
Adopting scrum methodology in the project of organising a concert

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Abstract: The purpose of the paper is to analyse the possibilities of using the Scrum to manage the organisation of a concert. Firstly, the authors show the concert organisation process, which is currently used in the selected research object – The National Forum of Music in Poland. Then the research that was based on interviews is presented. The main result of the research is a proposal to manage the organisation of concerts using Scrum methodology. The authors state that the Scrum methodology may prove to be an effective tool in managing projects of music institutions. The presented proposal requires a deeper empirical verification, but it is undoubtedly an important step towards the application of Scrum in the music industry.

Keywords: agile project management; scrum methodology; art project; sprint.

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1 Introduction

A sequence of successive actions performed by musicians and concert organisation staff, aimed at achieving the intended goal of playing a concert are an example of a project. These activities are characterised by time constraints, a clearly defined end and beginning, a clearly and unambiguously defined goals and results, one-time property, uniqueness, financial and resource constraints, and complexity (Kedziora and Koscielna, 2017). Each project needs to be managed. Project management methods can be roughly classified into two groups: traditional and agile (Kopczynski, 2014). In the first of them (also referred to as the waterfall model or the cascade model), the sequences of steps that must be taken are identified, and then they are implemented according to a plan that was set. The name of this approach refers to the waterfall (or cascade), because it shows the linearity and hierarchy of the process characteristic for this philosophy. The essence of the traditional approach is a detailed plan. The order of tasks, deadlines for their implementation and budgets, which are necessary to complete each stage of the project, are planned. The main weaknesses of the cascade model approach include: limited possibility of introducing changes during the project, need to create very detailed plans, risk of high costs and prolongation of the project, excessive level of formalisation and lack of focus on actual client needs and value delivered. This approach works especially in situations where the goal together with the technique of achieving it are clearly and fully defined, and in addition there is a low probability of changing the scope during project execution. A modern alternative is the agile approach, in which the project is perceived as a collection of relatively small stages rather than as a complete process. The methodologies included in this philosophy are more flexible and adaptive. These methodologies treat plans as some speculation for the future, whereas deviations from plan are a basis for further analysis and for drawing conclusions for subsequent actions. They put a strong emphasis on cooperation and integration of the project team. The introduction of the agile program for project management was initially a revolution in this field and has been established in the Manifesto for Agile Software Development announced in 2001, where the authors (Beck et al., 2001) formulated four important values (Table 1).

Table 1 Agile manifesto values

<i>No.</i>	<i>Value</i>
#1	Individuals and interactions over processes and tools
#2	Working software over comprehensive documentation
#3	Customer collaboration over contract negotiation
#4	Responding to change over following a plan

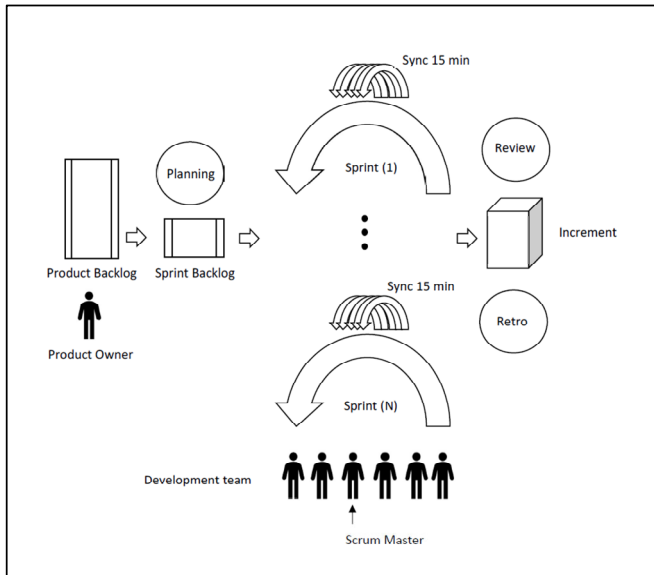
Source: Beck et al. (2001)

Introducing an agile approach to project management can bring many benefits. Serrador and Pinto (2015) examined the impact of the agile approach on two dimensions of project success: efficiency and overall stakeholder satisfaction with organisational goals. They conclude that using agile methods in project management can have a positive impact on both of these dimensions (Serrador and Pinto, 2015). In the '90s, Turner and Cochrane noticed "benefits of iterative methods which formalise replanning of a project during execution" (Turner and Cochrane, 1993). Hence, the agile approach, which was initially adopted in the IT industry, was often used in other industries.

