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RECUPERANDO ECOSISTEMAS URBANOS

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Agile Guidance

Draft guidance document about the INTERLACE agile workflow implementation and the agile workflow meeting strategy

INTERLACE Project Deliverable 1.1

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Executive Summary

Planning ahead is notoriously difficult, and the most careful plans may not succeed in light of changing contexts and user needs. Yet in many EU Research and Innovation projects, the norm is still to plan ahead as much as possible using clearly defined milestones and deliverables dates in Gantt charts for example, leaving little room to adapt plans ‘en route’. To improve our capacity to be responsive to change, the INTERLACE consortium agreed early on to experiment working with an agile workflow. Agile project management rests on a set of core values and principles, that favours an iterative rather than a forward-looking approach to deliverable development. By improving its agility and embracing changing requirements, the INTERLACE project aims to develop more user-oriented deliverables.

The purpose of this guidance document is to provide theoretical and practical guidance on achieving an agile transformation in a Research and Innovation project such as INTERLACE. The guidance document gives an introduction on the key values and principles of working agile, followed by an explanation of the key components of the agile framework used in the INTERLACE project. The guidance explains in a comprehensive step-by-step manner how to get started, and provides a practical toolkit with more hands-on tips and examples. Key lessons learned during the implementation of the INTERLACE agile framework have also been summarised to help guide other projects that may want to apply an agile workflow. These include for example the need: 1) to invest sufficient time to foster a transition towards an agile mindset and avoid ‘fake agile’ frameworks, 2) for the co-creation of an agile framework adapted to a Research and Innovation project with the development teams and Work Packages, including a clear role for the project coordinator, 3) to foster engagement, as teams rely on digital interfaces to communicate with very little opportunities for regular physical interactions, 4) to invite, coordinate and engage a sufficiently large pool of potential end-users in product development (the INTERLACE Impact Task Force).

This guidance document is aimed at the INTERLACE product development teams and other research teams who wish to apply a similar workflow to their project.

Reading Guide

This agile guidance document gives a short introduction on what 'working agile' means (see chapter "What is 'agile'?"), followed by explaining the different elements of the agile framework for the INTERLACE project (see chapter "The INTERLACE agile framework").

The main philosophy behind this document was to provide a short, practical guide to allow project partners to get started with an agile workflow (see chapter "Getting started"). A more in-depth Agile Toolkit was developed with examples, tips and tricks and extra resources for each step in the proposed agile workflow.

Initially, this document was developed for all consortium partners of the INTERLACE project, as an internal, confidential document. During the course of the project however, it became clear that monitoring and evaluating the process of implementing an agile workflow was necessary to learn and improve this novel approach in a research project with city partners. These learnings could also be of interest to external readers or other future research projects looking for ways to increase their impact. Readers interested in the pathway of change, indicators and selected monitoring tools can consult the chapter on "Monitoring and evaluation". Lessons learnt can be found at the end of the document.

To incorporate these findings into the agile guidance document, the guidance document was turned into a **living document**. A final version, including overall lessons learnt and final conclusions will be available at the end of the project in 2024.

No time to read all the details?

Use the table below to jump straight to the chapter that is of most interest to you. Want to start working agile? Then jump straight to chapter 4.

Table 1: Reading Guide.

CONTENT		TO LEARN MORE ABOUT…
1.	Introduction	why we choose an agile approach in the INTERLACE project
2. 3.	What is 'agile'? The INTERLACE agile framework	what working agile is all about and how we choose to implement it
4.	Getting started	how to get started quickly with working in an agile way
5.	The Agile Toolkit	tips and tricks on how to write a product vision, user stories, development stages and setting up a meeting strategy,…
5.6	Agile mentors	the agile mentors you can contact for help
6.	Monitoring and evaluation	our monitoring and evaluation approach
7.	Lessons learnt	lessons learnt from working agile in the INTERLACE project

1. Introduction

Creating fit-for-purpose products relevant for complex and diverse urban contexts is highly challenging and requires effective transdisciplinary approaches and cooperation with end-users. While a wealth of experience exists on how to effectively integrate user needs and concerns early on in developing such products, a gap remains on how to ensure optimal workflow management during the entire product development process.

The INTERLACE project seeks to implement an agile workflow as a tool to establish and maintain the functional foundations for inclusive stakeholder engagement and collaboration across the project. Most importantly, this agile approach seeks to ensure the relevance, legitimacy and impact of project outputs. The goal is to ensure that the project activities and products being developed for governments, decision-makers, urban planners, businesses, civil society groups, education initiatives or city networks meet these stakeholders' needs.

Why an agile approach in INTERLACE?

Many teams within a diversity of sectors are moving away from traditional waterfall approaches (predicting and controlling, using linear project management styles and sequential project activities) and towards agile approaches that involve a constant flow and adaptation to change. An important reason for this shift came from the realisation that much effort is getting lost in planning everything ahead (e.g. using Gantt charts or roadmaps with many deadlines) with little added value shown in return. Mainly because people are notoriously bad at predicting time requirements for complex or innovative tasks, which is also illustrated by the cone of uncertainty from Steve McConnel.

In the following table, we describe some of the key differences between agile and traditional waterfall approaches.

Table 2: Main differences between a traditional waterfall approach and an agile approach.

Characteristics	Traditional waterfall approach	Agile approach
Organisational structure	Linear	Iterative - short work cycles
Project planning	Detailed concept - all details are specified in a very detailed plan	Vision - to start product development
Project phases	Long planning and implementation phase	Fastest possible delivery of a value adding product
User requirements	Clearly defined before implementation	Continuous, interactive feedback from users and stakeholders
User involvement	Low - users get involved early in the project, but not once the execution has started	High - users are involved from the time work is being performed
Problem management	Escalation to managers	Entire team works together to resolve it
Model preference	Favours anticipation	Favours adaption - allows for changes during the project
Product or process	More serious about processes than the product	Less focus on formal and directive processes

Reviews and approvals	Excessive reviews and approvals by leaders	Reviews are done after each iteration
Risks	- Can cause issues in case of changes to the original plan. - The more complex and larger the project is, the more difficult estimations get	- Implementing 'fake' agile - Reducing governance and oversight - Poor or non-existent forecasting

(Source: https://www.proofhub.com/articles/traditional-vs-agile-project-management - adapted version)

Reasons to implement an agile approach in a research and innovation project such as INTERLACE are manifold:

- The project aims for project deliverables (products) with relevance and impact for its targeted end-users (e.g. local governments, decision- and policy makers, urban planners, business or civil society) in the given time and resource frame. Therefore it is best to 'fail fast and fix early', i.e. to present intermediary versions to end-users as soon as possible to be able incorporate feedback early on.
- Involving end-users in product development to create product ownership and fit-for-purpose outputs.
- INTERLACE team members are based in different countries and continents, which makes it more difficult to manage product development in a 'traditional' way. An agile approach will focus on empowering these expert teams while still working towards common goals.
- An agile approach will support team building within the consortium through frequent meetings, direct cooperation, etc. and speed up the cooperation process between partners based in different countries and working in different sectors.
- Many variables are not clear at the beginning of the project and there are a lot of interdependencies: What are the challenges and intervention areas in the cities? What will be the reaction of stakeholders on the intended product formats? Will they meet their requirements or will drastic changes have to be made? How easy/difficult will it be to engage the many and varied stakeholders during the project timeframe? What will be the impact of the Covid pandemic on stakeholder and team engagement/collaboration?

There are many reasons to work with a flexible planning approach that can adapt to such uncertainties and reduce risks (also see the figure below).

