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Smart City as a place to pray

Jan Kaźmierczak

Faculty of Organization and Management
Silesian University of Technology
Gliwice, Poland

Jan.Kazmierczak@polsl.pl, ORCID 0000-0002-2459-470X

Bartłomiej Knosala

Faculty of Organization and Management
Silesian University of Technology
Gliwice, Poland

Bartlomiej.Knosala@polsl.pl, ORCID 0000-0001-7839-081X

Abstract — The authors of this paper are engaged in implementing the EU-funded SHIELD project. The subject of this project is the protection of places of worship in cities from terrorist attacks. The research carried out within the framework of this project, the exchange of experiences with other SHIELD project participants, and participation in workshops with participants of other pro-projects oriented on the presence of religion in the life of modern man, inspired the authors to take up the problem contained in the title of this paper. After describing the research problem in the introduction, the next chapter shows the results of literature research in the scope resulting from the formulated problem. Complementing the literature research is a review of the tasks carried out in various projects. Next, the authors present in the paper their concept of considering the problem of cult(s) in projects whose stated goal is to transform existing urbanized space into smart space. Among other things, the concept addresses the issue of multiculturalism and multifaith in urban communities. The article concludes. Contains suggestions for future research tasks, including incorporating technology assessment (Technology Assessment) activities into Smart City processes.

Keywords—Smart City, religious worship

I. INTRODUCTION

The authors of this article are participating in the SHIELD (solutionS to enHance Interfaith protEction of pLaces of worship from terrorist DAnger) project, which has received funding from the European Union's ISFP-2020 Programme (<https://shieldproject.eu/project/>). The project aims to protect places of worship from the dangers of violent extremism, manifested in particular by terrorist acts. The SHIELD project's premise is that it should contribute to increased security at places of worship by improving coordination, cooperation, and communication between law enforcement agencies, public authorities, religious leaders, and congregations. The SHIELD consortium comprises 18 partners from 10 E.U. countries, and the project's implementation period is from January 2022 to December 2023. At the same time, the authors, as employees of the Silesian University of Technology, actively participate in research work conducted at the University within the framework of the so-called priority research areas, one of which - of particular interest to the authors - is oriented towards the problems of creating intelligent urbanized space, following the idea of Smart City ([1]-[3]). The connection of the two indicated problem areas formulated the research assumptions listed later in this paper. The starting point for these assumptions was to conduct a literature survey, also described in the next chapter, on the state of research on the relationship between the Smart City idea and the problems of providing each resident with a smart urban space with adequate living conditions. Undoubtedly, an element of quality of life is the ability to follow the professed system of values, including the ability to profess religion and perform the activities, ceremonies, or holidays specified by this religion.

II. RESULTS OF THE SURVEY OF THE CURRENT STATE OF KNOWLEDGE

The literature research carried out while preparing this article shows that in the available literature studies, the problem of the presence of religious places of worship and adherence to such worship, especially by the residents of urban space created as smart space or transformed to obtain the qualities of smart space is addressed exceptionally rarely. The available literature bases include a few studies addressing the topic of a smart city with a cultural and cultural-religious resource, such as [4], [5]. It is possible to find publications addressing the issues of linking the historical-religious resource of the city with tourism, e.g. [6],[7]. The study's authors [8], on the example of the city of Calcutta, located in the Ganges delta, show the role of water transport in a sustainable model of handling tourist traffic. The problem of traffic in the city of people coming from outside in narrower terms (pilgrimage traffic) is taken up by studies devoted, for example, to traffic management [9],[10] or the management of the movement of large groups of people within a city with the character of a pilgrimage site using I.T. support, such as [11],[12]. In this sparse resource, one can find studies on the circle of Islamic culture, including, for example, the problems of supporting the service of Hajj pilgrimages to the Al-Kaaba Mosque in Mecca, or a few studies, dedicated to Hindu cultures, such as the work [13] whose author takes up the issue of the presence and functioning of religious diasporas in European cities. There are also few studies on Christian culture [14], [15].

