

SCHOOL OF INDUSTRIAL AND INFORMATION ENGINEERING

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**INTERNATIONALIZATION PROCESS FOR
ARTIFICIAL INTELLIGENCE RECRUITMENT
STARTUPS**



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ABSTRACT

This paper is based on an internship at ZenCV, an Italian start-up company mainly active in the field of human resources and career consulting. At the moment ZenCV is specialized in Curriculum Vitae (CV) writing services. The experience gained at ZenCV was covered with the academic knowledge and research results to work on the idea of internalization process for artificial intelligence recruitment startups.

Firstly, the recruitment and artificial intelligence market was tackled with its growth. It was found that many companies are currently benefiting from AI as it plays an important role in assisting HR teams in the recruitment process by speeding it up in functions such as resume screening, candidate sourcing, interview scheduling, and more.

After analyzing and discussing where to expand, this study has focused on the top 10 countries that have invested the most in artificial intelligence. Even though ZenCV is still a small company, they considered going into the market that could offer them the most growth opportunities. In the end, it turned out that the US was the best fit for their strategy to move. In a world where everything is turning to technology, it is hard to find a place where technology cannot be implemented, and the recruitment market is no stranger to them. First the ATS, now AI through chatbots and the future hyper-realistic AI that looks like humans, and that's where ZenCV comes in. By the use of various techniques and indicators, it has become apparent that the US would be the perfect place for ZenCV to expand and offer its services. It was also realized that due to the high concentration of the market, it would be better for ZenCV to offer its service more as a recruiter. Therefore, a partnership would be the ideal entry point with the ability to offer this software that could help save time and money while helping to make better hires and reduce turnover for stakeholders.

We believe this paper can provide insight and help other start-ups like ZenCV take their first steps to move forward and focus on automation, as this will be the future not only for the staffing industry, but for the other service industries as well.

Keywords: Artificial Intelligence, Recruitment, Startups, Internationalization

SOMMARIO

Questo paper si basa su uno stage presso ZenCV, una start-up italiana attiva principalmente nel campo delle risorse umane e della consulenza professionale. Al momento ZenCV è specializzato in servizi di scrittura di Curriculum Vitae (CV). L'esperienza acquisita in ZenCV è stata coperta con le conoscenze accademiche e i risultati della ricerca per lavorare sull'idea di processo di interiorizzazione per le startup di reclutamento di intelligenza artificiale.

In primo luogo, il mercato del reclutamento e dell'intelligenza artificiale è stato affrontato con la sua crescita. È stato riscontrato che molte aziende stanno attualmente beneficiando dell'IA in quanto svolge un ruolo importante nell'assistere i team delle risorse umane nel processo di reclutamento accelerandolo in funzioni come lo screening del curriculum, l'approvvigionamento dei candidati, la pianificazione dei colloqui e altro ancora.

Dopo aver analizzato e discusso dove espandersi, questo studio si è concentrato sui primi 10 paesi che hanno investito di più nell'intelligenza artificiale. Anche se ZenCV è ancora una piccola azienda, hanno preso in considerazione l'idea di entrare nel mercato che potrebbe offrire loro le maggiori opportunità di crescita. Alla fine, si è scoperto che gli Stati Uniti erano la soluzione migliore per muovere la loro strategia. In un mondo in cui tutto si rivolge alla tecnologia, è difficile trovare un posto in cui la tecnologia non può essere implementata e il mercato del reclutamento non è estraneo a loro. Prima l'ATS, ora l'intelligenza artificiale attraverso i chatbot e la futura IA iperrealistica che assomiglia agli umani, ed è qui che entra in gioco ZenCV. Con l'uso di varie tecniche e indicatori, è diventato evidente che gli Stati Uniti sarebbero il posto perfetto per ZenCV per ampliare e offrire i propri servizi. Si è anche capito che a causa dell'elevata concentrazione del mercato, sarebbe stato meglio per ZenCV offrire il proprio servizio maggiormente come reclutatore. Pertanto, una partnership sarebbe il punto di ingresso ideale con la capacità di offrire questo software che potrebbe aiutare a risparmiare tempo e denaro, aiutando a fare migliori assunzioni e ridurre il fatturato per gli stakeholder.

Riteniamo che questo documento possa fornire informazioni e aiutare altre start-up come ZenCV a muovere i primi passi per andare avanti e concentrarsi sull'automazione, poiché questo sarà il futuro non solo per l'industria del personale, ma anche per le altre industrie dei servizi.

Parole chiave: Intelligenza Artificiale, Reclutamento, Startup, Internazionalizzazione

1. INTRODUCTION

1.1 Recruitment

Everyday millions of people around the world apply for positions through online platforms where they must send resumes and motivation letters to companies in the hope of finding a job that fits their profile and their short and long-term ambitions, as well as generating attraction for their profile from the company.

Some of them, never receive an answer about their selection process and this makes people wonder how the recruitment process works in companies at an international level regardless of their size, because many times despite having the skills required for a particular job position, people do not know how to express them in an explicit and commercially attractive way, and I say commercially because, in the end, the CV is the presentation sheet of a person, a document where you as a person sells yourself.

Recruitment processes have always been known as the intermediation between the skills and profiles that are available in the labor market and the skills and profiles sought by organizations to fill positions needed to complete their core business. (Marsden, 1994) It is through this process that people interested in a certain position decide to apply; and organizations, through screening and selection techniques, can scrutinize those potential employees who can be a good match not only with the organization and its organizational culture but also with the position.

Over the years, several types of research in this domain have created different models of recruitment. For example, one of the most recognized is that given by Breugh et al. (2008) where the stages that organizations must follow when carrying out a recruitment process are evident. These stages are recruitment objectives, strategy development, recruitment activities, intervening job applicant variables, and recruitment results.

The first stage, known as *recruitment objectives*, is the basis of this recruitment model that help to develop for instance coherent strategies that take into account the timeline of the whole process, the main message to be communicated to the potential applicants, and which means/persons to use during the recruitment process to develop an overview of the activities

required to obtain more detailed information from the applicants and finally to be able to make specific scrutiny and selection of a small number of people who can fill the job position, who in the end will compete - directly or indirectly - to keep the job. To see specific examples of how to develop each stage of the model please refer to Figure 1.

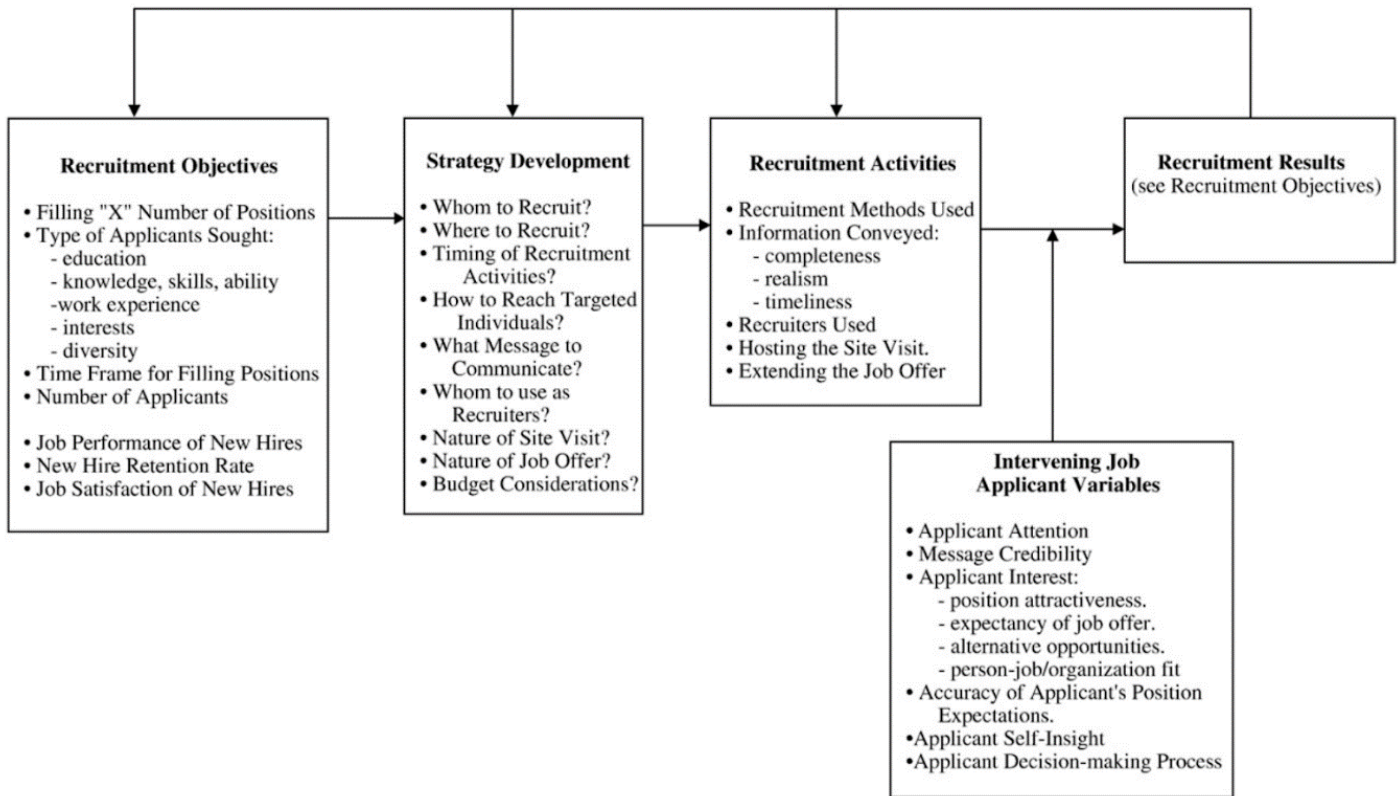


Figure 1: Breugh et al. (2008) model for the recruitment process

Furthermore, as shown in figure 1, Breugh and his co-researchers pointed out some variables that the job applicant brings to the process during the transition from the recruitment activities stage to recruitment results. The importance of the variables presented has varied over the years and each organization takes into account different variables since it is these variables that must be anticipated to carry out an efficient and insightful recruitment process according to their preferences and objectives.

We have previously discussed one of the recruitment models in general but have not gone into the possible interactions between organizations and applicants throughout the classic selection process.

As an organization, after having clear objectives to be achieved through a new vacancy, the opening of the vacancy occurs and the main objective of this phase during the recruitment process is to attract the attention of prospective applicants and persuade them to apply for that particular position. It is here where companies must put themselves in the shoes of potential job applicants and understand what variables will affect the decision making to apply to a certain position.

If we think about the current recruitment process, we could also include variables of influence coming from new technologies such as artificial intelligence (A.I.) because today applicants have the opportunity to access job tools such as LinkedIn that work with AI and allow them to perform a search according to their current profile and their personalized interests.

However, these tools are not 100% accurate in showing applicants the positions with their real preferences, since many times companies do not take into account all the variables presented in the model shown in figure 1 and therefore when applicants are looking for actual opening job positions in one of these platforms they cannot find all the opportunities available related to their interest, since organizations do not make clear the reasons why they opened a new vacancy, as well as the skills, experience, and other requirements to make the first match with the organization and the position. Thus, applicants lose the opportunity to apply to potential opportunities that may be highly suitable in terms of their job profile and companies also lose potential applicants that may bring a high value to their company.

Companies should be interested in covering all possible gaps related to the job position since it is in the first phase where a crucial role is played to obtain the attention of applicants highly suitable for the position. It should be noted that there are factors external to the organization, such as the opinion of friends when they do not know about the prospective employer (Highhouse and Hoffman, 2001), references from current employees of a certain company, among others, that may alter the degree of attraction that an applicant may have towards a certain job position and/or organization. But it is the sum of all these factors that are translated into the volume of applications that the position can have in a certain amount of time and it is this volume of applicants that is known as a pool of job applications.

Each applicant who is part of the above-mentioned pool job position has managed to generate a first perception of the company and how it can be developed on a personal and professional level in the prospective job. This first perception can be full of biases, given that much of the information obtained during the interaction in this first phase may be inaccurate or even incomplete. However, many times applicants are not aware of these biases and cannot visualize themselves in the long term due to the lack of information about the company or the position as such and this may cause some job applicants to decide to withdraw from the selection process voluntarily. As well as this, the organization also uses different techniques - withdrawing those applicants who do not comply with the minimum requirements, withdrawing those who do not have a permit to work in a certain country, etc. - to shorten the job position pool and each time get closer to choosing the ideal candidate.

In the second phase, those applicants who were considered to continue the process begin to obtain much more detailed information about the position and the organization in two ways. The first, through a much closer interaction through phone calls, video calls, face-to-face interviews with potential co-workers; and the second through the initiative of continuing to investigate and inquire about the organization. It is in this phase, where job applicants begin to feel much more confident because they already suspect that they are approaching the final phase and that their profile can be a perfect match - in terms of skills, attitudes, work experience, etc.- with what the company is looking for.

There is also the possibility that some job applicants realize that their current skills and abilities go much beyond what the job position requires and therefore they decide to retire in search of a job position much more in order with their current profile, while from the point of view of the organization, the department in charge manages to realize that. Although some applicants have the minimum requirements, they do not have the desired skills and others do have -and therefore are more suitable for the job offer-, so they proceed to stop the selection process.

During the final phase, the pool job position is quite narrow, and it is here where applicants obtain a final job offer or where they must decide if they wish to continue with other processes with other organizations - given a large number of opportunities in the market today in day, partly due to the phenomenon of globalization, most people tend to apply at the same time to more than one job position. If the person is selected, he or she enters a negotiation phase

with the employer in terms of salary, benefits, among others, and later the process ends with the hiring sub-process.

Now, those people who are not selected can be informed implicitly - they do not receive more information about the process for a long time, usually more than 3-4 weeks - or explicitly - generally through communication via e-mail.

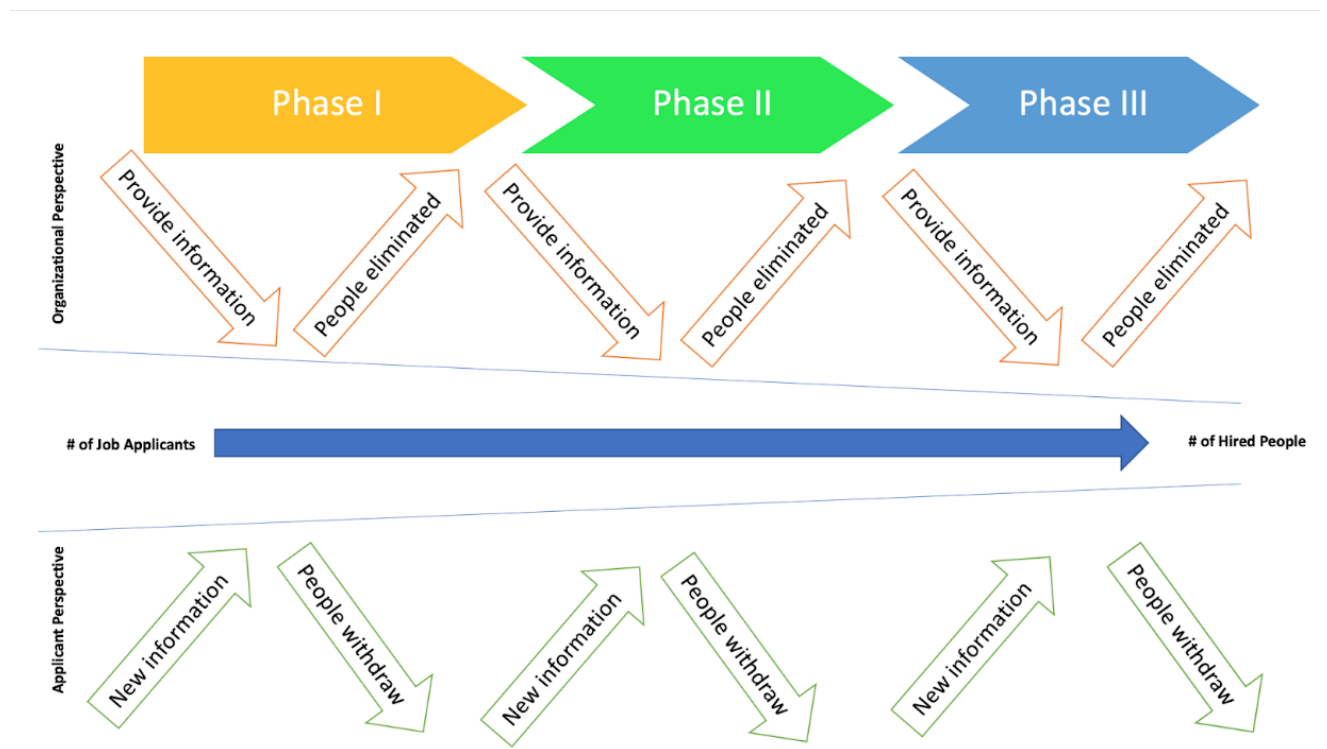


Figure II: Flow diagram of the classical recruitment process

Depending on the recruitment demand, the other 2 methods can split into internal and external recruitment. As with almost everything in life, recruitment has different ways to work, especially when it comes down to search for top talent. Every company has different needs as each job has its specific requirements; therefore, employers must be creative at the moment of hiring, since they need tactics to match their work environment to catch the kind of worker they are looking for.

If a company is planning to attract top talent into their lines, they cannot expect to use the same kind of method to fill every position across the company. For example, they cannot expect to use the same method to hire from entry-level to executive one since it will require a different set of skills.

As you can see in image 1, internal recruitment is a time saver as it does not require an onboarding process nor a protracted interview, the only problem that this method carries is that this method keeps everything “in the house” leaving the company without diversity and maybe new ideas.

On the other hand, external recruitment is the opposite of the first method mentioned, it will bring people from the outside with new ideas, enthusiasm, and more energy. But on the negative side, this method is time and resource-consuming since the people that applied need to be assessed and interviewed to reach a hiring decision.



Figure III: Pros and Cons of Internal and External Recruitment

It is worth to mention that besides the strategies that were previously mentioned, other methodologies are used by some companies and could be implemented by others as claimed by [1] for example:

Before launching another campaign, the recruitment team should access the talent pool database and analyze the candidates that have previously applied but were not hired, of course, the database should contain only applicants who were suitable enough to be considered in the future. When a company is looking forward to hiring someone, they pick the 2 or 3 best candidates and then reach a decision, that's why having a database with suitable candidates can save a lot of money and time.

Companies tend to work as well with an employee referral program. With this program, people inside the company might recommend someone who they might think could work for the company under the actual condition and philosophy. By doing this, the company is combining internal and external recruitment, therefore they are saving time and money as well.

Something quite popular for many years is to outsource the employer search for a recruitment agency. Even though this might be expensive, this allows the company to focus on other matters while they have someone running this process for their company. This process works as well for those companies that might not have enough resources to run such an intensive HR process.

Finally, another method that can be very helpful to understand what the strengths and skills of individuals are to offer internships. Through internships, managers and colleagues can understand better the potential of that person, as well it helps them to understand if they can fill a position in the future.

Even though the previous methods are the most popular at the moment, does not mean that are the only ones to be used. Companies must innovate in this area since it's quite important for the number of resources and time invested in these activities. These methods will cause interest in applicants and will make the company stand out from others.

