

# Adopting scrum methodology in a non-traditional project industry the case of investigative journalism

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**Abstract:** The use of agile mindset has increased in recent years, not only to manage the software development field but also to build up a solid base of sustainable and success digital business. It is very important to innovate new ways of thinking to improve management success in journalism field. This paper objective is to present the possibilities of adopting an agile model for "journalism unique production" such as investigative reports using the SCRUM framework to produce the minimum viable product (MVP) instead of the traditional way of production. This target will be achieved by reviewing comprehensive literature and analyzing a case study based on interviews. Using self-managed SCRUM framework at least partially, may enhance managing projects in journalism institutions under the umbrella of SCRUM theme of requirements, maintenance, improvements, to simulate the principles of who does what, when and how.

**Keywords:** agile mindset, journalism unique production, MVP, self-managed SCRUM

## I. Introduction

Journalism institutions which produce investigative stories, usually do their unique production through projects, most of them are success and performed among teamwork (Bacon, 2011). Every investigative story in this scope is considered as a project along with several other simultaneous projects to produce other unique stories, these projects are often implemented within a period of six months to three years, due to considerations that will be detailed during interviews. Most of these projects adopting the "well tested" traditional approaches such as waterfall (Cornia, 2017). This long time of implementation such a story is a major limitation for a journalism organization for producing one of the most important roles of journalism as career.

This paper proposes an agile project management methodology as SCRUM for academics and practitioners to modify the management approach in such a unique story of journalism investigation in shorter period of time, considering the quality of the production as one of the most important outputs that should not be negatively affected if time of productions shrinks. This leads directly to the importance of this problem, which will be discussed accordingly.

Management—in the context of complexity theory—means influencing the process of change of a complex, adaptive system from one state to another. Complex Systems theory progressed over the previous century to a soft or lean systems approach, and from partial to integrated management (Loorbach & Rotmans, 2010). This theoretical concept can be linked to the importance of the connectivity between strategic agility and strategic agility with human resource management practices (Ahhammad et al., 2020). Complex adaptive systems are constantly producing new components and relationships, which provides a source of novelty for these systems (Loorbach & Rotmans, 2010).

The agile mindset has many definitions in the literature, all these definitions center around the *way of thinking* and *welcoming change* at the level of person and group within the framework of the project (Tripathi and Goyal, 2014).

The cultural changes needed for enabling Agile practices (Chang, 2014, p. 14). Agile project management (APM) was created by software engineers to take advantage of collaborative, integrated, and productive teams made up of project participants who are guided by concepts of trust, open information sharing, and transparent methods (Ozorhon et al., 2022).

According to Kopczyński (2014), The agile strategy is built on the project team's adaptability, flexibility, and innovation, while the traditional approach, which is based on classical planning, is proving increasingly unsuitable in today's dynamic and complicated management environment.

Agile mindset is not a process; it is a creative style of thinking that involves collaborating with stakeholders to find the best effective solution to a set of problems (Robison, 2020) so it is a mindset (Figure 1.) which needs methodologies to be applied.

Figure 1. Accept The Change

Agile Mindset



- Positive to Effort
- Effort Is Important to Get Better
- Accept *Change*

*Source: Self-graph: based on (Robison, 2020)*

The introduction of the agile program for project management has been established in the Manifesto for Agile Software Development announced in 2001, where the authors (Beck et al., 2001) formulated four values in Table 1.

Table 1. Agile manifesto values

No.	Value
#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)*

In 2001, The Agile Manifesto was created, which outlined 12 fundamental principles to follow when using an agile project management methodology (Beck et al., 2001; Swanberg, 2018). These 12 principles are listed in Table 2.

Table 2. Agile manifesto principles

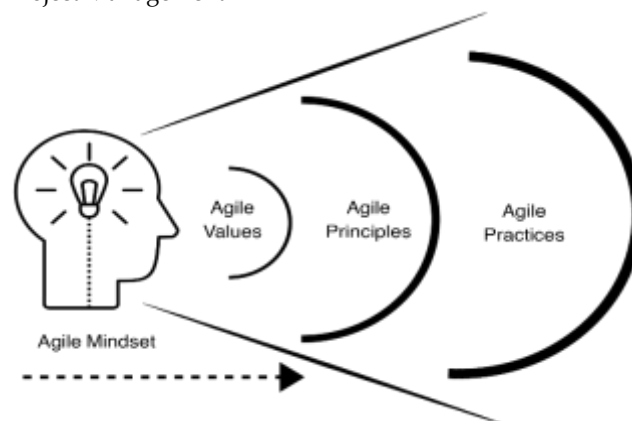
No.	principle
#1	Satisfying customers through early and continuous delivery of valuable work.
#2	Breaking big work down into smaller tasks that can be completed quickly.

- #3 Recognizing that the best work emerges from self-organized teams.
  - #4 Providing motivated individuals with the environment and support they need and trusting them to get the job done.
  - #5 Creating processes that promote sustainable efforts.
  - #6 Maintaining a constant pace for completed work.
  - #7 Welcoming changing requirements, even late in a project.
  - #8 Assembling the project team and business owners on a daily basis throughout the project.
  - #9 Having the team reflect at regular intervals on how to become more effective, then tuning and adjusting behavior accordingly.
  - #10 Measuring progress by the amount of completed work.
  - #11 Continually seeking excellence.
  - #12 Harnessing change for a competitive advantage.
- 

Source: Beck et al. (2001)

This leads to the practical definition of “Agile project management”, which is a mindset that is defined by values, directed by principles, and manifested in a variety of ways (Senapathi and Meghann, 2017), as shown in the Figure 2.

