# Human Resources Metrics Dashboard

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## ABSTRACT

This article focuses in all the research, contextualization, definition, analysis and implementation process of the human resources metrics dashboard for an organization in the technology business, using Meta4 technologies. It was developed a business study, some of the key concepts where deepened and defined, metrics were studied and selected, in order to justify the proposed solution. This solution will be the primary support to human resources management, simplifying and justifying the decision making process.

## Categories and Subject Descriptors

H.4.2 [Information Systems Applications]: Decision support systems.

## General Terms

Management, Measurement, Design, Human Factors.

## Keywords

Human Resources, metrics, indicators, dashboard, Meta4.

## 1. INTRODUCTION

The current article owes its existence to a real case situation; project CAPPE08, born of a partnership between ISCTE and an organization in the technology business.

The main purpose of this project was to gather in a package, a set of functionalities considered to be relevant in the Employee's Portal, using Meta4 technologies.

Meta4 is one of the world's top suppliers of human and intellectual capital management (HICM) solutions and develops a solution for Integrated Human Resources Management: Meta4 Innova, which implements the Employee's Portal.

The Employee's Portal is a standard solution, and so, it's required to be adapted to the specific needs of each organization. The necessary adaptation makes some disparities appear concerning page developing standards, and makes the time of implementation for each organization get higher, due to the modules development time or difficulty of adapting these modules to others, already existing in other organizations.

This package intends to satisfy these needs, congregating a set of functionalities that where considered in lack in what is the Meta4 standard solution but that are relevant for the client. The package's purpose is to be used inside the organization or to be sold to clients. In the first scenario it was intended to increase each employee's productivity, in particular those in the human resources department. In the second scenario, the main purpose was the normalization of requirements and the reduction of the implementation's time using the existing modules, increasing clients' satisfaction.

This article approaches all the process of research, contextualization, definition, analysis and implementation of one of the most interesting requirements of this package: the Human Resources Metrics Dashboard.

## 2. SCOPE

At the beginning of this 21st century, we watch the surface and affirmation of the internet, a globalized world, change management, the opening of new markets and the appearance of new ways of competition, creating the foundations for an outstanding technological evolution.

A new economy Era has surfaced, based on e-commerce[1] and supported by Information Technologies. The expectations for the first moment of e-commerce, or e-commerce I[2], assumed the implementation of a market closer to perfect competition[3], with the existence of a total market transparency, where information is known by everyone. After all, e-commerce has proven to be just another way of distribution. This ending led to a global crisis in e-commerce, making many companies bankrupt and only the best succeeded, re-thinking their way of doing business.

In e-commerce II[4], in which we are today, the main focus is no longer innovation, easily imitated, but the ability of environment change adaptation and rapid response, always in search for customer satisfaction and providing excellent service levels.

There is a greater need of managing organization knowledge and the potential knowledge developed by their employees. This

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[1] E-commerce – commercial transactions made in digital form between organizations and individuals.

[2] E-commerce I – period of e-commerce explosive growth, started in 1995 and ended in 2000, when the dot com company's market shares started falling. It was the first wave of publishing and selling products in the Web.

[3] Perfect Competition – economic model that is characterized by: a standardized product, a behavior of price holders by enterprises, the perfect mobility of resources and perfect information for buyers and businesses. [Frank 1998]

[4] E-commerce II – started in 2001, after the fall of the dot com company's market shares. Corresponds to nowadays.

knowledge's network brings many benefits for the organizations because the employees are impelled to feel part of the organization becoming the big part of the production line bringing ideas and projects that are many times much more closer to the real necessities of their final clients.

Human Capital has become indispensable for the organizations, turning into a great innovation and process improvement potential.

According to Bontis and Temple, Human Capital is very important because it's a potential source of innovation and strategic renewal [Bontis 1998], and has an immense importance in the development and economic growth [Temple 1999]. In this way, Human Capital corresponds to every capacity, knowledge, abilities and individual experiences of the employees and managers of the organization [Edvisson et al 1997]. It also can be defined as the knowledge that each individual possesses and generates [Petrash 1996].