The agile approach has resulted in the development of many methodologies. All of them are based on its core values and principles from the Manifesto, but they differ in the procedures and techniques used, as well as the type of project and the distribution of emphasis on its various aspects. Therefore, for a particular type of project, one should choose a methodology which procedure coincides with expectations. The most popular agile methodologies include extreme programming, Kanban and Scrum. There are many studies in which these approaches are combined (e.g., Sjøberg et al., 2012; Ganjeizadeh et al., 2014; Mannaro et al., 2004). The most popular methodology derived from the agile approach is Scrum. Scrum serves the production of innovative products and services and is distinguished by the fact that it ensures excellent team cooperation. Thanks to this feature, it is possible to release the creativity and the spirit of the self-organising team. The pioneers of Scrum methodology are Jeff Sutherland and Ken Schwaber, according to whom Scrum is a framework which allows people to successfully solve complex adaptation problems in order to productively and creatively produce products of the highest possible value (Schwaber and Sutherland, 2017). The value system is a very important part of the methodology because it initiates specific behaviours or actions, causing various reactions. The fundamental values promoted by Scrum includes: commitment (means 'sacrifice' in some matter), courage (is a value without which Scrum could not be used), focus (should be understood as keeping attention on a particular matter), openness (means an attitude represented in cooperation), respect (means respecting certain principles, norms, standards). In addition, Scrum is based on three pillars: transparency, inspection and adaptation (Schwaber, 2004). The application of the Scrum methodology is shown in Figure 1. The Scrum environment requires three basic roles: product owner (is a legitimate management centre), Scrum master (helps all persons involved in the project to understand and follow Scrum values, principles and practices and is responsible for its proper implementation, and supports the team – helps them to solve emerging difficulties and make improvements), development team (a team consisting of people responsible for providing the product: programmers, testers, architects, designers, and other necessary). Together they form the Scrum team (Lacey, 2012). Meetings in Scrum are called events and they are used to increase work efficiency. Their duration is limited to a given maximum. The events recommended by the Scrum methodology authors are (Schwaber, 2007): Sprint (iteration of short, fixed duration, of time limit typically from one week to one month), sprint planning (an event performed by the development team together with the product owner and chaired by Scrum Master), Daily Scrum (a meeting of the development team members limited to 15 minutes that takes place every day), sprint review (a meeting that takes place at the end of a Sprint, whose objective is to inspect and adapt product growth), sprint retrospective (this is the last meeting taking place in the sprint cycle – after the sprint review, and before the next sprint planning, which provides the opportunity to inspect the work done in the project). Scrum distinguishes three basic artefacts that are key to the success of the project

(Schwaber and Beedly, 2007): product backlog (a basic list of all features and functionalities necessary to transform the customer’s vision into a final product or service that meets all expectations of interested parties, ordered in terms of business value and risk), Sprint Backlog (list of tasks that the team must perform during the next Sprint to convert a selected set of items from the product backlog into a functional increase that can be transferred to the customer), increment (is the sum of all product backlog elements completed in the Sprint and the values provided in previous Sprints). The developers of the Scrum methodology claim that it can be used to produce any type of product, not just computer software. Today, the use of the Scrum methodology is no longer limited to software development. It finds the use in many other environments.

Figure 1 The elements of Scrum



Source: Own elaboration, based on Scrum, as described in Schwaber and Sutherland (2017)

This work presents a Scrum methodology adoption in a use case setting, which is the organisation of a concert in National Forum of Music (NFM), a cultural institution located in Wrocław, Poland.

According to observations and numerous conversations with people managing culture units in Poland, Waterfall methodology is most often used in culture project management. Thus, artistic institutions, while managing their projects, go through a process consisting of successive stages: initiating, planning, executing, monitoring with control and closing. In particular, projects of NFM are organised using a traditional approach and most of them are successful. According to the research conducted, the middle stage of this cascade project (the realisation phase) is suitable for Scrum, because it contains many iterative and adjustable activities. What is more, a few project management aspects that can be improved were identified in this stage. Scrum can help implementing these improvements. The first aspect is the communication between the organisation departments (which is related to the application of Agile Manifesto Value #1) and the

second aspect is the speed of adaptation to fast-changing requirements (which is related to the application of Agile Manifesto Value #4). There is an increasing number of concerts organised by NFM that are innovative and combine old and new technologies, which reflects in the increasing number of adjustments that need to be applied before the concert is ready to be presented to the audience. Another motivation of applying the Scrum methodology in this setting is the fact that, although there exist a few Scrum adoptions in the literature (see: Section 2), in the authors' opinion it is still an area that is unexplored, especially in the context of managing concert organisation. It is impossible to introduce Scrum approach across the whole lifecycle of the project of organising a concert, because some activities, like planning the repertoire or project evaluation, need to be executed in fixed stages of the project which are not negotiable. Applying Scrum in a combination with the classical waterfall model is called a hybrid approach. Conforto and Amaral (2009) have proven that there are some benefits that can be obtained from the use of simple, iterative, visual and agile techniques in planning and controlling innovative product designs in combination with the best practices of traditional project management, such as standardisation. This article also presents a combination of traditional and agile project management methods. The research question that this article tries to answer is:

- RQ Is there a possibility to adopt the Scrum methodology to the project of organising a concert.
- RO1 The research objectives are: To identify the major problems related to the project of organising a concert.
- RO2 To synthesise a use case which shows that Scrum can solve the problems that were listed.
- RO3 To identify the specifics of the project of organising a concert.
- RO4 To identify the challenges that may be faced when using a state-of-the-art Scrum.
- RO5 To suggest a Scrum adoption for the project of organising a concert considering the challenges indicated.

