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Av. das Forças Armadas, Edifício II, 1649-026 Lisboa Portugal
Phone: +(351) 217 903 024 | e-mail: administrador.repositorio@iscte-iul.pt
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# Intellectual Capital Management in Performing Arts: A Case Study

Florinda Matos[1], Nuno Matos[2],
[1] Instituto Universitário de Lisboa (ISCTE-IUL), Centro de Estudos sobre a Mudança Socioeconómica e o Território (DINÂMIA'CET), Lisboa, Portugal
[2] ICAA – Intellectual Capital Association, ICLab, Santarém, Portugal

florinda.matos@iscte-iul.pt
nuno.matos@icaa.pt

**Abstract**: The permanent search for organizational competitiveness in a context marked by sustainability objectives and digital transformation leads companies to develop management tools and models that guarantee them a high level of competition. Understanding intellectual capital management (ICM) processes in the different areas of business activity is, therefore, a priority for creating value.
This research aims to analyse ICM through an audit of its main dimensions and try to understand its relationship with knowledge management processes, namely the retention and transfer of knowledge in an area that still needs to be explored: the performing arts industry.
The performing arts, also known as 'creative experience providers', are professional areas based on arts and culture, which are based on selling cultural shows (e.g., theatres, ballet companies, orchestras) and whose professional activity is acting for audiences.
The research methodology is based on a case study carried out in a Portuguese performing arts organization.
The theoretical support model was an intellectual capital management model previously tested in companies with a different profile than these organizations.
The main findings point out that intellectual capital management in the performing arts industry can be audited. However, adjustments must be made to these industries' working realities. It was also concluded that intellectual capital management is a critical factor in the success and survival of these industries, so the management of this asset and its valorization is strategic.
The uniqueness of this study is its contribution to stimulating data-driven discussions regarding the necessity of improving intellectual capital management practices in organizations, with particular emphasis on organizations such as those in the performing arts sector, where the most significant value is centred on the intangible assets of each worker.

**Keywords**: Intellectual Capital Management; Knowledge Management; Performing Arts

## 1. Introduction

Among the scientific and business community, it seems clear that the creation of value in a company is related to its ability to manage its intellectual capital, making retention, sharing, and transfer of core knowledge of its activity. The management of these intangible assets is even more strategic in business entities that are highly dependent on the individual knowledge of each worker and their ability to share this asset, as is the case in the Performing Arts (PA) sector.
These organizations, belonging to the creative industries sector, have a particular profile, as they cannot financially support themselves. The need to explore the way they organize themselves internally to promote shows that create a connection with their audiences and, thus, their continued sustainability through the financial assistance of their Patrons raises several questions that arise within the scope of intellectual capital management.

In many cases, these organizations are managed using State funds and can remain in business, even when there are management deficiencies, given their contribution to a country's culture.
A well-known example of this organization in Portugal is OPART, E.P.E (OPART), which is designated as a public business entity. OPART manages some of the best-known artistic houses in the country, the São Carlos National Theater (SCNT), the National Ballet Company (NBC), and also Victor Córdon Studios (VCS). As a company in the Performing Arts sector, it demonstrates its importance by managing the only opera house in Portugal.
This research chose the case study of OPART. Since it is a convenience sample, it will focus on the Teatro Nacional São Carlos and Victor Córdon Studios.
The São Carlos National Theater is an ancient house in the performing arts sector in Portugal. Opened in 1793, this theater is considered the only theater in Portugal that presents a production based on opera, choral, and symphonic music shows.
The Victor Córdon Studios correspond to an OPART project that simultaneously works in dance and music, promoting sharing activities within the artistic areas. The VCS aims to create interconnected programs between the NBC and the SCNT, allowing a more direct connection with audiences by allowing this experience and direct contact between artists (who teach) and audiences (who intend to learn).
This research aims to verify whether it is possible to audit the management of intellectual capital in Performing Arts organizations and to evaluate the performance of organizations in the Performing Arts sector by managing their intellectual capital.