Figure 2 Definition of Agile Project Management



Source: Self-graph: based on (Senapathi and Meghann, 2017)

### Scrum methodology

There are different methods derived from the values and the spirit of agile project management, with the Scrum Methodology being one of the most well-known in recent years which can be applied to products and services projects in an innovative way (Newmark, et al. 2018), through great cooperation between members of self-managed team which generates trust for more creativity. Some promoters of Scrum methodology such as Jeff Sutherland and Ken Schwaber emphasize that Scrum is a framework which allows people to *successfully* solve complex adaptation problems (Marchwicka et al., 2022) in order to create the most valuable products possible (Schwaber and Sutherland, 2017) productively and creatively. Scrum is currently the most popular method for software development, as well as finance, research, and other sectors (Srivastava et al., 2017). The two pioneers in scrum methodology, Schwaber and Sutherland (2017) underline that Scrum is based on empirical process control theory, sometimes known as empiricism, which states that knowledge emerges from experience and that decisions are made based on what is known while minimizing risk. The methodologies included in this philosophy treat plans as some speculation for the future, and deviations from plan are a basis for further analysis and for finalizing conclusions for subsequent actions, looking to cooperation and integration of the project team as top priority (Marchwicka et al., 2022).

### **Scrum culture**

Scrum's effectiveness is based on three pillars, as stated in Table 3: transparency, inspection, and adaptation. Transparency is critical for all parties to be able to participate by adopting a similar language and understanding. When needed, inspection is critical to achieving the desired result and avoiding unfavorable variations. When unfavorable variances threaten to produce an unfavorable outcome, adaptation necessitates making changes as soon as possible (Newmark, et al. 2018). For the team to learn from its experiences and modify its activities to meet the demands of an ever-changing environment, all three pillars are required (Schwaber and Sutherland 2017).

Table 3. scrum culture “principles”

No.	principle
#1	transparency across all participants
#2	inspection to ensure high quality.
#3	adaptation to environmental changes and adjusting ineffective processes.

Source: (Newmark et al., 2018)

### **Scrum Values:**

To be successful with Scrum, all team members must embrace the qualities of commitment, focus, openness, courage, and respect, as illustrated in Table 4. (Schwaber and Sutherland 2020).

Table 4. scrum values “mindset”

No.	Value
#1	commits to achieving its goals and to supporting each other
#2	focus is on the best possible progress toward goals
#3	scrum team and its stakeholders are open about the work and the challenges.
#4	courage team members and not undermine them
#5	respect each other to be capable and independent people.

Source: (Schwaber and Sutherland 2020)

### **Scrum Team and Skills:**

The Scrum Team consists of a Product Owner, the Development Team, and a Scrum Master, as indicated in Table 5.

Table 5. scrum team

No.	Role
#1	product owner.
#2	developers.
#3	Scrum master.

Source: (Nils and Torgeir, 2008)

The scrum team, according to Schwaber and Sutherland (2020), comprises of a Product Owner who is responsible for increasing the value of the product created by the Scrum Team. Effective product backlog management comprises formulating and explicitly conveying the product goal; creating and clearly communicating product backlog items; ordering product backlog items; and ensuring that the product backlog is transparent, visible, and understood. According

to Sverrisdottir et al., (2014), the product owner represents all stakeholders.

According to both researchers, Schwaber and Sutherland (2020), developers are considered plan creators for sprints and backlogs, quality controllers for the definition of done, and professionals who hold each other accountable. The Scrum Master, according to them, is in charge of promoting and supporting Scrum as described in the Scrum, as well as assisting everyone in understanding Scrum theory, practices, rules, and values. The Scrum Master is the Scrum team's servant-leader. The Scrum Master might be thought of as a project coach or facilitator rather than a decision maker. (Torgeir and Nils, 2008).

#### **The 7 Stages Roadmap to The Value:**

The roadmap to the value is a top view to an agile project which consists of the following stages as described in Table 6 below of Fowler et al. (2001). The stages are divided into two main areas of preparation and execution.

Table 6. The 7 stages in the roadmap to value:

<i>Stage No.</i>	<i>Description</i>
#1	The product vision is identified by the product owner. The product vision explains what your product is, how it will help your company or organization achieve its goals, and who will utilize it. Re-evaluate the product vision at least once a year on longer initiatives. (Area of Preparation)
#2	A product roadmap is created by the product owner. The product roadmap is a high-level overview of the product requirements, together with a rough timeline for when those requirements will be developed. Identifying product needs, prioritizing them, and estimating their effort are all important parts of developing your product roadmap. Revise the product roadmap at least twice a year for longer projects. (Area of Preparation)
#3	A release plan is created by the product owner. The release plan establishes a high-level schedule for the distribution of working software. Many releases will be made in an agile project, with the highest-priority features being released first. Three to five sprints are normal in a release. At the start of each release, make a release plan. (Area of Preparation)
#4	Sprints, also known as iterations, are planned by the product owner, the master, and the development team, and the product is created inside those sprints. The scrum team chooses what requirements will be in the next iteration during sprint planning sessions, which take place at the start of each sprint. (Preparation Area for Sims) - (Simi-Execution Area)
#5	The development team holds daily meetings during each sprint. You spend no more than 15 minutes in the daily meeting discussing what you accomplished yesterday, what you will work on today, and any hurdles you have. (Simultaneous Execution Area)
#6	A sprint review is held by the team. At the end of each sprint, you present the working product developed during the sprint to the product stakeholders in a sprint review. (Simultaneous Execution Area)
#7	A sprint retrospective is held by the team. The sprint retrospective is a meeting in which the team discusses how the previous sprint went and makes plans for the following sprint. Every sprint concludes with a sprint retrospective, similar to the sprint review. (Simultaneous Execution Area)

*Source: (Fowler et al. 2001)*

#### **Scrum Phases:**

The Scrum phases have been summarized from a practical perspective that includes the stages of work and stop in a recent study of (Arora et al. 2021) to operate successfully as shown in Table 7.

