01-055 – Weekly meeting: agile meeting method for predictive project tracking – *Weekly meeting*: método de reuniones ágiles para el seguimiento de proyectos predictivos

Poza-Lujan, Jose-Luis[1]; *Blanc, Sara*[1]; *Letelier, Patricio*[1]; *Perello-Marin, M Rosario*[1]; *Bort-Mir, Lorena*[1]
(1) Universidad Politécnica de Valencia

English English

The article presents a method for managing meetings in predictive engineering projects inspired by SCRUM 'stand-up meetings'. The method is based on creating concise weekly presentations, where each partner must complete three slides summarising the work done, the objectives of the following week and the needs of other partners to achieve the goals. The methodology minimises documentation and focuses on key questions to facilitate coordination and monitoring of the project in three dimensions: vertical, project status at a glance; horizontal, progress of each partner and the overall project; and diagonal, dependencies and interactions between partners and tasks. This methodology aims to improve communication and coordination, especially in complex system integration projects. Although inspired by SCRUM, the method is flexible. It has been successfully applied in projects such as integrating drone components in a European Horizon 2020 project and implementing entrepreneurship courses in another European Capacity Building project.

Keywords: *Tailored agile methodologies; Team co-ordination; Project engineering*

El artículo presenta un método para la gestión de reuniones en proyectos predictivos de ingeniería, inspirada en los "stand-up meetings" de SCRUM. El método se basa en la creación de presentaciones semanales concisas, donde cada socio debe completar tres diapositivas que resumen el trabajo realizado, los objetivos de la semana siguiente y las necesidades de otros socios para alcanzar los objetivos. La metodología minimiza la documentación y se centra en preguntas clave para facilitar la coordinación y el seguimiento del proyecto en tres dimensiones: vertical, estado del proyecto en un instante; horizontal, progreso de cada socio y del proyecto en general; y diagonal, dependencias e interacciones entre socios y tareas. Esta metodología busca mejorar la comunicación y la coordinación, especialmente en proyectos complejos de integración de sistemas. El método, aunque inspirado en SCRUM, es flexible y se ha aplicado con éxito en proyectos como la integración de componentes de un dron en proyecto europeo Horizonte 2020 y la implantación de cursos de emprendimiento en otro proyecto europeo *Capacity Building*.

Palabras claves: *Metodologías ágiles adaptadas; Coordinación de equipos; Ingeniería de proyectos*

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1. Introduction

Project management presents significant challenges that directly impact the achievement of the objectives of the project, the individuals involved, and the organization (Collyer & Warren, 2009; Albert, Balve, & Spang, 2017). The intrinsic nature of projects, with their phases of requirements, design, implementation, evaluation, and deployment, is intensified in highly dynamic environments, such as those associated with technology, where each component possesses unique technological and communication particularities (Collyer, 2016; Copola et al 2021). Faced with this situation, the adoption of efficient methodologies and management practices is necessary to work with complexities, optimize resources, and ensure the delivery of value in the expected time and manner. Effectiveness in project management not only minimizes risks and delays but also maximizes the productivity and performance of teams, contributing to the overall success of the initiative (Serrador & Turner, 2015; Daniel&Daniel, 2018).

Meetings play a fundamental role in project management, acting as key elements for communication, planning, and project monitoring. Traditionally, meetings aim to align teams and stakeholders, but they often suffer from a lack of detail in preparation and clear operational outcomes (Key & Kock, 2022). Usually, in project management, meetings are often characterized by the early circulation of an agenda that, in many cases, offers a superficial overview of the topics to be discussed, lacking the necessary granularity for effective preparation. These meetings often consume a considerable amount of time, during which lengthy and detailed documents are reviewed, making it difficult to extract key information and ensure the active participation of all attendees (Romano, 2001). Subsequently, minutes are generated that tend to be a narrative description of what happened during the session, recording who said what, but often without translating into concrete operational documentation that guides future actions or facilitates the preparation of the next meeting. This lack of focus on actionable results and the difficulty in processing information can reduce the efficiency of the project management and monitoring process.

Meetings, when are structured and facilitated appropriately for participants, are powerful tools for project management, enabling fluid communication, collaborative planning, effective progress monitoring, and continuous improvement. Agile methodologies such as SCRUM demonstrate how meetings can be designed to optimize efficiency and the value delivered by the project team (Gemino, Horner & Serrador, 2021; Ferreira & Nobre,2022; Ciric Lalic, et al 2022).

