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# Debate on Artificial Intelligence in Hospital Human Resources Management, in the Digital Age (from Theory to Practice)

[1]Jose Rascão , [2]Maria Beatriz Marques
[1]*Polytechnic University of Setubal Graduate School of Business Sciences*
[2]*Faculty of Letters/ CITCEM / CEGOT University of Coimbra*

**ABSTRACT :** Hospital Human Resources Management (HRM) is a fundamental social aspect in the quality of patient care. Hospital care is complex, since there are many specialists and not only, who provide integrated care in health care. Hospital Human Resources (HRH) consists of health workers (doctors, nurses, midwives, laboratory analysts, pharmacists), human resources not related to health, but necessary, in addition to the overall and administrative management (administrative staff, records of medical acts, accounting and management), as well as other support personnel, such as cleaning staff, security guards, maintenance of medical and other infrastructures and equipment, management of parking space and helpers in general.
The quality of health services is dependent on the competence of the personnel involved, the capacity and quality of the material and technological infrastructures and above all on the motivation for the work of health workers and others, and which is influenced by the amount of income earned (basic salary, allowances for medical acts and other benefits).
Artificial Intelligence (AI) is increasing enormously in all fields. Organizations are starting to use AI by exploiting its ability to exploit the level of effectiveness, efficiency and productivity of their Human Resources (HR). All organizations are interested in following the technological evolution, in order to face the competitive world and bet on sustainable growth, in this complex and turbulent society, in the Digital Age.

***KEYWORDS****: Human Resource Management, Artificial Intelligence, Implementation, Benefits of AI in Hospitals.*

## I. INTRODUCTION

The concept of health has undergone a great evolution in the last 100 years, from different visions of the world, in a social and historical construction, starting from the simple concept of absence of disease to a broader concept with several dimensions, such as biological, behavioral, social, environmental, political and economic.
The World Health Organization has defined the concept of health as: "*a state of complete physical, mental, and social well-being, and does not consist only in the absence of disease or infirmity*." (WHO, 1946).
Health and illness are something more than biological phenomena, so care, control mechanisms and cures have taken on relevant dimensions in the history of health and disease [...] and the health-disease process concerns not only the healthiness or unhealthiness of countries, but is revealing, constituting and forming crucial aspects of modernity and social history, politics, intellectual and culture.
Globalization has brought countries / continents closer together and favors a discussion about health conditions, which allow working health policies for all. Of course, all the achievements of transforming thinking around health are events that marked and allowed history to take place, in this way. However, it is concluded that there is still much to improve, because every day there is a need to elaborate health policies, to improve the deficiencies that are noted in current medical care, in terms of material, technological and human conditions.
Hospital management requires special attention, namely human resources management (HR), consisting of various types of professionals: health, not related to health, but necessary, support staff and material and technological infrastructures, in sufficient quantity and quality for the provision of quality health services for the social well-being of populations.

## II. SCIENTIFIC METHOD

This is an exploratory study that seeks to organize the concepts about the Global Management of Hospital Human Resources in the Digital Age and its meaning presented in the literature of Social Sciences and Business Sciences. It is not a proposal of new terms and concepts, but rather an investigation that allows to identify a common denominator, among the different concepts already indicated in the literature, in a way that allows its

grouping by identity, application / use and pertinence / aggregation of value in the context, in which the terms are inserted. The data collection is characterized by bibliographic research, on the terms and concepts referring to the different scientific fields.

It is a descriptive and analytical approach seeking to know and analyze the existing cultural and / or scientific contributions on this subject, from the literature review. The research was structured based on the systemic approach to understanding the problems of Globalization (digital society), seeking in practical, operational or application terms, the solution of "real life" problems of hospital organizations and health-related people (directly and indirectly).

ThemeandProblemof Research

According to the methodology proposed by Pagliuso, Cardoso and Spiegel, (2010), some steps are necessary to build a model of hospital management of human resources, ranging from the search for theoretical models considered, as references to hospital management, through a meta management model, intermediate and integrator of references, to the creation of a real hospital management solution that can be effectively used by hospitals (public and private).

Pagliuso, Cardoso and Spiegel, (2010), state that the organizations that have been most successful in adopting multiple reference models and using bridges, to make the models compatible with their cultures and values, are the real management solution / the "identity" of organizations, something that makes each model unique, even if they are used for its creation the same references, of other organizations. In this case, the actual solution of hospital management corresponds to the desirable characteristics for a hospital management system, as well as the workflows to be used by hospitals for the generation, collection, enrichment, evaluation and direction of ideas for implementation.

For Barbieri and Álvares, (2005), the success of a model depends on the conception of that model and the way, how it will be integrated into the hospital management model. In this sense, both the selection of reference models, as well as the bridges provided for in the methodology, as well as the hospital practices inserted in the real management solution seek to increase the chances of success in the implementation of the same, in the hospital, with the implementation of an Artificial Intelligence (AI) Workflow System.

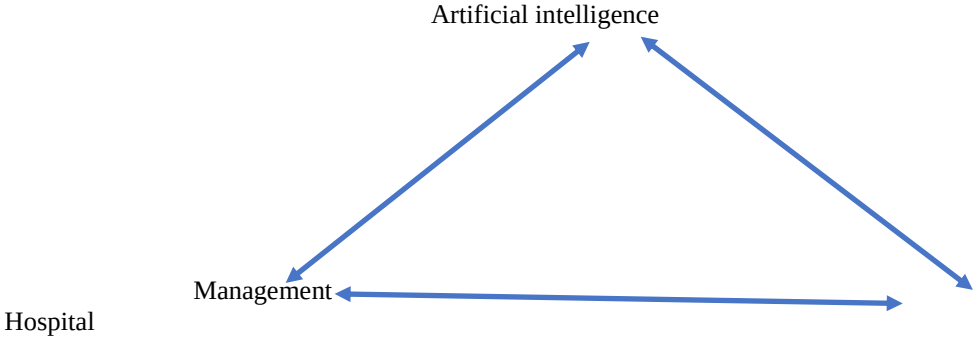
The Digital Age is making the world increasingly dependent on technology, so the application of the same to the area of Hospital Human Resources Management (HRH) is crucial, particularly in the hiring of specialists and others, who have knowledge and skills for the performance of the place to occupy. With technological advances it is possible to automate tasks that were previously performed by humans, so it is essential to reflect and evaluate the potential effects of technology in the area of Hospital Human Resources Management and what advantages it can provide to Managers / Decision-makers.

Artificial intelligence (AI) in HRH has the potential to considerably boost internal workflows and a range of HRH-related tasks, such as hiring (selecting and recruiting) new workers, training, data processing, evaluation, social relationships and talent management. By attracting more talented, qualified candidates and helping current workers progress in performance and productivity, a successful implementation of AI in HRH can boost the effectiveness and overall efficiency of the hospital and improve the quality of services provided.

While hospitals have been progressively integrating AI into their repetitive HRH procedures at varying rates, it is obvious that as the technology gains popularity, it will have a significant impact on the industry. It is critical that HRH professionals understand technology and how it is used in various functions in order to prepare for these changes.

Artificial Intelligence allows us to relate Management and the hospital, with great impact on each other (Figure 1). Digitalisation has a huge impact on reducing costs (with staff, facilities, etc.), improving the quality of services provided, making effective decisions based on recording the real facts. Generalizing, the impact of AI has been having a major effect on workforce management and hospital structure.

Figure 1 – Hospital Structure




Source: adapted from Duchessi, O'Keefe, & O'Leary, 1993

**Questions for discussion**

1. Does AI Improve the Effectiveness and Efficiency of Hospital HR?
2. Does the implementation of a Worflow System (AI) improve the quality of healthcare provided to patients?

## Goals

This study seeks to show the use and purpose of the implementation of Artificial Intelligence in the area of Hospital Human Resources. It is also intended to investigate the beneficial part of Artificial Intelligence, in the search for varied opportunities that it can offer to all managers and hospitals. AI introduces the innovative world of technologies that allow machines to do the massive, repetitive tasks without the intervention of humans. This means that hospitals can use their workers in other jobs, which allows the hospital organization to grow effectively and efficiently. Artificial Intelligence will support the management of Hospital Human Resources, through the collection of facts and the organization of data (stored facts) relevant to the immediate result. AI supportsaves time, human, material, equipment and financial resources (cost reduction).

This research is an exploratory study that highlights the data that explain the application of artificial intelligence inHospital Human Resource Management (HRM). The goal is to provide the details of the areas of Hospital Human Resources, where the AI Workflow system can be applied.

## Methodological Approach

As for its nature, the research is qualitative, since it does not privilege the statistical study. Its focus is to obtain descriptive data, that is, the incidence of topics of interest in fields such as Social Sciences and Business Sciences and other Sciences. About the extremities, the research is exploratory in nature and of a descriptive nature, to the extent that the technique used is categorized, consensually, as a direct documentation study, which provides for the consultation of sources related to the study in different *media*, printed or electronic.

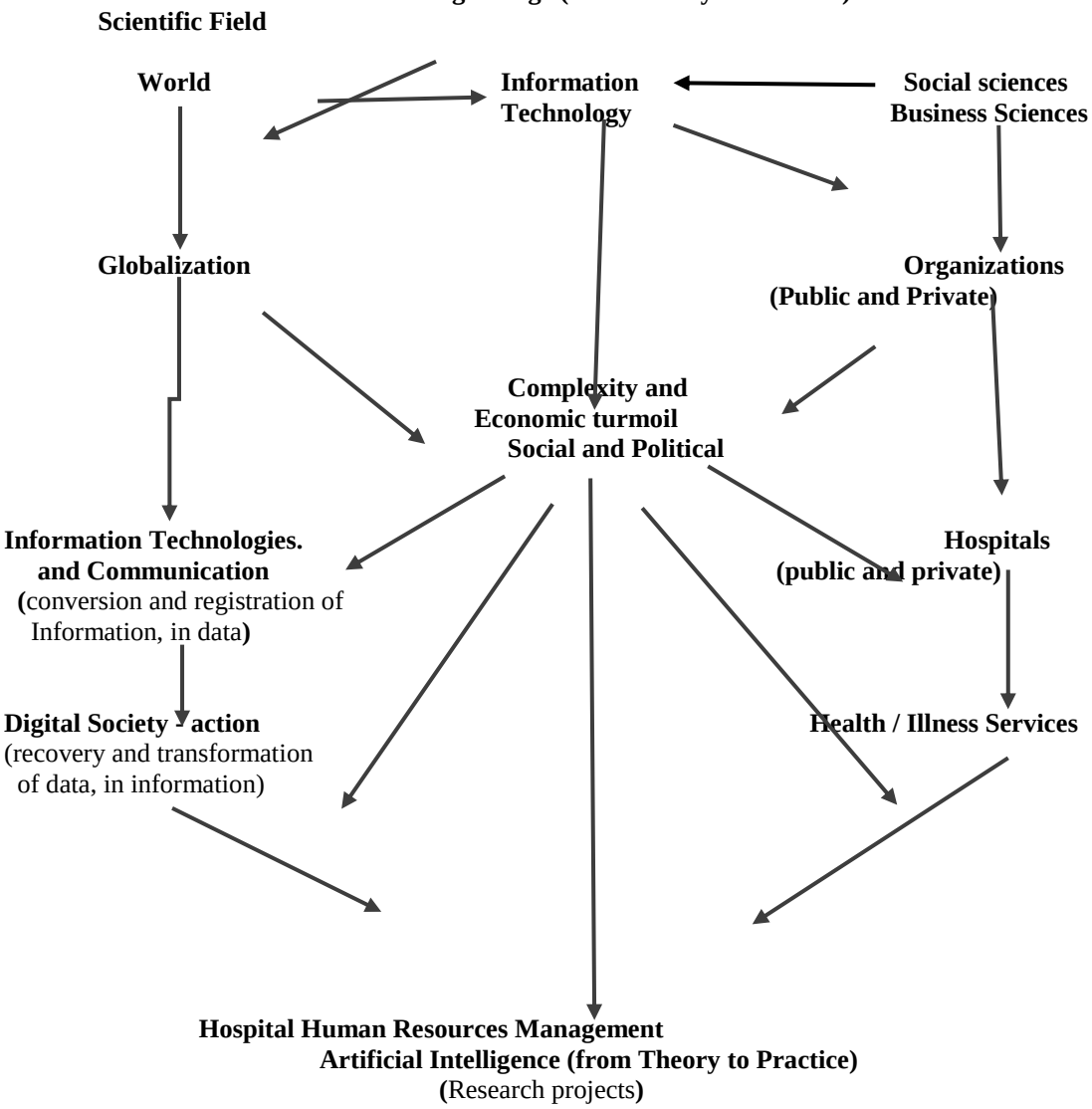
The complexity and turbulence of the digital society have led to the globalization of research, as essential processes for the development and innovation of science and technology. Information is the source of the energy that drives the "*engines*" of the Digital Society, but to be able to use it we need to convert it into a usable form: **knowledge, Murteira, (2001).**

The digital society is a complex society of technological innovation and communication, in which the creation of new environments and changes occur in the dynamics of people, in the way they understand reality, modifying the form, how they relate to the environment, to other people and how they conceive themselves before their own reality. Both senses can be understood, while arising from the informational revolution, promoted, mainly, from the attempts to understand human intelligence, via computational bases. As a consequence, the pre-modern notion of information, as the *in-formation* that gives shape or shapes the human mind, is gradually being replaced by information, as "data structure", Boland, (1987) representing intangible realities too large to be experienced directly by people's sense.

The research method is likely to cause two or more units of measurement and meanings to interact with each other. This interaction can range from the simple communication of ideas to the mutual integration of concepts, epistemology, terminology, methodology, procedures, data and research organization. This is an exploratory study that seeks to clarify and organize the concepts presented in the literature of the different sciences.

It is necessary to understand, through a theoretical review of the concepts, through the historical reference documents; a psychosocial analysis of the concepts of units of measurement and the meanings, applied to the Management of Hospital Human Resources, in the scope of social, economic life and hospital care to people. The research was structured based on the systemic approach, for the understanding of people's problems and possible improvements,in this Complex and Turbulent Society. We represent this conceptual model as follows:

**Figure 2 – Hospital Human Resources Management Model, in the Digital Age (from Theory to Practice)**




Source: author's elaboration

It presents the model of approach for intervention in information actions, in the academic space, with the purpose of production, sharing of information and knowledge, among the participants, in addition to promoting the development of skills of search, retrieval, organization, appropriation, production and dissemination of relevant information for scientific researchers and other interest groups in society, on technological developments.

## III. THEORETICAL-METHODOLOGICAL FRAMEWORK OF RESEARCH

### Social Sciences

#### Introduction

Although thought and reflection on social reality and social relations has been a constant in the history of humanity, from Classical Greece, through the Middle Ages and during the Renaissance, it is only in the nineteenth century that it becomes possible to speak of "social sciences", since it is the set of reflections of this period that, Incorporating Baconian principles and the Cartesian method, it will consist of the form of knowledge historically known as "modern science." If the eighteenth century knew important thinkers of society, such as Montesquieu, Locke, Hume and Rousseau, it is with Auguste Comte that, usually, the beginning of the social sciences is identified.

Comte, a French thinker known as the father of Positivism, proposed to carry out studies on society with the utmost objectivity, in search of universal laws that would govern the behavior of social life everywhere. His theory, also called Social Physics, proposed that all of society evolve in the same way and in the same direction. And so he proposed the Law of the Three States, according to which every society evolves from a theological or

fictitious state, to a metaphysical or abstract state, and from there, finally, to a positive or scientific state, Lakatos & Marconi, (1999, p. 45-46). Comte's Social Physics provides the theoretical foundation for a process that had already been happening in Europe two centuries earlier, a process by which "the calculus of probabilities, whose foundations are laid by Pascal and Huyghes around 1660, becomes a new form of objectification of human societies", Mattelart, (2002, p. 18).

It developed with the mathematical sociology of the Belgian Adolphe Quételet, the probabilistic theories, the application of statistics in the management of societies and the anthropometry of Alphonse Bertillon. In a direction only partially different, since its direct influence comes from Darwin's work on the evolution of species, the Englishman Herbert Spencer begins, at the same time, Social Biology, Lakatos & Marconi, Araújo, (1999, p. 47).

From the reflections on the division of labor (Smith & Stuart Mill), the models of material flows in social groupings (Quesnay, Babbage) and the theorization on networks (Saint-Simon), Spencer elaborates the organizational model of understanding social reality, promoting an analogy between society and a living organism, with the parts performing functions, for the proper functioning of the whole. Among the various impacts caused by this theoretical model is the foundation of the doctrine of Social Darwinism, which justified the European colonizing action in the nineteenth century in Africa and Asia, the elaboration of the Psychology of Crowds (Sighele, Le Bon) and the use, in the social sciences, of various terms and concepts "borrowed" from biology (isolation, contact, cooperation, competition and others).

The synthesis between the two pioneering theorizations and their systematization in a body of "sociological" knowledge were carried out by Émile Durkheim, "French, considered by many scholars the founder of sociology, as a science independent of the other social sciences", Lakatos & Marconi, (1999, p. 48). His proposal to consider social facts as "things" and a radical empiricism are in perfect harmony with the positivist spirit. His idea of "primitive societies" and "complex societies" takes up both elements of the Law of the Three States and Spencer's biological perspective, which is not taken without criticism. His study of suicide is the application of the rules of the sociological method defined by him two years earlier: the exclusion of individual and psychological causes, the search for properly social causes, the elaboration of laws and quantification.