**2. Theoretical Considerations**

Goods are mainly derived from knowledge and cannot be touched because they lack a physical form and are known as intangible assets. Sectors that utilize intellectual property rights more frequently in connection with their human capital activity tend to benefit more from these assets (EPO and EUIPO, 2016).
Intellectual capital is acknowledged as an organization's primary intangible asset. It is essential to its success and profitability since it is the foundation of all knowledge that exists and can be used to create value.
Several definitions of intellectual capital exist, and comprehensive research confirms that scientists do not universally acknowledge a single definition.
While Galbraith's 1969 publication is credited with coining the term "intellectual capital," the concept of intellectual capital management emerged from three different sources: the research conducted by Hiroyuki Itami (1980) on the impact of intangible assets on Japanese corporate management, a study conducted by a group of economists (including Penrose, Rumelt, Wemerfelt, and others) in search of a fresh perspective on business; and, lastly, the writings of Karl-Erik Sveiby in Sweden. Intellectual capital would only have become prominent with this author's contributions. His work introduced a novel perspective by emphasizing intangible assets as the primary strategic concern for enterprises.
One of the first writers in Sweden to acknowledge the need to measure intangible assets was Karl-Erik Sveiby, who is credited with founding the knowledge management and intellectual capital movements.
In June 1991, Stewart published an article titled "Brain Power - How Intellectual Capital Is Becoming America's Most Valuable Asset," which effectively introduced "intellectual capital" into the management lexicon despite Sveiby's assertiveness. In this essay, Stewart argues that various forms of knowledge, such as patents, procedures, management talents, technology, data on suppliers and consumers, and prior experience, are growing in significance for the entire firm. The collection of knowledge and expertise is referred to as intellectual capital. In other words, the company's competitive advantage arises from the combined expertise of its
whole workforce. He contributed to the rise in the significance of intellectual capital by penning the cover story "Your Company's Most Valuable Asset: Intellectual Capital" for Fortune magazine in 1994 and later publishing the book "Intellectual Capital: The New Wealth of the Organization" (Stewart, 1997).
Nonetheless, Sveiby's (1997) work inspired Leif Edvinsson, the corporate director of Skandia AFS, who was among the first to refer to intangible assets as intellectual capital. He created the idea and

defined intellectual capital as the body of information, practical experience, organizational technology, professional skills, and client relationships that provide a business with a competitive edge.
Edvinsson (1997) explains intellectual capital using a metaphor. The author likens a business to a fruit tree, with financial outcomes as the fruits and intellectual capital as the roots that ensure long-term sustainability.
Edvinsson and Malone (1997) divide intellectual capital into two categories: human capital and structural capital.
These writers define human capital as the capital of the organization's human resources: talents, creativity, relationship-building ability, cumulative value of practices, and values. This capital also includes the organizational principles and culture of the business. These writers contend that this capital is the fundamental wellspring of creativity and rebirth.
The worth of databases, software, manuals, pamphlets, client lists, and other items still in the company after employees "go home" is known as structural capital. Customer and organizational capital are two categories into which this capital can be separated. Organizational capital is subdivided into innovation capital (the company's capability for innovation) and process capital (the company's value creation and non-value creation processes). Customer capital, sometimes called relational capital, is the worth of a business's connections with its clients. This perspective holds that intellectual capital, the foundation of the capacity to produce value of the highest caliber, is the total of structural and human capital.
Since Edvinsson is considered the intellectual capital theorist who contributed most to developing the notion, this study concentrates on his definition.
To enhance intellectual capital management, it was necessary to develop a variety of models so that it would be possible to determine which is the most effective and how it should be managed (Matos, 2011; Matos, 2013). Despite the emergence of various frameworks (see Edvinsson and Malone (1997); Stewart, 1997; Sveiby (1997); Kaplan and Norton, (1992, 1996) Mouritsen et al.,( 2001); Andriessen & Tissen, (2000); Viedma, (2001); and Andriessen, (2004) there is currently no consensus regarding the optimal model for intellectual capital management.
This study opted to utilize the Intellectual Capital Management model (ICM), as suggested by Matos and Lopes (2009). This model is widely used in the business sector and offers a more robust capability than alternative models to address the complexity associated with the elements comprising intellectual capital and organizational knowledge (Matos, 2011).

