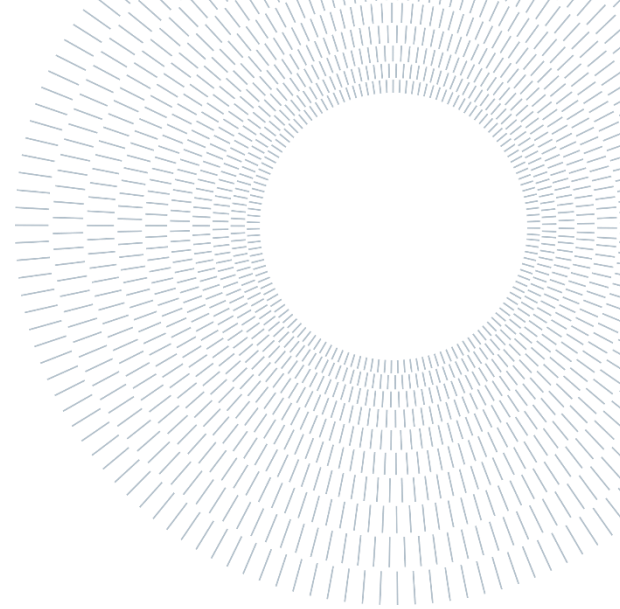




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EXECUTIVE SUMMARY OF THE THESIS

Digital Maturity Assessment for Performing Arts Organizations. The experience of Italian Theaters

DISSERTATION FOR THE MASTER OF SCIENCE DEGREE IN MANAGEMENT ENGINEERING

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1. Topic Overview

The relationship between theater, advanced technological solutions and the measurement of its digital performances is the core topic of this Master Thesis.

The theater, understood as a complex organization of people and means, has the typical connotation of a social institution operating in the economic sphere. It can be defined as a coordinated system of personal and material resources, organized in accordance with laws and procedures both internal and external to the organization [1].

Theater is aimed at the pursuit of specific objectives, which can be summarized into three main categories:

- Social-Artistic objectives, which are related to the creation of artistic production and to the protection of cultural heritage to create externalities and added value for the community.

- Economic objectives, which are linked to compliance with rules of economic management such as administration and organizational efficiency and effectiveness.
- Competitive goals, which are related to the survival in the marketplace.

This last category of goals has acquired particular importance during last years, thanks to the development of new technologies which has been making the digitalization and innovation rate of theaters a critical successful factor.

Of course, a valid organizational structure is essential for the proper functioning of a theater, and it plays a key role in the achievement of these goals. For this reason, it is necessary to develop a unified model that allows for positive, bidirectional relationships among institution's main goals. The organization, indeed, must be able to fully support the offer of the show if it wants to effectively pursue these objectives.

Alongside with this necessary comprehensive view of the theater as a structured organization, it is relevant to consider that, from creation to consumption, all steps in the theaters value chains

have been influenced by new digital solutions. They have brought about new opportunities for innovative practices and new ways of interaction with audiences [2].

This phenomenon of growing fascination with technological instruments has been strongly increasing from the 60s till today, and it has become even more urgent following the Covid-19 pandemic and the consequent lockdowns. Indeed, between 2019 and 2020 there was a reduction in admissions of 70.41 percent and an estimated loss on box office expenditures in the Italian theatrical scene of 77.78 percent. This translated in millions of losses for this sector, which highlights the importance of digitalization for increasing the resiliency against such disruptive events bringing to new opportunities and necessary digital implementations such as the Online Streaming.

The advent of Covid19 and the restrictive measures designed to curb it, therefore, have forced theaters to take a hard look at the potential and importance of incorporating digital technologies into every stage of theater management and organization.

In addition to a new way of thinking about the delivery and production of performances, in fact, in the last two years it has also become increasingly urgent to rethink all those back-office activities, which managed in a traditional way and without the help of advanced technological tools, do not allow them to remain economically viable in the market. Therefore, in addition to offering the theatrical product in an alternative way, reorganizing itself through online streaming, for example, which have assumed a key strategic role, theaters must increasingly figure out how to incorporate digital technologies fully into their organization, making the processes of logistics, security, personnel management, and strategic and investment planning digital and flexible.