## Sociology

With Durkheim, the Functionalist Sociology is inaugurated, also known as the Theory of Integration, which sees society as a whole formed by constituent, differentiated and interdependent parts. The study of society must always be carried out from the point of view of the functions of its units. In the twentieth century, Functionalist Sociology developed and became the "*strong program*" of the social sciences, mainly with the works of Talcott Parsons (Harvard University), Robert Merton and Paul Lazarsfeld (Columbia University), inspiring the other social sciences, such as anthropology, political science and communication.

This is the trend of structured sociology courses throughout the century, the nature of the first professional associations, and the type of research funded by major foundations and government agencies. The first major split experienced in the social sciences originates in the Hegelian dialectic, taken up by Marx for the understanding of social reality, Demo, (1989, p. 88). Applied to social life, dialectical thinking, which operates with the unity of opposites, sees social life from the assumption of social conflict, realizing that "all social formation is sufficiently contradictory to be historically surmountable", Demo, (1989, p. 89-90). Also known as the Theory of Conflict, the Marxist perspective is the first model proper to the social sciences – since functionalism has its concepts and methods borrowed from physics and biology – although an approximation with philosophy has been built.

Another approach from the social sciences places a whole range of new concepts and objects to be studied: domination, ideology, alienation, reification. Its application, throughout the twentieth century, contributed to the construction of different perspectives: the Critical Theory of the Frankfurt School, the Theory of Dependence, the Theory of Cultural Imperialism, the Gramscian Political Theory, and, even in the United States, has in the formulations of Wright Mills a sympathizer of the "critical" posture in opposition to the "sociology of bureaucrat or intelligence official", that is, to the positivist and functionalist social sciences.

## Structuralism

Structuralism, which is often identified as a third approach to the social sciences, Demo, (1989, p. 171) can actually be understood as a specific perspective that actually constitutes manifestations of both functionalism and Marxism, as exemplified by the works of Manilowski, Radcliffe-Brown and even Parsons' "structural-functionalism", in the first case, or the works of Levi-Strauss & Althusser, in the second.

The second split in the social sciences occurred from the fusion of the works of two other precursors of the social sciences – Max Weber and Georg Simmel – both German. Weber is regarded as the founder of Interpretive Sociology or Comprehensive Sociology, in that he formulates the concept of social action, which is the action of the individual, endowed with meaning for him – in that it differs radically from the concept of social fact in Durkheim. His work on *the Protestant Ethic and the Spirit of Capitalism* seeks to explain the development of capitalism in the United States, not from the idea of the linear progress of societies or the

functions of each part in the whole (functionalism) or the material, economic conditions, or class conflict arising from the distribution of modes of production (Marxism), but from the "spirit of capitalism", that is, from the *ethos*, from the atmosphere of values of a given population, from the beliefs and meanings attributed to their actions.

Simmel, on the other hand, proposed the study of social relations from the small daily interactions, originating a field known as microsociology. The importance of his works will be given at the beginning of the century, with the research of the Chicago School. One of its representatives, Robert Park, takes the city as a "social laboratory", installing a method of study in which subjects cannot be studied outside their environment. Ernest Burgess, in the same vein, carries out work in "social ecology" from an ethnographic perspective. The first major attempt at synthesis between the two possibilities of understanding social reality (the focus on the micro dimension and the interpretive attitude of the subjects) was achieved by Symbolic Interactionism, a current that brought together researchers from different schools whose precursor is George Herbert Mead. One of his students, Herbert Blumer, coined the term in 1937, publishing in 1969 his three basic assumptions:

- Human behavior is based on the meanings of the world.
- The source of meanings is social interaction.
- The use of meanings occurs through a process of interpretation (Blumer, 1980).

Berger &Luckmann, (1985, 1966), addresses the social construction of reality, which is seen not only as a process of construction of objective/subjective/intersubjective reality, in the context of infinite everyday interactions, but also of processes of institutionalization and socialization.

Yet another current, along the same lines, is ethno-methodology, a discipline founded by Harold Garfinkel (1967), which aims to try to understand how individuals see, describe and propose, together, a definition of the situations before which they find themselves, Coulon, (1995). His proposal provoked great controversy against traditional sociology, for criticizing the idea of social fact, as something stable and objective, proposing a vision in which it is understood, as a product of the continuous activity of men. Beginning a whole branch of studies, it spread first to the University of California (Sudnow, Schegloff, Zimmerman), then to the United States (Cicourel), England (Heritage) and France (Fornel, Ogien). If until the 70s, the social sciences found themselves in the clash between "administrative" and "critical" perspectives, Horkheimer, (1983), or in the face of the opposition between "apocalyptic" and "integrated", Eco, (1985). Since that time we have witnessed the growing influence of interpretive and sociological micro currents.

All this movement has provoked, from the 80s, an attempt at synthesis between the different perspectives, their proposals and their concepts. Examples of this work are the Theory of Communicative Action of Jürgen Habermas, the Praxiological Model of Louis Quéré and Pierre Bourdieu, the Reflective Sociology of Anthony Giddens, Scott Lash and Ulrich Beck, the Sociology of Daily Life of Michel de Certeau and Michel Maffesoli, the Cultural Studies descendants of the Birmingham School and which have today in Stuart Hall, Douglas Kellner and Fredric Jameson its main representatives, the proposals of connection with the hermeneutics of Clifford Geertz, among others.

## Fundamental Concepts

### Ethics

According to Du Mont (1991), ethics aims to establish principles of human behavior that help people choose alternative forms of action. These considerations lead to the definitions of ethics and morals, instigating us to refer to deontology as the study of codes or ethics of professions. Targino (2006, p. 135) states that the definitions of ethics originate from the "Greek term ethos, as the etymology suggests, is the part of philosophy that deals with reflection on customs, encompassing the guidelines". While the moral "term of the Latin mores concerns the acts and customs per se, that is, the set of objective norms of conduct, changeable in time and space".

According to Sá (2007), the word ethics is sometimes associated with the sense of morality, but not always in an adequate way. It has also been understood as the science of human conduct towards beings and their fellow men, to study the action of men and their considerations of value. In this research, we emphasize its importance for justice professionals, highlighting ethical action in the context of today's society and, mainly, with regard to their social responsibility.

With a view to the theoretical foundation of the study, we address the theme of professional ethics linked to the code of ethics, studied by deontology that, according to Targino (2006, p.135) "comes from the Greek deontos, duty; logos, speech, or treatise, etymologically equivalent to a treatise or science of duty."

### Social Responsibility

For Du Mont (1991), social responsibility is an ethical concept that involves notions of change, of how human needs should be satisfied. In addition, the author emphasizes the interest in the social dimensions of the information service, which has to do with improving the quality of life. Organizations around the world have considered themselves socially responsible for several decades. Social responsibility gained greater prominence from the 90s, with a greater influence of society, in the media and NGOs, that is, in the organizational world.

Apparently, it felt the need to pass on a positive corporate image, in order to make up for lost time. Although the debates and the concept is widely used, social responsibility is still confused with assistentialism, which assumes a personal character represented by donations or the creation of philanthropic foundations, as Cajazeiras (2006, p. 13) shows, "another conception of social responsibility closely linked to the idea of donation – the philanthropic phase".

Social responsibility goes beyond the paradigm of assistentialism, which in a certain way limits the performance, repercussion, and accompaniment by society. This change stems from industrial advances, globalization and the intense flow of information and technologies, causing the degradation of quality of life, the intensification of environmental problems and the precariousness of labor relations. With this, society began to develop attitudes to solve its problems and the upper echelons to adhere to social responsibility, often pressured by the consumer code.

Thus, the social responsibility of judicial institutions is directed to act in an ethical and transparent way, with attitudes that revert to improvement of the quality of life of the citizens in which they are inserted, mitigating even the environmental problems Veloso, (2006). Acting with social responsibility is not only acting in the marketing of the institution. It is to go beyond interests that aim at personal or group interests, because any institution that considers itself responsible, must have the capacity to meet the interests of the different parties – state, workers, service providers, citizens, community, government, institutions and the environment.

**Leadership**

The concept of leadership can be seen in several perspectives, that is, in the business world, as an environment as characteristic as advertising agencies, this statement shows even more its strength. In the midst of a series of charges, last minute customer requests, route modifications, setbacks in financial management, among other everyday challenges, having a good leader to put everything in order and keep the team active and motivated is essential. In fact, therein lies the difference between a leader and a boss. While the figure of the boss has to do with someone who usually only wants good results, even if for this he has to be imposing and sometimes even cruel, the leader inspires others to do the best they can.

Leadership is considered the ability to motivate, influence, inspire and command a group of people in order to achieve goals. Therefore, the concept refers to a practice that has accompanied humanity throughout history and that has been practiced in corporate environments so that leaders and their teams work towards the same goal. A good leader achieves goals in a light and effective way, without compromising the mental health of those who work alongside him. It's someone who really prepares to be in that position and doesn't hesitate to redo the route if something is negatively compromising the performance.

The leader points the way forward for the people. The nature and exercise of leadership have been the focus of man's research throughout his history. Bernard Bass argues that "since its infancy, the study of history has been the study of leaders, what and why they did what they did." The search for the ideal of the leader is also present in the field of philosophy. Plato, for example, argued in *The Republic* that the ruler needed to be educated with reason, describing his ideal of the "philosopher king." Other examples of philosophers who addressed the topic were Confucius, Lao-Tse, and Sun-Tzu, with their "wise king."

The leadership of a group of people, transforming it into a team that generates results, is called leadership. It is the ability to motivate and influence those led, in an ethical and positive way, so that they contribute voluntarily and enthusiastically to achieve the goals of the team and the organization.

Thus, the leader differs from the boss, who is that person in charge of a task or activity of an organization and who, for this, commands a group of people, having the authority to command and demand obedience. For current managers, not only the skills of the boss are necessary, but especially those of the leader.

According to Chiavenato (1979, p.139) "the concept of social man arose from there, where people are motivated mainly by the need for recognition, social approval and participation in the activities of the social groups where they live".

Chiavenato (1979, p.149) states that "with the advent of the Theory of Human Relations a new language comes to dominate the administrative repertoire: there is now talk of motivation, leadership, communication, informal organization, group dynamics, etc.".

According to Chiavenato (2000, p.88), the Theory of Human Relations verified the influence of leadership on people 's behavior.

The Theories on Leadership, according to Chiavenato (2000, p.89), can be classified into three groups:

- Personality traits. According to this theory, the leader has striking personality characteristics that qualify him for a role.
- Leadership styles. This theory points to four leadership styles: autocratic, participatory, democratic, and liberal.
- Situational leadership (Contingency theory). In this theory, the leader can assume different leadership patterns according to the situation.

Chiavenato further points out that "a trait is a distinctive quality or characteristic of personality. According to this theory, the leader is the one who has some specific personality traits that distinguish him from other people."

Some personality traits that distinguish leaders, according to Chiavenato (2000, p.90):

- "Physical traits: energy, personal appearance, stature and weight;
- Intellectual traits: adaptability, aggressiveness, enthusiasm and self-confidence;
- Social traits: cooperation, interpersonal and administrative skills;
- Task-related traits: drive for achievement, persistence, and initiative."

For Maximiano (2000, p.337): "Leaders have certain personality traits. However, people who possess the same traits are not and do not necessarily become leaders. In addition, to date it has not been possible to identify a set of personality traits common to all leaders."

It was seen, then, that leadership is not private to a privileged few; it can be learned and perfected. There is no formula for becoming a leader. There is, rather, the possibility of the person to develop essential characteristics to the leader through training, courses, and their own experiences.

The theory on leadership styles, in the conception of Chiavenato (2000, p.91-92), studies the possible styles of behavior of the leader in relation to his subordinates. And according to this theory there are three leadership styles:

- "**Autocratic Leadership**: The leader centralizes decisions and imposes his orders on the group. This style usually provokes in the group strong tension, frustration and aggressiveness, on the one hand, and on the other, no spontaneity, no initiative, no formation of friendship groups;
- **Liberal Leadership**: The leader fully delegates decisions to the group and leaves it totally at ease and without any control. This usually causes strong aggressive individualism and little respect for the leader;
- **Democratic Leadership**: The leader leads and guides the group and encourages the democratic participation of the people. Leaders and subordinates often develop spontaneous, frank, and cordial communications. The work develops at a smooth and safe pace, without changes, even when the leader is not present."

For Maximiano (2000, p.347): "The effectiveness of the leadership style depends on its effect on the performance of the task and the satisfaction of the influenced, be it individual or group. If the influencer is satisfied and at the same time performs satisfactorily, then the style is effective."

Thus, depending on the leadership style adopted by the company, there will be people more committed or not to the organizational objectives, in addition to having a climate more conducive to productivity, interaction, etc. In addition, depending on the profile of the employee, if more efficient or responsible, for example, the leader may vary the leadership style adopted, adapting it to the employee or the circumstances.

Second, Franco (2008, p.59) the leader can be: "Centered on production or task: the leader establishes his leadership process from centralization and rigidity, as well as from the personal monitoring of the tasks being performed;

People-centered: receives more consideration from individuals, because it exercises its leadership by encouraging the participation of all in the work process and in the goals to be achieved; This helps ensure high performance, generating a climate of greater trust and respect among leaders and subordinates."

For Franco (2008, p.61-62) three types of leaders are required by companies of the twenty-first century:

- "**Transformational Leader**: He can extract from people more motivation and performance than is expected of them. What's more, this leader turns people into valuable assets for organizations.
- **Charismatic Leader**: he has, in addition to the power to persuade, the power to transform people's lives, in the most interesting and enthusiastic work environment.
- **Leader Trainer**: his satisfaction lies exactly in cultivating people for success and has as a source of inspiration his own ability to develop people and transform them into future leaders or at least provide them with the path to do so."

As it turns out, some theories claim that leaders are born ready, because they have characteristics that differ them from other people. Others, on the other hand, affirm that it is possible to develop leadership and adapt it to situations and people, through different styles. But while one realizes how important it is to know the origins of these studies, they are worthless if the leader doesn't know how to motivate his workers to achieve organizational goals.

### Position, Function, Post

The word position is related to the responsibility of each individual. Public office is the set of duties of a public official. In relation to companies, we can also say that A has the position of director, B has the position of treasurer, etc. The word function highlights the activity performed. Therefore, we can say that A performs the function of director-general, B performs the function of treasurer, etc. The word position is related to the

organizational chart of a public service or a company. It corresponds to the external appearance and the interconnection of civil servants with each other or of the directors and other employees of a company. The words position, function and position are therefore used both in relation to public services and in relation to companies. in Ciberdúvidas da Língua Portuguesa, https://ciberduvidas.iscte-iul.pt/consultorio/perguntas/cargo-funcao-e-posicao/24023 [accessed 2023-06-01].

### Hospital

Hospital is an organized entity where there is an activity of provision of health services that involves human resources, materials and various technologies, with the objective of providing health services to the populations. Thedefiningcharacteristicsof a hospital are as follows:

1. It is an autonomous service delivery unit.
2. It uses the work of several people (health specialist, not health specialists and other complementary ones.
3. Its activity is motivated by the provision of a quality service (public hospitals are not for profit, unlike private hospitals), but both with the aim of being sustainable.
4. Possessing various forms and capital (public, private, or mixed).

Hospital Human Resources have a very specific set of knowledge and skills that determine the possibilities of working in teams, developing new services / specialties, etc.

Hospital structures refer to the organizational system, procedures, databases, and ultimately everything that makes up the organizational structure. The organizational elements refer to the structure of the hospital, that is, an organization appropriate to a set of rules / norms that coordinate the human, material, financial, and informational means, aimed at obtaining a quality health service, at the lowest cost.

An organization does not live in isolation, it lives in a turbulent and complex environment consisting of organizations with multiple activities, in which some of them have commercial relations with hospitals, that is, they sell products, technologies and services, necessary for the activity of Hospitals. In short, it buys products, technologies and services to consume internally. The global environment consists of different elements: the culture of society, the available technology, the political and legal systems, nature, demography, the socio-economic environment and a **specific or immediate** environment composed of other elements: patients (customers), suppliers, competitors (private, public and mixed hospitals) and potential competitors.

### Supply Chain

Second, Mentzer (2001), there are several definitions of Supply Chain in the literature and based on the various definitions, states that the supply chain consists of a set of three or more companies directly linked by one or more upstream and downstream flows of products, services, finance, and information, from a source and to a customer.

This group of companies (raw materials, component producers, assembly lines, wholesalers, retailers, etc.) are involved in the manufacture of products and/or services and in bringing those same products and/or services to customers. This more 'traditional' view of the Supply Chain is represented by a *pipeline* (see fig. 2) emphasizing the flow of products/services throughout the system.

**Figure 3 - Simple Illustration of the Supply Chain**

**Suppliers -- Purchasing -- → Production -- Distribution→-- Customers→→ --→ Users**

Source: Adapted from Rushton, A., Oxley, J., Croucher, P. .(2000)*The Handbook of Logistics and Distribution Management*. London: The Institute of Logistics and Transport

Christopher, , makes an important contribution to its definition by presenting the supply chain as "a network of organizations that are involved, through upstream and downstream links, in different processes and activities that produce value in the form of products and/or services for the final consumer. It states that the word 'chain' should be replaced by the word 'network', since the supply chain is normally made up of a complex network of upstream and downstream participants.(1998, p. 15)

### Logistics

**Goods**

It is an indispensable condition for management to identify the set of raw materials and subsidiaries that are used in the manufacture of each product and also the ability to optimize the structure of each of them. The information associated with the products is at the heart of the nomenclature.