Table 7. The Scrum Objects:

Phase No.	Object
#1	<i>Product Backlog: In the product backlog, the customer prioritizes requirements based on their business value. There is a list of requirements.</i>
#2	<i>Sprint Planning: The team holds a sprint planning meeting at the start of each time period known as a sprint. The gathering is attended by all stakeholders.</i>
#3	<i>Sprint Backlog: The Scrum team also divides needs from product backlogs into sprint tasks.</i>
#4	<i>Story Implementation Cycle: Once the team has completed the sprint backlog, the stories are implemented.</i>
#5	<i>Daily Scrum: A daily scrum meeting is held at a predetermined time each day. This is a brief necessary "stand-up" meeting that does not stray into technical matters.</i>
#6	<i>Sprint Review: The sprint's outcome is a possibly shippable product that is shown to all stakeholders.</i>
##7	<i>Retrospective: Following the Sprint Review, a retrospective is held.</i>

Source: (Arora et al. 2021)

### The challenges and Appropriate Time for Adopting:

According to an "early" study for James (2010), the key hurdles of adopting scrum technique include: 1. Members are dedicated to achieving specific, short-term objectives. 2. Members can track the progress of the group. 3. Members may see what each other is doing. 4. Members feel comfortable giving each other honest feedback. On the other side, the defined (theoretical) modeling technique is typically used when the underlying mechanisms by which a process operates are pretty well understood (James, 2010), and the empirical approach is used when the process is too convoluted for the defined approach. As indicated in Table 8, the challenges of agile scrum were adequately summarized in (Bengdara, 2021).

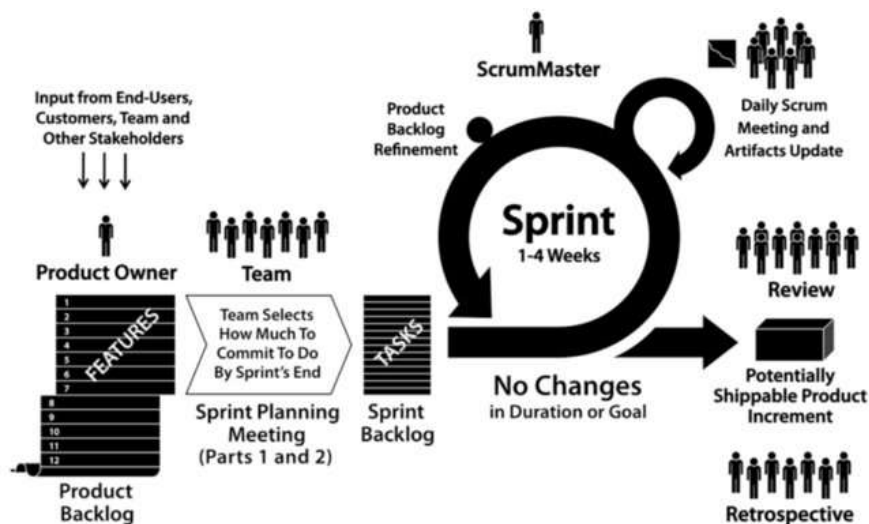
Table 8. Challenges of Agile Scrum

Phase No.	Challenge
#1	<i>Corporate culture is the most major hurdle to implementing agile project management technique.</i>
#2	<i>This is an obstacle because it would hinder agile project management practices from being implemented effectively.</i>
#3	<i>Companies using agile project management have limited documentation, which is a significant barrier to implementation.</i>

Source: (Bengdara, 2021)

**The Scrum Adaptation (Figure 3):** is as simple as scrum, needs Team Formation, Sprint Planning, Standup meeting for about 15 minutes, Sprint Review, Sprint Retrospective (functioning of product/ service/development), Personal Reflection (Delhij et al. 2015).