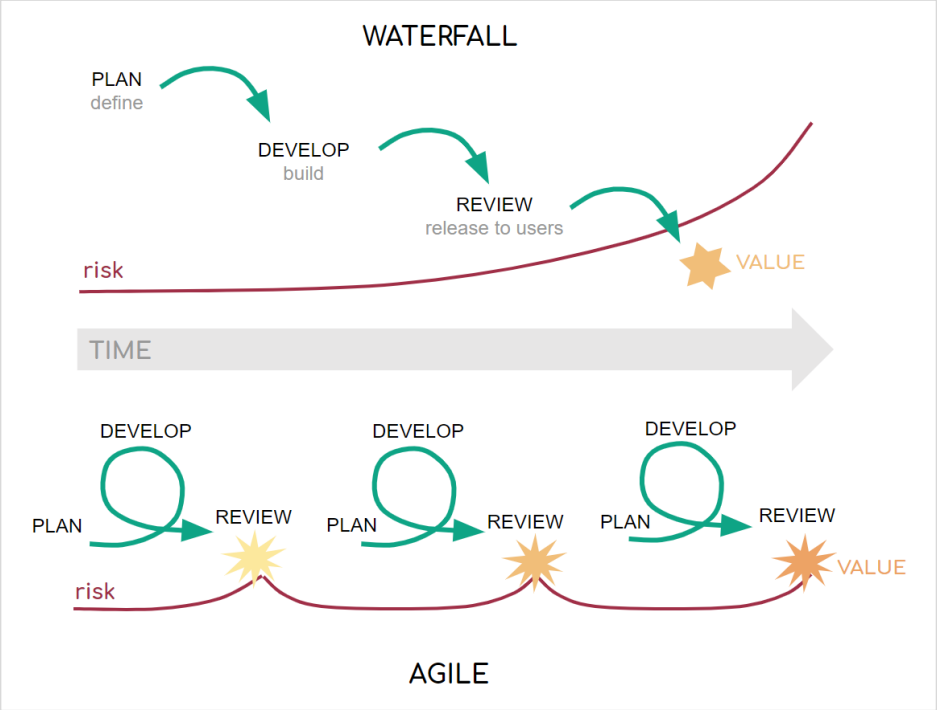


Figure 1: Elements of an agile vs a waterfall approach.

(Source: https://www.cirdangroup.com/cirdan-blog/2017/8/30/waterfall-vs-agile-some-differences-to-keep-in-mind - adapted version)

2. What is 'agile'?

"An **iterative** way of working in short cycles, which allows for **early feedback** to rapidly **learn and improve** and deliver **more value** faster, in complex, unpredictable environments."

2.1 Key Principles

Around 20 years ago, a group of software developers came together to look for an alternative to documentation-driven, heavyweight software development processes: the "Agile Manifesto"[1] was born, which laid out four key values and twelve principles. These values and principles still guide the agile methodology today and constitute the core of the agile philosophy (Tables 3 and 4).

Although the agile methodology is widely employed in the IT sector, its use remains rare for urban or territorial planning, as their work processes are often far from the product development practices in the industry. However, due to the performance of this methodology, which is demonstrated by the software developers' ability to carry out complex developments quickly and successfully, there are initial references[2], including in the field of urban development. These comprise, first and foremost, projects related to smart cities[3], where developments are highly IT-centric (data management, IoT, city networks, governance, etc.), but also projects

[1] K. Beck et al., Manifesto for agile software development, 2001

[2] T. Gustavsson, Benefits of agile project management in a non-software development context: A literature review, 2016, Fifth International Scientific Conference on Project Management in the Baltic Countries

[3] V. Rocha et al., A Review on the Adoption of Agile Methods in the Technology Development for Smart Cities, 2019, II Workshop Brasileiro de Cidades Inteligentes

related to construction and real estate management. Although Lean[4] methodology is more common in this sector, the use of Scrum[5] is developing, most often through hybrid approaches[6,7]. Agile is now at the stage of experimentation in the urban planning sector, with initiatives that in particular seek to drive the experimentation of new solutions[8], which is particularly relevant to the development of nature-based solutions (NBS).

Table 3: The four key values of the Agile Manifesto (www.agile manifesto.org).

Individuals and interactions over processes and tools	The ability to communicate effectively and efficiently as a team is more valuable than the processes or tools put in place. Formalised tools or processes are not discouraged, but these are worthless if the team cannot communicate.
Working product over comprehensive documentation	Traditional product development processes required detailed documentation, before any software code was written. In an agile approach, the highest priority is getting the product to the users fast for their feedback.
Customer collaboration over contract negotiation	Product development should be user-focussed over product-focussed: communicate with users on their needs and challenges, instead of what you can offer them. This avoids mismatched expectations.
Responding to change over following a plan	The product roadmap is dynamic instead of static: a current plan can change based on new learnings from user feedback.

Table 4: Key principles of working 'agile' and how they can be achieved within the INTERLACE project.

	Agile principles	How can these be achieved in INTERLACE?
1	**Satisfy the user** End-user satisfaction through early and continuous product delivery: end-users are happier and more likely to remain interested when they receive results at regular intervals rather than waiting for a final product.	- Define and engage end-users at an early stage. - Work with user stories to capture user needs. - Provide end-users with access to an online comment interface, the INTERLACE product lab, for intermediate products. - Create a sense of product ownership amongst end-users by increasing feedback iterations or co-producing products
2	**Welcome changing requirements** Accommodate changing requirements throughout the process: the ability to avoid delays at a requested change in the process or instrument.	- Identify intermediary results that hold value to end- users - Ensure systematic validity with end-users - Reserve an amount of flexible resource planning to enable adaptive responses to changing end-user needs
3	**Deliver a working product frequently** From a couple of weeks to a couple of months, with preference to the shorter timescale.	Project researchers, experts and sometimes end-users themselves will decide on the number of valuable intermediary products that can be shared with end-users on a more regular basis.

[4] Lean is a methodology that aims to organise human activities to deliver more value while eliminating waste.

[5] Scrum is a structured framework for product development. Read more under 2.2 Examples of agile frameworks.

[6] A. Lalmi et al., Synergy between Traditional, Agile and Lean management approaches in construction projects: bibliometric analysis, 2022, Procedia Computer Science

[7] Y.Arefazar et al., Prioritising agile project management strategies as a change management tool in construction projects, 2022, International Journal of Construction Management

[8] R.M. Soe et al., Agile local governments: Experimentation before implementation, 2018, Government Information Quarterly

4	**Work together** Collaboration between end-users and researchers throughout the project: better decisions are made when the end-users and research teams are aligned.	- Plan regular flexible meetings based on concrete needs and intermediary results - Keep status discussions separate from research
5	**Build projects around motivated individuals** Support, trust, and motivate the people involved: motivated teams are more likely to deliver their best work.	- Project coordination focuses on removing team barriers for deliverable development and organisation - Avoid micromanaging teams and encourage decentralised decision-making
6	**Face-to-face conversation** Communication is more successful when development teams are co-located or talk to each other frequently.	Face to face interactions as well as effective digital meeting tools will be used to facilitate regular communication between teams (chat, video call platform, co-production platform).
7	**Focus on a working product** Useful deliverables are the primary measure of progress: delivering useful products to the end-user is the goal.	Products will be revised in a minimum of 3 stages (initial user stories - intermediate - final) by end-users.
8	**Promote sustainable development** Agile processes promote sustainable development. Donors, developers and users should be able to maintain a constant pace indefinitely.	A centralised coordination and overview of all products, user stories, product stages and user feedback rounds create conditions for a constant and efficient pace of product development. This is done via the INTERLACE Product Lab, or using tools such as Trello or Miro boards.
9	**Ensure technical excellence** Attention to technical detail and design enhances agility: the right skills and good design ensures the team can maintain the pace, constantly improve the deliverable, and sustain change.	Smart design and visualisation of products and results (e.g. simple visuals) ensures accessibility by other partners and stakeholders in the project, and guarantees exchange.
10	**Simplicity** Develop just enough to get the job done for right now. Maximise the amount of work not done.	WPs and related tasks and deliverables are formulated in user stories stating what is to be done, for who and why. Prioritising user stories transparently, or in cooperation with end-users, ensures that teams can stay focused on what really matters to end-users.
11	**Self-organising teams** Motivated team members who have decision-making power, take ownership, communicate regularly with other team members, and share ideas that deliver quality products.	- Create a product development team for each INTERLACE product. - INTERLACE teams decide on how to achieve planned deliverables and identify useful intermediary results for revision by end-users.
12	**Reflect and adjust** Regular reflections on how to be more effective: self-improvement, process improvement, advancing skills, and adapting the process accordingly.	- Organise regular feedback meetings in the teams to discuss potential for self-improvement of Agile approach. - WP1 provides tips and tricks and facilitates exchange on lessons learned between teams.

