

## Article

# Can Technology Reinforce Cogency of the Architectural Argument: Trial and Error Approach

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**Abstract:** The main question proposed in this research is whether different types of organizational approaches could help in shortening the response time needed to analyze advanced design solutions in accordance with the changed circumstances. Approaches that we are considering have been adapted from rapidly changing disciplines—such as the IT industry, and software engineering. This paradigm allows for architectural programming to obtain different positions in the timeline of project planning and realization. We proposed a novel methodology of architectural design and project management as an instrument inspired by the Agile Manifesto and some of its instantiations, most notably by the Scrum framework. This research shows that application of the proposed framework significantly shortens the design process and facilitates the involvement of a larger number of authors within the same project team. This study focused on the specific case of architectural competitions. However, the results showed that the same framework could be applied in a broader design context, details of which have been left for future considerations.

**Keywords:** transdisciplinary urban planning; design process methodology; design strategy vs. design tactics; agile development; Scrum framework; project management efficiency



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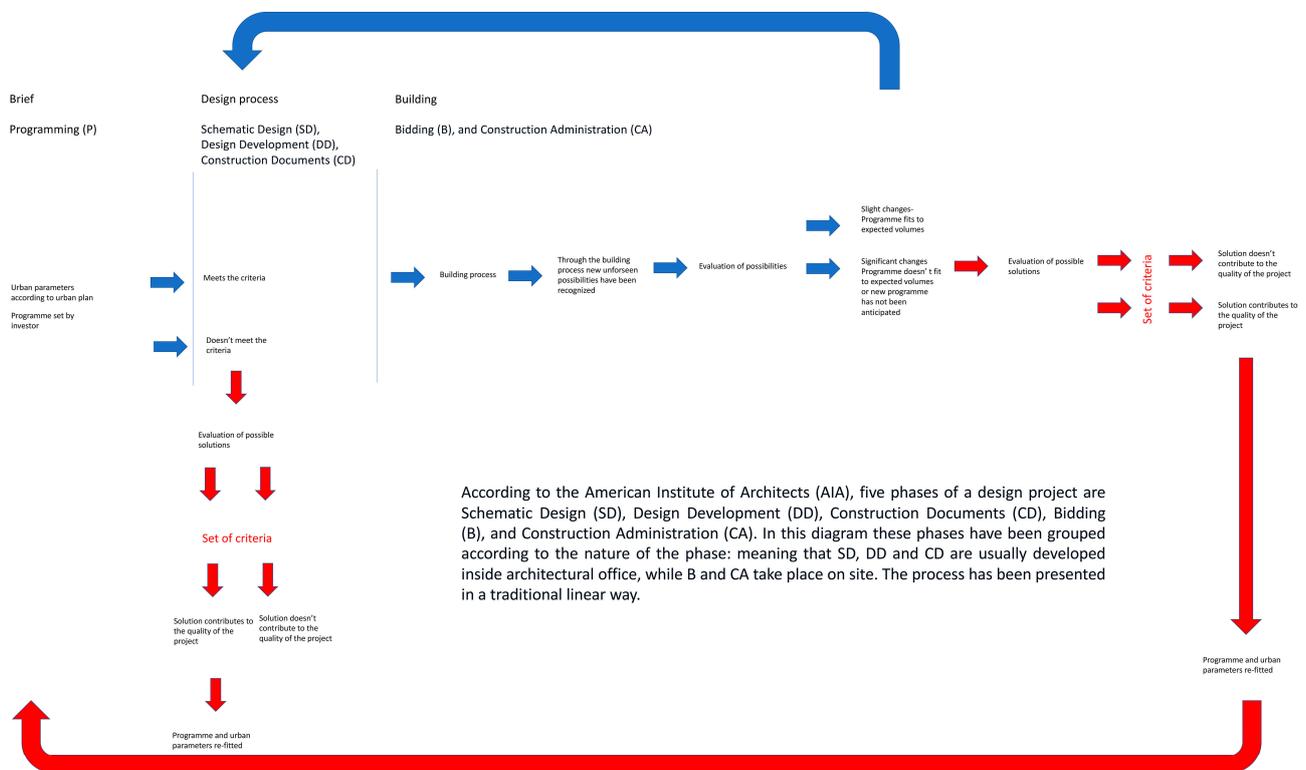
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## 1. Introduction

In regions that have faced significant social and economic disruptions, the gap that is formed between architectural and urban practice on one side, and scientific and academic research on the other, is further deepened with a lack of time and resources that constitute fundamental features of these disruptions. This gap results in the formation of spatial solutions that strongly rely on decisions coming from the public life arena, rather than ones that derive from the expert circles and can be traced back to insufficient architectural programming that undervalues the number of parameters or set criteria that is unnecessarily strictly determined. Extending from this, when architectural programming is set as an early phase of the design, as traditional practice suggests, adaptation to changed circumstances through the course of project development are perceived as unobtainable. This appears as a significant obstacle to achieve a higher possibility of remediation.