Figure 3. The Scrum Process

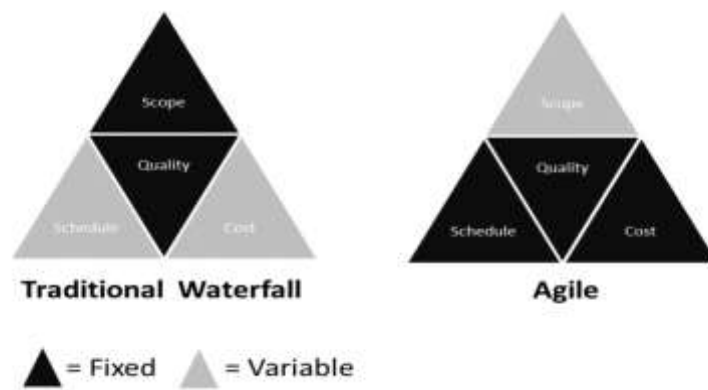


Source: <https://www.apeironsoftware.com/scrum-roles-artifacts-and-ceremonies/>

This literature review paves the way for this paper to adapt the agile SCRUM methodology (Figure 4.) in a use case setting, which is a “non-governmental” journalistic organization based in Jordan (Arab Reporters for Investigative Journalism “ARIJ”), which carries out specific journalistic activities through several small projects to produce journalistic investigations, but this adaption will be limited within the final stages of the project, which is the final “execution” stage which needs collaborative team work intensively. Authors Kuhrmann et al., (2017) confirm that using hybrid approaches has become mainstream, and that their use is independent of company size, industry sector, and external standards. This also confirms this hybrid approach, between Scrum and other project management methods, as a kind of agility, which is defined by (Kruchten, 2013) as “the ability of an organization to react to changes in its environment faster than the rate of these changes” and this could be applied from a general perspective and logical alignment of the course of events within a stable organizations and was clearly proposed in (Buchmann, et al., 2012) in a context of hybrid approach of : “SCRUM BUT”. The author observed according to conversations with the top-level management people of “ARIJ”, that they use traditional - “well tested”- methodology such as waterfall, applied mostly successfully through initiating, planning, executing, monitoring, and controlling then closing. (See Figure 4). This paper will focus on the final executing stage to adopt scrum in, where the adoption may create an improved environment. Scrum can help implement these improvements in specific aspects of project management. Marchwicka et al., (2022) put two aspects in such adoption, the first aspect is the communication between the organization 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). This area is not well explored mainly in the context of journalism management. This vision is leading to raise questions which this paper tries to answer:

- 1-Is there a possible opportunity to adopt scrum methodology in a project of making a “unique journalism production” such as investigative report?
- 2-What are the main problems connected to making a “unique journalism production” such as investigative report?
- 3-Can scrum solve these problems or at least some of them?
- 4-Can scrum be adopted through the Challenges facing the team of the making a “unique journalism production” such as investigative report?
- 5-What could be suggested to improve the environment of such teamwork?

Figure 4. Waterfall vs Agile



Source: (Messina et al., 2015)

For answering these questions, limitations must be implemented to exclude areas of distraction. This study attempts to examine the possibility of adopting Scrum in the world of journalism through the journalistic investigations industry, at the same time it will not conduct any evaluation on changes or their impact on production projects, and these determinants will be established during the study, and everything that is excluded will be an area for later study in research more in depth, since the literature covering the topic of introducing Scrum into the world of journalism is almost insignificant, and the mentioned exceptions need extensive studies to precede them, as they are considered an advanced stage of research in this field.

## II. Research Review

This paper made an analysis for papers related to its subject, from 3 different platforms: Scopus, and Google Scholar and Emerald Insight, using specific range of search into: “adoption”, “scrum”, “waterfall”, “hybrid”, “unique”, “journalism”, “production” the time limitation for this systematic search was during the last five years since 2017 to present, as shown in Table 9, 10 and 11 then analyzed in content wise, as most of studies found in this area are connected to knowledge of IT, “scrum adaption” and “hybrid scrum” are two major topics of categorizing and analyzing the papers found.

Table 9. Scopus platform

ID	Category	platforms	Search item (s)	results
1	Scrum adoption	Scopus	Title/abstract/keyword: 'Scrum'	450
2	Scrum adoption	Scopus	Title/abstract/keyword: 'Scrum' and 'adoption'	30
3	Hybrid Scrum	Scopus	Title/abstract/keyword: 'Scrum' and 'hybrid'	26
4	Hybrid Scrum	Scopus	Title/abstract/keyword: 'Scrum' and 'waterfall'	29
5	Scrum adoption	Scopus	Title/abstract/keyword: 'Scrum' and 'journalism': and 'project'	0

Table 10. Google scholar platform

ID	Category	platforms	Search item (s)	results
1	Scrum adoption	Google scholar	From 2017: 'Scrum adoption'	262
2	Scrum adoption	Google scholar	From 2017 / Title/abstract/keyword: 'Scrum' and 'adoption'	23
3	Hybrid Scrum	Google scholar	From 2017 / keyword: 'Scrum' and 'adoption' and 'hybrid'	5,310
4	Hybrid Scrum	Google scholar	From 2017 / Title/keyword: 'Scrum' and 'waterfall'	19
5	Scrum adoption	Google scholar	From 2017 / Exact /keyword: 'Scrum' and 'unique' and 'adoption' and 'journalism' and 'project'	0

Table 11. Emerald Insight platform

ID	Category	platforms	Search item (s)	results
1	Scrum adoption	Emerald Insight	From 2017: 'Scrum adoption'	199
2	Scrum adoption	Emerald Insight	From 2017 / Title/abstract/keyword: 'Scrum' and 'adoption'	161
3	Hybrid Scrum	Emerald Insight	From 2017 / keyword: 'Scrum' and 'adoption' and 'hybrid'	58
4	Hybrid Scrum	Emerald Insight	From 2017 / Title/keyword: 'Scrum' and 'waterfall'	85
5	Scrum adoption	Emerald Insight	From 2017 / Exact /keyword: 'Scrum' and 'unique' and 'adoption' and 'journalism' and 'project'	0

There is a gap in literature considering journalism and its unique production as a field to adopt agile scrum methodology, numbers are not enough as numbers, this is related to the problem proposed, which is emphasized by these findings, that it's rarely discussed academically.

### III. Methodology

The research considers the analyzing through 2 types of interviews to answer the questions of (section 1) to explore the possibility of adopting "Agile Scrum" methodology and using self-managed SCRUM framework at least partially in the case study projects.