A product is identified by its number and name and by other complementary information, such as the unit of movement, the family to which it belongs, etc. A raw material and/or subsidiary, a purchased or manufactured part, a subassembly that goes into the manufacture of another product, are called components.

**Shopping**

Purchasing management ranges from the choice of supplier to the entry of supplies into the organization, so the order must meet the needs and requirements of customers, with regard to quality, quantity, deadlines, costs, among other requirements, in addition to involving a high volume of resources. The person responsible for

purchasing in the organization is responsible for the acquisition of materials in the desired quantity and quality, in the necessary time at the best possible price, from the appropriate supplier.

The success of purchasing management is related to the management of orders, aiming at customer satisfaction. Based on strategic information from its potential customers, the organization identifies their needs, developing a partnership relationship. This partnership is developed not only with customers, but with suppliers, who are extremely relevant in obtaining low levels of stock. Through the partnership with suppliers, organizations can negotiate the volume of orders, fractionating the supply in smaller quantities, thus reducing their stocks and satisfying their customers.

**Stocks**

Organizations seek to meet the needs of their customers immediately, making available the desired quantity of product in order to overcome the competition, sometimes implying a high volume of products in stock. Mismanagement of stocks can lead to unnecessary capital investments and consequently the loss of the consumer market. The stock ranges from raw materials, products and parts in process, packaging, finished product, auxiliary, maintenance and office materials, to supplies.

In this way, companies have been seeking to reduce the amount of products in stock, for greater control and management of the same, organizations use increasingly sophisticated systems in order to determine the level of safety of stocks, the quality of the good or service, in addition to the ideal quantity to be purchased.

**Storage**

Storage deals with procedures aimed at the conservation and control of stored goods for later use and distribution. The items, after receipt, are stored in warehouses or distribution centers, which are chosen according to the product to be stored and its quantity, in addition to the distance from the customer and transportation, relating the best cost-benefit for all involved.

The distribution centers can be in their own warehouses, managed by the company, in public warehouses or in contracted warehouses, which combine characteristics of the first, Bowersox and Closs, (2001). The storage management, if well managed, provides the company with greater advantage in terms of cost reduction, travel time and greater agility in serving its customers with quality.

**Distribution**

The distribution process does not refer only to the transport of raw materials or products, it is an activity that encompasses the procedures adopted, the services, the transport of materials and products, in order to satisfy the needs and desires of customers with quality, agility, at the lowest cost.

The steps that make up the distribution channels of the products and materials begin with the customer's order, which is transmitted and processed, then it is separated and transported to the customer to be delivered, consequently if the customer feels satisfied, a cycle will be formed, that is, a relationship of loyalty between the supplier and customer.

**Transport**

Transportation encompasses the different ways of moving materials or products, whether internally or externally. The choice of appropriate transportation is directly related to the quality of services with the customer, varying according to the product, distance and costs.

The transport of products or raw materials occurs through modes that can be road, rail, air, or naval, whose choice considers the cost, the delivery time and the possible variations of adaptability of the respective modalities to the cargo and destination. According to table 1, the types of transport and some of their particularities are identified:

**Table 1 – Typesofmodels**

| TypeofTransportation | Features – Costs |
|---|---|
| **Rail** | **High fixed costs in equipment, terminals, railways; low variable costs.** |
| **Road** | **Low fixed costs and average variable cost (fuel, tires, maintenance).** |
| **Waterway** | **Medium-high fixed cost (ships and equipment) and low variable cost (ability to transport large quantities).** |
| **Channels** | **Higher fixed costs (access rights, canal construction) and lower variable cost.** |
| **Airway** | **High fixed cost (aircraft) and high variable cost (fuel, labor, maintenance).** |

**Source: adapted from ADM Brasil – Logistic, 2005.**

Fleury, (2000), classifies the modes of transport according to the cost structure, and the rail modal has high fixed costs and a low variable cost; the road modal has low fixed costs and an average variable cost; The waterway has an average fixed cost and a low variable cost.

**Hospital Logistics**

According to the Council of Supply Chain Management Professionals, "Logistics is a part of supply chain management that plans, implements and controls the flows and efficient and economical storage of the products

necessary for their operation and the information they "carry", from the point of view, of internal consumption to meet the needs of their patients (customers), Carvalho, (2002, p. 31).

According to the Value Chain, Porter (1985), logistics is composed of primary activities (transportation, stock management, order processing and information systems for management), which have fundamental importance in reducing costs and maximizing the level of services. The other activities (storage, material handling, packaging, supplies, planning, and information and communication technologies) are considered support activities, as they support the primary activities in order to satisfy and maintain customers (patients).

Coyle (1992) defined the mission of logistics as: "ensuring the availability of the right product, in the right quantity, in the right conditions, in the right place, at the right time, for the right customer, and at the right cost." One of the goals of logistics is to increase the degree of customer (patient) satisfaction.

Hospital Logistics Management is the part of the management of the value chain, Porter, (1985), which plans, implements and controls in an efficient and effective way the direct and reverse flows, the storage of goods, services and related information between the point of origin and the point of consumption, in order to find the requirements of customers (patients).

Logistics is responsible for the integration and synchrony between three flows: the physical, the financial and the informational. In this way, through logistics it is possible to ensure customer satisfaction (patient) over time, in a chain from suppliers, transport, distributors, customers (patients), flow of materials and hospital technology, recovery and recycling, information flow, financial flow and human resources.

**Reverse Logistics**

Hospital reverse logistics is a branch of logistics that refers to the movement of a certain product (e.g. Covid-19 vaccines), from the point where it was consumed to the point where it was produced. The collection of some types of recyclable waste (such as plastic bottles) is one of the examples of reverse logistics. Another example of reverse logistics can be seen at the return service for unconsumed Covid-19 vaccines. Reverse logistics aims to reuse some solid waste, reducing the need to use raw materials, consequently reducing the environmental impact.

**Integrated Logistics**

The concept of integrated logistics refers to an integration of hospital logistics processes into systems that increase the efficiency of hospitals, improving their results. Integrated hospital logistics should address the cost of storing the materials used in providing healthcare to patients. The efficient management of hospital logistics is increasingly important in the current context of global health, where patients are increasingly demanding. It is for this reason that integrated hospital logistics takes on a crucial dimension in hospitals.

Currently, hospital logistics is a department responsible for the management of materials, equipment and services, whether of any kind. It is an area that has grown a lot, since hospitals increasingly seek the quality of their services provided to patients (clients). A hospital can be seen as a series of subsystems related to each other:

**Operationssubsystem**

- **Supply -** Is responsible for the purchase and/or supply of health products and services necessary for the provision of health care to patients. in addition to managing logistics (transport and storage of health products). It carries out activities beyond the storage of health products, stock control, internal movement of health products and medical and paramedical equipment, quality control, etc. It deals with issues related to the forecasting, materialization and management of investments of a physical nature that will be incorporated into the processes of providing medical care.
- **Hospital services -** provide integrated care to patients, including services related to the provision of health care (doctors, nurses, midwives, laboratory analysts, pharmacists), support services and cleaning.
- **Hospital Information and Communication Services** – is responsible for the relationship between hospital patients and community, that is, it provides external information about its patients and health care control of the quality of health care provided (internal and external).

**Financial subsystem**

- **Financing -** It is responsible for obtaining and managing the financial resources necessary for the operation of the hospital (Public – State budget; Private – own revenues; mixed). The financing subsystem is the sustenance of the other functional areas, because without the resources obtained by it it would be impossible to carry out any provision of health care services.
- **Investment -** Analyzes investment decisions for material goods (infrastructures and specialized equipment and technology appropriate to the provision of hospital services, while maintaining financial balance.

**Management andControlSubsystem**

- **Strategic management -** This subsystem is responsible for the planning, organization, and control of the functional subsystems, ensuring that they do not operate independently pursuing their own goals, but in a coordinated way pursuing the objectives of the business system, that is, the Private Hospitals have as

their objective the profit, the Public Hospitals have as objective that the revenues cover the costs. In addition, the management subsystem is responsible for the relationship between the company / organization and its social, economic, and technological surroundings, developing an appropriate strategic plan that can provide the company / organization with a sustainable competitive advantage in the long term.

- **Tactical and operational management -** Organizes the factors of provision of health services to patients, defines the objectives to be achieved, provided that they are compatible with the resources, and controls their execution, that is, manages the supply, the provision of health services and institutional communication with the public (internal and external). And it is responsible for the recruitment, selection, training and motivation of the people in the company / organization. Performs activities such as interviews with candidates, payment of remuneration, performance evaluation and promotions of workers, design and implementation of occupational risk prevention programs, etc.

## Information and Communication Technologies

Currently there is a special moment in the diffusion of technologies, especially observing, as a source, the fields of Information Technologies, Computer Sciences, Management, Economics and Communication. With the offer of emerging technologies, in a list that grows agility, new potentials are generated for existing markets and also the emergence of new markets is enhanced.

Among the technologies driving these phenomena are Big Data, Analytics, Software Robots, Machine Learning, In-Depth Learning (the last two related to the original field of **Artificial Intelligence**), automation via robots, augmented and virtual realities, 3-D printing, application of cryptocurrencies via Blockchain, among several others.

It is possible to assess, in the literature in production and debate today, that emerging technologies constitute factors of expressive movements in the Economy in two ways:

- (1) As drivers of innovations based on business models, thus being important agents of the treatment of information and communication, Davila, Epstein and Shelton, (2007); Knickrehm, (2018).
- (2) As new market sectors by themselves, creating and negotiating opportunities, generating new business segments, Jacob, Belderbos and Gilsing, (2013; Thaddeus *et al.*, (2019).

In the exercise of the first point, we note cases such as the use of analytics *and big data* for qualitative and quantitative studies, associated with marketing strategy decisions. In this aspect, the sampling of profiles and behaviors associated with future and potential users and customers, previously carried out with the use of specific software and processes, are integrated, to implements integrated into the daily life of the citizen, Jamil, Santos and Jamil, (2019). In these processes, the software elements, supported by redesigned databases, according to new theories and adapted to consolidate information from various sources, produce in-depth levels of perception related to the "why" of market agents' decisions, allowing the strategist to effectively construct scenarios.

Evaluating the same technology, McKinsey (2020) describes, in a timely manner, how data analysis, reaching the contextual denomination of "Data Science", currently makes up a segment of opportunities and business generation, in isolation. Considering this scenario, specifically, they go back to the "information services", addressed in some classics of the literature, which precisely defined businesses and public operations linked to the processing and subsequent processing of information for various applications, always with the optics of, by reliably providing the valuable collection, allowing the impulse and promotion of markets and business competitiveness, Tadeu*et al.*, (2019); McKinsey, (2020).

In this way, we perceive the two scenarios where technologies can have an impact, in various aspects, on the Economy. In addition, similar studies could be done, addressing summary examples, such as:

- The use of artificial intelligence machines for applications, for example, in health areas, constituting techniques and tools for streamlining services and exams, implementing machine learning algorithms and in depth, Jamil, Vieira and Xavier, (2019).
- The application of augmented reality instruments and software in the offer of real estate opportunities such as construction, sale and leasing of real estate and in the realization of automotive and aircraft projects.
- Widespread use of service robots, based on machine learning algorithms, associated with the processing of data and information, to perform tasks of first level of care or even repetitive, at the operational level.
- Drive, via 3-D printing of operating machinery in civil construction environments and operational processing lines.
- Use of cryptocurrencies and digital ledgers, as occurs in the bitcoin – Blockchain pair, seeking transparency, immediate and secure communication of records, currently used in logistics and supply chain business modeling components.

There are several immediate impacts of these technologies and their associated uses on facts and economic aspects. Disruption brings with it immediate review of business models, resulting in implications for the organizational structures in use, to the processes already defined, affecting business revenue models and the general communication with the value-adding organizational chain or network, Sultanuzzaman*et al.*, (2019).

In this way, it is possible to foresee repercussions in the proposals of forms of production and productive arrangements, as a whole, eliminating or pressuring links of the chains and networks. In addition, functions and jobs, especially those operational or in consideration of low value addition, are threatened due to lack of standardization, inaccuracy, low productivity or, simply, for reasons of effectiveness, where machines and implements can be offered in such a way that human workers no longer become necessary. It is important to mention that other waves of information technology-based automation preceded similar signals in other eras, such as commercial and banking automation, implementations of operational integration systems (ERPs), the introduction of Web-based services, among others. What assumes significant proportions at this moment is the automation and the speed at which such technologies are deployed, for these substitute purposes, often without effective planning and risks associated with the economic management of national systems.

In the discussion of these impacts, there is a context not yet delimited between benefits and risks, some related, others not. First, in the usual statement that "positions are excluded while others are created". In a superficial way, we see this perspective, where workers who work in operational and repetitive functions, find themselves with jobs and functions threatened by the massive introduction of technologies that even offer the same results, with advantages related to economies of scale and incremental levels of operational productivity.

In other scenarios, such as those of Medicine, for example, it is discussed whether certain professions and delegations will be maintained, or will have revised attributions, due to automatic diagnoses, procedures performed at a distance and others, in what can be affirmed, such as the advancement of Telemedicine. The impacts here are potentially sensitive to the review of professional curricula and their relationships to the methodological definitions of ongoing procedures.

The situation of automated, self-crewed robot vehicles demonstrates how these technologies can offer potential disruptions in markets with economic implications. On the one hand, there are expectations and possible consumer pleasure, by having an automated transport for people and cargo, with precision and predictability, as well as decreasing costs. In addition, there is also the possibility of reducing traffic jams, transport times and emission of polluting gases, with less loss of efficiency in transport. On the other hand, the existence of automated cars brings, with it, the threats of digital security, in case systems with low securitization allow the invasion of their processing environments by criminals. Also the occurrences of some – in fact, few, but expressive – accidents, stem from additional concern in demonstrating that such automatic systems are not infallible.

The auto industry, on the other hand, still shows some impasse in the adoption of new business models, in response to this growing intervention predominantly of technology. Assembly companies invest in car-sharing models, prototypes of self-manned cars and new forms of transportation, appearing to be a forced movement of strategic differentiation, which brings with it severe management risks.

For the effectiveness of organizational management, emerging technologies represent consistent revenue models and associated costs, among other factors, Hoffman, (2016). In this way, the real scope of the offer of these resources are still of perception considered unstable, in tests and constant learning, Tadeu*et al.*, (2019).

In addition, when evaluating the proposition of the "sharing economy", a factor very much based on the existence of new technologies, the application of machine learning and the use of analytics to build data models, aiming at capturing customers, in the use of mobile application platforms, which are easy to disseminate and aggregate by users and, From agility in analyzing data on consumer reactions, the sharing economy is advancing rapidly in various sectors. Currently, it is noticed, in addition to the already known cases of urban passenger transport – Hoffman, (2016) – the models of housing, entertainment, education and tourism. However, the economic consequences of these offers eventually have repercussions in misunderstood results or even difficult to analyze by managers, bringing uncertainties, risks and lack of coordination in the advancement of competitiveness.

This brief description seeks to illustrate perceptible impacts, contours in delimitation, some degree of risky level of ignorance, uncertainties associated with immediate benefits, in the adoption of emerging technologies for market solutions today. Whether they will be punctual, as effective instruments of agility for one sector or another of the economy, or may become a means of precariousness of social institutes, impacting economic models, it is still unsafe to say. What is certain is that such technological offerings do not seem to have retreat, remaining and advancing in our day-to-day.

### Artificial Intelligence

Artificial intelligence (AI) has been gaining ground in organizations. They are using their potential to improve their efficiency and productivity. All organizations face the competitive world and for this they develop their Workflow system.

The need to carry out the highest quality of work processes in health,digital HRM was developed through the application of Artificial Intelligence. The use of this technology only in HRM does not benefit the improvement of the quality of health services, so it is important to extend the use of AI to all areas of Human Resources management.

Artificial Intelligence will supportthe management of human resources, in the collection, organization, systematization and consultation of relevant data for immediate use. Therefore, AI support saves timeand performs fast and efficiently. It also reduces the cost of performingvarious activities.

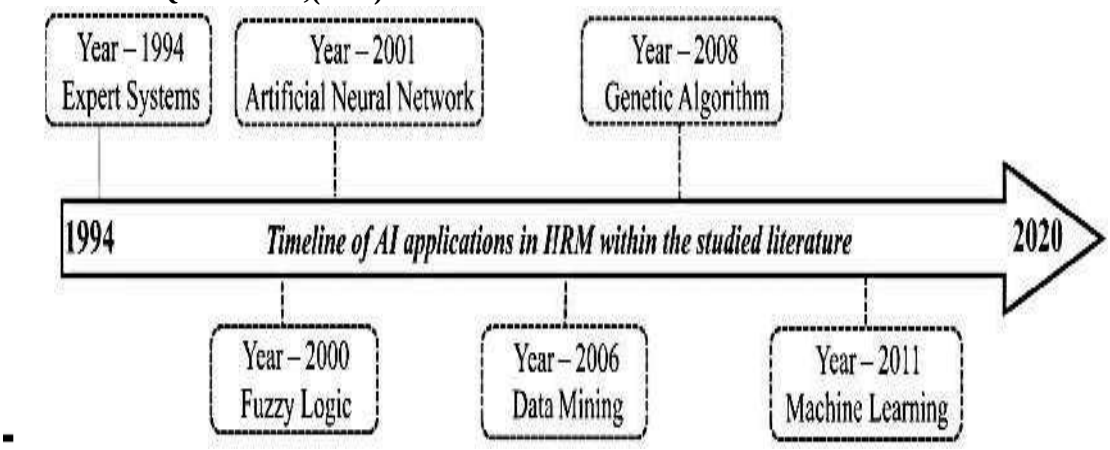
Human resource management (HRM) is more crucial than ever, particularly with an emphasis on hiring new people who will add experience and knowledge to an organization/hospital. With advances in technology it also allows you to automate tasks that required humans to complete in the past. Therefore, it is essential to think about and evaluate the potential effects of technology on HRM, especially with regard to the hiring process.

