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Performance Management of IT Professionals: A Humanistic Model

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***Abstract*—Nowadays society has transformed performance-related issues into situations that are merely focused on goals and competitiveness, which generates, in IT professionals, the feeling of being under constant pressure due to the need for immediate delivery of results. For this reason, Human Performance Management has become an increasingly essential process inside organizations, through which it is possible to improve, among other things, efficiency, productivity and satisfaction of employees. Its benefits are even more evident in areas such as Information Technology (IT), where evolution, complexity and uncertainty are ever-present factors. Based on this scenario, this study proposes a performance management model for IT professionals, linked to the philosophical current of Humanism and addressing aspects such as equality, respect, participation, competency and personal development. Thus, this research intends to have a positive effect on IT performance (individual/team/organizational), humanizing the relationship between IT employees and their organizations.**

***Index Terms*—performance management, performance appraisal, IT professional, humanism, model**

I. Introduction

HUMAN performance management (HPM) is an essential process inside organizations. The main objective of this type of management is to provide a performance measure for activities carried out by employees, while promotes the improvement of productivity, motivation and satisfaction. Therefore, this process can be considered a structuring basis for developing organizational culture and relationship between organization and its employees [1][2].

The benefits of an effective performance management are even more evident in areas such as Information Technology (IT) where complexity, dynamism and innovation are ever-present factors, requiring professionals to have high levels of knowledge and creativity [3][4][5]. Thus, the main motivation for this study comes from the opportunity to develop an analysis regarding performance management and satisfaction of IT professionals inside organizations, proposing, as a result, a management model composed by a set of guidelines based on the principles of Humanism.

Evaluate IT professionals performance and define the skills needed for the job are not recent concerns [6] [7] [8] [9] [10], however, nowadays society, as a result of economic globalization, has transformed issues related to performance into situations merely focused on goals and competitiveness, which generates, on IT employees, the feeling of being under constant pressure due to the need for immediate delivery of results.

The high turnover of professionals in Information Technology area [11][12][13] and occupational diseases, like technostress [14], are just some of the problems related to performance management, specially, when it is primarily focused on impersonal behavior, productivity and value delivery.

Given this scenario, several initiatives have emerged seeking to humanize and improve the relationship between employees and organizations [15][16][17][18][19]. Following the same line of thought, the purpose of this research is to define a performance management model for IT professionals linked to the philosophical stance of Humanism, considering, therefore, the issues related to a human centered management and addressing aspects of human nature, such as dignity, limits, aspirations, capabilities and potential.

Other important contributions of this study are focused on: detailing organizational culture concepts and human performance management; humanistic ethics' analysis in corporate environment; knowledge structuring for developing more effective methods of appraisal. Such contributions aims to be adherent to the current and future reality of IT professionals.

This research is believed to be scientifically original, since it proposes, as far as is known, a unique model for human performance management, based on the perspective of IT profile singularities together with extremely important concepts for society, like organizational culture, humanism and ethics.

It also can be justified by the proposition of a management model potentially capable of improve people and organizations, representing an extremely relevant artifact in a context full of uncertainties, challenges and constant transformations. In addition, the results obtained by this research are expected to server as groundwork for future studies focused on producing new knowledge, frameworks and methodologies related to HPM.

The rest of this article is structured as follows: section 2 sets out the theoretical foundation and related works considered for the research; section 3 exposes the context and issues involved

in this study; section 4 describes the scientific methodology employed; section 5 describes the proposed solution; section 6 analyzes and discusses the obtained results; and, finally, section 7 presents the last considerations of the research.

II. Literature Review

A. Organizational Culture Theory

In order to analyze employee performance, engagement and satisfaction in the context of organizations, it is necessary to understand organizational culture and its influence on these factors. [20].

The most commonly used and accepted definition of organizational culture is the one proposed by Schein (1988, p. 7) [21][20][22]:

> A pattern of basic assumptions, invented, discovered, or developed by a given group, as it learns to cope with its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore is to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.