#### a) Unstructured interviews of the top-level management of the case study

Unstructured interviews are more flexible since questions can be adjusted based on the interviewee's responses, allowing for qualitative data to be collected through open inquiries. This part was created between April 22nd and May 5th, 2022.

b) **Semi-structured interviews** with a group of 5 journalists who worked through the case study

Semi-structure (open-ended questions) interviews can provide reliable, comparable qualitative data. This section was made in 09<sup>th</sup> May, 2022.

Upon to limited resources for adopting scrum in journalism field, the researcher considers this as a serious limitation of the study, therefore, the study explores the possibility of using scrum in ARIJ as a case study and not to evaluating the change, in order to propose an initial presentation for adopting scrum in a very limited area of journalism to verify the way that scrum can solve the emerging problems of a project of producing “unique content” of journalism such as the investigative story through analyzing the following **objectives** of the study:

- 1- Identifying the criteria of a project of producing an investigative story.
- 2- A deeper understanding of ARIJ's management methodology in managing an investigative story project.
- 3- Identifying the emerged problems of a project of producing an investigative story.
- 4- Identifying the challenges and obstacles of a project of producing an investigative story.
- 5- Can scrum solve the emerged problems through the increasing challenges through projects of ARIJ? And how?

Scrum in this paper will be connected to specific areas where problems can be solved by self-managed teamwork.

### **3.1 Case study:**

Arab Reporters for Investigative Journalism (ARIJ) is an institution based in Amman – Jordan, has been establish since 2005, specialized in producing and training investigative journalism

Through the interviews, ARIJ management members refused to name a story project by itself and considered it an arena for research, all of them gave real examples without explicitly naming the projects or referring to them during the interviews. Members of ARIJ management team justified this to legal considerations surrounding each story where confidential information is kept as institutional secrets. The project begins after the editorial board of ARIJ approves a request submitted by a journalist, to delve into the idea of a journalistic investigation. Many of the ideas are rejected because the main criterion is that the investigative story must bring something new, bearing in mind that revealing facts and proving that with evidence are the two prerequisites for moving forward in an investigative story. Although the story should be doable. This field of journalistic work is concentrated on the scope of detecting corruption, and revealing the harm inflicted on the individual and society, so it is considered one of the most dangerous areas of journalistic work. The sentence: “The journalist may pay his life for revealing some information” was mentioned by all interviewees repeatedly. The freedom of the journalist may be at stake in some cases if some of the exposed or researched information leads to his / her imprisonment in some countries. These processes are conducted on each investigation independently, and if the applicant journalist obtains the final approval to start work, a supervisor is assigned for the investigative story (the project), who remains an escort of the journalist who is usually subjected to distractions due to the large amount of information he / she collects in the initial period of the project. One of the most important functions of the supervisor is to ensure that the journalist does not get distracted and focus on the context which is a path full of legal and information challenges, that's why editorial management immediately assigns for each investigative story (project) a lawyer and a fact-checker, in order to preserve the integrity of the investigative story in these two aspects. The language proofreader, the text editor, the editorial board, and especially the editor-in-chief prepare the investigative story by reviewing in the weekly meeting, giving priority in the discussion to the investigative stories that are now overseeing the finish line, the duration range for each project is between 6-36 months. After the investigative story is completed in its final stages, the central role of the designer is seen (in rare cases the designer is informed of the investigative story (the project) from the start, but often his role is central before the project (the investigative story) is closed and published, where marketing team interrupt strongly to investigate the best way to publish and promote the production as it's ready to be presented in media.

Using (Marchwicka et al., 2022) model of scrum adoption is convenient for such a case study, as it's a new model for scrum adoption and not tested before, in the project of unique journalism production.

### **3.2 Research Design:**

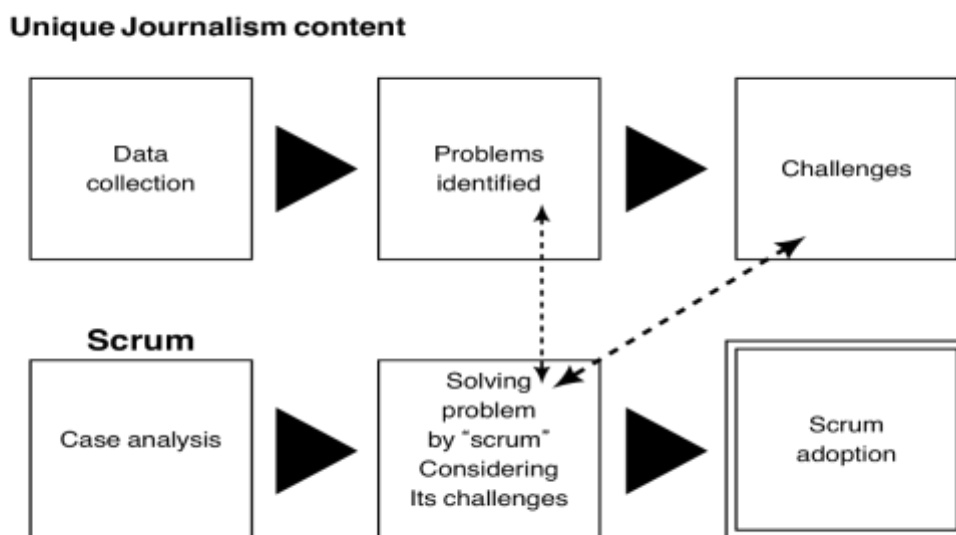
Figure 5 explains the objectives of this research, which uses the following methodologies:

1-

Case setting

2- interviews	Unstructured
3- interviews	Semi-structured
4- analysis	Documents

Figure 5. The Scrum adoption design



Source: Self-graph: Slightly modified - based on (Marchwicka et al., 2022)

this research design represents the objectives of this paper which mentioned in the first section of the methodology of this study, by using a case study, (unstructured and semi-structured) interviews to analyze the problems emerged in a project of unique journalism production, while counting the challenges of it, considering the challenges of scrum methodology which were mentioned in (Table 8.). (Marchwicka et al., 2022)'s model for adopting scrum, is based on identifying the problems, analyzing the setup in the context of Scrum, then identifying the challenges in Scrum adoption.