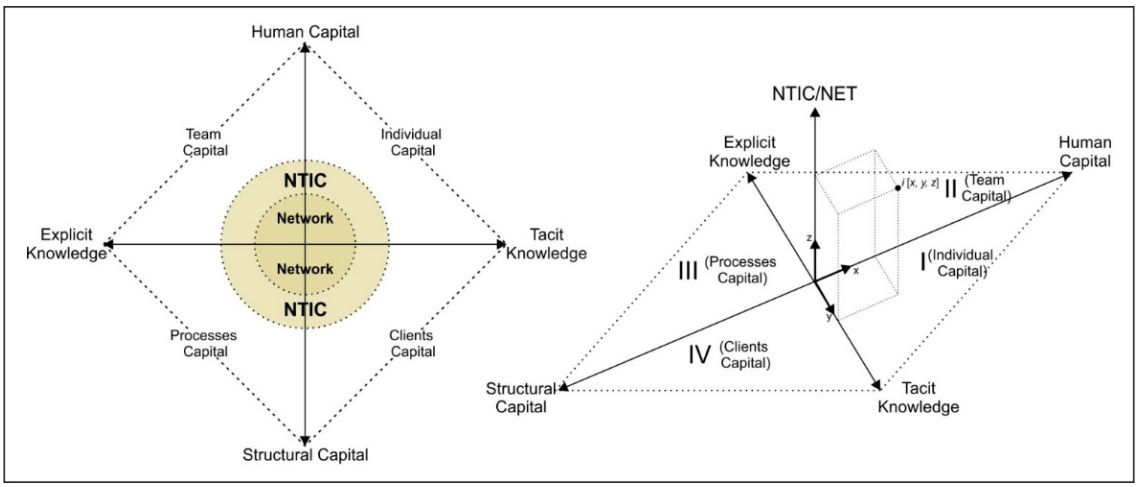


Figure 1 - ICM - Intellectual Capital Model (Matos and Lopes, 2009)

According to this model, the intellectual capital assets is organized by two axes that reflect Knowledge (with Tacit Knowledge and Explicit Knowledge as opposed factors) and Organization (with Human Capital and Structural Capital as opposing factors). The four quadrants are categorized as follows: Quadrant I represents Individual Capital, Quadrant II represents Team Capital, Quadrant III represents Processes Capital, and Quadrant IV represents Clients Capital. The core component of the model illustrates the impact of New Technologies of Information and Communication (NTIC) in conjunction with Networks (NET) on all functions and tasks related to intellectual capital management (Matos et al., 2020).

## 3. Methodology and Data Sources

This study's target population corresponds to the workers of OPART and, more specifically, the collaborators of SCNT and VCS, a total of 262 collaborators. A convenience sample was extracted, taking into account the risk of respondents refusing to participate in the investigation or bureaucratic limitations. As it was impossible to obtain authorization to administer a questionnaire to NCB workers, the decision was made to administer questionnaires to all workers at TNSC and VCS, regardless of their professional category, to obtain a representative sample of this universe. Responses were obtained from 39 individuals, approximately 15% of the population.

A questionnaire aimed at verifying workers' perceptions of Intellectual capital management was developed based on the questionnaire that supports the model proposed by Matos (2013).

Due to the constraints of the data frame, sample size, and response rate, the findings cannot be extrapolated to the Target Population. The current work is regarded as a preliminary study to support future research endeavors.

Following the ICM model proposed by Matos and Lopes (2009), the survey was divided into six parts: a set of questions that focus on respondents' social characterization and five sets of questions corresponding to the five dimensions of intellectual capital proposed by Matos and Lopes (2009): individual capital, team capital, processes capital, customer capital, networks, and new communication technologies.

