

## “SCRUM” METHOD OF AGILE MANAGEMENT FOR A TRANSNATIONAL PROJECT IN DANUBE REGION

Laura-Florentina BOANȚĂ<sup>1</sup>, Miron ZAPCIU<sup>2</sup>,  
Alexandru MARIN<sup>3</sup>, Gabriel-Cornel BOANȚĂ<sup>4</sup>

**Rezumat.** În prezenta lucrare se analizează posibilitatea adoptării metodelor „Scrum” în cadrul proiectului RESTART\_4Danube, respectiv conceptul de „sprint-uri” de dezvoltare, ca și alte aspecte cheie ale practicilor de management agil. Abordarea aleasă în proiectul RESTART\_4Danube cu privire la adoptarea cadrului „Scrum” nu s-a bazat pe o formare profesională specifică, dedicată sau pe folosirea unui expert consultant, angajat să asigure o pregătire de specialitate. În schimb, s-a utilizat o interpretare evoluată a principiilor „Agile Project Management” și s-a valorificat experiența anterioară a membrilor consorțiului de proiect, pe baza unei abordări exploratorii a conceptului „Scrum” în funcție de necesități, de competențele individuale ale experților implicați în proiect și de restricțiile în gestionarea eficientă a resurselor de timp și financiare disponibile. Conceptul de „produs minim viabil” a fost adaptat la activitățile din proiectul RESTART\_4Danube sub formă de „rezultat minim viabil”, care a fost recepționat / validat, din punct de vedere calitativ și al conținutului informațional, în legătură cu modul în care membrii echipelor de lucru sunt capabili să-și concentreze activitățile pe intervale precise de timp.

**Abstract.** This paper analyzes the possibility of adopting "Scrum" methods in the RESTART\_4Danube project, respectively the concept of "sprints" of development, as well as other key aspects of agile management practices. The approach chosen in the RESTART\_4Danube project regarding the adoption of the "Scrum" framework was not based on specific, dedicated professional training or on the use of an expert consultant, employed to provide specialized training. Instead, an evolved interpretation of the "Agile Project Management" principles was used and the previous experience of the project consortium members was capitalized on, based on an exploratory approach to the "Scrum" concept as needed, the individual competencies of the experts involved in the project & restrictions on the efficient management of available time and financial resources. The concept of "minimum viable product" was adapted to the activities of the RESTART\_4Danube project in the form of a "minimum viable result", which was received / validated, in terms of quality and information content, in relation to how team members work are able to focus their activities on precise time intervals.

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<sup>1</sup>PhD (ABD), Eng., affiliation: University POLITEHNICA of Bucharest, Romania (E-mail: [laura.boanta@upb.ro](mailto:laura.boanta@upb.ro)).

<sup>2</sup>Prof., PhD, University POLITEHNICA of Bucharest, corresponding member of Academy of Romanian Scientists, (E-mail: [miron.zapciu@upb.ro](mailto:miron.zapciu@upb.ro)).

<sup>3</sup>Prof., PhD, University POLITEHNICA of Bucharest, Romania (E-mail: [alexandru.marin@upb.ro](mailto:alexandru.marin@upb.ro)).

<sup>4</sup> Communication responsible project RESTART\_4Danube, Economist, affiliation: University POLITEHNICA of Bucharest, Romania (E-mail: [gabriel.boanta1006@upb.ro](mailto:gabriel.boanta1006@upb.ro)).

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## 1. Introduction

Cities in the Danube region and beyond are facing challenges to develop a culture that generates public / private synergies to promote SMEs and stimulate creative urban communities.

In this respect, the Danube Transnational Program finances the project RESTART\_4Danube<sup>1</sup>, addressing the thorny issue of insufficient transnational cooperation and coordination in increasing the importance of creative industries and cultural activities (Cultural and Creative Industries - CCI), from the perspective of regenerating urban communities in the Danube Region (DR). In this context, the DR shows poor performance in technology transfer, limited access to finance, but also reduced cooperation of SMEs with research organizations, technology parks, business incubators, innovative clusters, public authorities and civil society.

From this perspective, the RESTART\_4Danube project aims to strengthen the links between enterprises, research and development centers, universities and civil society, in order to improve the framework conditions and public policies, based on regional and local Smart Specialization Strategies (S3), for a new Urban Regeneration (UR) model with CCI support.