### 3.3 Data collection:

The information that was collected during unstructured interviews is presented in Table 12. Followed by the questions of the Semi-structured interviews in Table 13.

**Table 12.** Unstructured interviews summary

Role	Information gathered
Director General	Ordering work by priority, sets the vision and budget, communicates with external stakeholders "mainly the board", and translates their needs to the team, makes sure the team is focused on hitting targets through communication and assessing progress
Editor-in-Chief	Manages daily difficulties, leads editorial meetings, reviews to see what went well and what may be improved, and individual meetings.
Executive Editor	oversees editorial content of the investigative stories, supports other editors, coordinates publishing, helps to reform story ideas
Fact-Checkers manager	Verifies all facts presented in an investigative story, makes sure that the article is free of errors, or theoretical mistakes, and all parts of the content written are related to their evidence.
Investigative Journalist and Coach	Coaching how to gain access to public records, making useful interviews,

innovates storytelling, focusing on the hypothesis

Communication Manager      Marketing activities, creation and development of print and online advertising, e-marketing and direct marketing (audio, video, graphics)

**Table 13.**      Semi-structured interviews

No.	Interview question (ARIJ's Journalists)
1-	Do you understand all rules and roles before starting to make an investigative story?
2-	What is the requirement of making an investigative report?
3-	what is the budget? Is it enough?
4-	What documentaries are required?
5-	What are the stages of work?
6-	What are the main activities of making an investigative story?
7-	How do documentation and evidence affect the time of progress?
8-	What are the communication tools used?
9-	Is teamwork important or individual work being better?
10-	Which stage needs more teamwork?
11-	What are the main challenges of your work?
12-	How do you face the challenge of changing?
13-	Who helps you change?
14-	What are the main problems that emerged during making the story?
15-	What makes the progress faster?
16-	Which stage is irreversible?
17-	Who control the change requirements at this stage?
18-	How do people communicate at this stage?
19-	How do designs and digital gathering affect the time of progress?
20-	Who is the decision maker at this stage?
21-	What kind of conflict occurs at this stage?
22-	What makes the investigative story success?
23-	What makes the investigative story fail?
24-	Are meetings important to shorten time of progress?
25-	What are the lessons learned?

The unstructured interviews were made with six different managers from different levels base in many countries(Jordan, Egypt, Lebanon, United Arab Emirates and USA), via zoom software for visual meetings, exploring with them the project of making an investigative story as a unique journalism production, the duration for each interview was from 60-70 minutes, the audio of each interview was digitally recorded from zoom software, followed by an online focus group of four journalists, from four different countries (Egypt, Lebanon, Sudan and Yemen) who had experience in making investigative stories, the duration of this interview was 60 minutes, the audio of the interview was digitally recorded from zoom software. More information about the interviews in table 14.

Table 14. details of unstructured interviews and semi-structured interviews.

Item	Unstructured interviews	Semi-structured interviews
Interviewees	6	4
Number of questions	-	25
Duration	60-70 minutes	60 minutes
Group type	Managers different levels	Journalists
Recorded hours	>6	1

#### IV. Results:

The interviews focused on identifying the objectives of the study which mentioned at the beginning of section 3. according to the data collected as follows:

##### 1- Identifying the criteria of a project of producing an investigative story.

- The project must have a unique production of journalism.
- The project must explore a new topic which has not been explored before.
- The project must be documented and supported by evidence.
- The project of a unique production in journalism such as investigative report must be attractive to the audience
- 

##### 2- A deeper understanding of ARIJ's management methodology in managing an investigative story project.

As shown in Table 15, the case study uses a methodology of eleven stages, some of which could be very critical upon risk management related to the concepts of protecting journalists. All interviewees emphasized that a journalist may be exposed to as a result of investigating a topic, and may lead to a restriction of his freedom, especially in non-democratic countries, or in some cases may reach an imminent danger to life. This may stop the project totally especially in stages from 1 to 8

Table 15. the methodology used in the case study (STAGES)

No.	Item	Individual work(I) / Teamwork(T)/ Mixed(M)	The project could be canceled (YES/NO)
1-	Choosing the topic	I	YES
2-	Research Design	M	YES
3-	Collecting data	I	YES
4-	Hypothesis Formulation	M	YES
5-	Hypothesis Testing & Data Analysis	M	YES
6-	Writing texts / Editing	M	YES
7-	Fact Checking	I	YES
8-	Legal Audit	I	YES

9-	Linguistics / Text Final Check	T	NO
10-	Digital Design / Multimedia	T	NO
11-	Publication / Marketing	T	NO

### 3- Identifying the emerged problems of a project of producing an investigative story.

The Agile Scrum methodology is not commonly implemented in a project which could be canceled (Messina *et al.*, 2015), and upon the interviews, the only stages which don't put an option of cancelation are the stages from 9-11 as shown in (Table 15.) above. This leads the author to identify the emerged problems of which a project of journalism unique productions. This limitation is strictly applied to understand how scrum works in journalism projects of investigative stories. See table 16 below.