Brief meetings, coupled with the limited documentation sometimes associated with agile methodologies, can lead to some drawbacks (Dong, et al, 2024). Teams may struggle with coordination and maintaining a shared understanding of progress and impediments, potentially hindering the ability to adapt quickly to changes (Schwaber, 2011). Lack of sufficient documentation can make it difficult to track decisions, onboard new team members, and ensure consistency across different stages of the project. However, simplifying and homogenizing documentation within an agile framework can significantly improve the process. By establishing clear, concise, and standardized documentation practices, teams can enhance transparency, facilitate better communication, and streamline progress tracking without sacrificing the core principles of agility. This balance ensures that the necessary information is readily available and easily digestible, ultimately improving efficiency and the overall management of the agile project.

This article introduces a method, already tested in various projects, that shifts the coordination focus from individual team members to partners. This approach aims to ensure a

comprehensive view of project progress, both in terms of its evolution over time and the overall scope achieved. By focusing on partner contributions and dependencies, the method facilitates a broader understanding of the project's trajectory and inter-partner dynamics, providing insights into both the temporal and the breadth-related aspects of project advancement.

2. Objectives

The main objective of the proposed method (Weekly Meeting) is to establish an efficient and structured mechanism for coordination among the different partners involved in a project, ensuring a comprehensive and shared view of progress, both in terms of its evolution over time and the scope achieved, complementing existing project management practices.

The method is inspired by the three questions of the "Stand-up Meeting," sometimes known as the "Daily Meeting," adapted from individuals to partners and from daily work to short-term objectives that must not put the project's objectives at risk.

This method seeks to overcome the limitations that can arise in coordination among partners in projects, especially in those that adopt agile methodologies, which, while efficient at the team level, may not provide a formalized approach to communication and progress monitoring at an inter-organizational level or between collaborating entities.

Agile methodologies focus heavily on coordination within the Development team, which is easy to coordinate due to the proximity of the work environment. When extrapolated to coordinated projects with different partners, without a specific mechanism, coordination between partners may rely on informal communication or less frequent and structured meetings, which can lead to misunderstandings, misalignments, and delays. It is a risk that is increased by the lack of previous experience among partners. It is also enhanced in online meetings, where synergistic signals that indicate, in a non-spoken language, the attitude, concentration and attention of the participants or the confusion regarding certain topics are missing. The method seeks to generate the following values:

- Regular view of progress at the partner level. While each partner can internally track their progress, there may be a lack of an aggregated and uniform view that allows all participants to understand the overall progress of the project and each partner's contributions over time.
- Early identification of critical dependencies between partners. Without a formal space for each partner to express their needs to the others, essential dependencies may not be proactively identified, leading to blockages and delays in project progress.
- Efficient high-level communication: Long, detailed meetings may not be the most efficient format for informing partners about overall progress and key needs. A more concise and focused format is required for high-level coordination.
- View of the progress and scope by partner. Agile documentation, often focused on the current sprint, may not facilitate a clear view of the progress of work and the scope achieved by each partner over several sprints or iterations.

The method addresses these challenges by implementing a structured and consistent weekly reporting and communication process among partners (Moutinho et al., 2024). These questions offer an opportunity to request help, advice, and support. Another aspect of the Daily Meeting is that it provides a space for monitoring the overall Sprint and/or Project planning, allowing for early detection of any significant deviations from the plan. The method is detailed in the next section.