The rest of the paper is organised as follows: Section 2 presents the related work, Section 3 discusses the Methods and materials that were used in the research, including a more detailed research use case description. Section 4 presents the results that were obtained, and a Scrum adoption proposed by the authors. Section 5 contains discussion and Section 6 closes the work and lists areas for further research.

2 Related work

For research purposes, an analysis of related work was carried out. The search included only papers written in English. It was based on two different databases: Scopus and Google Scholar. We used different combinations of the following search criteria: {'Scrum', 'adoption', 'hybrid', 'waterfall', 'artistic', 'creative', 'innovative', 'project'}. The phrases were pre-tested and then adjusted if too many or too few results were received. If no suitable results were found, the search criteria were revisited and modified. If too many results were found (this happened for most of the searches performed on Google Scholar database), the search criteria were constrained to title only or year from 2016 on, or the results were truncated to the top most relevant items. The

results were then further analysed: first in terms of titles, then abstracts. The selected articles were then analysed in terms of content. In most cases, we omitted articles concerning the IT industry, although the most interesting ones, in our opinion, were also considered and analysed. The search phrases and search criteria are summarised in Table 2. The articles sometimes repeated themselves in various searches. Therefore, the number of reviewed articles includes only papers that were not identified in previous searches. For an easier review of the literature, we assigned the items to two different categories: the first category contains all hybrid methods (category named hybrid Scrum), being either a combination of different agile methodologies or agile and traditional methodologies, and the second category is related to the acceptance of Scrum in different industries (category named Scrum adoption).

Table 2 Summary of searches performed

<i>ID</i>	<i>Category</i>	<i>Database</i>	<i>Search term(s)</i>	<i>Results found</i>	<i>Results reviewed</i>
S1	Scrum adoption	Scopus	Title/abstract/keyword: 'Scrum'	392	1
S2	Scrum adoption	Scopus	Title/abstract/keyword: 'Scrum' and 'adoption'	54	5
S3	Hybrid Scrum	Scopus	Title/abstract/keyword: 'Scrum' and 'hybrid'	15	1
S4	Hybrid Scrum	Scopus	Title/abstract/keyword: 'Scrum' and 'waterfall'	22	0
S5	Scrum adoption	Scopus	Title/abstract/keyword: 'Scrum' and 'artistic' and 'project'	0	0
<i>Scopus</i>				241	7
S6	Scrum adoption	Google scholar	From 2016: 'Scrum adoption'	231 (150)	1
S7	Scrum adoption	Google scholar	From 2016/title: 'Scrum' and 'adoption'	17	0
S8	Hybrid Scrum	Google scholar	From 2016: 'Scrum' and 'waterfall' and 'hybrid'	2,250 (150)	1
S9	Hybrid Scrum	Google scholar	From 2016/title: 'Scrum' and 'hybrid'	12	1
S10	Hybrid Scrum	Google scholar	From 2016/title: 'Scrum' and 'waterfall'	16	1
S11	Scrum adoption	Google scholar	From 2016: 'Scrum' and 'artistic project'	4	0
S12	Scrum adoption	Google scholar	From 2016: 'Scrum' and 'artistic' and 'project'	910 (150)	1
Google Scholar				499	5
Total					12

As far as the literature concerning Scrum adoptions is concerned, besides adoption examples, also adoption challenges can be found. Nuottila and Aaltonen identify seven categories of challenges in the implementation of agile methodologies: documentation,

education, experience and commitment, stakeholder communication and involvement, roles in agile setup, location of the Agile teams, legislation, complexity of software architecture and system integration (Noutttila et al., 2016). What is more, Mnkandla and Hanslo identify the global Scrum and agile adoption challenges. The main identified challenges are: lack of knowledge/training/skills, organisational culture/mindset, lack of documentation, budget and schedule constraint (Mnkandla and Hanslo, 2018). Ribeiro and Domingues evaluate the degree of acceptance of an agile methodology in the public sector (Ribeiro and Domingues, 2018), also including the challenges of the implementation and execution of agile methodologies in public sector. Public sector is not the only one that adopted the agile approach. There exist already more examples of using Scrum in non-IT industries in the literature. For example, the Scrum methodology is used in the management of research projects (Hicks and Foster, 2010).

Oprins et al. (2019) list the reasons of adopting agile in different projects and teams: external threats and fluctuating customer needs, a lack of transparency about the value that was being delivered and how it connected to other organisational units, the realisation that previously applied project management approaches did not work, the quest for increased employee satisfaction. The work of Hanslo et al. (2020) is a quantitative analysis with hypothesis testing. The authors identify three important factors that influence Scrum adoption. The factors are: sprint management, complexity, and relative advantage (Hanslo et al., 2020). Research presented in (Hanslo and Tanner, 2020) reports on the development of machine learning (ML) models to predict the accuracy of Scrum adoption based on a feature set derived from a survey questionnaire's response data. Another interesting Scrum adoption that is situated closely to the subject of this article is considered in Seymour and Coyle (2016). The research shows that very few companies in the film industry have adopted agile project management. They state that it is worth undertaking research in order to try to implement such an approach in film projects and to determine whether it is possible or not.