2.2 Examples of agile frameworks

In addition to the four values and key agile principles listed above, a large number of frameworks and supporting tools have been developed to implement agile workflows. They provide a set of clear guidelines, rules and roles for organising teams, workflows and end-user involvement, and often have their own specific agile jargon. Moreover, these frameworks usually play an important role in managing team workloads through workflow boards, monitoring progress and team capacity through agile dashboards, or organising workflow evaluation procedures.

Two such frameworks which are widely applied are Scrum and Kanban, quite often used as hybrids as well and referred to as Scrumban. While they apply the same agile principles, Kanban sets a continuous workflow with constant delivery, where the workload is managed by a Work-in-Progress (WIP) limit aimed at keeping focus and ensuring faster delivery. Scrum on the other hand uses Sprints, which are short, often weekly or bi-weekly periods, in which a number of tasks are carried out aimed at realising new functionalities that can be reviewed. Project teams can estimate their work capacity for a Sprint by attributing a weight to each task and keeping track of how much they can achieve in a Sprint, then adjust accordingly. Figure 2 illustrates a few key differences between the workflows of each framework.

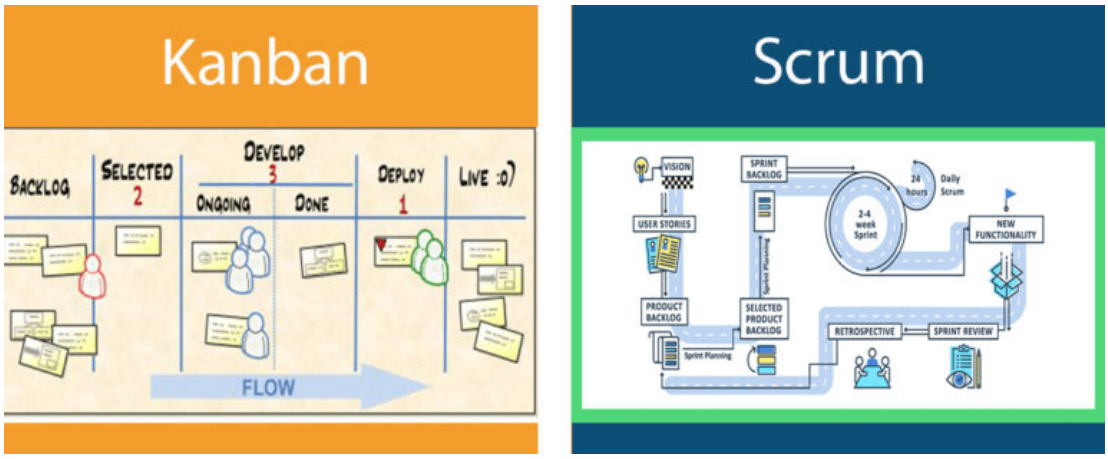


Figure 2: Key differences between the Kanban and Scrum framework.

(Source: https://mindmajix.com/scrum-vs-kanban)

Both agile frameworks provide a more structured approach going beyond the basic agile values and principles and show that there is much room to implement tailored agile frameworks. Yet projects should be cautious when mixing these frameworks with non-agile ones, with the risk of losing out the benefits (see also section 7.3 Fake agile: from being agile to doing agile).

2.3 Attitudes and behaviours

Understanding what “agile” is, what the values and principles are and what methodologies and tools can be used to implement it, will not bring agility to a project or team. An authentic agile approach can only occur when everyone involved in the project demonstrates and fosters certain behaviours and attitudes. Some key behaviours that support an agile mindset:

- **Be open-minded to change**: embrace change and the fact that the end-goals can be unknown. During project execution these goals will become clearer and you can adapt accordingly.
- **Be user-focussed**: put end users in the centre of conversation and capture product functionality from their perspective. Genuinely engage a diversity of stakeholders and end-users in the process, from all societal groups, including minorities, vulnerable populations and marginalised groups. Bring these users into the heart of decision-making, rather than simply informing and consulting them.
- **Understand shared goals**: look beyond the usual team (WP) objectives, and stay aware of the shared (value centred) goals and interlinkages in the project.
- **Create transparency**: share your development work with all project members and stakeholders. This will allow for smooth project execution and avoid over-burdening external stakeholders (when involved in testing or reviewing products).
- **Collaborate**: put team results above individual results. Actively seek to learn from and share knowledge, skills and experience with your international colleagues.
- **Use rich communication:** demonstrating willingness to listen, understand and take account of the different cultural, language and communications characteristics of others. Use accessible formats and language.
- **Embrace failure as well as success:** encourage openness in discussing failures so that valuable lessons can be learned and shared. Task leads and project managers must play a key role in 'leading by example' to create a culture in which admission of problems is normalised and welcomed.

3. The INTERLACE agile framework

3.1 Planning the agile framework

In the INTERLACE project, we are starting with teams that are unfamiliar with working agile. Also, to our knowledge, an agile process has never been applied in the context of an EU Research and Innovation project out of the IT sector, or for research projects in general. The agile team therefore chose to work with a phased approach, focussing first on informing project partners about agile, then fostering an agile mindset while co-creating an initial agile framework with the project teams, and finally starting to implement that framework and encouraging retrospectives.

Techniques from existing agile frameworks such as Kanban or Scrum are used to inspire or help teams according to their needs, yet a choice was made not to implement such frameworks. They are intended for teams that manage their whole workload in an agile environment while in a research project such as INTERLACE, team members usually do not work full time on one project. They would therefore have to manage part of their work using an advanced agile framework while managing the rest according to their institute or company's workflow management, which would be hardly feasible.

Our ambition is to achieve an agile transformation (see pathway of change in Figure 3) within the project teams that is based on an intrinsic motivation of individuals to adhere to core agile values and principles such as embracing changing user needs, co-constructed product visions and delivering more frequent intermediary versions. This transformation should be reflected through a noticeable mindset change and through new agile workflow management frameworks that are adapted to the nature of Research and Innovation projects. For more on this transformation and the pathway of change, please refer to section 6.1 Pathway of change.

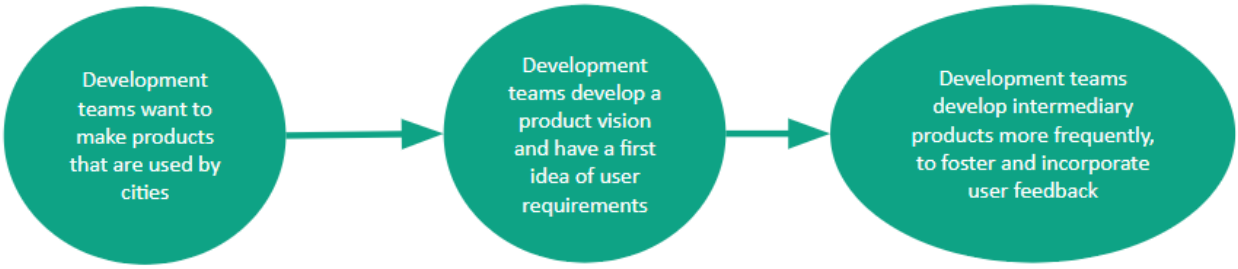


Figure 3: Pathway of change for the agile framework of the INTERLACE project.