We can therefore say that this pandemic has in some ways represented a valuable opportunity to unhinge somewhat antiquated logics that theaters do not need digital to remain competitive and has given a strong push toward viewing the theater organization as 360-degree digital.

Digitization, therefore, needs to be carefully studied to understand what new benefits and challenges it can bring at the creative level, at the production level, at the distribution level, at the marketing level, and even at the managerial level.

2. State of the Art

In literature, we can find different papers and research aimed at analyzing the impact and the benefits that some digital solutions could bring in specific areas of the organization [3]; [4]. Innovation, indeed, is one of the critical successful factors for every theater both for what concerns the on-stage activities and the customer involvement but also within the organization to achieve a competitive advantage in managerial and administrative activities. The necessity for a high innovation rate is significantly accentuated by the raise of new technologies and the digitalization trend which is impacting each sector. Moreover, being theaters performances directly related to customers' perception, it is necessary for these institutions to provide services and be in touch with the market according to the pace of the digital evolution.

However, it is easy to see that the literature in this field is not rich and does not present a comprehensive view of how a theater can be 360° proofed by digital technologies.

Given the importance of digitalization in theaters, it is also necessary to quantitatively assess their digital performance. Evaluating the digital maturity of theaters is indeed fundamental for two purposes. First of all, it is useful for the theater to understand its strengths and weaknesses and what to focus on when defining a plan of action for the future. In addition, the assessment of their digital maturity can be used as a benchmark for comparison with other theaters in order to understand how to make continuous improvements. Indeed, it is increasingly urgent for theaters to remain competitive and the only way to do this is to embrace what new technologies offer, as has been made clear by the pandemic.

Therefore, performance measurement systems are critically important for cultural institutions, especially when they are associated with quality, governance and accountability.

Performance measurement systems could give different benefits to theaters such as a contribution in the decision-making process and a support both in the internal and external reporting. However, they are not so easy to be implemented. Indeed, they could present high costs for the organization, and they should also present a certain degree of flexibility.

In any case, alongside the fragmented and not efficient view of digitization in theaters, then, there is also this major shortcoming in literature. It is not possible to find any model for measuring digital maturity in theaters, despite the fact that such models have been widely studied and are being developed and adopted in many sectors, most notably in the manufacturing one. Thus, although there are many interesting digital maturity models for industry 4.0, nothing has been developed specifically to assess the maturity of theaters, so each one should be readjusted and rethought based on the specific peculiarities of this world.

3. Theater Digital Maturity Model

Hence, our Master Thesis stems from these considerations, which first and foremost assumes a central role at academic level, serving as a central link in the study of three macro areas: Theater, Digitalization, and Performance Measurement. Indeed, the aim of this research is to develop a model for measuring the digital maturity of theaters by answering the following research questions:

- RQ1_ Which are the digital transformation dimensions in theaters?
- RQ2_ How is it possible to assess each of these digital transformation measures identified?
- RQ3_ How is it possible to synthetize all these dimensions into a single index?

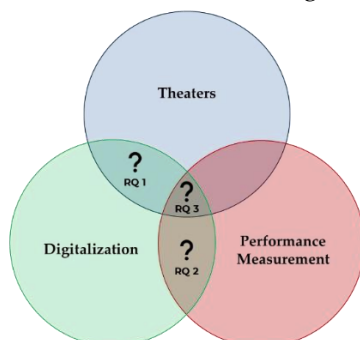


Figure 1 - Literature Gap & Research Questions

Accordingly, the final output consists in a tailor-made digital maturity model for theaters in order to provide a way to classify institutions according to their positioning in terms of digitalization.