Table 16. problems emerged

No.	Item	occurred in Final stages 9- 11 (Yes/No)	Agile- Scrum applied (Yes/No)	Topic / Literature
1-	Commitment	Yes	Yes	Sprint retrospective and Work in sprints / Schwaber, K., and J. Sutherland. 2020
2-	cross functional teams	Yes	Yes	Work in sprints / Schwaber, K., and J. Sutherland. 2020
3-	Product uncertainty	Yes	Yes	Sprint retrospective / Schwaber, K., and J. Sutherland. 2020
4-	rapid change	Yes	Yes	Work in sprints / Schwaber, K., and J. Sutherland. 2017
5-	Documentations	Yes	No	Schwaber, K., and J. Sutherland. 2017

### 4- Identifying the challenges and obstacles of a project of producing an investigative story.

According to all interviews the main challenges of implementing a project of unique journalism are:

Table 17. challenges emerged

No.	Challenge Item
1-	Local Laws in each country
2-	skills sourcing
3-	gaps of workers' competencies

4-	Lack of full-time journalist
5-	The project must be supported by evidence

#### 5- Can scrum solve the emerged problems and increase challenges through projects of ARIJ? And how?

Upon to the criteria discussed, problems and challenges, SCRUM can be used only at the final stages (9-11) of making the investigative journalism story in which the project not commonly could be canceled, and it is not sequential stages. In addition of discovering that there is no obvious who the customer is, and who owns the product as a “product owner of scrum”. In the meanwhile, there is no doubt that the project is complex, and this complexity speaks against scrum, this is on the one hand, and on the other hand, the author identifies that the journalist works in different stages as individual, before referring to a teamwork.

By understanding the complexity of the project discussed, it is very clear that it is not possible to apply scrum methodology in all stages, the long term of planning, research Designing, collecting & analyzing accumulation data, and hypothesis formulation & testing, do speak against scrum, while selecting the propriate guests and informational sources (open / closed), can't be considered as scrum events.

The stages of text writing/editing, fact checking, and legal audit are not much negotiable when it comes to limitation of words quantity, full supported by evidence, or not coming against law of country of the story.

From what is discussed above, the final three stages are suitable for scrum methodology, which is flexible as negotiable issues come up, such as voice recording, video content, text size/ format, and graphic designs, in parallel with the participation of marketing and communication team. Here the journalist, the marketing team and the coach could meet frequently to reduce the response time of change, as scrum is successfully could be applied to projects of middle complexity to reduce its complexity (Marchwicka et al., 2022), as well as our discussed project of unique journalism production.

In this situation, the product owner is the "coach," who is well-versed in the editorial board's vision and is in charge of gathering tasks in accordance with the requirements, this coach know the dimensions of the project from the stakeholder's point of view, here they are a mixed of the editorial board and organizational board, the media houses which will publish the story and their audience as well.

These kinds of tasks according to which the focus group believe, could delay the whole project duration for one to two months, some of the managers believe the same, this means that it could be over budget too.

Focusing on these circumstances, makes the adaption of scrum a way of agility management to reduce the time of the final (stages of 9-11), which takes sometimes up to 3 months for gathering the investigative story at this irreversible stage, the adaptation of scrum could be easily implemented by adding (60- minutes) of first scrum to every 10 days for executing the tasks during the irritation suggested in Figure 7. Regarding (Table 14.) the changing takes time upon risk management, especially in the stages from 1-8, while the decision of toop working can be raised anytime at these stages, on the contrary, the stages 9-11 (Final Stages) have less risk management calculations, and this opens the way for agility management more for creativity and teamwork for many coming adjustments. It was revealed during the interviews that the final stages need more collaboration for solving problems, while some video, audio, graphics designers are from external resources and these people commonly are not journalists, this may delay the final work for more adjustments.

One of the most complex problems is that the project is usually synchronized with other projects using the same staff, and that the hierarchical nature of the organization requires project team members to attend long meetings of the organization's other projects and programs that are implemented throughout the year, which makes the project team of “journalism investigative story” in the final stages scattered and sometimes they lose their focus.

This paper will develop a model based on Agile Manifesto values and principles using the Scrum methodology but in journalism, to hold several meetings in the last stages of the project where the main journalist, coach, communications team, digital team [2], and editorials are met together.

[2] the role of digital team: generating story ideas, preparing the journalism content digitally, editing audio and video for use on air (radio, TV, newspapers) and online (websites, digital video-multi formats and audio such as podcasts) and designing

supporting social media content, and designing the marketing content for digital platforms [Managers interviews]

These meetings may be virtual (some stories are cross-border) in order to focus work on production (minimum viable products "MVP") such as collecting appropriate copyrighted music for the work, excluding what may not be suitable for the final output vision, placing images and video clips that can be used, in addition to translating data from the "journalism research process" into voices, videos, images and graphics, and other tasks related to audio or video editing/ montage, text formatting/ designing, incorporating images and tables, and assembling the resulting material in a modern media format (Multimedia).

These operations involve many modifications and adjustments, decisions her are related to time and budget, but the method of its production and final output will determine many features of the quality of the product as a whole that cannot be negotiated.

Scrum master here could change, and anyone within the team could be able to lead the part of the scrum implementation process as he / she has the confidence to lead, and this could be an agile development on the media work that is mostly practiced in organizations in a hierarchical manner according to the interviews conducted, this comes in the context of doing "dummy units during the project" (Huemann 2016, 107) sole roles could be change according to the competence of each person related to the task during the Final Stages 9-11.

