

## THEATRE MANAGEMENT IN THE CONTEXT OF THE DEVELOPMENT OF NEW GENERATION TECHNOLOGIES – MANAGEMENT IMPLICATIONS ARISING FROM THE IMPACT OF TECHNOLOGY ON THE SHAPING THEATRE FUNCTIONS

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**Purpose:** The aim of the study is to determine how experts perceive the impact of technology on the shaping of theatre functions from a management perspective, and to identify possible management implications arising from this impact.

**Design/methodology/approach:** The study is qualitative. Empirical data was collected during an expert panel (4 experts) and individual interviews (8 experts). The study is international - the sample includes experts from 5 countries.

**Findings:** The experts' perceptions of the impact of technology on the theatre's functions (culture-forming, economic, entertainment, educational, promotional) from a management perspective were determined. A number of management implications were identified as a result of the impact of technology on the functions of the theatre. Revision is required in the areas of availability management, repertoire management, human resources policy, financial management, aesthetic contact management, image management and relationship management with organisers, among others. At the same time, in addition to digital and technological competences, political and change management competences need to be developed.

**Research limitations/implications:** First, the study focused on only five functions of theatre. It can be expected that an increase in the sample size and depth of the study would reveal other functions of theatre that are influenced by technology. It should also be remembered that the study used a purposive sample, so caution should be exercised when trying to generalise the research to the whole population. The research results obtained can form the basis for other art institutions.

**Practical implications:** The results of the study can be taken into account by theatre managers who want to consciously shape the function of the theatre with the help of new technologies.

**Originality/value:** To the authors' knowledge, this is the first research address to the management implications of the impact of technology on the theatre's function. The added value of the study lies in its international scope, which allows for a wider range of analysis. The results of the research can be useful for theatre managers, cultural organisers and providers of new technologies for culture.

**Keywords:** Theatre management, arts management, technology, theatre's functions, theatre's meaning.

**Category of the paper:** Research paper.

## 1. Introduction

Over the years, theatre has performed various social, political and economic functions in shaping collective identity and national culture. This is evidenced by the achievements of the avant-garde in Central and Eastern European countries, which were a kind of response to what was happening in the social, economic and political environment at the time. The literature also points to the importance of theatre in the creation of intellectual and creative capital. In times of geopolitical instability, the problem of maintaining and recognising one's own subjectivity in political, cultural and economic terms is extremely current. From a theatre management perspective, the functions of theatre have a dual significance. Firstly, they can determine selected processes of theatre management. Secondly, theatre managers can influence the shape of these functions locally through appropriate theatre management.

The dynamic development of new technologies determines the transformation of the functioning of contemporary organisations (Bukvić, 2024, p. 6; Nocoń, 2024, p. 36). Due to the nature of their activities and objectives, this also applies to cultural institutions (Kaczmarek, 2024, p. 72; Kwiecień, 2024, p. 8; Xiaojuan, 2023, p. 4), including theatres (Karcz-Ryndak, 2024a; Plebańczyk, 2023). Next-generation technologies have a significant impact on transforming the traditional functions of the theatre and creating new ones (Tonkoshkura, 2022; Damiano et al., 2020).

The diversity of ownership (public, private, non-profit), the type of theatre (including drama, music, puppetry, dance), its size (including the building in which it is located and the number of people employed there, the stage) are some of the many factors that determine the functions of a theatre. Consequently, the functions of a theatre can be different for each situation in which the theatre finds itself. For example, in a public theatre, social functions may be more important. This means that the manager of a contemporary theatre should be aware of the functions of the theatre and, through proper management, should shape these functions. This is particularly important in the context of the possibilities offered by modern technologies (including artificial intelligence, computer vision, the Internet of Things, etc.) (Izsak, 2022, p. 11; Modliński, Pinto, 2020; Pizzo, Lombardo, Damiano, 2019).

The functions that theatre provides change over time; for example, the function of creating a national identity will have a much greater impact in times of turbulence for a nation, such as during a war. As time and technology progress, new functions of theatre are created (Auslander, 2023; Tajtáková, 2014). Due to the development of social competences, the economic importance of theatre is growing.

As one of the oldest art forms, theatre must evolve in response to changing social, political and economic conditions. The modern digital age brings with it significant changes that have a major impact on theatre management and its functions in society. Digitalisation and technological innovation are not only changing the way theatres are managed, but also influencing their social, political and economic roles. In the context of rapidly developing technology, theatre faces new challenges (Karcz-Ryndak, 2024b, pp. 101-103), but also unique opportunities. Digital tools and platforms enable theatres to extend the reach of their activities, to innovate their presentation formats and to find new ways of 'attracting' audiences, which in turn affects their place in the cultural and economic structure of a given region.