Market of Recruitment

The global recruitment market accounted for USD 642.8 Billion in 2017 and is estimated to reach USD 1,147.8 Billion in 2023 [2]. Moreover, it is anticipated to flourish at a (CAGR) of 8.9% during the forecast period i.e., 2018–2023.

This shows that the recruitment industry is growing, mostly thanks to new technologies as software. This will be tackled later on in-depth to be able to understand the current and forecasted situation of the recruitment software market. However, also checking out the situation of the recruitment industry can give good insights to understand the issues globally. As well the development of new recruitment solutions by various companies is believed to accelerate the growth of the recruitment market. Of course, we should also highly point out other major growth driving factors of the market including global GDP growth and expansion of various sectors, since they have a high impact on the market as externals.

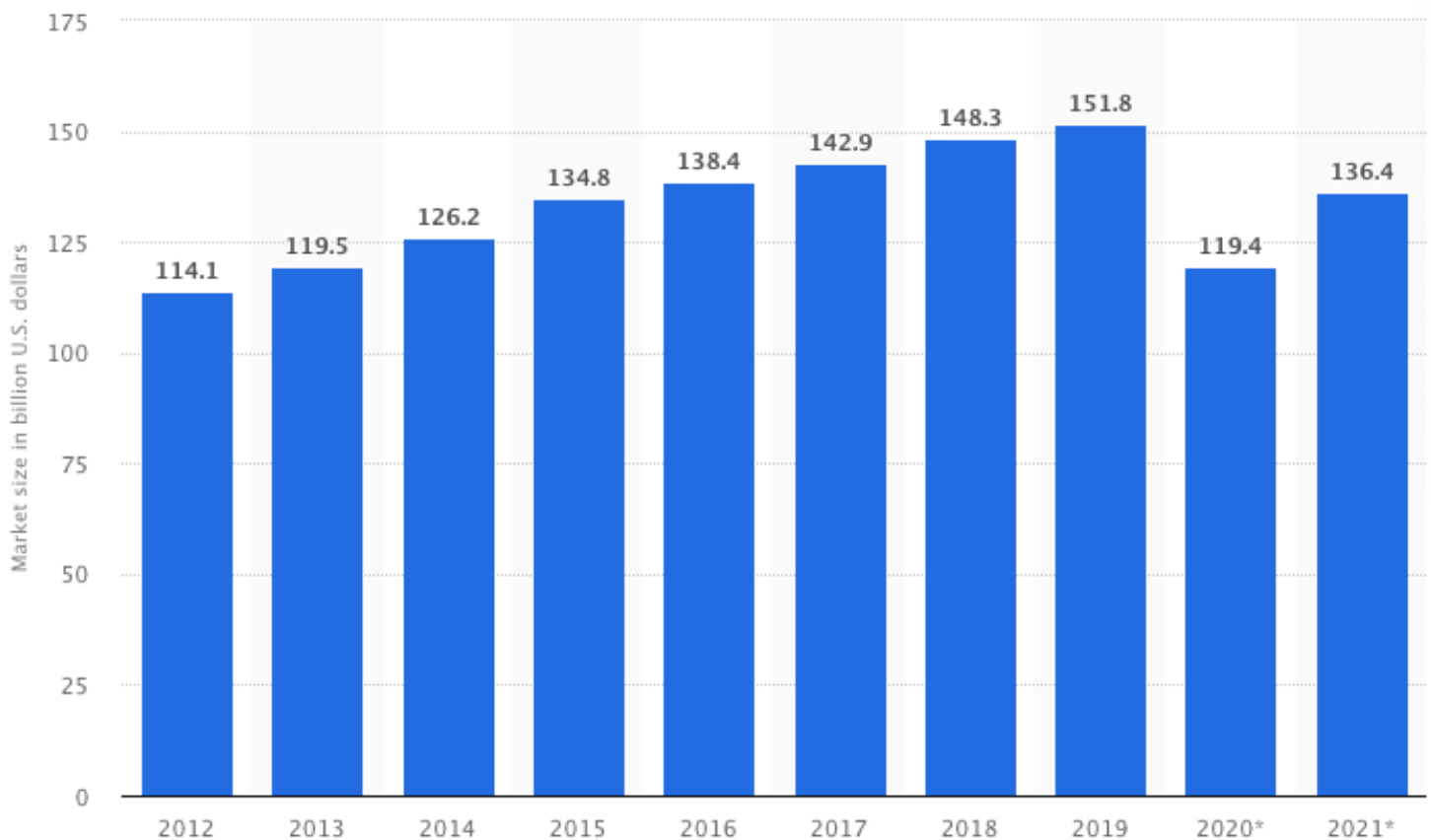


Figure IV: Market size of recruitment in billion US dollars [4]

As it can be seen in the graph created by [4], the statistics of the US for staffing and recruitment market size had been mostly growing in the last 10 years till 2019, with the COVID-19 effects 2020 experienced a huge decrease, however, experts believe that 2021 will try to recover this negative impact and probably in the following years, the old numbers will be reached and even passed the highest numbers.

New Trends in Recruitment

To be able to see the new trends in recruitment, we would like to first focus on the evolution of popular ways in the recruitment process starting from the '50s. Sources show that from the '50s to the '80s the most popular recruitment media was the newspapers since technological advances did not exist. Therefore, to be able to apply for a job, people needed to check the newspapers, call the number and see the availability. In this case, as claimed more

than 75% of candidates were sourced via newspaper adverts [5]. The interviews were face to face meetings, usually at the bars or cafes. It was very easy for people to find a job since there were not that many educated people and university students at that time were valued more than now.

They believe that when we come to the early '90s, the World Wide Web was born without considering it will significantly change the recruitment market. However, this should be taken into mind that even though the internet was in the market, not a lot of people were able to acquire this expensive source and continue their traditional way of newspapers to search and find a job. This was also the case for companies as well.

In the mid 90's the first online job sites were launched as claimed, their websites were very simple but were strong enough to create a concept of 'e-recruitment'. This change creates a challenge for recruiters that they had to change their habits and start recruiting online. Even though they don't need to, they realize they had to since their competitors were acquiring this source one by one, for them to stay competitive they started to invest and created a big flow towards e-recruitment. They found themselves in an environment where they had to advertise jobs online while advertising their offers in a print magazine or newspapers. It was important for them to have several sources since people didn't drop using newspapers or journals. When the time moves, the first contact with the candidate usually becomes an email and then a talk on the phone.

As given by the same source, in the 2000s the recruitment methods changed very fast given that only 6% of job seekers used the Internet in their job hunt in 2002 against 46% in 2003. Job boards became one of the most preferred tools by recruiters where they were able to post their ads and buy resume database access to get the best candidate. Which looks very similar to the current era of recruitment.

Today job seekers search for their new career opportunities over the Internet through different platforms but over the same tool which is the internet. The Internet offers many ways for a recruiter to find the perfect candidate thanks to technological advances continuously evolving every day. Here we can see that they can advertise jobs online through job sites or their career websites. Make themselves socially connected everywhere at any time.

In this case, experts tend to talk about a more recent concept of 'social network recruitment', claiming an environment where recruiters are on different platforms such as

LinkedIn, Facebook, Twitter, and more. They are so connected and with us that it created a network.

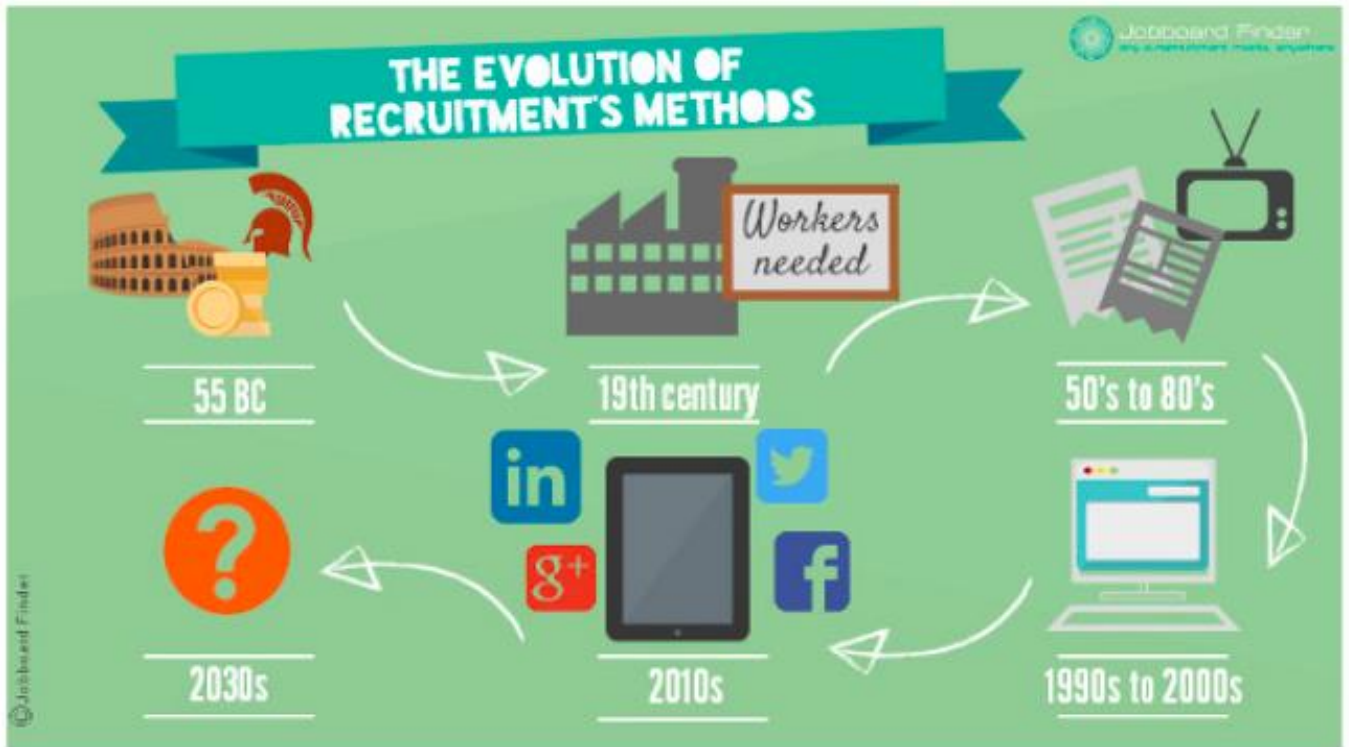


Figure V: Evolution of recruitment methods

When we look directly into our time, it is becoming evident that finding the right person to fit a job has never been more difficult. If we realize, our society is going through a generational change, at the moment “baby boomers” are leaving the workforce, and “millennials” are going into the freelance stream, laying all the responsibility to the “generation Z” which are just entering into professional life [6].

On the other hand, the workforce is facing the digital revolution, forcing every single person to stay on top of it, since there are a lot of changes in a very short amount of time. With the digital revolution, we should be able to be more aware of new and old vendors as at the same time recruitment is trying to work as much as it can with AI to simplify the hiring process.

Therefore, when it comes to innovative ways in recruitment, experts tend to talk about several thanks to the development and advancement of technologies. Some of these innovative ideas can be seen below:

- Social media can be a great place to head to recruit, you can find all manner of professionals who are easy to get in touch with such as Facebook, LinkedIn, and more. In terms of recruiting techniques, it is believed very effective since the recent targets are millennials and generation Z.
- Open-ended job posts encourage all concerned to hire people above skills [7]. Normally we all believe that it's been common to choose the candidate with the most experience, however, experience doesn't account for some important skills like leadership, creativity, empathy, and more. with the new technologies and changing structures of the organizations, it was already proven by the experts that soft skills are highly in demand. The importance of these skills can even outpace the importance of technical/hard skills sometimes. In this case, if they're a great fit for your office or your organization, with the help of training companies can also achieve the required hard skills for the chosen people. This is the main logic of how the open-ended job posts are working differently than the traditional posts.
- As people are applying to jobs abroad or in different parts of their country, video interviews have become very important since it allows talking with a really good candidate that can move for an interview at the moment or are simply not willing to take a flight only for a first stage interview.

These examples mentioned before are new ways of conducting interviews besides the application of artificial intelligence into this practice. At the moment, the most popular trend among recruiters is the usage of AI and its advantages have made it to become more and more used inside this group. As for this paper, we would like to continue with AI technology along with big data to be able to see its connection between recruitment industries better.

1.2. Artificial Intelligence and Big Data

Technology is an indisputable part of the life and activities performed by all human beings today. Although for many years, man has been able to improve the efficiency of activities through the creation of different tools, they have never been able to create a tool that would store a large amount of data, so much to be able to simulate the human brain and its way of working with a large amount of information that is accumulated over the years.

But what is technology? It is a set of highly ordered technical knowledge that with the help of science creates, develops, and designs either goods or services that have the ultimate goal of increasing the level of effectiveness and efficiency of a certain activity and in this way satiates the ambitious desires of humanity.

Since the industrial revolution, the human being, through the creation of the steam engine and other highly technological tools for its time, has managed to turn manufacturing activities upside down and, above all, its relationship with nature. This made it possible to improve the efficiency of the manufacturing industry, the rapid development of the economy, and technological development.

Also, another important event in terms of technology was the introduction of the internet where new concepts of technology were formed, and information and communication technologies were born. All these technological innovations have been driven by the evolution of science and by the interest of countries to stand out in the international arena.

Throughout the history of mankind, humans have always been dependent on technology and its advances. Even though the technology of each era might not look like the one we use nowadays, it does not mean that it did not have an important impact to move forward to the world we live in now. As it has always been the common denominator, technology has been there to make daily duties easier but as time goes by, they keep evolving so they don't become obsolete. With this mentality and striving for better things, the industrial revolution began.

The first industrial revolution began at the end of the 18th century, the beginning of the 19th; thanks to all technological advances, the world, in general, began to change quickly at an industrial level since the form of mechanization was introduced. On the other hand, agriculture was affected since mechanization became the most important part of a society's economy. During the second industrial revolution, which came a century later, massive advances in games since gas and electricity became new forms of energy which ended up being power ups for an industry that relied on mechanization. Therefore, the creation of a new engine was possible, this engine allowed the industry to reach its full potential.

Afterward, during the third industrial revolution, we were able to see the emergence of an industry that was untapped at the moment; nuclear energy. Followed by the rise of

electronics and telecommunications during the fourth one, which we are experiencing currently.

At the moment we find ourselves in the middle of the next production revolution; a revolution in which there are ongoing changes in production that have never been seen before in terms of scale and impact. These new developments in this emerging technology are very likely to bring big and irreversible changes to the job structure as it will keep raising many challenges. This is what is starting to become highly known as “Industry 4.0”.

Industry 4.0 is based on something humans use daily, the Internet. With this, we can see a complete transition from what was once all physical to now an industry that is in charge of developing virtual reality. Even though the previous industrial revolutions helped to shape the world, we are about to create one in which we are allowed to bend the shape of physics. Industry 4.0 has been developing a big number of programs that are helping several industries to make every task easier.

“It is interesting to see all the excitement around I4.0 and how we should all be getting involved. But in the end, you have to ask yourself, what does it really mean and surely, we have been doing this kind of thing for years? In reality, I4.0 is largely the repackaging and combination of capabilities and technologies that already exist; but providing the overall wrapper that enables total interoperability, collecting Big Data, manipulating it and then applying it as a positive feedback to improve functionality and efficiency” [10]

Industrial revolutions throughout history



1784



INDUSTRY 1.0

First mechanical loom.
Steam-based
mechanical production.



1870



INDUSTRY 2.0

First assembly line.
Electricity-based
mass production.



2014



INDUSTRY 4.0

First online mass production
in a smart factory.
Ubiquitous production and control.



1969



INDUSTRY 3.0

First programmable
controller.
Controller-based automation.

Source: Deloitte.

Figure VI: Industrial revolutions [8]

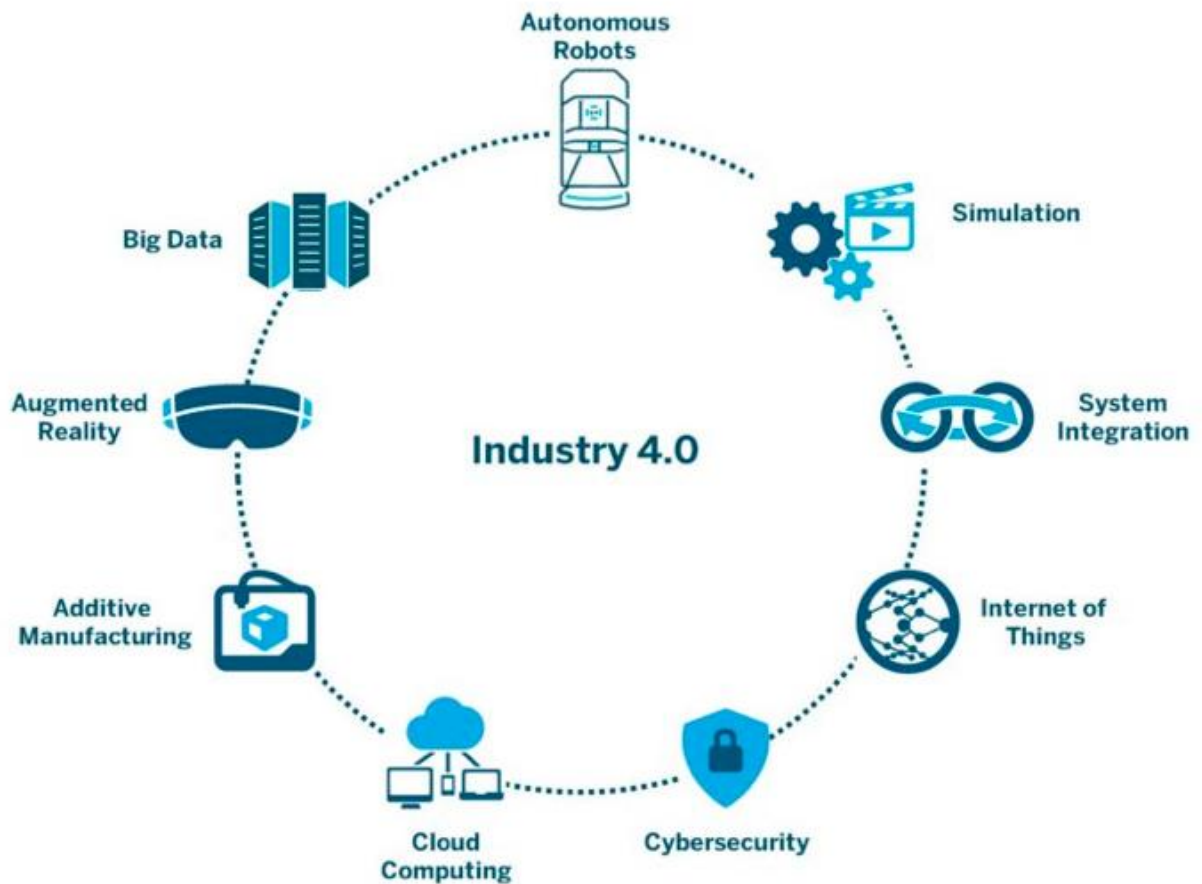


Figure VII: Industry 4.0 pillars [9]

The same source defines the 9 core pillars of the industry can be seen in the below table. History has shown us that humans have always been looking forward to improving their lifestyle across every aspect and thanks to technology it has become easier. Even though throughout history we have seen great technological improvements, during the last 100 years we have seen the best ones by far and it is believed that this will set the ground for the upcoming technological advances in the next 100 years.