The linear process of producing space (as shown in Figure 1) does not provide enough possibilities for later adjustments in accordance with the circumstances that may vary during the period in which the architecture has been designed. This lack of opportunity for the change or re-negotiation of the initial conditions appears as a major obstacle in times of rapid change. The unquestionable need for shorter architectural responses, that still meet high standards regarding the quality of architecture itself, represents the research gap that this paper aims to address. There are different solutions that might tackle this gap, but they typically include a greater load regarding office hours and work force. In this paper, we approached this research gap by assessing the possibility of introducing a novel type

of project management followed by an adjusted design process methodology that does not necessarily include an increase in the number of working hours nor increases in the burden on the individual. In order to do so effectively, we must first define the research standpoints regarding the nature of a discipline and theoretical foundations.



**Figure 1.** Diagram of the linear process of creating architectural space (denoted by blue arrows). Red arrows represent the possible interventions and improvements.

In her book titled the *Kissing architecture*, Sylvia Lavin extensively discusses the dichotomies embedded deeply into the body of architecture as a discipline: one that contests its ability to socially engage versus establishing neutral autonomy of the discipline, as well as the one where discipline is considered to be a measure/model for the wholeness of cultural production, contrary to periods where it is only defined in terms of its difference from other mediums [1]. These dichotomies can also be discussed formally in the context of the classification of architecture as a field of research, where an ongoing debate as to whether it belongs to the arts or sciences has created a form of internal disciplinary confusion regarding the architectural method itself, measuring progress or measurements of the final results both in terms of its practice and academic achievement [2,3]. These divisions have created great bias in the minds of architects that can be further deepened when new technology is introduced into this discipline [4,5]. The rapid development of software tools, which have created a radical shift in architectural practice, alongside an increased efficiency, have also introduced a new set of limitations associated with the limitations of the software itself. Some researchers, including the authors of [6], even find design technologies, rather than influencing incremental change, being totalitarian in their effects. On the other hand, the problem of classifying architecture as a discipline can be observed as a new paradigm in itself. This point of view calls for externalization, meaning that this discipline and its design method should be observed from beyond the limits of architecture.

This perspective can be compared to the term of metafiction, or the even more precise term poiuomenon. This term is derived from the field of postmodern literature and is typically used for the literary works that utilize a process of creating another literary work as their main motif. This term (coming from the Ancient Greek period and meaning “product”

in direct translation) was coined by Alastair Fowler in order to refer to a specific type of metafiction: “the poiuomenon is calculated to offer opportunities to explore the boundaries of fiction and reality—the limits of narrative truth.” [7]. These limits of narrative truth, or the ones between reality and fiction, can easily be recognized as constitutive attributes of the architectural design process, since the design itself always aims at something that is not existing in the present time, thus being the form of critique [8]. As Boris Groyce suggested, this functions as a Derridean pharmakon: while design can elevate the experience of using a designed object or space, at the same time it opens a new arena of questions regarding the actual characteristics of the object before design, emphasizing the negative sides. This further expands the space between real (or what is reality), virtual, and designed (what could be reality). Often, this gap is continued even after the architectural space becomes built or real, where it now takes the form of the difference between the expected and the materialized. This divergence points out that it is necessary to review the boundaries of the virtual and the real in the design process, that is, to observe the method from a position outside the architecture as discipline, while considering the complexity of its nature.

In order to do so, it is very important to try to cover the scope of architectural work. According to the RIBA, only 6% of new homes in the UK are designed by architects [9]. Moreover, architects only design a small percentage of what gets built in the United States, leaving around 75% of all new construction in the form of the urban sprawl landscape “a landscape almost entirely uninformed by the critical agendas or ideas of the discipline” [10]. On the other hand, hundreds of architectural practices are ready to compete for a single project of a significant public project. Therefore, we can conclude that in order to elevate the impact of this discipline on our society, architectural practices should also be open towards expanding their portfolio so that they can cover different architectural programs, even the ones that potentially lack public visibility. This expansion could open up the need for a new type of work organization within architectural practices, and lead to potential changes in the system of architectural education.

Substantial knowledge is required in conceptual architectural design: knowledge about various requirements (functional, formal, programmatic, urban parameters, lifestyles, etc.), as well as broad concepts and their interplay, etc.

Unfortunately, in the conceptual design stage, such knowledge is often incomplete, meaning that the designers may have limited understandings of what should be treated as important requirements and promising concepts, and how these requirements and concepts may affect each other, etc. Their understanding of these issues may become even more limited when confronted with many conflicting requirements and competing concepts. As a result, these initial requirements and concepts are often vague, uncertain, and incomplete; more generally speaking, a number of issues in conceptual architectural design are ill-defined [11,12]. This leads to an increased number of changes during the design process, as well as iterations through which the optimal solution is to be achieved. These iterations, sometimes obtaining the form of a complete conceptual solution, are usually lost—in the sense of becoming materialized—meaning that they keep their virtual form forever. Also, due to the reasons stated above, even when the project is built, it can fail to meet expectations, either due to insufficient parameters included in the design, or unexpected circumstances that occurred during the building process that were not eligible for change. We can thereby conclude that changes in the methodology of creating architectural space should vitally include:

1. The possibility of simultaneously working on several different uncorrelated low-key projects at the same time, dedicated to smaller design teams,
2. Shorter periods for deliverables (both in terms of the finished design, as well as its individual elements or phases),
3. More opportunities to return to an earlier stage of the design.