In light of the above, the purpose of this study is to determine how experts perceive the impact of technology on the design of theatre functions from a management perspective, and to identify possible management implications arising from this impact. The research questions formulated for this purpose are 1) How do experts perceive the impact of next generation technology on the design of theatre functions? 2) What are the management implications of the impact of next generation technology on theatre functions? Obtaining information in these areas is particularly important from the perspective of theatre directors who want to consciously shape the functions of the theatre through next-generation technologies and who are therefore faced with the challenge of adapting existing management practices.

Although the question of how technology influences the shaping of an institution's functions applies to cultural institutions in general and is a broader trend, the authors recommend industry-specific analyses due to differentiating factors. One example is the nature of cultural assets and their accessibility. Galleries or museums are dominated by tangible cultural goods, which are therefore in principle available without restrictions (the organiser only regulates the place and time of access to these goods). In the case of theatres, on the other hand, a performance has the characteristics of an intangible good, i.e. it is only available during the performance. In addition, the reception of a performance can vary due to the variability of conditions (e.g. changes in the cast, audience structure, change of scene, etc.), which limits its repeatability, unlike museum exhibits, books or films.

It is also worth highlighting the limitations of the diffusion of some innovations between different cultural sectors. It can be assumed that some of the technologies used in theatres (e.g. in terms of stage movement or sound direction) have little application in libraries. Theatres are definitely closer to other arts institutions focusing on the performing arts. However, even here there are differences, e.g. at the level of the core product of the activity. For philharmonic, for example, the musical level of a performance is of primary importance. For theatres other than musical theatres, other aspects will be dominant, e.g. the text of the work in dramatic theatres. It can be seen that the type of performance is reflected in the functions of the institution. In the case of concerts, the role of the entertainment function is increasing. In some theatres, the educational function is more obvious (e.g. puppet theatres specialising in performances for children).

## 2. Methods

The research presented in this article is based on a qualitative analysis of interviews with experts and theatre managers who share their experiences and insights into the role of theatre in the contemporary world. The empirical data used in the article were obtained within the framework of the research project "Managing contemporary theatre under progressive technological change in an international perspective - Part II" conducted at the Krakow University of Economics and the expert panel "Management of Contemporary Theatre: Challenges, Threats, Perspectives" held during the 14th International Scientific Conference "Knowledge - Economy - Society" CMQ 2022 at the Krakow University of Economics. Based on these, it is possible to show how theatre management in the context of digitalisation and the growing importance of innovation affects its role as a social, political and economic tool, and to identify the challenges and opportunities perceived by theatre industry experts. An important aspect of this study is the combination of experts' perspectives and theatre directors' management practices.

This study was conducted based on a qualitative approach (Busetto, Wick, Gumbinger, 2020; Flick, 2010; Jemielniak, 2012; Kaczmarek, 2013; Lune, Berg, 2017). The proposed research approach based on qualitative methods is a response to the problems associated with the quantitative research strategy in the case of theatres, including the reluctance of the theatre community to participate in this type of research, which can be seen in other research (Karna, 2007), or negative phenomena related to the self-assessment elements included in the questionnaire, e.g. a tendency to present oneself in a positive light.

The research sample was purposively selected based on the authors' knowledge of the theatre industry. This approach reduced the time needed to recruit respondents by shortening the administrative path, e.g. in public theatres.

The research is international in nature - the sample includes experts from 5 countries. The empirical material used in this study was obtained through qualitative interviews (Fontana, Frey, 2009; Kvale, 2023) conducted individually with a group of selected experts (8 experts) and a focused group interview (Gillham, 2000) conducted with a sample of experts during an expert panel (sample included 4 experts). The experts interviewed included 8 theatre managers.

The research was conducted on the basis of an interview script containing questions related to the area outlined in the introduction. In addition, the research (both in individual interviews and in the expert panel) allowed for the possibility of deepening the issues raised by specifying them with additional questions.

During the panel, the experts took turns presenting their opinions, listening to each other's opinions and asking each other questions. The individual interviews and the panel were recorded, and the material was transcribed, anonymised, coded and analysed. The coding was

open (Bingham, 2023) and the snowball method was used to generate a list of codes (Kirchherr, Charles, 2018). In addition, the results obtained were validated according to the state of the art in qualitative research.