As far as the literature concerning hybrid Scrum approaches is concerned, the literature items that were found are also rather far from the context that is being considered in this paper. The research in (Car-Pusic et al., 2010) presents public government units and shows that the existing functional organisational structure of local self-government units is not suitable to the project requirements. Therefore, a hybrid agile model is proposed which integrates matrix organisational structure with agile working framework, combining project and functional levels based on Scrum and dynamic systems development method (DSDM). In (Papadakisa and Tsironis, 2018) a systematic literature review of several empirical studies and experience reports on agile methods, challenges of selecting agile methods and hybrid applications models is presented. The authors of (Kuhrmann et al., 2017) show that hybrid approaches are used by many companies, regardless of their size or industry sector. The study shows that companies adopt agile methods even in regulated domains. (Bhavsar et al., 2020) is the example of another article that shows various hybrids in agile project management. Scrumbanfall is an agile hybridisation of Scrum and Kanban with waterfall in software engineering management (SEM).

The analysis of literature items shows that there is a gap in the literature concerning the use of Scrum in organising cultural events, especially in organising concerts by cultural institutions.

3 Materials and methods

3.1 *Research objective and research questions*

In this section, we recall and explain the research objectives and research question that were stated in the introduction.

RQ Is there a possibility to adopt the Scrum methodology to the project of organising a concert.

The research question considers only the analysis of possible Scrum applications and the feasibility of using Scrum in the case that is described in this paper. However, the research question stated does not focus on assessing the changes that are proposed to be applied. The lack of assessment of the model that is proposed in this paper is a serious limitation of the study. However, the research objectives that are listed below should provide at least a justification why the changes should be applied.

RO1 To identify the major problems related to the project of organising a concert.

RO2 To synthesise a use case which shows that Scrum can solve the problems that were listed.

RO3 To identify the specifics of the project of organising a concert.

RO4 To identify the challenges that may be faced when using a state-of-the-art Scrum.

RO5 To suggest a Scrum adoption for the project of organising a concert considering the challenges indicated.

A Scrum adoption in the case described in this paper should be justified in the context of concert specifics. A Scrum adoption should be supported by listing the problems that Scrum can solve. The problems listed should reflect the problems that have been identified in the project that is being researched.

3.2 *Use case setting*

The use case setting that has been selected is the NFM, located in Wrocław, Poland. NFM is one of the largest concert venues in Central Europe. The main activity of the NFM focuses on organising various types of concerts planned for a given artistic season (over 400 concerts per year), lasting from September to June. We selected one of the concerts for our research. The name of the concert that was analysed is '2001: a space odyssey'. The concert was opening the festival named 'musica electronica nova' and it took place in 2019. The concert was a demonstration of the 1968 science fiction film by Stanley Kubrick accompanied by live music and it was an innovative idea, because on the one hand the viewer could feel like in a cinema hall, and on the other – the music accompanying the projection was played live. The project was implemented by the producer, who was the manager of the artistic department (selected by the head of the project management department) and the coordinator of the festival, in cooperation with relevant departments. The production, among others, included many unpredictable activities, which could be negotiated with the executors, like supplying appropriate performance materials (music and film), editing, experiments, implementation, preparation of artists, rehearsals, preparing agreements and specifications with concert

partners (e.g., with the owner of the rights to the film), preparing posters, promotional film, leaflets, program book, production of t-shirts.

3.3 Research design

We planned our research using the following research methodologies:

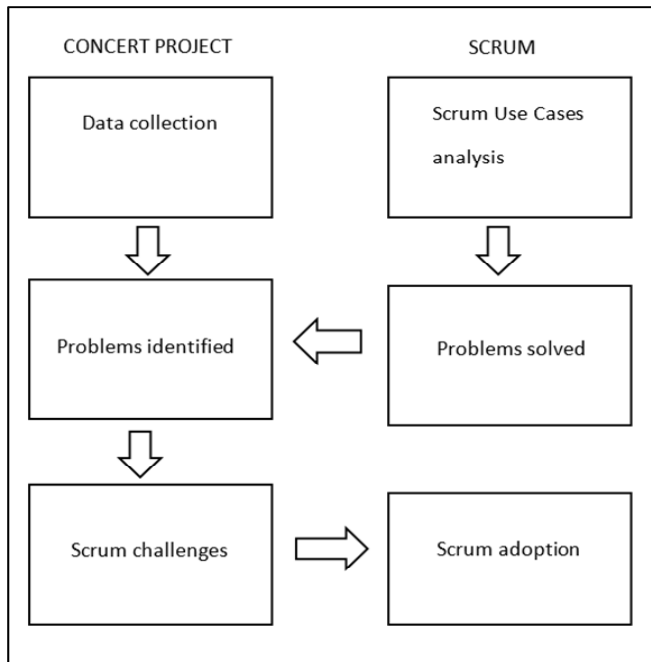
RM1 Use case setting.

RM2 Semi-structured interviews, supported by unstructured interviews.

