a candidate that reaches the interview stage will be a total mismatch with the desired profile.

- The interviewee mentions that this is the highest level of technological integration and advancement in a recruitment they've seen, and that they've witnessed other organizations with the same volume of applications, but without the same technological aid they had to have people dedicated full-time to routine tasks, and the process was slower. This usage of technology in recruitment allows companies to change and evolve faster, and within 5 years they expect this to change even more.
- They believe tests will become increasingly more dynamic and feel less like tests, as people act more genuinely without the pressure factor, leading to more natural results. Making recruitment processes less negatively looked-upon and less standardized, more natural and allowing recruiters to better understand someone's personality. This is already felt in their current recruitment process.
- When the interviewee started working, the implementation of technology in recruitment was already natural. And they believe that for success, people must be adaptable and flexible to change, starting with the companies' hierarchical structures and organizational culture. They feel the company's culture is great for this, as they are very open to exploring technological development with their business units and other support functions, so HR should be no different.

Interview 4

Name Withheld, Resourcing Specialist at a Multinational Telecom company

Recruitment

- Recruitment is split between youth (students or recent graduates, with little-to-no work experience) and professionals.
- The recruitment process for professionals starts with an internal posting, with a global reach within the different geographies of the company. If a solution is not found within the company (which is the case 90% of times), one of four external recruitment partners is contacted. The first contact is a kick-off meeting between the external partner, the resourcing specialist and the hiring manager, where the profile and job description are detailed. Then the external partner conducts a search and creates an advertisement to be posted online in the usual platforms (e.g. Linkedin Recruiter), and also creating landing pages with more information and a focus on employer branding. Then both internal and external candidates are contacted by the external recruiter, initially through introductory phone interviews, where motivations, profile, benefits and expectations are discussed. After these they conduct an assessment phase, where they evaluate the candidates' competencies and pose a business case, both specifically built for the company based on their organizational values and the job description. The candidates that go through this stage will then be presented to the company, with a detailed report. The company then faces two interviews with the company, firstly on a technical perspective, with either the team leader or a senior colleague, and finally with the director of the business unit.
- They split their metrics between qualitative and quantitative. The qualitative KPIs are measured with the external partners. One of the main challenges, not just in Portugal but

globally, is increasing diversity, both of gender and of background/work experience. Another one is, connected to the time-to-hire, is to measure the quality of each external stage of the recruitment process based on the number of candidates presented to the company. They also use surveys: one that is conducted with the candidates that reach the final stage, on the performance of the external recruiter and the experience with the company, and also what the final decision and feedback was; and a second one that is being implemented now, conducted with the hiring managers on the performance of the recruitment team regarding the quality of the final shortlist of candidates and the overall timings of the process. The quantitative analytics they gather are: the fulfilment of the external recruitment timing (desired is 26 calendar days from the kick-off meeting to the presentation of the final shortlist of candidates to the company) – this is currently managed in Excel – and the number of candidates presented in the external recruiter's shortlist, with weekly accompaniment from the recruitment team on the state of the external recruitment, as a way to continuously measure the job market. Another current metric, reported to the global HQ, is the number of recruitments for strictly digital functions, and specifically for critical roles within the organization, as the company is undergoing an all-around digital transformation process.

- They feel their recruitment model isn't very common in Portugal, regarding the fact that the external recruiters work in exclusivity with them (meaning, no more than one external recruiter working on an individual job opening). They feel this as a big advantage, as they say it's built as more of an extension of their own recruitment process instead of an external one, and they believe this also improves the candidate experience as they don't have to have contact with more recruitment partners. This is constantly improved upon through monthly meetings with the partners, to evaluate the process's performance. They mention the quality and the market reach of their external partners as major driver for their recruitment success.
- They've never seen a market with so many good job opportunities with good conditions such as wage, benefits, work-life balance and internal and international mobility. They are concerned with developing strategies for attraction, being a massive and fast-moving organization. They want to show the market that they're a company where they work in an agile and digital way, to attract the current generation of graduates ("digital natives"). The other challenge they see is regarding retention, as they feel competition is harsh, so they invest in internal mobility and training and development.

Technology

- One major improvement is the transition to a new software (SAP Success Factors – same as EDP), to be fully implemented by December after a testing period, in order to speed up the recruitment process and provide a better candidate experience. This comes in line with a focus on analytics and centralizing data, as recently they have been shifting their processes to better tools, such as QlikView/QlikSense that help with visualizing data, but that are not integrated and thus require manual input. The aim is to gather conclusions from recruitment processes to improve the following similar ones, with a visible impact on all stakeholders and the whole group.
- They use an ATS called Taleo, that does not screen CVs automatically. Taleo is a platform where the candidate uploads a CV and fills in a form that is organized automatically. There is still some bottleneck here, and SAP Success Factors will be a major improvement once migrated.

- For professionals they very rarely resort to Video Interviews, but they use them for all "youth" programs, through a platform called HireVue. The candidate receives a link to the VI after filling in the application in the platform and fulfilling the assessments. The interviews are conducted in English regardless of the country and are all watched by a central team located in Hungary, that grades them Positive or Negative. No AI is used for video interviews. For professionals they don't use them so much as usually positions have much less candidates and they are able to interview everyone personally.
- Another future implementation will be a referencing platform, where employees can recommend new candidates, with a gamification approach still to be defined.
- The overall impact of the technologies currently implemented is very positive, as the feedback from younger candidates is that they value quick and easy digital recruitment processes.
- They are sure the track they are on is the future for recruitment, and it will come in phases. They believe it will never be fully digital as the human component must always be present. They are actively looking into internal business intelligence and big data analytics to integrate into their system, to increasingly automate recruitment processes.
- The HR department is increasingly being seen as a collaborative department, more strategic and well-positioned regarding the new technological tendencies, and with the right mindset to constantly keep adapting.