Artificial intelligence (AI) in HR has the potential to greatly boost internal workflows and a range of HR-related tasks such as data processing, hiring new workers, onboarding, evaluation, performance recording and talent management. By attracting more talented, qualified candidates and helping current workers improve their performance, a successful deployment of AI in HR can boost the overall efficiency of the organization/hospital.

**Yusra Qamar *et*af;(2020),** studied the unique feature of AI and its application in HRM. This intelligence is the data that can be expertly interpreted to achieve leading results with evolving technology. It depends on the thoughts and instinct of the HR function. AI's connection to HR will be explored when its role is placed in appropriate locations at various decision-making levels. While AI provides simple and comprehensive solutions for HR functions, it is basically human intelligence that collects, reads, and interprets all the data.

**Figure 4 - Evolution of Artificial Intelligence**

Source: **Yusra Qamar *et* AF;(2020)**




**Owais Ahmed, (2018), points out**that artificial intelligence is the machine that demonstrates its intelligence. Artificial intelligence is defined as the ability of a computer system (software) to learn, correct and interpret data and use it to succeed in tasks and achieve a certain goal, adapting them flexibly.

**Owais Ahmed, (2018),** explains that "AI is classified into three different categories of systems. They are analytical systems. Humanoid Artificial Intelligence and human-inspired systems. These systems show emotional, cognitive, and social intelligence according to their expertise, which helps analyze self-awareness and interactive communication with others."

## IV. ELEMENTS FOR DEBATE ON ARTIFICIAL INTELLIGENCE IN THE MANAGEMENT OF HOSPITAL HUMAN RESOURCES

### Base elements

### International Labor Organization (ILO)

The International Labor Organization (ILO), created in 1919, is responsible for the formulation and application of international labor standards, being the only United Nations agency with a tripartite structure, composed of representatives of governments and employers' and workers' organizations.

The ILO's mission is social justice and internationally recognized human and labor rights, promoting, through the Decent Work Agenda, respect for rights at work (in particular, freedom of association and effective recognition of the right to collective bargaining; the elimination of all forms of forced labor; the effective abolition of child labor; the elimination of all forms of discrimination in matters of employment and occupation), the promotion of productive and quality employment, the extension of social protection and the strengthening of social dialogue.

Portugal is among the founding members of the ILO and participates in the International Labour Conference, ensuring that DGERT constitutes the Portuguese delegation. DGERT also provides technical support to the obligations arising for Portugal as a member of the ILO, being responsible for (i) preparing the submission to the Assembly of the Republic of the adopted international labor instruments; (ii) conducting feasibility studies for the ratification of conventions; (iii) the preparation of reports and responses to questionnaires concerning the application of international labor instruments.

### Hospital Structure / Organization

In recent years technology has been having an impact on various functions of human resource management, in the form of digitalization. The role of AI in HR is to facilitate management and help solve future and current challenges for hospital development. AI helps in the processes of recruitment, performance management, internal and external communications, management, and training.

According to Ignat**Kulkov, (2021) and Shivani Pandey, (2021), although AI and HRM are connected to each other and are in focus for many researchers, there are many aspects that need to be explored for future growth. Rana.T. in the** intellectual study of AI highlights the beneficial approach and leading role of AI in HRM. The implementation of AI tools in the HRM system is beneficial for the efficient outcome to overcome the gap in the systems of organizations/hospitals and work intelligently with AI.

The hospital structure was defined by the WHO (World Health Organization) as an integral part of a coordinated health-disease system. Its function is to provide comprehensive assistance with regard to complex treatments for the sake of health and well-being, as well as a better quality of life for citizens.

In this context, the combination of human resources, technology, infrastructure and hospital risk control policies becomes essential for the success of the treatments provided, especially for complex interventions such as cardiac surgeries, so knowing that true safety is synonymous with comfort, it is necessary to concentrate all the efforts and means available to offer more and more comfort and a better and faster recovery to patients.

A good hospital structure can make a difference during the provision of medical care and help save many lives, so it is important to have a quality hospital structure, what are the most relevant aspects and how this differentiates the Hospital. Thus, the public and private hospital structure and organization should consist of specialized Hospitals and generic Hospitals, at national, regional, district and county level, as well as in local Clinical and Health Centers.

### Human resources

The work of patient care involves many skills and as such, it is important to build multidisciplinary teams that, through care and technical knowledge, collaborate for the good and fast recovery of patients. The success of the service depends on the excellence in the reception of patients and their families, as well as for knowing how to inform and guide and, above all, for the close monitoring of the patient throughout the hospitalization and recovery period.

Specialized and/or general hospitals have **health professionals in exclusivity**, such as doctors, nurses, nursing assistants, pharmacists, nutritionists, physiotherapists, hygiene teams, infrastructure and equipment technicians, engineers, among others. All have as their mission the care and the best rehabilitation of the sick.

Following the worldwide trend of the best specialized hospitals have a Heart Team. It is a team of professionals from different specialties involved in the discussion of the best approach for each patient. This committee of physicians offers the guarantee of a more comprehensive and effective approach.

### Infrastructure and Technology

In addition to the competence and professionalism of human resources, the physical structure and the best available technologies always result in more security. This has a positive impact on both patients and medical teams. The permanent technological update is directly related to the best results of a hospital organization.

In addition, a high-level hospital structure, with state-of-the-art resources and operational efficiency, attracts the attention of health professionals to work on site and reinforces the quality of the team of professionals working in the hospital.

Another factor that deserves attention is the diagnostic and therapeutic support in the hospital structure. Having a laboratory of clinical analysis and microbiology, imaging tests, among other resources, contributes to the success of surgeries, in addition to enabling the proper and safe conduct of procedures and offering safety and tranquility to patients.

Conduct protocols, actions to prevent hospital infection and control of resistant microorganisms should be a priority in the hospital organization. Although some surgeries are considered clean and low risk of infection, caution should remain.

The World Health Organization (WHO) considers hospital infection rates of up to 5% to be acceptable. The result is due to a continuous work of prevention of hospital infection. It includes actions to monitor and audit internal processes in accordance with SCIH standards, and the world's best practices of prevention and patient safety, certified and internationally accredited.

Thus, the hospital structure plays a fundamental role in the success of surgeries. Having the support of equipment and technology, and the competence of a team of specialized and dedicated professionals, makes all the difference.

**Artificial intelligence**

**Philosophical premises**

Although research into artificial intelligence began in 1956, its philosophical roots go deep into the past. The question of whether a machine can think it has a long history. It is closely related to the differences between dualistic and materialistic views. From the point of view of dualism, thought is not material (or at least has no material properties), so the mind cannot be explained with the help of physical concepts alone. On the other hand, materialism says that the mind can be explained physically, thus leaving the possibility of the existence of artificially created minds.

The philosopher, Alfred Iyer, (1936), addressed a common philosophical question about other minds: How do we know that other people have the same conscious experience as we do? In his book Language, Truth and Logic, he proposed an algorithm to recognize a conscious person and an unconscious machine: that it cannot pass one of the empirical tests, according to which the presence or absence of consciousness is determined Swiechowski, (2020). This statement is very similar to the Turing test, but it is not known for certain whether Iyer's popular philosophical classics were known to Turing.

Although more than 50 years have passed, the Turing test has not lost its meaning. But currently, artificial intelligence researchers are hardly committed to solving the problem of passing the Turing test, believing that it is far more important to study the fundamental principles of intelligence than to duplicate one of the carriers of natural intelligence. In particular, the problem of "artificial flight" was only successfully solved after the Wright brothers and other researchers stopped imitating birds and began studying aerodynamics. In scientific and technical work on aeronautics, the objective of this area of knowledge is not defined as "the creation of machines that, in their flight, resemble pigeons so much that they can even fool real birds."

**Role of Artificial Intelligence (AI)**

Second, Builtin, (2022), artificial intelligence is owned by intelligent systems to perform creative functions that are traditionally considered a person's prerogative (not to be confused with artificial consciousness, IP); science and technology of creating intelligent machines, especially intelligent computer programs.

AI is related to the similar goal of using computers to understand human intelligence, but it is not necessarily limited to biologically plausible methods. Existing intelligent systems currently have quite narrow application areas. For example, programs that can beat a person in chess can't answer questions, etc.

According to Dartmouth, (1956), the definition of artificial intelligence is not directly related to the understanding of intelligence in humans. AI researchers are free to use methods that are not observed in humans if necessary to solve specific problems. He points out that the problem is that we can't determine which computational procedures we want to call intelligent. We understand some of the mechanisms of intelligence and we don't understand the others. Therefore, within the scope of this science, intelligence is understood, only as, the computational component of the ability to achieve goals in the world. At the same time, there is a point of view, according to which, intelligence can only be a biological phenomenon.

In English, the expression artificial intelligence does not have an anthropomorphic connotation: the word intelligence in the context used rather means "the ability to reason" rather than "intelligence" (for which there is an analogue of the intellect. The following definitions of artificial intelligence are given:

- **Scientific direction** - within which the problems of hardware or software modeling of those types of human activity traditionally considered intellectual are defined and solved.
    - **The ownership of intelligent systems to perform (creative) functions** - which are traditionally considered the prerogative of a person. At the same time, an intelligent system is a technical or software system capable of solving problems traditionally considered creative, belonging to a specific area, knowledge about which is stored in the memory of such a system.
    - The structure of an intelligent system includes three main blocks -**a knowledge base, a solver, and an intelligent interface** that allows it to communicate with a computer without special programs for data entry.
- **Direction information technologies** - is the task to recreate intelligent reasoning and actions using computer systems and other artificial devices.
    - The ability of the computer system to correctly interpret external data - to learn from that data and to use the knowledge acquired to achieve specific objectives and objectives through flexible adaptation.

One of the definitions of intelligence, common to humans and "machines", can be formulated as follows: "Intelligence is the ability of a system to create, in the course of self-learning, programs (mainly heuristics) to solve problems of a certain class of complexity and to solve these problems", Horizontes de Negócios, (2019).

Second, Anglin, (1995), the history of artificial intelligence, as a doctrine of the development of modern science and technology for the creation of intelligent machines, has its roots in early philosophical studies of human nature and in the process of knowing the world, later expanded by neurophysiologists and psychologists in the form of a series of theories about the work of the human brain and thought. The modern phase in the development of the science of artificial intelligence is the development of the mathematical theory of computation – the theory of algorithms – and the creation of computers.

As an applied science, "Artificial Intelligence" has both theoretical and experimental parts. In practice, the problem of the creation of "Artificial Intelligence" lies in the intersection of information technologies (software) with computer technology (hardware) and with neurophysiology, cognitive and behavioral psychology. The Philosophy of Artificial Intelligence serves as a theoretical basis, but only with the appearance of significant results has the theory acquired an independent meaning. So far, the theory and practice of "Artificial Intelligence" is distinguished from the mathematical, algorithmic, robotic, physiological, and other theoretical and experimental techniques that have an independent meaning.

The largest number of young innovative companies developing AI are located in the US, Europe, China, Israel, Britain and Canada. Among the companies that have filed the highest number of patents in the field of AI are IBM, Microsoft, Toshiba, Samsung, NEC, Fujitsu, Hitachi, Panasonic, Canon Deutsche Welle, (2019).

## Turing test

The Turing test is an empirical test, which was proposed by Alan Turing in the article "Computing Machines and the Mind", (1950), in the philosophical journal Mind. Turing set out to determine whether a machine can think (The Alan Turing Internet Scrapbook, 1950).

The standard interpretation of this test is as follows: "A person interacts with a computer and a person. Based on the answers to the questions, he must determine who he is talking to a person or a computer program. The task of a computer program is to induce a person to make the wrong choice", Swiechowski, (2020).

All test takers cannot see each other. If the judge cannot say for sure which of the interlocutors is a human being, then the machine is considered to have passed the test. To test the machine's intelligence, rather than its ability to recognize speech, the conversation is conducted in a "text-only" mode, for example, using a keyboard and a screen (intermediate computer). Correspondence should be made at controlled intervals, so that the judge cannot draw conclusions based on the speed of the responses. In Turing's time, computers responded more slowly than humans. Now this rule is also necessary because they react much faster than humans.

Turing has been particularly concerned with the problem of machine intelligence since at least 1941. One of the first mentions of "computer intelligence" was made in 1947. In his "Intelligent Machines" speech, Turing explored the question of whether a machine could detect intelligent behavior, and in that study suggested what could be considered the precursor to his future research: "It is not difficult to design a machine that plays chess well. Now let's take three people—subjects of the experience. A, B, and C. Let A and C not play chess well, and B the machine operator. Two rooms are used, as well as some mechanism for transmitting messages about movements. Competitor C plays with A or a machine. Participant C may have difficulty answering who he is playing with (Turing, 1950)."

Turing began his article with the statement, "I propose to consider the question 'Can machines think?'" It stresses that the traditional approach to this question is first to define the concepts of "machine" and "intelligence". Turing, however, took a different path; Instead, he replaced the original question with another, "which is closely related to the original and is phrased relatively unambiguously." Essentially, it proposes to replace the question "Do machines think?" with the question "Can machines do what we (as thinking creatures) can do?" The advantage of the new question, according to Turing, is that it draws "a clear line between a person's physical and intellectual capacities", Turing, (1950).

In the same report, Turing later proposes an alternative "equivalent" formulation, involving a judge who only speaks to a computer and a person. Although none of these formulations exactly match the version of the Turing test that is best known today, in 1952 the scientist proposed a third. In this version of the test, which Turing discussed on BBC Radio, the jury asks for a computer, and the role of the computer is to make a significant part of the jury believe that it is actually human.

Second, Güzeldere (2008), there are four major turning points in the history of the Turing test:

- The publication of Computing Machines and the Mind in 1950,
- The report on the creation of Eliza by Joseph Weizenbaum in 1966,
- Kenneth Colby's Creation of Parry (1972);
- TuringColloquium in 1990.

Eliza's role is to examine the comments entered by the user for the presence of keywords. If a**keyword** is found, the rule is applied, whereby the user's comment is converted and a **result phrase is returned**. If the keyword is not found, Eliza returns a general response to the user or repeats one of the previous comments. In addition, Weisenbaum programmed Eliza to mimic the behavior of a client-centered therapist. This allows Eliza to "pretend she knows almost nothing about the real world." By using these methods, Weisenbaum's program

could have misled some people who thought they were talking to a real person, and some found it "very difficult to convince Eliza ... who were not human. On this basis, some argue that Eliza is one of the programs (possibly the first) that were able to pass the Turing test. However, this claim is highly controversial, since the people who "ask the questions" were instructed to think that a true psychotherapist would talk to them, and were unaware that they could talk to a computer.

The Parry - has been described as "Eliza with Opinions": the program tried to model the behavior of a paranoid schizophrenic using a similar (if not more advanced) approach. To test the program, Parry was tested in the early '70s using a modification of the Turing test. A team of experienced psychiatrists analyzed a group of real patients and computers controlled by Parry using a TTY. Later, 33 psychiatrists were shown the transcripts of the interviews. Next, both teams were asked to determine which of the "patients" is a human and which is a computer program. Psychiatrists could only make the right decision in 48% of cases. This value is consistent with the probability of random selection. These experiments were not Turing tests in the full sense, since to make a decision, this test requires that questions can be asked interactively, rather than reading the transcript of the past conversation, Güzeldere, (2008).

**Approaches to AI**

The symbolic approach was the first in the era of digital machines, since it was after the creation of Lisp, (the first language for symbolic computing), that allowed to begin in practice to implement these means of intelligence. The symbolic approach allowed him to operate with formalized representations and their meanings. The success and effectiveness of solving new problems depended on the ability to highlight only the essential information, which required flexibility in the methods of abstraction. While an ordinary program establishes one of its ways of interpreting data, it seems biased and purely mechanical. An intellectual problem in this case is only solved by a person, an analyst or a programmer, not knowing how to entrust it to a machine. As a result, a single abstraction model, a system of entities, and constructive algorithms are created.

Second, Haugeland, (1985), computer algebra (as opposed to numerical methods) develops and implements analytical methods for solving mathematical problems in a computer and assumes that the initial data, such as the results of the solution, are formulated in an analytical (symbolic) way. When analyzing a mathematical model, the result can be general and analytical solutions of the formulated mathematical problem and its interpretation.

The logical approach to creating artificial intelligence systems is based on modeling reasoning. The theoretical basis is logic, which can be illustrated using Prolog's language and logic programming system for these purposes. Programs written in the Prolog language represent sets of facts and rules of inference without rigidly specifying an algorithm as a sequence of actions leading to the desired result.