RM3 Document analysis.

The research design that was planned corresponds the research objectives stated above and is presented in Figure 2.

Figure 2 Research design



We first collected the data and identified the problems in the current concert setup. We then analysed the current setup in the context of Scrum, trying to identify the challenges in Scrum adoption. Based on the analysis of the Scrum use cases, that were fetched during the literature research, we tried to identify similar problems that were solved by Scrum and justify the need of Scrum adoption in our case. At the end, we suggested a Scrum adoption model, that seemed to suit best the project of organising the concert.

3.4 Data collection

There were two types of interviews conducted: semi-structured and unstructured ones. The base set of questions for the semi-structured interviews is presented in Table 3.

Table 3 Semi-structured interviews

<i>No.</i>	<i>Interview question (organisation of a concert)</i>
1	What are the concert types that are realised?
2	At which stages these concerts differ?
3	Who are the stakeholders?
4	What human resources are allocated?
5	How big the teams are?
6	How often do people work together/individually?
7	What is the flow of information between teams?
8	What are the types of activities that are being realised?
9	What are the resources that are needed?
10	What are the stages?
11	What is the duration of the stages?
12	What types of activities are realised parallelly and what types of activities need to be realised sequentially?
13	Who defines the requirements?
14	How fast do the requirements change?
15	Who influences the requirements change?
16	What documentation is required?
17	What marketing activities are undertaken?
18	What is the budget?
19	What obstacles may occur?
20	What are the key success and/or failure factors?

The information that was collected during unstructured interviews is presented in Table 4.

Table 4 Unstructured interviews summary

<i>Role</i>	<i>Information gathered</i>
Art coordinator	The creative process, cooperation with artists, cooperation with the conductor, cooperation with the orchestra, cooperation with stakeholders
Head of controlling	Responsibilities, project budget, implementation barriers, project documentation
Marketing coordinator	Marketing activities, cooperation with stakeholders
Marketing specialist	Concert brochures
Advertisement specialist	Concerts advertisements
Sales and marketing specialist	Marketing activities
Producer and festival coordinator	Stages of concert organisation, cooperation with stakeholders
Orchestra manager	Stages of concert organisation, cooperation with the orchestra

The semi-structured interviews that were conducted took from 30 minutes to one hour. The unstructured interviews were longer and took up to two hours. Some basic statistics of the data collected are presented in Table 5.

Table 5 Interviews basic statistics

	<i>Semi-structured interviews</i>	<i>Unstructured interviews</i>
Number of base questions	20	N/A
Number of responders	15	8
Target group	Regular employees	Managers / coordinators / regular
Interview duration	30 minutes – 1 hour	Up to 2 hours

4 Results

We start from addressing the first research objective. Then we analyse the subsequent objectives, based on the data that we collected.

RO1 To identify the major problems related to the project of organising a concert.

According to the data collected from the interviews, we identified the main problems that appeared during the realisation of the project of concert organisation.

The problems that were identified are:

- There are communication issues between the people who work in different departments.
- The amount of documentation needed often overwhelms the people.
- Some requirements are often changed, and the current setting prevents people from applying changes fast.
- The tasks are delegated and coordinated mainly by the producer and some people feel not involved.
- The processes that are performed cannot be changed (although they are often not perfect and there is an obvious room for improvements).

People from different departments often need to work together and thus should synchronise their work, but they often are not familiar with the status of the work that is realised in teams from different departments. Additionally, as they are located in different rooms, the communication is often reduced to e-mail or phone calls.

The documentation is required for evaluation purposes in the final stage of the project, but the amount of documentation is overwhelming.

In the concert that is being considered in this paper, the amount of adjustments needed was much greater than in case of a traditional concert. A concert considered was an innovative combination of a movie and a traditional concert, which required much more coordination activities. In general, the application of the changes is not problematic, but propagation of the adjustments and its communication to all interested parties is slowed down by the communication issues already listed above.

The concert producer is involved in a great number of activities, including coordination tasks, so he/she needs to delegate the tasks. Unfortunately, he/she is often overwhelmed by the number of activities, whereas the tasks could be better coordinated and distributed if more people were involved and if their work was synchronised.

People need to follow the process, the documentation and the steps that are required are currently fixed. There is no possibility to change the process, even if one can see some possible adjustments.

RO2 To synthesise a use case which shows that Scrum can solve the problems that were listed.

The problems listed above can, by definition, be solved by agile approaches, in particular by Scrum. However, we try to classify the literature positions that confirms our choice of Scrum.

Table 6 Scrum and agile problem solving

<i>Problem</i>	<i>Scrum literature</i>	<i>Scrum / Agile elements</i>
Communication issues Ahmad et al. (2018), Lenarduzzi and Ahmad (2017), Paasivaara and Lassenius (2020)	Synchronisation meetings,	
Agile coaching		
Great amount of documentation	Ghayyur et al. (2018)	
Paasivaara and Lassenius (2020)	Agile coaching	
Fast changing requirements	Ghayyur et al. (2018)	Work in sprints
Commitment	Ghayyur et al. (2018)	
O’Connell and Molloy (2019)	Synchronisation meetings	
Lack of processes adaptability	Ghayyur et al. (2018)	Sprint retrospective

RO3 To identify the specifics of the project of organising a concert.