### 3. Functions of modern theatre

Theatre, as one of the oldest art forms, functions in economic terms as an institution, foundation/association or commercial enterprise that fulfils a range of functions at different levels. This section of the article will cite statements from experts who share their experiences and opinions on the function of theatre in the light of changing social, economic and political processes due to the dynamic development of new technologies.

Theatre has the ability to influence the behaviour of individuals and groups of people. As a complex structure (including elements such as acting, directing, set design, sound, dance, etc.) that also collaborates with external stakeholders (organiser, supervisory body, programme and artistic board, audience, etc.) to create unique artistic experiences, it has fulfilled a number of important functions for society, politics and the economy since ancient times. The activities of theatres contribute to the development of creativity, the acquisition of the ability to critically evaluate reality and the analysis of complex problems. It also influences the development of cultural behaviour and contributes to the identification of a person with his or her nation, generation and region (Trzeciak, 2011, p. 12).

Due to the nature of its activities, the theatre can be divided into two types of functions: external, i.e. oriented towards society, and internal, i.e. those that favour the creation of conditions for the survival of the theatre as an institution, as well as the introduction of innovations that contribute to its development (Wilk, 2015, p. 155).

In the literature on the subject, the external functions of the theatre include the following: educational, cognitive, cathartic, entertaining and ceremonial. Their characteristics are summarised in Table 1.

**Table 1.**  
*External/social functions of the theatre*

Functions	Description
Educational and cognitive (Guzy-Steinke, 2002, pp. 272-273)	Theatre helps to shape sensitivity and creativity, and by stimulating the imagination, it contributes to a fuller understanding of human destiny through the use of archetypes.
Cathartic (purifying) (Duvignaud, 1976; Hausbrandt, 1983, p. 93)	Identifying with the character in the play allows the audience to experience these fictional events as if they were real, which brings relief in terms of satisfying emotions and states, the so-called 'thirst for experience'.

Entertainment (Brecht, 1965, p. 65)	Theatre fulfils the need for fun and pleasure, not only in terms of humour, but also in terms of intellect - it initiates the process of independent thought and judgement.
Ceremonial (Hausbrandt, 1983, p. 93)	Theatre adds a special festive character to both private and public events, acting as an embellishment to the occasion.

Source: Own elaboration.

The social functions of theatre are emphasised by respondents, who point to the importance of theatre in 'educating' audiences, in shaping attitudes and in the emotional development of younger audiences:

„A very important (purpose - explanation by the authors) aim of our theatre is to 'educate' the theatre audience for the future (...). Our performances are 'ready/complete', they can see a 'painted' play, there is music, there is drama, there is acting, so a lot of art in one place. So different senses are stimulated. They have everything in one place. So they can develop their interests (...). And I must say that in our theatre we don't only have cheerful performances - we also perform plays with difficult subjects, for example death in children's plays. This is not unusual for our theatre. We try to show how justice and injustice work. Sadness is also a 'good' feeling (to get to know it - explanation by the authors)” [E2].

„(...) even my children came here for workshops and they learned how to be good people, they learned values. To develop different senses and an approach to what is good and what is bad, how to communicate with people” [E10].

„(...) we are taming sadness and fear and the performances, which will be aimed at young audiences (...) will present the characters with which our young audiences can identify in such difficult and critical and borderline moments. We are not trying to frighten them (...), these are still performances for young audiences and they are presented in a beautiful artistic form. Because quality and artistic value are, of course, the most important thing for us, and we stick to that, and we make sure that young viewers who are raised in this theatrical spirit, which is (...) extremely important to us, are also surrounded and imbued with certain values, so that we accustom them to values such as art, but also aesthetic values, which we want young viewers to build their perception of what they will one day see and hear themselves (...). For the time being, we, his teachers and his parents, choose for him, but soon he will be an independent viewer of art, and we want to prepare him as well as possible for that” [E7].

Contemporary theatre plays an important role in shaping the culture-forming - experts point to the influence of theatre on changes in society and consider theatre as a 'prestige medium':

„(...) they also play an incredibly important role in culture-forming, being, as they say, "centres of prestige distribution" and an extremely important place for social contact, for the public's contact with the art of theatre. It is also worth noting that theatre is one of the most popular forms of cultural education, which we often forget because we talk about theatre as a public institution, but theatre practice, theatre education, seems to be extremely important as well and is the most used form of cultural education in general” [E4].