The questionnaire has a total of 73 questions.

The same 5-point Likert scale tested by Matos (2013) was used.

## 4. Data Analysis

The Cronbach's Alpha Coefficient and the Pearson Correlation Coefficient were used to verify the internal consistency of the variables and the reliability of the questionnaire survey.

Given that the ICM is based on a theoretical structure, it was considered appropriate to carry out principal components analysis for exploratory analysis of adjusting data to a low-dimensional factorial structure.

This research was carried out using IBM SPSS Statistics 25 software.

### 4.1 Sample Characterization

The data that seems most relevant to the social characterization of the sample are presented below.

Approximately 54% are female, with the remaining 46% being male.

Regarding the level of education, it appears that most participants obtained a bachelor's degree (33.3%), and 15.4% of participants obtained a master's degree.

It can be observed that the majority of participants who were given the questionnaire indicated the NTSC as their place of work, with approximately 90% of responses, and the remaining 10% as the minority who responded that they were working at the VCS. Regarding the years of work at OPART, it was possible to verify that most participants have worked for more than ten years in the company (65.8%), and only 15.8% of participants say they have worked for OPART for between five and ten years. Only 2.6% say they have worked at OPART for less than one year.

### 4.2 Analysis of the Average Responses to the Quadrants of the ICM Model

To better understand how participants' opinions in this study are formed, an analysis was carried out on the response averages per Quadrant, among the four quadrants and NTIC and NET that make up the ICM model used in this investigation.

Table 1 - Average responses from participants, according to ICM Quadrants.

| | N | Average | Minimum | Maximum | Standard Deviation |
|---|---|---|---|---|---|
| **Individual Capital Quadrant** | 39 | 2,47 | 1,00 | 5,62 | ,91 |
| **Team Capital Quadrant** | 39 | 3,22 | 1,21 | 5,71 | 1,05 |
| **Processes Capital Quadrant** | 39 | 4,10 | 1,31 | 5,69 | 1,28 |
| **Clients Capital Quadrant** | 39 | 3,99 | 1,00 | 5,80 | 1,38 |
| **NTIC + Network** | 39 | 2,52 | 1,29 | 3,57 | ,71 |

#### 4.2.1 Individual Capital Quadrant

The proposed model analyzes a quadrant focusing on human capital with an average response level of two. It indicates that most respondents believe the situation presented is minimally relevant to their real context (M=2.47).

#### 4.2.2 Team Capital Quadrant

The second quadrant of the team capital quadrant focuses on the collective aspect of a company's work, with a level 3 average response indicating a higher representation of the collective element. Given that the average response is at level 3 of the measurement scale (M=3.22), the collective element of the company ends up having more representation than the individual element.

#### 4.2.3 Processes Capital Quadrant

The third quadrant of the model is associated with the formalization and development of the team's organizational memory, that is, processes that allow this formalization of a company's knowledge. Considering the average responses, most of the respondents agree that this applies very much to their professional context: the average response was centered on level 4 of the scale (M=4.10).

#### 4.2.4 Clients Capital Quadrant

This quadrant is closely linked to the relationship that workers and the company establish with their customers and also to the way they develop services and products, taking into account their target and the concern about how they can increase the satisfaction of its customers. It can be observed, through the answers, that the respondents believe that it applies moderately to the professional reality they experience, considering that the average answer is at level three of the scale (M=3.99).

#### 4.2.5 New Technologies and Networks

This last dimension is shared between the four main quadrants of the model, establishing a relationship between them. It is the company's added value in that it facilitates certain types of functions, such as administrative functions, so that certain functions are not time-consuming, thus enabling increased labor productivity. It can be seen that the average of this quadrant is centered on level 3 of the scale, meaning, therefore, that the working reality of the respondents differs, as the set of situations included in this last quadrant, on average, apply little to the professional context of each respondent (M=2.52).