3. Methodology

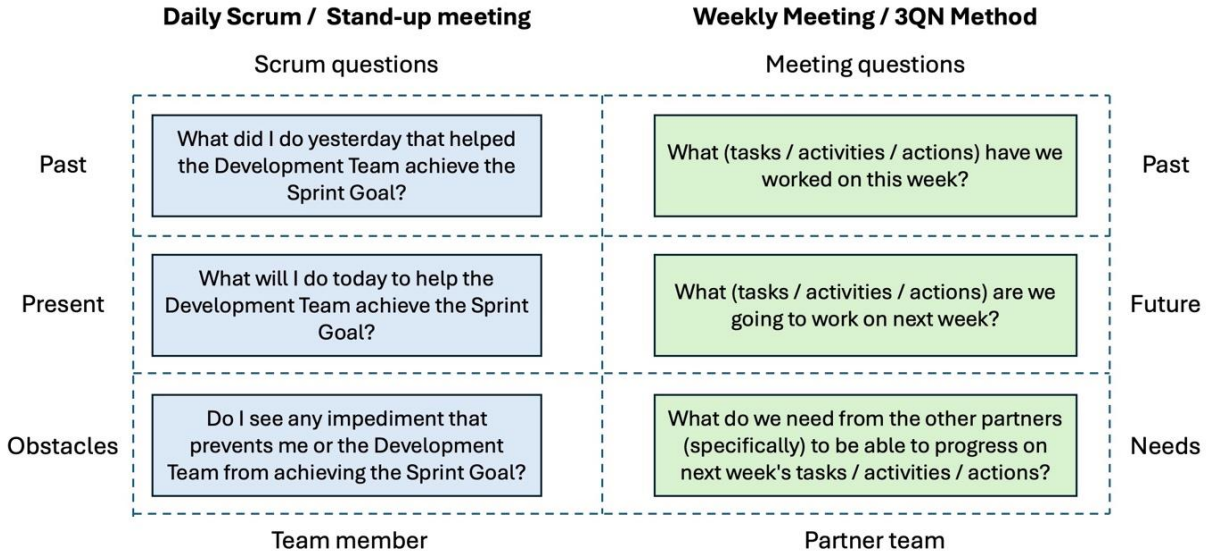
3.1 Fundamentals

Based on the requirements presented in the previous section, an analogy has been established between the daily SCRUM questions and the questions presented at the weekly meeting. The instructions provided to each partner are the next:

- What we have done this week. If there has been nothing relevant to report during the week, simply write down which tasks you have continued to work on.
- What we plan to do next week. If the plan is to continue working on the same tasks as on the previous slide, simply write down the tasks you are going to work on.
- What do we need from partners to progress next week. If nothing is needed from the other partners, this slide can be blank. It is important to ask only for what is needed from the other partners, as this slide may overload your colleagues with work.

Based on the instructions provided, it is possible to make an analogy between SCRUM questions and the questions used as the basis of the method used in the Weekly Meeting shown in Figure 1. These questions must be answered by each partner at each weekly meeting.

Figure 1: Analogies between SCRUM questions and the questions used as the basis of the method used in the Weekly Meeting.



Because these three questions must be repeated as many times as iterations, usually weekly and not necessarily SCRUM Sprints, it has been called 3 Question N (times) or 3QN.