3.2 Key components

In this section, we review the key components of the INTERLACE agile framework. The terms listed here will become an integral part of the INTERLACE approach.

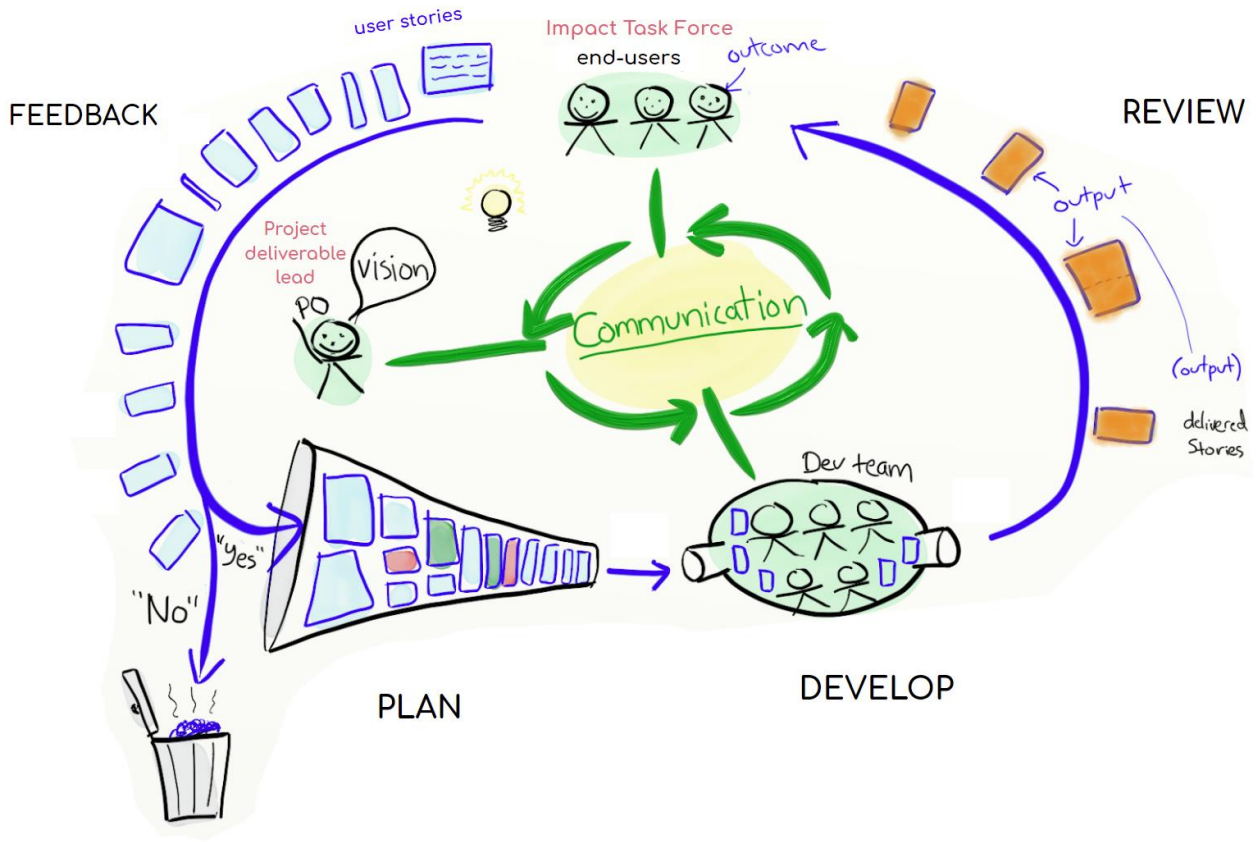


Figure 4: Agile product development cycle - simplified.
(Source: Agile Product Ownership in a nutshell by Henrik Kniberg, http://tinyurl.com/ponutshell)

3.2.1 Products

INTERLACE emphasises the creation of innovative approaches and products responding to pressing city and other stakeholder needs, tackling policy challenges from an integrated perspective, and utilising available knowledge and experiences. The goal is to produce very relevant products with high value, by using an iterative approach that prioritises and integrates user feedback to refine, test and optimise these products and can adapt to contextual changes and shifting user needs. In the INTERLACE project, 'products' are all the things that will be produced for cities and other targeted stakeholder groups: reports, guidelines, policy instruments, databases, online tools, activities, events, communication products, the project web-platform and more.

3.2.2 Key players

In the INTERLACE project, there are three key players involved in the agile workflow:

- **the Product Owner[9]:** has a clear vision of the product. Initially, all of the product details might not be well defined, but at least it is clear *why* the product is being developed, *what* challenge it is going to

[9] In an agile workflow, the product owner has many roles and responsibilities: defining the vision of the product, prioritising needs, managing the product backlog (the to-do list of the development team), overseeing development stages, anticipating user needs, acting as the primary liaison between users and the development team, evaluating product progress. Depending on the product and team size, the product owner is usually a separate role, not being part of the development team. In the INTERLACE project however, we are working in a 'hybrid system', where in most cases the product owner (the project deliverable lead) is part of the development team.

solve and for *whom*. The product owner is responsible for user management: he/she needs to know the users and understand their interests, what they need from the product and how they can make the product better. In INTERLACE, the **project deliverable leads** are the product owners.

- **the End-users:** the target group for which the product is being developed. Users will benefit and support the product, and are interested in reviewing and testing the product. Some users might even want to be part of the product development. In INTERLACE, the **Impact Task Force** is the joint group of all users engaged in product development. Sub-groups of the Impact Task Force will use and test specific products. Users can also be other researchers within the INTERLACE consortium.
- **the Development team:** in INTERLACE, the development team consists of the researchers, specialists and experts who will develop the product, based on the user requirements. An optimal team size consists of +/- 7 people.

The key element to ensure an effective workflow is continuous communication and interaction between these different players: product owners facilitate and support direct communication between users and the development team, assisted by the coordinators of the Impact Task Force.

Depending on the team size and complexity of the product, these roles can be fluid: it is possible that the INTERLACE project deliverable lead (the product owner), is a specialist who is also part of the development team. There might also be the case of a highly engaged user, who is interested to be part of the development team. It is however advisable to keep these different roles in mind when setting up an agile workflow.

3.2.3 User stories

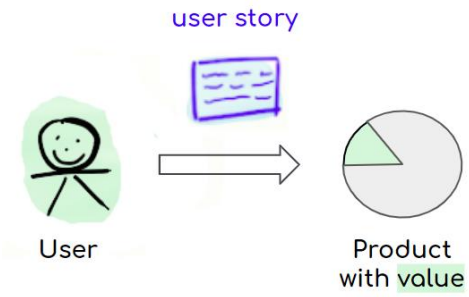
A user story is about the user: who the user is, what they want from the product, and why (their reasons, not yours).

When a product owner interacts with the end-users, both parties will express needs and ideas related to the product, referred to as '**user requirements**'. These user requirements are translated into concrete '**user stories**'.

What is a user story?

A user story is a short, simple description of the needs of an end-user. A user story is not a functional description, but describes a specific product feature from the user's perspective and outlines *who* the user is, *what* they want, and *why* they want it. A user story makes sure to put the end users in the centre of conversation and capture product functionality from their perspective. It delivers value to a user and aims to make the product better in some way. It also helps to communicate the motivations and ideas behind the products to other potential users and stakeholders that share similar needs – thereby helping to attract new insights and inputs into the process.