To the best of our knowledge, this research, for the first time, investigates the hybrid models of these design methodologies, which are transections of the conventional design method with the principles of the Agile Manifesto. It is true that the Agile principles

have been used in previous research (e.g., in construction of the works published by the authors of [13–19]), but the approach outlined in the existing literature is qualitatively different. This novel hybrid design method and project management has been assessed in an actual architectural competition (termed the urban renewal and rehabilitation of the spatial cultural-historical Unit “Military-Technical Institute in Kragujevac”), where it contributed to obtaining a special mention as an reward.

## 2. Methods—How to Change the Process of Creating Architectural Space

As stated previously, in recent decades, software development had a decisive influence on the process of architectural design, even leaning towards customizing design decisions towards the possibilities that the software offers. This technological development has become deeply incorporated in all phases of designing and building spaces. Nevertheless, the only area of architecture that has not been changed by this development is the design methodology itself, especially when viewed externally. Deeply linear and consecutive in its nature (as outlined in Figure 1), the architectural design process has negligibly changed since the invention of perspective drawing [20], even though specific analytical research strategies along with the development of a methodological framework for their application are central problems in the contemporary field of architectural research, education, and practice [21].

There are many parameters that restrict the process of architectural design, some of them being: existing urban plans and regulations, urban politics, and societal and environmental challenges. Further crucial parameters for the process itself also include the timeframes and costs that apply for the execution of this process (including the workforce first of all). In a situation where more low-key projects are added to the design studio curricula, this load becomes even greater as a result. When these requirements are being placed in order to be compared, we can easily find similarities regarding the requests with the principles of the Agile Manifesto and Scrum methodology. It is also interesting to note that agile software development has been heavily influenced by the works of Christopher Alexander, who was a very important figure in the fields of the architecture and design theories [22].

As shown in Table 1, alongside the deadlines and cost being the common denominators for a large set of processes, including both software and architectural design, there are also other aspects of why it makes sense to look for alternative methodologies in software. For example, it implies a significantly larger number of projects than in other industries and a greater willingness to experiment as the failure costs that arise are less expensive and have no lasting consequences. Both architecture and software can be characterized by a relatively large percentage of results (designs or software) that did not meet the expectations set, meaning that they were never implemented in practice. Another common point that was observed for both disciplines was the idea of forming a list of requirements (which in architecture is called a program or a brief; in scrum methodology termed a product backlog), as well as a strong emphasis on the precise formulation of the problem, and on the need to refine the formulation again during the design process. Of no less importance is the fact that architectural design is mostly realized in teams of the authors, which can sometimes be transdisciplinary in its nature, and which Agile or Scrum (as an applied version of the Agile Manifesto) support.

**Table 1.** Comparison of the requests and practices in architectural design with the Agile Manifesto.

Principles behind the Agile Manifesto [23]	Architectural Design—Requests and Practice	What Is Lacking in Architectural Design?
Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.	User satisfaction is of the highest importance, fostering urban lifestyles and social well-being. Nevertheless, periods in between delivering valuables are significantly longer.	Continuous delivery of valuables.
Welcome changing requirements, even late in development. Agile processes harness change for the customer’s competitive advantage.	Changing requirements late in the design process are usually necessary, but hard, or sometimes even impossible to apply.	More flexible parameters that restrict the development of design: most importantly urban plans and regulations.
Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.	An average period for delivering a phase of design, according to AIA, is 8.6 weeks.	Delivering functional architectural or urban units in a shorter timescale, thus avoiding possible misunderstandings.
Business people and developers must work together daily throughout the project.	Different types of engineers and stakeholders work daily on the design of architectural space.	Investors and other stakeholders should be more deeply involved in the process.
Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.	Projects are always built around motivated authors.	
The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.	Presentation of design is usual, whether it being to colleagues or externally.	
Working software is the primary measure of progress.	The process of designing an architectural object is often seen as a task in which the author goes through different programmatic and spatial levels in clearly defined and predetermined intervals of a certain period. However, it is not usual to measure progress in a sense of working parts.	
Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.	Architecture promotes sustainable development, with the idea that all stakeholders should be involved in the process indefinitely.	Investors and other stakeholders should be more frequently involved in the process.
Continuous attention to technical excellence and good design enhances agility.	Continuous attention to technical and artistic excellence and good design enhances agility.	
Simplicity—the art of maximizing the amount of work not done—is essential.	Usually, in architectural problems, it is not possible to achieve maximization of “work not done” in the same way it is done in software.	
The best architectures, requirements, and designs emerge from self-organizing teams.	The best architectures, requirements, and designs deeply rely on self-organizing teams.	
At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.	At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly, but the changes are very slow.	The need for architectural design process modification.

Therefore, it is possible to expect that the application of the Agile Manifesto in the context of architectural design methodology might prove to be successful, which will be presented in the next chapter. This cross-disciplinary methodology, along with the analysis of its advantages and disadvantages (including the possibilities and dangers of applying

Scrum or several other similar agile methodologies that have been applied in the field of architectural design) is the main novelty of this research.