In this phase of intense competitiveness and exchange of information, becomes clear that an organization has to have in account a range of different goals. Besides aiming to reach a faster and more efficient human resources management, it's also needed, to enclose the least costs as possible, at the same time as resource utilization is optimized, administrative tasks are decentralized and internal communication are improved.

This way the company is able to supply collaborators with a better quality service, in order to make them more motivated and involved in the organizational project, and consequently achieving the best possible service to the client..

## 3. NECESSITY IDENTIFICATION

In a world much more competitive, with a proven preference for the use of information systems and for the creation of competitive advantages, and where more and more organization's assets of bigger value become the knowledge of their human resources, it becomes crucial to find a suited tool, which facilitates a more efficient staff management.

The following items are considered to be key activities for human resources management [Armstrong 2001]:

- Organization – organizing the company in way to develop and potentiate the communication and decision making as well as the response to environment changes.

- Working Environment – creating a climate of stability and trust between the collaborators in order to make them feel comfortable.

- Knowledge Management – developing projects that are able to get the development and knowledge sharing needed to make progress in company's learning and performance.

- Human Resources Development – development of the collaborators individual capacities reinforcing competence acquisition. Planning careers of people with potential.

- Reward Management – developing payment systems that are just, transparent and that reward results, effort,

competences and skills, as well as non-financial reward systems that allow the employee to have the opportunity to progress his career, with growing responsibilities and recognition.

- Workers Relationships – maintain and potentiate relations between collaborators, transmit and spread information of the collaborators interest and allow them to participate in subjects of mutual interests.

Considering the current competitive spirit of the environment and the precision of finding a competitive advantage among Human Resources Management activities, it becomes clear the necessity of managers access each time more quickly and easier to the Human Resources relevant information, in a way to support the decision making.

A common practice, still current in organizations nowadays, consists in keeping all information using supports, such as, spreadsheets, without data normalization, or using a set of rules to keep data integrity, making information harder to treat and analyze, reinforcing the necessity of using an information system suited to Human Resources.

Besides allowing to suppress this less agile and less efficient information storage procedure, an information system must possess the following objectives [Rascão 2004]:

- Gathering, selection, treatment and analysis of data, transforming these data in decision making support information.

- Allow regular information suited to the several levels of management.

- Add value to the organization.

A specific information system for Human Resources will allow reaching the following benefits [Armstrong 2001]:

- To make possible a normalization to relate policies and processes of staff trough all organization, facilitating the development of an integrated and coherent system of staff management.

- Reduce the load of work of human resources functions eliminating low value tasks while ables the function of supplying efficient administrative services.

Thus, a Human Resources Department, as any part of an organization, that's equipped with a suited information system with current, relevant and appropriate information, will be at a better position to make decisions and formulate winning strategies and acquire competitive advantages over their competitors [Rascão 2004].

One way to better achieve a greater competitiveness is to have an easy and fast access to information, using a Human Resources Metrics Dashboard. This tool facilitates the decision making process among other benefits, listed and developed the next point.

## 4. CONCEPT

A Dashboard or *Tableau de Bord* is a visually attractive mechanism of monitorization and is used for obtaining information through a set of indicators [Viaene et al.2007].

The purpose of the Human Resources Metrics Dashboard is to create a group of indicators that will allow an adequate analysis of the organization to ease the Human Capital Management. It measures the performance of the selected indicators and allows a posterior conclusion that contributes to the establishment of new measures in order to fulfil its goals.

It should be established in 5 basic ideas:

- Be a supportive instrument to make a decision;

- Clarity and efficiency in it's conception and use;

- Easy adaptation to the evolution of the organization;

- Maximum visibility when accessing to the key variables;

- Be an element of constant motivation in every level of management.

Functionalities

The data is displayed schematically, containing visual indicators that show its tendencies compared to the previous period and to its goals.