Theatre is currently a driving force for change in society; it uses its identity to show, describe and encourage these changes:

„(...) Culture, theatre and theatre institutions are the place where social change can be described, can be, well, named. We can find out if the direction in which change is taking place is the direction in which we want to go. Theatre productions, individual performances and, above all, the processes of their creation and reception are precisely the kind of social test that names change, defines it, parametrises it qualitatively, without being a causal factor in the sense of (...), mechanical or sociological (...). And here the theatre has really returned to the basics of calling a spade a spade: evil is evil, but also of rebuilding a purifying experience” [E6].

„Theatre (...) goes beyond mere entertainment; it is a cornerstone of cultural identity, reflecting the rich tapestry of a country's history, art and social values. Historically, theatre has been a mirror of society, reflecting the vitality of life, its dilemmas and its triumphs. This deep-rooted tradition continues to influence the role of theatre today, making it a powerful tool for comment and reflection on contemporary issues” [E1].

The statements made by the experts in the study show that, despite significant changes, theatre is still an important part of social life, regardless of the country in which it operates.

The researchers also point to a group of therapeutic functions that theatre fulfils in relation to society (Table 2). In addition, the positive impact of theatre in rehabilitation practice is indicated, where the main goal of creative rehabilitation treatments is to stimulate the development of new social competences (Konopczyński, 2007, p. 13).

**Table 2.**  
*Therapeutic functions of theatre*

Functions	Description
Entertainment	Theatre allows people to take their minds off everyday matters by immersing them in the world of fictional adventure. It provides a positive experience, improves mood and refreshes the mind, which has a positive effect on work undertaken and attitudes towards the environment.
Compensatory	Theatre activities (e.g. workshops with actors) help to release inner tensions, get to know oneself and one's talents, and overcome feelings of inferiority.
Preventive	Thanks to theatrical activity, people satisfy their needs (e.g. movement, expression or contact with other people), which helps to prevent the emergence of certain negative social phenomena.

Source: Own elaboration based on Kulczycki (1990).

In the literature on the subject, authors also point to other functions of the theatre:

- Artistic - theatre as an art form allows the expression and exploration of emotions, ideas and various topics through acting, set design or directing (Bonet, Schargorodsky, 2018, pp. 77-78);

- Shaping the consciousness of the country's inhabitants - it regulates the social mechanisms of society, influences its attitudes and actions, and opens a discourse between society and the country's authorities (Dobrowolski, 2019, pp. 33-34);
- Economic - in economic terms, theatre is considered a direct generator of jobs and other economic effects, such as the creation of added value in other sectors, the level of employment (Staszek, 2016, p. 63);
- Promotional - the theatre is a place to learn about regional and national culture (Frey, Pommerehne, 1989, p. 19). Theatre activities are reflected in the tourism industry. Due to the educational and promotional functions of the theatre, there is an increase in understanding and knowledge of the culture of a particular country, which contributes to the development of cultural tourism (Rohrscheidt, 2016), which in turn leads to an increase in income in other industries, such as the hotel industry. In this context, theatre tourism becomes a key issue, where the potential tourist decides to travel based on the availability of theatre performances in a given place.

The experts surveyed recognise the impact of technology on the functions of the theatre. They point to the evolutionary nature of the functions performed by the theatre. At the same time, they point out that the theatre industry will not be able to avoid the impact of technology (e.g. due to the changing profile of the audience). They emphasise the key role of the theatre manager in ensuring artistic quality:

„Functions (...) they determine everything, the whole intention. Traditional functions are constantly changing, technology is creating new functions. Moving in this direction is a necessity” [E12].

„Yes, it is crucial for theatres - technology affects the fundamentals of theatre, the functions that theatre fulfils (...) because theatre exists for something and for someone, which is the audience. As technology develops, the audience changes, and theatre makers cannot ignore these changes if they want a full house” [E8].

„Theatre has always been subject to metamorphosis - that is its nature. The same will happen in the age of ever-present technology. I don't think that technology will dominate the art, but it will contribute to giving us a new face of theatre. The role of a conscious theatre manager is to make this transformation without compromising the artistic level” [E3].