In the early 1990s, the agent-based approach, or the approach based on the use of intelligent (rational) agents, emerged. According to this approach, intelligence is the computational (roughly speaking, planning) part of the ability to achieve the goals set for an intelligent machine. Such a machine itself will be an intelligent agent that perceives the world around it with the help of sensors and is able to influence objects in the environment with the help of executive mechanisms. This approach focuses on the methods and algorithms that will help an intelligent agent survive in the environment while performing its task. An agent is everything that can be considered as perceiving its environment with the help of sensors **and acting in this environment with the help of executive mechanisms, Shoham, (1990).**

Rassel, (1990), defines the concept of an agent, as opposed to a simple object, is endowed with various mental constructions, such as faith, responsibilities and abilities. Therefore, various mental categories will appear in the programming language, and the semantics of programming will be associated with the semantics of mental constructs.

**Relatedconcepts**

- **An object -** A programmatic entity of a certain structure and concretized mechanisms to interact with other objects through the transmission of messages. Messages are formed and sent in response to incoming messages. Messages are generatedby data-drivenprocedures.
- **Actor -** The software essence of a given structure and mechanisms of interaction. Contains data and procedures. It has encapsulation, relationships, inheritance and can generate messages.
- **Agent -** A programmatic entity for performing assigned tasks. It has behavior, namely: it interacts with a complex environment and dynamically in external development, capable of being modified or modified by other agents depending on specific conditions. Interaction means: perception of the dynamics of the environment; actions that change the environment; reasoning to interpret observed phenomena, solve problems, draw conclusions, and determine actions.

Depending on the degree of freedom of the environment, implying the presence of the corresponding type of agent in it, the environments are subdivided into:

- **Closed -** A finite deterministic or probabilistic description of the entire environment, which is known by the agent a priori or through research.
- **Open -** A finite, deterministic, or probabilistic description of the local area of the environment in which the agent is located and in which it knows a priori or resorts to investigation.
- **Transformable -** Environments in dynamic development, the developing structure of which it is the agent.

The hybrid approach assumes that only a synergistic combination of neural and symbolic models achieves the full range of cognitive and computational capabilities. For example, expert inference rules can be generated by neural networks, and generative rules are obtained through statistical learning. Proponents of this approach believe that hybrid systems (software) will be significantly more powerful than the sum of different concepts separately.

**Intelligent hybrid system (HIS)**is generally understood as a system in which more than one method of mimicking human intellectual activity is used to solve a problem. Thus, HIS is a combination of: analytical models, expert systems, artificial neural networks, fuzzy systems, genetic algorithms, statistical simulation models.

Second, Wermter, (2000), the interdisciplinarity of "intelligent hybrid systems" brings together scientists and experts who study the applicability of not one, but of several methods, usually of different classes, to solve control and design problems.

According to Castillo, (2006), the term "intelligent hybrid systems" appeared in 1992. The authors put into it the meaning of hybrids of intelligent methods, such as specialized systems, neural networks, and genetic algorithms. The specialized systems represented symbolic and artificial neural networks and genetic algorithms – adaptive methods of artificial intelligence. However, the term referred to a rather narrow area of integration - expert systems and neural networks. The following are several interpretations of this area of integration according to other authors:

- The "hybrid approach" assumes that only a synergistic combination of neural and symbolic models reaches the full range of cognitive and computational capabilities.
- The term "hybrid" is understood as a system composed of two or more integrated subsystems (software), each of which may have different presentation languages and output methods. The subsystems are combined semantically and in effect with each other.
- Scientists at the Centre for Artificial Intelligence at Cranfield University (England) define a "hybrid integrated system" as a system that uses more than one information technology. In addition, the technologies cover areas such as knowledge-based systems, connection models and databases. The integration of technologies makes it possible to use the individual power of technology to solve specific parts of the problem. The choice of technologies (software) implemented in a hybrid system depends on the specifics of the problem being solved.
- Experts from the University of Sunderland (England), members of the HIS (Hybrid Intelligent Systems) group, define "intelligent hybrid systems" as large and complex systems that seamlessly integrate traditional knowledge and processing. They can provide the ability to store, search, and manipulate traditional data, knowledge, and technologies. Intelligent hybrid systems (software) will be significantly more powerful than extrapolating concepts from existing systems (Negnevitsky, 2005).

The research objectives of HIS include the creation of methods to increase the efficiency, expressive power and inference power of intelligent systems, predominantly more complete, developed with less development effort than applications (software) using autonomous methods. From a fundamental perspective, HIS can help understand cognitive mechanisms and patterns.

**Methods used in AI.**

Without pretending to be exhaustive in its description, some of the main methods used in Artificial Intelligence are presented.

- **Symbolic modelling of thought processes –** Looking at the history of AI, one can highlight an area as extensive as modelling reasoning. For many years, the development of this science has traveled this path, and it is now one of the most developed areas in modern AI. Modelling reasoning implies the creation of symbolic systems, at the input of which a given task is defined, and at the output, its solution is necessary. As a rule, the proposed problem is already formalized, that is, translated into a mathematical form, but either it does not have a solution algorithm, or it is very complicated, time-consuming, etc. This area includes theorem proofing, decision making and game theory, planning and scheduling, prediction, Diakonov, (2009).
- **Working with natural languages -** An important area is natural language processing, which analyzes the possibilities of understanding, processing, and generating texts in "human" language. Within this direction, the goal of such natural language processing is established, which could acquire knowledge

by itself, through the reading of the existing text available on the Internet, Young, (2018). Some direct applications of natural language processing include information retrieval (including deep text analysis) and machine translation.

- **Representation and use of knowledge -** The direction of knowledge engineering combines the tasks of obtaining knowledge from simple information, its systematization and use. This direction is historically associated with the creation of specialized systems – programs that use specialized knowledge bases to draw reliable conclusions about any problem,Gorban, (2015).

The production of knowledge from data is one of the basic problems of data extraction. There are several approaches to solving this problem, including those based on neural network technology, using procedures to verbalize neural networks.

- **Machine learning -** The problem of machine learning concerns the process of independent acquisition of knowledge by an intelligent system in the process of functioning. This direction has been central since the beginning of the development of AI. In 1956, at the Dortmund Summer Conference, Ray Solomon off wrote a paper on the unsupervised probabilistic machine, calling it the "Inductive Inference Machine".
- **Unsupervised learning** - This allows you to recognize patterns in the input stream. Supervised learning also includes classification and regression analysis. Sorting is used to determine which category an image belongs to. Regression analysis is used to find a continuous function on a series of numerical input/output patterns from which the output can be predicted. In training, the agent is rewarded for good answers and punished for bad ones. They can be analyzed from a decision theory perspective using concepts such as utility. The mathematical analysis of machine learning algorithms is a branch of theoretical computer science known as Computational Learning Theory Witten, (2006).

  A large class of image recognition problems belongs to the field of machine learning. For example, this is character recognition, handwriting, speech, text analysis. Many problems are successfully solved using biological modeling. Computer vision is especially of reference, which is also associated with robotics.
- **Biological Simulation of Artificial Intelligence -** It differs from the understanding of artificial intelligence according to John McCarthy when it proceeds from the premise that artificial systems are not obliged to repeat in their structure and to function the structure and processes that occur in it inherent in biological systems. Proponents of this approach believe that the phenomena of human behavior, its ability to learn and adapt is a consequence of the biological structure and characteristics of its functioning (Russell, 2003).

  This includes several areas. Neural networks are used to solve complex and fuzzy problems, such as recognizing geometric shapes or grouping objects. The genetic approach is based on the idea that an algorithm can become more efficient if it contracts better traits from other algorithms ("parents"), Conrad, (2005). A relatively new approach, where the task is to create an autonomous program - an agent that interacts with the external environment, is called an agent-based approach.
- **Robotics -** The fields of robotics and artificial intelligence are closely related to each other. The integration of these two sciences, the creation of intelligent robots, constitutes another direction of AI. Intelligence is needed for robots to manipulate objects, navigate with location problems (locate, study nearby areas), and plan movement (how to get to a target). Examples of intelligent robotics include Pleo robot toys, AIBO, QRIO.
- **Machine Creativity -** The nature of human creativity is even less studied than the nature of intelligence. However, this area exists, and here the problems of computer writing, literary works (often - poems or fairy tales), artistic creations are placed. The creation of realistic images is widely used in the film and gaming industry.

Separately, the study of the problems of technical creativity of artificial intelligence systems is highlighted. The theory of inventive problem solving, proposed in 1946 by G. S. Altshuller, laid the groundwork for such an investigation.

Adding this capability to any intelligent system allows you to clearly demonstrate what exactly the system perceives and how it understands it. Adding noise instead of lack of information or filtering noise with the knowledge available in the system produces concrete images of abstract knowledge that are easily perceived by a person, this is especially useful for intuitive and low-value knowledge, the verification that it is a formal form requires significant mental effort.

There are two directions for the development of AI:

- Solving problems related to the approach of specialized AI systems to human capabilities, and their integration, which is implemented by human nature (improvement of Intellect);
- Creation of artificial intelligence, representing the integration of AI systems already created in a single system capable of solving the problems of humanity (strong and weak artificial intelligence).

But right now, in the realm of artificial intelligence, there is an involvement of many thematic areas that are more of a practical relationship with AI, rather than fundamental. Many approaches have been tried, but no research group has yet addressed the emergence of artificial intelligence. Below are just a few of the most famous developments in the field of AI.

### Notable AI systems

Some of the most famous AI systems are:

- Deep Blue - developed by IBM, defeated the world chess champion. Kasparov's game against the supercomputer brought satisfaction to either computer scientists or chess players, and the system was not recognized by Kasparov. The IBM line of supercomputers then emerged in the bluGene brute force (molecular modeling) and pyramidal cell system modeling projects in Blue Brain, Switzerland Morphy, (2011).
- AlphaGo - developed by Google DeepMind, won a match against the Korean 9 dan pro-Lee Sedol.
- Watson is a promising development from IBM, capable of perceiving human speech and performing probabilistic research using many algorithms. To demonstrate the work, Watson participated in the American game "Jeopardy!"
- MYCIN is one of the first specialized systems that could diagnose a small set of diseases, often as accurately as doctors.
- 20Q - a project based on the ideas of AI, based on the classic game "20 Questions". It became very popular after appearing on the Internet in 20q.net.
- Voice recognition. Systems like Via Voiceare able to serve consumers.
- Robots in the annual RoboCup compete in a streamlined form of football.

Banks use artificial intelligence (AI) systems in insurance (actuarial mathematics), stock exchange trading, and property management. Pattern recognition methods (including the most complex and specialized ones, as well as neural networks) are widely used in optical and acoustic recognition (including text and speech), medical diagnostics, spam filters, in air defense systems (target determination), as well as to ensure various other national security tasks.

Computer game developers use AI to varying degrees of sophistication. This forms the concept of "Game Artificial Intelligence". The standard tasks of AI in games are to find a way into two- or three-dimensional space, mimicking the behavior of a combat unit, calculating the correct economic strategy, and so on.

### Research centers

The largest scientific and research centers in the field of artificial intelligence:

- **United States of America** - the Massachusetts Institute of Technology; the Automatic Intelligence Research Institute
- **Germany** - the German Research Centre for Artificial Intelligence
- **Japan** - the National Institute of Contemporary Industrial Science and Technology (AIST)
- **Russia** - the Scientific Council on the Methodology of Artificial Intelligence of the Russian Academy of Sciences
- **India** - the Indian Institute of Technology in Madras.

### Programming languages.

The first logical programming language was the Planner language, in which the possibility of automatic output of the result from data was established and gave rules for enumerating options (the combination of which was called a plan). The planner was used to reduce computational requirements (using backtracking) and provide the ability to display facts without actively using the stack. Then the Prolog language was developed, which did not require an iteration plan and was, in this sense, a simplification of the Planner language, McCarthy, (1958).

The Planner language also gave rise to the logical programming languages QA-4, Popler, Conniver and QLISP. The programming languages Mercury, Visual Prolog, Oz and Fril descend from the Prolog language. Based on the Planner language, several alternative logic programming languages have been developed that are not based on the backtracking method.

### Agent-based approach

Second, Yoav Shoham, (1990), an approach based on intelligent (rational) agents was developed. With this approach, intelligence is the computational part of the ability to achieve the goals set for an intelligent machine (computer), that is, a computer that perceives the world around it with the help of sensors, being able to influence objects in the external environment with the help of executive mechanisms.

This agent-based approach (hereafter AOP) to programming is a kind of presentation program or programming paradigm, in which the fundamental concepts are the concepts of an agent and its mental behavior, depending on the environment in which it is located. This approach focuses on the methods and algorithms that will help an intelligent agent survive in the environment while performing its algorithm-based task to find a way and make decisions.

This new rational programming from object-oriented programming paradigm, changed the paradigm from writing procedures to the creation of objects, rational programming changed the paradigm from the creation of information objects to the creation of motivated agents (Shoham, 1990). An agent is everything that can be considered as perceiving its environment with the help of sensors and acting in this environment with the help of executive mechanisms.

For Shoham, he understands an agent as a software agent. It is based on the theory of artificial intelligence, the concept of which already existed but was vague, and he sets out to transform it into a more formal application in programming, offering a special framework of AOP. The concept of agent becomes endowed with various mental constructions, such as faith, responsibilities, and skills, appearing several mental categories in the programming language and the semantics of programming will be associated with the semantics of mental constructions.

### Robotic and AI

The fields of robotics and artificial intelligence are closely related to each other. The integration of these two sciences, the creation of intelligent robots, constitutes another direction of AI. Intelligence is needed for robots to manipulate objects, navigate with location problems (locate, study nearby areas), and plan movement (how to get to a target). Examples of intelligent robotics include Pleo robot toys, AIBO, QRIO.

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## Artificial Intelligence in Hospital Human Resources Management

### Introduction

AI technologies have already been adopted by several organizations (public and private) with the aim of contributing to their development, in the hope of making services more effective and responsive. In the context of the United States, a comprehensive study found that 45% of federal agencies had experienced AI by 2020, Engstrom et al., (2020).

Second, Ala-Pietilä&Smuha, (2021), advances in the application of artificial intelligence (AI) in organizations, act with a high degree of autonomy to achieve specific objectives. According to Domingos, (2012), after an accelerated decade of progress of the machine learning (ML) paradigm, contemporary data-driven AI systems represent a radical change from the era of simple information communication (ICTs), Margetts, (1999).

Second, Brynjolfsson & Mitchell, (2017), due to the availability of computational resources coupled with increasing data set sizes and advances in modeling techniques, they can detect patterns imperceptible to humans and perform an ever-increasing range of tasks.

Zilka et al., (2022), notable applications range from facial recognition in policing, to recidivism in criminal justice, Kleinberg et al., (2018), to the use of virtual agents in process automation (Ojo et al., 2019), and to predicting future needs in social services, Bright et al., (2019).

When organizations adopt AI, it is essential that it is framed in the operational procedures that the epistemic criteria are clear and that they are in accordance with the organizational norms, since AI systems, thanks to their learning skills, can act autonomously and perform some tasks that previously in performed by human "actors", Rahwan et al, (2019). The adoption of these advanced tools, in turn, is fraught with "AI tensions," Madan & Ashok, (2022): operational and ethical challenges related to justice, transparency, and citizen privacy, among others.

Second, Adadi&Berrada, (2018), the use of AI has been revealing some risks and pitfalls especially in terms of its complex algorithmic design and biased data entry, Buolamwini&Gebru, (2018), along with its variable performance Dressel & Farid, (2018), functionality flaws (Raji et al., 2022) and random implementation, Köbis et al., (2022).

According to Giest &Klievink, (2022), claim that the adoption of AI can bring about profound and sometimes disruptive changes in both organizational structure and bureaucracy. Second, Grosz et al., (2019; Veale, 2020; Widder&Nafus, 2022), AI systems, must focus on humans and at every stage of the life cycle and value chain, from education and research to design and adoption, cannot exist in technological isolation without the contribution of scientific studies related to human behavior, ethics, culture and citizens' rights.

### Recruitment and Selection

The acquisition of talent for a hospital is of utmost importance. AI helps recruit the right candidate (specialist or other) to maintain the hospital's standard of performance and benefit it in future prospects. For this it is necessary to define the profile of skills to be recruited (specialty vs specialist), the selection criteria, registering them, in the AI Workflow system. Then register the list of candidates and their CV. From among these, the AI system selects the candidate with the desired profile or the candidate with the profile closest to the desired profile.

**Performance Evaluation**

Every organization encounters a profound difficulty in implementing a performance evaluation system of its human resources, technology, infrastructures and services, due to the difficulty of defining the specific criteria for each resource. Artificial intelligence becomes a boon for this organization. The AI platform helps HR managers focus on quick decisions, employee interactions, equipment, and all the resources involved. All administrative tasks are automated with this intelligent AI tool. Bryan Buck ci at, (2018), in his commentary shares the experience of two Google executives. José Cong is the executive of Nest, Apple and Google. Jose Cong addresses that career growth is extremely difficult to measure and enumerate with any performance tool.

Expressing emotions in diverse situations is human nature. It varies according to the different circumstances. It is important to understand well the thoughts, feelings and opinion of workers for the development of a versatile system. This is not possible to highlight just by using AI sentimental analysis. Sheetal Kussal*ct*at, (2021), highlights text-based emotion detection through artificial intelligence.

