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ARE MANAGERS READY FOR HRM 4.0? THE POTENTIAL ROLE OF BLOCKCHAIN TECHNOLOGY IN HRM

Alexandra Ulrica Constantinide

Master in Human Resources Management and Organizational Consulting

Supervisor:
Dr. Aristides Ferreira, Associate Professor,
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Acknowledgements

I would like to dedicate this paper to my family and friends. Special thanks to Grazi and Elena whose help got me through this. Lastly, I would like to thank two people who help me at the end, Romana and Adamantini.

Abstract

As most professions, the field of Human Resources, henceforth HR, has changed considerably over time. To the best of my knowledge, no previous research has been made about the effects of blockchain technology into the HR field, from the perspective of ethics. This research will therefore aim to contribute to the existing literature about blockchain technology and HR by exploring whether managers are ready for new technological implementations, along with a broad matter of ethics behind the implementation.

A qualitative and exploratory research design using semi-structured interviews was adopted in order to gain more knowledge with respect to this topic. The paper uses a model from scratch that Business Ethics is the umbrella, due to the reason that ethics have the main role when talking about HR. The research provides insights into the synthesis of blockchain technology and HR managers and how their tasks may threaten the privacy, confidentiality or security of the organisation or the people working in it.

The main findings of this paper were that managers are thrilled that an existing technology could help them automate some steps that need more time. However, at the same time, they are not willing to compromise the security, confidentiality and privacy. Therefore, the implementation of blockchain is going to be a rather slow process. It is hoped that the findings of this research will further contribute to the field of HR.

Keywords: Blockchain technology, E-HR, CV scanning, Cambridge Analytica, Business ethics

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Introduction

Being a Social Policy graduate, I was always intrigued by the fact that even though technology is undoubtedly in every aspect of our lives nowadays, it was never included as a topic during my studies. Upon the completion of my last internship, I was rather surprised by the fact that the organization was implementing a new technology which I have never heard before. So taking into consideration that any company that would like to be in the high-way of opportunities and development, it should follow a fast-changing aspect, which is technology (Lumineau et al., 2020). This is what triggered my interest to study more and to finally decide to explore a possible connection between HR and technology.

Human Resources is a field that represents the employees/people and at the same time it has to follow all the revolutions that are happening every moment, therefore it is a fact that HR and technology should blend smoothly together (Broderick et al., 1991). To the best of my knowledge, research that explores HR and technology is still scarce. Therefore, this study will aim to add to the existing gap in the literature by exploring how blockchain and HR can complement each other for the benefit of the organisation and the employees. The research problem is going to be focused on the concept of how blockchain can affect any aspects of the Human Resources Management (HRM). This study will aim to understand the impact of the latest technologies in general but more specifically on how Blockchain Technology can be applied into the HRM.

Thus, my main goal is trying to understand the potential of using Blockchain Technology via managers into the HRMS. As Xu et al (2019) mentioned, most businesses can use blockchain to store data where in the next chapters you can realise the importance of personal data and digital data, thus blockchain can improve the transparency and security of the data, and prevent the data from being tampered with (Xu et al., 2019). As mentioned before, there has been limited research on this topic given the novelty of this technology and its limited implementation. Therefore, a gap occurs in terms of blockchain and HR. In order to contribute a small part of this gap, this study will address the following research questions:

a) Are managers accepting this technology?
b) How strong is the part of ethics in technological implementations in HR?

This thesis is organised into 9 chapters. In the next chapter, I discuss in more detail the theoretical framework underpinning this study focusing on ethics and I review relevant studies

in the field. In chapter 3, I delve more into the topic of security and confidentiality of personal and digital data. Following that, in chapter 4, I explain the basic concept of blockchain and continue to analyse how HRM is blended with blockchain technology in chapter 5. In chapter 6, I discuss the research methods that were used to collect the data as well as the methodological framework that was followed to analyse the data. Following that, the results are presented and in chapter 7 and further discussed in chapter 8. Finally, chapter 5 summarises the study and the main findings, the main implications as well as the limitations of the study. At the end suggestions are made for future research.

Figure 1 below show the model that was created for this thesis. In this figure you can find the model of usage that shows the connectivity and the roles between the key aspects of this thesis. Business ethics is the main veil that covers all the other vital elements. After business ethics, security has a main role that was separated from the scope of blockchain and HR. At the end the, connectivity yields the main domain of blockchain into the HR.

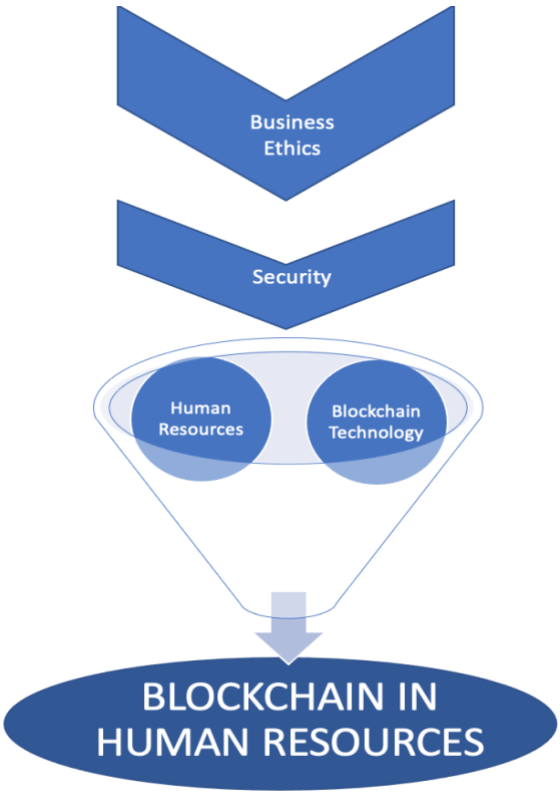

Figure 1: *Thesis Model*

Theoretical framework

2.1 Business Ethics

Business Ethics in any technology has a crucial role since no-one is able to estimate the possible impact of technology in the future, from the burst of blockchain it was very hard to imagine where it could be implemented (Dierksmeier & Seele, 2020). Like most technologies, the creators most likely did not take into consideration how the contribution of their technology can enforce or affect other technologies. An example of such a case is the internet which started from the U.S. Department of Defense, ARPANET which used packet switching to allow multiple computers to communicate on a single network (Hauben, 2007). In the last decade, the internet is starting to become a need and a tremendous part of our life (Melcherts, 2017). Blockchain is not only cryptocurrencies, but much more. Now blockchain technology is being implemented from banking systems to gun tracking, from voting to advertisement. It is ineluctable to think that it will not affect the HR domain (Miscione et al., 2018). EU not only is enforcing this technology by financing various projects, but it is trying to educate the people about this technology.

The European forum of Blockchain recognises that blockchain is an important tool that could assist initiatives that their goal is social impact, thus as speaking for today there are numerous organizations worldwide looking to implement blockchain (EuBlockchain, 2020). It is crucial to add that since blockchain has a bright future in various aspects, that the business ethics has a role of a supervisor regarding this technology, where it has to have an extensive and critical role, not only during the implementation process but more efficiently after the implementation process (Dierksmeier & Seele, 2019). The ethical ambivalence of the usage of blockchain is being eliminated in the article by Dierksmeier and Seele (2019) which mentions the blockchain applications in the role of trust, job platforms and the impact on privacy and secrecy.

The biggest dilemma is how business ethics can affect any parts of this technology since blockchain is eliminating the participation of third parties (Nakamoto, 2019). Blockchain created a new decentralized and independent peer-to-peer transactions that can bypass important third parties. Hence, conflicts from enormous organisations and governments were something to be expected (Lu, 2019). But as mentioned before, if all the opponents take advantage of this technology first and dive into blockchain, then the quality of work that business ethics can provide will be extraordinary. In such a way that they will be the winners in this new modern fight (Lapointe & Fishbane, 2019).

When talking about Blockchain technology we are talking about a new-born technology that is now on the highway of evolution. Notably, blockchain created a new era where it is erupting and aims to develop each and every sector in an organization, from the workforce going all the way up to the CEOs. (Lim et al., 2018). Blockchain is a technology that became very famous through Bitcoin, but blockchain is not the Bitcoin nor the only technology of the Crypto-currencies, but BT is the technology that assures security, confidentiality and the transparency that nowadays everybody needs (Nakamoto, 2019). The Association of Chartered Certified Accountants (ACCA) implies in one article of Douglas and Book (2019) that at these times that the humanity is crossing, people are in the midst of a sea with the changes in business ethics. The growth of the digital economy is giving the chance for new types of business risks as well as a rise in ethical challenges. Political, economic, and social norms are being conformed and those challenges are amplified by mass digital social engagement (Douglas & Book, 2019).

The main issue faced by Big Data (enormous datasets), is information security (Chong & Shi, 2015). Blockchain became the tool to solve the issues that arise from big data, where in a world that big data are escalating day by day, a technology amongst them is vital to reassure data integrity and reliability (Chong & Shi, 2015). But the most important aspect of blockchain is that it can stabilize information systems due to the lack of a single point of failure, as blockchain is a decentralized technology, in other words the authority is delegated away from a central authority (Myeong & Jung, 2019).

It is a de facto that any kind of technology that had been developed or is on the path to be developed must face the consequences of the unknown. Any new-born technology has to prove its morality. Business ethics must follow the law regulations and set that as a priority. Some studies such as (Klarin, 2020; Xu et al., 2019) research from the angle of information technology, computer science, and network theory. Although it is a new technology, it has managed to be regulated by EU legislation in a very short time, and this shows the recognition of new technologies by the EU authorities. It is a fact that the EU has predicted the flow that blockchain technology was going to have and so it has a website (https://www.eublockchainforum.eu/) that it is contributed only for blockchain..

On the 29th of October in 2019, a conference took place in Athens regarding the topic of Decentralization. Eva Kaili, who was elected Member of the European Parliament in July 2014 with the Panhellenic Socialist Movement - Olive Tree and Head of the Hellenic S&D (Socialists & Democrats, 2014) delegation, said that blockchain managed to be regulated by EU legislation in a very short time. As Kaili (2019) said on the Decentralized Event in Athens

2019, EU is trying to achieve a solid relationship between the citizens and public with the usage of blockchain technology (Strengthening European Communities with Blockchain Decentralized, 2019). (See Annex B, (i))

Setting a key example that blockchain is becoming part of our daily life, various projects take place where blockchain is the protagonist such as "Decentralized Qualifications' Verification and Management for Learner Empowerment, Education Reengineering and Public Sector Transformation". This project is an element and a fact that day by day blockchain technology is becoming a part of our lives. Taking a closer look on this project anyone can realise that there are multiple objectives where one of those is to provide HR consultancy and competency management services (Kontzinos et al., 2020).

1.1.1 Business ethics: Brief Feedback of earliest technologies

It is a fact that Business Ethics existed way before the appearance of blockchain technology. Notably, business ethics is not something that is tangible, it aims to the ethical behaviour from organization to the employees. So, it is appropriate to mention how business ethics reacted from their corresponding institutes when new technologies appeared. It is impossible to mention all technologies and the behaviours that business ethics had (Dierksmeier & Seele, 2019). However, it is clear that the literature review of blockchain and its impact on several areas are still ambiguous (Dierksmeier & Seele, 2019). This thesis is addressing the issue that, to the best of our knowledge, was not addressed before, and as based on the preliminary research, it gives advanced indications of how these two concepts will work in synergism in the nearest future, and what challenges are foreseen at this point in time. On a paper at the 2017 IEEE 6th International Congress on Big Data, a paper was published that made it clear that blockchain technology will face obstacles, mentioning challenges of this technology such as scalability and security problems waiting to be overcome (Zheng et al., 2017).

Any feedback that we could get from historical events of any invention whether it was a technological invention or any other type, business ethics always took place. An example of that is the nuclear energy (atomic energy) that nowadays is restricted into different levels of usage, of what history taught us (DeBoer, 2013). This nuclear energy can be used as feedback from technological achievements that must be taken into consideration. As the example mentioned before, the scale runs from a zero event with no safety significance to 7 for a "major accident" such as Chernobyl, this data is based on the website of word nuclear association

(ENSREG, 2020). Business ethics was the moderator to implement regulations of control and law, such as the European Nuclear Safety Regulators Group (ENSREG) which exists to regulate and control most aspects of this intention (ENSREG, 2020). This is an example of how Business ethics treats technologies that should follow a specific order of the implementation process.

1.1.2 Ecosystem, digitalize ecosystem

An ecosystem in the simplest form of definition is the network of organizations (Peltoniemi et al., 2005). Moore in 2003 introduced the term where the author explained that an ecosystem includes the suppliers, distributors, customers, competitors and government agencies. A business ecosystem is “a dynamic structure which consists of an interconnected population of organisations. Business ecosystem develops through self-organisation, emergence, and co-evolution, which help it to acquire adaptability. In a business ecosystem there is both competition and cooperation present simultaneously” (Peltoniemi et al., 2005, pp. 11-14).

Figures 2 and 3 below show the characteristics of a business ecosystem and the characteristics of a digitalised business ecosystem, respectively. Comparing the two figures below, the difference between an ecosystem and a digitalized ecosystem is obvious. The complexity that appears in a digital ecosystem is far more intricacy rather than the traditional ecosystem.

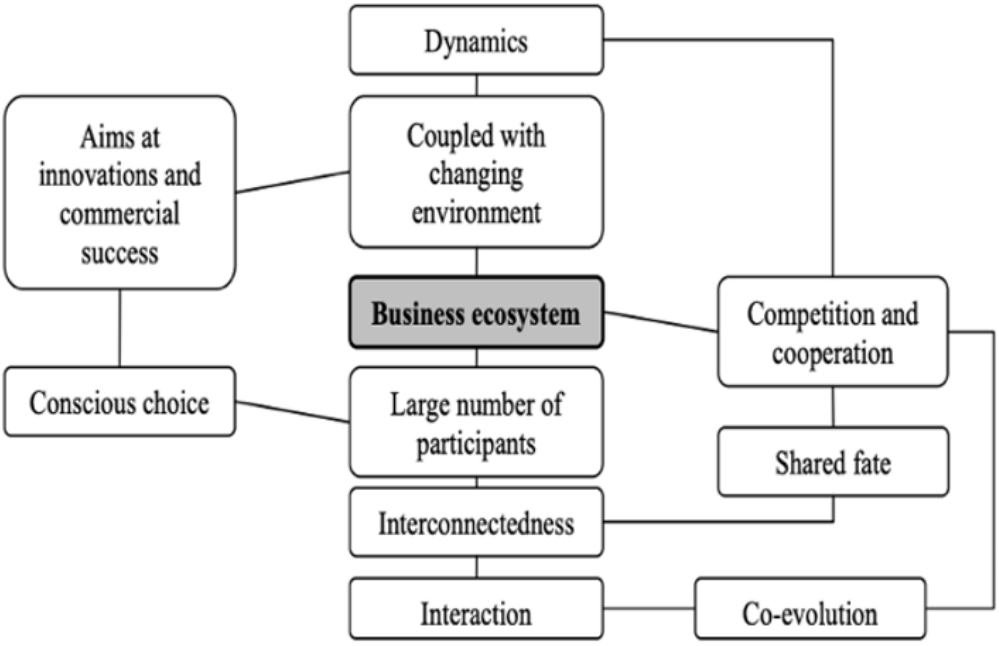

Figure 2: *Characteristics of a business ecosystem* (Peltoniemi et al., 2005)

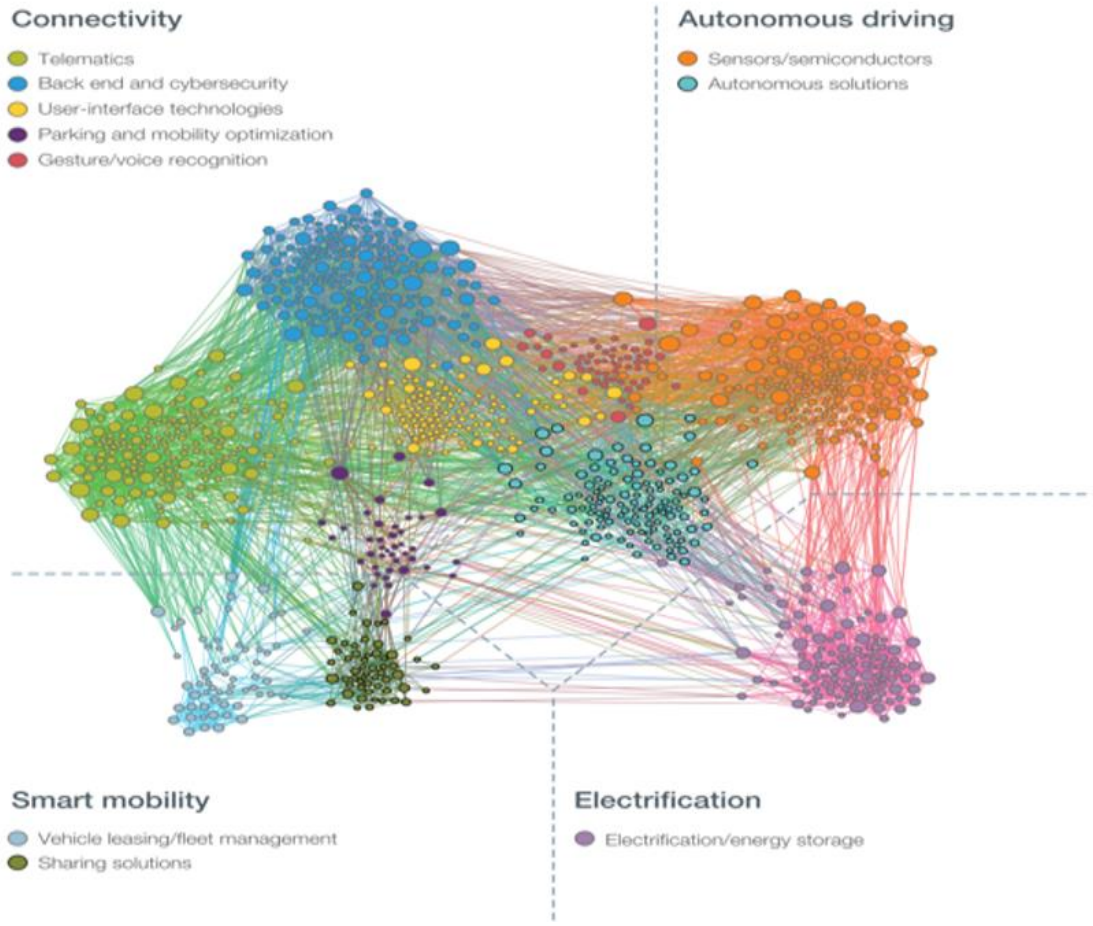

Figure 3: *Characteristics of a digitalized business ecosystem from McKinsey* (Kasser et al., 2018, p. 3)

As shown in the two figures above, the main difference between an ecosystem and a digitalized ecosystem is that a digital ecosystem became part of an organisation in the eruption of the digital era (Kopalle et al., 2020).

With the interconnected information, technology resources can function as a unit. Creating a digital ecosystem map is a key to establish a strong ecosystem where the digital ecosystem map is a visual diagram of all digital tools and platforms used within the organization (Kopalle et al., 2020). It is important to distinguish the difference, thus, Weill & Woerner (2015) showed that digitalized ecosystems had 50% more revenue and the understanding evolved.

Bearing in mind the differences between the two types of digitalization, it is clear that digitalized ecosystems can be complicated in various ways. Thus, it is expected that in the era of digitalized aspects, blockchain is akin within this era where this technology is reassuring the smooth flow of the organisation (Lu, 2018). Along with the transition between the usage from a non-technological time to the adoption of modern digital technologies erupted in the growing pervasiveness, such as smartphones, cloud connectivity, Internet of Things (IoT), Big Data etc. Where it is realistic to assure that in the future there will be further enrichment and expansion of the scale and scope of these interdependencies. Not surprisingly, the term "digital ecosystems" is gaining ground both in academic and business lexicons (Kopalle et al., 2020). Kopalle et al (2020) defines that digitalized ecosystems are business environments framed by networks of interdependencies specifically generated through digital technologies (Kopalle et al., 2020).

1.1.3 Business Ethics, Smart Contracts, CV scanning at the age of Blockchain Technology

HR managers are spending a part of their time introducing the contracts, reviewing CVs and more tasks that are time-consuming, their routine requires these tasks to be made (Mitchell, 2013). A lot of tasks that are required for HR managers to operate are severe time-consuming (Panayotopoulou et al., 2007). Thus, the understanding that technology could help to spend less time for these tasks could be helpful, on one hand less time and on the other hand more efficient (Lepak et al., 1998).

How secure and trustworthy is a degree from a university, or a diploma of accomplishment? One may come to an idea that the cyber security is questionable in 2020, and that a number of certificates/personal documents can be falsified by using the means of modern

apps. Back in 1991 was the first time that the term of timestamp was introduced on a digital document (Haber et al., 1990). Concerns such as scams, or phony about certification and whether they are original or cannot be copied was a matter that was an issue. Digital timestamping was first introduced in the paper of Haber where the importance of privacy and security was introduced (Haber et al., 1990).