Some top indicators are shown and there's a possibility to drill down the data, looking deeper at the granularity and specificity of the displayed data. This drill down can show indicators that explain the first indicator or decompose the first level indicator, such as, in functional areas. (See figure 1).
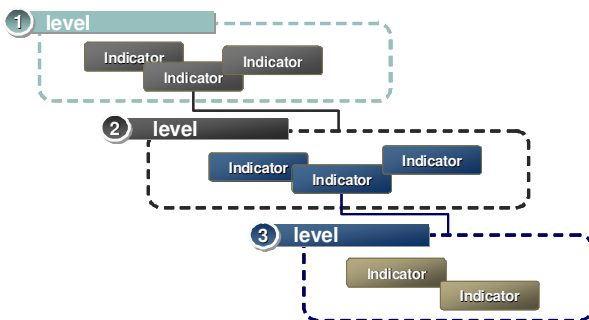


**Figure 1 – Organization Schema for dashboard indicators.**

Advantages:

- Being a very visual and schematic tool, it improves the manager's legibility.

- Gives a closer look on indicators' status and evolution.

- Eases decisions.

Disadvantages:

- Only displays data, the manager needs to understand its meaning and be able to take conclusions based on its analysis.

- Data viability - not all indicators are easy to obtain and schematize. Sometimes, obtaining costs are so high (due to difficulties in data gathering, need of periodic

insertion and complex calculus methods) that such analysis isn't worth being done.

- The user should have the notion to evaluate if the graphic representation brings benefits in information comprehension and in supporting the decision making process.

Properties needed so that a dashboard can be considered well succeeded:

- Be exact and focused in the goals and its main purpose.

- Information must be useful and well selected. Indicators must consider essential variables of the value chain of the organization.

- Display metrics according to the target: metrics must show the most important indicators in key dimensions.

- Must be comparable with previous periods, real versus goal, show tendencies and if goals are being met.

- Must be a visual tool to ease user's data comprehension.

In conclusion, for the dashboard to be of any use, the user needs to find the adequate metrics that allow reflection of both recruiting politics and human resources retention (process or operation wise) as well as reflecting the processes of continuous improvement, innovation and organizational learning (development and results).

## 5. HOW TO MEASURE?

In order to aid the process of Human Resources management, the various indicators of Human Resources were stipulated into dimensions. This allows a vocational analysis for each Human Resources area, allowing the manager's attention to not be diverted.

The dimensions considered as standard by the Corporate Leadership Council in 2005, which supplied the theoretical basis for the dimensions to be used in study cases, are the following:

- Recruitment - related to the hiring activity in terms of the volume of new hires from internal and external sources, as well as the relative growth or shrinkage of the workforce. Some indicators in this dimension are: recruitment rates, rehire rates, transfer rates, promotion rates, new position recruitment ratio.

- Retention - it's the level of internal dedication and satisfaction of employees. Some indicators in this dimension are: turnover, employment engagement, cost of turnover.

- Capability - measures employees' competences and performances according to the different positions occupied as well as the process of development of such competences and performance levels. Some of the indicators in this dimension are: educating levels, ROI (return on investment) of training, performance-based pay differential, manager quality index.

- Compensation and Benefits - measures volume of wages, bonuses and other amounts paid to employees. Some indicators in this dimension are: benefits satisfaction index, average annual salary per FTE (full time equivalent), average number of options per employee.

- Environment - related to maintaining the workplace a desirable place for the employees better work on their tasks. Some indicators in this dimension are: absence rate, external complaint factor, lost time incident rate.

- Human Resources Service Delivery - related to the area of influence of Human Resources that is directly connected to the employees and allows their movement and dispersion throughout the organization. Some indicators in this dimension are: operating expense rate, Human Resources Staffing Breakdown, Service level.

- Workforce - related to the personal characteristics that employees bring with them to the workplace. Some indicators in this dimension are: average workforce age, staffing rate - part time, average workforce tenure.

- Organizational Effectiveness - is the output of the workforce, as well as the relationship between amounts paid to employees and the financial output they produce. Some indicators in this dimension are: productivity rate, R&D (research and development) expense rate.

The grouping of these indicators eases the analysis of the Human Resources manager. Nonetheless, measurement needs to be correctly performed and there is a need for processes that gather the required data.