Considering the functions presented and the statements made by experts, it is easy to conclude that the traditional functions of the theatre are still relevant. In recent years, new technologies have been developed and increasingly used in theatres. As a result of the deepening relationship between theatre and technology, the function of the theatre is evolving. The technologies that are being introduced offer new opportunities to shape these functions (e.g. by changing the way we communicate or by providing a source of new stage stimuli). This situation presents a challenge to theatre management. Theatre managers who wish to influence the technological shaping of the theatre's functions, or who wish to manage efficiently



those functions that have already undergone technological processes, need to rethink each area of management and introduce appropriate improvements.

#### 4. The impact of technology on selected theatre functions and related management implications

The content analysis of the interviews conducted provides information about the potential impact of technology on selected theatre functions. Table 3 summarises examples of areas of influence relating to the culture-forming, economic, entertainment, educational and promotional functions of the theatre. At the same time, it should be emphasised that this catalogue contains only a fraction of the possibilities offered by technology in shaping the functions of the theatre.

**Table 3.**  
*Selected areas of technology's impact on theatre functions*

Function	How technology affects the function of the theatre	Description
Culture-forming	New forms of expression	New technologies are important in terms of shaping the message of the content conveyed during a performance. For example, music created using artificial intelligence rather than music created by the artist offers a different avenue for creativity and audience engagement through the way the work is created (e.g. as a result of interaction with the audience) and received.
	New methods for shaping the cultural competences of audiences	Digital means of reaching audiences are another form of cultural dissemination and thus have an indirect impact on the development of their cultural competences.
	Interactivity	Interactive technologies, such as mobile apps or voting systems, allow the audience to influence the performance. Such interaction changes the role of the audience from passive observer to active participant, changing the approach to experiencing art.
Economic	New sources of income for the theatre	Technology can help increase audiences, especially younger audiences, which will have a measurable economic impact on theatres. In addition, it is possible to create digital products for audiences who prefer mobile access to the arts. One example is online performances, which can generate additional income by removing capacity constraints.
	Economic benefits to other industries	The increased visibility of the theatre as a result of technology, which leads to larger audiences, translates into economic benefits for other industries such as catering and hospitality. A larger audience means a greater increase in demand for these types of services.
	Optimisation, automation and autonomisation of processes	Technologies can improve the efficiency of selected processes (e.g. administration), resulting in measurable economic benefits.

Cont table 3.

Entertaining	Introduction of new stimuli during the performance	The introduction of new stimuli allows the audience to become more involved in the performance experience. The conscious use of technology in a stage setting also offers a wider range of creative possibilities for the manager and the acting ensemble.
	Reaching the 'mass' audience	Technology can help to attract new audiences and to implement mass audience strategies. On the other hand, it can contribute to the need to adjust the level of performance, i.e. to lower the level of art.
Educational	New ways of learning	This includes both new methods of developing cultural competences and new forms of expression, as described earlier in the context of the culture-forming function. An example is the development of creativity through the co-creation of performances with an audience.
	Increasing accessibility	Technology provides opportunities to reach excluded audiences (e.g. people with disabilities who cannot get to the theatre). As a result, these people can benefit from the educational value of theatre.
Promotional	Support for theatre tourism	Technology makes it possible to increase the reach of the theatre and to create an offer geared towards theatre tourism, which is a special case of cultural tourism.
	New ways to promote culture	By contributing to the image of the theatre, technology indirectly contributes to the promotion of culture and ultimately the country, region or city itself, depending on the scale of the action.

Source: Own elaboration.

The analysis of the collected empirical material also reveals managerial implications that are valuable for both the theory of arts management and the practice of managing these organisations.

Shaping the contemporary functions of the theatre with the use of modern technologies is a key challenge for theatre managers, partly due to the paradox known as 'Baumol's cost disease' (Baumol, Bowen, 1966; Nierenberg, 2015), which is characteristic of artistic organisations. One of the reasons for this paradox is that, despite technological advances, it is impossible to increase the productivity of artistic institutions. However, according to experts, new technologies can partially solve these problems. While experts confirm that productivity gains in the work of artistic teams in theatres will be rather limited, they see technology as a way to increase the productivity of technical and administrative staff. In addition, experts see an opportunity for automation and autonomisation of selected processes, which will change the way theatres function:

„(...) there is a lot to do. It is hardly surprising that our industry is somewhat ossified when it comes to organisational matters. But those who automate the elements that make up the organisational framework for art will win the competition, (...) become more efficient and be able to devote more resources to artistic production” [E11].

„(...) in many areas, a lot of aspects are becoming autonomous. It is more than just automation. I can't imagine this in the context of art itself, but an autonomous programme that we allow to handle certain processes, for example administration and accounting, or

the promotion of performances, would be something that would facilitate the functioning of the theatre on many levels” [E12].