The RESTART\_4Danube project implementation methodology comprises 3 levels of approach, corresponding to the Specific Objectives (SOs) of the funding program, namely:

- Level 1 consists of the elaboration of Local Action Plans (LAPs), based on the mapping and analysis of CCI in different Danube development regions. These will be the basis for the development of urban “green papers” and a common strategy (Specific Objective - SO1);
- Level 2 consists of the development of tools and services to support transnational collaboration and strengthen cross-helix cooperation (SO2), including training activities, "Readiness Level" (RL) audits, and also offers and requests for CCI services (known as: “Service Offers” and "Service Requests");
- Level 3 consists of the elaboration of public policy recommendations and an innovative urban regeneration strategy (addressing SO3 and SO1).

An innovative aspect of the project implementation methodology is the collaboration of partners in "tandems", each involving a local or regional public authority and another local partner. In addition, all levels of governance (local,

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<sup>1</sup> <http://www.interreg-danube.eu/approved-projects/restart-4danube>

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regional, national and European) are taken into account and will be brought together in different activities.

Although the LAPs will reflect local specificities and challenges, they will also have a transnational / Danube dimension, mainly due to the presence of SMEs with international activity and experts from different countries, during workshops and study visits, organized in the partner cities / municipalities of the project. The exchange of good practices and the debates that will take place will encourage the emergence of new ideas for cooperation and will allow the development of new business models for UR.

## **2. Conditions for adopting agile management methods in research projects**

The question is whether it is justified for the RESTART\_4Danube project to adopt an agile management method, based on the essential features of 'Scrum' practices [1], in this case: flexibility, autonomy and self-organization. In the following, the specific arguments will be presented in detail, envisaging several essential aspects: project complexity, capacity of self-organization, and flexibility of managerial approaches.

### **2.1. Complexity of the project**

The RESTART\_4Danube project has a very complex structure, involving a number of 25 partner organizations from 12 countries, including municipalities in the Danube region, aiming at 3 major Specific Objectives (SOs), obtaining 10 key results ("Outputs"), respectively: 1 Strategy, 2 sets of tools (Offers / Requests for services, Maturity Level Audits), 5 Local Action Plans, 1 package of Collaboration Agreements, 1 training module. All these elements are structured in 6 Work Packages (WPs), comprising 19 activities (AM - management, AT1-AT4 – practical activities, AC - communication), completed with 60 deliverables and addressing a target group of 675 organizations and individuals. In this sense, the partners will jointly implement the proposed actions, under the coordination of activities and WPs leaders. The structure and work plan of the project ensures not only clear links between activities in the same WP, but also synergies between WPs. Regular physical and virtual meetings will take place throughout the project to ensure a high level of interaction, involvement and collaboration: specifically 21 physical meetings and 30 virtual meetings.

In this context, it is justified to use a "Scrum" type management method [2], which allows the development of complex interdisciplinary activities, by various organizations, concerning their fields of activity, with a wide geographical distribution and on a thematic with maximum community impact in the Danube region.

## 2.2. Capacity of self-organization

Another essential principle for managerial “agility” concerns the interactions from a project team / consortium, with a high degree of self-organization capacity. In the case of the RESTART\_4Danube project, the usage of "Scrum" techniques facilitates the interaction and regular feedback between the members of the partner organizations in the consortium, during regular / planned direct and online working meetings, for brainstorming activities, dialogue on the content of the activities carried out, and for taking decisions in case of problems / blockages that need to be resolved in a timely manner. The adoption of the "Scrum" method is based on the logic of self-organization of the RESTART\_4Danube project, with teams organized in work packages (WPs) and activities, according to the skills and potential contribution of each participant to specific work topics, with the logic of combining different scientific, technical, economic and social disciplines that are comprised in the scheduled activities.

Thus, the project consortium, that comprises 17 partners and 8 associate partners, covering 11 countries in the Danube region and Estonia, offers a comprehensive geographical coverage and involves the “quadruple helix” approach, as a spectrum of activities / skills, namely:

- 11 public authorities responsible for urban regeneration policies and support for innovation activities;
- 4 companies and business support organizations;
- 7 universities and research-development-innovation organizations, which are generators of knowledge in the field of innovation and technology transfer, management, environment, organization methodologies and urban policies;
- 3 civil society actors, responsible for regional development and international cooperation.

## 2.3. Flexibility of managerial approaches

Another essential condition for the use of agile management methods is flexibility, which is typical to the "Scrum" method, and in the case of academia and research it involves adapting / taking over only part of the "Scrum" principles, instead of its application "ad-literam", in order to avoid excessive rigidity.