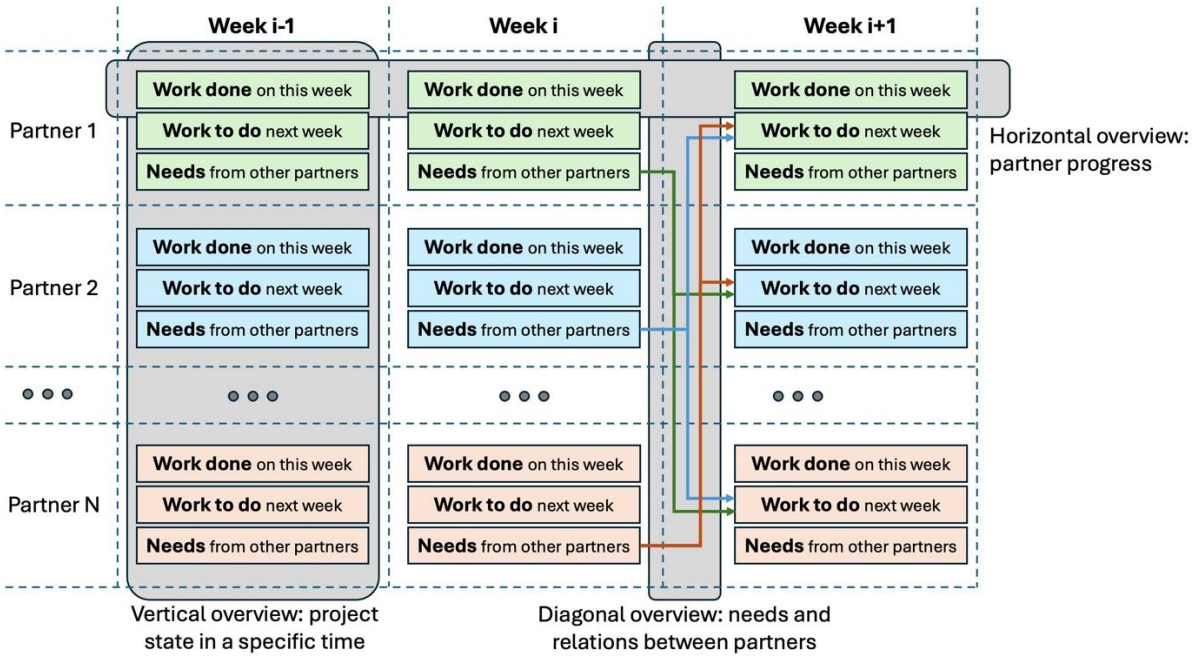
3.2 Method overview

The method consists of presenting at each meeting a presentation in the same file format where the name is encoded so that it can be easily sorted by date or filtered by partner name.: yyyy-mm-dd-<PartnerAcronym>, when yyyy-mm-dd is the date of the meeting, and the partner acronym in caps, i.e.: 2025-01-31-UPV.pdf. At each meeting, each partner presents a weekly update using this presentation. The slide structure is as follows:

- Cover: The first slide includes the partner's name and the meeting date, providing a clear and organized reference for all participants.
- "What was our progress this week?": The second slide focuses exclusively on the progress of the partner in question, highlighting achievements on assigned tasks. This approach allows each partner to present their specific progress without straying into general topics
- "What do we plan to do next week?" (tasks and expected results): On the third slide, each partner describes the tasks they plan to complete in the following week and their expected results. This allows for clear planning and gives the team an early look at the next steps in the project.
- "What do we need from other partners to achieve the project results?": The last slide is key, as it allows each partner to specify the needs and resources, they require from other collaborators to move forward. This ensures that dependencies and collaborations are clear, facilitating cooperation and avoiding misunderstandings.

The 3QN method (3 Questions N times or Weekly Meeting), as described in the previous sections offers significant advantages in tracking the progress of collaborative projects, facilitating a multidimensional understanding of the project's status and dynamics. These advantages can be visually represented in the figure 2 that illustrates the value of the method.

Figure 2: Method views. The vertical view shows the status of the project, the horizontal view shows the progress of a project partner, and the diagonal view shows the relationships, dependencies, etc., between partners.



One of the main strengths of the 3QN method lies in its ability to provide vertical project tracking. This means that, at any specific moment (the date of the weekly meeting), a clear view of the project's status can be obtained. By requiring each partner to present their progress weekly, the tasks they have worked on, and their plans for the following week, a sequential record of the advancement is created. By consulting the presentation corresponding to a specific date, all participants can understand what was achieved up to that point, what was being planned, and what needs existed between the partners.

Additionally, the 3QN method allows for horizontal project tracking. This refers to the ability to visualize progress over time, both at the level of each individual partner and at the level of the project. Thanks to the standardized format of the weekly presentations and the file name encoded with the date and the partner's acronym, it is possible to archive and compare the presentations of each partner over several weeks. This reveals the trajectory of each participant, their contributions, and their pace of progress.

In an aggregated way, by reviewing the presentations of all partners for each week, a global understanding of how the project is evolving in terms of scope and task completion is obtained. This horizontal perspective is essential for identifying trends, measuring the project's velocity, and evaluating the impact of the actions taken.

Finally, a distinctive advantage of the 3QN method is its ability to facilitate diagonal tracking, revealing the crucial dependencies and interactions between the tasks of the different partners. The third key question of the method, "What do we need from partners to progress next week?" forces each participant to explicitly communicate their needs from other collaborators.