### 4.3 Analysis of Correlations between Quadrants of the ICM Model

Knowing that the Pearson correlation is measured using a scale from <0.19 (very weak) to 1 (very strong), it was considered appropriate to apply this measure of association to the quadrants that form the ICM model simultaneously (see Table 2).

It is possible to observe that, in all cases, a positive correlation was identified as the following:
1) correlations were observed between the individual capital quadrant with the team capital quadrant (rs=0.587, p<0.001), the processes capital quadrant ( rs=0.516, p<0.01) and the customer capital quadrant (rs=0.543, p<0.01) in which the correlations are positive and moderate, and with the new technologies and networks capital quadrant (rs=0.718, p<0.01) where the correlation is positive and strong;
2) correlations were observed between the team capital quadrant with the process capital quadrant (rs=0.539, p<0.01), the customer capital quadrant (rs=0.474, p<0.01), and the new quadrant technologies and networks (rs=0.546, p<0.05) in which, in all three cases, the correlations are positive and moderate;
3) correlations were observed between the processes capital quadrant and the customer capital quadrants (rs=0.736, p<0.001) and new technologies and networks (rs=0.516, p<0.05);
4) the last correlation to observe is between the customer capital quadrant and the new technologies and networks quadrant, and we found a positive and moderate correlation (rs=0.536, p<0.05).

Table 2 - Correlations between the quadrants of ICM Model

| | **Quadrant TC** | **Quadrant PC** | **Quadrant CC** | **NTIC/NET** |
|---|---|---|---|---|
| **Quadrant IC** | ,587*** | ,516** | ,543** | ,718** |
| | (N = 37) | (N = 34) | (N = 33) | (N = 14) |
| **Quadrant TC** | | ,539** | ,474** | ,546* |
| | | (N = 34) | (N = 33) | (N = 14) |
| **Quadrant PC** | | | ,736*** | ,516* |
| | | | (N = 31) | (N = 12) |
| **Quadrant CC** | | | | ,536* |
| | | | | (N = 13) |
| * $p < 0,05$ ** $p < 0,01$ *** $p < 0,001$ | | | | |

**4.4 Questionnaire Reliability and Validity**

The purpose of carrying out Cronbach's Alpha for this part of the study was to verify the credibility of the questionnaire survey applied to the sample based on the values obtained.
Two of the questions that made up the ICM model had to be excluded after applying Cronbach's Alpha, as they contributed to reducing the reliability of the same questionnaire.

Table 3 presents the estimated value of Cronbach's Alpha (0.940), concluding that we have excellent internal consistency.

Table 3 - Alfa de Cronbach

| **Reliability** | | |
|---|---|---|
| **Cronbach Alpha** | **Cronbach Alpha based on Standardized Items** | **N Items** |
| 0,940 | 0,963 | 66 |

By carrying out an analysis of the Pearson Coefficient, it was possible to verify that there are correlations among the variables that make up the ICM model, which in some cases are considered significant because they are very close to (1).

These correlations between different ICM variables allow us to conclude that the greater the concern for the satisfaction of its audiences, the better the business entity-public relationship is established, and the more easily the quality of the service is guaranteed. It can also be concluded that the new technologies depend on improving the quality of internal organization processes, and their greater use will be in recording and systematizing internal organization processes. It is also possible to understand that the greater the investment in internationalization through networks with international companies, the greater the motivation to create new internationalization strategies.