The main issue of organisations nowadays, is finding candidates that could fit the requirements of the announced positions, by matching their education and professional background (Rani & Venkatraman, 2020). In an era where competition has gone higher more than ever, the process of hiring an employee needs to touch the expectations and use technology that nowadays most of individuals use or even more upgraded, in order for an organisation to be competitive (Manolescu, 2008). Blockchain is the manna from heaven, thus, it is a technology that can certify security, privacy, and confidentiality more than any other type of technology (Kamboj & Yang, 2018). Focusing on the terms that HR managers are using nowadays, I aim going to show the evolution of these terms and how blockchain will be in benefit for them. In the next chapter, I will explain these terms and the effect of this technology.

1.1.4 Smart Contract

A smart contract can be explained in numerous ways and terms but the most simplified and comprehensive term is that most steps that are automated describe a smart contract as an automatable and enforceable agreement, which covers both operational and non-operational aspects and describes templates and agreements for legally-enforceable smart contracts, based on legal documents (Clack et al., 2016).

Mentioning the technicalities of how a smart contract is being programmed is beyond the scope of this study. But further details about it could be seen in the article of Nick Szabo that introduced this concept in 1994 and defined a smart contract as ‘‘a computerized transaction protocol that executes the terms of a contract” (Christidis & Devetsikiotis, 2016, p.2296). Ethereum cryptocurrency was the landmark for smart contracts (Zain et al., 2019). The importance of this type of contract is also highlighted by (Buterin, 2013). A smart contract has a very simple coding, thus programming it is not an issue for smart contract. However, the concern of a smart contract is to set the appropriate pillars and objectives of a contract that the program will count on. Hence, the main challenge is that a smart contract requires to have as a reference all the law and law regulations and the external price ticker (Buterin, 2013). A smart contract is a type of software that contains rules and regulations for

negotiating the terms of a contract. It automatically verifies the contract and then executes the agreed upon terms. In the case of Ethereum, a smart contract's centralized code is made decentralized for execution purposes on the Ethereum blockchain, it becomes a smarter contract. Coding and executing smart contracts on the Ethereum blockchain makes them immutable and independent from centralization (Buterin, 2013). Figure 4 below shows the simplest explanation of the difference between a traditional contract and a smart contract.

Figure 4: *Main differences of Traditional contracts to Smart contracts* (Faisal, 2018)

Next it is important to understand the role of a smart contract in the HR domain. Doing the aftermath of the bureaucracy that monopolize most of the time of the HR managers, it is significant to implement a technology that will reduce these issues (Tyson, 2014). Remarkably, having the potential to use smart contracts to manage better aspects of HR and in a more optimized manner would be beneficial for both parties. For instance, pay attention to the Blockchain and smart contracts about paying the staff's salary; in the Blockchain network and with the help of these type of contracts and the payroll of the human resources will be easily distributed among the staff and there will be no fraud or delay in it too (Koncheva et al., 2019).

Using smart contracts in paying wages and controlling the salaries of employees in every business group can be highly effective and accurate (Koncheva et al., 2019). Smart contracts replace the trusted third parties; that is, the intermediaries between contract members. They leverage this with the help of automatic code execution that is distributed and verified by the network nodes in a decentralised blockchain network (Macrinici, 2018). They also enable transactions between untrusted parties without any intermediary commission fees, the third-party dependence, and the need of mutual interaction directly of the counterparties (Swan, 2017).

In the paper by Zheng (2020), the role of smart contract had been developed and improved in order to have as a key aspect the security and immutability. In a part of their paper, they mentioned that smart contracts can guarantee the appropriate access control and the enforcement of the contract. The developers can assign permission for each service that occurs in the contract (Zheng et al., 2020). Once the specific part of the smart contract is fullfield, then it will automatically execute in order of the specific manner (Zheng et al., 2020). As shown in figure 4, the main benefits are time, automation, less costs, no need for a third party and virtual presence is replacing the physical one (Faisal, 2018).

Ending this section, the main core of a contract has to be clarified. A traditional contract was good, but the main issues with that was the burden into the administrative issues that already existed in the hands of HR managers (Tarraga et al., 2019). Other small matters that still exist are that traditional contracts are suffering from lack of clarity, they are too wordy. That is the result of a technological absent. As a result of blockchain, there are some challenges for its use, but nevertheless those challenges have to do with Law regulations mostly, and the evolution of this technology that until today we are still learning a lot for its potential (Koncheva et al., 2019).

1.1.5 Recruitment and Selection (R&S)

Recruitment and selection (R&S) is without a question one of the most cost-full procedures in a company. It is the momentum time, when a company chooses the people they will employ and who will represent the company in the working environment. R&S is expensive and time-consuming (Gopalia, 2012). Thus, it is expected that a technology would come along to change some aspects. On one hand the cost, and on the other hand the time are a vicious part of an organization and various research evidences show that online recruitments have become an easy way to save costs and valuable time of firms (Hart et al., 2000). The emergence of e-recruitment as a strategy of cost and time saving mechanism coincide with the introduction of New Public Management (NPM) in the public sector geared towards addressing institutional and structural problems afflicting public bureaucracies in both developing and developed countries (Snell et al, 2002).

In 2016, the Society for Human Resource Management (SHRM) made a survey about the average Cost-per-Hire for Companies (SHRM, 2016). The survey had 2,048 respondents. The result of the survey showed that the average time it takes to fill an open position is 42 days,

where after a five-month mark the organisation can expect a new hire to reach full productivity (SHRM, 2016) (See Annex B, (ii)).

Imagine an organisation hires the wrong person twice for a certain job position. Almost one year without the productivity of that position and certainly spending an extraordinary amount of money for the requirements of the R&S. But now, let us imagine, a technology that helps you, a technology that aims to emerge from this swamp and the benefits of it create automation in the level that the organisation requires. Alongside the process of R&S could be less time consuming if taking advantage of blockchain technology (Salah et al., 2020). A fact that characterizes the HR managers know from hand how hard it is to find time and as Milan Kundera (1984, p. 111) said *"Human time does not turn in a circle; it runs ahead in a straight line".*

Blockchain technology assures that this evolutionary combination will evolve the process of R&S in a way that it would be simplified and make it more practical. From the moment that this technology will be implemented into the process of R&S, it can investigate and control the Credential Verification, historical background, and data security (Salah et al., 2020). To verify the work history that is being provided by the job applicants is a pillar of the recruitment and its process, that costs time, money and accuracy (Sarda et al., 2018).

Until today from what is known is that blockchain can help various aspects that could improve some processes that are being used in the R&S, such as verification, avoid fraud and could boost the recruiters confidence. Also, CV and data verification could help recruiters to select the best candidates faster, minimizing the time that is needed (Salah et al., 2020).

An article that the data were based on a case study in Korea, it explores the factors of why blockchain is the most efficient technology to use (Myeong & Jung, 2019). The aim of the paper was to examine the determinants of blockchain administration and their priorities through an analytic-hierarchy process (AHP) analysis. Where the result was that the reform of administration may reduce the level of corruption in aspects such as recruitment, management etc (Myeong & Jung, 2019).

Organisations nowadays are on the path that they are implementing the technology in most aspects, as well as in the R&S. Figure 5 below shows all the process of the implementation, the procedure and the results that they had (Sarda et al., 2018).

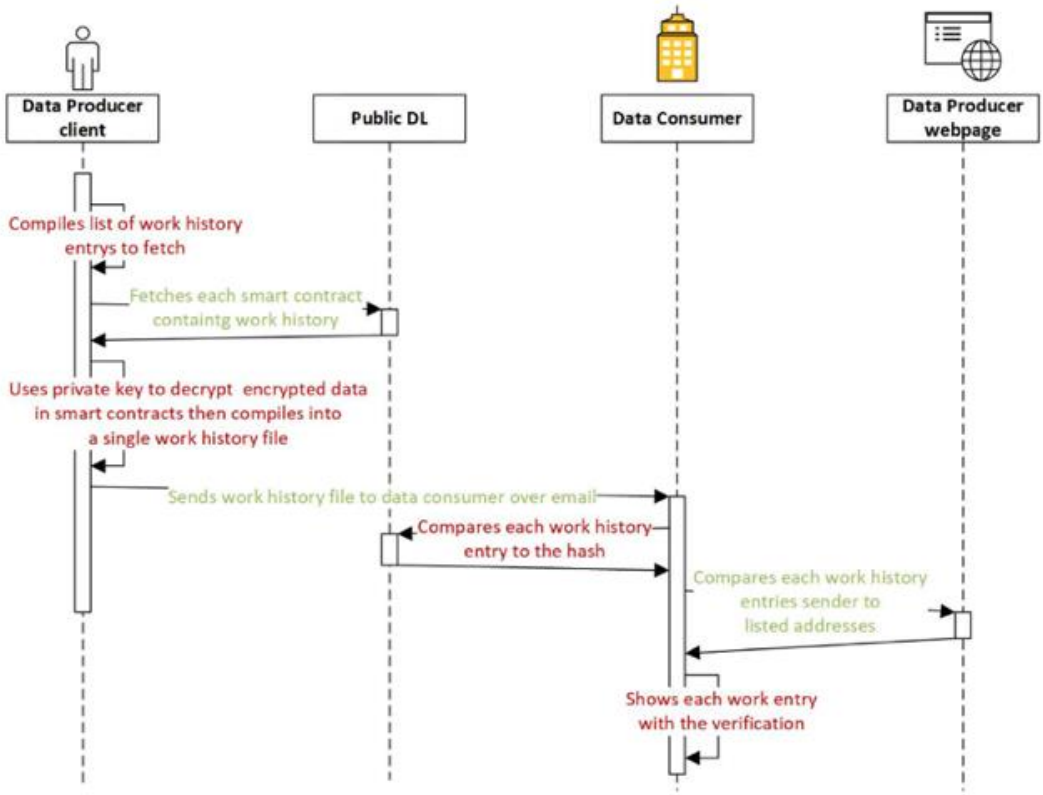

Figure 5: *Diagram of sharing work history of implementation* (Sarda et al., 2018, p. 1862)

In the paper by Sarda et al., (2018), the result was very promising for blockchain technology. Sarda showed by fact that blockchain technology can overcome the limitations, where in the paper they proposed an architecture for blockchain based work history validation, where by the end it allowed the individuals to share their work history and employees in order to verify the data. (Sarda et al., 2018).

1.1.6 CV scanning

The process of CV scanning most of the times is the first step of communication between the employers and the employees. The evolution of CV scanning is tremendous, when just assuming that years ago, most companies didn't even had software for CV scanning (Baker et al., 1998).

So, what is the evolution nowadays of this simple process? Had this process cross the limits of a human touch? Well, today CV scanning has reached a different prospective that it was 30 years ago. The aim of CV scanning was the same as it was 30 years ago, but setting as a target at the same time to minimize the cost and time on this procedure and still choosing the

best candidate. As Bartram said so elegant *"We have to sift through lots of resumes, like kissing frogs before you find the prince"* (Bartram, 2000, p265).

Today, CV scanning is very crucial for a company, thus a huge amount is being spent for the correct procedure, in order to get the best fit through the available candidates (Choudhury, 2012). An example is PWC which is implementing a new tool in the recruitment selection such as augment reality (PWC, 2019). CV scanning now is being more automated, with technologies being implemented with the intention of finding the best candidate for that position (Llorens, 2007). Today, the ATS (application attracting system) is the protagonist in companies where only the ATS became a type of job because organization do not have the tools to attract the talent that they need, such as Micheal Page, Accenture etc. But this system lacks verification, and the absence of credibility is visible (Osburg, 2020).

In 2020, where the blockchain already is taking some of the attention, there are organisations where they implemented blockchain in the process of CV scanning. The results of this combination are very promising. Already various companies exist that verify CVs using blockchain technology (Brown & Smit 2018). How blockchain will integrate with the applicant tracking systems remains a question. The benefits could go beyond time saving. HR could focus on the more important strategic aspects of the profession, like employee engagement, development, and retention. The technology of Blockchain has the potential to revolutionize not only how we hire, but how we dedicate HR bandwidth (Kristoff et al., 2018).

Koncheva et al (2019) mention the way that blockchain could be implemented and the beneficiary that is the process of R&S where the platform will place diplomas by the blockchain where each diploma receives a unique hashtag code. The code in the form of a QR-code may be placed by a UCL graduate in his/her CV, or even on business cards to be scanned by recruiters with the use of any smartphone (Koncheva et al., 2019) .

1.1.7 Scope of Human Resources in Business Ethics

Violation of ethics is an issue that perceives fairness or loss of freedom that can cause employees to act out negatively toward security and privacy policies (Lowry et al., 2015). Treating employees ethically can garner long-term employee trust and loyalty, which conveys a range of distinct benefits to employers, loyal employees gain more experience working with their employers, allowing them to master production processes and fully understand the inner workings of the firm (Mihailović et al., 2015). This can increase employees' productivity and efficiency over time in addition that the organisation costs of recruiting and training.

Establishing HR ethics policies is crucial in the organisation regarding discrimination, sexual harassment, and the treatment of employees (Valentine et al., 2013).

Organisations are trying to advertise themselves as ethical as they can. It is a proven fact that organisations that have the reputation of unethical behaviour are facing not only legal consequences, but employees avoid to work for them. So most of the organisations are trying to be as clear as they can about ethicality (Irwin & Bradshaw, 2011) . Example of that, is BCG company that in most of the emails that anyone can receive for a job vacancy it is written *"At BCG, diversity is more than a goal. It's been a core value since the founding of the firm. We believe that passionate, open-minded people of all backgrounds ensure that BCG analyzes problems from a broader perspective and challenges established ways of thinking"* (BCG, 2019).

The main thought is how blockchain can help to evolve business ethics within the scope of HRM. The answer is being researched for the last years since this technological achievement can be a helpful tool for all the aspects (Dierksmeier & Seele, 2020). Dierksmeier and Seele (2020) link the two stands of business ethics where ethical and legal aspects of legislation could be linked to corporate social responsibility, that blockchain could be the transparent data production.

1.1.8 E-HR with Blockchain Technology

Definitions, processes, and actions of HR are numerous. Most managers tend to connect the HR with the employees and their needs, as a simple term can explain that the only scope of the HR can be defined as the effective use of human resources in an organization through the management of people-related activities (Tarraga et al., 2019).

HR to E-HR (Electronic Human Resource Management) is a transformation that could not be avoided due to the technological era we are living now and the fourth industrial revolution that we are crossing. In what follows, I will develop what E-HR is and the main distinctions that exist between HR and how blockchain can be a tremendous impact that by the end the result is a magnificent gift to any organisation.

Today, HR is a collection of highly specialized potential. Each one with distinct objectives, tasks and needs. Currently, pressure that day by day is increasing appears to the daily needs of HR. New functions to support strategic goals, setting new environments to the organisations and at the same time increasing the current values on its activities. Organizations worldwide have realized the growth of HR and that the IT is leaning due to the HR functions.

E-HRM had been created, and aims to be applied into information technology for networking and supporting, where at least two individuals can share their performance of HR activities (Strohmeier, 2007).

The impact of blockchain in the field of HR and as a follow-up on E-HRM is a magnitude that could not be avoided. Hence E-HR is the evolution of the HR and blockchain is expected to influence this domain. The technology called blockchain is being adopted in the systems where transparency is required (Wüst & Gervais, 2018). Blockchain is a decentralized ledger, the middlemen get cut out, and if any corruption exists in the recruitment industry will tank. This technology has already been developed, and is being adopted by companies that believe in transparency and companies will be able to capture data of anybody who view their job ads and connect with them to offer them jobs instead of going through an agency (Wüst & Gervais, 2018). An Individual can handle his own profile on a blockchain collectively and by consent can make it public for recruiters to validate any claims he makes (Rao, 2017).

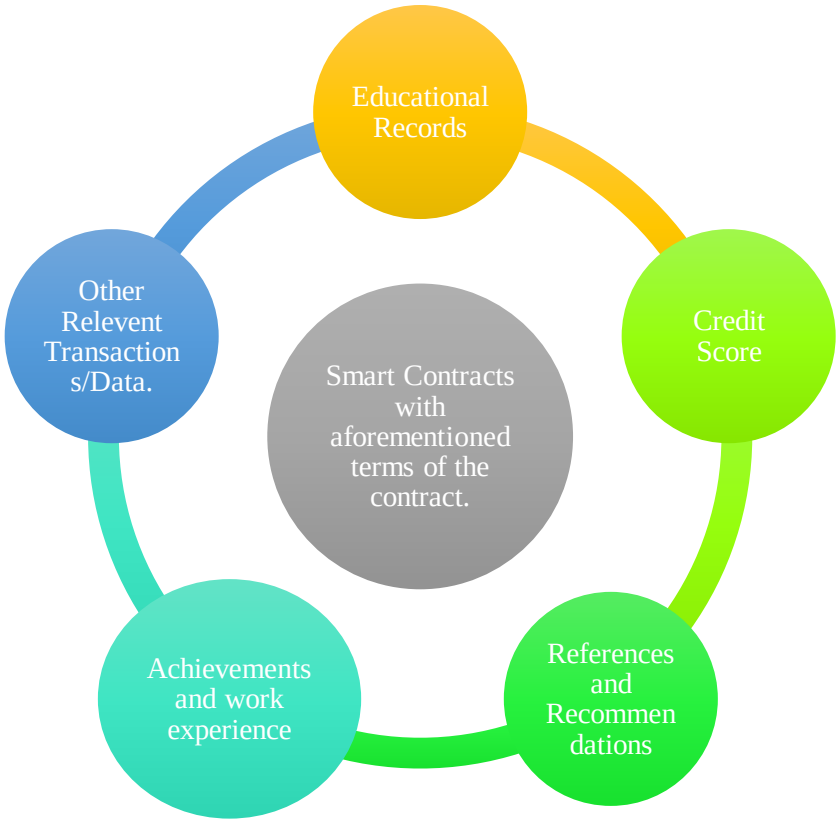

Figure 6: *Recruiting on Blockchain* (Rao, 2017, p. 14)

1.1.9 Cambridge Analytica: The act of Business Ethics. How blockchain technology could prevent a scandal

The following example of this scandal is used in order to show how data are sensitive and how law regulations could protect the citizens in any country. Along with the fact how a technology could prevent similar events. Cambridge Analytica Scandal is the perfect example of showing the importance of business ethics in an organisation. From one hand the mentality of the organisation, and on the other hand the mentality of the employees.

Cambridge Analytica was a political consulting firm, that was consulting political parties into the race for winning the elections. The scandal occurred in early 2018 where it was an unprecedented case that happened between a company named "Cambridge Analytica" and the colosseum company of Facebook. Cambridge Analytica was using apps through Facebook and was able to harvest personal data in an ubiquitous procedure, even private messages from Facebook user accounts in order to use those information in advance of political campaigns (Schneble et al., 2018).

This scandal was a stepping stone into emerging the severe consequences as personal and digital data on the internet wouldn't have any protectors. Regulations and laws were voted to prevent any similar action. GDPR was re-enforced and became stricter into digital and personal data due to the fact that with the action of this scandal the meaning of ethics, privacy, security and confidentiality were undermined (Datoo, 2018). Taking this as an example of this case, it is clear how important it is the ethic aspect in organizations. Cambridge Analytica claimed that all of their movements were lawful and that they operated ethically and according to what the laws demanded (Chen, 2018). But in May 2018 Cambridge Analytica was filed for bankruptcy (Ekdale & Tully, 2019).

There are numerous questions anyone can ask about the Cambridge Analytica scandal, but this thesis will concentrate on how this scandal could had been prevented if blockchain was used as a technology from these firms. The importance of underlining the meaning of business ethics in a whole organisation. Data that was found in the UK's information commissioner's office (ICO) underline the importance of law regulations. In their statement the office announced that in October 2018, the ICO fined Facebook £500,000 for breaching the UK's prior data protection law. But under the new GDPR law it would fine Facebook over £1 billion that would be 4% of the company's total annual turnover (ICO, 2018). (See Annex B, (iii))

The biggest issue that came into the surface with this recent incident was the big gap that existed between the reality of internet usage and the laws (ICO, 2018*).* Digital data are not

recognized yet as personal data per se (Sullivan, 2019). Cambridge Analytica took advantage of this gap in order to harvest without the users knowing that they allowed this leaking of information. Confidentiality, security, and ethics were broken because the technology that was used didn't allow the users to approve or disapprove these actions (González et al., 2019). The whistle-blower of the scandal Brittany Kaiser mentioned at a conference in Hong Kong Blockchain Week 2019 was the fact that if blockchain was used, none of these could happen, along with Sullivan (2018), in the article that states clearly the fact that blockchain could be a solution for this modern issue (O'Sullivan, 2018) . At a speech that Brittany Kaiser made at the conference in Hong Kong at the 14th minute she states that most of the issues that were created by this scandal could be solved with Blockchain technology. The whole speech is available in the annex B (Hong Kong Blockchain Week, 2019), (See Annex B (iv)).