To assure these conditions, the manager has to guarantee that there exists such necessary processes to gather, analyze and handle data for the utilization of indicators to be possible, and if such doesn't exist, he needs to implement them.

If implementation is not possible for all the necessary processes, the manager should proceed to a selection and restructuration of the indicators available, so that an analysis of the organization is obtained, globally and efficiently.

Handling Human Resources indicators is a recent process and still in maturation. It involves the measurement of assets considered unreachable like knowledge and acquired competences by the organization and factors like employee satisfaction with its bosses and the level of commitment to the organization. [Costa and Pereira 2005] These factors, through measurement of the indicators, make up for a difficult and potentially costly process.

While measuring, the dashboard's user must understand the following aspects:

- Not all indicators are easy to obtain, many companies handle their data in ways that don't allow easy use to other programs, and therefore the selection methods of these indicators for the dashboard considered the possibility of obtaining instead of what would be ideal for each particular case.

- Many of the necessary data for these indicators are based on questionnaires and opinion studies. These data are compromised when the trust level of privacy by who fills them might change or soften the answers, leading to wrong or less objective conclusions. This effect is called social desirability[5]. This problem is not always easy to handle and minimize, and can lead to serious deviations in the results.

- The dashboard allows only a relative visualization of the indicators, which don't allow us to find the source of the problem. Therefore, the user must understand what each indicator means (understand what each indicator reveals), as well as knowing how to look for information that might indicate the source of the problem and solve it.

# 6. PROPOSED SOLUTION

Considering this particular case study, was concluded that not all of these indicators dimensions that were considered standard by Corporate Leadership Council would be ideal, relevant or necessary in this case.

The proposal of dimensions and indicators considered several variables.

One of them was the difficulty of obtaining data in the organization. It was necessary to study the range of existing processes in this particular case to find out if there were enough data to apply for each dimension.

After this initial study, it was necessary as well to verify the integrity of the data to be used in the computing applications, for example, if the data are inserted manually with fluctuations of concepts and scales.

Another constraint considered was the management of expectations of the user of the dashboard. The purpose of the application would be an indication of two main dimensions: recruitment and retention, and the other dimensions considered less prioritary according to the characteristics of the organization and corresponding needs. This is because in this case study it's about a service company based on the quality of its human capital, and in this case are the primary indicators to support decision making. Therefore, only the dimensions mentioned will be implemented and would depart the application parameterized and a whole theoretical basis so they can be incorporated into the other dimensions.

The costs/benefits relation (the cost of obtaining the indicators and the benefits that such analysis of the indicators) was the ultimate constraint because many indicators cost are so high that including them in the dashboard would not bring benefits to the company.

In the next figure (See figure 2) is shown the principal dimensions and the first level metrics that we concluded to be more adequate

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[5] Social Desirability – act of response in the way that we think is more socially acceptable to issues rose by the investigation on questionnaires (especially when it is self administered) or personal interviews, although in these last is easier to take control of the answers and minimize the effect.

to the reality studied, considering the reality of the organization, alternative studies about measurements and user expectations.
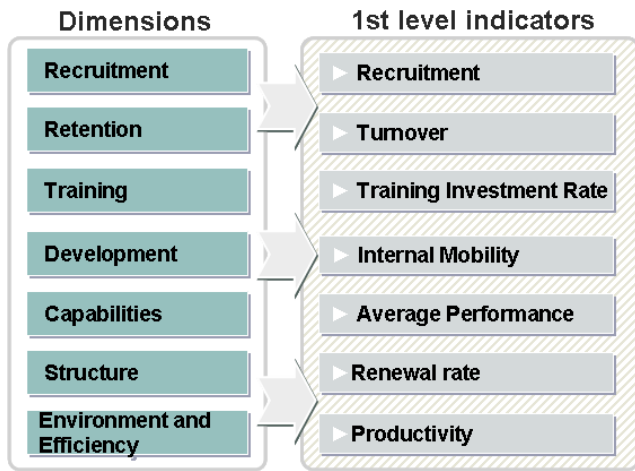


**Figure 2 – Matching of dimensions and 1st level indicators on the purposed solution**

After consideration of all these constraints, the proposed solution addresses seven dimensions. These dimensions are hierarchically clustered. For each dimension was chosen a select number of indicators. There have been taken into account the indicator that would best measure the performance of the organization and at the same time, that were as comprehensive as possible.