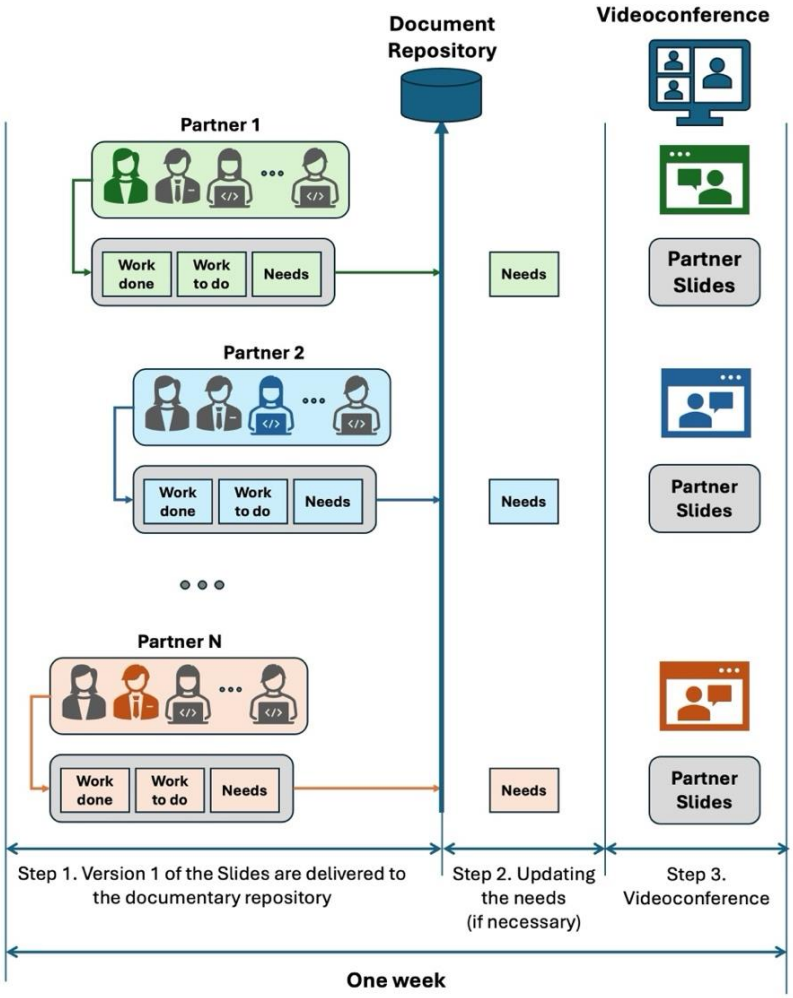
By analysing the answers to this question in the presentations of all partners for a given week, the dependencies between tasks and who depends on whom to be able to advance can be clearly identified. This visibility of the interactions is fundamental to prevent blockages, coordinate efforts, and optimize the workflow between the different teams or partners involved in the project. The ability to track the evolution of these dependencies over time also provides valuable information about the complexity of the integration and collaboration in the project.

3.3 Steps

The 3QN method is based on a three-step sequential structure designed to optimise coordination and follow-up in collaborative projects. The first step involves each partner delivering a concise presentation before the meeting, which encourages planning and facilitates the review of key information by all participants.

After analysing the partners presentations, the second step focuses on modifying their partner's needs, allowing for proactive identification and more efficient management of dependencies and interactions between different project parts. Finally, the third step involves holding a videoconference for progress updates, providing a space for direct communication, aligning goals, and addressing potential impediments. Figure 3 shows graphically these steps.

Figure 3: Steps involved in the process of 3QN method to meetings. Step 1 consists of deliver the presentation until a date, step 2 is the modification of needs (after reading the "done" and "to do" of the presentations from the other partners and step 3 consist of the videoconference to update partners about the progress.



Implementing Step 1, which involves each partner submitting their presentation before a predefined date, exhibits several positive effects on the dynamics of the collaborative project. First, it promotes proactive individual planning, encouraging participants to reflect in advance on the progress made and plan upcoming tasks. This reflective exercise results in greater availability of essential information for all partners before the formal meeting, facilitating a thorough and preparatory review. Additionally, the mandatory submission establishes a structured weekly cycle for formal communication of project progress.

Step 2, which addresses the modification of requirements after reviewing the work completed and planned by the other partners, optimizes the identification of critical interdependencies among project participants. A detailed review of each partner's progress and plans, with particular emphasis on the external requirements section, encourages anticipation of potential obstacles or delays arising from the needs of others. This cross-review process fosters a more holistic understanding of the overall project trajectory and the intrinsic connections between the activities of the various partners, which contributes to more integrated and conscious management of dependencies.

Finally, the execution of Step 3 materialized in a videoconference for progress updates among partners, facilitating direct and fluid communication among all members of the collaborative project. This space for synchronized interaction allows for the alignment of teams and stakeholders while providing a forum for real-time discussion and problem-solving. Despite its virtual nature, videoconferencing, especially when integrated with a "Human Touch" approach, seeks to maintain team members' attention and intrinsic motivation.