Read more on How to write user stories in the Agile Toolkit of this document.



Depending on the complexity of the product, there can be one single or multiple ‘user stories’ for one product. As the end goal is to maximise the value of the product for the end users, choices have to be made about: which user stories have the highest value and can be taken into account in product development, and which user stories are not feasible or less valuable. This “yes-no” decision process (including saying no to some stakeholder ideas and requests) is the most challenging part of an agile approach.

3.2.4 Product development cycle

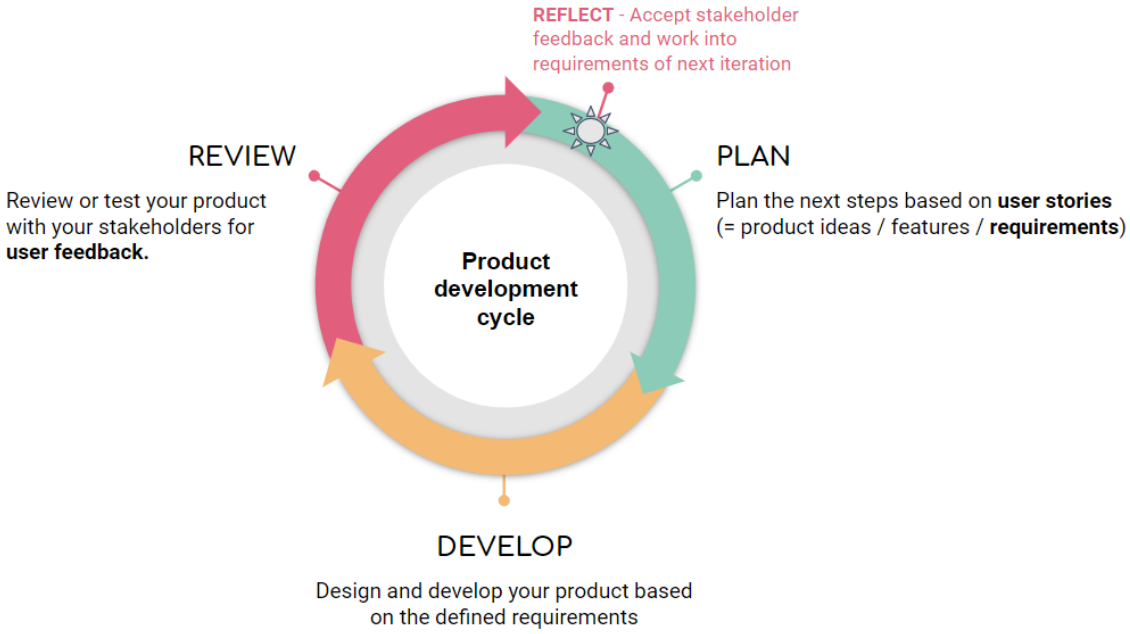
Once you know the user stories that will be taken into account for your product development, you can start **planning**: which user stories do we respond to first as a team? Which user stories have the highest priority or value to the product targeted user groups? Which user stories are easy to address, or which stories will need a greater time investment?

In the next step, the development team starts working on taking a first set of user stories into account in the development process (a subset of all the user requirements). This subset of user stories will lead to a first output, an **intermediary product**, which can be reviewed by stakeholders. During this **review process**, users will provide their feedback which leads to the creation of new user stories, and the cycle can start over again.

The above is a simplified version of an agile workflow, which has a few extra dimensions when implementing Scrum or Kanban, two popular agile frameworks for product development. This guidance document will integrate certain aspects of these popular methods, like the creation of user stories, integrating user feedback and communication.

The proposed INTERLACE-product development cycle consists of three steps: ‘plan’, ‘develop’ and ‘review’. This three-step cycle will be the same for all products developed during the project:

1	PLAN	Plan the next steps in the development process, based on user stories (= ideas / features / requirements). Define the requirements for the current iteration, based on stakeholder feedback.
2	DEVELOP	Design and develop your product or prototype based on the defined requirements.
3	REVIEW	Review or test your product or prototype with users.

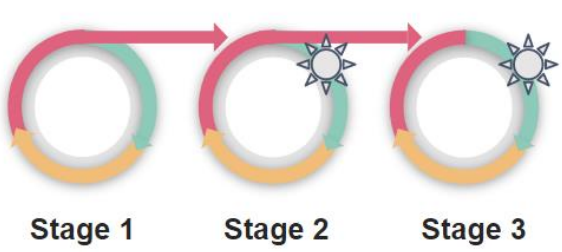


At the end of each cycle and at the start of the next planning phase, the development team builds in a moment to reflect: this is where user feedback is accepted and worked into the requirements of the next iteration.

3.2.5 Product development stages

The suggested product development cycle outlined above will not only be performed once, but several times throughout the project. We refer to these iterations as 'development stages or iterations'. The number of iterations or stages in the agile process can vary depending on the complexity or requirements of the product, timelines, availability of users (for feedback/testing), etc.

Product development stages



A single stage or iteration represents a relatively short time frame during which the development team works on a set of (the most important) user stories. The end goal of each development stage is to deliver an intermediary version of the product, ready for users to test or review. Each intermediary product needs to hold

a certain value for a user (this is why each stage is based on a set of user stories). Think of these intermediary versions as **minimum viable products** or solutions.
Working with stages and intermediary versions has enormous benefits: it is a lot easier to make changes to an early draft than to a nearly finalised product. Potential problems or necessary changes are identified at an earlier stage before you spend all your time and budget on finishing the 'perfect' product. Or, put otherwise: 'fail fast to fix early'.

3.2.6 Communication

> The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

Good communication is key to the success of any type of project. In an agile approach, however, the entire methodology is built on communication.

A more **casual and direct way of communication**, emphasising simplicity, directness and face-to-face conversations is encouraged over a more traditional and formal communication style. This allows product development teams to work more closely with the different users and optimise co-production and co-creation processes.

Good communication also **manages user expectations**: if development teams involve users while defining the product vision, or creating user stories, the scope will be defined more clearly. Joint decisions can be made on what is most important to the user and what is feasible for the team/project. This makes sure everyone is on the same page and avoids disappointments at a later stage.

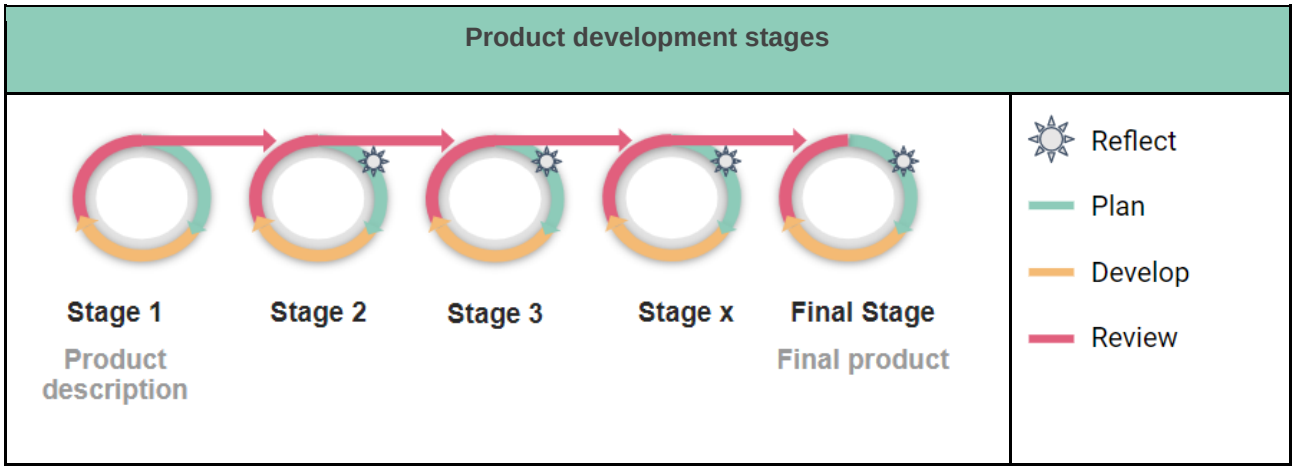
The communication process between the development team and the users should be defined at the start of the development process and coordinated by the product deliverable lead. In INTERLACE, the Impact Task Force coordinator matches the product development teams with the ITF sub-groups and helps facilitate communication between both parties.