As part of the Organizational Culture Theory, Schein (1988) [21] also proposes to describe an organization's culture as a set of levels that represent its elements, as shown in Figure 1.

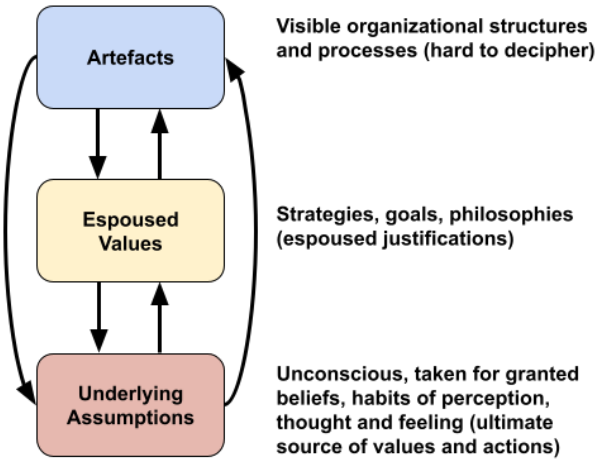

Fig. 1. The Levels of Organizational Culture. Adapted from [21]

In the context of human performance, **Artifacts** represent what people effectively accomplish and which directly reflect on performance and goal achievement. This level is the most evident in the culture, although some organizational actions and structures can be difficult to understand and justify.

The **Espoused Values** are the strategies, objectives, norms and philosophies openly propagated by the organization, aiming, for example, the effectiveness of the performance management. The organization's actions have the most significant effect at this cultural level.

Finally, **Underlying Assumptions** are taken-for-granted beliefs based on thoughts, perceptions, and feelings. At this level, cultural elements become visible only through the analysis of behavioral patterns. These underlying assumptions exist in order to simplify complex issues of organizational reality, such as the reasons why one person is promoted over another [23].

It is evident that the elements of each level of organizational culture are capable of influencing all the others, however, underlying assumptions of an organization have a great impact on its artifacts, supplanting, in some situations, the influence of declared values [21][23].

Organizational culture can be seen as a preponderant factor in performance management but also as part of the results of this management, that is, by promoting the performance improvement of employees and their teams, organizational culture ends up being directly influenced by this improvement [22].

Regarding the performance of an organization, it is possible to build a culture that emphasizes essential points, such as meritocracy, transparency and recognition [24]. All these positive changes that take place in the organizational culture have the power to provide employees with the possibility to act proactively, identifying, mitigating and eliminating human errors and correcting the organization's vices and weaknesses [25].

A favorable cultural posture results in actions that can, if carried out accordingly, guide the institution towards an effective management of human performance. [25].

B. Human Performance Management

Interest in the effectiveness of Human Resource Management, or its more recent term *Human Management* [26], became more evident and frequent from the 1970s onward [2].

Human Performance Management is one of the main pillars of Human Resource Management and, for this reason, the study of human performance inside organizations also started more than half a century ago [6][7][8][9][10]. Aspects related to this branch of organizational management have, therefore, a rich literature that can be found in the most varied areas of research, such as psychology, administration, sociology, information systems and economics [27][28].

In addition to the Organizational Culture Theory, HPM is based on a wide range of other theories [29][30][31], which demonstrates the high complexity and deepness of the subject.

The Table I presents some fundamental theories to understand and develop Human Performance Management.

Based on the numerous definitions of HPM that can be found in the literature, it can be inferred that Human Performance Management is a cyclical and continuous process that is intended to identify, plan, measure, control and develop performance at work, both individually and as a team, while aligning this performance with the organization's strategic objectives and the value delivery from executed activities [32][26][33][34][35].