Regarding this information it is crucial to mention that if the use of business ethics was a key feature to both of the companies none of these could have happenned as mentioned in the previous paragraph, but regardless of this issue, blockchain is a technology that can prevent the exploitation of ignorance, thus harvesting data without permission. Cambridge Analytica could not have misused the data of Facebook users if it was instead stored in a permission-based decentralized blockchain. Rather than have one company that's able to collect personally identifiable information from more than 2 billion users worldwide and manage how it is accessed by third-parties, using a decentralized technology such as blockchain would put control back in the hands of individuals (Houser & Voss, 2018).

Being decentralized using blockchain technology seems like a solution and can be said to be the future of data security and privacy protection as blockchain is the perfect embodiment of trust and transparency. Darwish and his team published the fact of the breach of personal and digital data from Facebook through Cambridge Analytica and they search the fact of what type of technology is more suitable in order to interrupt any unethical breach of any security issues, where they reached to the conclusion that it is a vital need to investigate and deploy a decentralized technology that is will be able to resolve the emerging privacy problems (Darwish et al., 2020). Also, in the recent article of Barbara Guidi, the author mentions very clearly in the paper that presented scenarios of social media platform, where they represent the main motivation which have led to a decentralization of the social services (Guidi, 2020). In figure 7, the way of how data were stolen is presented, Tarbouriech (2018) illustrates the process in a simple form. The path of how Facebook used to leaked data to so called company "Cambridge Analytica".

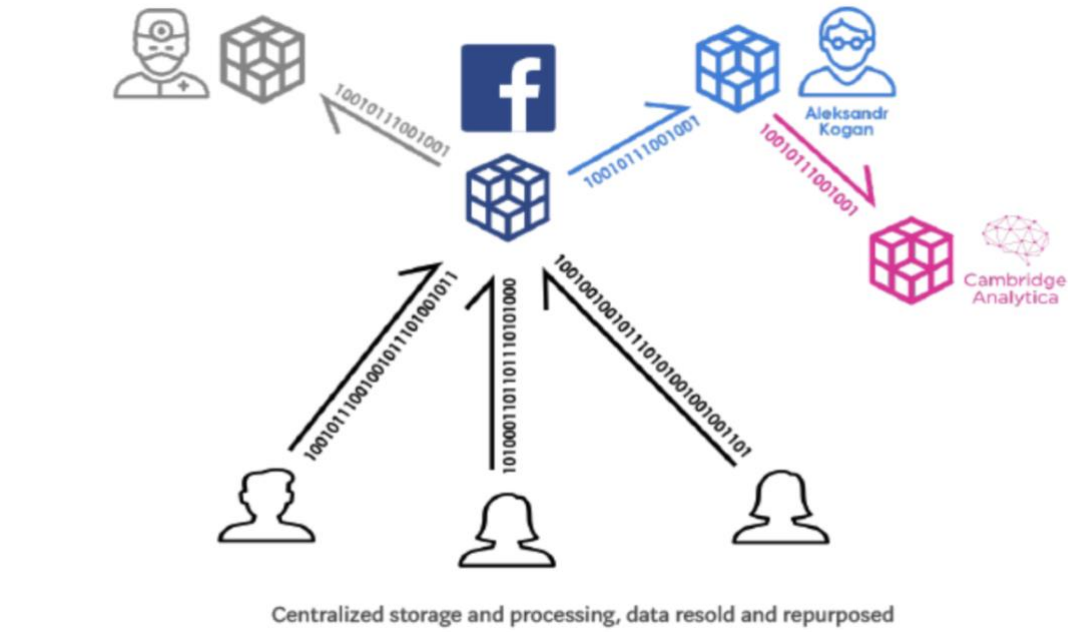

Figure 7: *Centralized storage and processing* (Tarbouriech, 2018)

Security & Confidentiality of Personal Data, Digital Data

Blockchain technology is the technology that promises security and confidentiality of personal and digital data. Being more precise the explanation of how secure and how confidential data are the key aspects of a blockchain the synopsis of how a block in a blockchain works will be explained in the simplest form, "so all the blocks are connected through the interrelationships of all their hashes. The sequence of blocks each with their associated data, hashes, and nonces. If anything is changed anywhere in the chain, there's a ripple effect invalidating all the blocks that come afterwards." (Gupta & Sadoghi, 2018).

Figure 8 below explains in the simplest way how a block in a blockchain works. A block is what a blockchain contains, thus in a blockchain a block records a set of transactions and the associated metadata. The way of how these works was discussed before.

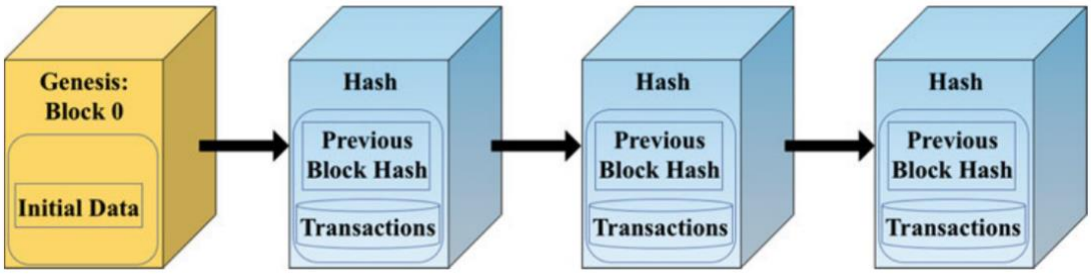

Figure 8: *Basic Blockchain representation* (Gupta & Sadoghi, 2018, p. 2)

To begin with, it is crucial to grasp the meaning of security and confidentiality in terms of personal data and in extension the meaning of what digital data are as well as to highlight the importance of these terms and explain the status from the scope of security and confidentiality. More technical terms will be used in order to explain in the simplest way what blockchain technology is, and how it will reinforce the matters of security and confidentiality. This thesis will aim to extend the terms of how security and confidentiality can vest the aspects of HRM with the usage of blockchain technology.

Security and confidentiality are the most important goods that we, as humans own. They are part of the pillars that democracy is and what governments fight for. Taking as a stepping stone what was discussed in the previous pages, anyone would rethink what we consider as

goods. In the era of technological evolutions and digitalization, it is a norm to improve the laws and regulations according to the needs of these times (Eggers, 2018).

The terms of security and confidentiality are vital for any organization. An exemplary case in defence of blockchain was the case of "Silk Road" (Brandom, 2015). The scandal of the "Silk Road" involved illegal narcotics and not only. Silk Road was using the digital black market for every imaginable contraband that was still online and bustling. Most of the exchanges were with bitcoin, thus the tracking and owners of the sellers and buyers were anonymous (Brandom, 2015).

Boshmaf et al (2018) made it clear that the reason that the transaction was found was due to the fact that it had been made with bitcoin where it is based into blockchain technology. And when things are recorded in the blockchain, you can go back in history and reveal this information, to break the anonymity of users. The reason for being able to track it down was that Bitcoin is a public Blockchain. (Boshmaf et al., 2018).

Blockchain was able to track down each step and blog of a bitcoin and transaction in order to find the final occupation. Thus, if this technology was not used, this crime would not have been resolved. That is the reason why Blockchain can track the entire transaction history. It is a technology that repels any illegal activities. Security is the key aspect of technology and confidentiality, even in this example that law and crimes interfere, it was very hard to track down the storyline that each bitcoin had (Spagnuolo et al., 2014).

Kiviat (2015) could recognize the magnificent technology of blockchain where the article explains that a decentralized public ledger helps a complete record of all past transactions on the network. Therefore, when two parties wish to engage in a transaction, they must broadcast it to the entire network effectively asking network participants to determine its authenticity (Kiviat, 2015).

According to the National Commission on Informatics and Liberty (CNIL), personal data mean any information relating to an identified or identifiable individual; an identifiable person is one who can be identified, directly or indirectly, in particular by reference to an identification number (e.g. social security number) or one or more factors specific to his physical, physiological, mental, economic, cultural or social identity (e.g. name and first name, date of birth, biometrics data, fingerprints, DNA) (CNIL, 2020).

Digital data means that your data is online and it is not recognized as an asset. A digital asset, in essence, is anything that exists in a binary format and comes with the right to use. Data that do not possess that right are not considered assets even though assets are something registered online as your property. Nowadays, there is a huge discussion whether digital data

should be recognized as an asset. And this is an essential law regulation that has to take place in order to protect people in the digitalization times we are currently going through (Pangrazio & Selwyn, 2019). According to the Cambridge Analytica scandal and what followed up is that if digital data were recognized as an asset, both companies, Facebook and Cambridge Analytica were going to face severe consequences. In the article of Pangrazio and Selwyn (2019) they are giving a new term of digital and personal data, this term is "Personal Data Literacies" where it stands for the contrast to recent data safety and data science approaches where digital data are understood as socially situated and context dependent (Pangrazio & Selwyn, 2019).

1.2 How tech issues challenges and trends are affecting confidentiality and security

It is a fact that any new technology or generally anything that is out of the scope of the norm or new it will face numerous challenges to become a part of the comfort zone, thus it is important for the regulators to be ready and prepared to face these new challenges and trends in order to secure and protect the people for their benefit (Eggers, 2018). The wide nature of development has led to an inevitable lack of harmonisation and shared vision, hampering standardisation and effective regulation, the delay of standardisation and regulation is the case of existing security and privacy issues in any tech issue that is rising into the pyramid of technologies (European Commission, 2020). The delay of law regulations and standardisations has left technicians and users without the necessary information and protocols, regarding law regulations and ethics into this era of technology (European Commission, 2020). By not following-evolving and advancing the current protocols, law means that confidentiality, security, and any risk analysis, and countermeasure implementation are much more difficult tasks than they would be with a more directed and coordinated development path (Bromberg et al., 2017). The nature of the growth, both rapid and significant, has meant that the impact of these concerns is considerable and requires urgent effects and acting regarding these matters, without becoming massive issues (Bromberg et al., 2017).

1.3 Blockchain Technology and Human Resources: A glance of Blockchain Technology into the world of HR

Human Resources is an area that faces various changes as time goes by. The biggest change is the change of the personality and the tools that are being used nowadays (Lepak & Snell, 1998). Lepak and Snell (1998), found that in almost all the interviews people are looking forward to the more thorough implementation of this technology alongside with the law regulation that has to take place in order to ensure that no personal data, confidentiality and security are being compromised.

In the field of HR, the technology of blockchain will bring benefits through trustworthy verification of counterparties identity and will increase efficiency in the existing operations (Koncheva et al., 2019). In the first place, Blockchain will ease verifying and evaluating the education and the skills of the recruits, blockchain will also record people's pieces of evidence from education, skills, training, and workplace performances (Koncheva et al., 2019). Thirdly, blockchain will make the payment system more effective, including cross-border payments, international expenses, and tax liabilities and it will boost productivity through automatization (Koncheva et al., 2019). Another important aspect of this technology is that it will prevent fraud and will enhance cybersecurity (Taylor et al., 2020). These were further discussed in the previous sections. The key elements of this is to have a more circulated understanding that all these aspects are the key factors in the HR department, thus these changes will benefit them from the core. Below in figure 9 you can see an illustration of an HRM system that is based on blockchain:

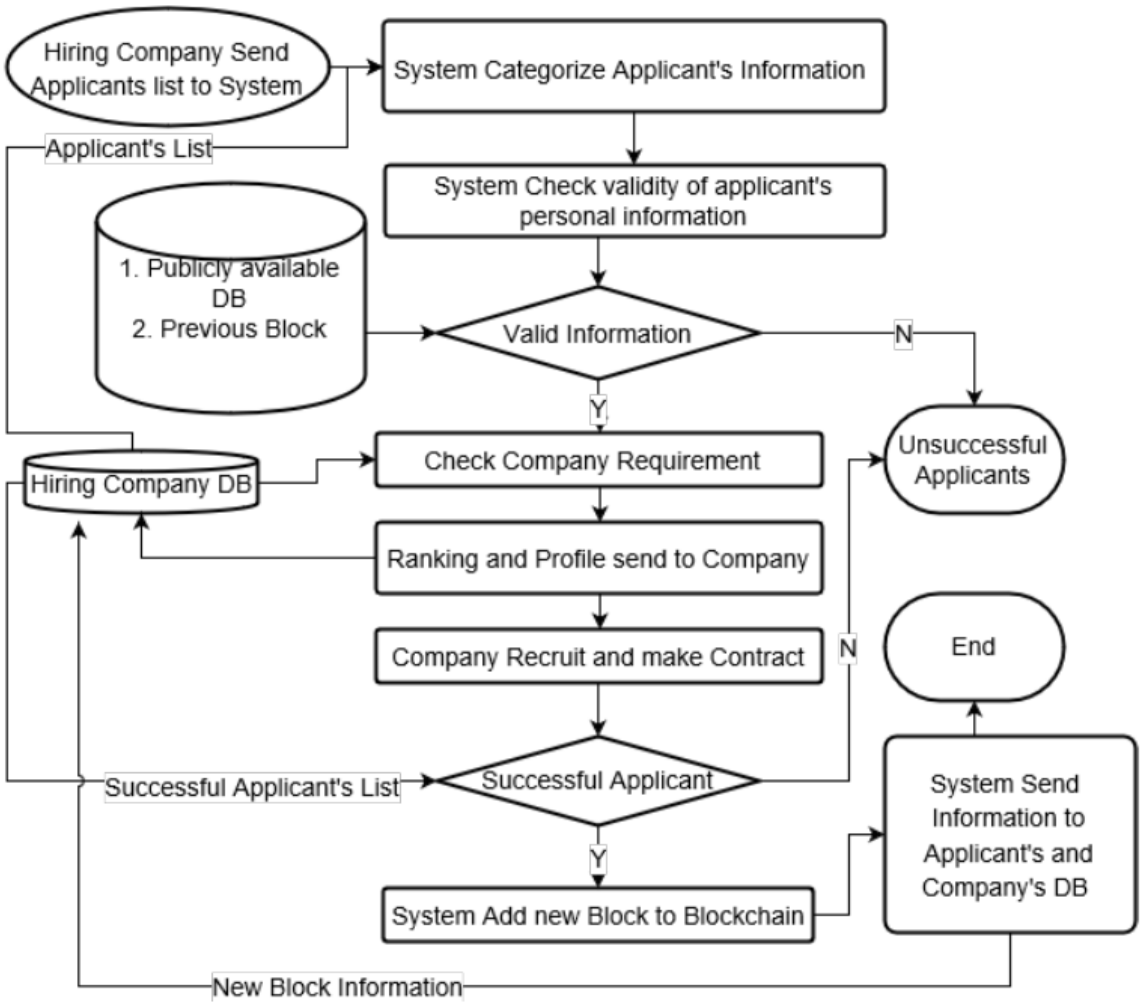

Figure 9: *Blockchain based Recruitment Management System* (Onik et al., 2018, p. 3)

1.4 Law Regulation about Blockchain Technology into the HR

Understanding the development of data-security of the blockchain is vital (UNECE, 2019). Therefore, the European Union created a website called www.eublockchainforum.eu that includes most projects and details about blockchain (EuBlockchain, 2020). This website shows the various concerns regarding this technology, but at the same time it examines the benefits of this technology and its usage (EuBlockchain, 2020). It presents the permission that blockchain technology will achieve and the consensus mechanisms that it needs (EuBlockchain, 2020). A crucial aspect for the technology in the European Commission is the re-enforcement of the law framework at an EU level as much as at a national level (EuBlockchain, 2020).

It is important to mention again that blockchain will revolutionize most of the aspects of HR regarding the aspects that were mentioned in the previous sections (Ceccarelli et al., 2019)). The use of technological revolutionized tools is creating a manifesting environment that leads and most importantly the beneficiaries are not only the organization but the employees themselves (Ceccarelli et al., 2019).

1.5 Importance of confidentiality, privacy, and security in HRM

Confidential workplace information can generally be broken down into three categories: employee information, management information, and business information (Halpern, 2010). Confidentiality in the workplace is rule number one in the book of business etiquette, not only are you showing your customers, clients and employees a level of common courtesy by protecting their data, but you are also fulfilling your legal responsibility to prevent sensitive information from being leaked (Miller & Weckert, 2000). These terms of confidentiality, privacy and security are the most important and these are the pillars of an HR manager.

1.6 General Data Protection Regulation (GDPR)

Bolding the concept and meaning of confidentiality is crucial since it is a vital privacy of the employees, employers, and the whole organisation. Confidentiality is the main core of an organisation to run smoothly. As mentioned before, it is visible that the violation of confidentiality on the one hand in the digital meaning but also in the everyday meaning can have severe consequences (Bertino et al., 2006). The importance of confidentiality needs to be clarified and emphasized even more than ever, because we are diving deeper into this technological era, and any wrong decision could be fatal for personal data thus what it is confidential (Fan et al., 2019).

A primary task that blockchain undertook was the fight for privacy due to the occurrence of errors/gaps (Wirth & Kolain, 2018). After careful consideration of the variety of the pragmatic ways of how blockchain can be implemented, it demonstrates a powerful tool that if it is used correctly it can enhance the existence of GDPR (Posadas, 2018). A recent study by Finck & European Parliament (2019) showed the extensive relationship between blockchain technology and GDPR and the possible solution that could occur in this cooperation (Finck, 2019).

General Data Protection Regulation (GDPR) 2016/679 was created in 2016 but implemented in 2018 (G.D.P.R, 2016). GDPR was designed to modernize laws in order to reach the gap that was created between the internet users and the security-privacy-confidentiality. In order to adopt this new era of protection, GDPR was created and regulated by the internet world to protect the personal information and data of individuals (*Regulation (EU) 2016/679*). As Hallinan (2020, p 1.) says in the recent article of his: "*The GDPR is EU level legislation directly applicable in all EU Member States providing citizens with protection whenever their personal data are processed".*

The important aspect is if any technology in GDPR has a crucial role since the general mentality of GDPR is the ethics (Marelli et al., 2020). What is more astonishing about blockchain is the fact that it can be part of this relationship since it is the technology that promises security-confidentiality-privacy (Truong et al., 2019). All these aspects will be explained in what follows. In the primary website of a big tech company such as IBM an article

exists that explains the reason why blockchain technology is the perfect match for privacy and protection of an individual followed by the smooth flow of the GDPR (Compert et al., 2018). The biggest question mark is how blockchain technology is going to empower the ways of making the GDPR agreement work on its best terms (Lyons et al., 2018). Based on Compert (2018) blockchain was used in projects about GDPR as an example that this technology can be implemented. Being more precise from the above-mentioned article, the assertions were that blockchain's provenance and consensus characteristics help establish accountability and immutability. Blockchain helps to improve transparency (Compert, 2018).

Blockchain can be a solution to most gaps and errors in the compliance of GDPR (Truong et al., 2019). Where the paper was based on a proposed design concept that developed a profile management platform. Thus, the implementation of the technology of blockchain technology on top of a permissioned BC framework (Truong et al., 2019). Truong et al., (2019) in their work envisioned a designed concept for developing GDPR where blockchain technology was the main technology that concluded to the result that blockchain is indeed a technology that has a privileged security-confidentiality and privacy GDPR as a legal framework is being used for data processing (Truong et al,. 2019). The combination with blockchain demonstrates a promising mix that can make great things happen if used correctly (Truong et al., 2019).

It is important to make a clear distinction between the different categories that occur using blockchain. The two major categories are public blockchain and the private blockchains (Lu, 2019). The main distinction between public and private is that on private blockchains there is a restriction of the people who can participate in the network (Lu, 2019). More details about the various types of blockchain will be demonstrated in the next chapters. Even though there are no number of ways of how blockchain can take place, public and private are the main ones. Just to understand the architecture of this I will describe the road of how blockchain technology can happen. The user itself encrypts the data and uploads it to its 'enclave' on the chain (Lu, 2019). For any organisation to have access and read that data, the user himself would have to decrypt the data and make it available to that particular organisation (Lu, 2019). At no time the organisation has the responsibility for those data. In today's world, if an organisation tells its users to write down something on a note and hide it in their home, that means that the organisation is not responsible for GDPR for that data (Lu, 2019). This is the way a public blockchain works (Lu, 2019).

Also, it would be interesting to show the importance of a worldwide law regulation according to the needs that people require. A recent survey was made that indicated that 49% of users of the Internet in Latin America, Middle East and Africa are very concerned about

their privacy online. Where the European region is 16% (CIGI-Ipsos, 2019). Europe is the lowest, because in 2019 the GDPR was a law regulator that all Europeans are able to get advantage on. These laws nowadays can be taken as a new need for the digital society and ensure the fact that HRM needs privacy laws for the organization more than ever but also for the employees (Lu, 2019 , pp 80-90). Figure 10 shows the compliant architecture within the GDPR and Blockchain as mentioned by Lima (2018).