It is also important to note that the presented approach differs from the Agile Urbanism Blueprint (AUB) [6] in the sense that the methodology presented in this paper is concentrated on architectural design methodology, design studio practice, and their management. Nevertheless, these two methodologies can be compatible. Finally, it is important to note that the presented approach can be included in the group of concepts promoting the idea of an open-source architecture in the broader context [24].

In the following chapter, examples of the application of the Agile Manifesto in the architectural design process will be presented. All the data utilized have been gathered based on observations, since the authors of this paper were also contributing to the design process explained, with members of the team Kabinet505 holding authorship on the projects that have been detailed in the relevant figures included in this study. Data gathering, as will be shown further on, lasted for few years, until an adapted agile methodology was elaborated. Further on, the collected data was processed, selected, and then analyzed in order to compare the effects and outcomes (Table 2). It is important to note that the project that is explained in detail (“Military-Technical Institute in Kragujevac”) performed more successfully regarding the jury evaluation and took less time to develop.

**Table 2.** Data on the urban and architectural competitions participated by the Kabinet505 team—comparison of the effects and outcomes depending on the applied design methodology.

Name of Competition	Year	Type of Competition	Programmatic Complexity (Scale: 0–5)	Number of Members of the Design Team with Consultants (Competition Entry under the Name of Kabinet505)	Method	Time Required for Production (Approximately)	Awards
Three squares in Belgrade	2015	Urban and architectural design	4	15	Linear process	4 months	-
New market in Sombor	2016	Urban and architectural design	2	14	Linear process	3.5 months	-
Fair city in Novi Sad-competition by invitation	2017	Urban and architectural design	3	10	Linear process	3 months	-
Public Spaces in the Centre of Novi Sad	2018	Urban and architectural design	4	17	Test for application of the Agile Manifesto and the Scrum framework	3.5 months	-
Military-Technical Institute in Kragujevac	2022	Urban and architectural design	5	20	Agile Manifesto and Scrum framework	3.0 months	Special mention

### 3. Application of the Agile Manifesto on the Architectural Competition for the Urban Renewal and Rehabilitation of the Spatial Cultural-Historical Unit “Military-Technical Institute in the City of Kragujevac, Republic of Serbia”

Traditionally, the designing of an architectural object is conducted as a linear process. Tasks defined by the brief are being resolved through clearly defined and predetermined

intervals, and since it is not usual to measure the progress in a sense of the working parts some of them either stay partially resolved or completely unresolved.

This is especially noticeable in the case of an architectural/urban competition. The rigid and unchanging list of requirements, short deadlines, and a larger number of team members often lead to the differentiation of the process in terms of the distribution of the spatial and temporal patterns across the work team. Consequently, this differentiation and linearity of the design process sometimes results in non-effective and very slow changes to the design, and often produces solutions that do not provide an answer to a series of qualitative and quantitative values. In this sense, an architectural competition is the ideal ground for examining new methodologies in architectural practice.

Here, we will consider that architectural design is a type of activity in which the main result is the production of space and is characterized by the simultaneous development and evolution of the problem and its solution. An adaptable methodological framework, whereby a problem is created and developed while simultaneously looking for ideas for its solution, should lead us from an unchanging framework of solutions to unforeseen connections and solutions that are in accordance with social changes and architecture as a dynamic discipline that reacts and responds to such an environment. A framework defined like this allows us to formulate tasks that connect seemingly distant and incompatible topics and spatial levels, with the aim of better understanding the process of creating a certain spatial structure, but also permitting the constant re-examination of our own ideas.