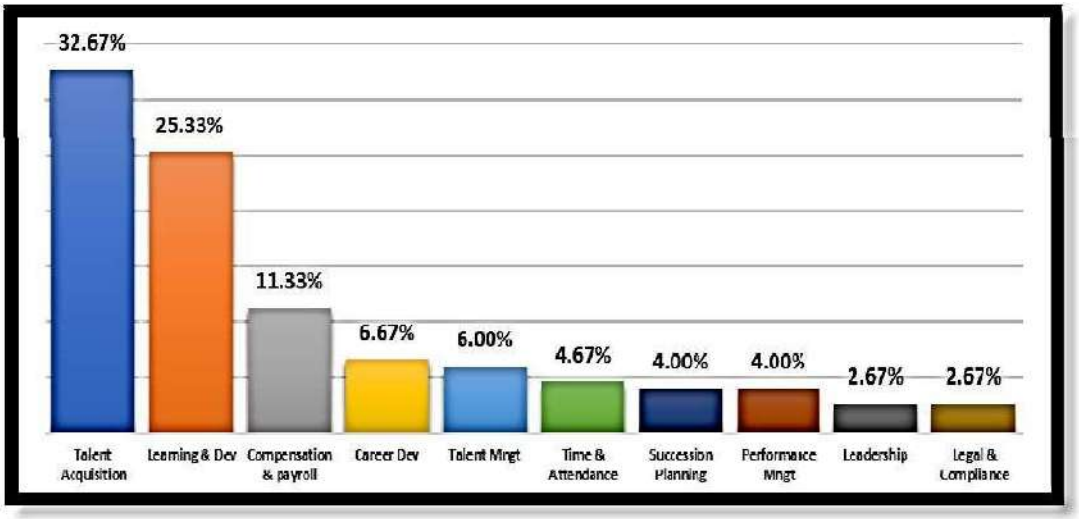
### Decision Making

The quality of decision-making, the efficiency of functions and the tasks assigned to Hospital Human Resources Managers, artificial intelligence plays a key role in its success. Markus Langer, *(*2020), investigated the study with several versions of automated decision support systems that are important for the selection of right and satisfactory candidates for the organization. The results of this study showed that decision satisfaction was higher for the support group after processing. This research combines various management techniques, managerial psychological literatureand efficiency with emerging well-being at work and job satisfaction.

"Artificial Intelligence predominantly affects financial markets. Financial services involve AI through various online transactions, i.e. blockchain transactions (financial transactions and other operations can be done securely) in various markets such as cryptocurrencies and stocks. Raed Fadel Jawid *et* all, (2022), the research aimed to address the benefits of foreign ventures in various countries. He also aimed to participate in the growth and revival of the stock market throughout Egypt."

**Figure 5 - Potential of Artificial Intelligence in various HRM Functions**

**Source: Shivani Pandeia, (2020)**




### Performance Compensation

The motivation and performance of Hospital Human Resources can be influenced by the offer of appropriate rewards. Rewards can be in the form of cash incentives/bonuses, but they can also be in the form of other prizes such as career progression, training support, and other privileges. Shield, et al, (2015), on the management of workers' performance and rewards, state that rewards or awards consist of components for implementing the registration and communication with digital media for the basis of compensation payments for the internal and external performance of workers.

The reward component may be influenced by work difficulties, responsibilities, autonomy, and variety of tasks performed or to be performed, as far as intrinsic rewards are concerned. Theexternalrewardcomponentconsistsof:

1. Financial reward – salary, bonuses for job performance.
2. Reward for self-development – training, career development and other non-monetary rewards.
3. Social rewards – organizational climate, management culture, work environment support and work-life balance.

The rewards to hospital workers should have two components, the financial and the non-financial, since the financial component alone can lead to the demotivation of workers.The calculation of the amount of remuneration may be based on the following evaluation indicators:

I. Basic index – experience and years of service.
II. Competency index – academic qualifications, skills and behaviour.
III. Risk index – level of occupational risk.
IV. Emergencyindex – emergencylevel.
V. Positionindex – positionheld.
VI. Productionindex – workload volume.
VII. Performance index – resultsachieved.

Second, R Soetijono, Blora Regency, (20xx), there is a correspondence between the risk of work and the incentives received by various groups, such as group of directors, operational physicians, paramedics and medical support groups. The adequacy of the workload with the incentives received is found in the group of directors and medical specialists. The evaluation of the doctor's performance in the form of points and indexes each month is converted into a monetary value.

### Calculation of Employee Compensation

The calculation of the remuneration of health professionals is based on a performance report issued by the Workflow system of AI (software), digital recording of performance and which includes the main and additional workload, the performance at work and also the position occupied, which allows a minimum time between the execution of the work and the distribution of additional bonuses (services and other bonuses) or what is called remuneration. The use of the digital AI system allows the recording and recapitulation of the performance of health professionals to occur more quickly and accurately, in order to expedite the disbursement of remuneration in the Hospital, Hendriani, (2017).

The components of compensation for performance based on the positions held and the workload in a hospital, uses the workload criteria used, as a basis for calculating the incentives composed of services and education (educational activities, research and service). The working group of the hospital is composed of working groups of doctors, nurses, support staff, administration, and groups of domestic workers, who are involved in the service and educational activities. Of the role of each of these workers, it is important to find 3 criteria of comparison, namely: the workload, the responsibility, and the risk, which will be used to compare one job with another.

Based on the workload, there is a fixed workload and a variable workload that depends on the actions of the doctor, nurse, etc. Fixed indicators are indicators specific to each profession and the points earned tend to be the same in each period, composed of position, responsibility, risk and various workload indicators. Fixed indicators (fixed or ever-present indicators in each profession) are used to determine the same incentives for each profession. Although the indicators do not remain different and change according to the unit of work and the performance of the workers involved, they are calculated based on the frequency and routine of the work that results in a different number of incentives based on the specific job.

By calculating the workload based on the per-job group and per-person load considerations, they can be identified, so that workers who have the highest workload will receive greater incentives. This performance calculation will be maximized if it is supported by the use of an AI system, Sulasmi et al., (2009).

### Implementation of AI in Hospitals

The implementation of AI in hospitals and human resource management causes a cultural revolution in people, infrastructures, research methods and methodology, processes (efficiency and effectiveness, technological means and deadlines), technologies, decision making (faster), attitudes and perception of problems, productivity, as well as in the recruitment and selection processes, of hospital professionals (competence) and in Human Resources Management, Simply by scouring the databases of indexed scientific articles and conference materials to gather their findings.

The advancement of artificial intelligence, hospital process management and robotic process automation, there are still many obstacles. Among the barriers, there is an increase in the level of resistance to change and the speed of implementation. This is a result of the lack of sufficient evidence or measurements to reveal the true impact of AI in hospitals.

Second, Ghosh, (2021), the main problem is that AI will take occupations away from human resources. While AI seems to transform the role of the workforce, it certainly doesn't mean losing occupations. IBM's latest reports have revealed that 90% of senior management in multinational companies, where AI is used, have the notion that AI generates high-value jobs. This indicates that we will no longer live in a world controlled by robots or artificial intelligence.

Technologies in the field of robotic process automation, artificial intelligence and hospital process management are transforming the operationalization and control of processes, as well as Human Resource Management. This is done through the automation of tedious and monotonous processes, which is resulting in production, evaluation by experts, storage and permanent consultation, making hospital processes more effective and highly productive, freeing up human resources to do much more relevant work involving organization, planning and control.

According to Bornet, Barkin, and Wirtz, (2021), the main components of work are Artificial Intelligence, Robotics, Cloud, workflow, and automation of hospital processes. With Artificial Intelligence, the applications of Artificial Intelligence in knowledge-based operations in all phases of hospital processes are considered. With Robotics, the greatest concentration is on robotics based on the software of data collection (recording and control of working times), also known as Robotic Process Automation. Finally, with the last component the Cloud (data storage), workflows and Hospital Process Management, intelligent platforms are considered, such as the management and performance of Human Resources, cloud and digital platforms.

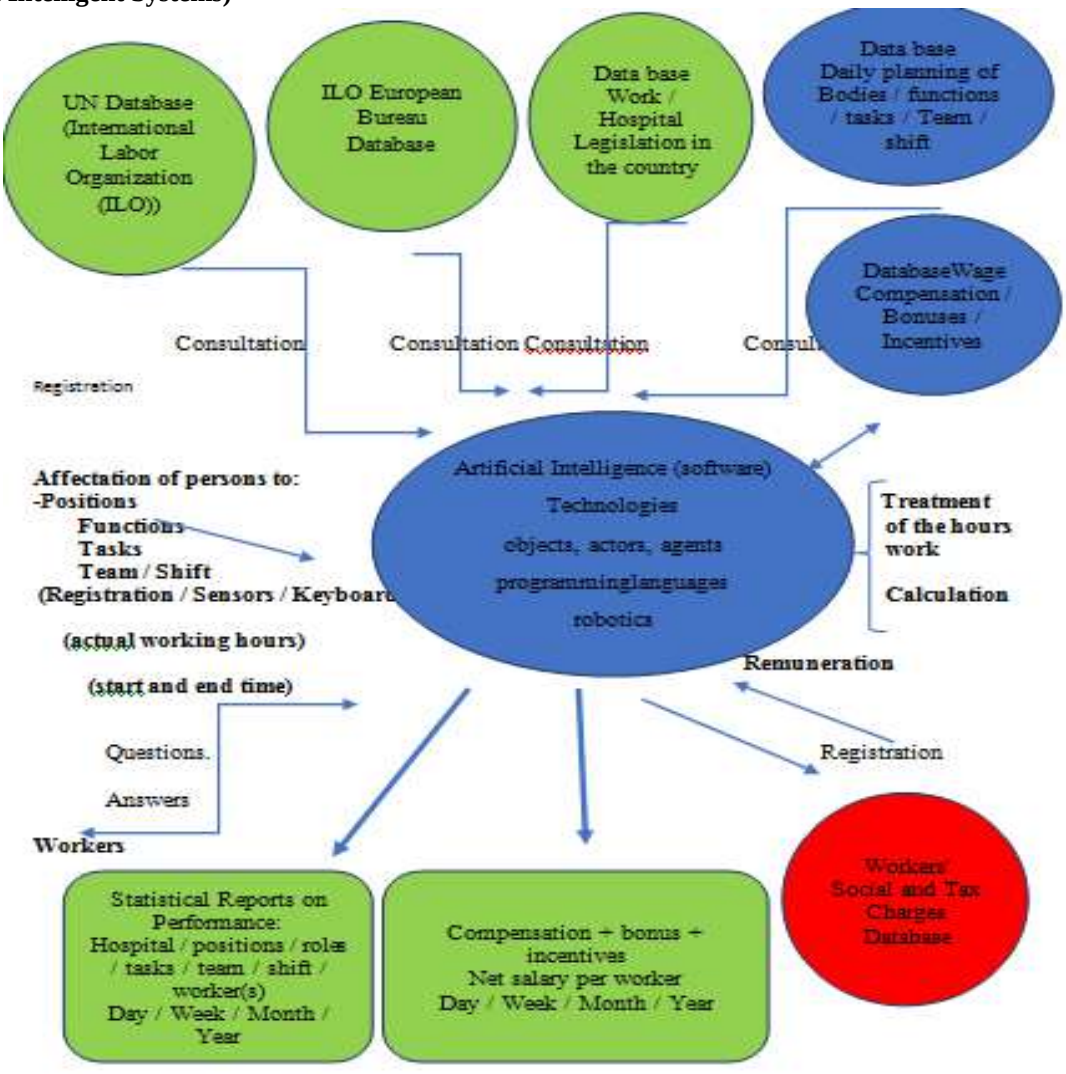
Second, Daugherty and Purdy, (2017), AI has become appealing due to the evolution of deep learning through high-speed data processing computers (Big Data).

Second, Barnard, Coombs, Hislop and Taneva, (2020), artificial intelligence can help drive increased productivity, reduced lead times and costs, in hospitals. The reformulation or formation of intelligent automation work tasks should be able to consider two points of view; the tasks that automation will perform and the proper organization of tasks or operations to achieve the desired result, specifically regarding the productivity and quality of service, provided to society.

Second, Barnard, Coombs, Hislop and Taneva, (2020), artificial intelligence can help drive increased productivity, reduced deadlines and costs, in court. The reformulation or formation of intelligent automation work tasks should be able to consider two points of view; the tasks that automation will perform and the proper organization of tasks or operations to achieve the desired result, specifically regarding the productivity and quality of service, provided to society.

Second, Cai, Gursoy and Lu, (2019), artificial intelligence as a component of intelligent automation makes fundamental mention of the provision of robotic and digitized services made to hospital workers for the facilitation of their services (administrative, research, storage, consultation (diagnosis) and support in decision making). Artificial Intelligence is technology-based, a component of intelligent automation that impacts the experience and retention of hospital workers.

**Figure 6 – Models, Programming Languages, Knowledge Representation and Utilization, Knowledge Production, Simulation, Robotics, Computer Creativity by Software (Computer Network, Base Software and Intelligent Systems)**




Source: elaboration of the author

## V. DISCUSSION, CONCLUSIONS and CLUES FOR FUTURE INVESTIGATIONS

### Discussion and Conclusions

It is important that hospital managers and workers have a positive perception of the use of digital technology (online) to record performance, reports and performance calculations to pay the remuneration of all workers (managers and other workers) of hospitals. The calculation of digital remuneration has entered the decisive phase, that is, it needs regulation by the responsible entities and be implemented.

The implementation of digital remuneration will have a positive impact on increasing hospital workers' discipline, motivation at work, quality of service to patients, teamwork, effectiveness, efficiency and organizational culture and will ultimately increase the satisfaction of patients seeking hospital treatment.

Some of the obstacles that can occur are: software errors, unstable internet connections, data loss, shortage of IT staff and also the habituation (know how to use – training) of hospital workers to use the devices (hospital and other technology) / digital systems.

In practical terms, digital remuneration should actually be prepared under several aspects, especially that of calculating the points of the performance evaluation so that all parties agree (management and workers). Before the implementation of the digital remuneration system it is necessary that all workers have training on the changes so that they understand and collaborate in its implementation, before it enters into its operation, since if this does not happen there may be serious problems in its operation.

**The implementation of AI in Hospital Human Resources Management will provoke a true cultural and material revolution, in people, in hospital support infrastructures, in work methods and methodologies, hospital processes and their duration with much shorter deadlines, used technologies, rigorous and independent decision-making, based on facts and not on human subjectivity (interests), attitudes and behaviors of people connected/related to hospitals and others.**

**In addition to the electronic archive of all the documentation of the hospital processes and the participation of the different actors, whose participation can be produced by the computer without human interference and consists of a printed page with the result of the daily and accumulated interventions.**

**This record _/ archive can be consulted and updated in any hospital in the civilized world, since it respects the International Labor Organization (UN), the European Organization of Labor Rights (in the countries of the European Union), as well as the hospital legislation of the country where the hospital intervention was carried out.**

**The computer will be able to issue report(s) with the evaluation of all the actors in the different hospital processes. To know whether the problem of AI implementation was well conducted/oriented, in terms of human resources (competencies involved), methodology and methods of approach. Significant increase in productivity, in the efficiency and effectiveness of work, as well as in the processes of training, recruitment and selection of qualified personnel (skills) and in the Management of Hospital and Material Human Resources with significant reduction of personnel and infrastructures.**

### Limitations of the research study

We are aware of the limitations of the study, since many areas of the social sciences have not been studied, as well as the impact of AI in these areas of knowledge. However, each country's hospital health system is too expensive for taxpayers and as such has to be managed, as a way for the country **to have an efficient and effective hospital health system, at the lowest cost to taxpayers and stakeholders (doctors, nurses and others).**

### Clues for further investigations

The debate on Artificial Intelligence in the Management of Hospital Human Resources (from Theory to Practice), can contribute to clarify the powers (legislative, executive and judicial) about the importance of this technology in the Hospital Health System, as a way to significantly improve productivity with lower costs and deadlines, paradigm shift and focus on the quality of service provided to patients, rigor and independence of attitudes and behaviors, in decision-making, in the different areas of activity, influencing all organizational levels of governance, involving politicians, technical commissions and other members of the government, and with this, provide more assertive, transparent, solidary and responsible political decision-making, at all levels of the power structure (legislative, judicial and executive). We are alreadybeingaskedthe following questions:

1. Does AI allow to increase the productivity/performance of health workers and other professions, as well as the degree of satisfaction of patients (customers)?
2. Does AI facilitate the decentralization of healthcare and benefit patients (customers)?
3. Won't AI in Hospital Human Resource Management jeopardize the ethics, freedom and privacy of workers?

### KEY TERMS and DEFINITIONS

**Artificial Intelligence** – is the intelligence demonstrated by machines, as opposed to the natural intelligence exhibited by animals, including humans

**CAPTCHA** - a type of challenge response test used in computing to determine whether the user is human. The term was coined in 2003 by Luis von Ahn, Manuel Blum, Nicholas J. Hopper and John Langford.

**HutterPrize** - a cash prize funded by Marcus Hutter that rewards improvements in data compression in a specific 1 GB English text file, with the aim of encouraging research into artificial intelligence (AI).

**Hybrid Intelligent Systems (HIS)** - denotes a software system that employs, in parallel, a combination of methods and techniques from subfields of artificial intelligence.

Loebner Prize - an annual artificial intelligence competition that awards prizes to computer programs considered by judges to be the most human.

**Machine learning** - is the study of computer algorithms that can automatically improve through the experience and use of data

**Mechanical** computer - a computer built from mechanical components such as levers and gears instead of electronic components.

**Robotics** - an interdisciplinary branch of informatics and engineering. Robotics involves the design, construction, operation, and use of robots.