It was suggested to hold meetings every 10 days, for an hour, these meetings may be virtual, followed by several short daily meetings, according to Figure 6.

Figure 6. Adopting scrum methodology in a project of "unique journalism production"

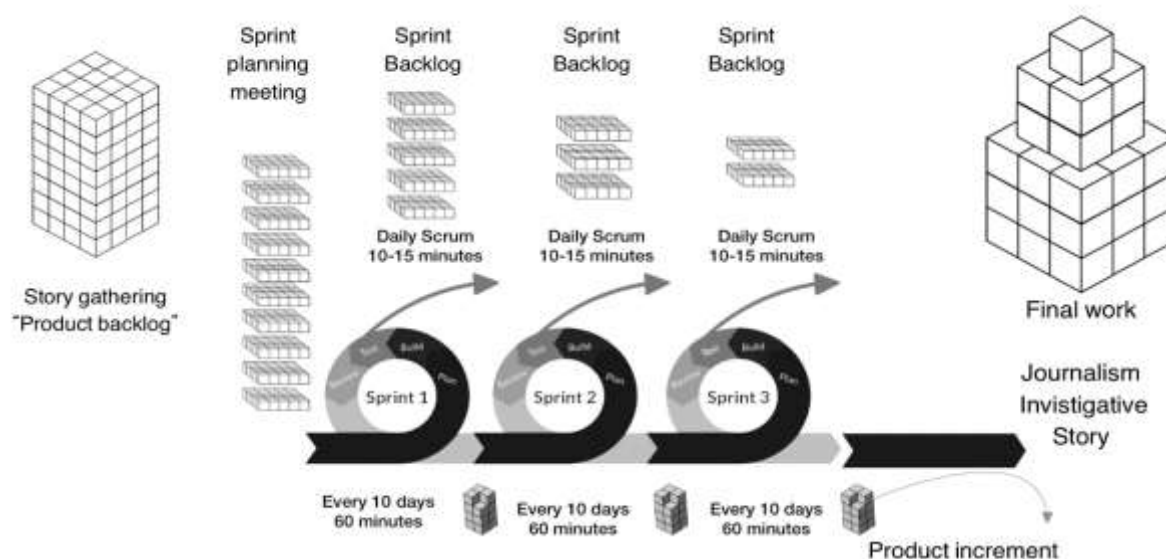


Figure 7. Source: Self-graph slightly modified of what (Schwaber and Sutherland, 2017)

This model is slightly modified of what (Schwaber and Sutherland, 2017) propose, and the main differences between the two models are listed in the following Table 17.

Table 17. Scrum adoption suggested vs. traditional Scrum

Classical Scrum	adoption of scrum in the context of a journalism investigative story
Face to Face meetings	Virtual meetings
Fixed development team	Teams could be changing their roles upon to task requirements
Fixed Scrum Master	Scrum Master could be changing according to skills needed

## **V. Discussion**

Adopting scrum in journalism field needs changing mindsets of journalists themselves, in other words it needs to spend time in changing culture of institutional and individuals levels, it is not possible to change a stable organizational system promptly such as the hierarchal system, in the meanwhile, "Scrum" isn't very precise about how to build mutual trust in a development team, despite the fact that it's an implicit requirement for a self-organizing team (Moeand and Dingsøyr, 2008).

Journalists obtain resources for their stories in a variety of ways, including press scrums (Watson and Greiffenhagen, 2016), this paper gives a specific kind of journalism stories which is the production of a "unique investigative story", so adaptation of scrum can't be generalized to all kind of journalism productions, nor all projects implemented in journalism field, as some of their components will conflict with the general principles of Scrum at some stages of producing a journalistic content.

Any change process requires sufficient time and effort to be completed successfully (Marchwicka et al., 2022), and an entire project may be allocated in order to develop the skills of agility of administrative staff, field staff, writers, and designers in the world of journalism, especially when introducing a new achievement concept like (Scrum) which can solve problems related to the rapid change, and the development of collective and individual performance to a large extent, if there is a real desire for change.

However, this may collide with great challenges, including "documentation", "correspondence", and "part-timers' journalists in projects", these administrative practices cannot be radically resolved by "Scrum" and maybe it's not necessary. This is general talking, and may be proved by empirical verification, as scrum is founded on empirical process control theory, and this understanding comes from the context of the gathered resources of this exploratory study.

## **VI. Conclusions**

The methodologies used in the world of journalism may differ from those used in other professional fields, but they all prioritize getting work done in a shorter amount of time while keeping costs low on the one hand and not compromising product quality on the other, and this necessitates a methodology that can detect errors quickly and work to correct them under the umbrella of self-managed teams, away from the bureaucratic complexities in institutions, and this may apply to a part or parts of a journalism project and not necessarily to the whole project.

The elements of better team cooperation, creating management value of self-managing at the personal & organizational levels, and the development of the team's confidence in itself and the in the organization, may be an approach to success and sustainability. The traditional methodologies in project management may not be enough to give these results at the same value when the "agile" mentality used in project management (Tripathi and Goyal, 2014).

In the future, the author plans to study two more cases, in order to understand what the main challenges are when adapting "scrum" in a project of "journalism unique content", the author believes that this study is important to pave the way for an "action study" of adapting agile - scrum in journalism unique productions, such as podcasts production, video production and investigative reports, to observe achievements then collect notices, observations and data from quantitative questionnaires for a deeper understanding of the changes that this methodology of scrum brings to the field of journalism, which may help other researchers and practitioners.

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