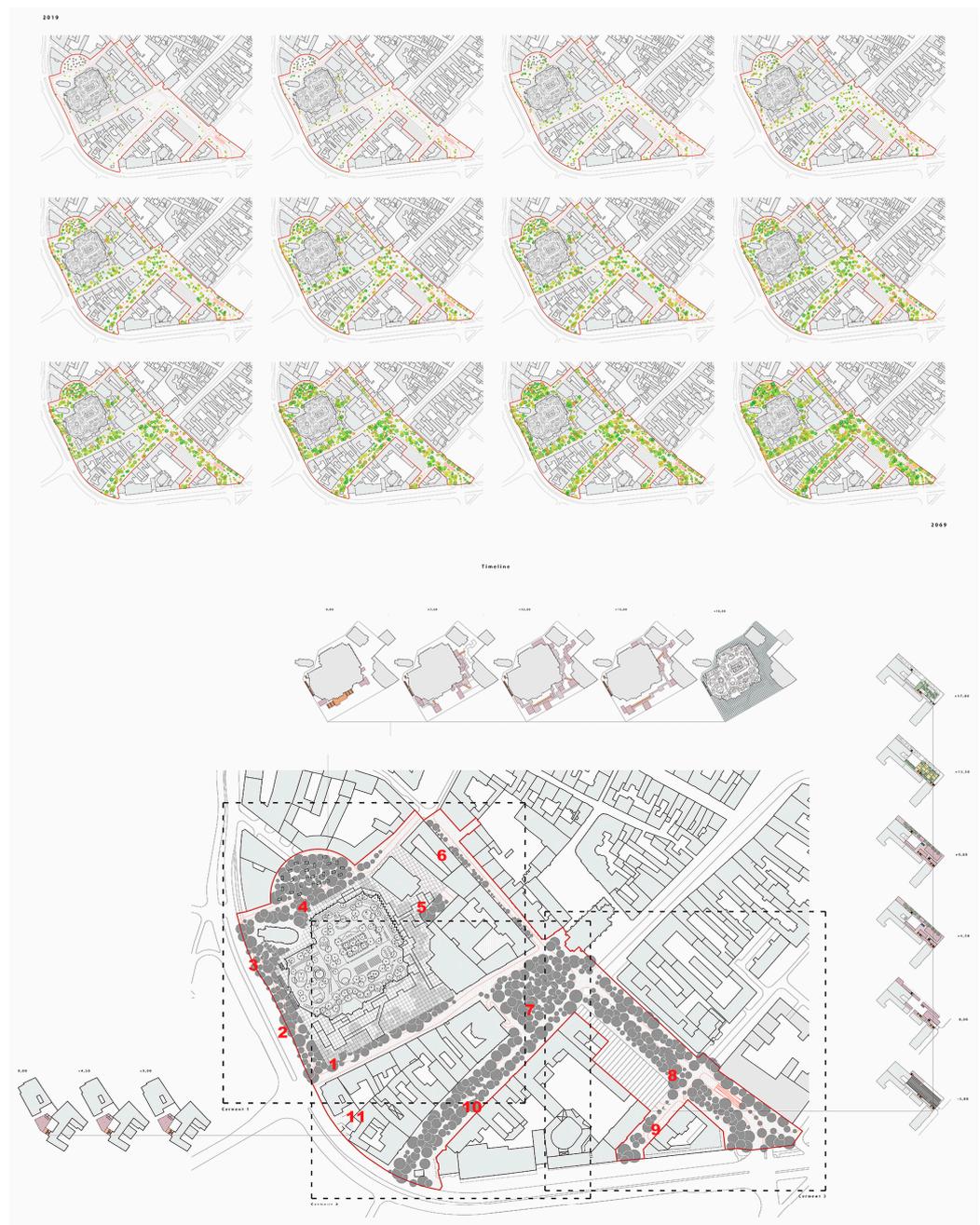
This point of view on architectural design, which was shaped according to the Agile Manifesto and the Scrum framework (which was derived from software development instrumentation), have been tested on large-scale architectural competitions in a team of 20 members. The architectural competition for the urban renewal and rehabilitation of the spatial cultural and historical unit “Military-Technical Institute in Kragujevac” (which was launched in the year of 2022) was chosen according to the following criteria:

- The size of the competition area,
- The presence of cultural heritages on the site,
- Strong requirements for both cultural heritage and environment protection,
- Great variety of programs defined by the competition brief, ranging from housing to commercial use, with emphasis placed on the programs connected to the creative industries and IT sector,
- Different private and public stakeholders.

The applicability of Agile/Scrum was further enhanced by the fact that the architectural team that was applying for the competition was constituted of 20 members, who have already tested a similar approach on the architectural competition for the Public Spaces Design in the Centre of Novi Sad in the year of 2018 (as shown in Figure 2).

Kabinet505 (<http://kabinet505.ftn.uns.ac.rs/>, accessed on 5 July 2023) comprises a group of professionals from the fields of architecture, design, visual arts, computing, and automation. This group engages in transdisciplinary architectural research formalized in the form of strategies and objects that are largely based on the accelerated development of digital technologies and the ways in which they can be implemented in the numerous spheres of human activity, including in the fields of architecture and design.

Having different skills and professional backgrounds, but with common interests and previous experiences in team dynamics, helped to not only facilitate the implementation of this specific framework, but also partially reduced the obstacles of the non-existent feedback provided by all stakeholders caused by the anonymity of the competition entries defined by the rules of competition.

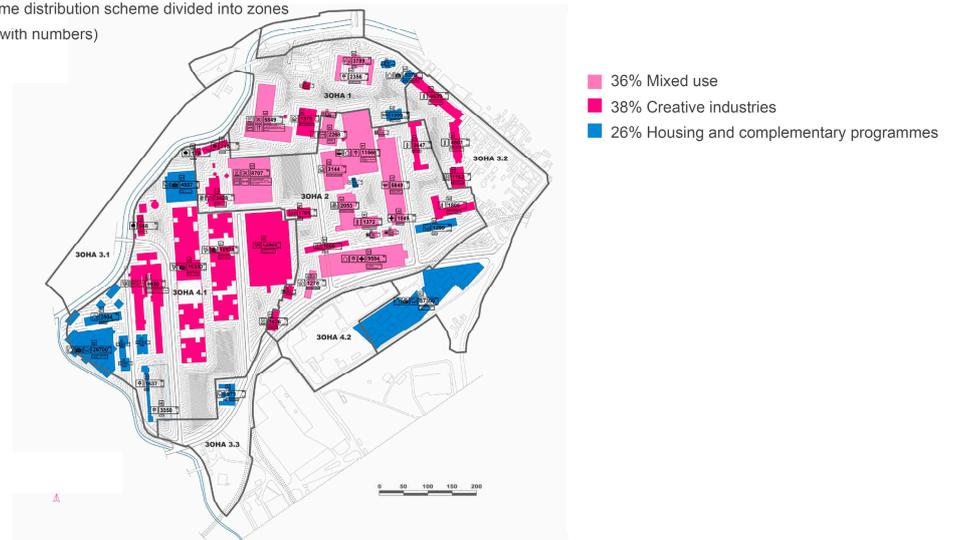


**Figure 2.** Illustration of the conceptual ideas that formed a backlog for the architectural competition titled the Public Spaces Design in the Centre of the City of Novi Sad, Republic of Serbia, in the year of 2018. Red numbers represent areas that were separated for sprint planning.