HPM is, therefore, a complex process that involves a series of methodologies, techniques and approaches focused on overcoming the challenges and difficulties inherent to this type of management and returning positive results for organizations [36]. Figure 2 presents a holistic and pragmatic

TABLE I
FUNDAMENTAL THEORIES OF HUMAN PERFORMANCE MANAGEMENT [29][30][31]

Theory	Author(s)	Theory	Author(s)
Theory of Action and Job Performance	Richard E. Boyatzis	Agency Theory	Michael C. Jensen and William H. Meckling
Attribution Theory	Fritz Heider	Bureaucratic Theory	Max Weber
Field Theory	Kurt Lewin	Competency Theory	David McClelland
Contract Theory	Oliver Hart and Bengt Holmström	Theory of Individual Differences in Task and Contextual Performance	Stephan J. Motowidlo, Walter C. Borman, and Mark J. Schmit
Two-Factor Theory	Frederick Herzberg	Equity Theory	J. Stacy Adams
Expectancy Theory	Victor Vroom, Lyman Porter and Edward Lawler	Goal-setting Theory	Edwin Locke and Gary Latham
General Systems Theory	Ludwig von Bertalanffy	Organizational Justice Theory	Jerald Greenberg
Theory of Behavioral Engineering Model	Thomas F. Gilbert	Theory of Human Motivation	Abraham Maslow
Achievement Motivation Theory	David McClelland	Theory of the Social Self	George H. Mead
Job Characteristics Theory	Richard Hackman, Edward Lawler, and Gred Oldham	Bases of Social Power Theory	John French and Bertran Raven
Reinforcement Theory	B. F. Skinner	Theory of Social Exchange	George C. Homans

view of the Human Performance Management Framework as proposed by [32].

C. Humanism

Humanism is essentially a philosophical stance that assigns preeminent importance to human beings, their experiences, interests and rights. The hallmark of humanist philosophy is, therefore, the development of people's potential, considering Protagoras' relativism (490-420 BCE) where "man is the measure of all things" [37].

Among all the principles contemplated by humanism, some of them deserve to be highlighted: human value; individual dignity; the pursuit of civic culture; promotion of diversity and equality; and humanistic ethics. [37].

According to humanist ethics, the human being must "be considered as an end and never exclusively as a means or instrument for any purpose external to itself" [38]. Thus, moral rules are defined from the perspective of humanity, that is, *right* is everything that is good for human beings, values their life and develops their capacities, while *wrong* is everything that harms or takes away human dignity, represses individuality and dehumanizes people [38].

One of the main global aspirations of Humanism is found in the Universal Declaration of Human Rights, which establishes a commitment to promote universal respect for and observance of human rights and fundamental freedoms, demonstrating that human beings and their dignity must be above private power in any sphere [39].

Based on the fundamental idea of humanism, many other reflections have been developed, also covering the organizational context [40]. Thus, inside organizations, humanist management must place human dignity and rights as central concerns in all its subjects and methodologies [41]. In this sense, economic transactions are considered, in essence, as relationships between people and, for this reason, organizations need to serve the objectives of humanity and not the opposite. In doing so, people are seen as active and central elements of the economic system and not passive and secondary objects of an economy guided by other goals [41].

In a concise manner, a humanistic management is concerned with human needs and oriented towards the complete and extensive development of human being virtues. [42].

Thus, based on the concepts of this type of management, it is possible to describe a progressive model of 3 levels of entrepreneurial humanism [19][43], as shown in figure 3. In the same sense, humanistic management is composed of 5 dimensions [40]:

- Managerial responsibility
- Employee motivation
- Personal promotion
- Interpersonal relationships
- Organizational culture

Regarding the relationship between technology and humanism, it is important to note that this is not a recent issue [44], but the advancement of Artificial Intelligence and its application in real Information System problems has leveraged new initiatives seeking to discuss this relationship [45][46]. Such efforts are known as Digital Humanism, which has proclaimed and disclosed a manifesto with principles on current and future technological development, as well as, on the co-evolution of technology and humanity [47][46].

D. IT Professional Profile

There is a vast literature devoted to the study of professionals working in the area of Information Technology, there are many documents that analyze or propose aspects related to the profile of this type of profession. Authors from the 60s and 70s were already concerned with the topic and proposed ways of defining and evaluating the fundamental characteristics of these professionals [9][7][6][8][10][48]. On the other hand, more recent studies point to an extremely complex and plural profile, capable of acting in different areas of the organization [49][50][51][52][18].