„I manage a music theatre. Dance and music performances have already undergone several technological transformations, e.g. from analogue to digital systems. I think we are now entering the era of systems making decisions for people” [E5].

At the same time, experts point out that the implementation of new technologies by theatres is usually associated with high costs. Theatres, regardless of their form of ownership, usually have limited and inflexible budgets, which severely limits the motivation of managers to implement technological innovations solely out of a desire to create new functions for the theatre:

„(...) theatre functions on their own may not be enough to motivate change. Investing in technology is a long-term process, and in discussions with the organiser, tangible quick wins carry more weight” [E12].

„The funding structure in our country is a problem. The budget at my disposal is inflexible and, above all, too small. I think that the national theatres, which are under the direct control of the ministry, have a better chance, and arguments about the evolution of the theatre's function can have more impact (...). Although in their case the problem will be the extent of the changes needed. In my opinion, however, there is no going back - change will come sooner or later” [E11].

„Public theatres will not necessarily have the motivation to implement new solutions, even though they have more resources than theatres like ours (private - authors' explanation). On the one hand this can be an opportunity for non-institutional theatres, on the other hand it can be a competitive factor” [E3].

In view of the arguments presented, it seems crucial to introduce new mechanisms for financial management. Dedicated funds for the technological development of the theatre or greater activity by theatres in raising external funds for these purposes are needed. Changes in the management of the relationship with the organiser seem necessary, leading to the involvement of bodies that directly fund theatres' activities in the implementation processes. It is clear, therefore, that consciously shaping the function of the theatre through technology requires highly developed political and change management skills on the part of theatre managers. In addition, experts consider technology to be a factor of competitiveness that is directly linked to the economic function of the theatre. It can be considered at two main levels. Technology that increases the efficiency of theatres, for example by automating selected processes, leads to an increase in the competitiveness of the theatre at an organisational level. On the other hand, on an artistic level, technology can be a generator of new stimuli or new art forms - examples are Annie Dorsen's algorithmic theatre (2012) or robotic theatre:

„By definition, a theatre that uses technological innovations must be open to new trends in art (...) by applying technologies extensively, they develop them themselves to a certain extent. For example, there is talk of robotic theatre. In my opinion, it does not yet look very attractive, but the development is visible” [E3].

The theatre manager who wants to use technology on stage is therefore faced with the challenge of changing the approach to managing the aesthetic contract with the audience - this is implied, among other things, by new impulses. It also affects the whole process of managing a theatre production, from the planning stage to the stage management during the premiere.

Technology supports theatre management and facilitates the documentation and analysis of performances, which in turn encourages artistic criticism and reflection on the form and content of art. Digital platforms and social media allow for discussion and exchange of opinions, enriching the discourse on theatre and its role in society, and enabling theatre to become a space that responds to the needs of contemporary society. As a result, theatre managers need to rethink their approach to managing the image of the theatre and the manager himself:

„(...) Theatre happens on stage, which is where stage technology plays a key role. It is important to realise that the desire to see Macbeth or Romeo on stage is not the only reason for visiting the theatre. It may simply be a desire to relax or be entertained. This is where technology has a special role to play. However, this approach requires a change in the way the theatre is perceived, towards an entertainment centre rather than a house of art” [E5].

„(...) I see technological theatre as original theatre with a well-planned image. But it is important that it is authentic” [E12].

„(...) the promotional function of a theatre is based on its image. On what it brings (...), what its message is, how it is perceived by its surroundings. In the theatre business, however, the image is built over many years, mainly through the artistic value of the work, and this can only be guaranteed by outstanding theatre personalities - actors, directors, theatre managers. Ultimately, their image is the image of the theatre (...). Times have changed, technology has advanced, and so must the approach to image building through the active use of technological advances. Please also remember that the risk to the image has also increased due to technology” [E8].

Experts also point to the negative impact of new technologies on some of the theatre's functions. It is becoming increasingly difficult to mobilise audiences to go to the theatre, the culture-forming function is being reshaped and the focus is shifting to the entertainment function:

„(...) the theatre has been transformed into a kind of 'entertainment machine'. Only a few theatres offered the opportunity to see important dramas, but now television, especially social networks and artificial intelligence in general, have entered people's lives and changed their mentality and the way they 'use' the theatre (...). Now in Italy young

people go to the theatre because it is part of the school or university programme and they have to go to the theatre, but it is not really a need for them” [E9].