To facilitate the visualization of data and perception of the dashboard, it was proposed visualization by levels. As said, the indicators were disposed hierarchically so as not to be viewed all at once. This enabled the possibility of the manager to view the main indicators and, if desired, to drill-down qualitative or quantitative, viewing more detailed information on a certain dimension of the organization, which may help in understanding the indicator of the first level.

Quantitative Drill-down allows the user to find further information on the application of the same indicator. For example in the case of the "retention", the indicator of the first level is the "rate of turnover" and "turnover by discipline" is part of the quantitative drill-down.

Qualitative Drill-down of the application allows the user to see information related to the indicator of the first level. For example in the case of the "recruitment", the indicator of the first level is the "rate of recruitment" and the indicator "total cost of recruitment" is part of the qualitative drill-down, ie, the indicators below explain the first level indicator.

In the Table 1 (in appendix 1), is shown the hierarchical structure of our solution to this particular case.

Finally, the possibility of changing the setting of the indicators was still considered for the solution. The users can choose pre-defined indicators that they want to see at each level of the dashboard, customizing it according to their needs.

| 1st Level | 2nd Level | | 3rd Level |
|---|---|---|---|
| | Quantitative Drill-Down | Qualitative Drill-Down | |
| **Recruitment** (recruitment dimension) | • Recruitment by key areas<br>• Recruitment by grades | • Average interview per hire<br>• Interviewee offer rate<br>• Offer acceptance ratio<br>• Average time to fill<br>• New hire performance | - |
| **Turnover** (Retention dimension) | • Turnover by key areas<br>• Turnover by termination kind<br>• Turnover by criteria<br>• Turnover by new hire | • Retention Rate | • Top Performers Retention Rate |
| **Training Investment Rate** (Training Dimension) | • Investment by key areas<br>• Investment by grades | • Training hours per occurrence | - |
| | | • Training per employee | • Participation ratio<br>• Training Penetration Rate |
| | | • Training channel delivery mix | - |
| | | • Employees Satisfaction with training | - |

| | | | | |
|---|---|---|---|---|
| | | | • Leaders Satisfaction | |
| | | | • Training Efficiency | - |
| **Internal Mobility Rate** (Development) | | • Mobility by key areas<br>• Mobility by criteria | - | - |
| **Average Performance** (Capabilities dimension) | | • Performance by key areas<br>• Performance by grades | • Competence ratio<br>• Competence growth ratio<br>• Top Performers growth ratio<br>• Attendance to Performance Evaluations<br>• Performance-Based Pay Differential | - |
| **Renewal Rate** (Structure dimension) | | • Renewal by key areas<br>• Renewal by grades<br>• Renewal by criteria | • Average stability | - |
| | | | • Contributive position input | |
| | | | • Promotion rate | • Promotion Speed Ratio |
| | | | • High Potential rate | • Top Performers at risk rate<br>• High Potential compensation rate |
| **Productivity Rate** (Environment and Efficiency dimension) | | • Productivity by key areas | • Collaborators Satisfaction<br>• Absence Rate | - |

**Table 1 – Hierarchical Indicator's Structure**

## 7. CONCLUSION

The issue exposed in this article fills a market necessity not yet much explored in the Human Resources area, an application that smooth the progress of the decision making, being broad enough but so specific that allows to support the made decision process.

Trough the study developed in the business area, from the selection and definition of support metrics and indicators was found a suitable solution to this particular case of an organization in the technology business, gathering the indicators considered relevant and availing them in form of a tree diagram, in order their use to become more intuitive.

The easy access to these indicators will allow a greater support in the task of business administration, in particular, Human Resources Management. This tool will permit to engage the maximum potential of an organization's human talent in order to increase productivity, always attending to the changes demanded by the business environment. Last but not least, will facilitate the decision making process and enable a supported and reliable decision.

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