For this reason, precisely defining the IT professional and his/her profile has become a controversial task, where the conclusion can even be that everyone in the organization is somehow part of the workforce that works in IT area [18]. Despite this, this study proposes and uses a simple and broad

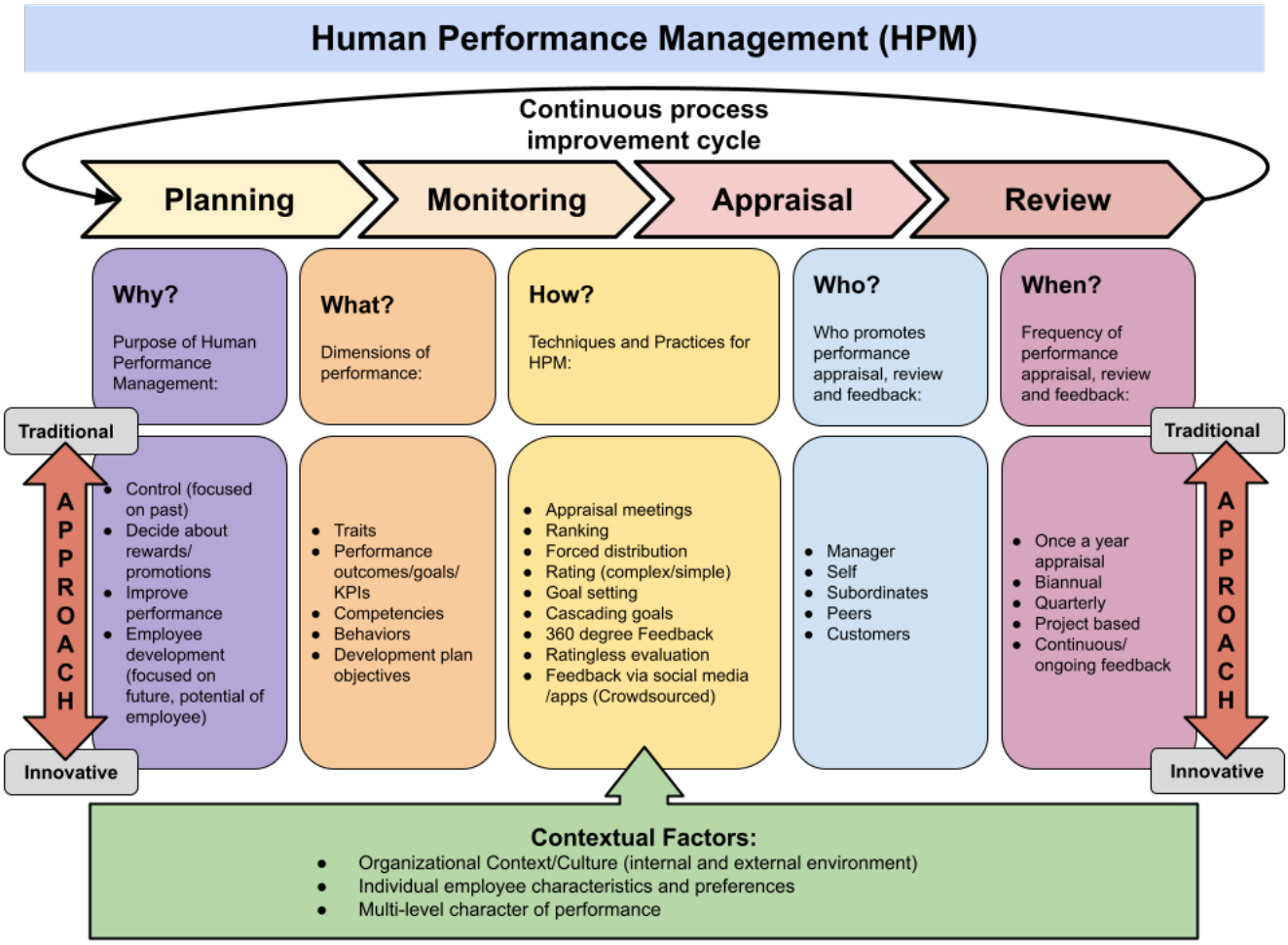

Fig. 2. Human Performance Management Framework. Adapted from [32]