Figure VIII: Industry 4.0 pillars with definitions

Comparing these new advancements, now, tasks can be performed that were unthinkable years ago. Who would have believed back then that man would be able to go to the moon and explore the universe? or who would have believed just a few decades ago that a robot would be able to cook for us just by telling it the name of your favorite dish?

Having almost all of these qualities and capabilities is good, but this is just the beginning of the story since they need to be connected to some manufacturing machine to be part of the so-called industry 4.0, but this is only one criterion to and specific application. Industry 4.0 is an area that excites a lot of people since it combines many areas but is mainly moving areas such as innovation that combines sustainability.

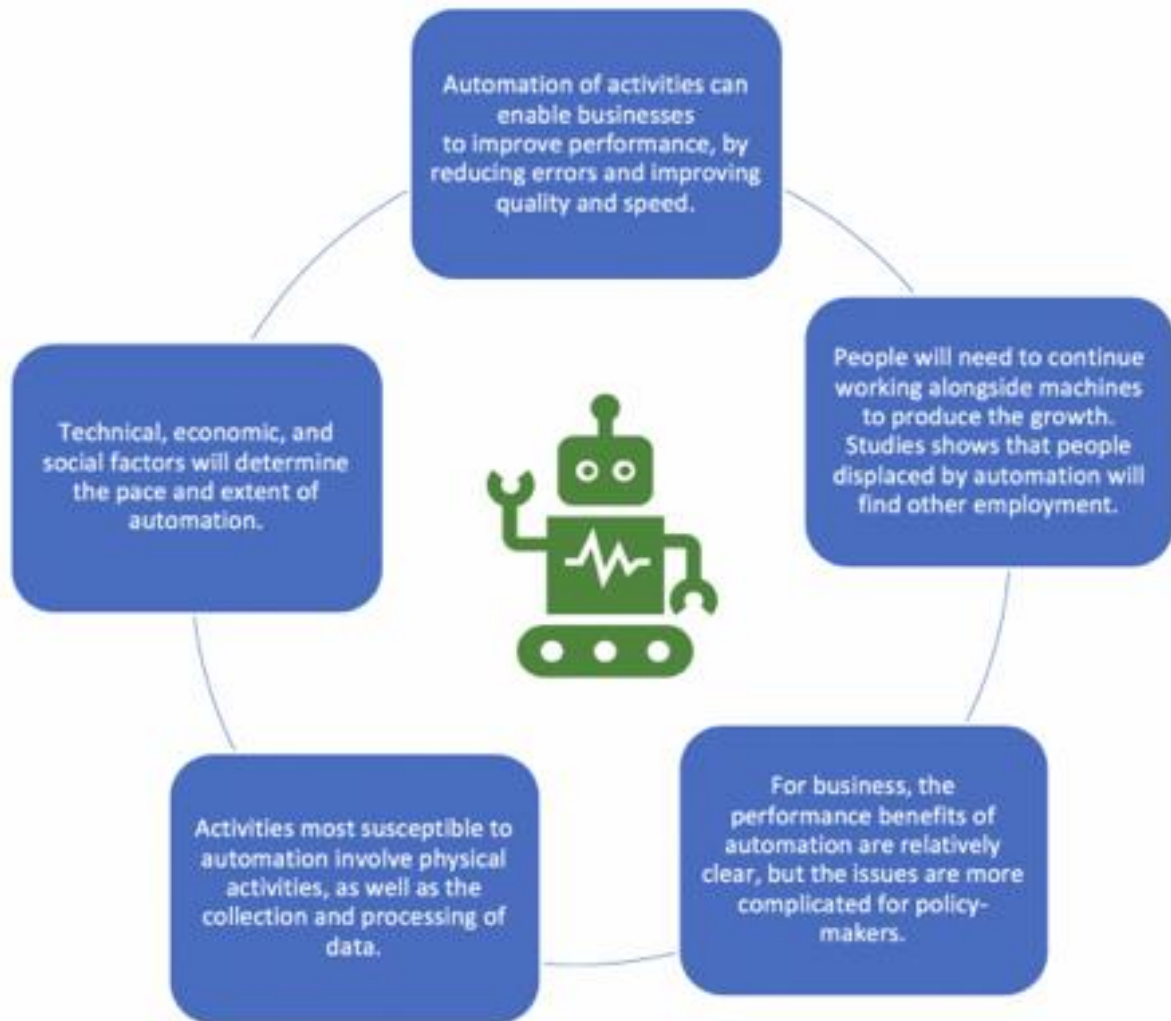


Figure IX: Impacts of Automation and industry 4.0 [10]

As demonstrated, some of the impacts of investing in industry 4.0 technologies up in the table. We can see that most of the impacts are having in the core, automation of processes. Therefore, the management of these new activities should be done properly to get the most of it from industry 4.0 technologies. It is important to point out that impacts can change depending

on the decision-makers of the companies since the different levels of transformation come with different levels of challenges.

In the end, do many people still wonder how robots may be taking over activities that for centuries have been performed by human beings? Well, to understand this you don't just have to talk about information technology - or better known as big data - and artificial intelligence. And it is these two terminologies that are generating great changes in the business world.

The term Artificial Intelligence - or better known as AI - was first used in the '50s by Allen Newell, Cliff Shaw, and Herbert Simon, who founded the Research and Development Corporation, better known as RAND, and introduced what would be the first program built to implement artificial intelligence, which is based on a certain program, for instance, a software, to replicate not only certain human activities but also the way humans solve certain problems. (Anyoha, 2017)

Years later, governments and various institutions became increasingly interested in improving artificial intelligence so that it could be increasingly accurate and similar to human behavior in terms of problem-solving skills. To achieve this, engineers faced certain limitations, for example, the capacity of data storage. In the 1960s, data storage was being developed - what would later become known as big data - and because computers were not fast enough, information processing took too long.

These problems, or rather limitations, allowed both engineers and governments to develop new technologies such as "deep learning" which is based on computers being programmed to learn through experience, or the fifth-generation computer project that was purely driven by the Japanese government.

All of the above served as an impulse for many engineers worldwide to begin creating programs or robots that would begin not only to think like a human but also to behave like a human, leaving aside the emotional factor.

Since then, AI has not evolved much on its own, but with the development of the evolution of big data, this has allowed the creators of AI programs and robots to enter and store

more data and thus expand the range of activities that can be performed by an AI program. This dependence between AI and Big Data can be explained by a phrase: *"You can have data without information, but you cannot have information without data"* which was said by a famous American programmer named Daniel Keys Moran.

As the purpose of the paper, we will focus on artificial intelligence and big data, their definition, examples, and market more in-depth to be able to understand the connection between recruitment and human resources management.

At this point, it is crucial to understand what artificial intelligence is. Throughout the globe, when people hear the term "artificial intelligence", the first thing they are related to is to robots; this happens since the film and novel industry has been creating stories about man-like machines that are going to create destruction [12]. But nothing could be farther from the truth as artificial intelligence was created with the basic principle that machines can easily mimic human intelligence and execute tasks as similar as possible, from the easiest one to the most difficult one. In the end, the main purpose of artificial intelligence is to learn, reason, and perceive.

One of the basic components to make artificial intelligence work are algorithms and these are designed to make decisions, this is usually based on real-time data. Unlike passive machines which are programmed to only do predetermined or mechanical tasks, artificial intelligence machines work using sensors, remote inputs, digital data which allows them to combine it with a variety of information to analyze the material at the moment it receives it [13].

Right now, the applications that artificial intelligence has are unlimited as it can be applied to different industries. For example: lately, it has been tested in the healthcare industry for drug dose and patient treatment as well for certain surgical procedures in the operation room.

At the moment there are several examples of machines using artificial intelligence, for example, self-driving cars, chess-playing computers, etc. As we have discussed before, these machines need to weigh the consequences of their decisions because the action they take will affect their final output. If we analyze the previous examples, on a chess-playing computer, its

decision might affect if they win or lose the game; but as for the self-driving car, it will mean rolling in the road safely and precisely since the wrong decision might cause a terrible collision.

As it is quite clear, machines have not taken control yet, but that does not deny the fact that machines have been slipping into our lives affecting how we interact and work. Nowadays, we can find strong instruments such as voice-powered personal assistants like Apple's Siri and Amazon's Alexa. These devices are capable of understanding our needs through the use of behavioral algorithms. Even though we can amaze ourselves with the capability these devices have, this technology is still in its early days making AI unnecessary for many companies.

For quite a while, Amazon has been working with an AI of their own, this has allowed them to generate an unbelievable return on investment on the e-market [14]. Thanks to their efforts, they have been able to develop more effective algorithms that have become more accurate and acute when they need to predict behavioral online shopping. Amazon is aiming to create an algorithm that is going to allow them to predict when we need a product even before we thought about it; it has not happened yet, but that is what the future holds for us.

Experts believe that with time and effort artificial intelligence will become faster, more accurate, smarter, and fluid since quantum computing has been developing faster as well. Thanks to quantum computing, mankind will be able to solve many problems that we have had due to the limits of our technology; therefore, quantum computing will play a major role in AI development to the point that it will start simulating a brain for all the coming machines.

During the last couple of years, artificial intelligence has been gaining a lot of strength, becoming a fundamental role in areas such as banking, insurance companies, and financial services. On the other hand, we are seeing that in manufacturing there has been an increase of physical robots that are being powered by AI for automated tasks, as we can see most of the industries have been touched by this trend.

Since there have been great steps in the improvement in artificial intelligence, people and almost every kind of business is facing a crucial shift in their operations. There's been a lot of pressure for companies to meet the standards as AI is becoming fundamental because it's simplifying a lot of complex tasks while giving businesses a boost they have never seen before.

At the moment, with the quick changes that the employment landscape is facing, companies find that it's crucial to anticipate changes and to be able to recognize any sort of new skills present in the market since having the right set of employees is fundamental for the future success. Employees with the right set of skills will be capable of seizing the upcoming opportunities and will be capable of reducing any undesirable outcomes; therefore, it's time to start assuming that artificial intelligence will completely reshape the work landscape, as at the same time more innovations will be caught by more industries.

Nevertheless, artificial intelligence is a force that should be embraced and channeled into improving the workforce since it will be able to benefit most of the huge corporations and at the same time, they will help society [15]. With this said, all of us should be actively involved in the development of artificial intelligence since it's what's starting to shape our future and we should take advantage of it.

When it comes to big data, it is defined as a large volume of complex data that is stored in a certain place waiting to be analyzed either by humans - through software - or by robots since the difficulty of processing such data through traditional methods is extremely high. According to Doug Laney (2001), big data are defined and synthesized through three characteristics:

1. **Velocity:** Information is exchanged and transformed at an incalculable speed and therefore it is difficult to handle it promptly manually. This is a key characteristic, since companies that have real-time information access, can perform better and be more proactive than their competitors.
2. **Volume:** The information comes from different sources and in large quantities. Nowadays companies can store megabytes, even petabytes - one quadrillion bytes-, in the same store data set.
3. **Variety:** The information is in different formats and can be both qualitative and quantitative data.

Nowadays, Big Data has managed to become cost-efficient given the high demand for digitalization of information from companies and individuals in general, and this is one of the

factors that has enabled a large amount of information on any subject to be obtained today, for example on the Internet. (McAfee, 2012)

Impact of Big Data and AI in Business

A study carried out by some students from MIT and the McKinsey Company, found that those companies that are considered data-driven stand out for having a better performance in financial and operational terms compared to the average. Specifically, the companies are 5% more productive and 6% more profitable than their direct competitors.

Besides this, it was evident that those companies that invest in a higher proportion compared to their peers are usually better value in the stock market. This does not depend on any specific industry; all economic sectors have benefited from big data and artificial intelligence.

However, not all industries have invested and spent on AI in the same way, please look at the following image, which clearly shows where the main industries are located according to the percentage of expenditure by industry in the last three years - y-axis = Future AI demand trajectory - and the percentage of companies that have adopted over the last three years - x-axis = Current AI adoption -.

For instance, the aeronautical sector uses this to make a more accurate approach to arrival or departure times and thus eliminate the gap between estimated and actual arrival/departure times. The data used in this industry considers data on weather, flight schedules, among others. Another example is the retail industry, which through the collection of data from its consumers manages to provide the perfect personalized discounts to the right person, at the right time. Companies have been heavily impacted by big data and AI mainly in five different areas (McAfee et al., 2012):

Future AI demand trajectory, % change in AI spending over next 3 years¹

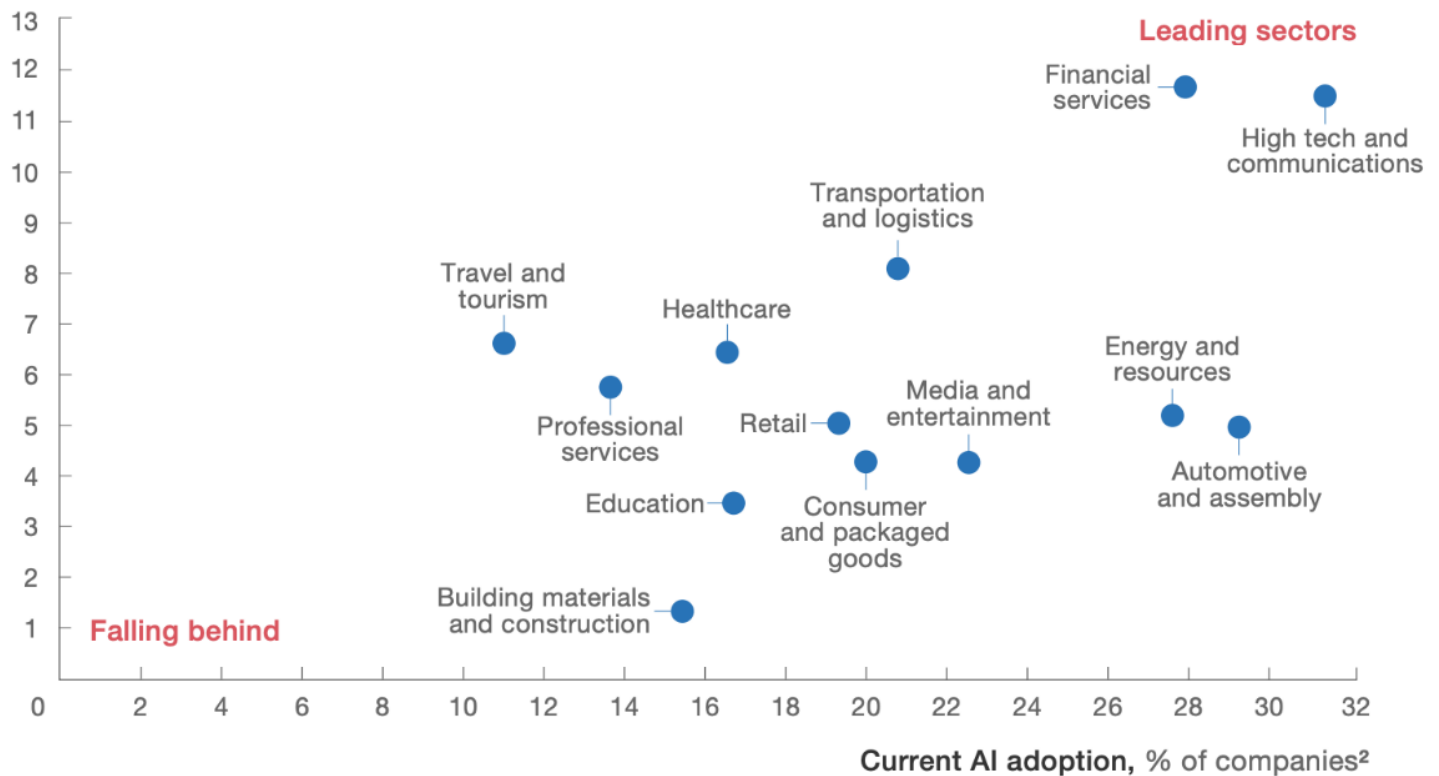


Figure X: Industries with high AI adoption over the past three years (Chui et al., 2018)

1. **Leadership:** The companies that have the best performance not only contain a large amount of data but also have a team that asks the right questions and manages to give the right direction to all the data they collect either through the internet, software, or AI. This is why, although some people consider that IA will be the cause of many job losses (Makridakis, 2017), leadership demonstrates the constant need for human insight to obtain and transform data into useful insights for a given business.
2. **Talent management:** Companies must invest in training their employees on key techniques for using big data, such as cleaning and organizing a large set of data. Many companies today are looking for data analysts who already have these skills to avoid investing in training and focus on organizing the data in the right way and meeting the timelines.
3. **Technology:** The tools created by technology companies have improved over the years, allowing companies from all industries to access not so expensive software and open sources that help them, for example, to analyze data found in large databases found in

the cloud. This software impacts the IT areas of the companies since they must look for the perfect strategy to be able to align the internal sources with the external sources.

4. **Decision making:** This process is fundamental and companies that know how to use big data productively and insightfully, know that cross-functional department tasks are inevitable and that there must be no miscommunication regarding data and therefore this data must be shared correctly and understandably for each of the areas.
5. **Company culture:** In the past, the organizational culture of companies was based on the instinct of the current market. Today, thanks to big data and AI, the organizational culture of a company can quickly adapts to market changes.

Market of Artificial Intelligence

We already know that market research can identify how customers and of course the potential ones might view your business and identify gaps in customer expectations, and it is a piece of very strong information to have when completing your marketing strategy to minimize risks [16].