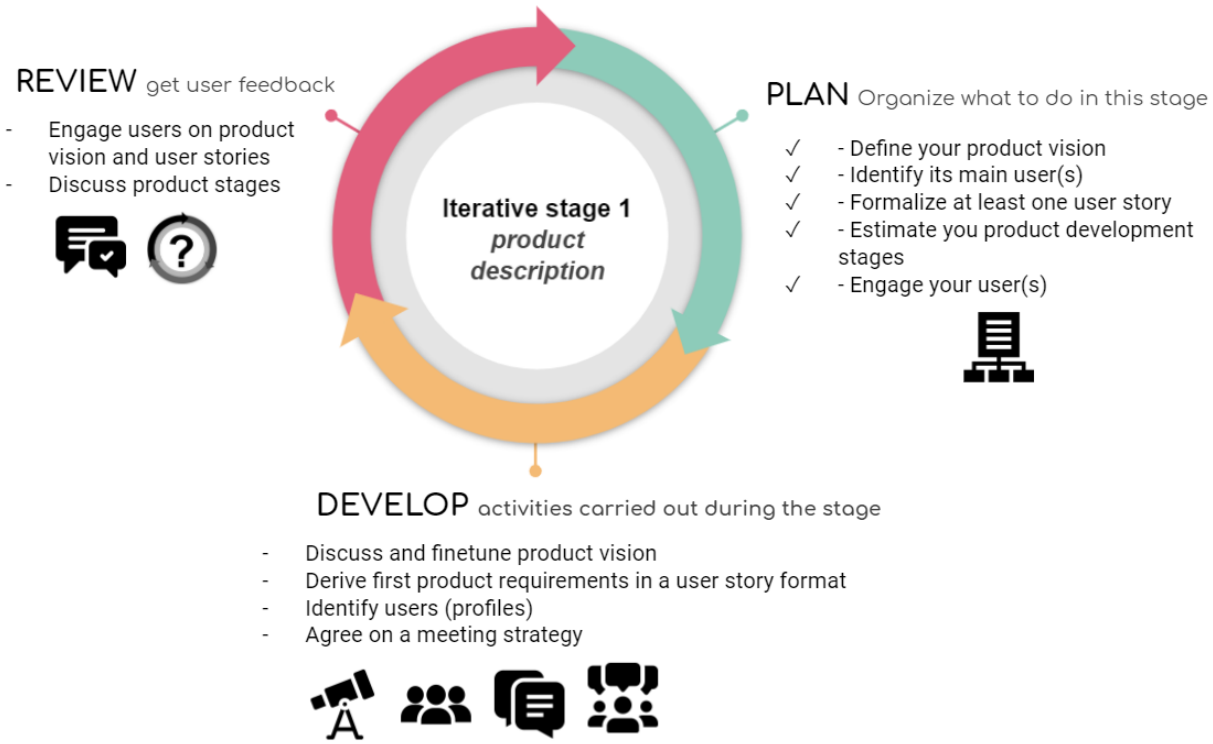
4. Getting started

This section helps you to get started with your agile workflow: the different product development stages are broken down into detailed steps. We provide you with a detailed step by step approach to complete the first stage, which is the product description. From stage 2 onwards, a more generic approach is presented. More detailed 'tools' for these steps are outlined in the subsequent chapter - the Agile Toolkit. Consult this toolkit for more examples, tips, tricks and resources. Your Agile mentor is also available to assist you through all these steps.

4.1 Stage 1: Product description

Any product development workflow in the INTERLACE project starts with completing a **product description stage**. With this first stage, we want to ensure that users become part of the discussion early on. The product vision and user stories are tools to support that discussion. At the end of this first stage, you will end up with a user validated product vision and a few user stories to start working on during the next product development stages. After each stage, more user stories might be added or discarded depending on user feedback, and your final product vision might evolve as a result.





PLAN	
	At the end of this stage the development team will have: • a user validated product vision • at least one user story • an estimation of the number of stages your product will likely go trough • a meeting strategy to communicate within your development team • identified end-user(s) to engage in the process

DEVELOP	
	DISCUSS AND FINE-TUNE THE PRODUCT VISION **WHAT?** The product vision describes what the end product should look like. It clearly states what problems the product aims to resolve or what ambitions it aims to achieve. **WHY?** A clear product vision helps to **inspire** and motivate people, whether they are users or members of the development team. It supports the **discussion with users** on product requirements, leading to a list of user stories. It will also help to **prioritise** which features and requirements are essential for the product and those which are not. **HOW?** The product vision should be concise, something that could be used for an elevator pitch. A commonly used template is as follows: *"For [our targeted users], who [user's need], the [product] is a [product description] that [specific benefits and added value]. Unlike [current methods, existing products, status quo], our product [main differentiators]."*

	The project deliverable lead serves as the product owner and should take initiative to discuss a product vision for their respective deliverable(s), together with the development team. Fill in your product vision in the Agile Datasheet. *More about product visions (+ examples)*
	**IDENTIFY USERS (PROFILES)** **WHAT?** With the first version of your product vision, you probably already have some potential users in mind. These might be people within the INTERLACE project (e.g. a task lead that will build upon your product, knowledge brokers, etc.) or stakeholder groups outside of the project (any kind of stakeholder at local or global levels). If you have no specific user names, you can also describe a user profile. We have created the INTERLACE Impact Task Force to facilitate user interaction and avoid uncoordinated communication with users. **WHY?** Engage users early on in the product development. **HOW?** To identify and connect with users we suggest the following approach: • **describe user profile** (profession, expertise, location, ...) in the Agile Datasheet, as a requirement for the Impact Task Force to identify a user matching with this description • **if you know a user who is part of the project consortium**: you can directly add users in the Agile Datasheet. Alternatively project partners are encouraged to pro-actively sign up as users of products that they would like to follow-up or be involved in. • **if you know a user who is external to the project consortium** you can suggest usernames trough this Google Form, which will then be added to the ITF To summarise, the ITF coordinator will match you with external users through the Impact Task Force to coordinate communication with them. However, once the match is made, it is up to the project deliverable lead and the development team to keep in touch with users!
	**DERIVE FIRST PRODUCT REQUIREMENTS IN A USER STORY FORMAT** **WHAT?** A user story is a short, simple description of what a user needs. It describes a specific product feature or requirement from the user's perspective and helps to move closer towards your product vision. **WHY?** User stories are a collaborative tool to engage in a conversation with users. By involving the user in writing them, product relevance is improved. **HOW?** There are many ways of writing user stories, but a popular format identifies who the **user** is, what they **need**, and for what **purpose** (the why). Based on the INTERLACE proposal and discussions with the development team, an initial list of user stories can be made, which can help future discussions with users. *More about user stories (+examples)*.

AGREE ON A MEETING STRATEGY

WHAT? The meeting strategy is a formal or informal agreement with your development team on how you plan to communicate over the course of the product development.