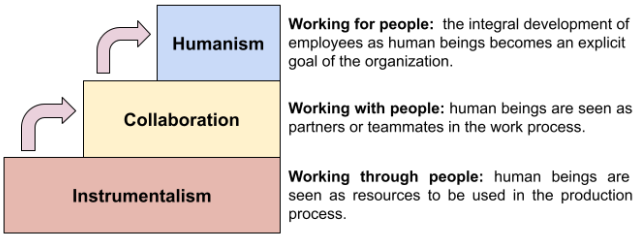

Fig. 3. Levels of Entrepreneurial Humanism. Based on [19].

definition of IT professionals that summarizes the mission of these workers [53][54]:

Professionals who have attributions and perform activities, primarily, aimed at delivering information technology products and services with effectiveness and security.

Based on this definition, this research considered that any professional related directly to Information Technology fields, such as Information Systems (IS), Communications (ICT) and Data Science, is an IT professional.

Even with the diversity of characteristics and classifications pertinent to IT profile, it is possible to identify convergent aspects common to all professionals from this area [50]. The IT employee has unique identity, knowledge, skills, attitudes and interests, his/her focus at work tends to be more centered on technical issues, to the detriment of interpersonal skills such as communication [55]. When compared to professionals from other areas, IT personnel have a greater desire for opportunities, challenges and autonomy [56], in addition, they are motivated by achievements, recognition, constant learning and personal growth [55].

These are also common elements of the IT area [50]:

- Supply and demand for IT professionals continually changing.
- Requirement of a combined set of technical, humanistic and business skills.
- Professional environment in constant change, requiring adaptation and update of specific skills in short periods of time.
- Activities developed are essentially cognitive and difficult to monitor and evaluate.

As mentioned before, the set of required IT skills can be classified into 3 broad categories [50][56]:

- **Technical Skills:** knowledge and competences related to the use and application of technologies.
- **Humanistic Skills:** temperance, resilience, interpersonal relationships (e.g., teamwork, leadership, communication), promotion of well-being.
- **Business Skills:** business domain knowledge, project management, ethics, problem and conflict resolution.

The definitions and all other considerations just presented are what make Information Technology professionals singular inside organizations, demanding differentiated attention and approach from human resource management and, more specifically, from human performance management. [57][55][56][50][54].

III. Context and Problem

As demonstrated in Figure 2, Human Performance Management is a complex process that involves numerous variables, methodologies, people and applications. In addition, HPM is based on a vast amount of theories, in the most diverse areas of research, which makes the study on the subject very extensive and deep.

Considering the theories studied, the Organizational Culture theory proved to be the central point of analysis, through which it is possible to understand how the actions defined in the HPM are actually performed and the effects that this management has on employees.

Added to this, there are the unique characteristics of IT professionals and their work environment, which require, from Human Performance Management, a differentiated and individualized treatment for employees working in this area.

The particularities, problems and difficulties faced by Information Technology professionals have been subject of study for many years [51], considering the issues addressed by the researchers, the following items deserve to be highlighted:

- Ethics in IT and Conflicts at work.
- Job or career turnover.
- Gender imbalance/prejudice in IT.
- Treatment of minorities in IT.
- Evolution/Change of project and work models.
- Overload, stress, exhaustion and burnout.
- Work versus social life conflicts.
- Speed of technological evolution.
- Perception of professional stagnation or obsolescence.

It is important to understand that an effective HPM has the power to treat, mitigate or even solve the problems experienced in IT area.