According to a study made by Grand View Research, it is estimated that the market size value for AI in 2019 could be valued at 39.9 billion USD, and in their study, they expect its compound annual growth rate (CAGR) of 42.2% from 2020 to 2027. According to their calculations, it will be an amount around 62.4 billion USD in 2020, as well they forecast that by 2027 the revenue will be around the sum of 733.7 USD billions when countries such as the United States, Canada, Mexico, China, etc. are considered thanks to their influence. [17]

On the other hand, based on the information provided by the International Data Corporation (IDC) the AI hardware market which includes the combination between server and storage, expects that revenues reach a value of 13.4 billion USD in 2020 which would represent a 10.3% year after year growth. Even though it will keep growing yearly, this market has shown a significant drop in comparison to 2019 in which it had a growth of 33.4%. Now, referring to the hardware market is a forecasted growth of 11.4% for AI storage and 10.1% for AI servers. Nevertheless, it is worth mentioning that 80% of the revenues in AI hardware comes from AI servers. [18]

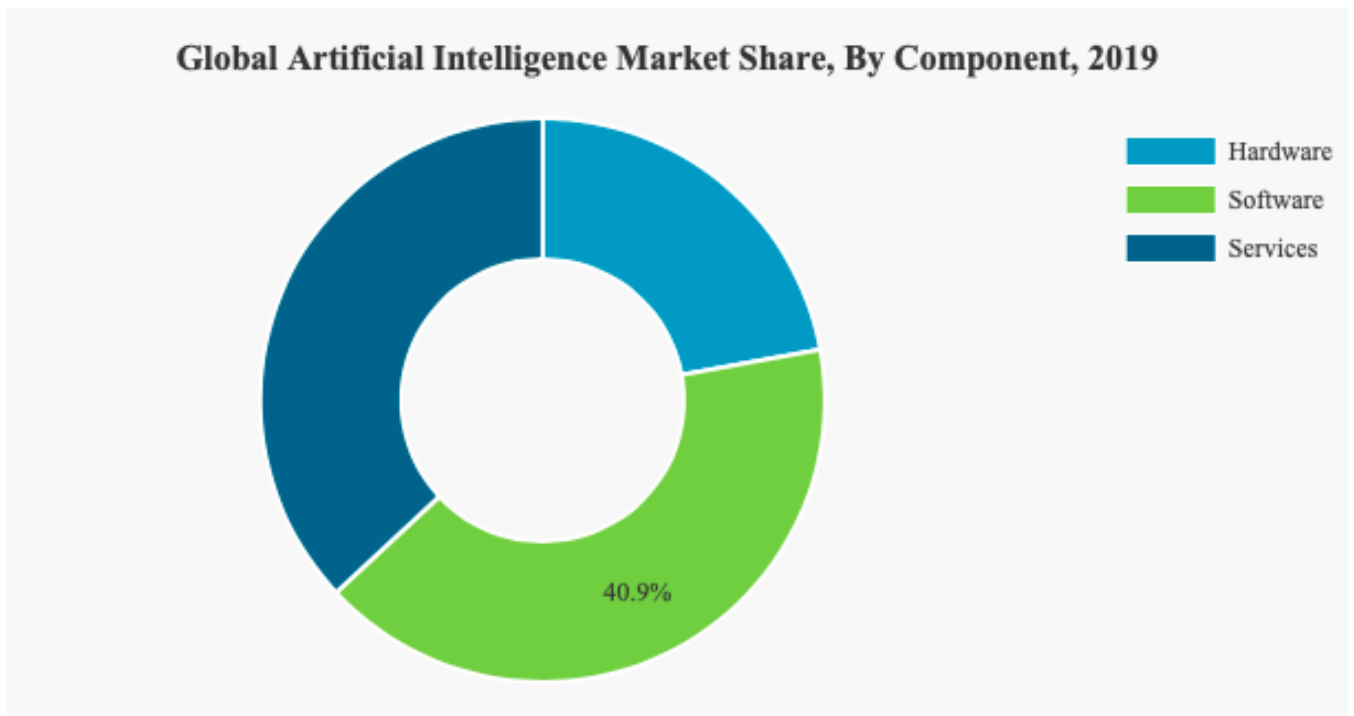
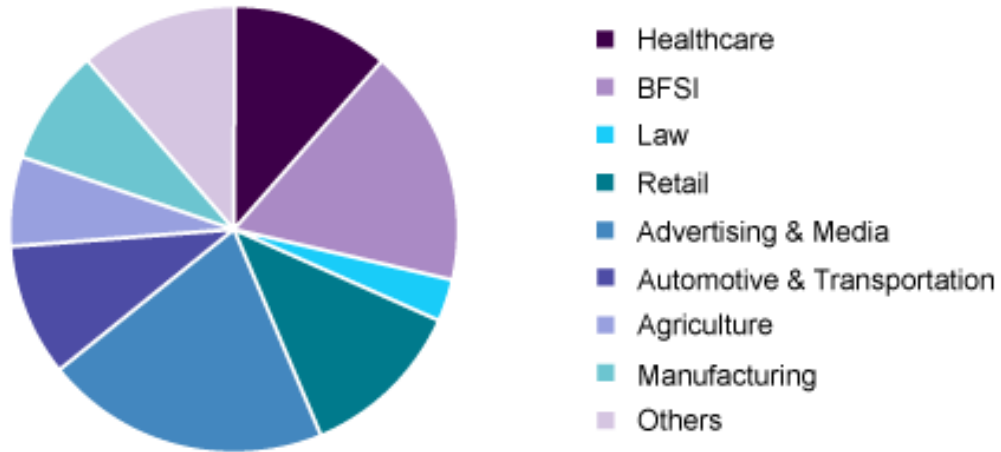


Figure XI: Global Artificial Intelligence Market by Component [19]

In the actual market, it is common to see the tech giants investing in research and development as they are the ones driving the adoption of new and advanced technologies across different industries such as finance, manufacturing, healthcare, retail, among others. Even though technology has always been a fundamental part of all these industries, artificial intelligence is bringing a new world for all of these organizations. For example, society is witnessing self-driving cars. AI has slowly installed itself in the heart of our world and has been a fundamental factor to create and boost the digital era.

The following graph shows how the artificial intelligence market share split and in which main industries it is being used. As you can see, 2 big markets are using artificial intelligence: advertising & media and banking, financial services, and insurance (BSFI). It's quite clear that at the moment the recruitment industry is not in the top 10, this does not mean that it is not an attractive industry to invest, it is believed that with time the recruitment industry will join this market share. Since companies are always looking forward to saving money, time, and resources at the moment of hiring, this leaves the possibility for this market to grow.

Global artificial intelligence market share, by end use, 2019 (%)



Source: www.grandviewresearch.com

Figure XII: Global Artificial Intelligence Market Share [17]

A very important topic to pinpoint on the actual world economy and that the AI market has been vulnerable as well as the presence of COVID-19. The pandemic has affected the growth of this market but according to the IDC, it's expected that the AI market will recover soon in the following years. [18]

For those living in the times of COVID-19, it is not difficult to realize the amount of damage that this has caused to mankind and all the areas we interact with, including business. But on the other hand, the pandemic has allowed computers powered by artificial intelligence to play a key role throughout this historic event. Tech giants and several start-ups have invested their resources and energy to create ways to mitigate, prevent, and contain the virus. For example, by the end of 2019, a Canadian start-up called Blue Dot developed an artificial intelligence platform capable of detecting infectious diseases, this platform was capable of predicting the COVID outbreak before it was officially announced by the World Health Organization (WHO). Nevertheless, thanks to the pandemic, it is expected that the artificial intelligence market will boost since people will be forced to work from home; this will lead to the creation of new tech allowing companies to be able to run the business as usual. For

example, in April 2020 Google could launch a virtual agent for their call centers, this chatbot was capable of responding to customers through voice, chat, etc. [17]

Worldwide Top 5 AI Services Companies, 2019H2 Revenue Market Share

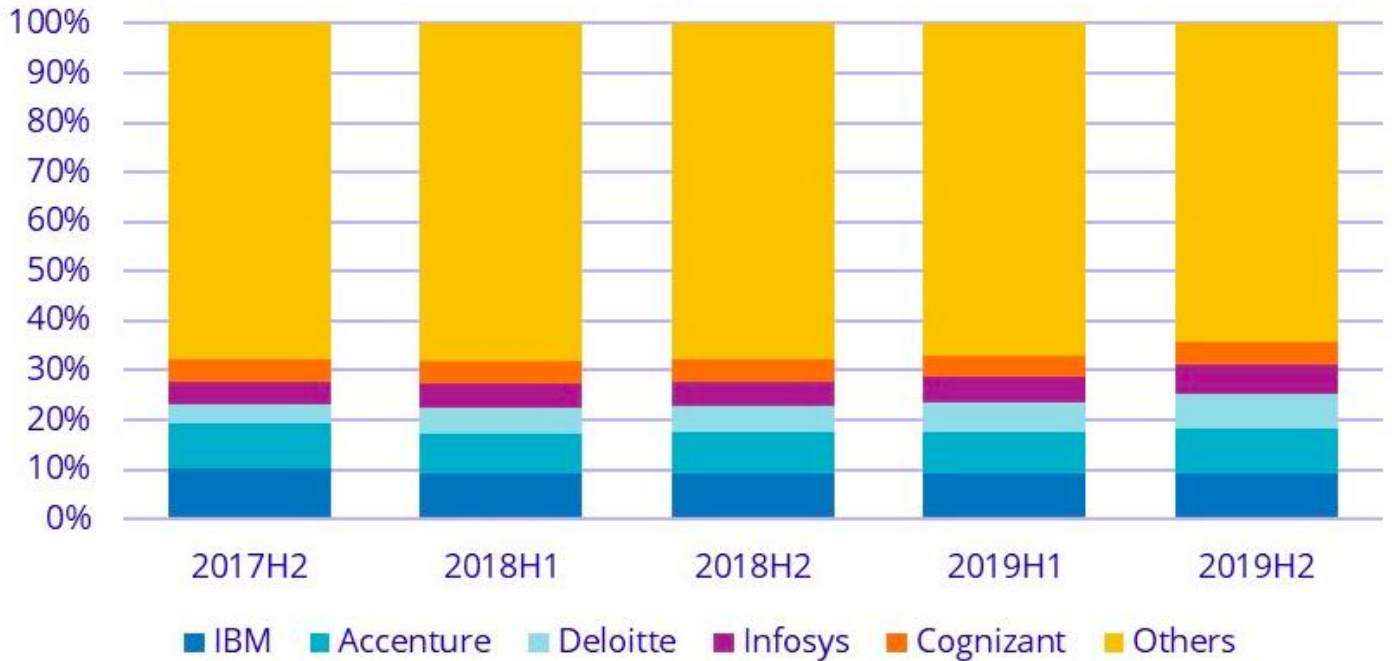


Figure XIII: Worldwide Top 5 AI Services Companies [18]

In the market, the most known companies who are having most of the shares can be seen. The top 3 of these companies as claimed by [18] are respectively; IBM, Accenture, and Deloitte are covering in total around 25% of the market together. And this number is increasing in the last few years, even though more competitors who are transforming themselves with the help of industry 4.0 technologies are entering the market.

1.3. Recruitment Software Industry

When we talked about artificial intelligence’s role in the recruitment industry, we should first look at the definition of the recruitment software industry to understand the market itself. Therefore, recruitment software, also known as Applicant Tracking System (ATS), is an electronic way to control the recruitment of organizations. While it enables the automated process of recruitment by helping enterprises in filtering, ranking, and storing the data of

applicants instantly, it also automates the process of job postings on various job portals. Mainly at the core, it carries data engineering such as data mining, saving, tracking, and more. Here we can talk about databases for candidates, storing their information and maybe notes for previous meetings to be able to use them for another position or in the future. These kinds of software-based tools make it easier for companies to work and integrate with popular places like LinkedIn and Facebook since they are also contributing to the recruitment software market growth by their data.

When we look at some statistics, we see that Experts tend to claim The Recruitment Software market in the U.S. is estimated at US\$529.8 Million in the year 2020, which is known as the biggest market of the recruitment software industry. Followed by China, again claimed by the same source, the world's second-largest economy, is forecast to reach a projected market size of US\$641.6 Million by the year 2027. They also mention other important markets such as Japan and Canada, each forecast to grow at 3.3% and 5.7% respectively over the 2020-2027 period. When it comes to Europe, as expected Germany is forecast to grow at approximately 4%. Here we can see that growth of this market is undeniable and increasing for different parts of the world, thanks to the recent booming of technologies, the increasing number of computers, data engineers and most importantly the whole transformation to digitalization in our era. [21]

After seeing the market situation, we would also like to talk about the ways these companies are using the software in their recruitment processes to be able to cover the role of artificial intelligence better. Mainly these software help companies attract, engage, and convert top talent by using marketing methods like segmenting, targeting, and positioning. It can be part of a Human Resources Management (HRM) system, integrated with ATS, or implemented as a standalone solution.

Basically, as traditional products and services, to attract the right talent to apply for open positions, recruitment marketing solutions help develop employer branding strategies, boost customer engagement (in this case candidates are the customers) and improve the experience. Recruitment marketing software often includes social recruiting capabilities, career page builders, one-click job ads distribution, user-friendly application forms, and more.

- Augmented writing technology has been used to understand mainly if the outcome you are expecting from an email, advertisement, or document is going to happen or not. This process is done by the software by predicting and suggesting some words, sentences for the specific customer segment that you are targeting. To do its job, at the core this software is having AI technologies since the prediction needs continuous learning and application of that knowledge. Therefore, when there is more data, there are better predictions and better outcomes for an advertisement, email, or job alert for the recruiters.
- Chatbots are getting very popular lately. When we buy something online, we have a chance to ask immediately or talk with personnel on a service like instant messaging. This technology sometimes may have real people who answer and help you, sometimes may have robots who can understand and learn from experience. This means chatbots can be sourced by AI. In the recruitment industry, this service provided by the chatbot can help with several things like sourcing, screening & scheduling candidates.
- Another way that is automated and targeted to the right places and people is programmatic job advertising software. What they do is very simple: they find the people that you want to target and place it in front of them. Here is the key thing, having a detailed profile of the targeted people; moreover, data is making this tool target efficiently and wisely therefore advertisements or job posts appear in the right place, right time.
- Another tool is video interviewing software, which is getting more popular among organizations since it saves time for them when there is no match, therefore they can use their time for more valuable candidates. Basically, a job interview that is being done using video technology. Not only they can be with a real recruiter, but also these video interviews can be just recordings, where there are questions and time limits, and the candidates are trying to answer these questions. Experts claim that video interviewing has been a game-changer for recruiters since compared to the past, there is more diversity and graduates tend to relocate more. Therefore, people prefer not to travel just for an interview but want to try their chances at home. For one, using video in your recruitment process opens up the door to a much wider candidate base.

- Another tool that is mostly dealing with after the interview part is onboarding apps. They work mostly for the employees who are selected and their next steps before the kick-off. Including mostly documentation such as getting the administrative paperwork out of the way and introducing new hires to their future team to start their training process and making sure they know where to park on their first day. The number one benefit of an onboarding app for you as a company is that it's a huge time-saver since it takes all the burden from the shoulders.

AI in recruitment use cases

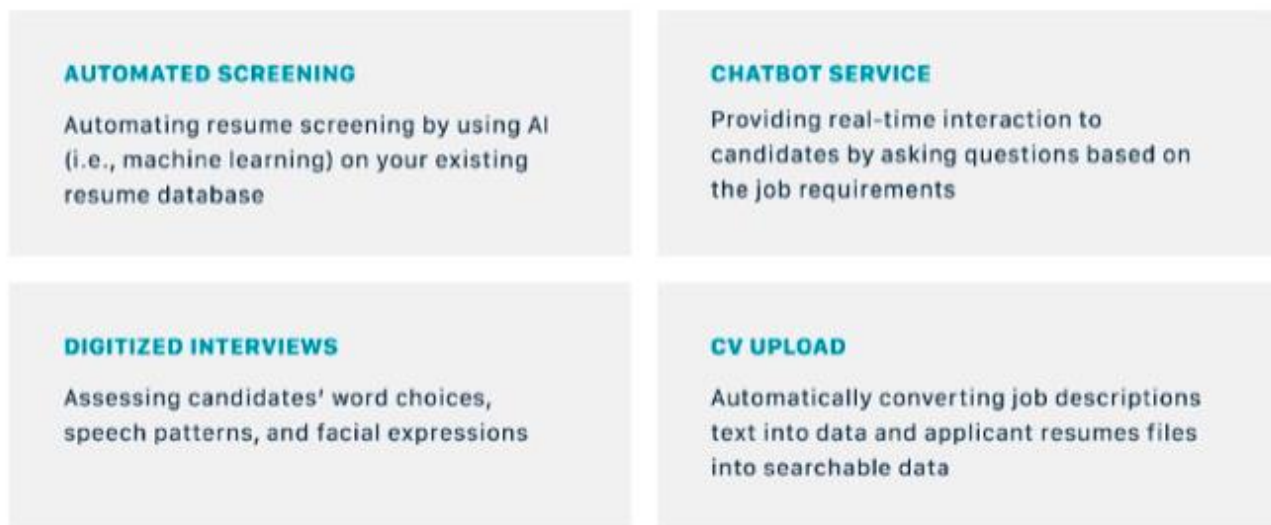


Figure XIV: AI in Recruitment use cases [24]

Artificial Intelligence in the Recruitment Software Industry

We already know that cloud-based platforms have been increasing their penetration on the market at the same time as mobile-based recruitment systems, this has been one of the main reasons why this market has been growing lately. One of the latest trends that organizations have been adopting is the usage of automated resume screening methods; this method uses AI to assess how strong is the candidate in terms of experience and skills towards the position offered. [22]

On the other hand, the software mentioned before is programmed to utilize machine learning (ML) systems making it capable of identifying patterns and market trends through analytical inputs and activities. As it was mentioned before, organizations are always looking

forward to enhancing the candidate experience as well as the organization's efficiency when hiring a new candidate. The adoption of these systems is expected to reduce the amount of paperwork, the number of resources used with its costs, and the time of screening resumes.

It is very important to understand the differences between AI and regular software, therefore, we will be capable of understanding how AI is used in recruitment. As we mentioned earlier in the paper, when the term “artificial intelligence” is brought up, people immediately think about science fiction and movies when artificial intelligence nowadays can be resumed as the use of chatbots or image recognition. Right now, AI is an advanced way for machines to “learn” so they can become capable of taking decisions. Programmers are in charge of feeding as much data as they can to the AI so it can become capable of recognizing patterns instead of someone giving specific commands to it.

Many organizations have benefited from AI since it is playing a major role by helping HR teams in the recruitment process by speeding it up in functions such as resume screening, candidate sourcing, interview scheduling, and more.

Market of AI in Recruitment

As claimed by [27] AI in the recruitment market size was valued at \$580 million in 2019 and estimated to grow dramatically in the following years. We see that artificial intelligence technology adoption is enhancing every year more and more. In 2019 AI was mostly dominated by North America since it is owing to the available technology companies who are compromising AI for hiring processes. It is inevitably clear that demand for automated process screening, shortlisting applications mainly to decrease human error, save time, and be more efficient is growing, therefore making the market grow, respectively. Last but not least it is also important to point out what results show that most businesses and financial services/ insurances are highly embracing the need for AI for hiring and providing proactive and personalized customer support.

Applicant Tracking System

As claimed by [20] back in 2017, a study made by Deloitte revealed that around 33% of human resources teams are already employing some sort of AI to help them with their tasks. As it has been the purpose of this paper is to demonstrate the implementation of AI with

recruitment methods; therefore, the use of AI and the use of automated software can be of great help in the process of sourcing candidates that includes internal and external recruitment. As well, these programs can help with scheduling interviews with candidates, can help as well with the evaluation of the candidate's skills, and the integration of the ATS.[20]

Thanks to the advances in this field, recruitment management services have reached such a level of sophistication that this system is capable of helping with most of the tasks in the recruitment process. By using this system, hiring managers and their teams can save time, improve their productivity but as they can make better hires based on actual data.

Here it is very important to mention what exactly ATS is since it is a big term that must be included in this paper: Recruitment automation. This term means that parts of the recruitment and hiring process will be managed by software. As what has been traditionally known as ATS, which used to be the automated recruitment solution, now it's known as "recruitment management systems". This change is caused since this system has been constantly evolving and now it counts with some different features. The Applicant Tracking System (ATS) in the last 20 years has been the most important recruitment software for recruitment. Across most of the organizations in the world, the ATS is one of the most used software in the recruitment departments. ATS is considered as the backbone for conducting a proper and effective hiring strategy; over 98% of Fortune 500 companies use ATS to hire the appropriate person. The ATS becomes the central hub for any hiring team since it helps to organize the recruitment process by organizing the CV's, applications, etc. as well this software helps teams to automate the process.