In the case of the RESTART\_4Danube project, which includes 6 work packages (WPs) and 19 activities, if you want to manage all of them with the "Scrum" method, this could be very difficult to implement. The solution is that the "Scrum" method to be applied only for those WPs, respectively activities that are essential for the smooth running of the project and of which the other WPs / activities depend on, but not being included in "Scrum" type management algorithms.

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Specifically, the work package entitled: WP - "Development of Local Action Plans (LAPs - each being organized in a "tandem" system, with 2 organizations from the same region involved) and the Danube network of local "urban service hubs", based on cultural and creative industries (CCIs), having the project coordinator in charge, includes 3 activities (elaboration of LAPs, implementation of LAPs and creation of the Danube network of local "urban service hubs", based on CCIs), each with its own responsible. The organizational structure of the aforementioned WP involves a close collaboration between the responsible of the activities and the "tandems" of the LAPs, within rigorously scheduled activities, informal ad-hoc / brainstorming discussions and study visits, based on a "Scrum" management technique, which will be presented in the following paragraphs.

### **3. "Scrum" principles and tools adopted in the RESTART\_4Danube project**

One of the fundamental principles of self-organization is that the work teams in the RESTART\_4Danube project use an agile model at the managerial level, in order to increase the efficiency of the complex activities carried out.

It is also important to point out that the approach chosen in the RESTART\_4Danube project regarding the adoption of the "Scrum" framework was not based on specific, dedicated training or the use of an expert consultant, employed to provide specialized training. Instead, an evolved interpretation of the principles of Agile Project Management (APM) was used, capitalizing the previous experience of the project consortium members, based on an exploratory approach to the concept of "Scrum", and the individual skills of the experts involved in the project, taking into account the restrictions of an efficient management of available time and financial resources.

#### **3.1. Description of the "Scrum" framework**

"Scrum" falls under the umbrella of agile management methodology, which is based on a process of breaking down a project into small sections, carried out over different time intervals (e.g., from one to four weeks) called "sprints". The practice of "Scrum" focuses on learning from experiences, self-organization and continuous improvement, by examining gains and losses.

There are three roles in the "Scrum" technique: "Scrum Master", product owner and development team. The team is self-organized, multifunctional and chooses how to do its job, based on the fact that it has all the internal skills necessary for the completion of a work.

In the "Scrum" management method there are activities, which are all framed in time - the duration of an activity is fixed and can't be extended or shortened, thus

analyze meetings are scheduled at regular intervals to minimize the need for additional consultations.

The end of the application of a "Scrum" method is materialized by deliverables, which include the characteristics of the product (the list that includes everything that must be done in a project to develop a product), the list of activities (tasks to be performed) of a development "sprint" and the validation list of the obtained product performances. These are team activities and are designed to provide transparency and control opportunities and to improve / enhance product performances.

### 3.2. The role of facilitation / coordination ("Scrum Master")

The role of "Scrum Master" was one of the principles adopted at the initial kick-off meeting between the partners of the RESTART\_4Danube project, where the basic principles were presented and it was decided to adopt some of the key elements of the "Scrum Master" method. In this sense, the role of "Scrum Master" was conceived as that of a coordinator for the project activities (Fig. 1), with the role of facilitating the connection between the specific objectives / deliverables / results and the partners from project, as well as liaison with contracting authorities and stakeholders [1]. This key role is played by the RESTART\_4Danube project manager and is focused on coordination, facilitating all the connections necessary for the proper implementation of the project. In this sense, the "Scrum Master" plays a key facilitating role and contributes to expanding the use of agile management practices, providing project partners with transparency and guidance as they engage in joint activities. In other words, the role of "Scrum Master" is one of coordination rather than control, requiring a lot of skills involved in managing a group of specialists / experts, for which it is necessary to take responsibility for management.

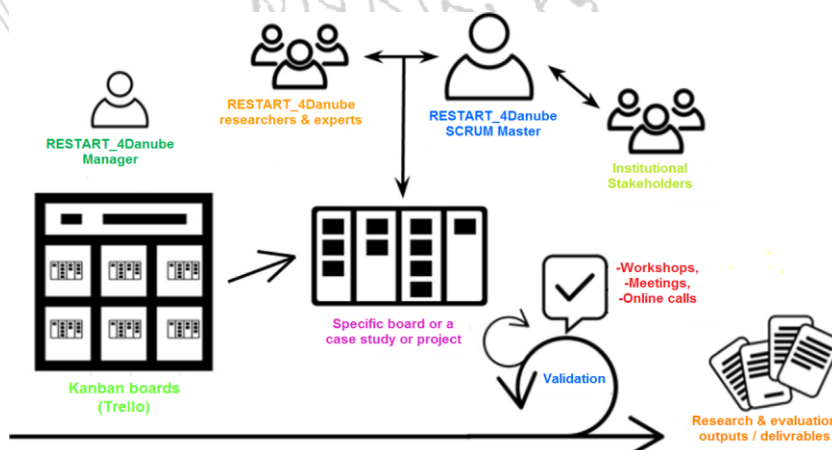


Fig. 1. Diagram of the „Scrum” for research & evaluation outputs (RESTART\_4Danube project)