In addition, the philosophical thought of Max Weber (1864-1920) states that work is a source of dignity and nobility for human existence, promoting life and well-being, for oneself and for others [58]. Based on this vision, it is essential to study, develop and encourage a more humane and sustainable organizational management.

In this sense, Teehanke (2021)[43] proposes that human beings should have the following needs considered and managed by organizations:

- Physical and mental health.
- Intellectual development.
- Emotional growth.
- Experiences in the fields of arts, culture and aesthetics.
- Social connectivity.
- Moral and spiritual development.

In order to ensure the true evolution of human performance, HPM must consider the humanistic aspects in its management premises. Thus, it is essential to leave behind the model where workers are seen only as production resources, which need to be monitored and optimized considering only productivity and efficiency [43].

IV. Methods

In order to develop the solution proposed in this research, the *Design Science Research* paradigm was used [59]. Based on this paradigm, the first 4 steps of the process model proposed by Peffers et al. (2007) [60], known as *Design Science Research Methodology* (DSRM), were carried out, as shown in figure 4.

Thus, this research, which has a qualitative approach and positivist epistemological position, was developed in 4 phases or stages:

1) Problem identification and motivation.
2) Definition of solution objectives.
3) Design and development.
4) Demonstration.

In the first stage, an extensive literature review was performed, which made it possible to identify the context and domain of the problem. The motivation and reasons for seeking a solution were also determined, as indicated in Section III.

Continuing in the second phase, with the problem identified, it was possible to establish the objectives of the proposed solution, the assumptions and requirements that the produced artifact should follow. At this point, the need to build a human performance management model specifically focused on information technology professionals was defined, encompassing the precepts and characteristics of humanism.

In the third stage, the design and construction of the proposed model allowed a better understanding of the problem domain and its solution.

Finally, in the last step, the applicability of the model was demonstrated through evaluation methods of static and architectural analysis [59], verifying the structure of the model and studying its suitability to the requirements and theoretical assumptions postulated.

V. Results

Based on the context and issues described in Section III, the present work proposes a humanistic model for performance management focused on developing the needs of IT employees as human beings, guided by the principles of ethics and appreciation of life.