It's worth noting that, in the cases presented in this article, the first one is the sole person responsible for each Work Package. This means that, in addition to the 3QN being guided by the Project Partner, a focus can be provided where the WPs present the three slides.

3.4 Characteristics

The presented method improves meeting management and project control. The areas of improvement are as follows. The method facilitates communication and coordination between the different project partners, establishing a regular schedule for sharing relevant information at this level. Each partner must prepare a short, structured presentation (suggested in three slides) summarizing the work performed, the planned work, and the needs of other partners. This standardization facilitates understanding and comparison of information among the different participants.

The weekly frequency of meetings and reporting ensures regular updates on the project status and the needs of each partner, allowing for early detection of potential problems or unmet dependencies. Visibility of progress over time and scope by partner: The weekly presentation of the work completed gives all partners a clear view of the project's evolution over time and the scope each is achieving. Archiving the weekly presentations facilitates longitudinal progress tracking.

A specific section of the presentation is dedicated to the needs of other partners for the following week, which encourages the proactive identification and communication of dependencies, allowing for more efficient management of interactions between participants.

The concise format and the limited time suggested for explaining each slide aim to maximize meeting efficiency by providing essential information quickly and in a focused manner.

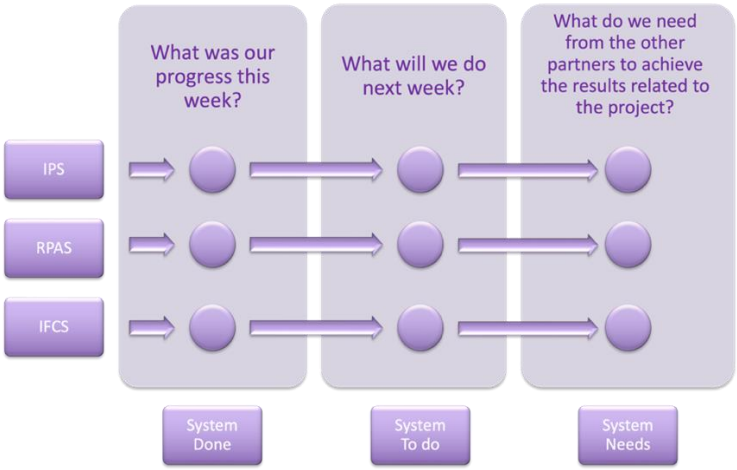
4. Use cases

4.1 AiRT Project

This method has been used in various projects; however, the most practical application was found in the AiRT project (Poza-Luján, 2018). Figure 4 shows an example of a generic meeting. In the figure, the rows represent the system components, specifically the Intelligent Positioning System (IPS), the Remotely Piloted Aircraft System (RPAS), and the Intelligent Flight Control System (IFCS). Each of these components is developed by a project partner. It should be noted that even in an internal project involving a single partner, the 3QN method can be applied, replacing the partner with the corresponding component of the final product.

The columns represent the method's three questions. With three partners and three slides per partner, there are nine slides. The horizontal slides show the progress status of each partner's component, and the vertical slides show the project status (first question), the following week's plan (second question), and the overlapping needs between partners, which allow us to deduce the complexity of the system integration.

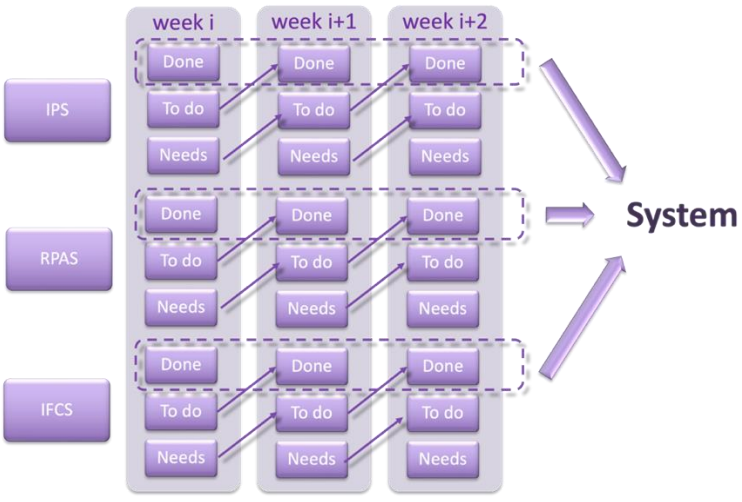
Figure 4: Example of the 3QN applied to control the integration of three components into a system used in the AiRT project.