Based on the data collected, we prepared a diagram of the high-level activities that are needed to organise a concert, together with the institution’s departments that are involved. The diagram is presented in Figure 3.

As it was researched (and which was already partially depicted in Figure 3), the organisation of the concert is a complex event, that requires a cooperation of multiple departments. Additionally, the activities from the first stages of the project (like program planning from the planning stage) need to be realised at the beginning and the activities from the last stages can only be organised at the end (like concert evaluation step from the closing stage).

Figure 3 High-level activities required in the project of organising a concert and institution's departments involved

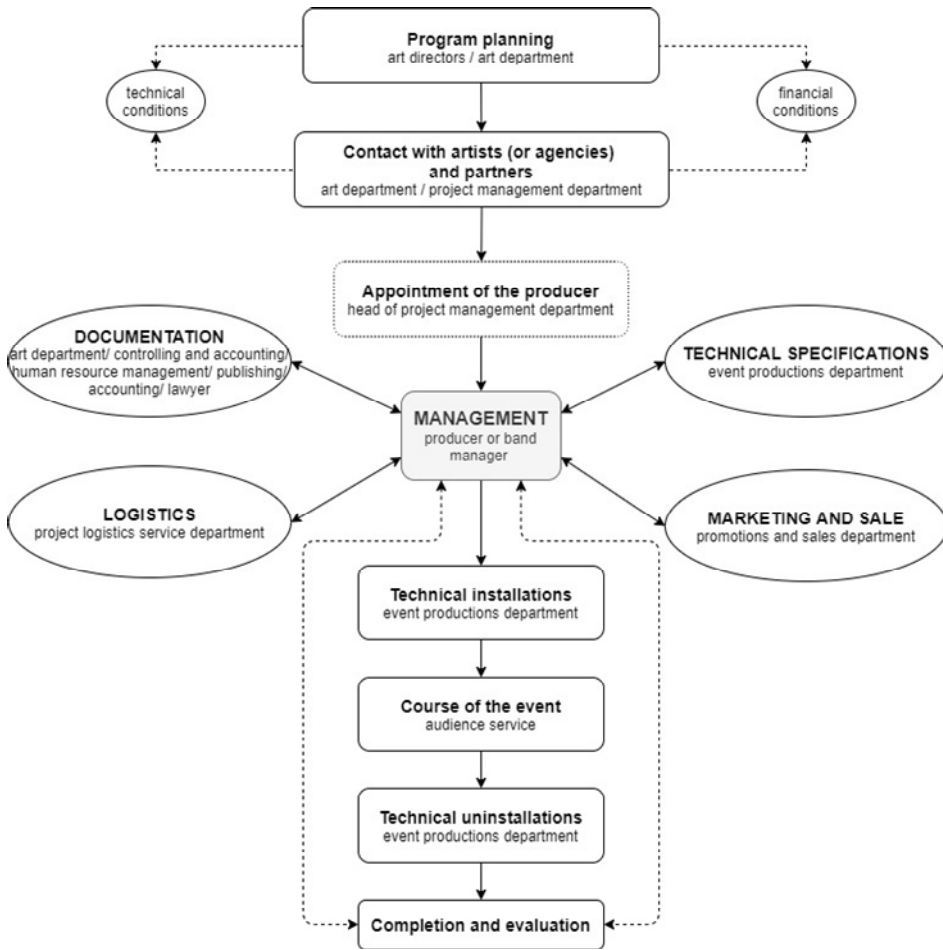


Figure 4 Project of organising a concert (introduced already in figure 3) presented as main stages in a waterfall model

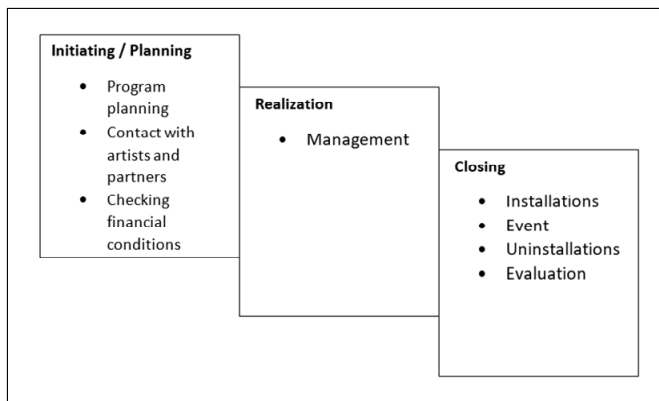


Figure 4 shows that the two stages (initiating and closing) are fixed, but the activities included in the realisation phase contain a lot of creative work as well as a lot of work that is not predefined, where many adjustments are needed. Below some more project specifics are presented.