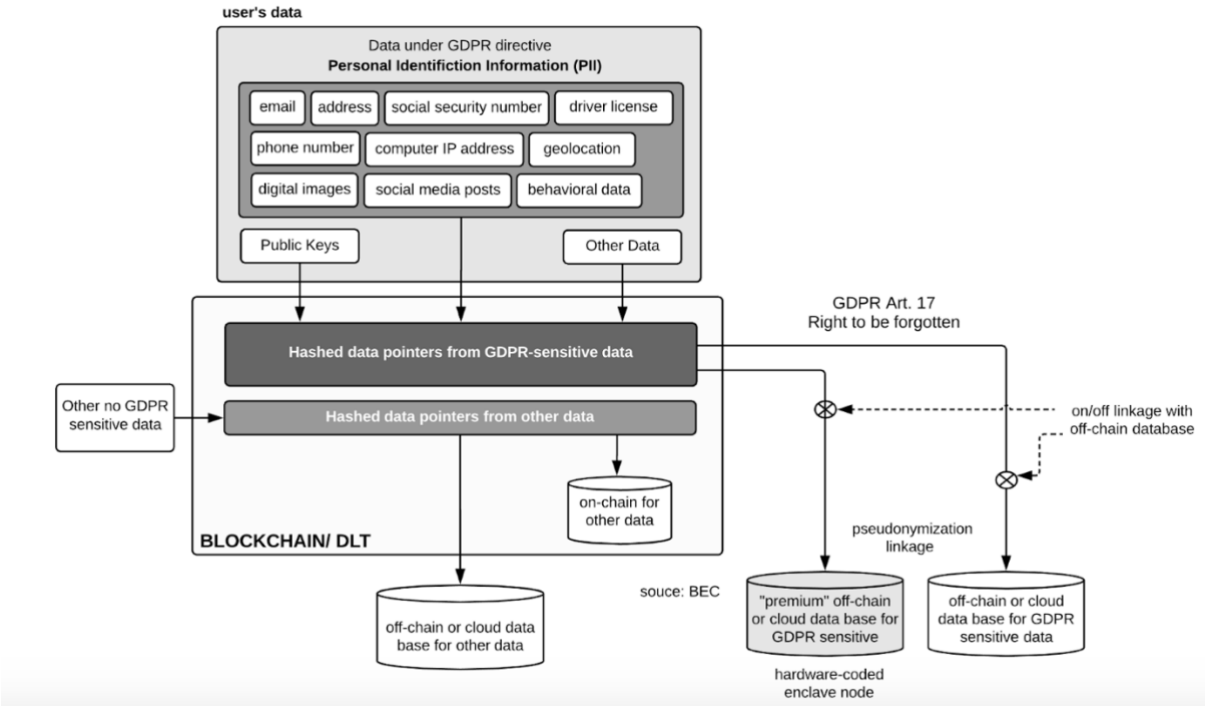

Figure 10: *GDPR- Blockchain compliant architecture* (Lima, 2018 p.4)

The purpose of this study is to understand whether managers are synchronized with the upcoming technology. The study researches the comprehension between managers and the prospective of blockchain technology implementation. The reason of illustrating the above chapters of the theoretical framework was to examine the influence blockchain technology is having to various aspects of HR. Highlighting the fact that this technology is preventing frauds or interceptions, example of this is the Cambridge Analytica scandal. From this topic the most important aspect is the ethical fact which is the main concern. For all the analysis that took place, ethics has a protagonist role, in no matter ethics should be allowed to be trespass in any way. Ethics is the core that allows any type of technology to be used in a moral way. Therefore, this study sets out to examine the following research questions:

a) Are managers accepting blockchain technology?

b) How strong is the part of ethics in technological implementations in HR?

The following chapter will focus on the methodology that was followed to answer the research questions examined in this study.

Methodology

Research Design

This paper is concerned with the general reaction of organizations and employees with regards to the implementation of blockchain technology in the HR field. This study will aim to investigate the relationship between the managers and their preparation of acceptance and implementation of blockchain in the HRM fields. The study is qualitative, exploratory, with open-ended questions. It is a suggestive theory with a potential for future research. The reason that qualitative research was implemented is the fact that there is a limited sample on one hand and on the other hand I was seeking for opinions, thoughts, and feelings from the responders. This study will be based on inductive reasoning which means that the researcher will make generalizable inferences based on the findings of the study, unlike deductive reasoning which is based on testing hypotheses (Bryman, 2016).

Research Setting

Regarding how I managed to find the people to interview I attended a conference (Strengthening European Communities with Blockchain Decentralized 2019) in Athens (October 2019) where it was about blockchain technology so I met a lot of people where their main focus is blockchain technology and I managed to get in touch with people that are qualified to have the interview with them. Also, in the middle of the second semester ISCTE there was a business campaign where a lot of companies were there, and I got in touch with more people. The last resource was by asking the help of the ISCTE secretary that they sent a lot of emails to different companies that were eligible for having the interview.

Before having each interview, I always looked at their CV in order to be sure that their profile matches with the profile I wanted to interview. The first approach to all the participants was to explain the reason for this paper and what I wanted to understand from the interviews. The first approach was to interview two types of managers, the first type was going to be HR managers without having any solid knowledge of blockchain and the second type was going to be HR managers with some general knowledge about this technology. At the end it was more efficient and practical to gather information only by HR managers that had general knowledge about the technology. Although from the beginning the issue of HR managers having

knowledge about blockchain was clear, I interviewed people from the IT sector that they had some experience/knowledge with the HR role at one point in their careers. Therefore, my interviews could be separated into HR managers and from the IT sector. My initial aim was to focus on the Big 4 companies (PWC, KPMG, EY, DELOITTE) because the majority of them are already sage on blockchain technology and try to implement it into various sectors in their own organization (Bonsón & Bednárová, 2019), but I also focused on technological companies, such as SAP or Thales.

The interviews were not carried out in Portuguese since I wanted the sample to be broad, thus I gathered a sample focusing on the one hand on the HR field and on the other hand on the IT sector. The hardest part was to find HR managers with blockchain knowledge. In order to gather information from the respondents I had to engage the questions in an order that could not be presage but at the same time collect data that could help. The data were collected from five perspectives. Of the responders attitude against embodiment of blockchain into the HR field, the ethics issues, any challenges that HR could face, difficulties before-during-after the implementation of this technology, if they faced any resistance to change regarding any technology or more specific for the blockchain technology and last if there were any other topics that I may failed to understand its connectivity. It was vigorous to separate them in order to achieve the collection. In the following section I explain in more detail the aspects of this information. Regarding the attitude of blockchain embedding their behaviour towards blockchain implementation, which will be explained with more details.

Corresponding to the fact whether participants believed that HR could be attached with technological progress. Where the second part concerns the ethical issues that this technology could create. Within HRM challenges, I examined if blockchain technology was faced as a challenge. Within resistance to change, I examined the prospective and if responders were resilient when it comes to change. Within difficulties it was important to understand the point of view of difficulties that may occur where blockchain may or may not be a solution. Within other topics, I examined the general concerns that may occur in the organizational environment. An important aspect is the matter that all the interviews were not from one country but within the EU, thus representing information collectively within the EU.

Data collection methods

All interviews were semi-structure and semi-informal in order to have the flexibility if one respondent wanted to share more knowledge on the matter to be free to do so. From the beginning of each interview confidentiality was guaranteed. All interviews were audio recorded and transcribed. From the fifteen questions asked, only question number 3 had more complexity. Thus, in most of the interviews I had to explain it. I tried to contact most of the interviews face to face but due to the pandemic that was not possible. The time frame was that as from December in 2019 the first time frame for the interviews had been written down. I had around 3 months to find the candidates that had the best profile for the interviews. All interviews were structured with 15 questions that the interviews should not have specific knowledge of blockchain. In order to absorb as much information regarding the fact that HR managers may not know the exact technology of what blockchain is. Most of the interviews lasted between 30-45 minutes.

Data Analysis Process

The articles used for this paper were based on key words of Blockchain Technology, HRS, industry 4.0, E-HR.

a) Responders attitude against embeddingment .Are managers accepting this technology?

b) How strong is the part of ethics in technological implementations in HR?

The first question that was asked at the beginning of this thesis was if managers are accepting this technology, where I tried to create a visualization picture of the responders' attitude and a formula was followed. In the next chapter, I will present only for this matter the general attitude such as "positive, negative, don't know, not relevant". Excel documents were created that helped me to extract the information from the interviews in order to gain a better understanding of whether they were positive or negative with respect to blockchain technology.

Due to confidentiality it is not possible to name the interviewees or the companies they are working for. All data gathered from the interviews were transcribed (can be found in the Appendix) so I could extract the information that was needed to conclude to the result of those interviews. All questions were made in matter to extract their negative or positive answers from each question. The interviews were transcribed and coded individually, and later arranged accordingly to their sector in one common coding excel sheet. The codes were created in

Microsoft Word and Microsoft Excel, for an overview of the results Power Bi was used in order to have a visualization of the results.

During the data analysis process, I separated the findings by the IT and HR sector. By narrowing the content from the interviews and transcripts, I was able to reflect their general opinion with respect to the research questions. From the beginning, most participants demonstrated an understanding of the relations between blockchain technology and HR. Therefore, the notions of blockchain technology and HR seemed to have a direct relation. Being able to cross-reference through the categories, I was able to extract information relevant to questions set out at the beginning of the paper. Using Microsoft Excel, the transcription could take place in a more profound way where the extraction of each answer could be "shaped" with the words "positive, negative, don't know, not relevant".

Subsequently, the second question where the main concern is how strong is the part of ethics in technological implementations in HR, the process that is followed after the transcription of the interviews, is quoting from question number 13 *"Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?"*. At this question the picture visualization of the data was not achieved, thus the quoting that will be shown in the next section is answering the second question that was placed in this paper. Figure 11 illustrates the separation regarding the two sectors.

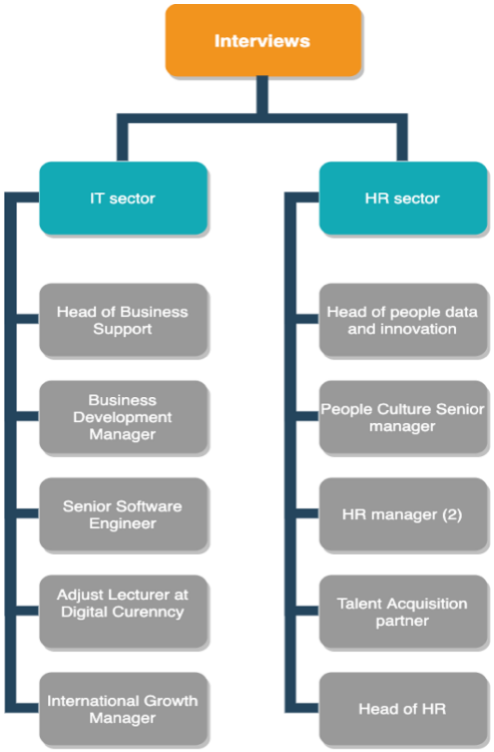

Figure 11: *Interviewees separated by the type of their company*

Results

Bearing in mind the two questions that this paper is researching it is important to mention them again, to understand the reflection from those questions with what will follow in the results section. This section should answer if managers are accepting this technology and how strong is the part of ethics in technological implementations in the HR sector. In the following sections I will analyse the different data that was gathered during the data analysis.

Regarding the first fact of the analysis I will start with "*Attitude of blockchain embedding"* where after analysing the transcriptions of the interviews, a conclusion had been made by the fact that managers are well prepared to accept this technology. Regarding the interviews it is not practical to show the transcriptions of each one, thus a pie chart was created to explain the point of view from the perspective of the managers. Figure 13 illustrates the first coding categories that happened and be more explain in the rest section.

To begin with, figure 14 represents the general point of view from all the interviews. As you can see the "positives" 78 and the "negatives" 43, where the difference is almost double. Each question was made by the fact of gathering information from both parties that had a general knowledge on this technology, but also absorb more from interviews that could explain in more depth. This means that managers from various types of companies as you can see in figure 14 are aware of blockchain technology and are positive to the fact that this technology will be amongst them for a long time.

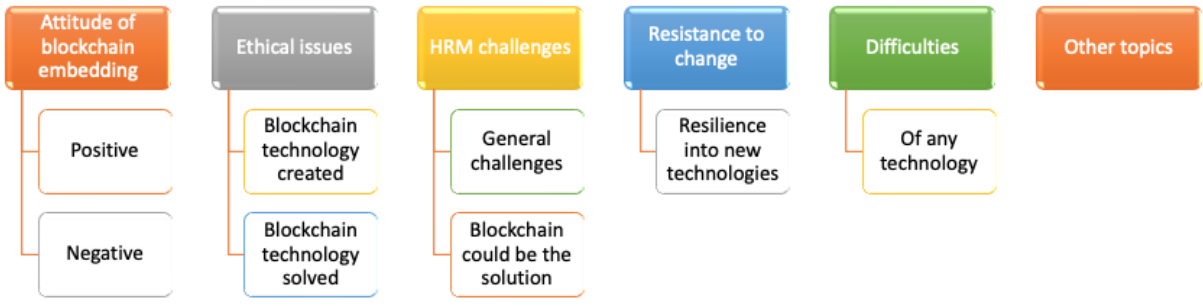

Figure 12: *Coding categories*

Point of view (both sectors)			
Positive	Negative	Don’t know	Not relevant
78	43	10	14

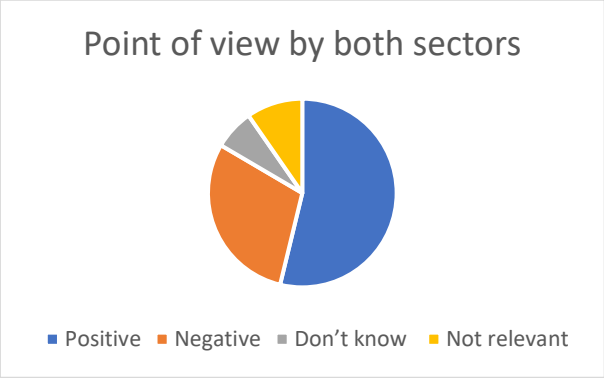

Figure 13: *General of view regarding the answers from both sectors*

Building up on this matter, responders had a very positive attitude regarding this technology. All responders replied positively about the role of blockchain and one responder gave an example about what happened when he/she was hired in a company and how it could be avoided if blockchain was implemented. The respondents had a positive attitude about the evolution of HR and the purpose nowadays that technology has, exists into the field of HR. Setting as an introduction at this question was the fact if managers were considering this combination subsist.

Extract 1: Positive attitude towards blockchain technology

“The recent technology with the HR, is taking towards its people. I think one leads to the other basically, so the change exists from a technological approach. Basically, technology is part of everything. Technology is being a critical tool to improve, to take the next level to a lot of different areas...I could check that from the beginning to check if that resume is true. I could go for a better interview and make a better decision for that candidate”

Respondent nº 1

“Blockchain spreads responsibility and gives power back to its users, I think it works very well with HR and what needs to happen within the HR space considering the changes that are happening around us in order”

Respondent nº2

"I was introduced to bitcoin at the beginning. After that they explained to me the technology behind that, and the name was Blockchain. After I had some lectures about this technology from people who knew it, I realized that Blockchain could be easily implemented into HR. At the moment we are not using Blockchain in HR because we are in the implementation phase. "

Respondent nº3

"Of course, as I said before there are numerous benefits. Especially what has to do with the verification of data, data management, avoid fraud... It is not at all oxymoron to connect HR with the existing technology. I think it is a very very good fit. You decrease any falsification of data, the use of paper. Everything will be electronically. On the other hand, the evaluation criteria could be with concise procedures, more transparent procedures and the verification of data of the existing employees or future employees will be much more easier. With blockchain the step of calling the university to verify if that person indeed graduated itself could be avoided, with blockchain you can verify this without this procedure. The verification of the data would be instantaneous. So blockchain has a lot to give to the HR"

Respondent nº4

"Yes it makes sense because like you said in the question nowadays Human Resources management is more than what it used to be and we need to apply this new technology because people want more once one had to be more to have a better approach so it makes sense to attach these recent technology."

Respondent nº7

From the above extracts you can see the positive attitude from the responders, where they believe that blockchain will solve existing issues. Topics that responders mention such as verification of data, R&S where these topics were broadly examined in the theoretical framework. Responder 4 had answered in an enthusiastic way because he/she waits for the implementation of blockchain. Some of the reasons that these responders await the implementation of blockchain is that the verification of the data would be instantaneous. However, no respondent expresses the feeling that Blockchain or any type of

technology would be a solution for all HR downfall. This was addressed in question 7 "Could Blockchain Technology be a possible solution of all HRM downfall?"

“At the end of the day everything’s back to the people so no nothing will be the solution for everything”.

Respondent nº 1

"HR is still a very high touch business I think there's always going to be a need for high-touch I think blockchain only helps the High-Tech high to allow people to do their best work and leave computers and Technology to do the things that they do best"”

Respondent nº 2

"Some of the activities yes, but for all HRM downfall no"”

Respondent nº 12

There were also some responders who believed that this technology may solve the issues of HRM, since they believe that the issues are coming from all the workload. One specific responder was determined that Blockchain technology is the solution for all downfalls since it will reduce workload, but she/he couldn’t deny the fact that technology could never be the solution for all. This is shown in the extract below:

"Maybe yes. But all of it for everything, maybe not because we are dealing with people… There are some things technology is not the solution for"”

Respondent nº 10

Moreover, continuing with the second part of the ethics issues, it is crucial to highlight the importance of ethics in technology. Especially in a technology where if it fails it is jeopardizing security, confidentiality, and privacy. Some responders were thoughtful about the consequences of a failure within this technology.

Extract 2 : How strong is the part of ethics in technological implementations in HR?

“I think that people will always have a little and I think at our times we think a lot about security and the privacy the confidentiality and I think that when we look at new technologies

we will always. I will always be a little bit suspicious about the technology and how it works but I believe that this kind of technology and these new technologies are valuable and they in a right way of using it they are protecting our privacy our confidentiality"

Respondent nº 8

" You can have some concerns regarding the ethics and the GDPR issues might come up"

Respondent nº 9

Moreover, there are some respondents who are believers towards this technology, where they establish the fact that the ethics will not be encroached by this technology, this technology will reinforce HR.

"Regarding the ethics once again it depends on the data on who has access"

Respondent nº 9

"The reason why blockchain is not worldwide, is a valuable technology it is exactly because people start talking about blockchain from the technological point of view so this is already a road blocker for blockchain technology because it's kind of hard to understand and to accept it… within the company for example yeah you normally use blockchain with the specific purpose which is a correct consortium and sometimes for HR it's not easy uh to see the benefit from blockchain or a shared network which is a distributed Ledger"

Respondent nº 12

Furthermore, HRM challenges are rigorous because its context is showing what are the challenges within the HR manages. Responders had two main concerns, if this technology is worth implementing in return of what it gives back and their other concern was as said before the concern if security, confidentiality, and privacy could be secured. The verification is crucial and benefits all the parties that are participating, not only does blockchain optimize lengthy verifications of education and previous work experiences, it may diminish subjectivity in the hiring process, that will positively affect the very quality of hiring (Koncheva et al., 2019). All responders replied positively about the role of blockchain and one responder gave an example that happened when he/she was hired in a company and how it could be avoided if blockchain was implemented. The participants in any organisation can store their own data or query data

in their will from the system by making a transaction of their order to the network. (Vakilinia et al., 2020).

"That's important for the employees to have an accurate log-on so it's a breakthrough to let people to work at the companies they can fit rather than let unemployed working in a company where they don't have the same values so it's a big advantage about the employee"

Respondent nº1

"Of course, as I said before there are numerous benefits. Especially what has to do with the verification of data, data management, avoid fraud."

Respondent nº4

"I would say that a blockchain complete part of the automation of HR processes definitely"

Respondent nº5

"Yes I mean I think the most obvious one is like the way we share information and we save information about our employees."

Respondent nº7

"Yeah I think if we can make the processes that are using blockchain more efficient I think that all the organizations can benefit from properties used and I think that all types of technology not only blockchain technology should make our job easier and let us do some kind of tasks in some kind of things that we didn't have time to do and technology are making that we have more time to do some new things in spectating technology that can be used for companies. It can be very useful like obviously blockchain technology time is needed and if I have a technology that will give me more time to do some things it will be awesome"

Respondent nº8

"I think we are going to have a training on how to deal with blockchain technology and that could cost us time."

Respondent nº 10

"Privacy must be kept and must be reinforced I think it will be, in case for the areas like HR if they move ahead for sure it will create some problems because also by taking into consideration we need to guarantee that the data are not public are not shared so privacy must always be guaranteed"

Respondent nº 11

"Using these credentials as a certification it can really change because imagine you can be sure that the people you are hiring they have done exactly what they said and for example when I moved to a country from Portugal to Brazil some years ago and that was when I entered my company and in that movement I had to go to the consulate here, I had to prove all the things that I had in my CV so I had to go to my University I had to go to my ex jobs and then I had to add the stamp there I had to go to the notary they have to put the stamp I had to do some translations just with recipe because they had to trust that the things that I was presenting virtuous. I believe this happened specially when they're moving from country to country and with this kind of technology and this kind of use cases can be completely avoided so it's less expensive."