In the specific case of this project, the document resulting from the combined slides from a meeting helps avoid conflicts between partners, as it allows to verify which partner requested something from another at a specific time. The progress of the presentations allows to track how the partners are evolving the project over time, as well as a view of the product's evolution.

A practical issue discovered in the project was the use of a Kanban board to internally manage each partner's tasks. Using the proposed method, the direct relationship between the 3QN method and the Kanban methodology was confirmed. Figure 5 shows the analysis between Kanban elements and the methodology presented in this work.

Figure 5: Relacion between the columns of a Kanban board (to do, doing, done) and the documentation used to the 3QN method.



This analogy between Kanban and the documentation and management method presented allows partners to manage everything they need internally using Kanban.

In the context of the 3QN (3 Questions N times or Weekly Meeting) method, where online weekly meetings are primary, incorporating a "Human Touch" is crucial for team cohesion,

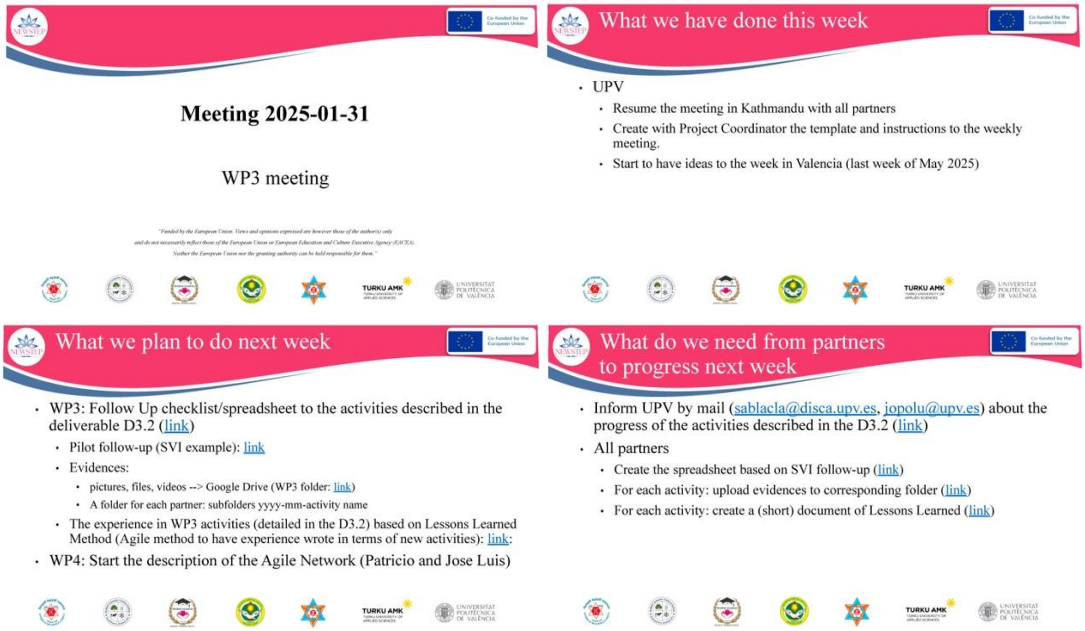
attention, and motivation. Given the digital nature, informal and personal elements can humanize interactions beyond technical progress reviews, fostering connection and shared purpose (Shockley, 2021).

Figure 6: An example of a weekly meeting call with the "human touch" and informality needed in a method where the stress of frequent meetings can be detrimental.

4.2 NEWSTEP Project

To illustrate the practical application of the 3QN method in a collaborative context with a significant number of participants, the Figure 4 presents an example of the three key slides (preceded by a cover page) used in a project with seven partners. In this scenario, each partner is tasked with implementing entrepreneurship promotion actions, which, while sharing a common objective, are tailored to each university's specific characteristics and resources. Given the nature of these actions, the meeting cycle has been established as two weeks.

Figure 4: An example of a weekly meeting slides from one of the partners.