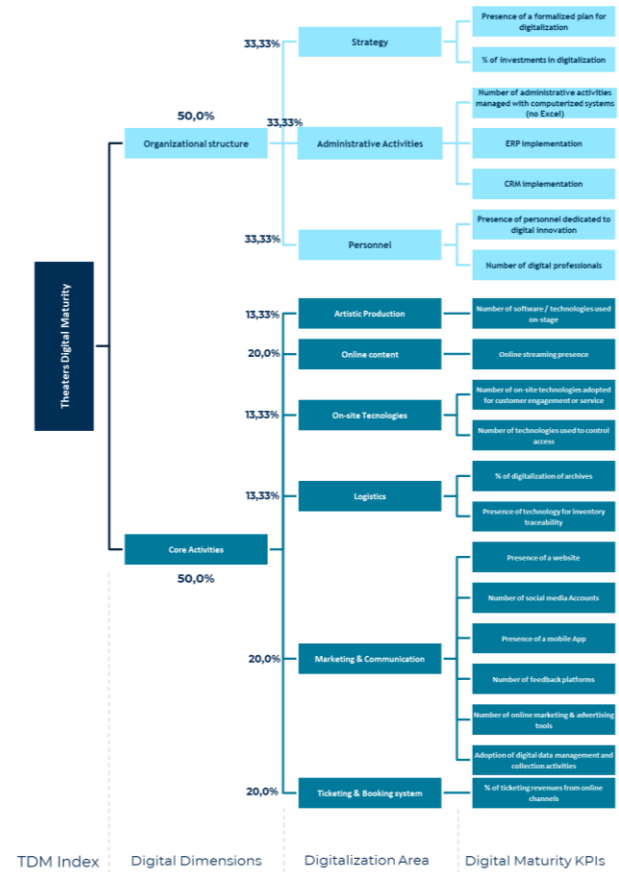


Figure 2 - Theater Digital Maturity Model

The model is developed on two main dimensions as represented in Figure 2. For each of them, it then identifies more areas in which digitalization can be applied. Subsequently, different KPIs have been associated to such digitalization areas in order to concretely assess the digital maturity level.

The two macro dimensions, i.e., Organizational Structure and Core Activities, encapsulate all the main areas that need to be taken into account in order to assess the impact of digitization on theaters.

They deployed totally into nine digitalization areas based on the findings from the literature review. These sub-dimensions collectively provide a comprehensive view of a theater's organization and consider all the relevant aspects for the assessment of its digital footprint.

In particular, we can list:

- Strategy: Activities aimed to conceive the value proposition of the theater and its organization to achieve its goals and gain competitive advantage in the market.
- Administrative activities: Supervisions, monitoring and control activities at

monitoring that ensure that the enterprise has its best chance of succeeding.

- Personnel: Human resources which determine the availability of skills and know-how within the organization, of course related to digital competences.
- Logistic: Internal activities for the management of archives and warehouses, as well as for the handling of instruments and costumes needed for staging.
- Artistic Production: Activities related to the construction and staging of the show.
- Marketing & Communication: Activities related to the development of customer engagement and customer interaction, including the management of critique online, through online tools and new digital strategy. This activity also includes all the aspects related to advertising online and the management of data to better profile customers and engage in appropriate marketing strategy.
- Ticketing & Booking system: Activities related to understand the purchasing behaviors of the audiences and to define the most appropriate sales strategies.
- On site Technologies and services: Activities related to creation and the development of onsite customer experience, through the adoption of a variety of technologies.
- Online content: Activities specifically related to the delivery of performances via online streaming.

In all these dimensions, digital aspects are clearly explored in depth and the impact that new technologies have is evaluated through the chosen KPIs.

4. Results Analysis

The model has been tested on Italian territory, in particular on four categories of theaters receiving contributions from the Fondo Unico per lo Spettacolo:

- National Theaters

- Theaters of Significant Cultural Interest
- Traditional Theaters
- Lyric Symphonic Foundations.