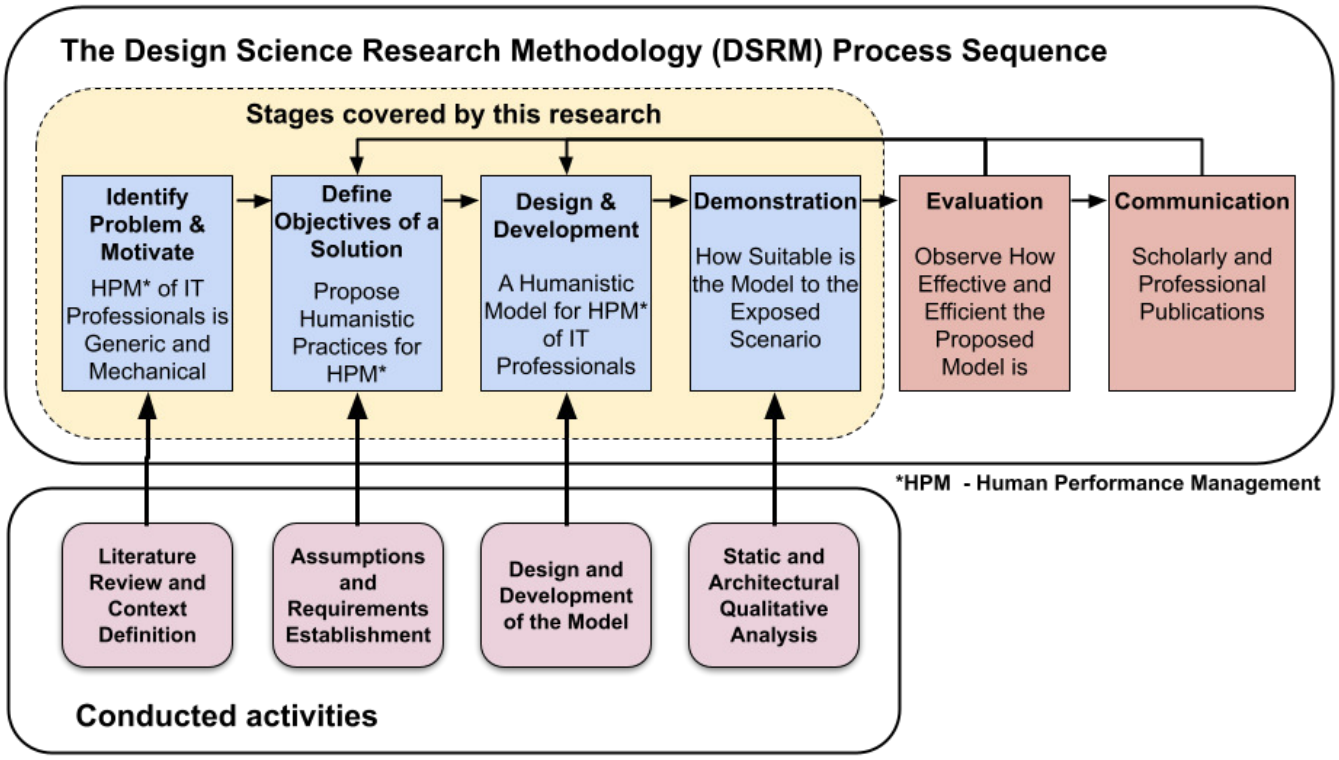

Fig. 4. Research Implementation using the DSRM Process Model. Adapted from [60]

The solution has the following fundamental assumptions and requirements:

- Promotion of the human person: all the steps on the process must preserve and improve IT employees' dignity and expectations;
- Ethics: all tasks related do performance evaluation need to be based on ethics principals defined by society and organizational culture;
- Transparency: actions and decisions of performance management must be communicated widely and transparently;
- Justice, Equality and Inclusion: the process must pursue and guarantee organizational justice, equality and inclusion;
- Objectivity and Celerity: HPM should avoid excessive bureaucracy, prioritizing simplicity, objectivity and celerity;
- Active stakeholder participation: all the steps must permit and promote the participation of organization community;
- Formative Appraisal: performance evaluation must prioritize a formative method (perceptions) over a summative one (grades and rates);
- Respect for individuality and dignity: all persons involved in the process must be treated with respect and dignity;
- Personal and professional development: HPM must ensure the personal and professional development of IT employees.

The details of the proposed model can be seen in Figure 5, there are 4 distinct phases in the human performance management process (planning, performance appraisal, review, monitoring and improvement), where each step is specified according to humanistic foundations.

As can be seen from the model, **human being** must be the central concern of HPM, this indicates that management success depends, primarily, on how the issues related to humans are treated.

IT Profile is the next element that deserves consideration in the model, this represents all characteristics, skills, competences, knowledge and needs that compose and differentiate IT professionals from the others. The actions taken during the performance management process must respect and consider this profile.

The **planning** stage defines and presents the individual and collective purposes for evolution of human performance of organization's members. Planning must have a person-centered approach, be public and objective, in addition, it must address the personal and professional growth needs of each individual, contemplating the specificity of the IT profile. Its realization has collaborative characteristics, where decisions about what to produce, develop, improve or remedy are taken jointly and equitably.