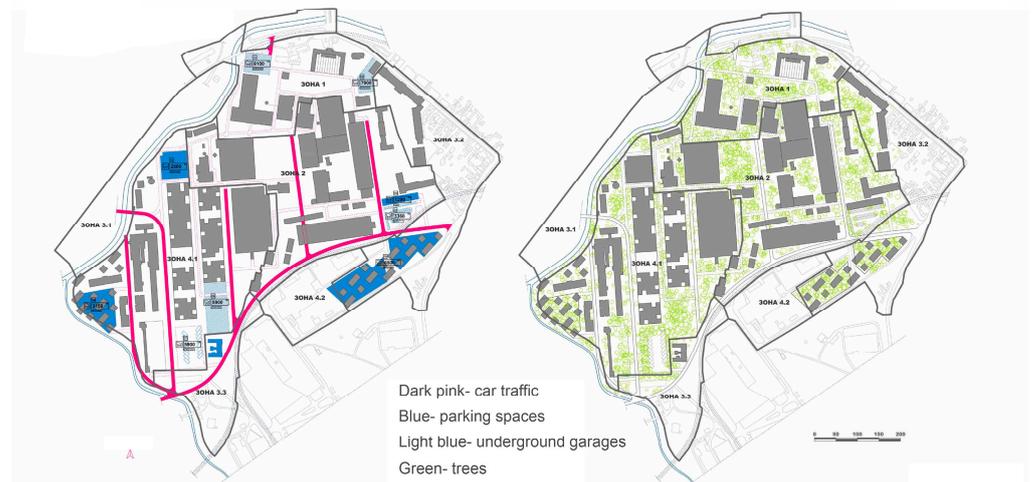
The Scrum framework was implemented as follows:

1. Competition tasks and eligibility criteria defined by the brief were used as the starting point of defining the product backlog of the competition entry, as was the overall concept, which was defined through keywords based on priorities and sketches of the main motifs of the overall design (Figure 3),

Programme distribution scheme divided into zones  
(marked with numbers)



New traffic routes and new green areas

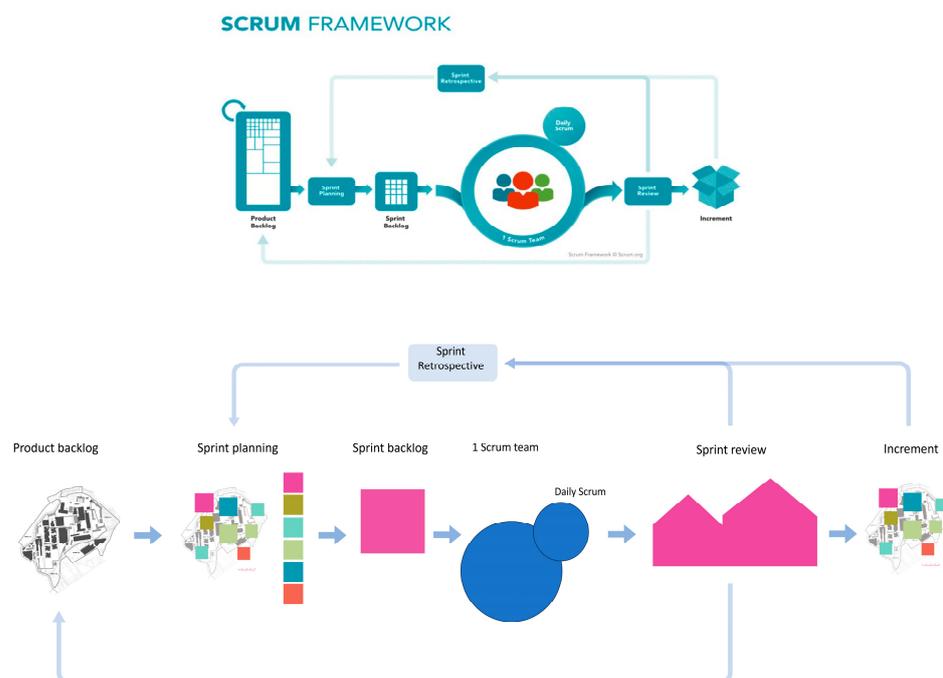


**Figure 3.** Extract from the competition entry-graphic documentation that formed a backlog for the architectural design process of the “Military-Technical Institute in the City of Kragujevac, Republic of Serbia”.