The main results, echoing the two main dimensions of the model, that compose the final Theater Digital Maturity index (TDM) are schematized in Table 1.

| Theaters | Organizational Structure | Core Activities | TDM |
|-------------------------------------------|--------------------------|-----------------|-------------|
| Lyric - Symphonic Foundations | 38,2 | 56,3 | 47,2 |
| National Theaters | 49,7 | 53,6 | 51,6 |
| Theaters of Significant Cultural Interest | 32,2 | 39,9 | 36,0 |
| Traditional Theaters | 30,4 | 37,8 | 34,1 |
| Total | 36,8 | 46,6 | 41,7 |

Table 1 - Dimensions and Digital Maturity level final values

Applying the model to the categories highlighted it has been possible to find an average value of the theater digital maturity index equal to 41,7 measured on a scale of 100. This value is given by the weighted average of the two macro dimensions, i.e., Organizational structure and Core activities.

In general, all theaters appeared more mature in core activities rather than in organizational structure and this shows a pragmatic approach to digitization that lacks a complete digital strategic vision. The most well positioned are the National Theaters, of course because of the great results they have in organizational structure and in core activities. They are followed, immediately after, by Lyric Symphonic Foundations thanks to the great and positive impact of the core activities. In the following graph it is immediately visible, for each category of the theaters analyzed, on which area they are stronger and where, instead, there are the biggest lacks on which they should invest and be careful in future.

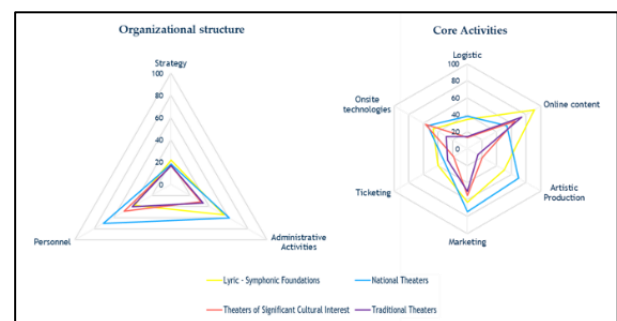


Figure 3 – Theater categories comparison under the model dimensions

The last step of the model application, thanks to the Statistical Clustering performed adopting the Centroid linkage methodology, allowed to classify Theaters of the sample into four categories [5], according to the two dimensions of the model:

- Differentiators, which have a high level of digitization both in terms of organizational structure and approach to digital business strategy.
- Collaborators, which are still characterized by a value of Theater Digital Maturity (TDM) higher than the mean of the sample, but their level of implementation in the main activities for enhancing a better customer experience is lower compared with differentiators.
- Adopters, who are in the opposite position compared to collaborators and have a level of digitalization in terms of structure below the average, even if they have good performance in terms of activities' digitalization.
- Skeptics, who do not believe that digital disruption is important to them are thus characterized by a low level of digital maturity in both the macro dimensions of the model.

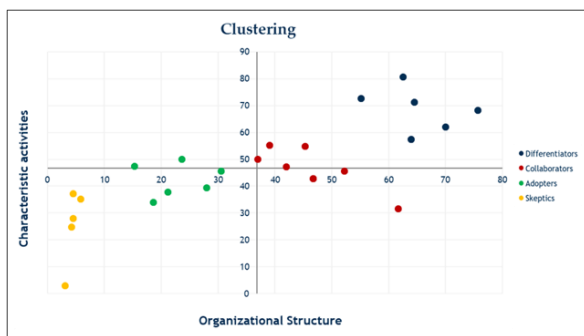


Figure 4 – Cluster Analysis

This classification gives some guidelines to theaters in terms of the area on which they should invest and improve in future in order to increase their level of digitalization. In general, it is interesting to note that all the theaters, also the ones called “differentiators”, although they have better results compared to the other, lack in the field of strategy, which should be instead the most relevant activity to focus on in order to drive digitalization at 360 degrees. On the other hand, instead, in all theaters the most developed core activity is the online content, of course thanks to the pandemic of the last years. At the same time,

also ticketing is not so much differentiated among the different clusters, while in logistic and artistic production, for example, there is a huge gap in terms of digitalization between the differentiators and the other clusters.