Applicant Tracking System offers different benefits, probably the biggest benefit that this one offers to recruiters and hiring managers is one thing: time. On the other hand, once the CVs are sent, they are stored on a database decreasing the risk of losing any document or not going through it. [26] Moreover, we need to understand how ATS is used in the process, and what the main steps when AI is used for recruitment services. Here we have 3 main steps that are more generally followed:

Sourcing: Inside the ATS, data, information, and everything related to possible candidates and job posts can be stored. This data can help recruiters match candidates with jobs through sophisticated algorithms that make sourcing a more intelligent process.

Screening: After sourcing, what is needed is to eliminate some to be able to end up with core candidates therefore AI also makes it easier to narrow down a shortlist of candidates with resume screening and filtering functionality, tests, surveys, forms, and more.

Scheduling: here we can talk about interview scheduling. It is believed that most of the time that recruiters are spending is on the interview process and mostly its scheduling process. In this case, AI automation allows recruiters to set meetings instantly with tools automated which can eliminate back-and-forth emails or rescheduled meetings. Therefore, saves a huge amount of time for recruiters and organizes the scheduling therefore no problems or mess occurs. Even make the company look more professional.

Advantages of using AI in Recruitment.

In addition to the usage of ATS and the main benefits, let us talk about the additional advantages of investing in AI software for companies. Regarding [25] there are some basic advantages recruiters can receive with these technologies mostly covering time saving and improvements in decision making. First of all, they work for determining the ideal profile or a role. What is needed is only describing the role with several specific words and creating a custom definition, therefore the ones matching with that role can appear thanks to the algorithm. When the possible candidates appear recruiters can include pre-employment assessment in the initial phase without putting effort and time. For instance, possible candidates can receive some automatic online tests, and depending on the results of the test elimination can be done by the software, therefore recruiters only face qualified candidates.

These tests or surveys can come up with a result report therefore a recruiter may have a chance to offer another opportunity or at least know the strength and areas of improvement. This increases the possibility of recruiters choosing the right person as well as rediscovering candidates for future roles. Therefore, the time is again saved, since there is no need to start from scratch, but the data of the candidate can be saved for some time, therefore when there is a new role, the talent pool gives a very big opportunity to fill that role with an existing database.

According to our 2019 Diversity Recruiting Job Seeker Survey done by [25], 83% of job seekers claim diversity and variety in jobs is a very essential factor when it comes to considering a new role. This makes companies invest in diversity more, as well as diversity recruiting becomes a trend. To be able to overcome this challenge, many companies are now using AI to eliminate unconscious bias during the resume screening process, while reviewing candidate evaluations, and more. This is a very important topic since still there is a lot of work to be done.

AI in recruitment key benefits



Figure XV: AI in Recruitment Key Benefits [24]

Disadvantages of AI in recruitment

For instance, Amazon AI tool used for recruitment was analyzed, and findings show that it was biased against women. This happens since AI is based on learning and experiencing, it also learns to be biased towards some specific groups. It is worth mentioning that despite the many benefits when the investment decision is taken by the companies, there are also some drawbacks of AI in recruitment processes.

The same situation we have been talking about in the previous paragraph was also pointed out several times by different experts claiming “AI-driven hiring tools can lead to bias and a lack of diversity in the workplace since they can identify and promote candidates with

common characteristics of a business's existing workforce. As such, automation should never be used to replace human interaction... Companies seeking to use AI should focus on the administration tasks it can reduce, to give their people more time and space to find the perfect candidate, not expect automation to do the entire job for them." [20]

In the end, we believe that using AI in recruitment is not without its challenges as with all the industry 4.0 technologies, but when done responsibly and with the right decisions it can have a positive impact on your recruitment process. AI recruiting software, and recruitment automation tools in general, can save time and offer benefits to companies by choosing the right candidates, or saving the databases of possible candidates for future possibilities. Therefore, simply the job of recruiters, makes the process more efficient and effective.

2. INTERNATIONALIZATION STRATEGY

2.1 Introduction

ZenCV is an Italian start-up that mainly works in the human resources and career counseling field. At the moment, ZenCV specializes in Curriculum Vitae (CV) writing services. This start-up came to life 2 years ago when Vladimir Bozovic, the actual CEO, was helping Federica Serpellini (co-founder) with her CV. After she finished her bachelor's degree, she was faced with a tough reality in which after applying to more than 50 job openings nobody was calling back. Of course, this began to cause problems for her personally since she began to doubt, she had what it was required to go into her professional life.

After Federica went through a rough patch, Vladimir sat down with her and started asking her general questions such as what are you good at? what do you like doing? And after answering this, based on her answers they try to find an intersection of all these things to materialize it into a real job position. After this process the two of them sat down and completely wrote her CV all over again with a more meaningful content and with a beautiful design that would reflect who she was as a person and could catch the attention of the HR office who would be evaluating her CV.

Between the two of them, they have realized that a CV that was tailor made for each position would generate a greater impact at the application moment. On the other hand, they realized that using free online programs for creating CVs lacked that human touch that would

make someone stand out from the crowd. After this process, Federica had a CV that was original and strong, portraying her not only as a worker but a person; this CV had everything a recruiter would like to see, a strong key achievement area, beautiful layout, clear and concise. With the creation of this new CV, she applied to other job openings and from 30 applications she did, she got 7 replies in which 3 of them were positive and even better she received 2 concrete job offers.

With this Federica gained back her confidence and made her realize that she was not unfit for the positions she was applying for, she just did not know how to express correctly and effectively her skills.

Vladimir and Federica realized that if she was having this problem, there was a big chance that a lot of people were experiencing this problem; on the other hand, they realized how stressing this process was, therefore, they decided to begin this company ZenCV, a company that would help any job searcher to stay Zen while looking for a job.

The company's goal is not only to increase the customers' chances of getting the job interview of that desired position they are looking for, is to make them feel better about themselves by highlighting their talents and achievements. Therefore, clients can stay Zen, knowing that they will surely land an interview with a ZenCV.

As it is evident on the previous figure, there was a complete change on the way they portrayed her information and who she really is, through the use of different techniques and specializing the information of the CV to a specific position or title they had realized that the chances of succeeding were much higher. Besides that, they understood that a CV is a business document but instead of selling a product, the person is selling themselves in order to catch that position that has been opened.

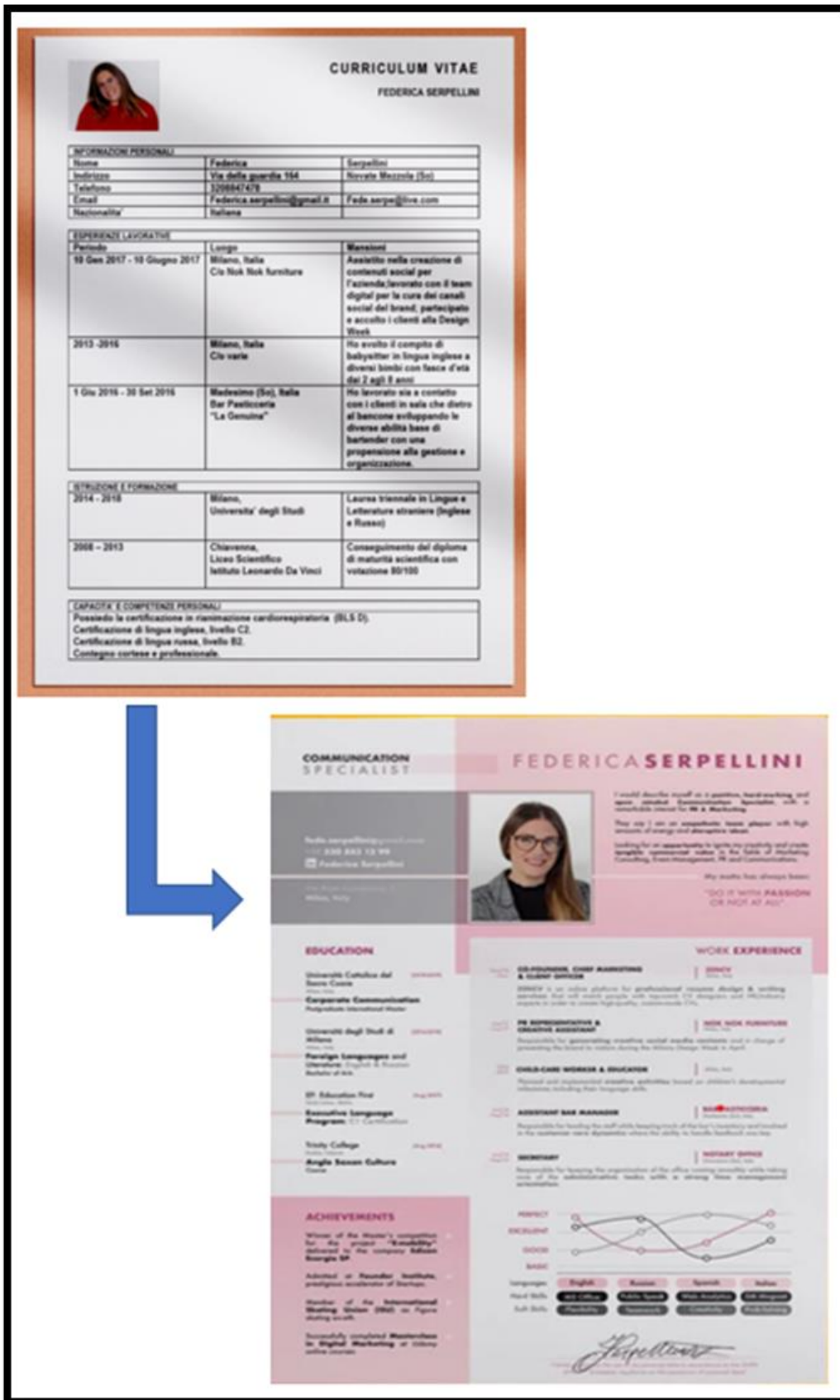


Figure XVI: Federica Serpellini's CV Before and After

Therefore, matching the person with the job description plus giving them a special style would cause that wow factor that the recruiter is expecting at the moment of screening CV's. Depending on the company, the number of applicants can vary from 30 to 800 applicants, making it very hard for those who are recruiting since they cannot read all that information, they only have 6 seconds to decide if you look like a good fit or you are simply one more of the stack. With the use of the ATS, it was expected to reduce or to cut the number of unfit applicants, but several times there are people who are totally qualified for the position but since they do not have experience on writing a CV, they tend to miss key words that leaves them outside of the selection process from the moment they apply.

That is what happened with Federica and her job application process before and after the remake of her CV, before she was feeling unfit for the positions and after making a much better CV understanding what was needed to go through the ATS, companies realized her potential and that she could be a perfect fit. That is why ZenCV came to life, more than just being another company who offers CV's online, they became a company who are capable of giving a person that leap that they need to achieve the position that they dream.

Therefore, the value of acquiring this service is that the customer knows that based on the achievements the company, they will be able to make it to the interview and have the chance of getting that dream job and possibly better opportunities in the future. Last but not least, as ZenCV claims, the applicant can remain Zen while looking for a job because they will make sure you get the interview.

2.2 The Service

For ZenCV to be able to write a CV, they need to collect information from the customer, that why at the moment of choosing the kind of service they want they have to fill a questionnaire which includes personal information, work experience, and questions that will make the person writing the CV know better the person to get a more accurate content. On the other hand, there are couple of questions that try to understand the customers personal characteristics therefore they can make a tailormade design fitting the person and showing who they are.

Depending on the work experience people gets charged differently because the more experience the person has it becomes more difficult to write a CV especially if they are applying

to high positions. People can schedule a call with an HR in order to get a better result and a much better experience, but this is an extra service. The only group of customers who get this included in the price are people who have senior level experience since this is the group of customers who could make the best referrals and as well the ones who bring more money into the business.

Nevertheless, the designers usually create 3 mock-ups and let the customer choose which is the one that they like the most so they can fit the information that the HR has written down. Usually, this process takes up to a week and the customer receives a pdf version for them to use it directly and they receive an editable version just in case they might want to change something.

2.3 Partnerships and Future projects

During the last year ZenCV has managed to create partnerships with companies such as hourone.ai which is one of the leading companies in the field of synthetic video and hyper realistic AI characters, as well they have partner with a start-up called Dotin.us a company which has created a revolutionary 60 second psychological test and last but not least, they partner with a Serbian star-up called HyperBrain which is a company specialized in product engineering web/mobile applications.

Why is it important to know this? Because ZenCV will launch an AI recruitment software that will be capable to interact in real time with the applicant. This software will have a super realistic AI person interviewing and analyzing the person, this assessment will have multiple dimensions specially those parameters that will be important for the company and the position.

This will include how fit the person is for the position, emotional coefficient, intellectual coefficient, psychological test, soft skills, logic, etc.

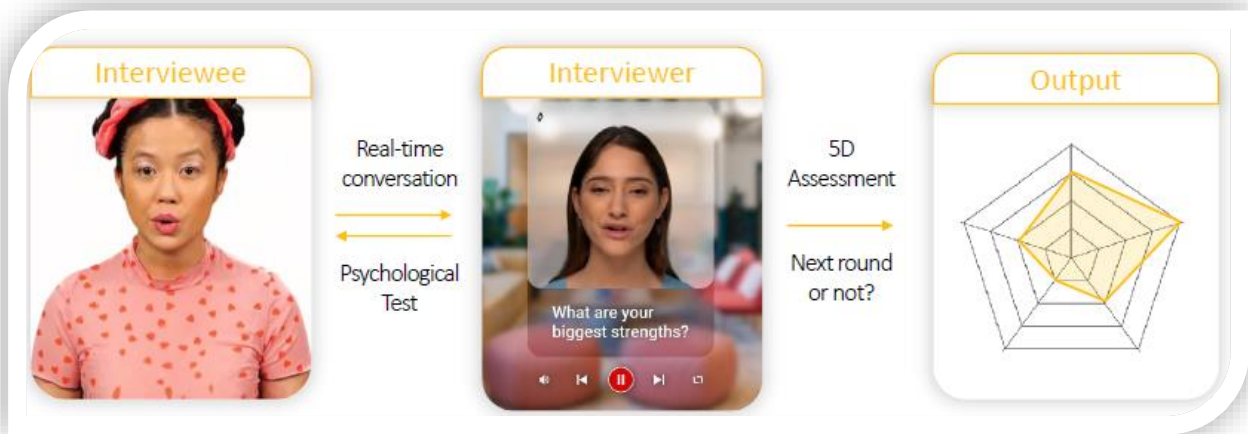


Figure XVII: Simulation of ZenCV's AI Recruiter

With this software it is expected to save millions of dollars in recruitment and turnover since they might have hired the wrong person or simply the person did not like the position or the company. As well is expected to eliminate the ATS because it is already an outdated technology and to replace those long psychometric tests that sometimes gives terrible user experience for applicants.

2.4. My contribution to internationalization strategy

I entered ZenCV in the month of May 2020, from the beginning of my internship I was in charge of analyzing and benchmarking ZenCV's services and which other products we could potentially start developing. I was helping on the day-to-day operations such as analyzing and collecting information of possible investors or partners. As well I learned how to write a proper CV and how to design them, but mainly I was writing them.

Further on, I was asked to start looking for potential clients and organizations that we could offer our service. Therefore, we began to design specific messages depending on the group of people we were targeting (students, juniors, seniors, executives) and we start generating leads on LinkedIn in which we began segmenting the marketing per experience and different industries. Then with the help of a CRM called Octopus, we began to contact people on a daily basis. This was mainly done to generate brand awareness but with this campaign we had some conversions making it an excellent experience and something that will be repeated in the future.

Towards the end of my internship, I began to do a market study of how many companies were already in the AI recruitment market and what were their characteristics, what would be the minimum viable product that ZenCV would need to generate in order to compete with those who were already established. That is how as well many of the ideas came for the beginning of the development of the program.

2.5. Executive Summary

In a world where everything is turning to technology, it is difficult to find a place in which technology cannot be implemented and the recruitment market is no stranger to it. First the ATS, now AI through chatbots and the future hyper realistic AI human look alike, and there is where ZenCV enters.

Throughout the utilization of different techniques and indicators it was shown that the US would be the perfect place for ZenCV to expand and to offer its services. As well it was realized that for ZenCV would be better to offer its service more than becoming a staffing agency due to the high market concentration therefore, partnering would be the ideal entrance with the possibility of offering this software that could help to save time and money and at the same time help to make better hires and reduce the employer turnover for the stakeholders.

3. INDUSTRY/MARKET ANALYSIS

3.1 Industry and Competition Analysis

First of all, we need to consider that ZenCV is a “born global firm” since it has been able to conduct business in other parts of the world while keeping its operations here in Italy. Per its definition, a “born global firm” is defined as a business organization that, from inception, seeks to derive significant competitive advantage from the use and the sale of outputs in multiple countries. (*Saylor Academy, 2012*)

Why is it important to mention that ZenCV is a born global firm? Because more than just trying to understand the local market, Italy, we need to understand the global market in order to understand the real players that ZenCV will be facing on this market. Therefore, it will be necessary to analyze the overall market more than the national market. There will be

different tools employed to conduct this analysis such as Porter's Five Forces analysis along with a SWOT analysis to understand better the players and the market.

3.1.a - Environment Research

There will be three main focus areas (regulations, players, customers) that will give a more holistic view of ZenCV's current situation therefore this will give a more accurate understanding of the actual situation of the company.

Regulations

While analyzing laws and regulations that will be pertinent for ZenCV to take care for operating, consumer privacy and data protection laws came up. Any company working inside the European Union (EU), they have to comply with the General Data Protection Regulation (GDPR) law. The GDPR forces any company that interacts with or process personal data to implement all the measures to ensure its protection.

The strictness of the GDPR makes it a plus for ZenCV, since they are operating within these rules, privacy rules policies are already on par with data protection around the world making it easier to expand to any country around the globe since they already comply with the laws required to handle with personal data.

Players

Since ZenCV will be moving itself to a competitive new market as it is the AI Recruitment market, it is worth to understand who they will be playing against on the field. At the moment, some of their competitors are relying on the chatbot alternative, others are using the video recruitment tool in order to compete in this market.

In the following table, the main competitors will be exposed and at the same time they will be compared with ZenCV's solution.

As it shows, organizations like Mya and Wade&Wendy, are mainly using chatbots in order to take applications and to be in charge of directing the first round of interviews so the HR team can analyze the people who might be the best fit for the open position. Later on, in a program depending on how the app has been set up, the HR analyzes the results and decide to contact the people that the program has advised them.