Given the high volume of activities in the RESTART\_4Danube project, for the project manager, who acts as a "Scrum Master", it is recommended to capitalize on the expertise of some members of the partner organizations in the consortium, who have gained previous experience in this field, or even share this role with them. It is also significant to what extent the responsibility for providing facilitation and coordination of activities (the role of “Scrum Master”) can benefit from the project manager's previous experience of working in collaborative networks, e.g. Enterprise Europe Network<sup>1</sup>, or Danube Transfer Centers<sup>2</sup> and to capitalize on the expertise available in such networks, on skills in the use of "Scrum" techniques.

### 3.3. "Scrum" boards

In the RESTART\_4Danube project, implemented by a large consortium, with 25 partner organizations, offering a comprehensive geographical coverage and involving the “quadruple helix” approach, as a spectrum of activities / skills, so of a high complexity, the use of type “Scrum” boards is one of the agile management practices adopted from the beginning, in the form of a tool for monitoring project implementation.

Thus, in the RESTART\_4Danube project, the "Scrum" type tables were organized in the form of Excel files (Fig. 2), grouped on each work package, comprising: tasks, deliverables, support activities, responsible organizations, start of activity, submission deadline, contributors, implementation status.

WP T1 - Delineating status quo and improving framework conditions in creative urban								
07.2020 - 12.2022								
WP	Task	Deliverable	Support activity/ Sub-Deliverable	Start	Submission Deadline	Period	Contributors	Status
WP T1	A.T.1.1 - Mapping cultural and creative industries in DR urban communities (Task Leader - SASS)	DT.1.1.1 Danubian baseline study (SASS)	1 methodology	7/1/2020	9/15/2020	Period 1	SASS & PPs	Done
			10 Regional reports	9/15/2020	10/30/2020	Period 1	Austria: CUAS (support KTN) Bosnia-Herzegovina: NERDA Bulgaria: CCI-Vratsa (support Municipality Vratsa) Croatia: CCE (support Rijeka, MEEC-MGPO) Germany: S2I Hungary: PBN (support VMÖH) Moldova: ODIMM (support IACH) Romania: UPB (support IPA Craiova, LCM Craiova, MIDRAP) Slovenia: SASS (support UIM, MOM, MONG) Ukraine: NOVUM (support Uzhgorod city council)	Done
			1 Final report	11/1/2020	12/15/2020	Period 1	SASS & PPs	Done
			1 compendium	11/1/2020	12/15/2020	Period 1	CUAS & PPs after the regional reports from the partners are ready	Done

**Fig. 2.** RESTART\_4Danube project implementation monitoring tool

(<https://docs.google.com/spreadsheets/d/1qGwx7NG5OT7Es6SqPXU2KRSLclm5p2CF/edit#gid=1221989093>)

<sup>1</sup> <https://een.cc.europa.eu/>

<sup>2</sup> [https://www.steinbeis-europa.de/dtc\\_en](https://www.steinbeis-europa.de/dtc_en)

This monitoring tool is constantly managed and updated by the "Scrum Master" and is systematically accessed by members of the project consortium organizations.

Concluding, this tool allows us to view the activities, deliverables, responsibilities and deadlines in the project implementation plan. The real “Scrum” board is a visual tool that describes ongoing projects, in physical or virtual format (Fig. 3). The table consists of vertical columns, which show the progress of the project over time, including the "sprints" of development, and activities such as: planning / analysis of sprints and regular meetings of work teams are part of the management of an ongoing project, by using the "Scrum" board.

Thus, the "Scrum" board comprises several vertical columns, which present the working stages of the development "sprints", which are part of an ongoing project, usually one column for the following components:

- "Product backlog" (list of deliverables to be made in a project);
- “Sprint planning” (action planning for all deliverables in the 'Product backlog');
- “Sprint backlog” (action planning, on each deliverable in the 'Product backlog');
- “ToDo’s” (list of actions to be performed, not started, on each deliverable in the “Product backlog”);
- “In progress” (list of ongoing actions, on each deliverable in the "Product backlog"); and
- “Done” (list of deliverables made and received / validated, on each item in the 'Product backlog' list).