Table 1 summarizes the results of the study search discussed above. Such a search was conducted in the Mendeley database using different sets of keywords. These searches were limited to the years 2019 - 2023.

TABLE I.

Keywords / Year of publication	„Smart City” & „Religious heritage”	„Smart City” & „Worship”	„Smart City” & „Pilgrim”
2023	0	0	0
2022	0	1	2
2021	1	2	2
2020	3	2	1
2019	2	0	3

^a. Prepared on the basis of own research.

To broaden the search area, the authors also decided to use the proposal to search for the "happy city" [16] or "city of happy residents" [17] formula. An analysis of the publication databases here yielded somewhat more promising results, although the content of the studies that were known was, as a rule, focused on one aspect of "making people happy." For example, in the paper [18], the authors present (using the example of the city of Alexandria in Egypt) the idea that residents can be made happier by transforming the architectural warp of the city's fabric.

Similarly, the topic of a happy city of happy residents is treated in studies such as [19] and [20]. However, the studies described did not address what the authors of this paper believe is an important problem: how to assess what and whether it improves the "happiness level" of city residents. In the cited studies, the authors, as a rule, adopt rather arbitrary settlements on this issue. Given the potential difficulties of conducting reliable research in this regard, such an approach is in some sense justified. However, if the "end-user" of a city is its residents, then arbitrary arrangements for "making them happy" seem inappropriate.

Table 2 summarizes the results of the second part of the source search discussed above. Such searches were conducted again in the Mendeley database, using different sets of keywords, and limited to the years 2019 - 2023.

TABLE II.

Keywords / Year of publication	„Happy city”	„City of happy people”	„Smart happy city”
2023	37	14	0
2022	198	61	2
2021	192	70	2
2020	203	71	1
2019	221	56	3

^b Prepared on the basis of own research.

In conclusion, it can be said that in the available research reports, the issue of religious worship(s) and practice by Smart City residents is practically absent. At the same time, however, professing and practicing religion is an inalienable human right, and all undertakings enabling the practice of worship, and at the same time protecting the places, holidays, ceremonies, and their participants associated with this worship, are not only desirable but also necessary in the overall formula of smart urban space, created for the needs of the end-users of such space, i.e., its residents.

III. FORMULATION OF RESEARCH ASSUMPTIONS

As a result of the analysis of literature sources, it was concluded that the research so far falls within the combined task area of creating smart urban space and meeting the needs of the inhabitants of such space in terms of religious worship practically concerned only the handling of the movement of people and vehicles in places of pilgrimage and assisting pilgrims in obtaining information not necessary for functioning in such places.

However, the subject of including solutions aimed at making the life of every resident of the Smart City as easy as possible (perhaps also pleasant) in terms of unfettered, but at the same time not interfering with the needs of other residents, religious worship and the performance of activities related to this worship in both private and public space, was not addressed.

Therefore, the authors of this study have attempted, based especially on the identified niche areas, to formulate what they believe to be the most important assumptions, treated as a basis for practical solutions to the problems identified in the above-mentioned area and arising from the identified needs of the residents. At the same time, the authors express their conviction and hope that during the initiated scientific discussion this list will be supplemented and modified. The list presented below is a first

approximation of the assumptions of the intended project (or projects):

- Every inhabitant of the smart urban space has the inalienable right to engage in religious worship and to freely perform activities related to such worship.
- The aforementioned right must not be restricted or violated by general system (tool) solutions. This is especially true when, as a result of the implementation of appropriate solutions to the Smart model, the existing urbanized space is adjusted (reshaped).
- The performance of religious worship activities by Smart City residents should be supported and protected by the organizational solutions adopted in the S.C. area, the technologies and tool systems used, as well as solutions of a formal nature (e.g., internal rules and regulations in force in the S.C. area)
- Performance by a resident or a group of residents of Smart City of activities related to a professed religious cult may not in any way affect the rights of residents of the same space professing a different cult(s).
- Solutions or solutions, aimed at considering in the creation of an intelligent urban space the inhabitation of such space by people professing different cults, require, according to the authors of this study, the problem of use by one of the faiths of the widely understood common space S.C. Such use should suit the group of a given faith without causing a reduction in the quality of life of representatives of other faiths. Practical examples of such problems can be the sound of church bells, calling Christians to participate in services, or the muezzin's chanting, broadcast over loudspeakers from minarets, calling Mohammedans to prayer. Other examples include the presence in the city space of large groups of outsiders (pilgrims) coming to the smart city on special occasions or the holding of religious ceremonies outside the temples (such as processions).
- Considering the current threats (see the next part of the article), the Smart City system should ensure the protection of places of worship (temples, cemeteries, others) both from acts of vandalism, desecration of places of worship, and acts of terror directed at these objects.