COMPETITORS	PSYCHOL. ANALYSIS	REALISTIC AI RECRUITER	SKILL ANALYSIS	APPLICANT UX	TYPE OF SOLUTION	TIME TO MARKET	COMPETITIVE DANGER
					AI Interview (one-way)	Could add two way 12 months	HIGH
					AI Chatbot)	Could add video AI in 36 months	MED
					AI Interview (one-way)	Could add two way 24 months	MED
					Real person Interviews	Could train algorithm in 12m	HIGH
					AI Chatbot	Could add video in 24 months	MED
					AI Interview (one-way)	Could add NLP in 24 months	LOW
					AI Interview (two-way)	16 months	HIGH

Figure XVIII: Competitor's table

As the previous figure shows, organizations like Mya and Wade&Wendy, are mainly using chatbots in order to take applications and to be in charge of directing the first round of interviews so the HR team can analyze the people who might be the best fit for the open position. Later on, in a program depending on how the app has been set up, the HR analyzes the results and decide to contact the people that the program has advised them.

As per the rest of the competitors shown in the figure, they are using a one-way video interview, which means that the recruitment team sets up a specific number of questions and the applicant answers through a video. Usually, they have 30 seconds to prepare per questions and it is up to the team to decide how much time they have to answer.

Therefore, ZenCV will create a cutting-edge application that will be a two-way AI video interview in which through a program they applicant will be able to speak with a human-like figure that will interact in real time leaving chatbots and video interviews behind. But at the moment, ZenCV has no recognition in the market, and they are still due to present their MVP product by the end of 2021.

Customers

This will be an interesting mix for ZenCV since they can target everyone, allow me to elaborate; the AI recruiter was mainly thought as a tool to help from small organizations to huge corporations but ZenCV realized that there is a market that they can still exploit: job searchers. Therefore, based on the experience they have gathered throughout the last couple of years they have realized that they can offer this service on their website for those who might want to practice their interview skills in order to improve their ability to cope with the stress of interviewing for an open position.

On the other hand, ZenCV's main target will be to offer this service to all sorts of companies therefore they can speed up the process and save as much money as they can, as it was mentioned before on this paper, recruitment is one of the most expensive activities a company conducts.

As well, this service can be offered B2B since this will be its main purpose, helping companies to save and speed up this process. This program will help companies that do not have an HR team, or a small team, even to those companies that have big teams but receive as well many applications per opening. On this matter this will all go down on how good they can sell this service and its effectiveness.

3.1.b Porter's Five Forces Analysis

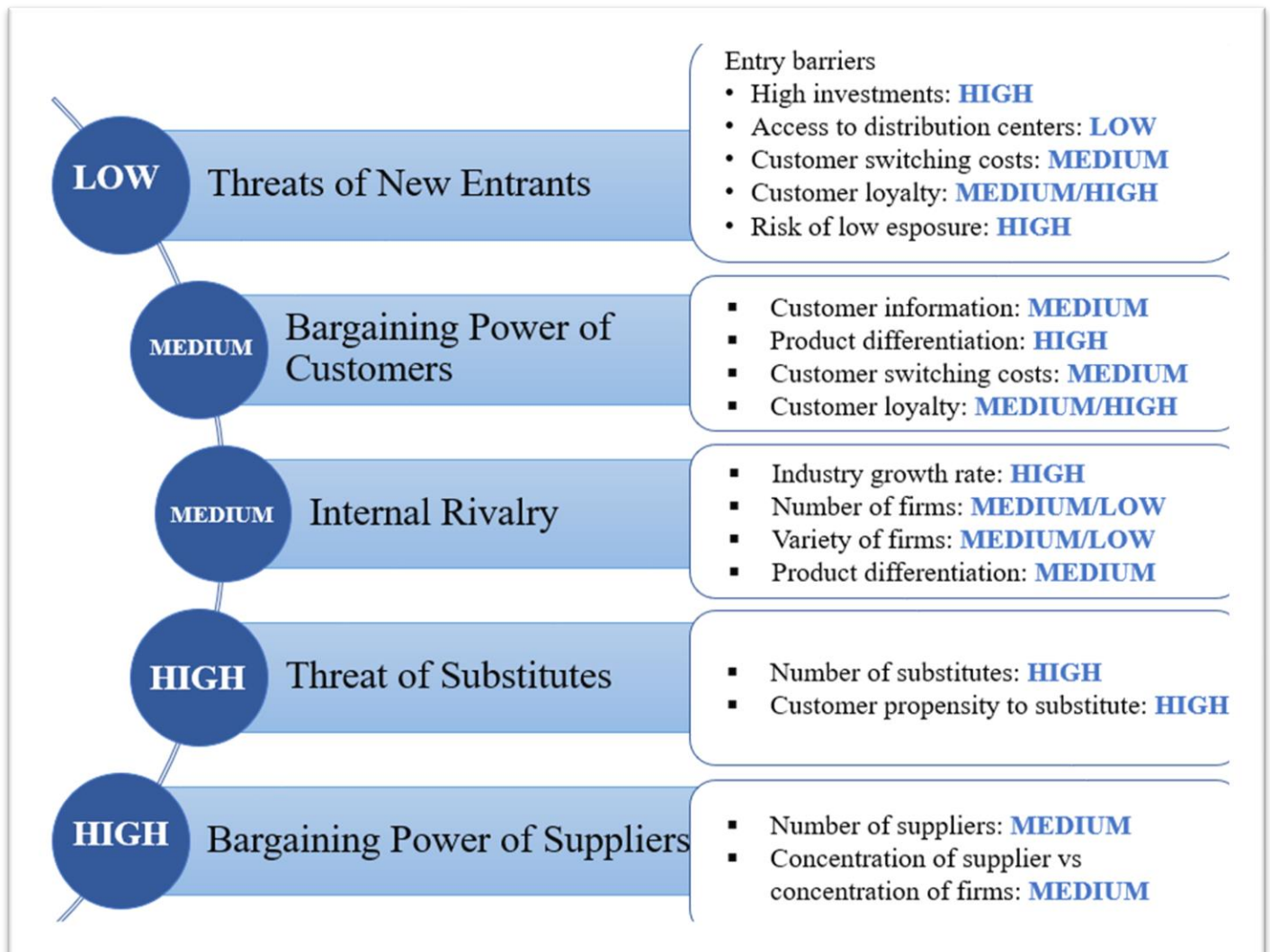


Figure XIX: Porter's Five Forces Model

Even though ZenCV can move in any market due to its status of a born global organization, it will be necessary to understand and evaluate the attractiveness of the Italian market, the home market.

- **Internal Rivalry (Direct Competition) – Medium**

Even though this is a very promising market, the market is still experiencing development in its area which at some moments it's difficult to experience any sort of difference since most of them have reach almost the same level of service. Most of the providers are offering almost the same solution at the moment it does not matter if the customer choses chatbots or one-way video interview. Nevertheless, these solutions are still developing to make it more accurate and for sure they will face a higher competition in the future.

- **Threat of New Entrants (Potential Competition) – Low**

Entry Barriers:

- Market entry requires significant investment in order to produce a viable product.
- Access to distribution channels should not be expensive since it will be a software.
- *Customer switching costs* should be expensive since they would have to retrain personnel and re adapt their system in order to work with a completely different system.
- Loyalty barrier might arise since companies might not want to change since they are pleased with the system they are working with. Especially when the rise of other costs might arise.
- On the other hand, new entrants tend to face a potential risk of low exposure and insufficient visibility, making it fundamental to work with funding either from investors or personal in order to mitigate this problem.

In this case, the threat of new entrants is classified as “low” since entry barriers are very high and as well is quite an expensive and without any sort of funding will be very difficult to bring a product to the market and as well will be very hard to keep operations running without any sort of funding.

It is important to say that since this is a software it should not be hard to transport since but still it will need people capable of setting it up and training the personnel on how to use it effectively for the organization.

- **Threat of Substitutes (Indirect Competition) – High**

The threat of substitutes is marked high as until nowadays we can find organizations who are outsourcing the HR functions in order to hire; therefore, they will not need this service as well other organizations might use the classic ATS because it might be cheaper and last but not least, companies can still have their HR teams doing the classic recruiting.

- **Bargaining Power of Suppliers (Upstream Competition) – High**

In this case we can consider the bargaining power of suppliers “high” since there are already other companies working on this sector who have already began to move and acquiring different customers and adapting their software to their specific needs. There is no certainty of who is the one leading the market as per competitors but for sure they are offering the almost the same level of service for chatbots and video interviews.

- **Bargaining Power of Customers (Downstream Competition) – Medium**

This category is classified as medium since prices varies according to the size of the organization and as well the amount of people you are expecting to interview. Most of the times it will come down to prices and to which program will fit them better. As it has been mentioned before, most of these products have reached to the same level; therefore, it will all turn down to how effective they can negotiate prices. On the other hand, customer loyalty might be another factor to consider and convincing them of leaving a program that has been working for a long time for them will be difficult.

3.1.c SWOT Analysis

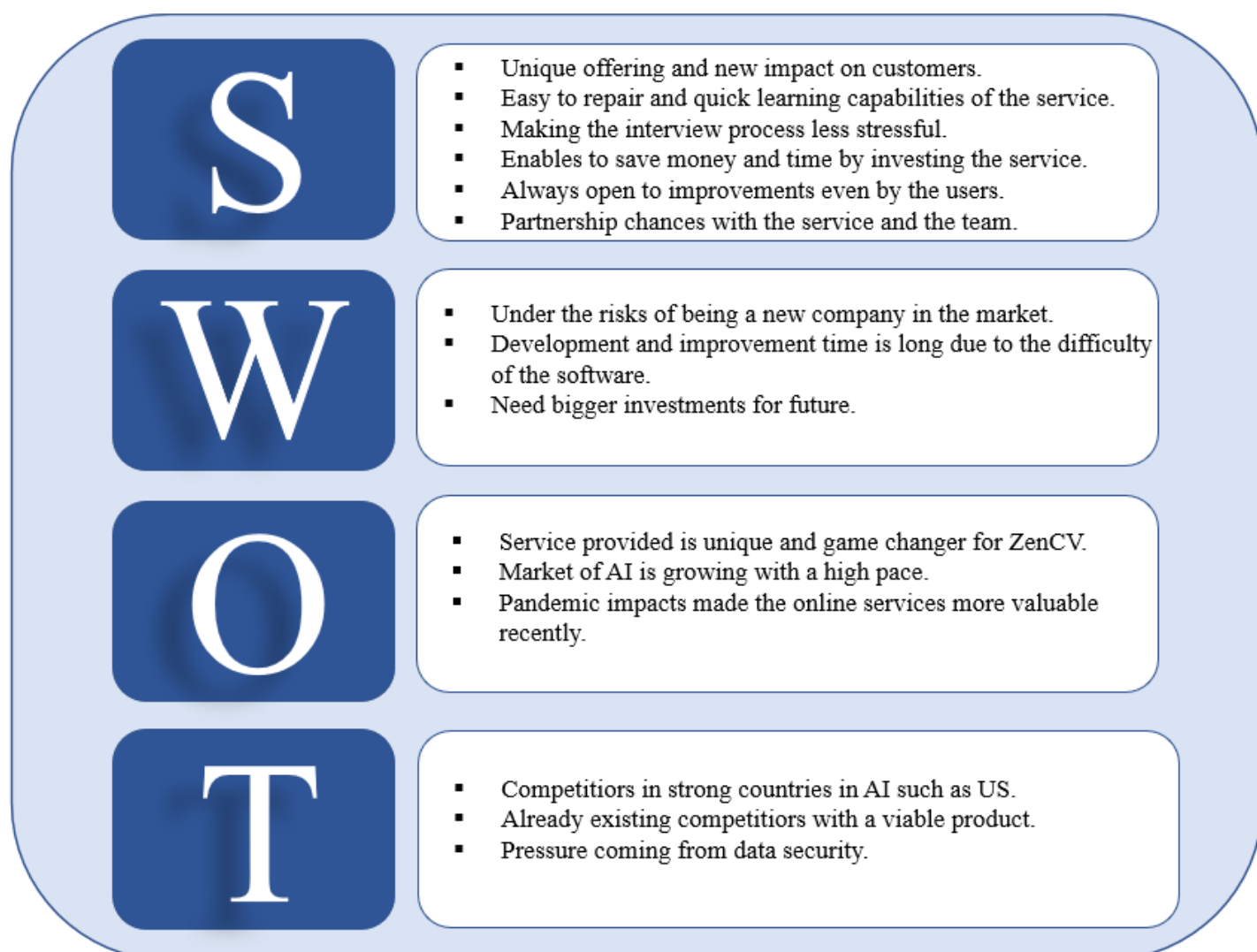


Figure XX: SWOT Analysis Framework

Internal Analysis

Strengths

- What ZenCV is offering will be a unique offering and will give a new impact to customer experience: even though the recruitment market is already working with some AI solutions, this one will be completely different since this service will be capable of interacting with the applicant in real time, capable of conducting and interview and asking the right questions while grading the applicant in order to give the organization the best potential applicants in order to give the company the best possible feedback and results.
- Since it is a software, it has only knowledge to gain, meaning that even when it might have made a mistake, they will be able to correct it in order to avoid the mistake again, therefore, the program will keep learning and doing it better and more effectively.
- The applicant might feel more comfortable speaking with the program since it might be a novelty and it would be as stressful as speaking with a human.
- Will be capable of saving time and money to the companies that use this program, with this they could be capable of using their funds wiser.
- Having a knowledgeable HR team that can guide and improve the algorithm that the software will use therefore it will become more accurate at the moment of guiding an interview.
- ZenCV has been capable of creating a partnership with a company in order to develop the software making it easier to orchestrate the project and eliminating the need of specific payments since they reach an agreement based on milestones.

Weaknesses

- Since ZenCV is still a start up on the grow, they could face a low exposure on the market due to the fact that they are relatively a new company in the market and as well there might be a bit of skepticism on the accuracy of their service.
- Even though they have had created a partnership with a developer company, due to the difficulty of the software, it might take a long time for them to be able to create a proper system.

- ZenCV is a startup that has been mainly running on self-funds they will need big investments in order to make this project possible.

External Analysis

Opportunities

- Even though there are other companies trying to innovate in this market, ZenCV's proposal could be a complete game changer since nobody in the market at the moment is developing such an innovative way of carrying first round interviews. With a human-like figure interviewing a person for a position and interacting with the applicant is not something on the actual market.
- The AI market is one that has been growing constantly during the last couple of years for example: in the United States in 2019, which is the most recent data, there was an investment on the AI sector of \$25,170 billion USD which represented a growth of a 194% from 2015 until 2019. As well in Israel, there was a total investment of \$3,056 billion USD with a growth of 1,109% from 2015 until 2019. (source: Brookings)
- Since the beginning of the pandemic, companies have been forced to moved most of its operations online sometimes been overwhelming for the employees; therefore, with a software like this, they could help companies to evaluate employees faster and safer for the physical integrity.

Threats

- Since ZenCV is mainly located in Italy has to understand the threat that the American companies means to them, as it was shown before, throughout the AI market in the United States there has been a huge investment over the last years. As in comparison with the Italian market that its investment on AI in 2018 was of €135 million. (Source: Statista)
- There are companies that have already positioned themselves on the market and will be a real threat since they already have a viable product on the market with effective results.
- Last but not least, Data Security it is a very important matter, even if they are compliant with the GDPR, cybersecurity is still something to be concerned and this will put a lot of pressure on the developer's shoulders.

3.1.d Market Analysis Insights-Conclusion

As it has been shown, even though the AI Market it is a very attractive one, in the Italian market is not quite strong and there is not a big investment; nevertheless, this could be an opportunity to become the first big innovators on AI recruitment here in Italy. Therefore, ZenCV should try to capitalize this opportunity of becoming an important player in Italy and potentially in the world.

On the other hand, ZenCV should take advantage of the partnership they were able to create and as well of their HR team in order to come out with an exceptional outcome that could cause a revolution in the recruitment market. It will require a lot of time and money, but the reward could be unbelievable.

3.2. Identification of New Promising Markets

Potential Markets

In order to start looking where to expand, this study has focused on the top 10 countries that have invested the most in artificial intelligence. Even though ZenCV is still a small company, they have been considering moving within the market that could offer them the most opportunity to grow. Even though, they might not still be ready for such a big expansion, their work rate and methodology has shown time and again that they can manage working with people from other parts of the globe. Therefore, the countries that have been considered for this analysis are: United States of America, China, Israel, United Kingdom Canada, India, Japan, Germany, Singapore, and France.

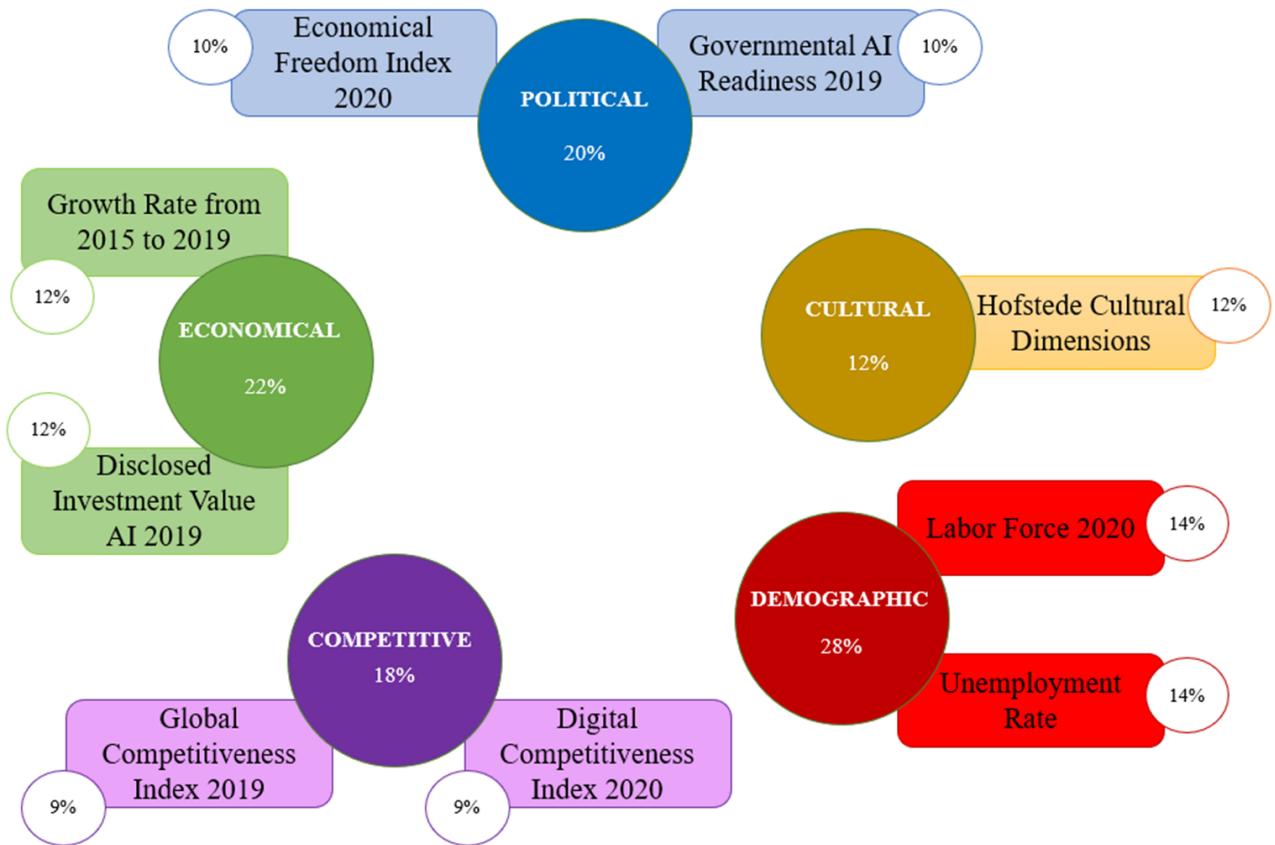


Figure XXI: Factors and percentages regarding the analysis of Potential Markets

Analysis Factor

Since it will be crucial to understand the general picture of each country and how their market environment is, several factors have been included in the analysis.