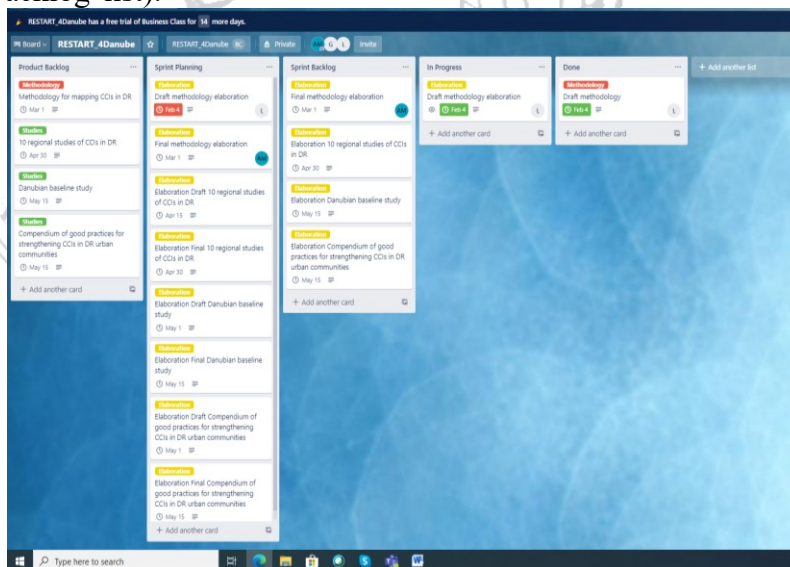


Fig. 3. Trello board of a development „sprint” from the RESTART\_4Danube project (<https://trello.com/b/FQeJS5fA/restart4danube>)



### **3.4. Development "Sprints"**

Regarding the adoption of "Scrum" methods in the RESTART\_4Danube project, the concept of development "sprints", as well as other key aspects of agile management practices, although not used with the same rigor as in the context of software application development, was progressively incorporated in the logic of communication / collaboration within the project consortium, in order to correspond to the specifics and particularities of the activities and work tasks within the project.

In conclusion, one of the "sprints" of development, presented in Figure 3, took about two months to develop "Methodology for mapping CCIs in DR".

### **3.5. Incremental Development**

The concept of incremental development, which segments processes into short, regular sequences with several associated deliverables (derived from the "Lean" principle of "minimally viable products"), initially adopted for software application development, is perceived as a complex process that needs to be adapted in the context of projects such as RESTART\_4Danube [3].

Similar as in the case of the principle of development "sprints", the members of the project consortium went through a process of understanding and adapting the concept of incremental development to the activities planned in this type of collaborative projects, with different organizations and stakeholders involved, by involving a succession of iterations until a final result is obtained.

The concept of "minimum viable product" has been adapted to the activities of the RESTART\_4Danube project in the form of a "minimum viable result", which has been received / validated, in terms of quality and information content, in relation to how team members are able to focus their activities on precise time intervals, e.g. two months (January - February 2021, for the elaboration of "Methodology for mapping CCIs in DR"), in order to obtain a concrete, expected result, on which the continuation of the activities planned in the project depends.

## **4. Conclusions**

The use of the "Scrum" management method, i.e. a specific set of agile principles and practices for organizing teams collaborating in software development projects, is now extended to other types of organizations, in this case research - development - innovation, and in knowledge management processes.

The key challenges in collaborative research management relate to issues of engagement, transparency or communication and monitoring, and

interdisciplinary collaboration requires the adoption of a common scientific language and equal access to different types of working tools. Given the emphasis on the collective intelligence of a team, the "Scrum" methodology facilitates the improvement of teamwork and the motivation of its members, to clarify the roles of each, to resolve conflicts and to ensure that all team members contribute appropriately. .

"Scrum" falls under the "umbrella" of agile management methodology, which is based on a process of breaking down a project into small sections, carried out over different time intervals (e.g., from one to four weeks) called development "sprints". The "Scrum" practice focuses on learning from practical experiences, self-organization and continuous improvement, through continuous analysis and capitalization of opportunities. The end of the application of a "Scrum" method is materialized by deliverables, which include the characteristics of the product (the list that includes everything that must be done in a project to develop a product), the list of activities (tasks to be performed) of a development "sprint" and the validation list of the obtained product performance. These are team activities and are designed to provide transparency and opportunities for control and to improve / increase the performance of the newly made product.

### **Acknowledgment**

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