An equitable meeting structure in terms of presentation time for all partners offers significant advantages, especially when the number of participants is large. By allocating a similar amount

of time to each partner to share their progress, plans, and needs, meetings are prevented from running excessively long, as could occur with less structured dynamics.

As suggested in the method's instructions, the time limit per slide encourages conciseness and a focus on essential information. This time limitation allows the meeting to remain within an efficient timeframe, even with a considerable number of partners (in this case, seven, resulting in 21 slides of content), facilitating a quick and understandable update on the overall project status for all involved. This structured approach optimizes participants' time and ensures that everyone can contribute and be informed.

5. Conclusions

The primary objective of this work has been to introduce and detail a method, named 3QN (3 Questions N times or Weekly Meeting), aimed at improving coordination and tracking in collaborative projects. This method, inspired by Scrum stand-up meetings but adaptable to predictive methodologies, focuses on obtaining a comprehensive view of project progress, considering both its temporal evolution and the overall scope achieved. Through the implementation of standardized weekly presentations by each partner, answering questions about past work, future objectives, and external needs, the aim has been to establish clear, concise, and standardized documentation practices that foster transparency and facilitate better communication without sacrificing agile principles. The analogy established with a Kanban board seeks to offer partners a familiar tool to internally manage their tasks, reinforcing the practical applicability of the method.

The main contribution of this method lies in its focus on the multidimensional tracking of the project. As discussed, 3QN allows for vertical tracking to know the project's status at a specific moment, horizontal tracking to visualize the progress of each partner and the project over time, and diagonal tracking to identify and understand the dependencies and interactions between the tasks and the responsible partners.

By shifting the focus of coordination from individual team members to partners and their dependencies, the method facilitates a broader understanding of the project's trajectory and the dynamics between participants. This perspective offers valuable insights into both the temporal aspects and the breadth of the project's advancement. Furthermore, the method has been tested in various projects, including the integration of drone components in a European Horizon 2020 project and the implementation of entrepreneurship courses in a European Capacity Building project, suggesting its potential applicability in different contexts. If each work package is assigned to a participating entity (partner), the model is as presented. However, it would be advisable for people from all the partners to participate in the project's work packages, and for these work packages to have a meeting dynamic appropriate to their work context. At a more global level, the proposal in this article, i.e., meetings and coordination between work packages, would be produced.

While the 3QN method has proven effective in the projects where it has been implemented, future lines of work could focus on exploring its scalability in projects with a significantly larger number of partners. Likewise, it would be interesting to investigate the formal integration of the method with existing project management tools, which could facilitate its adoption and the automation of tracking. Another area of development could be the definition of specific metrics based on the data collected through 3QN to more precisely quantify the progress, dependencies, and potential risks of the project. Finally, a deeper comparative analysis of the 3QN method with other tracking and coordination methodologies, both agile and predictive, could be conducted to identify its strengths and weaknesses in different project management scenarios.

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Use of Generative Artificial Intelligence

While the core ideas and insights presented in this article are the product of the author's expertise and original thought, Artificial Intelligence (AI) has served as a valuable tool throughout the various stages of its development. Conceptualization of the paper has been made fully by authors (AI 0%). During research, AI-powered tools were used to locate and synthesize information from a vast array of bibliographic sources, helping to identify key papers and relevant data (AI 20%). In the writing process, AI offered support in refining language, using the sequence (1) human writing (2) ai results (3) human rewriting, the ai reviewing provides alternative phrasing, and ensuring clarity and coherence in the exposition of complex ideas, the percentage of final text changed by AI suggestions was estimated in 30%.

Communication aligned with the Sustainable Development Goals

Regarding SDG 8: Decent Work and Economic Growth, the agile meeting methodology for predictive project monitoring contributes to improved team efficiency and productivity, potentially leading to better resource allocation and more successful project outcomes, thus fostering sustained economic growth and a more productive work environment through enhanced clarity and coordination. The focus on clear communication and early dependency identification supports a more organized workflow.

Concerning SDG 9: Industry, Innovation, and Infrastructure, this methodology supports this goal by facilitating more effective management and execution of engineering and innovation projects, crucial for developing innovative solutions and resilient infrastructure. The ability to track progress and ensure collaboration is fundamental in areas covered by the 29th International Congress on Project Management and Engineering, such as civil engineering, industrial design, and information technologies, underscoring its relevance for advancing innovation and infrastructure development.