Referring especially to the last of the above-mentioned assumptions, it is necessary to formulate a recommendation that lies, in a way, outside the substantive area of this study: a recommendation to intensify educational projects aimed at shaping attitudes and behaviors of consensual coexistence in the area of (not only) an intelligent city. Consistent, and at the same time not recognizing exceptions and deviations, implementation of this desideration is probably the only way to eliminate from the area of life of an increasing number of residents of both cities and non-urban areas the need to act in accordance with the last of the above list of assumptions.

However, at present, the problems mentioned in this premise create a significant social problem. Therefore, initiatives are being taken, particularly aimed at using the technical and organizational and managerial means and methods available today, which aim to secure religious sites in a multifaceted manner, usually by using information from monitoring systems as a basis for making certain decisions and activating adequate procedures ([21]-[23]).

IV. USE OF MODERN MONITORING METHODS AND TOOLS FOR SECURING RELIGIOUS SITES

Protecting religious sites from terrorist attacks is a special area of challenge. These challenges are related to the specific nature of such places. Their open nature, usually free access, and the cyclical nature of events happening in and around such places that attract significant numbers of people make these places easy targets for terrorist attacks. Also, the symbolic meaning that places of worship can represent, makes extremist organizations consider such places as potential sites for attacks. It is worth remembering that the purpose of terrorist attacks is to send a specific message, the symbolic nature of a particular place of religious worship can increase the risk of a terrorist attack.

Despite the above-described peculiarities of religious sites, the basic principles for designing solutions to protect a specific religious site are similar to those that apply to rules for protecting other places of public interest. They consist of threat identification and assessment, evaluation of sensitive aspects, assessment of probability, selection of countermeasures/mitigation, rehearsal, and review of physical security plans. Also, ways of physical security and so-called "good practices" can provide a basis for adapting security systems and practices, relating to security at places of public interest.

At present, the following safeguards are most commonly used:

- Television surveillance system (CCTV).
- Fences and barriers
- Pedestrian and vehicle checkpoints
- Burglar-proof doors and locks
- Reinforced windows
- Burglar alarms
- Panic alarm button
- Lighting systems
- The physical presence of security personnel

The analysis of existing solutions, presented, for example, at workshops organized as part of the implementation of the projects mentioned later in the text, clearly indicates that technical solutions should be accompanied by personal support, both in the management and operational aspects. In the documentation (on the websites) of the projects in question, there are descriptions of so-called "good practices", allowing the effective use of these solutions. For example, it is shown that a T.V. surveillance system requires proper maintenance and regular servicing, proper placement of cameras (so as to avoid blind spots), proper data retention, and adherence to privacy policies. The placement of fences and barriers, on

the other hand, must comply with local regulations, on the one hand, and on the other hand, must provide a viable barrier against specific types of terrorist attacks such as trap cars or shooting attacks or attacks using white weapons or explosive landings. Pedestrian and vehicle checkpoints, on the other hand, must be organized in such a way that, while providing effective control, they avoid creating congestion and should provide structural resilience. This requires both appropriate technical instrumentation and the appropriate qualifications of the people conducting the controls.