Respondent nº12

Next to the resistance to change, respondents were restrained by the fact that this is a new technology, and they are not familiar with it. Despite that fact that there were also some that were looking forward to the implementation since it is promising them security, confidentiality, and privacy. It was a clear case of the fact that it needed a time-span to learn this new technology, investment of time, and training to learn how to use it.

"Sometimes technologies are not very user-friendly so people rather go to the old way because it's easier for them and more comfortable"

Respondent nº 1

As shown in the extract by respondent nº 3

"At the moment we are not using Blockchain in the HR because we are in the implementation phase. It is so worth the time saving via the help of all these technologies. Imagine if blockchain technology could be implemented now as an HR manager I could interact more with the people."

Respondent nº 3

"We have some technology we use and sometimes we see this and sometimes it is not very precise I don't know what to say is not very like me like you know like program it's a program and we think okay let's doing the old way"

Respondent nº 7

Additionally, with the difficulties that any manager can face it is important to evaluate the fact that in any technology difficulties will appear until the specific technology spends some time in the hands of its users.

"I saw in the computer blockchain software on block it's a bit not friendly user you know for someone who doesn't have very specific knowledge it's a bit hard"

Respondent nº 9

The last on this if other topics occurred during the interview where the only one was the usage of augmented reality where the responder mentioned that during their recruitment process, they were using augmented reality.

"For our different age are areas in the recruitment area we are doing for example group dynamics using an augmented reality uh it's very interesting"

Respondent nº 8

Before continuing to conclusions, it is important to sum up the findings of this section and relate it to the previous part. All responders had a positive attitude and looked forward to a technology that offers security. It is important to clarify that none of what is mentioned is answering all the problems that occur into the HR sector. As asked in question 7, if responders consider blockchain technology a solution to all HR downfall all the responders had a similar answer that could sum up with the answer of Respondent nº1 *"At the end of the day everything's back to the people so no nothing will be the solution for everything".*

Answering the two questions that were made at the beginning as seen from the results above, managers are following the progression of technological achievements, where blockchain technology is one of them. As well as for the second question of how strong is the part of ethics in the technological implementations in HR, all responders raised the issue about privacy, security and confidentiality. From the collection of the data another result that came

into surface is the fact that this technology is not the Holy Grail. It will help in various aspects of HR, but most of the problems that exist in HR cannot be solved by technology.

The following part will explain in more depth the interviews from the perspective of Perceived advantages from Blockchain and the Ethical concerns. Below, table 1 illustrates and explains the coding that was followed. From analyzing the data collected from the interviews the following themes arose.

CODES	QUOTES	RESPONDER
Cv scanning	It will expand human capability in order to make more form decision	Respondent nº 1
Less time consuming	HR Manager wants to recruit people and they get like thousands of CVS maybe through blockchain they can eliminate that time	Respondent nº 5
Confidentiality	Confidentiality is so secure with blockchain, that for even governmental reason blockchain is the solution for confidentiality and privacy. It is the most secure in comparison with other technologies.	Respondent nº 4
Privacy	I think that privacy is being reinforced	Respondent nº 10
Security	Blockchain is secure, but you should always consider it by case to case. There are Blockchains that they are secure, but there are also some that they don’t have the level of decentralization.	Respondent nº 4
User-friendly	It's not friendly user for someone who doesn't have very specific knowledge. It's a bit hard.	Respondent nº 9
Automation of tasks	I think that's mostly automation of the process but blockchain plays some role here especially with a certification.	Respondent nº 5
Data tracking	I think that can be like a stained, like maybe I am looking for your roots and I feel okay, but if you don't have a lot of good reviews and maybe we don't have	Respondent nº 7

	good reviews because you have like a hard time your colleagues weren't very nice or something like that	
Employees	I think it is fair that employers could have access to your data about you professional life. But the most important is for me as a person could have also access.	Respondent nº 3

Table 1: Codes

Continuing with the examination of the results, figure 15 below is explaining the ethical concerns (EC) alongside the Perceived advantages from Blockchain (PAB). The components that were analyzed are data that got extracted from the interviews.

The first component is CV scanning where the correlation between PAB is high and EC is low. The reason for that is that through the interviews most responders trust the usage of blockchain in the CV scanning process and do not think that there are major ethical concerns.

"It will expand human capability in order to make more form decision"

Respondent nº 1

"It will not be frustrating from your side because the people you will get in touch with will be someone that you already know, they have these skills and everything will be optimized once again the process"

Respondent nº 9

"From the moment that this technology is being implemented the first step is that they know that the cv and whatever they say it's true because of the usage of blockchain"

Respondent nº 10

The second component that was examined was the issues of time-consuming that managers are going through. From the interviews it is made apparent that HR managers do not have the time to complete their daily tasks. In figure 15 again the PAB is high whereas EC is low.

The administration aspects of HR are time consuming whereas as HR managers we spend all this time, and don't have time to do any other aspects of HR. I don't have time to do a

reflection or concentrate on other personal aspects of the people within the organization. I believe blockchain will be a benefit in this aspect of the employee.

Respondent nº 3

"HR Managers want to recruit people and they get like thousands of CVS maybe through blockchain they can eliminate that time"

Respondent nº 5

"A lot of public companies are private companies that the business model is based on validating information. The middle man is everywhere on the financial business like banks for example you have to pay a lot of fees to do the transaction, I don't know why but it's happening a lot everywhere and it takes a lot of time"

Respondent nº 12

Continuing to the next three components; confidentiality, security, and privacy. The extracted information from the interviews were significant. All three components are high with regards to EC and at the same time high at the PAB. The reason for that is the fact that this technology promises confidentiality, security, and privacy but at the same time it is what the responders fear. The feeling of saving sensitive data in this type of technology is affecting the EC.

Confidentiality-Security-Privacy:

"No, it doesn't scares me. I built software based on blockchain. The matter of being hacked, its not a blockchain problem but a technology problem. I am not afraid of blockchain more in terms of confidentiality, as I am about other technologies."

Respondent nº 5

Confidentiality:

"There are blockchains that are completely anonymous and others that are pseudonyms, for example, bitcoin, which is considered to be a pseudonymous blockchain-everything is public,

everything is there and you have other blockchains where the is a complete confidentiality, like monero, zcask"

Respondent nº 4

Security:

"We tend to be a little bit suspicious about the technology but when we know better the technology I think we will be more confident in using it so I think it's a revolution of security matters"

Respondent nº 10

Privacy:

"I think that privacy is being reinforced. What I said earlier, what we do not input, doesn't exist. So, if we put in blockchain it is because we believe in it and we believe it is okay, because we know that if you put it there it is going to be available for ever."

Respondent nº 10

The next component that is going to be analyzed concerns the environment of blockchain technology and in particular whether blockchain technology creates a user-friendly environment. Regarding this component it was clear that this technology doesn't aim to be user-friendly since it is not what users amplify.

"Blockchain technology is not related to the user of interface of that side of technology. If I can say that, I think blockchain can help us to have some procedure to make available what we weren't able to do it in the past"

Respondent nº 1

"Blockchain is in that respect and it's a building block to help HR systems function but it will never help fix usability issues with HR systems"

Respondent nº 2

"At the moment no, because one of the main issues about the adoption of this technology is the ease of use. At the moment, the user interfaces that exists with blockchain technology are not that user friendly."

Respondent nº 4

The next component is the automation of tasks. This component is high regarding the PAB and low regarding to EC. The reason could be explained due to the fact that most responders had a similar opinion regarding that a lot of tasks could be automated.

"Imagine if blockchain could be implemented now. As an HR manager, I could interact more with the people"

Respondent nº 3

"Again, I say that would be that I mean it is good to be automated now if you decide to automate the process you can probably do it with blockchain."

Respondent nº 5

"Automation sometimes fails, probably 99% of the cases they are doing a good job so I think it will be a very useful scratch. It's very useful so imagine receiving 1000 CVs for a position and let the technology read them and then it would give me only 100"

Respondent nº 10

Following, is the data tracking where it is high EC and low regarding PAB. The reason for this is that the responders do not like the fact that data that are stored into blockchain could never be deleted. The ethical concerns are high because yet blockchain technology didn't develop, it didn't have the time to show whether it is a promising technology or not.

"You have to record your data and make that data available to whom you want to see them. It's something that makes you feel more desirable than others can see you so everything we are talking now it's in the future but I hope everything will be protected and inclusive to the organization and the employees"

Respondent nº 1

"If I put my CV on blockchain and at some point I want to remove it will be very hard to do that or personal data I mean you never had any disagreements about these the thing is a thief. GDPR which is like the European regulation legislation around personal data with blockchain the truth is that in some cases it is not compliant because you cannot erase data but at the same time there are new technologies in new blockchain platforms which allows

you to book on technology and to be able to verify your credentials without storing the data themselves into the blockchain"

Respondent nº 5

"I think that can be like a stained, like maybe I am looking for your roots and I feel okay, but if you don't have a lot of good reviews and maybe we don't have good reviews because you have like a hard time your colleagues weren't very nice or something like that"

Respondent nº 7

The last component being extracted is regarding the employees. The majority of the respondents described the fact that employees would benefit from this technology, thus in the diagram you can see that there are some EC but at the same time the PAB is high.

"The underlying idea is that the employee becomes the owner of his own data I think that actually it is a unique selling point for employees and makes it less scary of these systems that we have now where employees sometimes don't know what information we have about them"

Respondent nº 2

"I think it is fair that employers could have access to your data about your professional life. But the most important for me as a person it would be to also have access."

Respondent nº 3

"So, from the time that the employee is the owner of their data, it means they can choose with whom to share it. And, also, the verification of the data can happen easily"

Respondent nº 4

"For instance, from a consultancy perspective when a manager is looking for the customer report an employee who has some specific knowledge or who took some specific training then yes I believe they need access. It's something that could be appreciated and accepted by everyone but again there is always processing information regarding the employees that cannot be shared anyway that's because of personal data"

Respondent nº 11

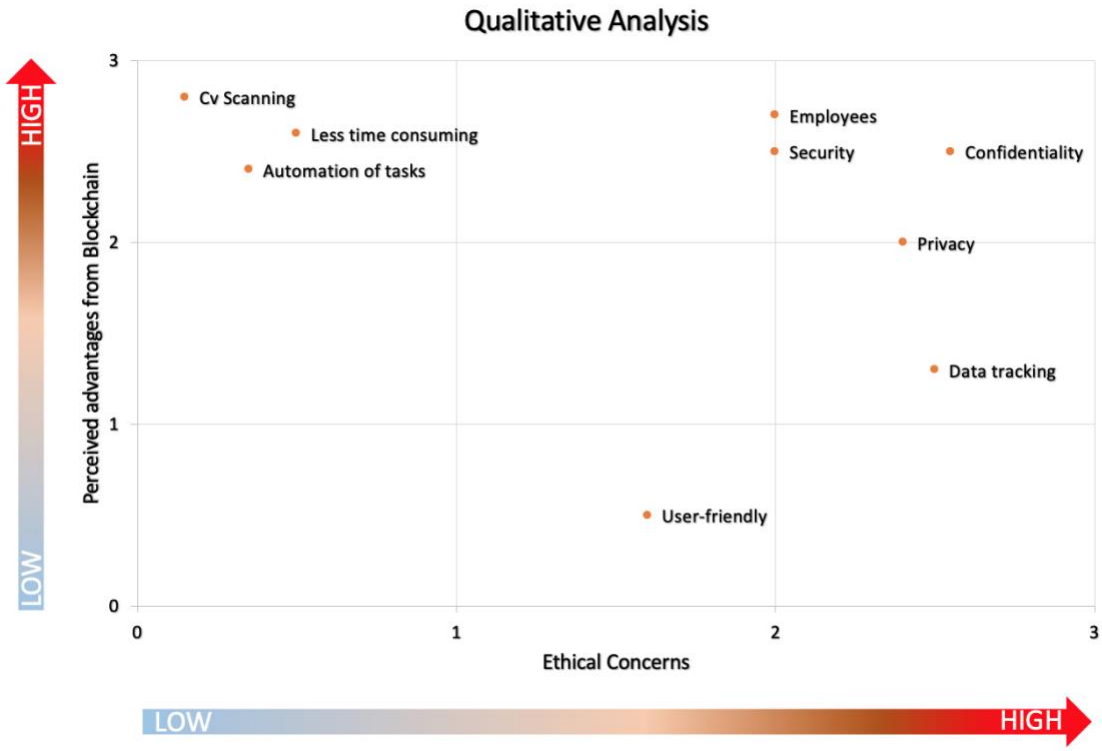

Figure 14: Qualitative analysis

Discussion

This study was very interesting because a connection between two aspects was created, where in the first glance a connection did not exists. It is a fact that it was possible to find articles that connect technological achievements with humanitarian issues. A fascinating fact was that it was possible to cross through various sectors such as HR and IT, and at the same time no outsources was needed to complete the goal of the thesis. All of the interviewees were indeed from two specific sectors but all of them had a different background, and it was not concentrated into one continent. Nevertheless the number of the interviews could be managed to be divided so a balanced number of interviews of each sector could be questioned. Setting as an assumption that blockchain technology is going to affect aspects of HR is a hard roll. It's a new technology and it's hard to guess until where its affection will go. That is the reason finding articles was a challenging act.

As mentioned in the article of Koncheva (2019) at the conclusion the fact that there is a full transfer to digital formats is a new reality that almost all the interviews confirmed. (Koncheva et al,. 2019). Where also Sarda (2018) found form their work that blockchain technology can be used to overcome those limitations of the verification process (Sarda et al,. 2018), where this thesis is confirming those facts. The delay of law regulations and standardisations has left technicians and users without the necessary information and protocols, regarding law regulations and ethics into this era of technology (European Commission, 2020). As mentioned in an article that completed a systematic review regarding blockchain technology it was obvious the fact that more areas of the affection of blockchain technology should be researched (Xu et al,. 2019). However, the findings of this study seem to deviate from other research filling a small gap between the connection of HR and blockchain technology, without setting aside the fact that it could be further searched. Being more precise and considering that blockchain is a technology, the assumption that blockchain is revolutionizing the way HR practices are performed, as its decentralized nature automates the verification of information, resulting in more accurate approaches to hiring employees (Michailidis, 2018). What is important to define is the fact that there is a positive answer, it terms of the relation between HR and technology (Koncheva et al,. 2019).

The results from the interviews mostly show the main concerns about this technology. Where the most oxymoron fact is that blockchain technology is reassuring security, confidentiality, and privacy, where at the same time is the biggest concern. The results from

the interviews are showing the fact that managers are eager to implement it for the reason that it will tone down the workload and as a result from that to give more attention to their people as responder n3*"It so worth the time saving via the help of all these technologies. Imagine in B.T could be implemented now as an HR manager I could interact more with the people.*"

Regarding the Cambridge Analytica scandal it was mentioned to show the importance of protecting data such as digital data and the conflict that can occur if the technology cannot secure the privacy of users/people. Reassuring the fact that managers are believers that blockchain technology can set a stepping stone of security into the digitalization era (Faisal, 2018).

Conclusion

In this thesis the main concertation was to realize if the HR managers were ready to accept a new-born technology and use it as their benefit. The huge gap that exists when anyone wants to connect a humanitarian aspect to a technological aspect is quite obvious. The reason of that is because not a lot of people believe that HR has to do with technology, despite the fact that we are living in a technological evolution. From the knowledge that was gathered from the interviews and the articles it is clear that blockchain technology is an evolutionary creation for security, confidentiality and privacy. Setting aside the fact of how HR started, nowadays it took a different path. The requirements are tremendous if we compare of how it was before. Thus, the usage of a technology that locks the importance of security, confidentiality and privacy is a need that out of the question needs to be used in most of the aspects of HR.

Summing up from the results and what responders said we can assume that managers are ready for a technology that will assure security and protection of personal data in order to guarantee the information of the employees. It is clear, though, that there are approaches or methods that can generate new concepts and grounded theories.

Limitations

For this study I faced some limitations where the first limitation was the fact that there were not enough similar studies on this subject, that made the research for articles harder. As well as the small sample of the interviews due to the fact that it was hard to find managers that could combine HR knowledge and Blockchain knowledge. Thus, if a bigger sample could be achieved a more broad idea for how managers are acting into this idea. A limitation that came into account was the pandemic. The pandemic not only limited my ability to interview in person and collect more data, but I organized to attend some conference about this matter so I could gather a bigger sample. However the findings are still adding to the literature and in the future could progress the literature about this technology into the HR sector.

Future implications

In this thesis the main concertation was to realize if the HR managers were ready to accept a new-born technology and use it as their benefit. The huge gap that exists when anyone

wants to connect a humanitarian aspect to a technological aspect is quite obvious. The reason of that is because not a lot of people believe that HR has to do with technology, despite the fact that we are living in an technological evolution. From the knowledge that I gathered from the interviews and the articles it is clear that blockchain technology is an evolutionary creation for security, confidentiality and privacy. Setting aside the fact of how HR started, nowadays it took a different path. The requirements are tremendous if we compare of how it was before. Thus the usage of a technology that locks the importance of security, confidentiality and privacy is a need that out of the question needs to be used in most of the aspects of HR. To address the limitations of the present study, future research could use a bigger sample that would be more representative and broad. Further the combination of this technology could be studies in an extensive way of each aspect of the HRM duties.

To conclude this paper, the questions that were mentioned in the beginning had been answered as from the theoretical framework as from the interviews. HR managers in fact are accepting this technology even with all the doubts they are carrying. Where the second question that is aiming about the concern of ethical issues that are arise from a new-born technology, is being acknowledge by all responders and are bolding the fact that the ethics is part of their main concerns. The objectives of this study were able to be fulfilled from the moment that I was able to identify the sample I was needed. The expectations were indeed the fact that managers were looking forward for this technology and at the same time the concerns about ethical issues were rising. However, I did not expect that managers where so in need to trust a technology that could help them to achieve most tasks in a quicker way in order to have more time for their people.

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Annex A

Questioner

1) Have you ever heard of Blockchain Technology ?
a) If yes have you ever used it in your professional life?
2) HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?
3) As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)
4) A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?
5) How do you implement Blockchain Technology into your company?
6) Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?
7) Could Blockchain Technology be a possible solution of all HRM downfall?
8) Blockchain Technology is all about data. Data history is available to everyone (it depends what the organisation wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?
9) Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?
10) HR is the aspect of the organisation that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?
11) CV scanning. Do you believe automation at this high level will delete the human touch?
12) Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.
13) Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?
14) There are political issues implementing this technology, can you address some political issues.
15) If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

Annex B

(i)"EU is bringing blockchain technology closer to the citizens and the public. By the presentation it is said that EU is allocating 180 million euros to support R&I in blockchain through the Horizon 2020 project and by 2020 their aim is to allocate 300 million euros so it's a fact that EU is already implementing and accepting blockchain technology to trust it's for its main domain."(Strengthening European Communities with Blockchain Decentralized, 2019).

(ii) "We can assume that during the first month or so, after training is completed, new employees are functioning at about 25% productivity, which means that the cost of lost productivity is 75% of the employee's salary. The level goes up to 50% productivity for weeks 5 through 12, with corresponding cost of 50% of employee salary. Weeks 13 -20 usually bring the employee up to 75% productivity rate, with the cost being 25% of employee salary. Around the five-month mark, then, companies can expect a new hire to reach full productivity." (SHRM, 2016).

(iii)"In October 2018, the ICO fined Facebook £500,000 for breaching the UK's prior data protection law. In discussing the numerous reasons for imposing the maximum fine, the ICO noted "the personal information of at least one million UK users was among the harvested data and consequently put at risk of further misuse." This fine was the maximum allowable under previous law; if its replacement, the GDPR, had been in place at the time of the Cambridge Analytica data breach, the ICO could have fined Facebook 4% of the company's total worldwide annual turnover, which would have been over £1 billion." (ICO, 2018).

(iv) "I find out that the company that I have just left has obtained Facebook data because Facebook allowed the non-consensually to collect data of tens of millions of people around the world. People should own their data. I had to blow the whistle in the entire data industry because it seemed like most people had no idea that it's nearly impossible to track datasets and to know ones data is obtained from individuals, where that data goes where that data is held and what it's going to be used for. A lot of these issues are exactly what I had been working with people around the world to solve with Blockchain Technology." (https://www.youtube.com/watch?v=X8tlioHK2yE – 14:00- Hong Kong Blockchain Week 2019).

Annex C

Interview Transcriptions

Responder 1

Question 1. Have you ever heard of Blockchain Technology? And if you have heard it Have you ever used it in your professional life

Yes, I heard it.

And if you have heard it Have you ever used it in your professional life

No I never used it

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?

So I think we can connect the recent technology with the HR. The recent technology with the HR, is taking towards its people. I think one leads to the other basically, so the change exists from a technology approach. Basically, technology is a part of everything. Technology is being a critical tool to improve, to take the next level to a lot of different areas. I could check that from the beginning to check if that resume is true. I could go for a better interview and make a better decision for that candidate Technology is becoming a part of everything around us, technology is being a critical "tool" to improve and take to the next level from a lot of different areas. When I say areas I don't only mean HR but finance, not only from a sector A but to a sector B, so technology is impacting each and every business and each and every company and each aspect so inevitable also HR. To understand from all the data that is connected between a company that is about not only business but their people and understand what is behind that data what the insides are and take action upon those insights that is something that will not be possible without technology.

Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)

Sometimes technologies are not very user-friendly so people rather go to the old way because it's easier for them and more comfortable. That's an interesting question I've come across difficulties to implementing new technologies new tools based on technologies that were more tangibles to new systems regarding to HR. One type of difficulty I have faced sometimes was implementing those new technologies, the engagement using the new technology was how the technology should be and the second problem I tend to face a lot of times, was the employees to use that platform in the appropriate way. It's very common at least in my way with my colleagues to see people in my company at least go back to the traditional way, in that sense I see people be more drawn into a traditional way that everything always happened than rather than using the new platform so it's easier for them to use the traditional way rather than going outside of the routine to use the new technological tool. That's not the problem of the technology but of people that they need to change in order to do their tasks differently and going outside their routine.

Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?

I understand the reason of HR software should be more user friendly but blockchain technology is not related to the user of interface of that side of technology if I can say that, I think blockchain can help, can facilitate procedures to make available features that we weren't able

to do it in the past. I don't think that will impact how that platform could be more user friendly. On that note I'm sure it will change the experience, but not the user friendly of the platform. If I have to push 5 buttons and go through different screens and then I have to check another screen to complete that task on the software this is catastrophic that's not very user-friendly, it's not a good experience. But if I just have to push a button or I don't have to do anything and the things just happen that's reflect of course that's software is user-friendly and it's more designed to be a user friendly experience. These kind of changes can be made by blockchain but I don't think blockchain is the kind of tool to improve the user experience or the user interface, it's more an interactive approach. I'm going to give you another example if I have a software where I track my interviews and my candidates, it cannot tell me if the content of candidates resume its what the candidate says it is. So, anyone can write whatever they want on their resume, if no one validates that anyone can write anything on a resume and if they're convincing enough they can go through the interview and even get the job. Blockchain could help if developed properly, to make sure that each and every statement or happening that it stated on the resume it's true. For example if I have a degree from a University using the blockchain technology I could verify digitally if that statement is true so from the given experience if I have a platform that could check that from the beginning to check if that resume is true. So from the users experience if I have a platform that has agreed checkmarks that its true, I can go for a better interview and make a better decision for that candidate and again this is not interface it's experience that's why I say blockchain it's not a direct change or impact on the user interface it's more on the feature.

Question 5. How do you implement Blockchain Technology into your company?

I don't know I just started to using blockchain technology, we propose projects for European grants for a platform ecosystem to digitalize the business that our company operates. Basically, providers in the business like consulting like how to secure a profile and how to secure that to the client. Basically, it's a traditional business that works offline. The project we are implementing the we are trying to implement the blockchain technology we don't know yet if it's a public or a private type of blockchain because the implementation will start in the next weeks. With this project one of the modules will be the implementation of the blockchain we will try to understand how when not when how and where the implementation should be.

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

Yes definitely, for validate the multiple events that each one of us has on their resumes, on their career walls that would call in our feature platform and these events could be the courses and certifications that training the corresponding grades that are academic journey also the multiple jobs we have the roles we have on those jobs and our annual appraisal that we have from the companies so any event that could be on the resume I believe it could be a subject to be validated and make sure it's true by both parts, like myself- the company, but also the person who acquires the job. with that we could have more certainly from the company or the recruiters side but the resume is true it's not something that the person tries to fake to appear better fit for the job it's something you can be proud of and show it because you can tell that this is me this is my work and this is true. I can have my career war my resume in a safe place that I can authorize or not to someone to access it to any type of situation that it's required for example for any type of job that I want or for my degree that could be verified as original so from these perspective it could definitely change HR.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

Not for all. Definitely not all. Not a single technology or breakthrough will be the solution for every problem. You could see from artificial intelligence that a lot believed that that was the best solution of everything but now a lot believe that AI is not the solution of everything not at

the end of the dates everything's back to the people so no nothing will be the solution for everything.

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

Again I'm not a blockchain specialist but from my short knowledge about blockchain I don't think this will be automatic I don't have to be afraid that everything on my past or future would be tracked and be accessed through platform or technology like blockchain. I think this is an op team like a student and University, example is that University may not want to record digitally unless digitally it's mandatory so I think again it depends how these platforms are created and how massively they will be adapted you may not have the need to compulsive obligation to record everything here. Example of that is like the LinkedIn because you feel you can get in touch with potential employers or peers so being in the platform that you have to record your data and make that data available to whom you want to see it's something that makes you feel more desirable than others can see you so everything we are talking now it's in the future but I hope everything will be protected and inclusive to the organization and the employees. I think probably if you look around everything need certificate for example let's get to an example like you want to buy a house you have to go to the bank and register the transaction of their selling or bank and you have a record on the housing institution by the government if you want to buy a car there is a record you have a contract with an employer you make a transaction from a store. All of these things are transactions momentary facts that could be digitally validated to a blockchain platform and that's fine unless you have a problem of tracking if you bought that or sold that it's all almost everything already it's records so this will not be something you.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite? (27:48)

Again, from my recent technology of blockchain one characteristic about blockchain is the security that meaning that the information is encrypted. So somehow it's interpreted as a requirement of how important the privacy and data is being addressed by blockchain. This is on paper, it is what I read. I don't know about people and company for who they were created blockchain platform developed that platform How do I know that it is protected from external attacks I don't know if this is a very basic question I have including for my department and it's a question that we talk with the people who are making the project with. I know that security is what blockchain is selling the most but people say bugs have secure and you can see people stealing the banks. As banks can be stolen it's the same logic like blockchain technology that attacks can happen and hack this system or technology. I am answering your question with another question. And I will never put my data where everyone can look at them so not even in blockchain technology will never upload my data even if there are extra features to protect my profile I will never upload.

But how do you sell blockchain technology?

Again the answer is how do I know that, who developed this technology, who can confirm me that this information will remain confidential I don't know this is not only a technical program and infrastructure problem in terms of protecting the environment from attacks but also it government problem because who will control these who will secure those information their behaviors from people who tried to steal your information. So I don't know they say it's the best to keep you secure but who can guarantee that there will never be a technology that will be the most secure everything I don't believe that.

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ? (36:00)

Yes I think I got through that because if an employee have a way to block to have a true blog an accurate block a validated log on a company that person achieved in terms of rewards on a project. What were the appraisals at the person got from its peers managers. It's important from an employee to have this block. That's important for the employees to have an accurate log-on so it's a breakthrough to let people to work at the companies they can fit rather than let unemployed working in a company where they don't have the same values so it's a big advantage about the employee If that log can migrate to another company to another reality it's a breakthrough because the past is validated truly validated. It's easier from that person to be hired from a company or to prove that is the best person for this role. So definitely it can help the employees.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

No human touch can be deleted, not blockchain no other technology can do that. I already gave an example before that it will make recruiters and decision makers to have superpowers to see beyond what the human cannot see. So, it will expand the human capability in order to make more form decisions where it would be humanly impossible for them to make it before. So, they can extract the most accurate information but again it depends on the platform and also on the blockchain technology, but I think human touch will always be in charge and the platform will just help.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable. (39:40)

I think I already covered both I'm not scared about confidentiality privacy or any other aspect of blockchain technology anymore that I'm about of any other technology. Like what humans do about these technologies not about the humans. The second part of the question I covered it just to the previous answer it depends how the technologies work inside. I don't think human touch would be replaced because of technology, of course they will have to reinvent themselves for different kinds of tasks but human touch could never be replaced .On the answer of a face to face interview I don't think a machine could be that accurate in a conversation or the speech of the person or the proposal of how that person seats or the feeling that that person has it's something that only humans can do never machines can approach on that level . You can't see things in videos about that how they change their reality in videos that thing scares me.

At the end of the day is how people use any kind of technology

It's like the Atom bomb if humans use the Atom bomb in the correct way we will never have this incident so at the end of the day the problem are the humans.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected? (43:40)

We're going around this subject also ethics and what it's wrong and then if with technology or even existing technology or even a business model that was created has a lot of ethical issues labor issues HR issues not only technology or new business modules can have issues with ethics and yes blockchain will have issues about the ethics who can and tell what can be recorded on this platform who can access them to see information who guarantees those principles of security and the data will be secure. Uber is a good example, that touches all the

aspects. Uber started as taxi service and now they have a lot of ethical issues that emerge from there were better like platforms and it's amazing and scary sometimes too realize these things.
Question 14. There are political issues implementing this technology, can you address some political issues. (48:50)
I don't know if they're going to be political issues or what will be, I think it's about who access what who once what who is in charge I think this is the reason if there were going to be political issues and I don't know if HR and recruitment is created if any political issues regarding or ethical issues regarding those who have a profile on blockchain if they will have priority of those who don't I don't know if this is a political issue. I don't know if they're going to be a different behavior of those you have e profile on this technology to those who don't have a profile. I imagine that there's going to be a very critical type on this issue of who will have a profile on this technology and there will be critical opinions about the data on this technology because if data go public that these are sensitive data from the government it could create a scandal. Even countries that are not let's say you're a corrupted country, those countries are not very interesting into this technology having the idea that you can control who voted or not but it scares me that the vote itself like who I voted for will be recorded that's the issue of democracy and all the aspects I need to feel safe that my world will be secret and no party or candidate can know what about it or not even this scenario it's a very good scenario for the voting system to a democracy but still it scares me that they can record who and what they voted.
Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.
I don't have much experience to be a good advisor for now the first is to be very open to the technology and what it could do because it's angle technology and people think here we go again to anger technology so give it a try of how it works what are the examples of this technology he's already gotten more practical examples that war created on these type of technologies and also be skeptical because it's easy to someone that makes the change of technologies I think that this is the best technology in the world then everything can be solved with this technology so be open but beyond the ground to see what you can do with this technology and what could be the expectations and if it could resolve the problem.

Responder 2

Question 1. Have you ever heard of Blockchain Technology ?
Yes
a) If yes have you ever used it in your professional life?
Yes, at the moment.
Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?
The idea behind blockchain specifically in fact that it's decentralized and spreads responsibility and gives power back to this user something that works doing very well with HR and what needs to happen within the HR space considering the changes that are happening around us in order.
Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)
I think that probably depends on what is your definition of traditional way. I think they're certainly things that we've experimented with where we hoped we'd be able to solve, one

problem with technology and it turned out more difficult than we had anticipated and here is always good to have something to fall back on but I think you know there's a cliche that says the most expensive world you can ever use in a business is we've always done it that way so the best way I think traditional needs to be disrupted and Technologies one way to quickly do that is fine.

Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?

I think those are two separate issues. Blockchain in itself isn't going to solve a usability issue with HR software. Usability of HR software isn't here until on how that software is built and who is billed for you've got HR systems that are really good at streamlining HR processes in are really built from a HR process mindset and you have other HR suits it's really began with who the end user is so it starts with the employee. blockchain is in that respect and it's a building block to help HR systems function but it will never help fix usability issues with HR systems.

Question 5. How do you implement Blockchain Technology into your company?

So right now we're using blockchain to do validation around credentials for employees and make it easier to transfer or take those credentials to new jobs and new companies so almost having a validated LinkedIn right now you don't maintain your credentials. Blockchain is creating career wallets to allow people to take what they've learned and their credentials that they burned at different employers with them to next employer. The idea is that you end up helping to have a quicker screening processes, for instance for heavily regulated environment spent the same time also giving over their own data and that they can take that with them when they leave an organization. Where right now what happens is your information is stuck in an HR System for many years with your former employer to decides to keep it there.

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

Certainly I think short-term the biggest impact it'll have is like I said within Talent mobility and within recruitment but you know blockchain is also one way to mitigate a lot of the risks that companies have relating to employee because ultimately if you can decouple me as an individual in my identity from all the sensitive HR data that you have in a system then your risk for instance for data leaks and etc, to become much smaller because the fact that I keep who I am you only have an employee ID number for me and I'll give you the key to make the link between those and I take that key away the moment that we few organization as well okay I'm very happy.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

HR is still a very high "touch" business I think there's always going to be a need for high-touch. I think blockchain only helps the High-Tech to allow people to do their best work and leave computers and Technology to do the things that they do best.

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

I think that has to do with transparency and how you communicated that to people you know the idea that every single, whether to keep stoke or a behavior you put in the blockchain. I think here is over-reaching, I'm not sure that really helped solve problems I think if you're clear on the front with employees and managers of what information you are putting on blockchain for instance that helps, but most importantly the underlying idea is that the employee becomes the owner of their own data I think that actually is a unique selling point for employees and makes it less scary than today's systems that we have now, where employees often don't know what information we have about them in the system.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?

I think the premise of the question needs elaboration. So what you can do is with things called smart contracts you can actually edit and adjust data in the blockchain so with that change like I said I think the ability to decouple Identity from data points that an employer has about an employee only strengthens.

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

Yes absolutely.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

CV scanning no I don't because I think it adds an actual touch of objectivity which cannot at this moment not be realized when we leave it only out to humans which brings extra chance of biases and personal preference into a sweatshirt process where if you have a machine or an algorithm doing CV scanning that protects you.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

I think I'm somewhere in the middle there is blockchain and Revolution / blockchain is an idea and concept that I believe in the idea again of giving power over personal data back to employees. To call the revolution we don't have a tipping point, we haven't reached a tipping point to make it ubiquitous and used by everyone. I think that will still take a long time until you know it's no different than the cell phone was. But not until more than 500 million people got one in their hands in the beginning was only for you now the select few who could afford it. I need to have adoption across the world in all Industries for really to be revolutionary you believe that employees will have nothing to fear about privacy, eventually be it will be the exact opposite because they would have the access that the technology is proven that it can protect privacy and the other aspect is fear that's a human emotion. A human reaction and that has nothing to do with the technology and everything to do with how you explain into employees how you make it clear that this actually helps them so it's two different things.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?

I think you actually run less issues around ethics at the moment you decentralized power and who holds onto the data. on that matter a professor a while ago wrote a paper about how blockchain isn't GDPR compliance and that was within two days rejected by other peers, so I don’t see an issue there.

Question 14. There are political issues implementing this technology, can you address some political issues.

There are political issues I think is it an issue I think it's a challenge I think it lays less with blockchain as a technology and more with the question around who owns identity. so what you see right now is governments determine who you are in the sense of you know when your born, your birth is recorded by a government who then says you are who you are and you were born on X dates and then you go and get a passport and that validates who you are, I think blockchain in the whole concept of identity challenges that because ultimately who has the authority to say you are who you are so. I think if you really want to get adoption of blockchain around whether it's everything from employee credentials to using it for asking for subsidies from a government to file your taxes. Ultimately a government institution is going to have to play a role in

validating who you are. So maybe in 10 years when you have a son or daughter when they're when their birth is recorded with the local municipality not only are you giving a birth certificate but maybe you're giving a blockchain identity. The political issue right now and that has less to do with using blockchain for something as mundane as credentials and being employed has everything to do with ultimately says and validates you are who you are.

Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

Don't do it yourself, in the sense that look at the whole fundamental whole philosophy behind blockchain. Like I started the conversation with is open you know transparence decentralized no one has a key role that key role is distributed over everyone as we've been working on this career wallet it was just clear enough are you have enough wage that scared by multiple partners so that people don't think there's an ulterior motive. If we were to do this project by ourselves a lot of people would have looked at us like what does a bank how is the bank trying to earn money by doing this, where our only intension is help talent to move from employer to employer.

Responder 3

Question 1. Have you ever heard of Blockchain Technology ?

Yes, I was introduced with bitcoin at the beginning. After that they explained to me the technology behind that, and the name was Blockchain. After I had some lectures about this technology from people who knew it, I realized that Blockchain could be easily implemented into the HR.

a) If yes have you ever used it in your professional life?

Yes, At the moment we are not using Blockchain in the HR because we are in the implementation phase.

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?

I don’t believe that these two aspects are so different from each other. Technology is helping is helping in screening and most aspects within HR. How I can think about technology is that sometimes it’s becoming so overwhelming with all the issues that are coming up and I am asking myself if it’s worth it. Where I know that technology could help me do my job in another matter like have more meetings or coaching or spend more time with people. It is not oxymoron at all. It will almost eliminate the bureaucracy.

Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)

In my company we use some software but because there are huge data sometimes it cannot respond and there is a possibility of losing those data. So sometimes I need to do it manually.

Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?

I don’t know at the moment.

Question 5. How do you implement Blockchain Technology into your company?

At the moment we are in the phase to implement it, but not yet.

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

As I said at the beginning, at the moment we are not using Blockchain in the HR because we are in the implementation phase. It is so worth the time saving via the help of all these technologies. Imagine if blockchain technology could be implemented now as an HR manager I could interact more with the people.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

Some yes. But were a human touch is needed, blockchain cannot solve any issues in that term.

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

Personally I believe there are ways not to have access into data history. So I believe that with blockchain it will be more fair and accurate. I think it's fair that employers could have access on their data about their professional life. But more important is for me as a person could have access also.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?

From the moment that it is secure and acceptable and respected as a new technology, it will reinforced these aspects. At the moment when we exchange emails we have a confidentiality loop because we don't know if the other is trustworthy or we don't know how easily an email can be hacked. With this technology I believe that privacy and confidentiality will be reinforced

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

The administration aspects of HR is time consuming whereas hr managers we spend all this time, and don't have time to do any other aspects of HR. I don't have time to do a reflection or concentrate in other personal aspects of the people withing the organisation. I believe blockchain will be a benefit in this aspect of the employee. And the profile of each employee would be automatically updated with blockchain.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

Human touch could never be deleted. Even with all this technology, I do not believe this. Imagine the 80% of the people we hire are people who made their internships with us. So this is a fact that human touch cannot be deleted.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

No, it doesn't scares me, but each one needs to have a judgment about any technology, even about blockchain. As for the second part, human touch can never be eliminated.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?

I didn't think about this a lot. But I think blockchain will not be affected. People tend not to use something once they believe that the ethics may not comply.

Question 14. There are political issues implementing this technology, can you address some political issues.

I don't know to be honest.

Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

I would be more educated about this technology and talk with people who already implemented this technology.

Responder 4

Question 1. Have you ever heard of Blockchain Technology ?

Of course, I am working with Bitcoin from 2012 and started doing mining from 2013 in Cyprus with AC miners, one of the reasons was because I had solar panels so the electricity was not an issue for me. And the second reason was that back in 2013 it was very hard to buy bitcoin, only one market was existing and the market of peer to peer. But in Cyprus it was very hard to find other peers to sell their bitcoin so I started mining , and after some time I finally was able to buy a bitcoin from the first market.

I had now idea you had to go through all this situation to buy a bitcoin.

At the moment there are numerous crypto-exchanges that you can buy, its similar with market places. There are centralized and de-centralized exchanges, that occur from a smart contract or a peer to peer without any intermediate. So now it is easier to buy, the market is more mature. And bitcoion is the most decentralized cryptocurrency, that's why I prefer bitcoin. Bitcoin is story of value and I prefer it. Blockchain is secure, but always you have to see it by case to case bases. There are Blockchains that they are secure, but there are also some that they don't have the level of decentralization, so for the newest one it is easier to proceed to a 51% attack, so you always have to see it a case to case. There are multiple categories of blockchain.

b) If yes have you ever used it in your professional life?

Yes, of course. When you talk about professional life, I have used different kind of blockchains for various reasons. I use bitcoin for financial transaction, I used the steam platform when I need to marketing or contact creation, where I need a certain type of audience. Generally I am using blockchain, in matter of cryptocurrency. So there were times where I was paying with bitcoin or the payments for the company were with bitcoin. Of course we are doing some pillar programs so we are on the first stage of using blockchain a technology, but through the bitcoin, with my job I am doing issues certificates where we encore them on the bitcoin blockchain, it is academic certificates, where we can relate of you future questions on HR and blockchain. So we are using blockchain every day, setting aside the cryptocurrencies.

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?

Not at all, it is not at all oxymoron to connect HR with the existing technology. I think it is a very good fit. You decrease any falsification of data, the use of paper. Everything will be electronically. On the other hand the evaluation criteria could be with concise procedures, more transparent procedures and the verification of data of the existing employees or future employees will be much more easier. With blockchain you can avoid the step of calling the university to verify if that person indeed graduated itself, with blockchain you can verify this without this procedure. The verification of the data would be instantaneous. So blockchain has a lot to give in the HR.

Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)

I will say no. The exact opposite actually. I will give you an example, especially when you have to do with payments. If you were have to do it with the traditional way, waiting for the bank transfer to be accepted, this would take around 2-3 days in some cases. So if you use blockchain you can have that money instantly, without having the problem of waiting the banks

to open. And the money transfer via blockchain can take place in the weekend or even on bank holidays. So at this specific question personally I didn't have any failure with a recent technology where it would be easier to solve it in the traditional way.
So if I understood well, its easier nowadays to pay with bitcoin rather make a bank transfer?
Yes and it is cheaper to go with this payment method.
But now the revolut exists, here in Portugal there is MB way, where I can send money using your mobile number and the money are being transferer automatically
Of course, there are numerous ways nowadays to do what you want, using the psp (payment service provider), but there are some times that even the psp due to the fact that they have to follow some legislations like PSD2 Directive (Revised Payment Services Directive) and 5th AML Directive (Fifth Money Laundering Directive). In this cases they can block the transaction by asking for further documentation. So let's assume I want to transfer 6000 euros, at this point the bank can freeze this transaction by asking what is the reason of the transaction and justify the existence of the money send us the invoice, send us that, this. But using the bitcoin we are talking about a permission less, boarder less technology that no one can stop it.
Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?
At the moment no, because one of the main issues about the adoption of this technology is the ease of use. At the moment the user interfaces that exists with blockchain technology are not that user friendly. Of course, this will change, as time goes by anyone can see that ne updates are coming on the existing platforms that they are way easier to handle them. Even coding is becoming more user friendly, and you can code without even knowing coding languages, thus at the moment they are not that friendly but I am positive that in the near future they will become a lot more friendlier. The market has to mature for these changes to happen. Example is how the intranet started, and 25 years later we all know how internet is in our life. And I am sure that in the next years if you don't use these technologies, such as Blockchain it would be hard to have an existence as a company or organisation. If you do not adapt to the circumstances, especially when you are a competitive business you will die. So you either adapt or you exist this race.
Question 5. How do you implement Blockchain Technology into your company?
I can tell you about the company I work for, where the other organisation I work for that we use bitcoin, which is an open public blockchain. And the way we use it is that we apply the Merkle Root in the certificate or data, if we can say it in this terms and we enter the hash in the transaction. So sending a part of a bitcoin from the one wallet to the other. Including as a "comment" of the transaction the Merkle Root. Provided that the transaction is been mined or confirmed from the miners then we take the hash of the transaction and we put it back in the pdf certificates, as meta-data, which they are machine readable only. When we do these steps, we send the certificates to the graduates, and whoever wants to verify if their certificate is genuine, anyone can access one of our validators, which is a block explorer and by uploading the certificate into the validator. The results could be either the certificate is genuine or either the certificate is not genuine, because the hash doesn't exists int eh meta-data of the certificate. Using this way we can verify the data, specifically on the academic degrees, but we are facing the change where we are entering other industries like shipping, public registers, medical records generally any organisation that issues a certificate can use our technology for the certification of the genuine certificate. This is a public Blockchain, it's a bitcoin blockchain. On other matters we can see other use cases which they have to do with more private Blockchains, for example there is a company, we are working together to do a proposal to the Cypriot government for food trackability. And the way they work is that they use different oracles or sensors which the company records different prices in matters of food. The specific

use case has to do with the olive oil, and saying this it has to be clear that there are various types of olive oil where there are different levels of polyphenols. The problem here is that various producers are writing what they want on their products. Most of the cases if you make a chemical analysis on a product at the end you realise that what it had been written on the product and what it actually is, is different. So this technology could be used as a benefit to the customers because you will have trackability from the production until the customers table. The other benefit of this technology is that you can create different types of efficiencies as matter of the supply chain and logistics. Also another benefit is that in the case that a specific lot has a problem with this technology you can identify which lot has the error and withdraw it from the market very easy only that lot that had the error.

In the company that you are working do you implement B.T?

Yes, but as a consultancy information, of how other organization can benefit from this technology. Also in other parts of the company such as Spain and Canada they implement blockchain in a more broad way in the company. They are in the first steps of the implementation, so they are using sand box experiments where they develop this technology into the organisation. To be more specific about the case of Spain I know that there is a huge consortium of banks and other types of companies that they created a platform of tokenization of natural assets. Example, if you want to sell huge hotel, and instead of trying to find one buyer that can afford that price, you can break into pieces and sell each piece much cheaper. To be more clear instead of find a buyer that can afford to pay 30 million, you can break that hotel into 30 million pieces and sell each piece 1 euro and all of them are co-owner.

But what is the difference of having stocks and buying as a token?

The bureaucracy, is a huge difference. The middle-man doesn't exist with blockchain, so you pay much less. Also for safety reasons there is the problem of the single point of failure. With blockchain none of this issues exists.

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

Of course, as I said before there are numerous benefits. Especially what has to do with the verification of data, data management, avoid fraud. One example that a doctor in India made over than 70.000 surgeries. That person was saying that he had a degree from Harvard university. But that person never graduated from a university, he never attended a university. So you can see how important is to verify the identification and certification of people.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

Not all. Blockchain is not the Holy Grail. It is not going to change the world just as that. The point is how the technology will be used. And this is about all the technologies.

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

To be honest this question is a bit wrong. Not wrong, but there are a lot of aspects that you have to consider asking this question. There are permission-private blockchains, that you have to be part of the consortium and have viewing permissions in order to able to see the data. But when you are talking about public blockchains, then yes, everything is transparent. From the moment a manager has the permission to access this personal data. Of course you need to see it as a case to case bases, because there are private permission blockchains, open public blockchain, hybrid blockchains (customized chain), so you need to see it at the context on that time. There could be a blend of how to use the different types of blockchains.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified.

Considering this technology, do you think that privacy is being reinforced or the exact opposite?

I would say that privacy is being reinforced, but it's being done in a more transparent way. For the reason that it is append-only and the reason that some blockchains are empowered user. This means that it is me that I possess my private keys, that only me can sign a transaction, and also this means that I can share my data after I sign with my private key. So yes, it does reinforced privacy in a way. Of course it is important to see each case as a separate case, there are blockchains that are completely anonymous and other that are pseudonyms, example of that is bitcoin, where it is considered to be a pseudonymous blockchain-everything is public, everything is there and you have other blockchains where the is a complete confidentiality, like monero, zcask. Also the trends are for the public open blockchains to apply protocols for privacy, example is the Litecoin blockchain where the company hired a software developers so they can apply the Mimblewimble protocol on the Litecoin, which will reinforced the privacy on the transactions. On the Ethereum you can have private transaction, if you pay something extra on for using this blockchain. At the moment bitcoin is in the process of implementing shore signatures where complete anonymity would be applied in the transactions.

So confidentiality is being reinforced much more?

Confidentiality is so secure with blockchain, that for even governmental reason blockchain is the solution for confidentiality and privacy. It is the most secure in comparison with other technologies. Of course technology is progressing and at this time only 1 new technology could break the security of blockchain which is quantum computer, which this new technology is still foggy. You can never be sure about anything, but the one thing I am sure is, if you compare blockchain with any other technology blockchain is the safest. Blockchain to be hacked it is almost impossible, but if someone has the time, money, knowledge and mind they can do this. It is also important to mentioned that blockchain code didn't present any bug tested and it is battle tested.

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

Of course, because all the data remain secure. The data is also under their control (it depends on the context of course). So from the time that the employee is the owner of their data, It means they can choose with whom to share it. And also the verification of the data can happen easily, so only form what I mentioned there are a lot more benefits.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

I think we can never delete the human touch, yet. But at some point the steps are becoming more automated, so human controllers don't have a reason to exist.

So it this a bad thing or not?

It depends. I will give you one example. Today we have the drones, that they can video wedding or different kind of events. The proposal was to have a helicopter with a cameraman on helicopter and take video of the events. So this is an example that it's not only blockchain that its changing our daily life, but a lot of things are changing. They create the disruption, where we need to adapt to this new situation. On the one hand some professions are being deleted but on the other hand new professions are being created. In the case of the example I gave, you were going to need a pilot for the helicopter and a cameraman that would be able to video the event from the helicopter. But in the case of the drone, all you need is a person who knows how to use the drone. So we have a new profession, that replaced the other 2 in this situation.

Yeah, but did you ever interviewed for a position and you were in between two candidates, where the first one was clearly the best choice due to his cv, but your gut wanted the second one. This is something that cv scanning cannot have.

Personally I was going to follow my gut. I believe in the character that a person has, and not the credentials that a cv has. Personally I see three things on a cv, if that person has the energy, if he/she is smart and if that person is loyal. In this case I would say that the human element could not be replaced.The thing is that with cv scanning most possible is that this person that you would choose, would not even pass. And so you would never had the chance to meet this candidate. And with this situation, you are losing the type of workforce that you want to be working in your organisation. Because automation deleted this human element. But if the way cv scanning is not fulfilling my wants/needs I should change the way that the scanning is working. And we are concluding in the same result that it depends how people are using a technology. At the end of the day, this technology is a tool, if I don't know how to use this tool it is going to be useless for me.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

We are talking about a context that there is no one answer or true answer. We can see in the case of the bitcoin, we have the confidentiality, the empowerment that you can send money everywhere in the world and in the same time distancing yourself (pseydonimum in a way). On the other hand we can see what the central banks are doing in most of the countries. They are trying to pass new laws about CBDC (Central bank digital currency), in this case if you see the situation in Greece at the moment. Some days ago, the government passed a law that the 30% of the income should be spent electronically, so in some way the government could control of where people spent their money and at the same time any illegal money would be easier spotted. Greece has a very high vat, so a lot of companies are hiding a lot of their income in order not to pay the vat, and that most of the transaction in Greece are happening with cash and not electronically. In this case the privacy is not being reinforced because the governments would be able to check all of our transactions, using permission blockchain currencies.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?

Mm, the barriers that have to do with the implementation is that new technologies are not mature enough, but from the moment the will and resources exists it is just matter of time for protocols being developed in blockchain solutions in matters of HR. In Business ethics, blockchain has a positive manner. The reason of that is that blockchain is against fraud, the data are more transparent. This technology will improve the landscape of business ethics.

Question 14. There are political issues implementing this technology, can you address some political issues.

The main problem is that when you have to work with governments. You have inherit corruption in the system. There are numerous examples, one of those is an example of the Cypriot government that the government bought windmills that produce electricity for reusable energy. The contracts that both parties signed, the government and the company that sold those windmills are worth lots of million euros that the Cypriot citizens are paying. The fact that the government is getting more money for the purchase of this without at least asking the citizens opinion (because they are paying for this). I don't understand why this government spend all this money for windmills, from the moment that Cyprus is not a country with wind! And from the other hand we are a country that we have sun 360 days per year, and the government didn't make a plan for solar energy. The reality is that the people who are taking this decisions are taking money under the table, worth of millions. If we implement blockchain technology in all the procedures that the government has to do, and everything Is transparent it means that it would be almost impossible for a fraud to occur again. So it would be hard for politicians to steal money since it would disrupt their political status quo. This technology is much bigger than us.

Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

The advice would be, is that the need for blockchain should be real. Most of the times, blockchain is not needed. In some other cases that the decentralization of the data structure or you want to have different level of permissions, or you don't want to have one single point of failure then implementing blockchain is the right solution. At the end of the day, implementing blockchain you have restriction of the transaction you want to make, you don't have the output that you would have if you implemented a centralized database. That is the reason why sometime you can see some private permission blockchains claim that they are doing around 10 thousand transactions every second in comparison with 7 transaction you can do with bitcoin every second. The reason is because you have a private and a smaller circle you have a bigger output. So always you have to see each case differently. Know your aims and know what type of blockchain you want/have to use. Blockchain is not the holy grail. To be successful is to know if they need this technology or not.

Responder 5

Question 1. Have you ever heard of Blockchain Technology ?

yes

a) If yes have you ever used it in your professional life?

Yes, I am

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?

Sure what I think is that in every function of a company having procedures automatic and implement new technologies I think it helps generally no matter what this function.

Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)

It depends on the case and it depends on what the technology can do I mean if it's easier to do it manually I might do something manually but generally because I like automation I'm trying to resolve all these issues

Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?

I don't think that blockchain has to do with how friendly a user environment is and the reason for that is that blockchain is the underlying technology, is the backend if you want of the application or the platform. So depends on the one who designs that the front end.

Question 5. How do you implement Blockchain Technology into your company?

Well I cannot answer that specifically but what I can say is that because we are a consultancy firm and I work as a consultant I work in different projects which we need to implement this technology, into that I mean I build platforms with blockchain being the underlying platform

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

I could be honest I don't know I don't have any experience with any ajm platform so I can't really answer that. No but again I think that the issue there would be their automation rather than on what technology would be used I mean in HR there are lots of processes and this

process is good to be automated now if you decide to automate the processes you can probably do it with blockchain you can probably do it without blockchain but it's like a matter of the person who's implementing it.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

Not all, but for sure blockchain can play some role here especially with the certification.

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

I am not sure if this is a blockchain technology or Technologies in general I mean you can track every single aspect of everyone without technology blockchain. If I put my CV on blockchain and at some point I want to remove it will be very hard to do that or personal data I mean you never had any disagreements about these the thing is a thief. GDPR which is like the European regulation legislation around personal data with blockchain the truth is that in some cases it is not compliant because you cannot erase data but at the same time there are new technologies in new blockchain platforms which allows you to book on technology and to be able to verify your credentials without storing the data themselves into the blockchain.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?

I am not sure how to answer that, these are privacy issues s but as I mentioned it depends heavily on how this is implemented and what tools you use. Privacy is always an issues, and that is the reason why, when I will design a new platform I will think first the privacy.

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

I would say that a blockchain complete part of the automation of HR processes definitely.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

I am not convinced that even when humans do this processes things work that way. I mean what is happening with cv scanning is that for example they're trying to find keywords let's say that HR is looking for a software engineer to do JavaScript let's say and in the cv scanning software you said the criteria and you say that I need the cv to say JavaScript to find this keyword within the CV. HR Managers want to recruit people and they get like thousands of CVS maybe through blockchain they can eliminate that time. Let's say that we don't have the cv scanning software but a human undergoes this process. I find it that if the human doesn't find the word JavaScript in the CV it will not consider it at all so I would think that in in this very specific case it would be the same, its just that the automation helps a little bit with time and at the same time a human could not undergo the vast amount of cv to the company might get.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

No, it doesn’t scares me. I built software based on blockchain. The matter of being hacked, it’s not a blockchain problem but a technology problem. I am not afraid of blockchain more in terms of confidentiality, as I am about other technologies.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?

There are always issues around ethics when we do software I will say that again is a matter of implementation and design of a platform I wouldn't say that blockchain is it by itself and ethics concern .

Question 14. There are political issues implementing this technology, can you address some political issues.

Political issues raised mainly around public chains like Bitcoin or Ethereum. There are many political issues you about regulating the money that is around blockchain, but this is mostly about crypto and not blockchain in general. But because crypto in lots of cases is implemented in blockchain there is a huge issue there.

Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

I'm not the person to give advice unfortunately but I guess it needs a lot of consideration

Responder 6

Question 1. Have you ever heard of Blockchain Technology ?

Yes

a) If yes have you ever used it in your professional life?

In general terms, yes.

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?

Its fundamental to use it. HR and technology are a logically compatible.

Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)

It may happened. Especially when you are working with numerous transactions with the usage of blockchain technology, at some point the system may fail and its more accurate to do it with the traditional way.

Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?

Not in independent on blockchain. It’s a user’s experience, blockchain my adding value on a software but it not building the software.

Question 5. How do you implement Blockchain Technology into your company?

I implemented blockchain into insurance companies, for certificate verification, for procedures of documentation of the employees. So the first step in all these projects is to transfer all the documents into the computer in order to transfer all the data in the blockchain.

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

Yes, the management of skills and qualification of people. I think these aspects are the aspects that blockchain can impact.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

Partially yes.

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

It depends on the process. Having the record of the employee on a blockchain is a must, a reliable credit scoring.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?

This is a characterization of a public blockchain. This doesn't mean if you have another type of blockchain you cannot modified something on it (of course all parties have to accept the modification).

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

Yes, because they can claim rewards, discounts at their taxation, health benefits. So if a company sets some goal for each of their employee, if that person achieve that goal, automatically they can claim their reward.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

No, you will always need manual interventions and always will want to create something new. Human touch cannot be deleted. With the feeling you have when you met in person is unique and cannot be deleted, or even if somehow they manage that, blockchain will not be the cause.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

No, actually it's the exact opposite. Nobody can have access on your data, only you. So some can have your personal data, without knowing that is your data. This is already happening. But because of the billions of data that exists, it is almost impossible to match that data with their owner. Thus only you know your data. Blockchain is a revolution regarding the security matters.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?

No, ethics is not affected in a bad way but on a good way. But the exact opposite that ethics issues are being resolved with blockchain.

Question 14. There are political issues implementing this technology, can you address some political issues.

Globalization is number one. Because of the common platform. Like the European project of electronical identity in Europe, which is a bug thing because there is no one centralized body. So again they will be, some political issues of control from the governments. The main concerns is that there are gaps between the regulations which it may create some political issues.

Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

A successful implementation occurs when the organization knows what they need.

Responder 7

Question 1. Have you ever heard of Blockchain Technology ?

Yes

a) If yes have you ever used it in your professional life?

Yes, at the moment.

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?

Yes it makes sense because like you said in the question nowadays Human Resources management is more than used to be and we need to apply this new technology because people want more once one has to be more to have a better approach so it makes sense to attach these recent technology

Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)

We have some technology we use and sometimes we see this and sometimes it is not very precise I don't know what to say is not very easy program and we think okay let's do it the old way and use Excel. It's easier to go to traditional way rather try to find the solution. Human Resources we are not like a big piece of technology experts you know so sometimes when the technology that we bought like one year ago needs like call for maintenance and sometimes you don't have the resources to call someone so we go back to the traditional way.

Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?

I mean I hope so because sometimes I use a site and I think it was mentioned later and it's not very easy, now you have like success factors that using human resources I use it sometimes but it's very difficult user-friendly so if right now I can't imagine I can't see how blockchain can work.

Question 5. How do you implement Blockchain Technology into your company?

I don't know at this moment. We are in the process of do the implementation.

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

Yes I mean I think the most obvious one is like the way we share information and we save information about our employees. About blockchain into HR it's very useful for human resources with all this paperwork they just throw it away but now in the blockchain it is changing.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

Not for all. HR is not only about technology, so technology can never be a solution for all downfall of HRM.

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

I mean I think I'd like a big advantage that's already told you either we can see like the roots and the course of someone professional working but there's another thing that may be a reason in your previous work someone something they didn't work and I think that can be like a stained, like maybe I am looking for your roots and I feel okay, but if you don't have a lot of good reviews and maybe we don't have a good reviews because you have like a hard time your colleagues weren't very nice or something like that and can be like not very good I misunderstood.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?

I think it was like the thing I told you that in the last question I think you have like two things but if I would choose like because you have like your private professional life or even your private life in the blockchain and I think it's fine, from the moment that its your choice.

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

That is more like appreciate for the workers you know if I don't do like a lot of bureaucratic I can use my time to developments and work in another project about like social skills are even training and you know a lot of things in simple terms what you are saying is that if your job is more of you for bureaucratic blockchain will help you finish your work quick care and so you can help a stuffy nose so it's better.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

I think yeah you think you need to be here because right now there's a lot of that's already cutting off like the real touch and the touch the human side and Human Resources. now and one of the most areas that really appreciate this touch and if we just doing our work with the technology and talk to people and even for Recruitment and selection you don't you like the people and you don't talk and you don't do like your interview.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

Yeah I think you but I'm reading a lot sometimes because you have this technology is so what people are going to do so this is like one of my permanent things that makes me scared for the future you know confidentially.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?

I mean I think it's the thing that you have like one technology describing how you doing our recruiting for example and maybe you can lose the you the human thing you know I don't know I mean actually you can have robots very ethical I always about that. I don't know if she liked photo coats you know I want you to do a two accomplishments are because your problems song with some okay I'm going to give you an example. I think so you can understand that question better because of it complicated like European Union wants to make the ID of European people with blockchain technology like nowadays you will not like in 20 years you will not have id. We know you would have a number and with your security code or your fingerprint you will have access to the data and through this way we you can help people can identify people you know something very broad maybe it will never happen will happen another way but it's something that they are thinking of doing because now we've heard a immigration return the refugees get time to implement technology time how to help these but in this matter of the issues. this is not ethical it's not correct you know there are people who you are like characterize people videos of things like we become a number it's a huge thing so some people say it's unethical.

Question 14. There are political issues implementing this technology, can you address some political issues.

There is the need to be supervision and there's no need to be regulation so everyone is doing the right thing

Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

I don't know I never thought I would say I think in the end of the day you need to be you need to do like the right thing.

Responder 8

Question 1. Have you ever heard of Blockchain Technology ?

Yes I've heard about it

a) If yes have you ever used it in your professional life?

I don't think so in my professional life I didn't use blockchain technology OK fair enough OK question to

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?

We are using technology for our different age are areas in the recruitment area we are doing for example group dynamics using a augmented reality it's very interesting we are using some apps for doing it. If in anyway shouldn't feedback process and our we have some learning platforms like they work like streaming platforms for our employees so we are using technology in our different age areas so what's augmented reality it's like virtual reality we are doing some group dynamics this group then dynamic it works with that with that technology very interesting looking for the best candidate.

Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)

Yeah probably, we are using a software for a like a database for our recruitment process is that it's not perfect yet so sometimes I have to use more traditional methods like using Excel.

Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?

I can give you the example of the same software that we are using sometimes I have to understand the software and I have some sometimes some difficulties using the software and being honest I don't know if by using blockchain we can avoid that but probably yes.

Question 5. How do you implement Blockchain Technology into your company?

We are a global company so it has to be an initiative that comes from above and from the biggest countries they have to have this initiative so it's hard for me to answer you this discussion.

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

Sure I think like I said to you I'm not an expert about blockchain technology but What I know I think it can it can be pretty useful for companies in using in HR management.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

What do you mean about HRM downfall like the issue with a lot of papers? But definitely making the correct choice by choosing the correct person because you think it is a possible solution. But not for all.

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

I think this is the most interesting part my point of view of this technology because that is at our days it's very powerful weapon when we talk about my area in HR it's more the talent acquisition the employer branding and I think that is very useful for those areas so I think and then I can track the past I can predict the future so I think I know and I I'm sure that this kind of technology will be very useful in areas and I think tracking systems tracking system for example for our candidates it's very interesting

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?

That's a good question but I think if we have the right use of the technology it's being reinforced. And I think it could be very useful tool to keep data safe I think for what I know about the technology for sure answer that's true because you know the problem with this technology is that what it says it also what people don't believe so it's very amusing for me.

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

Yeah I think if we can make the processes that are using blockchain more efficient I think that all the organizations can benefit from properties used and I think that all types of technology not only blockchain technology should make our job easier and let us do some kind of tasks in some kind of things that we didn't have time to do and technology are making that we have more time to do some new things in spectating technology that can be used for companies. It can be very useful like obviously blockchain technology time is needed and if I have a technology that will give me more time to do some things it will be awesome.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

I have mixed feelings about this but I think that CV scanning is very useful and the for example we receive a lot and a lot a lot of applications so we have to see a lot of CVS so I think CVS scanning is very useful in a first phase. series I don't know if in the first phase we can use a technology that scans and in the second phase we use human touch to see the CVS like i said to you I have some big feelings. The CV scanning in 10 years I think more in five it confirms that the data that the person send are accurate yeah so I can't I cannot say I studied in Harvard in it yeah it's true but I think it will be very useful I know there is some technology that is doing that I can tell that I've made some experiences with some technologies and stay they've worked we as robots reading CVS are PS rapid robotic process Automation sometimes fails.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

It's a good question I think that people will always have a little and I think at our times we think a lot about security and the privacy the confidentiality and I think that when we look at new technologies we will always be a little bit suspicious about the technology and how it works but I believe that that this kind of technology and these new technologies are valuable and they in a right way of using it they are protecting our privacy our confidentiality. When you when you ask security matters and the human touch could never be replaceable that the human touch can be in this matter can be replaceable because humans also fail probably they fell more than machines probably so I think that this new technology doesn't scare me but that at first we tend to have a little being a little bit suspicious about the technology but when we know the better the technology I think will be confidence using it so you think it's a revolution of security matters.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?

An issue with blockchain general is that the EU now is funding a project that they want to make like European ID, that all your data will be there like you show that idea or you say the number of that ID so everything is there and so there are some ethics issues that some people disagree or agree with this matter of having all your data somewhere. I just said that it's today it's everywhere when we have facebook or LinkedIn or Instagram or whatever our information

is everywhere I think that's the problem use of that information how you use it and what form do you use it, if it's not used with the consent for example of people yet ethics issues can be affected but if we know where our data isn't how it's going to be used I don't see any problem enough.

Question 14. There are political issues implementing this technology, can you address some political issues.

I can give you an answer is that EU at least wants to use blockchain technology for people to vote so there will be no fake voting or corruption in voting. I think about that the election process it could be useful for that yeah the right use it would be very useful.

Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

I think that's blockchain is it's very interesting, I think we people have to ask who wants to use or implement blockchain. Where they really need to know a lot about this technology, and has to have a perfect fit about where you want to implement it.

Responder 9

Question 1. Have you ever heard of Blockchain Technology ?

Yes

a) If yes have you ever used it in your professional life?

I never used it in my professional

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?

The more administrative roles more procedural rule can be optimized by the technology and so HR knowing that they are protecting everyone and everything right so technology cannon house and can attach a bit more package to the to the edge of course in the other in the other the other way around be having developments regarding uh training regarding recruitment regarding the culture area of course some of these issues can be filed on technology but in some of them technology is in the facilitator a way.

Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)

Of course only it's technologies have lots of benefits. But one day a file/software crashes and it's better to go around and to use the traditional way.

Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?

It would be interesting to centralize lots of lots of information and once again what the information could be safe we decentralized and in real time it could be. I think it would i be preferable to use blockchain because lots of reasons for verification of identity check the having a direct connection with the with the governmental information that can be accessed or has to be accessed by the company and change and exchange information with these entities. Blockchain is not I mean when I saw in the computer blockchain software on block It's not friendly user for someone that doesn't have very specific knowledge it's a bit hard yet I think nice to have a an interface in to have an interface to be to be used by a user only for a non-specialist.

Question 5. How do you implement Blockchain Technology into your company?

We don't have a specific method in our company.

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

Yes it changed and it cannot imagine the validation of information for each creature page person an and I'm talking about newcomers and I'm talking about already people already in in the in the company it's a matter of having the validation the decentralized validation of the information of uh of the people so one thing again in my area uh instead of doing the background checks very big round shapes we have to work for the candidate.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

Into the processes it could precipitate changing in the in the way it is worth the wait for work in HR so more people are getting and not as much as your procedure or process oriented but of course it won't be enough for all the issues regarding my people.

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

You can have some concerns regarding GDPR issues might come up. The goal is to managed and complying with the GDPR issues that might come up such a mission that can be managed without I fix time frame could be it could be well it is necessary to track data it is necessary to try to strike people see if they are the best people always say they are truthful to the companies and to the entities that they are like even more in this situation thinking about the current situation we are currently having most of the workforce working from home, people that join companies are not going to be a face to face with the managers and I'm going to be fixed by. Most jobs can be done remotely it will be true it will write an issue of trust anti-trust can be uh can be can be till now we of course by having and relying on the good fight of both parties to the company and the person but also from that the press ability.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?

It depends how the organization is using blockchain technology. It is detained by someone that is with that can be responsible for it and can be a train trip back if anything goes wrong.

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

Yes of course of course once again was dealing with paperwork and proving their identity company or having some information about the company given by official entity they could share information would have access directly but by the company so even if you did it would be a benefit procedurally it could be a benefit it could also be a benefit for the perception of the people of the employees regarding the company because nowadays optimization **Question 11.** CV scanning. Do you believe automation at this high level will delete the human touch?

Procedural role validation all of that can be automated and will be automated in the future of course face to face interviews etc need human touch then search for or a video interview but these procedures can be can be automated yeah it's a bit sad but it's true it's true I believe that I know that in a few year's time my job will be totally different must be I want to be interviewing candidates to put a check to some information that people think easy and see what kind of projects they have I know that I will contact that is it's just to add to explain them the culture of the company with without the benefit of working with the company because they are already validated by system in them already so that they are they have some kind of you may have some kind of a project projected date our need and we will do all in the PR yeah that's true it will be not frustrating from your side because the people you will get in touch it will be someone that you already know they have this skills and everything it will optimize once again

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

It doesn't scare me at all. I think it's the head forward because we have to keep in mind that all that forwards are scary at the beginning and or our uh uncertain in the beginning but I'm also sure that having into account the entity European Union concerned yes concerns regarding the private PM for financial issues information this will comply with those with those regulations and that power our information will be safe, the human touch is not replaceable but it will be transformed instead of being speak into it to become more human.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?

Imagine I went to jail or I did the fraud or something but I changed as a person i went to jail whatsoever and I'm trying to find a new job but my time of what I did will never change. Regarding the ethics once again it depends on the data and who has access to that I guess I think that it would be it would be a concern if the if they do available at all time. I'm sure that there will be some structures that that will create data and won't have access to the other data so once again is technology that decentralized technology yeah it depends redundancy and to create the and to answer to be sure that data is consistent and true in every interaction so it's not necessary to have one entity having access to all of the information.

Question 14. There are political issues implementing this technology, can you address some political issues.

Action and the credibility of someone that it has, I don't know the reports exposed taking that they could be the perception of the of the public and the perception of the political adversaries could be totally different .

Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

I know nothing about the technology behind the concept and from what you read or what you know and needs to be ready.

Responder 10

Question 1. Have you ever heard of Blockchain Technology ?

Yes

a) If yes have you ever used it in your professional life?

Not until now.

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?

I think yes because we are we have much paper and much administrative work and with technology we can solve that.

Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)

Now we work with Excel and it's fine because of our volume of candidates so we have 120 collaborators so there's no there's no that we are not to be company but we are working and evolving and I know technology will solve some problems but for now with Excel we are fine.

Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?

I don't know but now there are some new Futures and it's more user-friendly if you compare blockchain from before.

Question 5. How do you implement Blockchain Technology into your company?

We are not implementing blockchain technology at the moment. But it is in our plans.

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

Recruitment process can be easily from what I could search and yes and maybe the candidate search.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

Maybe yes. But all of it for everything, maybe not because we are dealing with people… There are some things technology is not the solution for .

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

Can't record the past steps of each input in this technology I think it's good because there are some information that we lost information because if some people live their organization they take information with that and we cannot rescue that maybe blockchain will solve.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?

I think that privacy is being reinforced. What I said earlier, what we do not input it doesn't exists. So if we put in blockchain it is because we believe it and its okay, because we know that if you put there it is available for ever.

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

I think so we if we can use it for feedback, then yes.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

I'm not sure if I should apply for the software that the companies have they check on it to see if they have some cute he's already is happening with the series canning butter through blockchain technology that will happen in the highest level like a rather. because when we when we read a CV if the CV doesn't have some things that we want maybe if they can the candidate possibly be good but we don't enter interview. Automation sometimes fails, probably 99% of the cases they are doing a good job so I think it will be a very useful scratch. It's very useful so imagine receiving 1000 CVs for a position and let the technology read them and then it would give me only 100.They said that no it will not give a chance to anyone at some point so I have mixed feelings about that.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

From the moment that this technology is being implemented the first step is that they know that the cv and whatever they say it's true because of the usage of blockchain. The evolution of security matters and that human touch could never be Irreplaceable yes I'm a believer that the resolution of security matters and human touch could never be replaceable because we are dealing with people can I like you I'm going to send you maybe because of the lights of the person's do you are interviewed him that affects the points of view. We tend to have a little being a little bit suspicious about the technology but when we know the better the technology I think will be confidence using it so you think it's a revolution of security matter.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?
I think we are going to have a training on how to deal with blockchain technology and that could cost us time many people but they had to be affected if the company assumes that we are going to have technology that's not the issue and had to ask you. I think not because we are in technology everywhere.
Question 14. There are political issues implementing this technology, can you address some political issues.
I am not sure, but banks and governments will have some issues. So if a company is honest they will not have any issues.
Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.
I think honest and that the information was valid into it because it's will be there forever. so if we would something that's not true there will be redundant. If there is information that's valid and information that's not valid they will find out at some point. So be honest.

Responder 11

Question 1. Have you ever heard of Blockchain Technology ?
Yes
a) If yes have you ever used it in your professional life?
No

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?
Yes so for some situations yes technology of course can help in the administrative facts of the job. So for those administrative and routine tasks it will help.
Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)
I cannot recall any situation. Until now technology never failed me.
Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?
At the company yet we didn't implement it in HR. But I think in the process and tasks would be easier for the users.
Question 5. How do you implement Blockchain Technology into your company?
At the moment I don't know. Me as an HRM I don't know
Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?
Credentials as I know. But again I don't know any practical examples.
Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?
Not all. Some of them, but not all. Bureaucracy will be eliminate.
Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?
It will add value to the managers. When someone has nothing to hide there will not be a problem.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?

Privacy must be kept! As the way I understood there will be created some problems, data of the employees needs to be confidential.

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

From the HR prospective it depends of what is shared. Imagine an employee is having a training and that data cannot be shared of the grades or training. These data cannot be shared. But if we consider that blockchain is like a database and employees can have access also, so it will be on the employees benefits. For instance, from a consultancy perspective when a manager is looking for the customer report an employee who has some specific knowledge or who took some specific training then yes I believe they need access. It's something that could be appreciated and accepted by everyone but again there is always processing information regarding the employees that cannot be shared anyway that's because of personal data.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

For me it's always a tricky question. CV scanning can be done by machines, like selecting CV that have the language of English. But if we think of other types of skills we will always need the human touch. We need to confirm the knowledge that the person says. So CV scanning can be a first screening but not the only one.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

The privacy of the data for me is the biggest concern. I will never trust a technology that I don't know. Privacy must be kept and must be reinforced I think it will be, in case for the areas like HR if they move ahead for sure it will create some problems because also by taking into consideration we need to guarantee that the data are not public are not shared so privacy must always be guaranteed.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?

Sharing the data of the employees will take that to ethical terms. We have to pay attention to control this. For something that may be acceptable for a specific culture may not be in another one. So specific steps must be taken into consideration. So ethical issues may get affected.

Question 14. There are political issues implementing this technology, can you address some political issues.

I don't know how to reply to this question.

Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

The privacy must be the key aspect in the implementation process, the laws that might exists. Regarding the cultures they must be respected. So all these must be taking into consideration because diversity is important.

Responder 12

Question 1. Have you ever heard of Blockchain Technology ?

Yes

a) If yes have you ever used it in your professional life?

Yes, I am a blockchain consultant.

Question 2. HR changed it surface in the last years and became more innovative. Nowadays is not just sick leave, and filing papers. It earn on approach were employees are feeling what customers does and so HRM is more innovate and give the best. Do you think it is oxymoron to attach it with a recent technology?

HR recent technologies but from what you just said it they're having the same path they're having the same path that it's not exactly the same two steps further now it's completely aligned with the new technologies. can give you more examples on artificial intelligence for recruitment to choose specific people around the thousands of people that apply to jobs you have to have a way for example to make it easier.

Question 3. As a manager, have you ever experienced failures with any kind of technology that by the end it was easier to solve in the traditional way? (how they will react with the failure of the technology?)

In a way, yes. For example there was I cannot talk about that in the names but there was a proof of concepts that we have developed in the utilities company in Dubai that will really force the usage of blockchain and in the end it was scaling so much that the technology was not a coping with it and we had to change the technology for a standard technology based on accusations and database

Question 4. A lot of HR software are not that user friendly and they require more particular knowledge on each software separately. By using blockchain technology do you think you can avoid a non-friendly user environment?

I cannot foresee a use case where blockchain that will avoid uh if an unfriendly user environment blockchain for me is more a platform that uh creates trust in the network so the friendliness of the usage

Question 5. How do you implement Blockchain Technology into your company?

We implement the benefits of blockchain using our platform blockchain as a service in software platform we enhance our tools we are a software company.

Question 6. Considering the previous answer, do you feel blockchain technology can change any aspects of HRM?

Using this credentials as a certification it can really change because imagine you can be sure that the people you are hiring they have done exactly what they said and for example when I moved to a country from Portugal to Brazil some years ago and that was when I entered my company and in that movement I had to go to the consulate here, I had to prove all the things that I had in my CV so I had to go to my University I had to go to my ex jobs and then I had to add the stamp there I had to go to the notary they have to put the stamp I had to do some translations just with recipe because they had to trust that the things that I was presenting virtuous. I believe this happened specially when they're moving from country to country and with this kind of technology and this kind of use cases can be completely avoided so it's less expensive for the companies in time in terms of time in the in control and confidence a confidence of course yeah for me it was expensive to do all this stuff yes and for the company if they hired you and everything was fake then they had to get start finding someone else and the whole process from the beginning.

Question 7. Could Blockchain Technology be a possible solution of all HRM downfall?

With a giant HR manager is a lot of paperwork fakes everything think so oh and if he said some activities yes but for all HRM downfall, no.

Question 8. Blockchain Technology is all about data. Data history is available to everyone (it depends what the organization wants). How managers feel knowing a technology amongst them can track all the past steps of each input in this technology?

Let me try to break it yeah it depends what organization wants to managers feels knowing that technology amongst them can track all the best steps of its input or is this in this technology so

this this question is about confidence yeah it's the first step of how like because with blockchain whatever you upload you can never delete it even if you modify it you can find how it was from the beginning even if you change the hash an change someday time change a lot so it will be hard to go through the previous blocks again you can find the how it was started yeah so uh for me this is the main value of blockchain it's the mutability this is the value that blockchain can brings and there's the story from the first moment until the end until the current time of all the intervention in the construction of the nodes all the people all the companies and having that kind of story this is the juice of blockchain and this is how we should we should implement blockchain so from the manager perspective this should be a compelling.

Question 9. Confidentiality: The state of keeping or being kept secret or private. Blockchain Technology: Blockchain provides an append-only immutable ledger – a relatively simple database in which data elements can be added but can never be deleted or modified. Considering this technology, do you think that privacy is being reinforced or the exact opposite?

There is different aspects on blockchain you can have a privacy layer above the blockchain so in a private uh blockchain you can have different views depending on the apps or the developer did develop developments that you do a above the blockchain yeah so you can give different accusations for interveniens that used or consumed information on the blockchain space this is really important specially on the on the enterprise world that nobody can see everything uh so the information is there it's immutable and you can uh you can always uh check the blockchain if some information is real or not but you don't have all the information visible from all the interveniens. for me what is important with blockchain is trust yeah it's not it's not really connected with privacy in my point of view so there is no loss of privacy is not being reinforced because for me privacy is when other people can see your data in directions correct the things that you can see in the blockchain um not the specific data so you are not losing privacy because you can reinforce that with other developments but you are also not reinforcing privacy so this question is also a little bit tricky so just to help you considering this technology do you think that privacy is being reinforced or the exact opposite it's something in the between.

Question 10. HR is the aspect of the organization that is all about the employees. Do you think the employees can benefit from the use of Blockchain Technology ?

Yes from the use case that I gave you it's completely clear from the use case that I said before the employees and not just employees I'm talking about someone that is applying to a job because it afterward they are employees but they will apply to another job or to another position or so in this aspect just this use case or this implementation is giving a lot of benefits to the people to the employees in this case. they are much more agile and they have like a wallet a digital wallet with all the capabilities and that they are constructed constructing or building through the life.

Question 11. CV scanning. Do you believe automation at this high level will delete the human touch?

I get this I believe the human touch will always be there but it can decrease the human intervention, yes in these are in this question that you can grab something and transform it or you can touch to validate yeah so I believe that the last touch with the human will be there but in all the process uh maybe it will not be needed because it can be automated.

Question 12. Does this new-born Technology scares you in matter of privacy, confidentiality or any other aspect? Or are you a believer that this is the revolution of security matters and that human touch could never be irreplaceable.

There's this new blockchain technology sketching matter of privacy it's exactly the opposite of blockchain at the moment is one of the most secure technologies that we have even for confidentiality privacy or well uh so no it doesn't scare me if it would scare me it would be not a good sign in my job. I believe humans at the moment are completely irreplaceable but I would

say 80% of the human tasks could be automatized yeah but there are still human capabilities and I believe they will be there for a long time I cannot say ever because every it's too much the humans have still a lot of impact and they will still a lot of activities or the most important activities on their ends but a lot of activities can be replaced by intelligent technologies and for example these validations.

Question 13. Main barriers in Blockchain Technology implementation, considering technological and H.R aspects. How the ethics issues can be affected?

The reason why blockchain is not worldwide, is a valuable technology it is exactly because people start talking about blockchain from the technological point of view so this is already a road blocker for blockchain technology because it's kind of hard to understand and to accept it within the company for example yeah you normally use blockchain with the specific purpose which is a correct consortium and sometimes for HR it's not easy uh to see the benefit from blockchain or a shared network which is a distributed Ledger .Because it's a new born technology you yet don't know whether would be some consequences that you never thought of it so that there are a lot of issues let's say I don't know if we can use this word because it's you don't know yet what will be some consequences so they arise from the moment that you don't know because it's a new technology but every day that passes even more people and companies are from what I know are start to believe in this technology.

Question 14. There are political issues implementing this technology, can you address some political issues.

A lot of public companies are private companies that the business model is based on validating information. The middle man is everywhere on the financial business like banks for example you have to pay a lot of fees to do the transaction, I don't know why but it's happening a lot everywhere and it takes a lot of time. I cannot see Facebook underlying with the underlying platform is blockchain because uh Facebook is all about it's all about sharing you just have the authorization from the profile but what people go there to share yeah and in blockchain people will not go there to share people will go there to do transactions in a safe way.

Question 15. If you know someone to implement the Blockchain Technology, what advices should you provide in order to be successful in the implementation process.

Be aware of the purpose of blockchain what is the fundamentals of blockchain, try to understand exactly why is it used for and what the main advantage is um ends do not never and we have done that a lot sometimes never tried to use blockchain uh just for replacing traditional solutions just because he's an innovative um uh technology yeah so you don't have to be fancy because you are using blockchain because that will not really going to work you have to understand the mode. sharing of information you have to understand the model of constructions uh you don't have to understand the technology beneath because that will be a blocker.