The interviews have revealed that when a technical problem occurs (which happens frequently), there is an additional work that needs to be delegated to an external expert or a company that tries to solve the problem. Such a delegation may significantly delay many other activities, so this action needs to be taken fast. Financial problems that may occur are solved by involving additional human resources in the process of finding additional funds. Another interesting specific feature of the project of organising a concert is that synchronisation meetings are being organised with increased frequency as the project is closer to the closing phase (in which a concert is presented to the audience). The realisation of the concert (in the use case being considered in this article) took 4 months. The number of concerts that are realised each year is 400 (but concerts are not the only projects implemented in NFM), the number of employees that work in 20 different departments of the institution is about 150. In most of the cases people work on one concert continuously, but sometimes they need to switch to another project before the concert has been closed.

RO4 To identify the challenges that may be faced when using a state-of-the-art Scrum.

During the analysis of the interviews data, the following issues have been identified:

- The project has many sequential stages, which speaks against using Scrum
- The whole project is complex, which speaks against using Scrum
- It is not obvious who the customer is
- It is not obvious who the product owner is
- The amount of work needed to realise a concert is unevenly distributed (the work assigned to the producer is much greater than the work of individual teams)

Additionally, we identified the need to explain the following issues:

- Identify the stakeholders

The listed issues are addressed below.

By carefully analysing the stages needed to organise a concert (which is summarised in Figure 3), it can be concluded that due to a few sequential stages that are needed for project realisation, it is not possible to apply Scrum at all stages of the implemented project. For example, it will certainly not be possible to apply Scrum in the stage of concert program planning, which takes place about two years earlier. Scrum does not promote long-term planning and the institution is forced to plan for a two-year time horizon, because of formal and financial reasons. Some activities, like contacting the artists (or agencies) and partners and selecting the producer, are one-time tasks, so they cannot not be part of the Scrum. The same is true for the final stages of the process (performing the event, technical uninstalls, completion and evaluation), because they are also one-time tasks. On the other hand, the stage of coordinating the activities performed by the producer (realisation phase) is well suited to the application of elements of agility in the project, because the cooperation of producer and departments is one of

the cyclic and adjustable tasks, to which Scrum matches. Examples of negotiable tasks (that were already mentioned together with a use case description) are: supplying appropriate performance materials (music and film), editing, experiments, implementation, preparation of artists, rehearsals, preparing agreements and specifications with concert partners (e.g., with the owner of the rights to the film), preparing posters, promotional film, leaflets, program book, production of T-shirts.

As it was stated above, in our study Scrum is applied only to one of the three stages of the project (depicted in Figure 4), which reduces the complexity of the project and eliminates predecessor-successor dependencies. Additionally, Scrum assumes that the work is divided into iterations, which also reduces the complexity. The study (Stewart et al., 2020) shows that Scrum can be successfully applied to projects of middle complexity, which corresponds to our use case.

This use case is different from the classical Scrum setting that is known from the literature related to the application of Scrum in IT industry. A classical use case assumes frequent meetings with a customer, who defines the requirements, but is located outside of the organisation that realises the project. In our setting, one would expect the end user should be the audience, but there is no possibility to contact the audience and to negotiate the changing requirements. For this reason, a person appropriate for being considered as a customer in our use case is the artistic director who commissions the project.

A product owner (here: a concert owner) is the producer, who represents the customer and is responsible for coordinating tasks and negotiating the requirements that need to change. What is more, the producer is selected at the beginning of the project and each project has its own producer assigned. In some cases, the same producer can be assigned to multiple projects.

Stakeholders that can be listed are business partners (e.g., warner bros. as the owner of the rights, who signed the contract of using the license to the film '2001: a space odyssey') and sponsors (e.g., city council, private companies).

RO5 To suggest a Scrum adoption for the project of organising a concert considering the challenges indicated.

The proposition of Scrum adoption inherits some of the specifics of the currently used setting. One of the desired properties of the concert organisation is the fact that the synchronisation meetings are being intensified in frequency and in length with the course of the project. This is reflected in Figure 5, where the first sprint starts with a 15 minutes sync meeting organised twice a week (depicted as two arrows) and the last Sprint has sync meetings of 1 hour duration organised every day (depicted as 5 arrows).

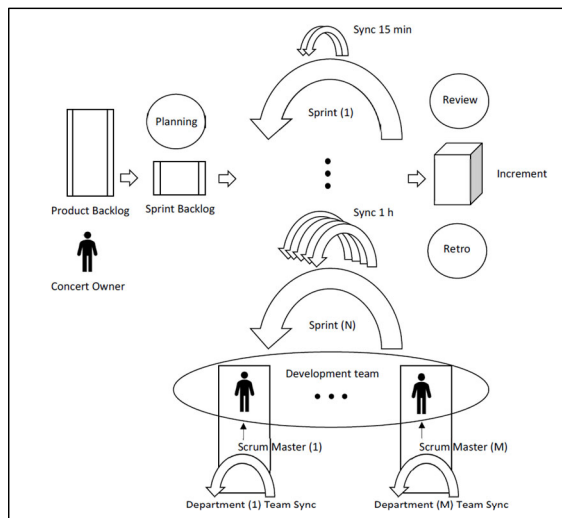
The proposition presented in this paper introduces the idea of virtual development teams. Each concert should have one dedicated person from each involved department. Within these virtual teams the people meet with each other only during synchronisation meetings. This is a consequence of the institutions' organisational structure that cannot be easily changed. What is more, a Scrum Master is not fixed for such a virtual team and can be changed with each Sprint. Anyone from the virtual team can become a Scrum Master, if he/she feels appropriate in this role.