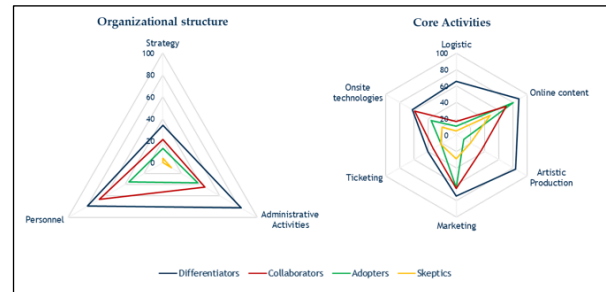


Figure 5 - Radar chart comparing the different clusters under each dimension

5. Contributions

From the academic standpoint, this Master Thesis covers an important literature gap between the areas of Theater, Digitalization and Performance Measurement. Moreover, it also sits alongside all the digital maturity models that have already been developed for SMEs or within industry 4.0, going to highlight how this assessment is important also for the cultural sector.

From the managerial standpoint, then, it could help managers to understand how they are positioned in digital terms and also with respect to the other institutions and to identify the specific areas on which they can and should improve both in a short and in a long-term perspective. Of course, this will enable theater managers to take a longer-term view on the investments that need to be sustained in the following years, in order to be able to survive and to remain competitive in the future. Also, a quantitative assessment of the level of digital maturity of the current situation, could be useful as a signal to receive funds and grants based precisely on the theater's ongoing technological progress and/or based on the future plan. Finally, being the model developed after the pandemic, it could be useful also to understand how institutions have reacted to such a disruption consequently measuring their degree of resilience.

Moreover, another relevance of the research refers to the great benefits that it can grant at the ministerial and governmental level. Indeed, the quantitative results of its application could be used as a criterion of choice for the distribution of public funds, but also to understand which are the best

strategies to adopt for the future within the cultural sector.

Finally, a great strength of this model lies in its simplicity and intuitiveness, which facilitates its application, critical reading of the results, and adaptation in case of changes in the characteristics of theaters or, even, in case of foreign adoption.

6. Limitations and future research

Nevertheless, there are some important limitations of this model to consider in assessing the results. First of all, the data collected are enough, but minimum to perform more meaningful statistical analyses.

Moreover, the choice of sample relying on the ministerial decree that allocates funds from the Single Fund for Performing Arts excludes all the other theatrical realities and so might be reductive and not totally expository of the Italian landscape. However, since there is no up-to-date census of Italian theaters that includes all those with a permanent establishment, it is not possible to have a more scientifically valid sample for research.

In addition, some results, especially the ones related to the ticketing and booking indicators, are affected by the impact of Covid-19 which have drastically worsened theaters' economic position. This is the reason why, in performing the statistical analysis of variance, we have adopted revenues data related to 2019 to avoid any distortion.

Another limitation of the research was found at the questionnaire administration stage, where many theaters stated that they were unaware of some data necessary to answer and so never finished filling it. Finally, further limitation might be the attribution of the weights, because since the situation is constantly evolving, it could be that what is valid today, is no longer valid in a few months and so they will be revised in future considering the technological situation.

In future, however, some interesting research could be done based on this work.

First of all, it will be possible to expand the analysis to all theaters in Italy so as to have an even more complete picture and to compare the results obtained for theaters in the FUS categories and the other realities.

Then, applying the model to a larger sample will allow for very meaningful statistical analysis to see

the direct correlations between variables and what immediately impacts digital development.

Finally, it will be also possible to broaden the analysis to the international context to find numerous contributions both academically and politically.

References

- [1] M. Nova, *L'azienda teatro. Assetti istituzionali e politiche di gestione*, Egea, 2002.
- [2] I. De Voldere, J.-F. Romainville, S. Knotter, E. Durinck, E. Engin, A. L. Gall, P. Kern and E. Airaghi, "Mapping the Creative Value Chain," 2017.
- [3] S. B. Preece and J. W. Johnson, "Web Strategies and the Performing Arts: a solution to difficult brands," *International Journal of Arts Management*, 2011.
- [4] M. Gallina, *Organizzare teatro*, FrancoAngeli, 2007.
- [5] M. Gill and S. VanBoskirk, "The Digital Maturity Model 4.0," *Forrester*, 2016.