## CONSTITUTION OF THE INTERNATIONAL LABOUR ORGANISATION (ILO) AND ITS ANNEX

**(Philadelphia Declaration)**

The current text of the Constitution of the International Labour Organization was approved at the 29th meeting of the International Labour Conference (Montreal - 1946) and has as an annex the Declaration concerning the aims and objectives of the Organization, which was approved at the 26th meeting of the Conference (Philadelphia - 1944). The Constitution, thus revised, replaced the one adopted in 1919 and amended in 1922, 1934 and 1945. It began on April 20, 1948. Brazil ratified the instrument of amendment to the ILO Constitution on April 13, 1948, according to Decree of Promulgation No. 25,696 of October 20, 1948. The constitutional text that we reproduce in this book corresponds to the revision of 1946, with the amendments of 1953, 1962 and 1972, all in force at the international level and ratified by Brazil. In 1964 an amendment to Article 35 was approved, which, however, has not yet obtained the number of ratifications necessary to generate its validity. And in 1986, the 72nd meeting of the Conference, held in Geneva, approved a broad revision of the Constitution (articles 1, 3, 6, 7, 8, 13, 16, 17, 19, 21 and 36), which also did not enter into force, since the instrument of amendment has not yet been ratified by two-thirds of the ILO Member States, including, among these, five of the ten countries of major industrial importance (Brazil is one of them), as required by Article 36 of the current text.

### INSTRUMENT FOR THE AMENDMENT OF THE CONSTITUTION OF THE INTERNATIONAL LABOUR ORGANIZATION

"The General Conference of the International Labour Organization, Convened by the Administrative Council of the International Labour Office and meeting at Montreal on 19 September 1946, at its twenty-ninth session, Having decided to adopt certain proposals for the amendment of the Constitution of the International Labour Organization, a matter included in the second item on the agenda of the session, Adopts, on the ninth of October, one thousand nine hundred and forty-six, the following instrument for the amendment of the Constitution of the International Labour Organization, which shall be called: Instrument for the Amendment of the Constitution of the International Labour Organization, 1946. 2

**Article 1**

From the date of entry into force of this instrument, the Constitution of the International LabourOrganisation, the text of which is reproduced in the first column of the Annex to the said instrument, shall be in force in the amended form set out in the second column.

**Article 2**

Two authentic copies of this instrument shall be signed by the President of the Conference and the Director-General of the International Labour Office. One of these copies shall be deposited in the archives of the International Labour Office and the other shall be delivered to the Secretary-General of the United Nations for registration in accordance with Article 102 of the Charter of the United Nations. The Director-General shall transmit a duly certified copy of this instrument to each of the Member States of the International LabourOrganisation.

**Article 3**

1. Formal ratifications or acceptances of this instrument shall be communicated to the Director-General of the International Labour Office, who shall inform the Member States of the Organization thereof.

2. This instrument shall enter into force under the conditions laid down in Article 36 of the Constitution of the International Labour Organization.

3. As soon as this instrument enters into force, this fact shall be communicated by the Director-General of the International Labour Office to all the Member States of the said Organization, to the Secretary-General of the United Nations and to all States signatory to the Charter of the United Nations."

## ESTABLISHMENT OF THE INTERNATIONAL LABOUR ORGANISATION

### Preamble

"Whereas peace, to be universal and lasting, must be based on social justice; Considering that there are working conditions which entail, for a large number of individuals, misery and deprivation, and that the resulting discontent endangers universal peace and harmony, and whereas it is urgent to improve these conditions as regards, for example, the regulation of working hours, the fixing of a maximum length of the working day and week, the recruitment of labour, the fight against unemployment, the guarantee of a salary ensuring suitable living conditions, the protection of workers against serious or occupational diseases and accidents at work, the protection of children, young people and women, old-age and invalidity pensions, the protection of the interests of workers employed abroad, the affirmation of the principle "for equal work, same wages", the affirmation of the principle of freedom of association, the organization of vocational and technical education, and other similar measures; Whereas the non-adoption by any nation of a truly humane labor regime creates obstacles to the efforts of other nations desirous of improving the lot of the workers in their own territories.

THE HIGH CONTRACTING PARTIES, moved by sentiments of justice and humanity and by the desire to secure a lasting world peace for the purposes set forth in this preamble, approve the present Constitution of the International Labour Organization:

### CHAPTER I ORGANIZATION

#### Article 1

1. A permanent Organization is hereby established to promote the implementation of the program set forth in the preamble to this Constitution and in the Declaration Concerning the Purposes and Objectives of the International Labor Organization, adopted at Philadelphia on May 10, 1944, and the text of which is annexed to this Constitution.
2. States which were already members on 1 November 1945, as well as any others which may become so in accordance with the provisions of paragraphs 3 and 4 of this article, shall be Members of the International Labour Organization.
3. Every Member State of the United Nations, since the establishment of that institution and any State which is admitted to it as a Member in accordance with the provisions of the Charter by decision of the General Assembly, may become a Member of the International Labour Organization by notifying the Director-General of the International Labour Office that it has fully accepted its obligations under the Constitution of the International Labour Organization.
4. The General Conference of the International LabourOrganisation shall also have the power to confer membership of the Organization by a two-thirds majority of all the votes present, if the same majority prevails among the votes of the governmental delegates. The admission of the new Member State shall become effective when it has communicated to the Director-General of the International Labour Office that it fully accepts the obligations arising from the Constitution of the Organisation.
5. No Member State of the International LabourOrganisation may withdraw from it without prior notice to the Director-General of the International Labour Office. The withdrawal shall become effective two years after this notice has been received 4 by the Director-General, provided that the Member State has, by that date, fulfilled all financial obligations arising from membership. Such withdrawal shall not affect, for the Member State which has ratified a Convention, the validity of the obligations arising from or relating to the Convention during the request provided for in that Convention.
6. When a State has ceased to be a Member of the Organization, its readmission as such shall be in accordance with the provisions of paragraphs 3 and 4 of this Article.

#### Article 2

The Permanent Organization shall comprise: (a) a General Conference consisting of the Representatives of the Member States; b) a Board of Directors composed as indicated in article 7; (c) an International Labour Office under the direction of a Board of Directors.

#### Article 3

1. The General Conference of the representatives of the Member States shall hold meetings whenever necessary and at least once a year. It shall be composed of four representatives of each of the Members, of which two shall be delegates of the Government and the other two shall represent, respectively, employees and employers.
2. Each Delegate may be accompanied by technical advisers, a maximum of two in number, for each of the matters on the agenda of the session. When the Conference discusses issues of particular interest to women, at least one of the persons designated as technical advisers shall be women.
3. Each Member State responsible for the international relations of non-metropolitan territories may appoint, in addition, as additional technical advisers to each of its delegates: (a) persons chosen by it as representatives of the territory in respect of matters falling within the competence of the authorities of that territory; b) persons chosen by him as assistants to his delegates in relation to matters of interest to territories which do not govern themselves.

4. In the case of a territory placed under the joint authority of two or more Member States, assistants may be appointed to the delegates of those Members.
5. Member States shall undertake to designate delegates and non-governmental technical advisers in accordance with the most representative professional organisations, both of employers and employees, if such organisations exist.
6. Technical advisers shall not be allowed to speak except at the request of the delegate to whom they are attachés and with the special authorisation of the President of the Conference. They will not be able to vote.
7. Any delegate may, by written note addressed to the President, appoint one of his technical advisers as his replacement, and the latter, in this capacity, may take part in the deliberations and vote.
8. The names of the delegates and their technical advisers shall be communicated to the International Labour Office by the Government of each Member State.
9. The powers of the delegates and their technical advisers shall be subject to the verification of the Conference, which may, by two-thirds or more of the votes present, refuse to admit any delegate or technical adviser who it deems not to have been appointed in accordance with the terms of this Article.

**Article 4**

1. Each delegate shall have the right to vote individually on all questions submitted to the Conference for deliberations.
2. Where one of the Member States has not appointed one of the non-governmental delegates to which it is entitled, the other non-governmental delegate shall have the right to take part in the discussions of the Conference, but not to vote.
3. Should the Conference, by virtue of the powers conferred on it by Article 3, refuse to admit one of the delegates of one of the Member States, the provisions of this Article shall be applied as if that delegate had not been appointed.

**Article 5**

The meetings of the Conference shall be held in a place determined by the Administrative Board, subject to any decisions which may have been taken by the Conference during a previous session.

**Article 6**

Any change of the seat of the International Labour Office shall be decided by the Conference by a two-thirds majority of the votes of the delegates present.

**Article 7**

1. The Management Board shall be composed of 56 persons: 28 representatives of Governments, 4 representatives of employers and 14 representatives of employees.
2. Of the twenty-eight representatives of the Governments, ten shall be appointed by the Member States of major industrial importance and eighteen shall be appointed by the Member States designated for this purpose by the governmental delegates of the Conference, excluding the delegates of the ten abovementioned Members.
3. The Management Board shall indicate, whenever it deems it appropriate, which Member States are of major industrial importance and, prior to such nomination, shall lay down rules to ensure that all questions relating to such an appointment are examined by an impartial committee. Any appeal made by a Member State against the resolution of the Administrative Board concerning the Members of Major Industrial Importance shall be judged by the Conference, without, however, suspending the effects of this Resolution until the Conference has taken a decision.
4. The representatives of employers and employees shall be elected respectively by the employers' delegates and the workers' delegates to the Conference.
5. The Council shall be renewed every three years. If, for any reason, the elections to the Board of Directors are not held on the expiry of this period, the same Board of Directors shall be maintained until such elections are held.
6. The process of filling vacancies, appointing alternates, and other matters of the same nature may be resolved by the Governing Board, subject to the approval of the Conference.
7. The Management Board shall elect from among its members a Chairperson and two Vice-Chairpersons. Of the three elected, one will represent a government and the other two, employers and employees, respectively. 8. The Management Board shall draw up its own rules of procedure and shall meet at such times as it may determine. It shall hold a special session whenever at least sixteen of its Members make a written request for that purpose.

**Article 8**

1. The International Labour Office shall have a Director-General, appointed by the Administrative Board, responsible to it for the proper functioning of the Bureau and for carrying out all the work entrusted to it.
2. The Director-General or his alternate shall attend all meetings of the Management Board.

**Article 9**

1. The staff of the International Labour Office shall be chosen by the Director-General in accordance with the rules adopted by the Administrative Board.
2. The choice shall be made by the Director-General, whenever possible, among persons of different nationalities, with a view to greater efficiency in the work of the Bureau.
3. Among these persons there must be a certain number of women.
4. The Director-General and his staff, in the performance of their duties, shall neither seek nor take instructions from any Government or authority outside the Organization. They shall refrain from any act incompatible with their status as international officials responsible solely to the Organization.
5. The Member States of the Organization undertake to respect the exclusively international character of the functions of the Director-General and of the staff and not to seek to influence them as to how they are carried out.

**Article 10**

1. The task of the International Labour Office shall be to centralise and distribute all information relating to the international regulation of the condition of workers and the system of employment and, in particular, to study the questions which it is responsible for submitting to the discussions of the Conference for the conclusion of international conventions and to carry out all special inquiries prescribed by the Conference, or by the Board of Directors.
2. The Bureau, in accordance with the directives it may receive from the Board of Directors: (a) prepare documentation on the various subjects on the agenda of the sessions of the Conference; (b) furnish, to the extent of its resources, to the Governments which so request, all appropriate assistance for the making of laws, in accordance with the decisions of the Conference, and also for the improvement of administrative practice and inspection systems; (c) perform, in accordance with the provisions of this Constitution, the duties incumbent upon it with regard to the faithful observance of the Conventions; (d) draw up and bring to light, in such languages as the Administrative Board deems appropriate, publications of international interest on matters relating to industry and labour.
3. In general, it shall have such other powers and functions as the Conference or the Administrative Board may deem appropriate to confer upon it.

**Article 11**

The Ministries of the Member States responsible for matters relating to workers may communicate with the Director-General through the representative of his Government on the Administrative Board of the International Labour Office or, in the absence of such a representative, through any other official duly qualified and designated for that purpose by the Government concerned.

**Article 12**

1. The International Labour Organization shall cooperate, within the framework of this Constitution, with any international organization of a general character charged with coordinating the activities of organizations under public international law with specialized functions, and also, with those among the latter organizations, whose functions relate to its own.
2. The International LabourOrganisation may take such measures as may be necessary to ensure that representatives of organisations governed by public international law participate, without the right to vote, in its own deliberations.
3. The International Labour Organization may take all necessary measures to consult, at its discretion, recognized international non-governmental organizations, including international organizations of employers, employees, farmers and cooperatives.

**Article 13**

1. The International Labour Organization may conclude with the United Nations any financial and budgetary arrangements which may seem appropriate.
2. Prior to the conclusion of such agreements, or, if at any given time they are not in force: (a) each Member shall pay the travel and subsistence expenses of its delegates, technical advisers or representatives who take part, either at the meetings of the Conference or those of the Governing Board; (b) any other expenses of the International Labour Office, or arising from the meetings of the Conference or the Governing Board, shall be charged by the Director-General of the International Labour Office to the budget of the International LabourOrganisation; (c) the rules for approving the budget of the International LabourOrganisation, for distributing contributions among the Member States and for collecting them, shall be laid down by the Conference by a two-thirds majority of the votes present. These rules shall stipulate that the budget and agreements relating to the distribution of expenses among the Members of the Organization shall be approved by a committee consisting of governmental representatives.
3. The expenses of the International LabourOrganisation shall be borne by the Member States in accordance with the agreements in force pursuant to paragraph 1 or paragraph 2 letter c of this Article.

4. Any Member State of the Organisation whose debt to the Organization is at any time equal to or greater than the total contribution which it should have paid in the previous two full years may not take part in the votes of the Conference, the Administrative Board or any committee, or in the elections to the Management Board. The Conference may, however, by a two-thirds majority of the votes present, authorize the State concerned to take part in the vote on a finding that the delay is due to force majeure.
5. The Director-General of the International Labour Office shall be responsible to the Administrative Council for the use of the funds of the International Labour Organisation.

**CHAPTER II OPERATION**

**Article 14**

1. The Governing Board shall draw up the agenda for the sessions of the Conference after having considered all proposals made by the Governments of any of the Members, by any representative organization referred to in Article 3, or by any organization governed by public international law, on the matters to be included on that agenda.
2. The Governing Board shall develop guidelines for the adoption by the Conference of a convention or recommendation to be preceded, by means of a preparatory technical conference or by any other means, by in-depth technical preparation and appropriate consultation of the Members principally concerned.

**Article 15**

1. The Director-General shall act as Secretary-General of the Conference and shall ensure that each Member State receives the agenda four months before the opening of the session. It should also, through the intermediary of those Member States, send it in advance to the non-governmental delegates already appointed and also to those who are appointed within that period. 2. Reports on each item on the agenda shall be communicated to Members in such a way as to give them time to study them properly before the meeting of the Conference. The Board of Directors will formulate guidelines for the implementation of this provision.

**Article 16**

1. Each Member State shall have the right to challenge the inclusion on the agenda of the sitting of one or more of the subjects envisaged. The reasons justifying such opposition shall be set out in a memorandum addressed to the Director-General, who shall communicate it to the Member States of the Organisation.
2. The contested items shall nevertheless be placed on the agenda if the Conference so decides by two-thirds of the votes present.
3. Any question which the Conference decides by the same two-thirds is examined (other than as provided for in the preceding paragraph) shall be placed on the agenda of the next session.

**Article 17**

1. The Conference shall elect a President and three Vice-Presidents. The three vice-presidents will be, respectively, a government delegate, an employers' delegate and an employees' delegate. The Conference shall formulate the rules for its operation; it may set up committees to give opinions on all matters which it deems appropriate to be studied.
2. Decisions shall be taken by a simple majority of the votes present, except in cases where no other formula is prescribed by this Constitution, by any convention or instrument conferring powers on the Conference, or by the financial and budgetary agreements adopted pursuant to Article 13.
3. No vote shall be valid if the number of votes cast is less than half that of the delegates present at the session.

**Article 18**

The Conference may join its technical advisory committees without the right to vote.

**Article 19**

1. If the Conference decides to accept proposals relating to a matter on its agenda, it shall decide whether such proposals shall take the form: (a) of 11 an international convention; b) a recommendation, when the subject matter, or one of its aspects, does not allow the immediate adoption of a convention.
2. In both cases, in order for a convention or recommendation to be accepted in a final vote by the Conference, two-thirds of the votes present shall be required.
3. The Conference shall, in drawing up a convention or recommendation of general application, take into account those countries which are distinguished by climate, by the incomplete development of the industrial organization or by other special circumstances relating to industry, and shall suggest modifications which correspond, in its view, to the particular conditions of those countries.
4. Two copies of the convention or recommendation shall be signed by the President of the Conference and the Director-General. One of these copies shall be deposited in the archives of the International Labour Office and the other shall be given to the Secretary-General of the United Nations. The Director-General shall transmit to each Member State a certified copy of the Convention or Recommendation.

5. In the case of a convention:

(a) all Member States shall be made aware of the Convention for the purpose of ratification;

(b) each Member State undertakes to submit, within one year of the close of the session of the Conference (or, where, owing to exceptional circumstances, this is not possible, as soon as possible, but in no case exceeding 18 months after that closure), the Convention to the authority or authorities within whose competence the matter is involved, in order that they may make it a law or take measures of another kind;

(c) Member States shall inform the Director-General of the International Labour Office of the measures taken pursuant to this Article to submit the Convention to the competent authority or authorities, and shall also communicate to him all information on those authorities and on the decisions taken by them;

(d) the Member State which has obtained the consent of the competent authority or authorities shall notify the Director-General of the formal ratification of the Convention and shall take the necessary measures to give effect to the provisions of the said Convention;

(e) where the competent authority does not give its assent to a convention, the Member State shall have no obligation except to inform the Director-General of the International Labour Office, at such times as the Administrative Board deems appropriate, of its legislation and practice observed in relation to the subject matter of the Convention. It shall also specify in this information the extent to which it has applied, or intends to apply, provisions of the Convention, by means of laws, by administrative means, by virtue of collective agreements, or by any other procedure, exposing also the difficulties which prevent or delay the ratification of the Convention.