In view of the specific nature of religious sites in strategies to counter terrorist attacks, one can see in the course of the project attempts to create a model for a multifaceted approach to protecting places of worship. Such an approach undoubtedly requires anticipation, prevention, protection, and appropriate response to acts of religious intolerance and radicalization leading to violent behavior. In 2021, the European Commission financially supported 6 projects to improve the terrorist security of places of worship, viz:

1. ProSPeReS – Protection System for large gatherings of People in Religious Sites (<https://prosperes.eu/>)
2. SASCE – Safer and Stronger Communities in Europe (<https://www.sasce.eu/>).
3. SHIELD – Solutions to Enhance Interfaith Protection of Places of Worship from Terrorist Danger (<https://shieldproject.eu/>).
4. PROTECTOR – Protecting Places of Worship (<https://www.protector-project.eu/>).
5. PROSECUW – Protection and Security for Places of Worship (<https://prosecuwproject.eu/>).
6. SOAR Project – Protecting Places of Worship in Europe (<https://soarproject.eu/>).

In addition to the emphasis on creating physical safeguards and good practices, these projects also show preventive strategies related to strengthening inter-religious dialogue and, in particular, strengthening inter-religious cooperation to share experiences. In many aspects, the mentioned projects overlap and intertwine. However, in the opinion of the authors of this study, the simultaneous implementation of many similar projects ensures, on the one hand, a multifaceted look at the basic problem of protecting places of worship, and on the other: the creation of the widest possible range of entities involved in these projects and acquiring relevant knowledge and experience. On the other hand, it remains an open question to prepare solutions that will "keep up" with the changes taking place in the modern world. The authors of this study propose using an approach that falls within the Technology Assessment (T.A.) paradigm.

V. USE OF THE "TECHNOLOGY ASSESSMENT (T.A.)" APPROACH AS A BASIS FOR THE DEVELOPMENT OF SYSTEMS TO HELP OPTIMIZE THE CARE OF CITIES OF WORSHIP IN A SMART URBAN SPACE

Technology assessment, for example, is defined as a kind of reflection on the social consequences of the development and use of certain technologies. It is assumed that the purpose of such reflection is to facilitate appropriate

decision-making. In the early post-emergence of the T.A. paradigm, these were primarily political decisions [24]. Technology assessment can also be defined as a procedure for a systematic, scientific study of the conditions and consequences of the use of certain technologies, taking into account their social evaluation [25], [26]. In such a view, the main purpose of technology assessment would be to provide public institutions, in order to support decision-making, with knowledge about the social, ethical, legal, and economic aspects of developing and implementing specific technologies. Since, undoubtedly, the problem of human exercise of religious freedom is poorly recognized, including in the context of linking our lives to the growing role of technology, the authors of this study considered that the Technology Assessment paradigm could be effectively used in formulating a set of human needs for religious observance and relating these needs to the transformation of living space using innovative technologies, such as in accordance with the idea of Smart City.

Technology assessment studies are based on assumptions about a certain understanding of science and technology. In technology assessment studies, the picture of technical development as unproblematically good is given a detailed discussion. In contrast to the stereotypical views of technical development and the value of individual technical artifacts, technology assessment emphasizes the ambivalent nature of technology - technology, in addition to its positive aspects, also has its "dark side," which is revealed in the form of so-called unwanted consequences, i.e., negative effects of the implementation of certain technical solutions. In this context, unwanted effects of technological development on the environment are most often mentioned (from local pollution to global issues such as climate change, great extinction of species, ocean acidification, or soil barrenness). Negative consequences for health (air pollution in cities, concentration of herbicides and antibiotics in groundwater), and society (technological unemployment, need for continuous education, social stress, loss of privacy) are also raised, and there is talk of increasing dependence on societies on the functioning of technology [27].

The emergence of new technologies not only creates new opportunities but also contributes to the obsolescence, removal, or disabling of previous skills, knowledge, habits, business models, value-added chains, dependency networks, and others [28]. In this context, the technology assessment stream uses the term "creative destruction" - that is, the transformation process that accompanies a breakthrough discovery. In the original context, this term described an economic reality in which the emergence of new, revolutionary ideas for doing business resulted in the loss of position for companies enjoying an established market position up to that point.