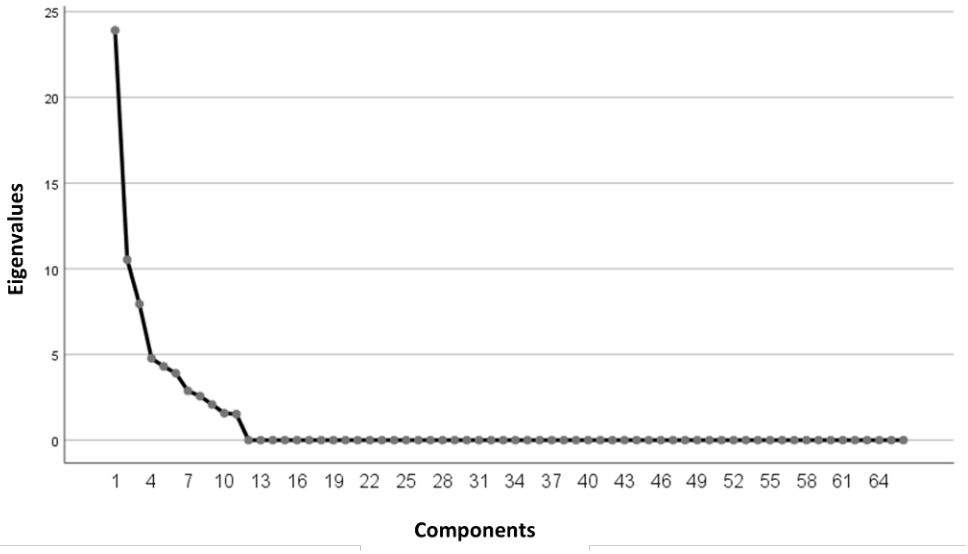
The greater the investment in innovation at the market level, the greater the investment in new services/products. It is observed that the greater the investment in the innovation of new internal organization processes, the greater the response to resolving external complaints. When new technologies are used to encourage a culture of teamwork, they are used more to record important knowledge.

It is verified that by developing partnerships to help create value and improve the company's internal functioning, greater recognition is also being given to professional training as a tool for acquiring new skills. It is also concluded that the more investment in creating events within Portugal, the greater the need to include internationalization in the business entity's ongoing strategies. Finally, by promoting new technologies to record essential knowledge, their use will be greater in recording and systematizing all internal organization processes.

In the final analysis, a principal component analysis was carried out to confirm the validity of the questionnaire. The aim is to understand whether reducing most variables that make up the ICM model of intellectual capital management to fewer factors is possible.

Following the criterion of the proportion of total variance explained, it is possible to observe the extraction of 11 possible components. If only the first three components were extracted, we would reach the desired percentage, with 64% of the variance explained by the five IC components (see Graph 1).

Graph 1 - Principal Component: *Screen Plot*



## 5. Conclusions and Limitations

Following the objectives defined for the research, it was possible to verify that the research support model (ICM), with the necessary adaptations, allows auditing the management of intellectual capital in Performing Arts organizations. Some quadrants are more critical at OPART, such as the quadrant of team capital, client capital, and processes capital, but this does not imply that the other quadrants are not equally important. Given OPART's area of activity, it is natural that there is greater involvement in teamwork, as is the great concern for the satisfaction and pleasure of its audiences. However, it is also necessary not to forget that individual capital tends to override team capital, requiring permanent intellectual capital management in areas where each employee can be an artist unique.

Processes capital quadrant proved to be the most relevant. Through this quadrant, it is understood that there is a promotion of the development of teamwork and, with it, the sharing of ideas and knowledge through its collaborators, which allows not only a closer relationship between people through their professional experiences but also the creating value through the sharing of different working methods, whether they are old values passed down within the company, or new ones, integrated into the company by new employees. This knowledge-sharing leads to the need to retain and systematize the same knowledge. The importance of professional training as a tool for acquiring new skills was also recognized.

Although it is not possible to prove the second objective - verifying whether it is possible to evaluate the performance of organizations in the Performing Arts sector through the management of their intellectual capital - the results indicate the existence of a relationship between the management of intellectual capital and the performance of the same organizations.

It is important to highlight some of the main limitations in the context of the research carried out. Therefore, although the results are pretty interesting and raise clues about the importance of managing intellectual capital in the performing arts, we can only analyze this case study from an exploratory perspective, and the results cannot be extrapolated to other organizations.

Another limitation resulting from OPART employees' poor adherence to this research is that it is impossible to obtain a homogeneous sample of all the entities that make up OPART since more responses were obtained from the SCNT.

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