WHY? Communication is key in an agile workflow. Since development teams are spread over two continents and due to the COVID 19 situation, it is even more important to take some time to agree on how to communicate effectively and efficiently.

When preparing your development team meeting strategy we strongly recommend:

- planning **regular, frequent interactions** to allow quick exchanges on successes and problems (e.g. 15 min **Stand-up meetings**)
- planning **short reflection meetings**, where user feedback is integrated and the user stories for the next iterative stage are prioritised
- reserving some time to **evaluate your agile workflow**, discarding what doesn't work for you, and adapting the workflow to your requirements
- agreeing on how you will arrange **daily communication** among the team in between stand-up meetings (e.g. by using Slack, WhatsApp, a Trello board, etc.)

HOW? In this guidance document you will find a suggested meeting strategy. It's up to the development teams to decide what works best for them.

REVIEW

ENGAGE USERS IN DEVELOPING A PRODUCT VISION AND USER STORIES

WHAT? It is important to validate user stories with your users and avoid too much speculation or 'guesswork'.

WHY? As a project deliverable lead or development team you might have excellent ideas of what a product should look like, but when it comes to creating impact with users it is important to prioritise user needs first.

HOW? This discussion and validation can occur through a meeting or workshop, but can also be done using alternative tools that are less time consuming such as a Google form, a survey, a Mentimeter presentation, a Mural or Miro workspace, a simple email, a phone call, etc. Once you've gone through your first discussions with users, update your user stories in the Agile Datasheet.

DISCUSS PRODUCT DEVELOPMENT STAGES

WHAT? Each product goes through a number of stages. The number of these stages depends on two important and interdependent aspects:

- the availability and interest of users to engage, review intermediary products
- the capacity and resources of your development team to provide intermediary products that hold value to your users

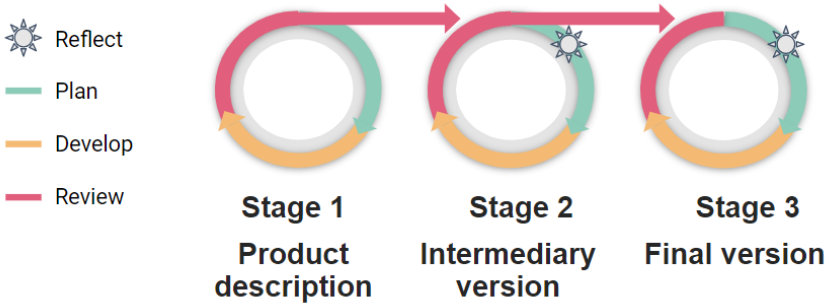
		Hence the importance to discuss with users what could be intermediary products that hold sufficient value for them to engage upon, given their time availability. **HOW?** Ideally you can discuss this with your users when you engage them about your product vision (see previous step). Try to identify which intermediary products would be interesting for them, for which they could allocate time to review or discuss. Focus on what these products should be able to achieve. We suggest not trying to plan all the stages ahead, but just focus on the next ones. More about product development stages + examples

4.2 From Stage 2 through the final stage

First of all: congrats! If you read this far, it probably means you have successfully completed your first agile workflow stage!

During the course of the INTERLACE project we propose that each agile product development process goes through a minimum of three stages: the product description stage, some kind of intermediary product version and a final version. That being said, we strongly encourage you to think of more potentially useful intermediary versions to engage with your users if possible - ensuring even greater relevance and overall usefulness of the finished product.

For each stage after the production description stage, we advise a reflection meeting followed by a planning, developing and reviewing cycle (described below).



Minimal product development stages in INTERLACE.

REFLECT		After each stage, the project deliverable lead should organise a short reflection meeting with the development team to incorporate user feedback and adapt user stories accordingly. New users might also be identified during the process and various stages. TIPS: • You can organise this reflection meeting back-to-back with a user review meeting • You can integrate a small reflection with your team on how the agile process went: What worked well? What did not work so well in the process? What can be improved in the next stage?
PLAN		Once you have integrated user feedback, adapted or added new user stories in the Agile Datasheet, you can proceed with **selecting user stories** to tackle during the upcoming stage. Most likely, you will have to **break down** user stories that are too big and **prioritise** which ones to do first, perhaps even discard some that are not feasible. This is a critical step to manage your work pressure! *Good to know: To start the agile workflow in INTERLACE, we chose a minimalistic approach and did not include ways to monitor your own team capacity (velocity) and/or manage prioritisation. However, there are many methods to manage these in an agile workflow.* *Want to know more? Read about scrum poker, kanban WIP limits, team velocity. Think one of these methods might be beneficial to your team? Your agile mentor can help you get started!*
DEVELOP		Design and develop your product or draft based on the previously selected user stories and underlying feature requirements. Remember your stand-up meetings!
REVIEW		Review or test your intermediary product with your users. This does not per se require a meeting. You can think about using a questionnaire in Google form, Mentimeter presentation, simple email, shared document (e.g. Google doc), etc. Also think about the format in which you will share your product with users. Make sure to collect requests for new or adapted features, manage user expectations (what can you realistically achieve in the next stage with the resources available to you), discuss how the next intermediary product should look like to facilitate the next review. TIP: You can choose to prioritise the user stories you will tackle for your next stage together with your users. This is a good way to manage expectations together and increase transparency.

5. The Agile Toolkit

The Agile Toolkit contains useful information to help you organise your product development workflow. It should be noted that there is no such thing as a ready-to-use agile tool or framework that applies to your specific needs - so feel free to adapt each of these as you wish (and share your ideas with other product leaders). **The agile team is here to help you in this process.**

5.1 How to write a product vision

The product vision is initially set by the product owner (in the case of INTERLACE, usually the project deliverable lead), together with the development team. It could include the WP (co-)lead as well if desired. This draft product vision will then be discussed with users to get their views and feedback. Hence the final product vision will evolve over the course of the project.

The product vision should be concise, something that could be used for an elevator pitch. It should clearly evoke the added value of the product for the user. A commonly used template is as follows:

> *For [our targeted users], who [user's need], the [product] is a [product description] that [specific benefits and added value]. Unlike [current methods, existing products, status quo], our product [main differentiators].*

At the end of the product description stage you should end up with your first user validated product vision. This will greatly help you to prioritise user stories to be developed in each stage, keep transparency about user expectations while managing a realistic workflow for your team.

Example: Product vision for the agile guidance living document by WP1

FOR	*experts participating in research and innovation projects*
WHO	*want to increase product relevance to potential users*
THE *(AGILE GUIDANCE)*	*is a living document accessible to all project partners*
THAT	*supports and inspires work packages to develop an agile workflow for their products*
UNLIKE	*mainstream agile guidance for software or other unrelated industries and activities found online*
OUR PRODUCT	*will be a tailored guidance relevant to the specific needs and operational contexts which are characteristic of multidisciplinary research projects.*

You can add your product visions in the Agile Datasheet.

Tips and tricks

- Your product vision is probably already described in the project proposal. It is just a matter of reformulating it in an easy to understand format for users.
- Your product vision will very likely evolve during the course of the project.

Resources

- https://www.productplan.com/glossary/product-vision/
- How to Write Product Vision for Scrum Project? Template and Example What is a Vision Statement?

5.2 How to write user stories

A user story is a short, simple description of the need of an end user or stakeholder. It describes a specific product feature or requirement from the user's perspective and helps move closer towards your product vision. User stories are a collaborative tool to engage in a conversation with users. By involving the user in writing them, product relevance is improved. At the beginning of the project, stories are likely to change quickly or not be completely known. Users do not know all their needs in advance, and new ones may arise from evolving contexts or new insights.