6. In the case of a recommendation:

(a) all Member States shall be made aware of the recommendation for consideration of the recommendation, taking into account its effectiveness by national law or otherwise;

(b) each Member State undertakes to submit, within one year of the close of the session of the Conference (or, where, owing to exceptional circumstances, this is not possible, as soon as possible, but in no case exceeding 18 months after such closure), the recommendation to the authority or authorities within whose competence the matter is involved, in order that they may make it a law or take measures of another kind;

(c) Member States shall inform the Director-General of the International Labour Office of the measures taken pursuant to this Article to submit the recommendation to the competent authority or authorities, and shall also inform him of the decisions taken by the latter;

(d) In addition to the obligation to submit the recommendation to the competent authority or authorities, the Member shall have only the obligation to inform the Director-General of the International Labour Office at such times as the Board of Directors deems appropriate of its legislation and practice observed in relation to the subject matter of the recommendation. It should also specify in this information the extent to which it has applied or intends to apply provisions of the Recommendation, and indicate the modifications of these devices that are or will be necessary to adopt or apply them.

7. In the case of a Länder, the following provisions shall apply: (a) the obligations of the Länder shall be the same as those of Members which are not, in respect of conventions and recommendations for which the Federal Government considers that, in accordance with its constitutional system, federal action is appropriate; (b) with respect to conventions and recommendations for which the Federal Government considers that, in accordance with its constitutional system, action on the part of the States, provinces or cantons of which it is composed, is -- in respect of some or all points -- more appropriate than federal action, the said Government shall:

(i) conclude, in accordance with its own constitution and those of the component States, provinces or cantons concerned, effective arrangements for such conventions or recommendations to be submitted, within a maximum period of 18 months after the close of the session of the Conference, to the appropriate federal authorities or to those of the competent States, provinces or cantons, for the purposes of legislative or other action of any kind.

(ii) take the necessary measures, subject to the consent of the Governments of the component States, provinces or cantons concerned, so that from time to time the federal authorities, on the one hand, on the other, that of the component States, provinces or cantons, consult each other in order to 13 undertake coordinated action to make them effective throughout the country; the provisions of these conventions and recommendations;

(iii) to inform the Director-General of the International Labour Office of the measures taken under this Article to submit such conventions and recommendations to the appropriate federal authorities, those of the component States, provinces or cantons, and shall communicate to him all information on the authorities considered to be legitimate and on the decisions they have taken.

(iv) in respect of a convention which has not been ratified, inform the Director-General of the International Labor Office, at such times as the Administrative Council deems appropriate, of the legislation of the federation, of the constituent States, of the provinces or of the cantons, and of the practice observed by both of them in relation to the subject matter covered by that convention. It shall also specify to what extent the provisions of the same Convention have been or are intended to be applied by means of laws, by administrative means, by virtue of collective agreements, or by any other procedure.

V) In relation to a recommendation, inform the Director-General of the International Labor Office, at such times as the Administrative Council deems appropriate, of the legislation of the federation, the constituent States, the provinces or the cantons, and of the practice, by both parties, observed in relation to the subject matter covered by that recommendation. It shall also specify in this information the extent to which the provisions of the Recommendation have been or are intended to be applied, indicating the modifications to these provisions which are or will be necessary to adopt or apply them.

8. In no case shall the adoption by the Conference of a convention or recommendation, or the ratification by a Member State of a convention, be deemed to affect any law, judgment, custom or agreement which affords the workers concerned more favorable conditions than those provided for in the convention or recommendation.

**Article 20**

Any convention so ratified shall be communicated by the Director-General of the International Labor Office to the Secretary-General of the United Nations for registration in accordance with Article 102 of the Charter of the United Nations, binding only on those Member States which have ratified it.

**Article 21**

1. Any project which, on the final ballot, does not obtain two-thirds of the votes present, may be the subject of a particular agreement between the Members of the Organization who so wish. 14 2. Any Convention thus concluded shall be communicated by the Governments concerned to the Director-General of the International Labor Office and to the Secretary-General of the United Nations for registration in accordance with the terms of Article 102 of the Charter of the United Nations.

**Article 22**

Member States undertake to submit to the International Labor Office an annual report on the measures taken by them to implement the conventions to which they have acceded. These reports shall be drawn up in the form indicated by the Management Board and shall contain the information requested by the Management Board.

Article 23

1. The Director-General shall submit to the Conference at its next session a summary of the information and reports transmitted to him in accordance with Articles 19 and 22.

2. Member States shall transmit to the representative organizations recognized as such, for the purposes referred to in Article 3, copies of the information and reports transmitted to the Director-General in accordance with the Articles. 19 and 22.

**Article 24**

Any complaint addressed to the International Labour Office by a professional organization of employees or employers, to the effect that one of the Member States has not satisfactorily ensured the implementation of a convention to which that State has acceded, may be forwarded by the Administrative Board to the Government concerned and the latter may be invited to make, on the subject, such statement as it deems appropriate.

**Article 25**

If no statement is sent by the Government concerned within a reasonable time, or if the statement received does not appear satisfactory to the Board of Directors, the latter shall have the right to make public the said complaint and, as the case may be, the reply given.

**Article 26**

1. Each Member State may submit a complaint to the International Labour Office against another Member State which, in its opinion, has not satisfactorily ensured the implementation of a convention which both have ratified by virtue of the preceding Articles. 15

2. The Board of Directors may, if it deems it appropriate, before referring the matter to a committee of inquiry, in accordance with the procedure indicated below, communicate with the Government concerned by the complaint, in the manner indicated in Article 24.

3. If the Board of Directors does not deem it necessary to communicate the complaint to the Government concerned, or, if such communication has been made, no reply to the satisfaction of the said Council has been received within a reasonable time, the Council may set up a committee of inquiry which shall have the task of examining the complaint and delivering an opinion on the matter.

4. The Council may also take the abovementioned measures, either ex officio or on the basis of a delegate's complaint to the Conference.

5. When a question raised under Arts. 25 or 26, is brought before the Board of Directors, the Government concerned, if it has no representative with it, shall have the right to appoint a delegate to take part in the deliberations of the same relating to the case. The date of such deliberations shall be communicated in due time to the Government concerned.

**Article 27**

Where a complaint is sent pursuant to Article 26 to a Committee of Inquiry, each Member State, whether directly concerned by it or not, shall undertake to make available to the Commission all information in its possession concerning the subject matter of the complaint.

**Article 28**

The Committee of Inquiry, after a thorough examination of the complaint, will draw up a report setting out not only its findings on all the points which make it possible to measure the value of the defence, but also the measures it recommends to satisfy the complaining Government and the deadlines within which the same measures must be implemented.

**Article 29**

1. The Director-General of the International Labor Office shall transmit the report of the Commission of Inquiry to the Administrative Council and to each Government concerned by the dispute and shall ensure that it is published.

2. Each Government concerned shall communicate to the Director-General of the International Labor Office, within three months, whether or not it accepts the recommendations contained in the report of the Commission and, if not, whether it wishes the disagreement to be submitted to the International Court of Justice. 16

**Article 30**

Where a Member State does not take, in respect of a convention or a recommendation, the measures prescribed in Article 19, paragraphs 5(b), (6b) or 7(b)(I), any other Member State shall have the right to refer the matter to the Management Board. The Governing Board shall refer the matter to the Conference in the event that it considers that the Member has not taken the prescribed measures.

**Article 31**

The decision of the International Court of Justice on a complaint or matter referred to it in accordance with Article 29 shall be unappealable.

**Article 32**

Any conclusions or recommendations of the Commission of Inquiry may be confirmed, amended or annulled by the International Court of Justice.

**Article 33**

If a Member State does not comply, within the prescribed period, with any recommendations contained in the report of the Commission of Inquiry or in the decision of the International Court of Justice, the Administrative Board may recommend to the Conference the adoption of any measure it deems appropriate to ensure the implementation of those recommendations.

**Article 34**

The guilty Government may, at any time, inform the Administrative Council that it has taken the necessary measures to comply with the recommendations of the Commission of Inquiry or those of the decision of the International Court of Justice. It may also ask the Council to appoint a Committee of Inquiry to verify its assertions. In this case, the stipulations of the Articles shall apply. 27, 28, 29, 31 and 32, and if the report of the Commission of Inquiry or the decision of the International Court of Justice is favorable to the said Government, the Board of Directors shall immediately recommend that the measures taken pursuant to Article 33 be revoked.

**CHAPTER III GENERAL PROVISIONS**

**Article 35**

1. Except in cases where the matters dealt with in the Convention do not fall within the competence of the authorities of the territory and those in which the Convention is applicable, given local conditions, Member States undertake to apply 17 the conventions which - in accordance with the provisions of this Constitution - they have ratified to the non-metropolitan territories for whose international relations they are responsible, including the territories under trust whose administration they are responsible for, with reservation as to the modifications necessary to adapt such conventions to local conditions.

2. Each Member State shall, as soon as possible after having ratified a Convention, declare to the Director-General of the International Labor Office the extent to which it undertakes to apply it to the territories not covered by paragraphs 4 and 5 below, and shall also provide him with all information which may be prescribed by that Convention.

3. Any Member State which has made a declaration as provided for in the preceding paragraph may, in accordance with the Articles of the Convention, periodically make a new declaration modifying the terms referred to in the preceding paragraph.

4. Where the matters dealt with in the Convention fall within the competence of the authorities of a non-metropolitan territory, the Member State responsible for the international relations of that territory shall, as soon as possible, communicate the Convention to the Government of that territory for the enactment of laws or other measures. The Member State may, in agreement with the said Government, then declare to the Director-General of the International Labour Office that it accepts the obligations of the Convention on behalf of the territory.
5. A declaration of acceptance of the obligations of a Convention may be communicated to the Director-General of the International Labor Office: (a) by two or more Member States of the Organization in the case of a territory under their joint authority; (b) by any international authority responsible for the administration of a territory by virtue of the provisions of the Charter of the United Nations, or any other provision in force which applies to the same territory.
6. Acceptance of the obligations of a Convention under paragraphs 4 and 5 shall entail the acceptance, on behalf of the territory concerned, of the obligations arising from the terms of the Convention, and also of those which, in accordance with the Constitution of the Organization, arise from ratification. Any declaration of acceptance may specify the modifications to the provisions of the Convention which would be necessary to adapt them to local conditions.
7. Any Member State or international authority which has made a declaration in the form provided for in paragraphs 4 and 5 of this Article may, in accordance with the Articles of the Convention, periodically make a new declaration modifying the terms of any of the preceding Articles or rendering ineffective the acceptance of the Convention on behalf of the territory concerned. 18
8. If the obligations arising from a Convention are not accepted in respect of one of the territories referred to in paragraphs 4 or 5 of this Article, the Member, the Members or the international authority shall transmit to the Director-General of the International Labour Office a report on the legislation of that territory and on the practice observed therein in relation to the subject matter of the Convention. The report shall indicate the extent to which provisions of the Convention have been applied or intended to be applied, by means of laws, by administrative means, by virtue of collective agreements, or by any other procedure, exposing also the difficulties which prevent or delay the ratification of the said Convention.

**Article 36**

Amendments to this Constitution, accepted by the Conference by two-thirds of the votes present, shall enter into force when they are ratified by two-thirds of the Member States of the Organization, including five of the ten represented on the Administrative Council as being of the greatest industrial importance, in accordance with the provisions of Article 7, paragraph 3, of this Constitution.

**Article 37**

1. Any question or difficulty relating to the interpretation of this Constitution and of subsequent conventions concluded by the Member States pursuant thereto shall be submitted to the International Court of Justice.
2. The Governing Board may, notwithstanding the provisions of paragraph 1 of this Article, formulate and submit to the Conference for the approval of the Conference rules for the establishment of a tribunal to promptly settle any question or difficulty relating to the interpretation of a convention brought before it by the Administrative Board, or, as prescribed by the said Convention. The Tribunal established under this paragraph shall regulate its acts by the decisions or opinions of the International Court of Justice. Any judgment delivered by the said court shall be communicated to the Member States of the Organization, whose observations relating thereto shall be forwarded to the Conference.

**Article 38**

1. The International Labour Organization may convene regional conferences and establish institutions of the same character when it considers that both will be useful to its aims and objectives.
2. The powers, functions and regulations of the regional conferences shall comply with the rules formulated by the Administrative Council and submitted by it to the General Conference for confirmation.

**CHAPTER IV MISCELLANEOUS PROVISIONS**

**Article 39**

The International LaborOrganization shall have legal personality and, above all, the capacity to: (a) acquire and dispose of property, movable and immovable; b) hire; (c) bring actions.

**Article 40**

1. The International Labor Organization shall enjoy, in the territories of its Members, such privileges and immunities as are necessary for the attainment of its purposes.
2. Delegates to the Conference, members of the Administrative Board, the Director-General and officials of the Bureau shall also enjoy the privileges and immunities necessary to carry out, in complete independence, their duties in relation to the Organization.
3. Such privileges shall be specified by a separate agreement, which shall be drawn up by the Organization for acceptance by the Member States.

**ATTACHMENT**

**DECLARATION ON THE AIMS AND OBJECTIVES OF THE INTERNATIONAL LABOUR ORGANIZATION**

The General Conference of the International Labor Organization, meeting at Philadelphia at its twenty-sixth session, adopts, on the tenth day of May in the year one thousand nine hundred and forty-four, the present Declaration, concerning the items and objectives of the International Labor Organization and the principles which should inspire the policy of its Members.

I The Conference reaffirms the fundamental principles on which the Organization rests, in particular the following:

a) labor is not a commodity.

b) freedom of expression and association is an indispensable condition for uninterrupted progress.

(c) penury, wherever it may be, is a danger to general prosperity.

d) the struggle against deprivation in any nation must be conducted with indefatigable energy, and by a continuous and concerted international effort, in which the 20 representatives of employers and employees discuss on an equal footing with those of Governments, and take decisions of a democratic character with them, aiming at the common good.

II The Conference, convinced that experience has fully demonstrated the truth of the declaration contained in the Constitution of the International Labor Organization, that peace, if it is to be lasting, must be based on social justice, affirms that:

a) all human beings of any race, creed or sex, have the right to ensure material well-being and spiritual development within freedom and dignity, economic tranquility and with the same possibilities.

b) the realization of conditions that allow the exercise of such a right must constitute the main objective of any national or international policy.

c) any plans or measures, in the national or international field, maximum those of an economic and financial nature, must be considered from this point of view and only accepted, when they favor, and do not hinder, the achievement of this main objective.

(d) it is incumbent upon the International Labor Organization to assess, in the international field, with a view to this objective, all programmers of action and measures of an economic and financial nature.

(e) In carrying out the functions entrusted to it, the International Labor Organization shall have the capacity to include in its decisions and recommendations any provisions it deems appropriate, after considering all economic and financial factors of interest.

III The Conference solemnly proclaims that the International Labor Organization has the obligation to assist the nations of the world in the implementation of programmers aimed at:

(a) to provide comprehensive employment for all and to raise living standards.

b) to give each worker an occupation in which he has the satisfaction of making full use of his skill and knowledge and of contributing to the general good.

(c) to encourage, in order to attain the end referred to in the preceding paragraph, the opportunities for vocational training and to facilitate the transfer and migration of workers and settlers, giving due guarantees to all concerned.

d) adopt rules concerning wages and salaries, hours and other working conditions, in order to allow everyone to enjoy progress and also for all employees, who do not yet have it, to perceive at least one living wage;

e) to ensure the right of collective adjustments, to encourage cooperation between employers and workers for the continuous improvement of the organization of production and the collaboration of one and the other in the elaboration and application of social and economic policy.

f) expand social security measures to ensure both a minimum and essential income for all for whom such protection is necessary, as well as complete medical care.

(g) ensure adequate protection of the life and health of workers in all occupations.

h) to ensure the protection of children and motherhood.

(i) to obtain an adequate level of food, housing, recreation, and culture; (j) to ensure the same educational and vocational opportunities for all.

IV The Conference -- convinced that a wider and more complete use of the earth's resources is necessary for the attainment of the objectives enumerated in this Declaration, and can be ensured by effective action in the international and national spheres, in particular through measures to promote the expansion of production and consumption, to avoid serious economic fluctuations, to realize the economic and social progress of the less developed regions, to obtain greater stability in the world prices of raw materials and products, and to promote an international trade of high and constant volume -- promises the full collaboration of the International Labour Organization to all international organizations to which a share of responsibility can be attributed in this great mission, as in the improvement of health, in the improvement of education and the well-being of all peoples.

V The Conference affirms that the principles contained in the present Declaration are fully applicable to all peoples and that their progressive application, both to those who are still dependent and to those who can already govern themselves, is of interest to the whole of the civilized world, although account must be taken, in the varieties of such application, of the degree of economic and social development attained by each." "Text extracted from the book ILO Conventions
Author: Arnaldo Lopes Süssekind Publisher: LTrEditoraLtda"

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