Our Scrum adoption contains additional synchronisation meetings that take place in the departments. Thanks to these meetings, the members of virtual teams will understand what is happening in their departments. It should also improve the coordination.

Because risk management is so important for the success of organisation of a concert event, we suggest that risk management process should be integrated into our definition

of Scrum for the concert organisation and should be included in each sprint iteration. This is another modification to the standard Scrum process, adjusted to the specifics of concert event organisation. To make clear the importance of risk management for the organisation of concert events, we provide a list of some of the risks that can be identified in this type of project: risk of a failed marketing campaign, risk of selling too few tickets, risk of general organisational problems, risk of exceeding the budget, risk of failing technical equipment, risk of equipment damage. The minimal adjustment would be to integrate a risk management plan into each stage of concert event organisation and to provide updates of such a plan during subsequent Sprints. Additionally to individual risks identification, a risk management plan should include possible strategies that can be used to minimise or eliminate the risks that were identified. What is more, different mitigations strategies should be updated as well as different roles assigned to provide proper risk mitigation. Analysing the possibilities of how to incorporate the risk management updates within Sprints are subject to further research.

Figure 5 Scrum adoption in the project of organising a concert



The differences between a classical Scrum approach (Schwaber and Sutherland, 2017) and the approach presented in this paper are summarised in Table 7.

Table 7 Scrum adoption suggested vs. traditional Scrum

<i>Classical Scrum</i>	<i>Scrum adoption in the context of a concert</i>
Fixed duration and frequency	Synchronisation meetings that are intensified and extended in
Fixed development teams	Virtual development teams
Fixed Scrum Master	Scrum Master changed with every Sprint (voluntary role)
	Additional synchronisation meeting conducted in each
	Possible parallel work on multiple projects
	Risk management integrated (suggestion)

5 Discussion

It was indirectly shown that Scrum adoption model presented in previous section solves most of the problems identified within *ROI*. However, solving all the problems requires full Agile approach adoption in the organisation, which is not an easy task.

Table 8 Problems addressed by Scrum

<i>Problem</i>	<i>Status</i>	<i>Suggestions</i>
There are communication issues between the people who work in different departments	Resolved	Synchronisation meetings
The amount of documentation needed often overwhelms the people	Unresolved	Requires full agile adoption
Some requirements are often changed, and the current setting prevents from applying changes fast	Resolved	Work in sprints
The tasks are delegated and coordinated mainly by the producer and some people feel not committed	Resolved	Resolved
The processes that are performed cannot be changed (although they are often not perfect and there is a room for improvements)	Resolved (in simple cases)	Sprint retrospective

Switching the way teams work in a cultural institution to iterative and incremental - promoted by the Scrum methodology - is a challenge (Nuottila and Aaltonen, 2016), because it involves changes in the current way of thinking and acting. Applying any change raises resistance and can be difficult to accept. Even if the proposed Scrum model is applied, the process of learning Scrum by people who are not familiar with it can be long-lasting. Some authors give advice about the practices that can speed up the transformation (Paasivaara and Lassenius, 2020), but it will not eliminate the time required for switching.

The research design was based on a simple assumption that the problems that were identified in the project of organising a concert are already solved by Scrum, examples of which can be found in the literature, although in different contexts. This assumption may not be completely fulfilled. Despite some research limitations and the fact that the article lacks a proper assessment method, we believe that an empirical verification is appropriate in this case, as Scrum itself promotes empirical process.

6 Conclusions

Project management theorists and practitioners distinguish two project management approaches: classic (traditional) and agile. The first one is based on the cascade model, in which each subsequent stage of work can only start after the previous one has been completed. This philosophy has worked well for many years in various projects, but nowadays, classical methodologies arising from the traditional approach prove to be insufficient for more and more sophisticated projects. The key of agile philosophy is to work in cycles (iterations), in which activities are negotiable and adjustable in subsequent iterations. In addition, the implementation of the project is subject to constant control, which promotes a rapid detection of errors and adaptation to changing external conditions. The original idea of this work is that it shows the application of Scrum in the

project of organising a concert. Additionally, to the main objective (Scrum adoption suggestion), this work realises a few additional objectives, which are: the identification of major problems in the project of organising a concert; the synthesis of use cases which show that Scrum can solve the problems that were listed; the identification of the specifics of the project of organising a concert; the identification of the challenges that may occur when using a state-of-the-art Scrum. The authors trust that such a proposal would improve the work of teams in projects of organising a concert and would help to increase the control over the project as well as would solve communication issues. However, the study presented here has several limitations. Some elements (like risk integration) require further research and the model of Scrum adoption that was proposed needs empirical verification. However, the authors believe that this work is an important step towards the application of Scrum in music industry.

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