This can have consequences for repertoire management. Technology makes it possible to take the performance out of the theatre building, but:

„Theatres need to be aware of the changing profile of the cultural participant. Taking into account technology and the impact that the viewer can have on art, I would even venture to say that we are dealing with a user of culture and art, not just a participant. This approach should be reflected in the programming offered by theatres” [E11].

It is clear, therefore, that theatre managers face choices in shaping theatres' repertoires in the context of 'mass audiences' and the general change in the profile of cultural participants towards cultural users.

The areas of impact identified also include the need for a new approach to availability management. In particular, this is the result of the impact of technology on the cultural and educational function, through new channels for reaching audiences and the possibility of reaching people excluded from participation in theatre performances. This issue is also linked to the economic function of the theatre - increased accessibility can lead to increased income for the theatre.

„The stage is slowly becoming less of a barrier (...) there is an audience that cannot get to the theatre for various reasons (...) sometimes it is because of where they live, sometimes it is because of health restrictions - this is a challenge for technology. All the functions we are discussing today take on a new meaning if we give all those who are excluded the chance to participate in culture” [E5].

New generation technologies allow the theatre to collaborate with creators and artists from different parts of the world, enriching the local perspective with new styles and international perspectives. At the same time, it should be emphasised that the internationalisation of the theatre is closely linked to its promotional function, which should ultimately translate into its economic function:

„The promotional function of the theatre benefits the tourism industry in the broadest sense. This is a consequence of its culture-forming function, as a highly developed culture is more interesting. It should be noted that international theatre festivals and guest performances have a direct impact and can interest potential visitors in culture. This is local action. In turn, the shaping of local audiences has a long-term impact on culture” [E8].

In the context of tourism, as mentioned by the E8 expert, an interesting issue is theatre tourism, which also has a direct impact on the finances of theatres. This phenomenon needs to be taken into account in theatre management at the level of repertoire management and pricing policy:

„(...) please note the paradox of tourism. I would no longer speak exclusively of cultural tourism, but of personalised theatre tourism. Here, technology plays a huge role in the delivery of the theatre's programme or in the formatting of the offer, e.g. in the form of

ticket packages for performances. The modern theatre manager needs to manage repertoire policy with these factors in mind” [E11].

The relationship between technology and the theatre's function is also reflected in the way theatres manage their human resources. New technologies require specific competences, in particular digital and technological ones:

„(...) the resource needed to implement new technology is a competent employee. The choice is not easy - either training or hiring additional staff (...), and in many cases both” [E5].

„(...) we are talking about theatre functions and technologies. Activities at the interface of these two subjects require competence. My team is made up of theatre people, not computer scientists (...) or technologists. So we will need knowledge and skills, but I think that creating new jobs can only be a temporary solution. I believe that my team will develop the technological competences to a level that will enable them to meet the challenges - they are extremely talented people” [E8].

The experts quoted above indicate that in developing the necessary competences of staff, theatres may decide to train existing staff or to recruit specialists with the desired competences. Each of these options can be problematic because of the financial outlay required. The development of technology requires a flexible approach that allows for quick adjustments, and grant-based funding does not fully allow for this. Funds for possible training need to be planned well in advance. On the other hand, in the context of additional staff, the problem may be the level of remuneration for specialists with appropriate qualifications. This means that the theatre organiser, who is responsible for the level of funding, plays an increasingly important role in this process. In addition, when it comes to hiring additional staff, it can be difficult to find people with the right competences, i.e. people who are digitally, technologically and artistically competent.

The survey focused on the formation of functions in which the respondents did not explicitly refer to the ethical use of new technologies (Sypniewska, Gołębiewski, 2023). Only indirect conclusions can be drawn from the information obtained during the interviews. However, the ethical aspects of the application of selected technologies, e.g. a robotic actor or a play written by a language model, need to be taken into account in management processes already at the conception stage of the implementation of a new technology. This is necessary because of the controversies that such applications raise, as well as legal issues such as copyright. In view of the potential implementation risks, theatres should raise awareness of possible risks, define internal policies, in particular with regard to applications of artificial intelligence, robotics (Coeckelbergh, 2022; Liao, 2020; Tribelli et al., 2024) and autonomous systems, and develop control mechanisms (Kosiak, 2023, p. 348).