Demographic

In this criterion, it is important to analyze how many people are in the current labor force as well the amount of unemployed people since this will reveal how many people could potentially end up being interviewed by the software.



This takes into consideration both, employed and unemployed people, who are working are actively looking to work.

Unemployment Rate

14%

This is considered as the part of the labor force that is jobless, due to different factors such as changes in the economic landscape.

Economic

In this criterion, things such as Disclosed Investment Value and its growth rate from 2015 until 2019.

Disclosed Investment Value AI 2019

12%

Amount of money which was invested in AI activities during 2019.

Growth Rate from 2015 to 2019

12%

Shows how much investment on the sector has grown on this time lapse.

Competitive

Digital Competitiveness Index 2020

9%

This criterion evaluates 12 different pillars such as: institutions, appropriate infrastructure, stable macroeconomic framework, health and primary education, higher education and training, efficient goods markets, efficient labor markets, developed financial markets, ability to harness existing technology, market size both domestic and international, production innovative goods, innovation. (source: World Economic Forum)

Global Competitiveness Index 2019

9%

Measures the capacity and readiness of 63 economies to adopt and explore digital technologies for economic and social transformation. (source: IMD)

Political

Economical Freedom Index 2020

10%

This index measures 12 different aspects: Property rights, judicial effectiveness, government integrity, tax burden government spending, fiscal health, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom. (source: MPI)

Governmental AI
Readiness 2019

10%

It scores governments according to their readiness to use AI in the delivery of public services.

Cultural

Hofstede Cultural
Dimensions

12%

This helps to understand the affinity of the home country to the ones they are trying to expand.

Method

Multicriteria decision making method is used in order to find the ranking among the countries is considering several different criteria and classes along with their assigned weights. Firstly 5 categories respectively: economic, political, competitive, cultural, and demographic had been considered. Each of these categories have one or more than one factor having a determined number which was find from online sources.

After assigning the weights, the first calculation is done in order to calculate the score (from 1 to 10) for a particular factor for each country. In this case numbers for each factor and each country had been taken and divided by the number of the country which has the largest corresponding in that specific factor and the division is multiplied by 10. In this case for the demographics, labor force 2020 factor we can see, since China has the largest number its score automatically becomes 10.

After the calculation of the rankings, the impact of the weights is given by multiplying each ranking by their predefined weights. At the end, the weighted scores of each country coming from each factor are summed and the ranking among the countries were defined.

MARKET ATTRACTIVENESS INDEX RAW DATA									
COUNTRY	ECONOMICAL		POLITICAL		CULTURAL	COMPETITIVE		DEMOGRAPHIC	
	Disclosed Investment value AI 2019 (estimates)	Growth rate from 2015 until 2019 (%)	Government Artificial Intelligence Readiness 2019	Economic Freedom Index 2020	Hofstede Cultural Dimensions	Global competitiveness Index 2019	Digital Competitiveness Index 2020	Labor Force 2020	Unemployment Rate
Italy	146		7.533	62.20	-	71.50	67.903	25340.79	9.9
United States	25170	194.00	9.186	74.8	-6	83.70	100	165491.97	8.1
China	5446	71.00	7.37	39	-1	73.90	84.105	771255.81	5.2
Israel	3056	1109.00	7.348	80	11	76.70	80.723	4127.51	3.8
UK	1655	189.00	9.069	95	-8	81.20	86.314	34707.92	3.7
Canada	885	307.00	8.674	93	-4	79.60	90.482	20407.1	9.5
India	486	275.00	7.515	60	0	61.4	54.836	471689.09	5.3
Japan	510	1031.00	8.582	88	-20	82.30	75.099	68644.44	2.4
Germany	356	164.00	8.81	88	-9	81.80	81.062	43356.61	3.1
Singapore	314	248.00	9.186	88	5	84.80	98.052	3511.95	4.2
France	312	245.00	8.608	77	-13	78.80	76.983	29951.09	8.4
Average	3485.09	383.30	8.35	76.82	-4.32	77.79	81.41	148953	6
Std. Dev	7027.77	349.34	0.72	16.26	8.43	6.47	12.38	235572	3
Source	Brookings	Brookings	Oxford Insights	MPI	Hofstede Cultural Dimensions	World Economic Forum	IMD World Competitiveness Center	World Bank	World Bank
Weights	15%	9%	12%	8%	5%	9%	15%	12%	15%
								TOTAL	100%

Figure XXII: Market Attractiveness Raw Data Analysis

3.2.a Market Analysis

After the analysis performed before to find the most suitable country to expand, The United States came on top. Therefore, to understand better the United States, a PEST Analysis will be conducted in order to understand better its political, economic social and technological environment.

Following, with the PEST analysis, some charts will be attached in order to strength the choice of expanding to the United States and showing with this market could prove to be an attractive one for ZenCV.

3.2.b. PEST Analysis

Political

Politically the United States of America (USA), can presume that enjoys one of the largest democracies in the world. Presidential elections are usually held every 4 years and it is considered to be one of the most transparent elections through the world. Even though the USA has been facing some challenges during the last couple of years, generally they enjoy a quite stable political environment. Due to the importance, they have on the world, they have a lot of influence over many different political policies throughout many countries.

The USA is one of the strongest advocates and promoters of democracy around the world. Thanks to their political stability, technology, and infrastructure, USA becomes one of the ideal locations to foreign direct investments (FDI). Thanks to the qualities that the USA has, many multinationals and big corporations have made them their first choice when it comes down to invest for a long time.

Political Indexes	USA	Italy	Range
Political Stability & Absence of Violence and Terrorism	0.3	0.46	(-2.5 to +2.5)
Government Effectiveness	1.49	0.46	(-2.5 to +2.5)
Control of Corruption	1.22	0.24	(-2.5 to +2.5)

Figure XXIII: Political indexes for different countries

Economic

The USA is a country has the largest nominal Gross Domestic Product (GDP). Even though they have this unbelievable stat, the USA has been forced to shape its economy to the new challenges and even though they are an economic superpower, there are certain forecasts that by 20150 they will drop to the 3rd place on the GDP ranking. Its main exports are refined petroleum, crude petroleum, cars, integrated circuits, and vehicle parts.

One of the biggest victories for the USA in the economic scope is recovering from the 2008 recession, they were able to reduce unemployment and at the same time income levels improve greatly. During the last couple of years people were a bit scared since during 2019 the

stock market fell down, experts said that this was caused because of the trade war between China and the US, Brexit, etc.

2020 was faced by something that nobody was prepared to face, a global pandemic. This pandemic caused a lot of problems to the American economy making it shrink 3.5% this is the worst performance for the American economy since World War II.

Economic Indexes	USA	Italy	Range
GDP	21,433,226.00 Million USD	2,003,576.15 Million USD	-
GDP per Capita	65,297.50 USD	33,228.20 USD	-
Unemployment Rate	8.1	9.9	%

Figure XXIV: Economical indexes for different countries

Social

There is an approximate population of 332 million of people in the US, making it the third most populated country in the world. It has one of the biggest numbers of aging people but still they do not make the top 20 in this category, still this is a little bit problematic since it might cause a reduction in the supply of labor.

Education wise, the US is considered to have one of the best educational system throughout the world; on the other hand, has one of the health care system but the downside that it is not free and its quite expensive and not everyone has access to it due to its elevated prices. Even though, its society is health conscious, is one of the countries with the highest rate of obese people through its society.

Its society is quite diverse, 1 in 3 Americans is either Asian, African, Latino, or Native American. One curiosity is that even though they are quite a liberal and diverse society, lately the country has been witnessing racial problems that has put them on the eye of the entire world.

Social Indexes	USA	Italy	Range
Globalization Index	82.28	82.82	-
Human Development Index	0.926	0.892	-
Happiness Index	6.94	6.387	-

Figure XXV: Social indexes for different countries

Technological

Technology wise, the US is still leading on the fields on technology and science. This country has always been a synonym of technological advances. Big companies like Microsoft, Apple, Google, etc. have helped to solve many problems not only to the American society but for most of the world.

Technological Indexes	USA	Italy	Range
Innovation Rate	60.6	45.70	-
R&D Expenditures	2.84	1.4	-

Figure XXVI: Technological indexes for different countries

4. MARKETING

4.1. Target Market

As it was shown before, the USA has been identified as the ideal country to expand since its characteristics are attractive as a foreign market. Now it will be crucial to decide upon the correct marketing strategy for ZenCV. Choosing the right strategy will be fundamental for the success of the company at the moment of its expansion.

Target Description

As it has been discussed previously on this paper, recruitment and HR activities are very expensive because of different factors such as: time invested, manpower, and money invested. Since running this kind of activities has become very expensive lately, many companies in the US have started to outsource HR and recruitment given that they have found that is cheaper and faster for them.

Most of the staffing and recruitment companies nowadays are still using an outdated system such as the ATS, which is a program that has been working for the last 20 years. On the other hand, improvements on the interview stage have advanced but still can be improved, as it was said before at the moment, on the market it is possible to find chatbots and one way video interviews which are still on development.

As per the B2B market as we mentioned earlier, the main target will be to target recruitment and staffing companies, since in the US 2/3 of the large companies actually outsource this service making it crucial to offer this service to the companies that work with this since this will speed up the process and will help them as well to make a better hire for the companies they are working for at the moment.

However, at this point, ZenCV is not powerful enough to enter the American market and capitalize a huge portion of it. Therefore, ZenCV will need to find a partner who could help them to start off, therefore it would be necessary to ally probably with a recruitment company that could promote their name and their service, for example it could work if they target a company who has already established themselves in the market and could help them to boost ZenCV's visibility and boost the hiring rate of the partner company.

ZenCV business model will be primarily B2B (90%) targeting SMEs and Big Corporations helping them streamline their hiring process and enhance talent acquisition.

It will be charged \$100/month per job post + \$10-\$20 per applicant interviewed.

A smaller part of efforts will also be oriented B2C (10%) by helping people prepare for the interview with our online AI recruiter, it will be \$5 per practice.

B2B benefits:

-
- **Quicker Hiring Cycle** - AI will be able to interview characters in parallel leading to faster interview cycle of 1st round (from 4-8weeks down to 1 day)
 - **HR time & cost savings**- Hundreds of man-hour savings for the HR department per job position since first round of interviews is eliminated
 - **Efficient talent acquisition** - AI enables parallel Interviews hence it interviews all applicants instead of usual "top" 2-5%. This increases quality by 20-50x
 - **Top-talent filtration** - Comprehensive assessment with Multidimensional testing & objective filtration of top-talent based on objective measurements without human bias
 - **Lower Employee Turnover** - Better alignment between company culture & employee values leading to lower employee turnover in the long term and \$15000 savings per employee
 - **Enhanced Brand Image** – Applicants will receive personalized feedback reports on why they didn't get hired which almost never happens nowadays.
-

On the other hand, besides the B2B market in which it will be important to mark that there is a possibility of as well accessing the B2C market. Since people who might want to practice their interview skills and, in this market, possibilities are huge since people coming out from university who might not have any experience could benefit from a service like this since they could receive a benefit for their life. However, it is worth mentioning that as the purpose of the study the main target will be on B2B market, but the importance of B2C should not be neglected as well, since the customers coming from there because of the aforementioned reasons can create a difference for ZenCV. At the end, the summary of the target description and planned steps which is also aligned with the strategy of ZenCV can be seen in above.

4.2. Quantitative Analysis

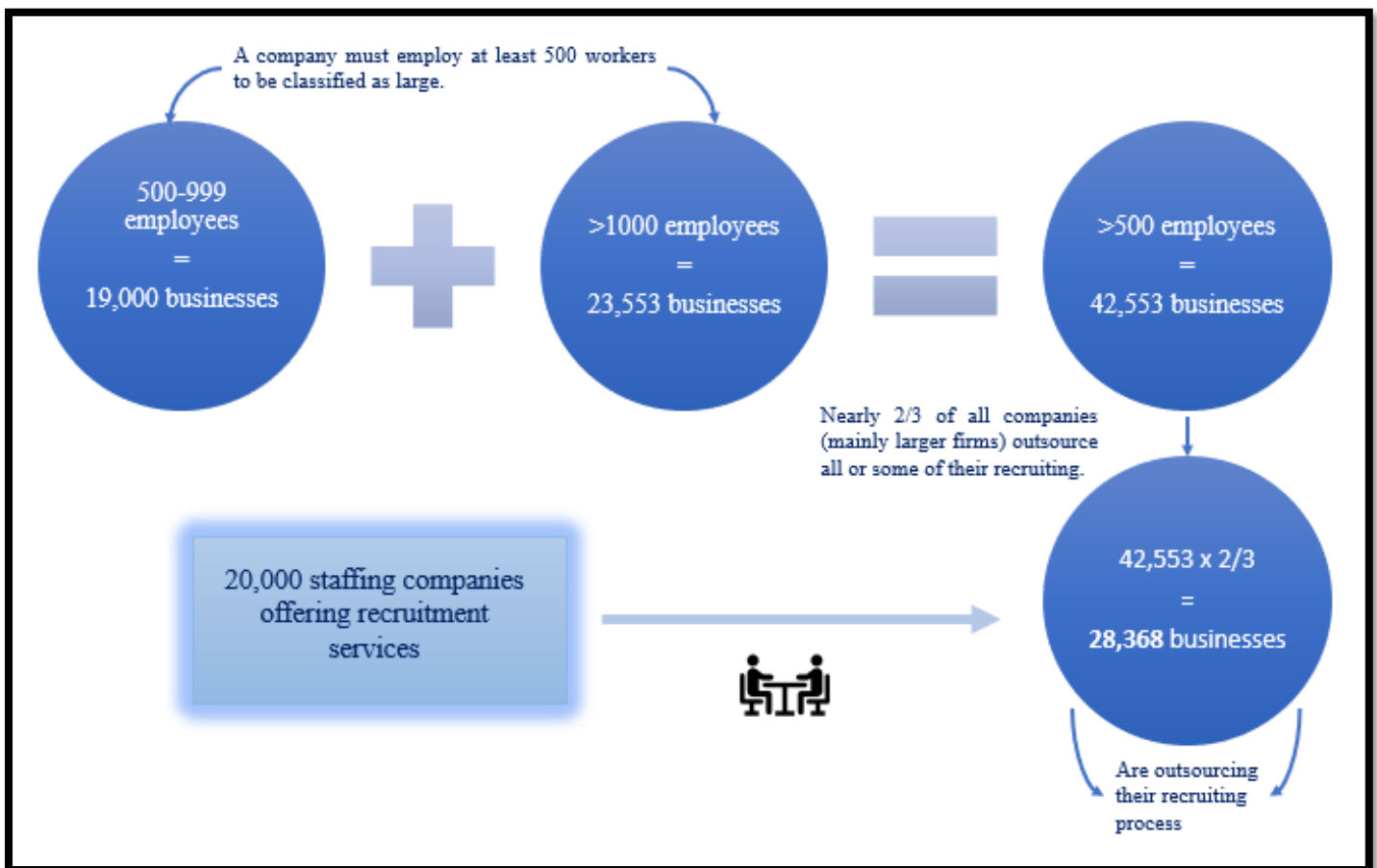


Figure XXVII: Target Market Quantitative Analysis

In this part, quantitative analysis on some data from online sources had been done. To estimate the best target market for ZenCV in US we looked over some data corresponding recruitment industries. According to the data found in ERE recruiting intelligence, nearly two-

thirds of all companies outsource all or some of their recruiting, with larger firms the ones most likely to turn to outside vendors for help. In this case, as the purpose of the study we decided to focus on large companies in US in order to estimate and approach to a number of businesses that are using staffing companies for their recruitment activities. In overall 20,000 staffing companies are offering recruitment services in US claimed by Murray Resources.

In addition to that, large companies were needed to be calculated, which are by definition the ones having more than 500 employees as it is claimed by The Business Journals. When data presented by NAICS Association belonging to February 2021, there are 19,000 businesses having 500 to 999 employees and 23,553 businesses with more than 1000 employees. These numbers indicate that in total approximately 42,553 businesses in US are defined as large companies.

We already know that only 2/3 of these businesses are outsourcing their recruitment activities, therefore the target market for staffing companies becomes the 2/3 of 42,553, which is 28,368 businesses in US. At the end, from another point of view, data shows that 28,368 businesses are covered by 20,000 staffing companies, which is actually a very high number of service providers compared to the businesses provided by the recruiting services. Therefore, we believe that it is better for ZenCV to target not the businesses itself since the concentration of the staffing companies are very high, but better to target the intermediaries and provide the service to the staffing companies.

4.3 Promotion Channels

For this activity, it will be very important for ZenCV to be able to enter to promotional events either in AI fairs, HR conventions, and business fairs since with this they will be able to show companies the effectiveness of their service and on the other hand could land them potential investors, buyers, and partners.

On the other hand, they will need to work as well with online sales, advertisement, and email campaigns through MailChimp or other mail providers.

Promotional Event

Since ZenCV is a start-up that has low visibility, it will be crucial for them to showcase their software/service in different fairs or conferences; for example: in the USA there is a huge expo called AI & Big Data Expo that is usually hold in the month of September. In this kind of event usually they are looking forward to having companies that have been investing and innovating on the AI area and they are usually looking for companies with specific profiles such as start-ups or those companies that have been developing conversational AI providers.

This could prove a huge opportunity to them, especially since according to the demographics there are in attendance 52 companies with 5000+ employees, 21 companies with 1000-4999 employees, and 14 with 500-999 employees which are part of those companies that outsource their recruitment, without counting those CEO's and upper management level who will be watching and looking for new technologies. Therefore, being in an expo like this could raise the exposure making companies interested in acquiring this service for their companies and as well could raise partnerships who could help ZenCV to run business smoother in a new market.

In this expo of course at the moment of showing their software and how it works, therefore, they could demonstrate of how works in real time since the speaker could be the one being interviewed for a position and the software interacting with him or her this will show people how the program works and how accurate this works. Nevertheless, they need to have a booklet, or a flyer showing the characteristics and could have a QR Code that guides them to the company's website that can inform them about prices and other interesting facts.

On the other hand, they could try to attend HR seminars in which they can expose this software and how it interacts with the applicant, showing them how this program could help them in cutting costs and saving time and the moment of hiring a new employer. With a demonstration in an HR seminar, they could find heads of recruitment interested in innovating in this system since most of the companies are still using ATS, this could prove to be a way to improve for many companies.

Therefore, the benefits of presenting in this kind of events would be:

- Raising brand awareness
- User engagement
- Would raise conscience on how a program like this could save time and help the hiring team into evaluating those whom the program considers to be the right fit under the preset parameters.
- Possible shape the future of recruitment.