Based on this mental model, we can distinguish three types of "closures", provoked by the emergence of certain technologies:

- a) closure due to the consumption of non-renewable energy sources - a situation in which the consumption of non-renewable energy sources prevents their use for other purposes, both today and by future generations.
- b) closure due to the prescriptive power of technology - a situation in which certain technological systems and the social innovations based on them develop in such a way that a certain type of behavior becomes the desired norm, while other behaviors become disallowed. Examples include major infrastructure projects such as the Internet network, electricity, or telephone communications. Anyone who refuses to participate in the system faces serious difficulties.
- c) closure associated with the emergence of new lifestyles and new attitudes, a situation in which new technologies can lead to the elimination of previous lifestyles. As an example, prenatal diagnosis methods have been transformed from a voluntary or optional measure into a standard, not by law, but by the actual development of attitudes and customs.

To the three closures highlighted in the literature, we propose to add closure provoked by the use of surveillance technologies. It is worth noting that the literature on the role of systematic surveillance conducted through information and communication technologies emphasizes the growing importance of such practices, pointing out that they are becoming a routine and integral aspect of modern life [29]. The negative consequences of surveillance are often pointed out in this context - terms such as "the end of privacy" or "social sorting" refer to disturbing phenomena related to the disappearance of the private sphere as a result of the uncontrolled flow of data, and to discrimination against social groups that are marginalized as a result of certain data-segregating technologies [30]. The level of social trust is also said to be adversely affected. The category of "polite inattention" introduced by Erving Goffman - a situation in which participants in public life avoid the "pusillanimous gaze" as an expression of respect for each other - is used as a theoretical basis for criticism of ubiquitous surveillance that can lead to the erosion of the most elementary aspects of ontological security, including the destruction of everyday rituals of trust and tact [31].

Surveillance technology can also have negative consequences with regard to the quality of religious experience. In the sociology of religion literature, religious experience is defined as experiencing direct contact with transcendent reality [32]. When designing electronic surveillance systems for religious sites, it is important to consider the ambivalence of surveillance technology, which can negatively affect the quality of religious experience. On the one hand, electronic surveillance can help preserve the integrity and dignity of religious sites and provide peace and comfort to the faithful attending services or prayers. On the other hand, it is important to remember that places of worship have a special role - enabling the experience of the sacred - and most of them are designed to enable this special kind of experience. The scholarly literature examining religious experience from the perspective of the sociology of religion notes the uniqueness of religious experience: "Religious experience is so unique, so specific, that it can hardly be reduced to any experience known to human experience. It is so peculiar and distinct that it cannot be compared with any other" [33]. Meanwhile, as discussed above, the principles of electronic surveillance of religious sites have been transferred from the procedures for

protecting public places, in which the quality of experience is not the main design criterion.

VI. SUMMARY AND CONCLUSIONS

In considering the creation of smart urban space and the transformation of existing space into a smart city, it is often adopted, as proposed in the work of B. Cohen already cited in this paper, a hierarchy of the degree of progress of a particular S.C. project according to a gradation: Smart City 1.0, Smart City 2.0, and Smart City 3.0. The different levels primarily include the degree of involvement in the project and the leading role of the stakeholder falling into the following three categories: suppliers of technical systems (especially I.T.), the city government, and its residents. At the S.C. level. 1.0 the project leader is the stakeholder from the first category, and the participant is the stakeholder from the second category. At the S.C. level. 2.0 the project leader is a stakeholder from the first category, and the participant is a stakeholder from the first category. At the level of S.C. 3.0, it assumes significant participation, including in decisions, of stakeholders from category three.

When we try to use the hierarchy proposed by B. Cohen, we find that S.C. stakeholders from the first group do not have "ready-made solutions" to propose, stakeholders from the second group are not prepared to present a comprehensive set of needs in the area under discussion. In addition, it is not obvious how to consider in the creation of an S.C. project that considers the religious needs of residents as an assumption, the means and ways of identifying such needs and taking them into account in a balanced way when there is a diversity of attitudes of residents towards religion and multi-religiousness in the area.

Starting from the findings presented above, the authors of this study decided to prepare and undertake further research in the area in question. The results of this research will be successively presented in subsequent publications.

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