2. Since the competition tasks were different in the sense of the scale, level of elaboration in the detail and type of design, Scrum planning, and defining the Scrum teams were all crucial in the further development of the design,
3. Scrum teams were formed based on the zones that were defined by the competition tasks and milestones set by the brief, along with the conceptual ideas of the team forming the project network of teams,
4. The network was consisted of Scrum teams, which were consisted of two to three members, altogether forming eight teams working simultaneously on different sprints,
5. Each Scrum team had to address all aspects of the assigned task, which comprised: 3D modeling and animation of the existing area and the proposed design; reconstruction and protection of the designated heritage buildings and areas; distribution of the programs and typology of the buildings; and the “business model” of the proposed design.

The frequency of sprint previews changed during the development of the project, which were as follows:

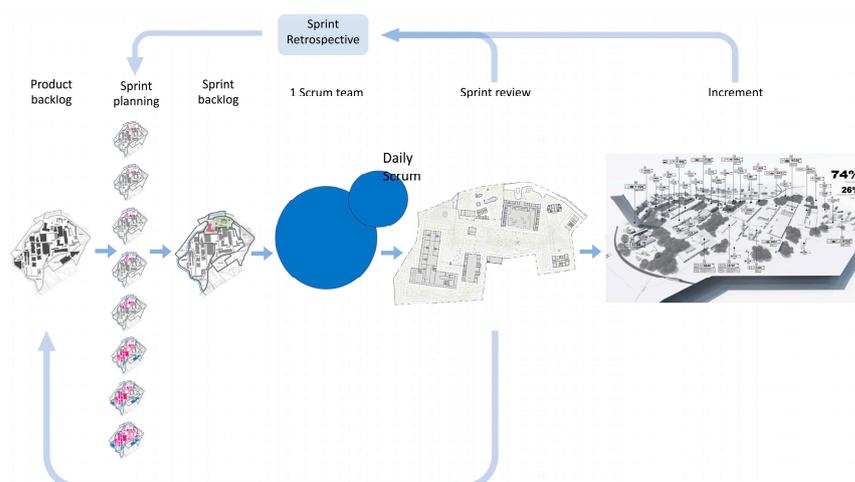
1. In the first phase of working on the project, all Scrum teams had a daily sprint review to set their specific goals and increments that relate to the future design proposal (as shown in Figure 4);



**Figure 4.** Scrum framework as defined by Ken Schwaber and Jeff Sutherland when applied to the architectural design process of the “Military-Technical Institute in the City of Kragujevac, Republic of Serbia”. Colours in the scheme were used as a graphical tool for distinction between phases of the process.

2. In the second phase, the emphasis was shifted from daily to weekly sprint reviews, considering the fact that the level of detail in developing an architectural project becomes more complicated with the progress of the project itself (as displayed in Figure 5).

Further comments on the topic regarding the application of the agile methodology in the architectural design process will be discussed further in the following chapter.



**Figure 5.** Scrum framework for one Scrum team illustrated with the blueprints from the “Military Technical Institute in the City of Kragujevac, Republic of Serbia” architectural competition entry.

#### 4. Discussion of the Results—Design Strategy and Design Tactics

In a heterogeneous environment with many variables, as was the case of the architectural competition for the urban renewal and rehabilitation of the spatial cultural and historical unit “Military-Technical Institute in Kragujevac”, a linear and unchanging strategy does not leave the possibility for obtaining feedback and creating new connections and solutions. The application of linear methodology, established in traditional way, leads to the isolation of certain design process phases, and as such cannot offer solutions that provide answers to changes in the input data. A strategy based on such a common “prescribed” process creates ill-defined tasks, whose solutions are often arbitrary, and most often appear as an “in case” response to the problem. The unchanging path of problem solving based on a clear but rigid top-down principle often leaves several insufficiently clarified or unexplained parts that significantly affect the value of the solution, including its exploitation.

On the other hand, the proposed Agile/Scrum method offers a framework in which the work on finding these solutions is based on tactics whereby individuals or teams are not only able to offer an answer to a given problem but are also able to create an environment in which it is easier to provide just-in-time answers to the requests. This can be achieved through maintaining constant communication with all the stakeholders involved in the design process. In this way, these obtained solutions do not solely represent the result of strategic rationalization and just-in-case responses to threats, but present solutions that are the product of negotiations and practice of all interested groups, and therefore, are adapted to different situations, functions, and problem tasks.

In the case of the architectural competition for the urban renewal and rehabilitation of the spatial cultural and historical unit “Military-Technical Institute in Kragujevac”, the application of Agile/Scrum methodology can be indicated in several points that resulted in a significant change in the design process itself:

- Competition tasks and eligibility criteria defined by the brief were different in the sense of the scale, detail requirement, and the type of design product, which implied the existence of several independent, parallel lines in the design process. The danger of creating solutions that remain insufficiently connected and uncoordinated in such an environment is precisely avoided using the Agile/Scrum framework. The formation of the individual Scrum teams with clear sprint backlogs provided the necessary connections and bridges between the different phases/lines defined by the competition;
- Individual teams that were in charge of specific topics, such as 3D modeling and the animation of the existing areas and the proposed design, the reconstruction and

protection of the designated heritage buildings and areas, the distribution of the programs and typology of the buildings, and the “business model” of the proposed design, were all better involved in the design process. Usually, teams with specific tasks appear only as actors under certain time intervals during the design process and are often faced with the fact that the inputs they receive are either insufficient and not fully defined, or otherwise unchangeable in the case of the final stages of the design. The inclusion of the mentioned teams in the Scrum network enabled not only the fact that the data they received was updated, but also created the possibility where they were able to actively participate in all aspects of the design process (through the sprint review and sprint retrospective), which enabled better, higher quality and more harmonized individual solutions;

- Groups of Scrum teams that worked within the same or surrounding zones of the competition area were able to receive timely data on changes in all phases of the project through Scrum reviews within individual teams or groups of teams but were also able to actively participate in the improvements of each phase. Team coordination and synchronization was evaluated once at the end of each sprint through the means of face-to-face meetings between the team leads;
- The environment created through the Agile/Scrum framework not only ensured the active participation of all the team members during the entire development of the project, but also offered a solution in its entirety, both in terms of satisfying the set requirements, and in the presentation of the solution. It also offered a solution without blind spots, which is a rare case scenario in this type of architectural project, and generally speaking, a huge problem of architectural practice.

Nevertheless, it is also important to note the following:

- Although the example we showed earlier performed the best with the competition jury, it was still not possible to establish a questionless correlation in between the method and project management, to form one side, and the design result, on the other. In order to achieve this, there are many other variables that should be taken into consideration. For example, similarities in between the team members regarding their visual and artistic expression, as well as past collaborations and coordination of the team most likely contributed to the proposed method, while smaller scale projects would probably face difficulties in the phase of creating the backlogs;
- Since architecture belongs to the fields with a strong artistic component, introducing the criteria of a successful vs. unsuccessful design is a complex question. Here, it can be stressed that the proposed method and project development enabled the teams and authors to circumvent the common pitfalls, thus making the design process more efficient, enabling them to focus more of their creative energy towards their creative tasks, and ultimately contribute to better outcomes. It is worth stressing that the celebrated author and architect Christopher Alexander has similarly focused on design methodology. Many critics of Christopher Alexander have [25] targeted the outcomes of the proposed method. Even this well-respected methodology has failed to produce successful project in many cases, but still remains as a strong foundation for other contemporary research teams [26];
- Our proposed approach has only been assessed against architectural competition tasks, where communications between the design team and the investor are usually limited. In the architectural studio environment, where an enhanced dialogue between all stakeholders is possible, the successfulness of the final design could be measured against the satisfaction of all parties involved. Thus, from the results shown, we can conclude that there is a strong requisite to explore the further possibilities of implementing this proposed method to phases which precede the architectural design itself (e.g., urban planning), but also the ones that follow (e.g., development of the project for obtaining building permits and their construction itself). Here, it is necessary to stress the possibility of implementing other collaborative technologies (e.g., text annotation and voice annotation of CAD software, or tools for participation [27]);



The type of question that this research is trying to answer is what kind of sustainable methodology could be applied to the architectural design process itself? In this study, sustainability has been treated in the widest possible context, meaning that it is very important to use the available resources wisely, with special attention paid to the human resources and time available for a project. The methodology that is shown in this research was assisted with frequent communication between the Scrum team members, as well as in between the Scrum teams and other stakeholders, thus being participatory in its nature.

When we consider technological improvements in the context of architectural design, we usually think of software applications, with software as a finalized product. The technology that has been applied here has been derived from one of the most propulsive spheres of activity in contemporary society—the production of software—and in order to obtain optimal results, it is oriented towards the process itself. In this research, we have applied the technology of how software is actually produced, or so to speak—the method of software production. It is important to state that this does not limit the use of advanced technologies as design tools during the process organized according to the Agile principles.

Previous research has revealed, especially through the case study discussed in this study, a belief in that this increased communication and loop organization of the process itself leads to the production of final design solutions that meet a wider spectrum of set criteria, and therefore indicates a greater degree of agreement among all the participants or stakeholders involved. This “trial and error approach”, that was manifested in constant presentations of increments, is a method to further foster the persuasiveness of architectural arguments, and is constantly being refined during the process itself.

Nevertheless, a few notes should be taken into consideration when Agile or Scrum frameworks are applied on architectural and urban design. First of all, this type of working environment is convenient when a relatively large team is involved in the activity of producing space, in order to be able to divide the team into smaller units with specialized tasks. The other option, which is very important for the future of architecture as a discipline, is to have a larger number of relatively small projects (single family houses, for example), that are set to demonstrate shared values amongst themselves (concepts or ideas of organizing spaces, etc.). In this scenario, Agile or Scrum could be the method to optimize these common practices in architectural design studios. Moreover, this research was conducted in an environment of architectural competition, meaning that stages of brief or programming (P), as well as building (B, CA), were not in focus (Figure 1). If the stages that are necessary to formulate the program or the brief were to be taken into consideration (urban plan parameters, for example), or the demand for an enhanced communication with the city authorities during the design process, even if the building itself was addressed—a significant change in the practices of urban planning and legal regulations regarding building permits would have to take place.

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