Email Campaigns, SEO, and Online Advertisement

Emails campaigns could help to attract potential customers, or to create brand awareness which in the beginning for sure could be the main goal, more than hard selling. Nevertheless, it will all be a process depending on milestones and goals that the company sets. On the other hand, since their entrance into a new market will be challenging and at the moment, they are a self-funded startup, they will need to be creative at the moment of promoting themselves.

Therefore, until they can manage to build a partnership or find somebody who gives them funds, they will need to be creative with a tool like MailChimp which it is not very expensive and could work for them since the company already has a public relations person, this can give them the upper hand on the way to communicate correctly and effectively.

Something that will help ZenCV to catch customers is the utilization of Search Engine Optimization (SEO), thankfully the company has been investing a lot of time during the last couple of months in improving the SEO so people can find them easier online since this method is based on word match per search, this way brand awareness is raised, and people gets to find easier the company in online searches.

As per online advertisement, there are several services that allow companies to advertise for very affordable prices and they have different ways of charging the company like Google Ads with the pay-per-click (PPC) they as well can run ads through Facebook.

Online Marketing Cost

As it was discussed before the main goal of the mail campaign will be to raise awareness and probably this will catch the attention of potential customers, ZenCV will need to run an email campaign that might need the use of a service like the one MailChimp offers. The good part is that mail chimp on its free version allows the user to send up to 10000 emails per month making this a perfect service since the funds can be invested on leads that could potentially land important emails that could be interested by the offer.

It is estimated that each lead has a cost of \$198 USD, but it can variate according to the industry and the amount of leads they might expect to generate in a month, therefore, it will all come down to find executives or people who is in charge of managing deals at a corporate level on staffing companies. On the upper side, thanks to the team of designers that the company has plus public relations expert within the company can help to save costs big time since probably they can manage their own marketing without the need of incurring of big expenses. However, they will need to wither study very well how to promote in the US market or they can hire a marketing consultant with experience in promoting in the US that could guide them and help them to understand better how to promote in that market.

For SEO, in order to generate a good organic traffic and since it will be important to do it because from here ZenCV can generate leads; it would be recommended for the to outsource this to an SEO firm, in average a good firm could conduct this activity for \$500 USD per month. Investing on this could make the company to appear more often in web searches possibly increasing the number of customers and people finding out what is the thing ZenCV are doing.

Last but not least, running an advertisement campaign through Google Ads the price for startups generally averages between \$1000 and \$10,000 USD. Of course, the more you invest the better is the traffic.

Therefore, per month and yearly it will be needed:

Leads	\$198
SEO	\$500
Google ADs	\$2000
Monthly Total:	\$ 2698
Yearly Total:	\$ 32,376

Figure XXVIII: Marketing and budgeting

Message

Mainly, the marketing campaign on the overall should revolve around the benefits that the solution ZenCV is offering and bringing into the table. It should try to make its point clear and easy to understand, faster and better hires, less money needed for this. At this point more than hard selling, they need to make the effort to stay in the company's heads telling them that they can hire better and faster spending less money thanks to this system they have created.

For example: hiring and staffing companies will understand and see the opportunity of increasing the revenues by making a quicker hire since they usually make money based on a percentage of the salary of the new hire. Therefore, this could help them to increase their margins and be more effective with their time management since they will be able to actually put their attention on those candidates that the program is mainly recommending going into a second interview.

In conclusion, the message that ZenCV should try to convey is that with this software they would be entering into a new era and that time and resources invested on this could be used wiser and better only if they are willing to take the risk of taking a step into the future.

5. OPERATIONS MANAGEMENT

5.1 Market Entry Mode

Introduction

Entry mode selection is a very important step for ZenCV because of the reason that it will reflect and connect several different choices. There are various entry opportunities depending on different targets, methods, and primarily financial investments. In this case it is important to consider the current resources (human resources, money, knowledge...) to be able to determine the level of control, risk, and experience along the way.

ZenCV started its way as a self-funded start up, in this case from the financial perspective, the entry mode should be carefully selected since the amount of investment will be limited because of lack of capital. This situation also will be affected by the fact that the entry is planned around the market in US, which in this case can be considered as international experience.

Because of aforementioned reasons, we would like to first eliminate the ones that are risky and not aligned with the current purposes and resources of ZenCV. First of all, *wholly owned subsidiary and joint venture* should be excluded as solutions since they require a lot of capital to invest and a significant degree of experience in the market. In this case, that would be very risky for ZenCV, therefore these options will directly be taken out from the perspective. Additionally, *licensing and franchising* should also be excluded because of the reasons that they are not feasible and compatible with the business of ZenCV. The company is not powerful enough in terms of resources, experiences, and brand reputation to attract US investors even though this entry mode is less risky, requiring less investments than the previous choice.

Therefore, as it can be seen from the figure as well, as the purpose of the report ZenCV should choose to enter the market with the help of *partnerships* since this will facilitate the control of the resources over the business, mitigate the risk along the road and reduce the initial investments.

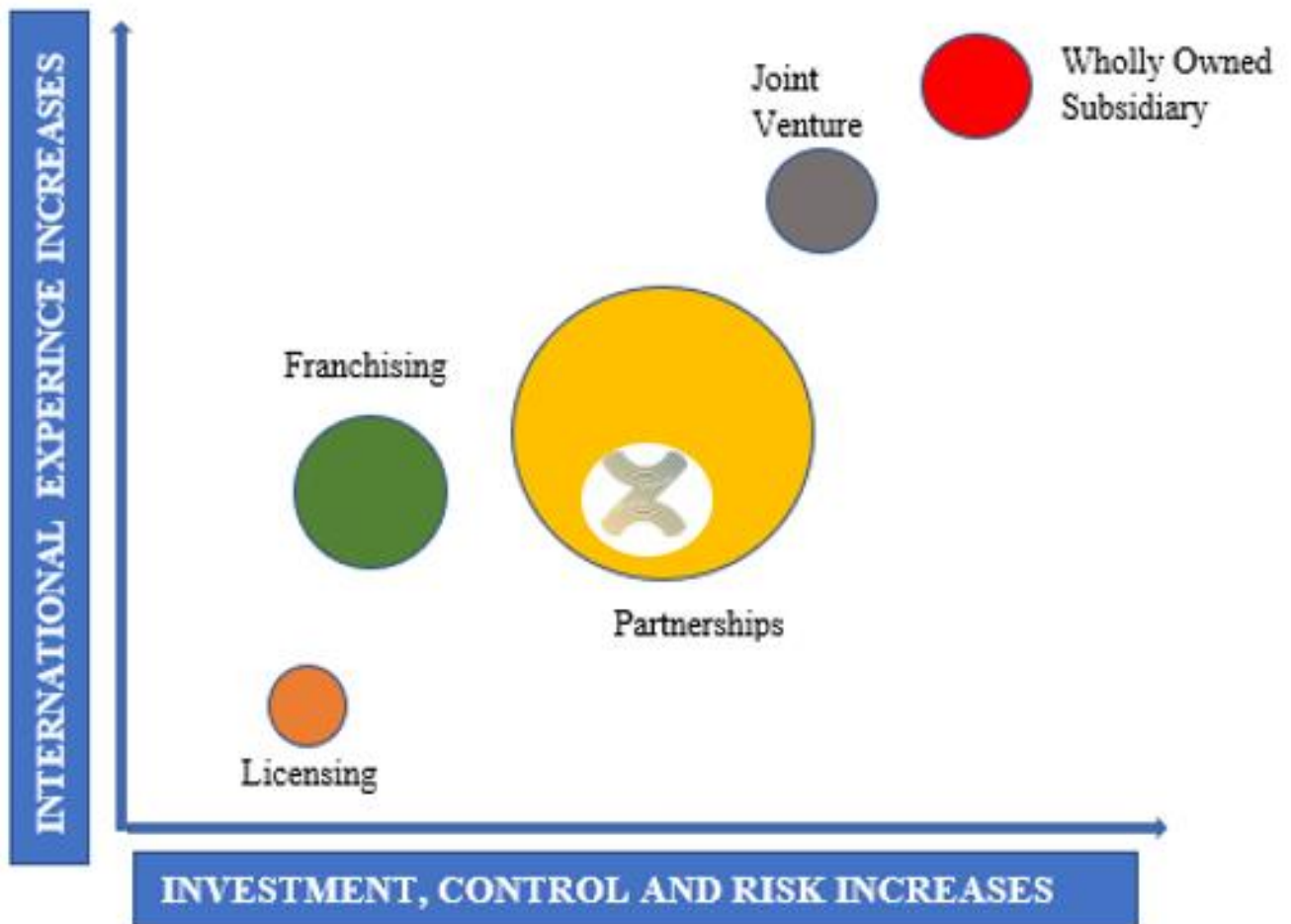


Figure XXIX: Market entry mode decision

The solution and the main benefits

As it is highlighted the best entry mode for ZenCV will be Cooperative partnership whereas both parties can benefit since from one side the staffing company can speed up on its own road and from the other side ZenCV can benefit this partnership by raising their brand awareness, having better insights on the development and as well in the future this possibility can help them to start their own subsidiary and promote their own services to a broader market.

These opportunities for ZenCV only considers the short term which can even be taken as only the tip of the iceberg. With time, we believe even the opportunities will have a broader and stronger impacts. In this case it is important to see the partnership in short term and long-term impacts for ZenCV which will be tackled in the next paragraphs.

In this case the selection of the partners should be done carefully regarding the strategies of the possible partners. As it is claimed by *Recruiter.com*, possible 20 companies are listed below and after careful research the most possible ones are elected for ZenCV.



Figure XXX: Top recruiting firms

At the end after careful considerations, Randstad is chosen for partnership because of the main reason that the company itself as like ZenCV also locates in Europe zone additional to US market. In addition to that, in the as is situation Randstad is working with ATS therefore implementing AI would be a very big impact for them as well. However, other companies and possible partnerships will always be open to negotiate.

Initial partnership- first year

In the first year of the partnership, ZenCV will work on helping to implement the software into its partners on data and system, which will take some time because of development and coding requirements. This will also give ZenCV a very strong training since Randstad is a very well-known big company, they will cover a lot of data to work with and a lot of real business problems along with their solutions which will at the end turn into deep experiences for ZenCV.

At the same time during the first year, promotional campaign conducted on social networks with the aim of involving target customers on using the service. The company's focus will be what it always is - demonstrating the benefits of the service and make their brand visible as much as possible in order to catch some reputation along the road of this partnership for the future steps of being independent. Along with social network campaigns, ZenCV will present itself in fairs in the recruitment domain to meet with potential customers both B2B and B2C, also to know better the competitors.

Mature partnership- subsequent years

As the partnership has matured in the subsequent years, there will be an increased willingness from both parties to continue such a partnership in the interest of further positive results as they have come out of the initial phase of the partnership. Since the partnership has matured and the relationship between the entities has strengthened, the partnership is prepared for additional aspects such as ZenCV can be independent, and they may become one of the leading forces with this software then the customer base will increase.

Possible Challenges

It is very important assess what can go wrong in the market rollout strategy that will give ZenCV trouble earning as much as they are planning?

CHALLENGE 1

Our first training of the algorithm will start on the job search platform that we will create. We will onboard partner & close companies that would like to help by experimenting with our platform. How will it work? HRs will perform normal interviews with real people while ranking them in multiple dimensions in real time with our software. As the HRs are ranking candidates, the software is learning to imitate the process. It can potentially be hard to get companies on board to try using our software in the first place. Strong connections are needed and a strong sales team, which we will start nurturing even before software kick-off.

CHALLENGE 2

Once the software reaches autonomy in assessing candidates it will make mistakes in the beginning and will require agent supervision. If it creates an offensive statement/displeasing statement without the agent intervening it can seriously impact our brand image. We will must invest heavily in agent training so that this doesn't happen.

CHALLENGE 3

With more serious clients, stronger data, and significant market presence the issue of "Ethical use of AI" will be a serious topic. One thing that could go wrong is if it happens that the AI algorithm will show a bias on race, age or gender. This could make us loose clients. That's why we plan to train our dataset on people from different demographics or race.

Legal Aspects

One of the most important point that should be tackled before everything when entering the US market is the legal considerations for the international expansion of ZenCV. These aspects according to GTM Global can be seen in below respectively.

- Intellectual property rights protection: IP rights need to be assessed and steps should be taken to protect them in the US.
- Trademarks
- Sales Terms, license agreement, term of use adaption.
- Limited Warranty: other guarantee and warranties are often not enforceable in the US.
- Product Liability preventive management:
- Immigration: advance planning needs to be put in place for navigating the ever-changing immigration landscape.
- Employment agreements: It is important that employees of the US company have a written employment agreement that is adapted to US legal circumstances in order to clearly define the relationship.
- Insurances: irresponsible to do business in the US without insurance
- Written contracts: marketing, sales pricing, payment terms, confidentiality, IP protection, warranties and more must be covered in a US-oriented agreement because the US does not have a civil code. As a result, the parties are left to negotiate the terms of their relationships directly.

5.2 Pricing Strategy

For ZenCV to be competitive with its price it will be required for them to access the market with a penetration pricing strategy that will allow them to catch the attention of the overall companies realizing that besides having an innovative program, they have an accessible price.

The main pricing strategy for the AI recruiter will be structured as followed:

ZenCV will charge \$100 USD per job posted plus an extra \$10 USD per applicant an interviewed and \$20 USD if it is for a top management position.

Since ZenCV will try to penetrate the market could try to offer different deals in order to catch part of the market with its service:

- Pay 5 job posts in advance and get a 20% discount + each applicant it does not matters if it is a medium class employee, or a top management will be charged at \$10 USD.
- Enroll for an entire year with us for \$400 USD a month and get the first two months free, only pay for each applicant that has been interviewed.
- For new customers, pay our flat rate of \$100 USD per job post without paying the applicant fee rate for 3 months.

6. Conclusion

In conclusion, with this paper, the point was firstly to understand how big the AI Recruitment market is and with it understand the possibilities that ZenCV has in a possible internationalization with the software that they have been developing during the last couple of months. As it became evident, companies around the world are looking into new ways of recruiting people and with this, decrease the amount spent on this process but at the same time to speed up the hire and of course to make the right hire.

Therefore, based on different factors a thorough analysis was made taking into consideration the actual state of the company, the international environment, and the players on this market. As well, other methods such as benchmarking, Porter's 5 forces, Multicriteria decision making have shown that the United States of America came as the proper place to expand making it the ideal market for ZenCV to grow and keep improving upon the service they will offer.

Hopefully, through a partnership ZenCV will be capable of reaching this market offering something that has not seen yet and with it help thousands of companies to improve the hiring process. As the study has shown, a lot of companies in the USA have been outsourcing their recruitment process, that is why for ZenCV would be better to enter the market offering the software rather than becoming a recruitment agency since there are already to many recruitment agencies make it much more difficult for them to succeed in this expansion.

7. Discussion

This paper came to live since a startup company, such as ZenCV has decided to enter the AI market trying to innovate for the recruitment sector with the help of it. Their effort for making a revolution in this sector is something good since there are other doing the same thing but still there is not one software or method that is taking over the old ATS. As it was said before, there are video interviews or chatbots that are trying to take over so companies can make a hire without any kind of bias.

These systems are still in development because they are in constant learning, therefore this change is still in development and the problem is that for entering in this market, companies need to invest a lot of money in product development. That is why this will be a huge challenge for a company like ZenCV, they are still on the pre-seed phase and their customer base is not really big; yes, people could think that their partnerships could help them to move faster on the product development timeline, but it is important to take into account that they are as well startups and their experience on this area with exception of one company is quite low. In this case, we wanted to propose a strategy however it should always be in mind that the Startups are open to change overtime along with their strategies and resources. Therefore, for now this report can make sense for ZenCV but for future or from another point of views if they want to target other locations or if they change their service, there is a big possibility the proposed methodology may not work. It is important to highlight that ZenCV is very new company and from the target of the company to even their main service is always open to innovate and develop along the route. I believe this evolution and changes will even make the company more strong and agile, rather than staying with same targets and strategies for the future.

Similar to what had been tackled in the previous paragraph, we can talk about more in detail the proposed choice for the entry mode selection. As per the entry mode situation, in the paper it was discussed a possible partnership as the easiest entry for them; due to the actual condition of the company that could turn out to be its best way to enter this market but the ideal entry mode for them should be owning a subsidiary in which they could have a strong sales team and a marketing team therefore they could direct business without needs of being attached to another entity since this might cause problems whenever ZenCV wants to direct business by themselves. Of course, it's worth to mention that even though ZenCV could become a recruitment agency it would not be as beneficial as if they could provide this system to many

different agencies and companies since in the USA this is already a very saturated market which would make it very difficult to succeed, even for a great product like this it could suffer from low exposure.

An owned subsidiary could give them the freedom they need and the possibility of exploring other possibilities, as well it could allow them to grow faster. But ZenCV does not have the capital to work a project like this on their own, since at the moment they are directing business remotely as they do not have yet a physical location where the customer can find them with ease.

In this point it is very important to focus on the capital the company has, since they are very new company and having big problems with the money. We know that ZenCV plan is to fully develop this product on the span of 2 years, which might be a little bit difficult since they will rely mainly on money they can raise through funds or private investors. As well a product of the characteristics they are expecting to launch, might take more time than they expect due to the complexity a program of this attributes. Therefore, what is proposed here in this report should be considered for a longer time than expected or hoped, since the capital limitations will impact the as is situation dramatically when it is looked from the bigger picture. On the other hand, the possibility to overcome this big limitation should also be under evaluation since they can find more money to put or they can find investors for the project, therefore company and the decisions over the any strategies should always be open for any different future insights and hopes.

On the other hand, it would be on their best interest to take this product to the market since the COVID-19 pandemic has completely force all businesses in the world to reshape the way they do business, and the recruitment market has not been a stranger to this situation since a lot of man hours have been put into recruitment and it has made it more complicated for them to hire and analyze people.

In the best of times, candidates need confidence and commitment to apply for and change jobs. In times of crisis, these foundational elements are amplified - a challenge for recruiting teams to incorporate a higher level of people-centred communication that fosters compassion, offers stability, and provides hope.

Understanding the human mindset is the first step into our new recruiting reality. Considering the candidate perspective not only helps recruiting teams go beyond job postings, but also provides insights on how to build trust and engagement in uncertain times through clarity and consistency in post-application communication. In this case, COVID-19 effects can help ZenCV since their operations are mainly run online therefore the demand of companies will increase meaning that the customer base could potentially increase thanks to this situation.

As well, the purpose of this paper for whomever reads it is to understand how a company of this size and qualities can try to expand themselves on such a high-cost market, of course companies and situations could vary but at least is to help them understand where to start and what items to analyze since these are usually the hardest things to find.

This paper could mean different things depending on the person who reads it, if it's a student, this could help them to understand how a company can expand or which variables to take into account, as for a company or a business owner could mean an idea or a base of how to expand and as well to take other factors that maybe he did not take into consideration when they were thinking about expanding. Nevertheless, it helps us to understand better how industry 4.0 is shaping this industry as well and how mankind will need to start shaping their skills in order to keep up with these programs and to align better with the benefits of having a tool like this.

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