The findings presented in this paper complement earlier research conducted by one of the authors on perceptions of the impact of technology on key aspects of theatre management (Karcz-Ryndak, 2024a, 2024b), which revealed, among other things, the relationship between

technology and theatre functions, as well as the limitations of implementing new technologies in theatres. The research conducted is part of a more general narrative about the cultural sector. Modlinski and Pinto (2020), in their research, note the adoption of new technologies by the cultural sector, both at the level of complementary technologies (reinforcement of employees) and substitutive technologies (elimination of human labour) in the context of the mission carried out in the units studied. Compared to the studies cited, this study provides a contribution oriented towards a cultural sector, analysing technologies from the perspective of the functions of cultural institutions that are inseparable from their mission.

The results obtained confirm the findings of researchers on the changing form of cultural participation in the context of digital transformation (Kaczmarek, 2024; Plebańczyk, 2023). Moreover, the results obtained are in line with the findings of Kaczmarek (2024, pp. 74-75) regarding the need for self-diagnosis of employees' digital competences. At the same time, it should be noted that the authors extend this perspective to technological competences. On the other hand, with regard to the study by Plebańczyk (2023), the results obtained are consistent with regard to the accessibility of culture.

In relation to the impact of technology on the strategy of cultural organisations, Kaczmarek (2024) points out that the digital strategy of a cultural institution should be consistent with its mission and the organisation as a whole. Another finding of the authors, that theatres should be wary of adopting a copycat strategy, is in line with this view.

Researchers also address the relationship between technology and the image of the organisation (Kaczmarek, 2024, p. 75; Wróblewski, 2017, p. 176). The present study complements these findings with issues of possible image crises, by linking them to the authenticity of change indicated by theatre managers.

The research conducted clearly separates the relationship between technology and theatre functions into two perspectives. On the one hand, the impact of technology on theatre functions creates challenges for theatre managers. On the other hand, it is possible to create these functions through the use of appropriate technologies. The research also has the added value of taking a broad perspective of theatre functions rather than focusing on a selected one. This makes visible the differences at the level of dominant functions and the related distinctiveness of different cultural departments. For example, in the case of the broader music industry (Sojecka, 2024, p. 70) and concerts (Fira, 2024, pp. 51-52), the importance of their entertainment function increases, which is not necessarily the case for the theatre industry.

## 5. Conclusion

Modern technologies influence the way theatres are managed, affecting their functions and their ability to reach audiences. Theatre managers should be aware of the changing functions of the institution and adapt management skilfully to dynamic conditions in order to fully exploit the potential of technology. Theatre has a significant impact on cultural education, developing the social sensitivity and creativity of audiences, as well as supporting rehabilitation processes. Contemporary theatre faces challenges such as changing perceptions of artistic quality through the prism of actors' popularity on social media.

The research contributes to both management theory and practice. The added value in the theoretical context is the new knowledge about the relationship between technology, theatre functions and management. The research shows the impact of technology and the possible management consequences in relation to the culture-forming, economic, entertainment, educational and promotional functions. In practical terms, the research is useful for theatre managers who wish to influence the design of the theatre function through the use of selected technologies, or who are taking steps to adapt theatre activities to functions that have already undergone technological evolution. In addition to theatre managers, the knowledge acquired may be useful to theatre organisers in the context of financial support for the solutions implemented, as well as to researchers dealing with the topic of technology management in cultural institutions. The research conducted may also be a starting point for research on other cultural sector entities in the context of shaping their functions through new generation technologies.

At the same time, it is important to bear in mind certain limitations of the research carried out. Firstly, the research focused on only five functions of theatre: culture-forming, economic, entertainment, educational and promotional. It can be expected that a larger sample size and more in-depth research would reveal other functions of theatre that are influenced by technology. Secondly, even with regard to the five functions of theatre mentioned, a wider impact of technology than has been revealed can be expected. As before, the solution might be to conduct more in-depth research or a quantitative study. In using the results of the study, one should also bear in mind the typical problems of qualitative research using the interview technique, e.g. the possible tendency of respondents to self-presentation. It should also be remembered that the study used a purposive sample, so caution should be exercised in attempting to generalise the research to the whole population.

When considering further research directions, it is worth adopting a different research perspective, e.g. that of an artistic theatre team, a theatre employee or an organiser. It may also be beneficial to expand the catalogue of theatre functions and to conduct quantitative research. In a broader context, further research can focus on analysing the implementation processes of



new technologies in theatres, taking into account the context of theatre functions and identifying specific cases that can be a source of knowledge for management practitioners.

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