Performance appraisal has a formative character and occurs continuously, being encouraged and carried out by all members of the organizational community. It does not use a summative method, the absence of values prevents comparisons and, at the same time, develops empathy and critical thinking in employees when interpreting feedback received or

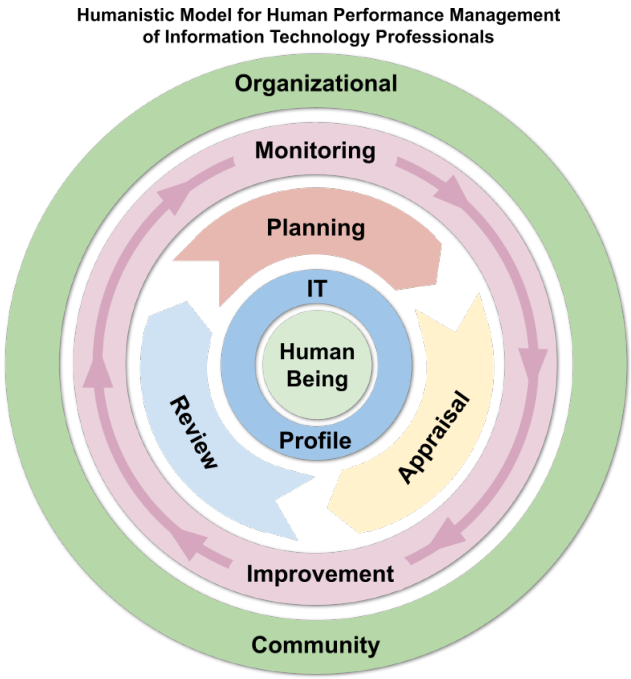

Fig. 5. Humanistic Model for Human Performance Management of Information Technology Professionals.

evaluating a colleague or themselves.

The **review** stage, which is also participatory, analyzes what has been carried out, allowing the necessary points to be adjusted and improving HPM proposals and mechanisms for the new cycle that will begin.

In the **monitoring and improvement phase (follow-up and support)**, the entire organizational community is invited to collaborate with the development of personal and professional goals, both individual and collective, which were defined in the planning stage. This step occurs throughout HPM process and can be executed in the form of mentoring, coaching, physical and mental health support, transfer and promotion of knowledge, among others possibilities. In addition, actions that seek to improve the management process itself are also promoted and encouraged.

VI. Discussion

The analysis of the results relied on the evaluative precepts proposed by Design Science Research [59] and, from there, we sought to understand how adequate the solution is in relation to the human performance management framework (Figure 2), to the humanist principles and to the characteristics and particularities of the IT professional profile.

Regarding the human performance management framework (Figure 2), it is possible to verify that the proposed model is fully adherent to it. The solution presents a management process with well defined phases and elements, deals with organizations' contextual factors and allows the adoption of existing approaches and methodologies related to the field of HPM.

Considering the problem covered in this research in relation to humanist principles and the profile of the IT professional, it is understood that the following points are contemplated in the solution, as proposed by Farah (2000, p. 150) [38]:

- Respect for human beings and equal treatment.
- Improvement of Organizational Justice.
- Concern with personal (physical, mental, moral and spiritual) and professional development (skills, knowledge and technological evolution).
- Planning and evolution of human performance in an appropriate manner, linked to both, personal and organizational, expectations.
- Collaboration in IT talent retention.

This study is considered innovative because it proposes an unprecedented model capable of improving, from a humanist perspective, the human performance management of information technology professionals.

To corroborate this statement, in most of the studies on HPM analyzed by this research, the authors focused on directly applicable methods or management practices for performance evaluation, and, only in few cases, the characteristics of IT professionals are encompassed, however, leaving aside the question of humanism. The authors who dealt with humanistic management, on the other hand, do not, specifically, address performance management or the profile of the IT professional.

VII. Conclusions

For Humanism, every person is worthy of development [37]. This research was conducted based on this humanistic axiom and it is hoped that this study can somehow contribute to a better and more sustainable world, aware of the importance of valuing life and human dignity.

The limitations of the model and its usage are related to the issues concerning the initial adoption, since the study considered a generic process of HPM, for more specific scenarios or situations, it will be necessary make adaptations and develop extensions in order to deliver the expected results.

As future work, the development of complementary research is indicated, which, based on the proposed model, will produce new artifacts capable of leveraging the evolution of Human Performance Management of Information Technology professionals. Good practices, processes, methodologies, surveys and information systems are just a few examples of important artifacts that can be defined and explored.

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