There are many ways of writing user stories, but a popular format identifies **who** the user is, **what** they need, and for what purpose (the **why**):

> "As a _*[description of user]*, I need a _*[functionality]* in order to _*[benefit]*".

Define your user stories at a level where they can be done within one product stage (iteration). In general they should be very concise. Stories that require too much time to complete should very likely be broken down in smaller ones. Small, manageable user stories ensure that your workflow will be steady and continuous over time.

You can add 'done requirements' (also referred to as 'definition of done') to your story to make it more concrete. These are criteria that should be fulfilled to consider the user story as achieved. For example for this guidance document the 'done requirements' could be: 'A Google document is accessible to all project partners on the INTERLACE document repository and its publication has been announced via Slack and email'.

You can add your user stories in the Agile Datasheet.

Examples

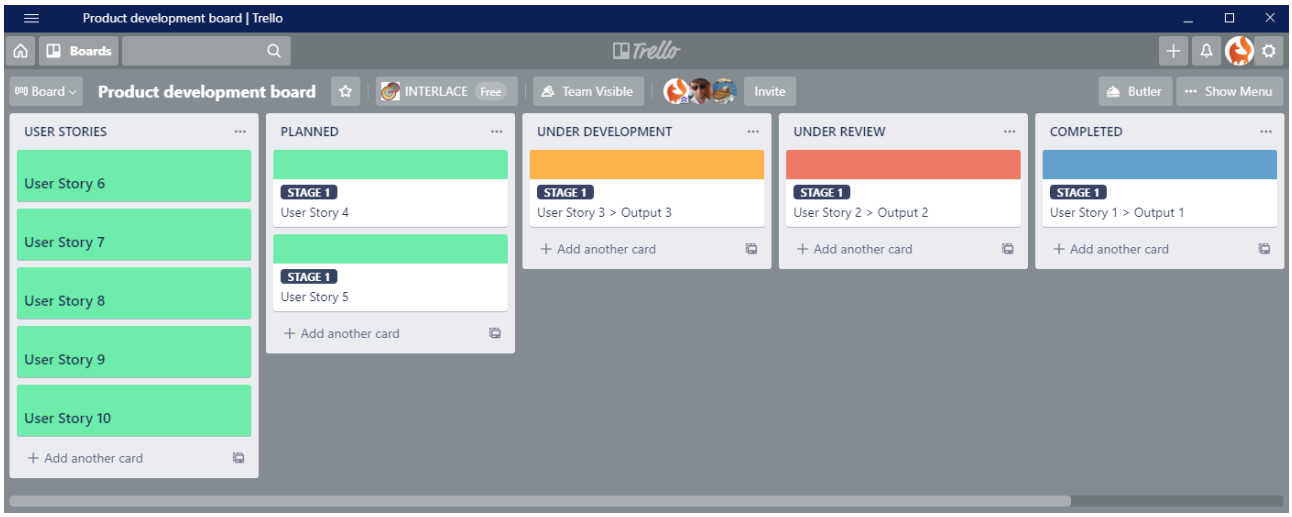
- *As a student, I need an Interlace distance learning course in order to learn more on urban nature-based solution planning.*
- *As the developer of the "Commitment on Urban Ecosystem Restoration" I need a live count of the number of cities and city networks who have joined, in order to inspire more signees to join*

Tips and tricks

- Use paper cards: writing stories on paper cards facilitates collaboration and allows for easy grouping to check consistency, completeness and dependencies.
- The output of the practice is not the card, it is the **shared understanding**. The card serves as a reminder to somebody able to tell the story.
- A user story card is not forever: both the card and the conversation represent the best that we know of at this point, it is **not permanent**.
- Refine stories: break larger stories into smaller, detailed stories until they are ready: clear, feasible, and testable.

- Create stories collaboratively: user stories are a collaboration tool and should be embedded in a conversation. The project deliverable lead and the development team should discuss the stories together, to reduce overhead and accelerate the development.
- Make your stories visible and easily accessible, this boosts collaboration, transparency and easier story management.
- You can use software tools to manage your user stories and move them through the different stages of your workflow. The Agile team can set up a Trello board for you for this purpose.

Figure 5: Example of a Trello board to track your product development cycle and stages.

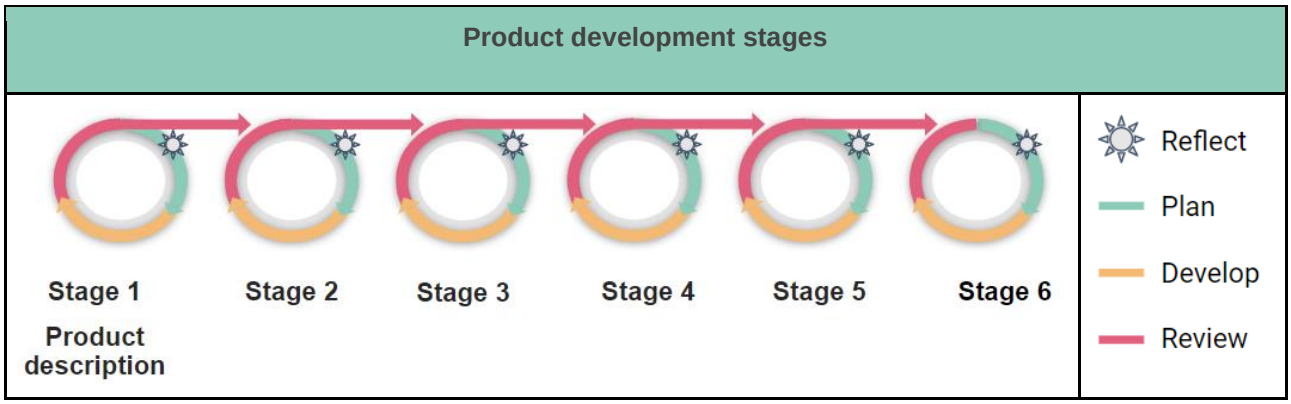


Resources

- More about user stories
- More about the definition of done
- 10 tips for writing good user stories
- Interesting read: The Card is not the User Story

5.3 How to define your product development stages

A big chunk of work is divided into a number of stages or iterations. During each stage, a number of user stories are tackled by the development team, with each contributing to shaping the final product. The number of user stories tackled during a stage depends on your team's velocity, i.e. the resources and skills available in the team to achieve them within a given stage. After the completion of one stage, an intermediary product is reviewed by a group of users from the Impact Task Force. Based on the collected feedback, existing or new user stories can be selected to be addressed in the next stage. This can be repeated until the completion of the product, in accordance with the product vision.



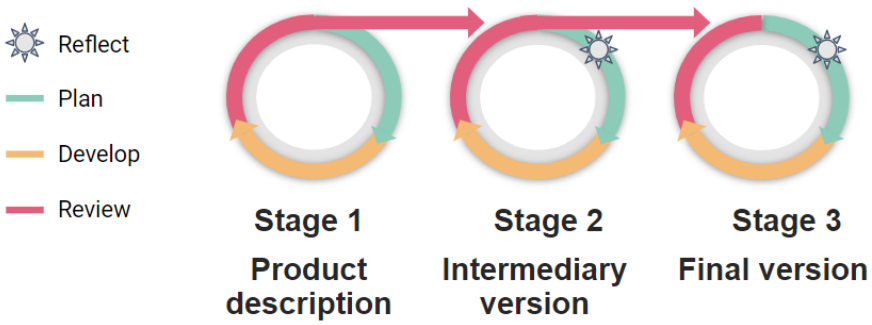
The role of users (i.e. the Impact Task Force sub-group selected for your product) is central, and therefore their availability and willingness to participate in reviewing intermediary products is essential to determine an appropriate number of product stages. During the first stage - the product description stage - it is therefore good to discuss:

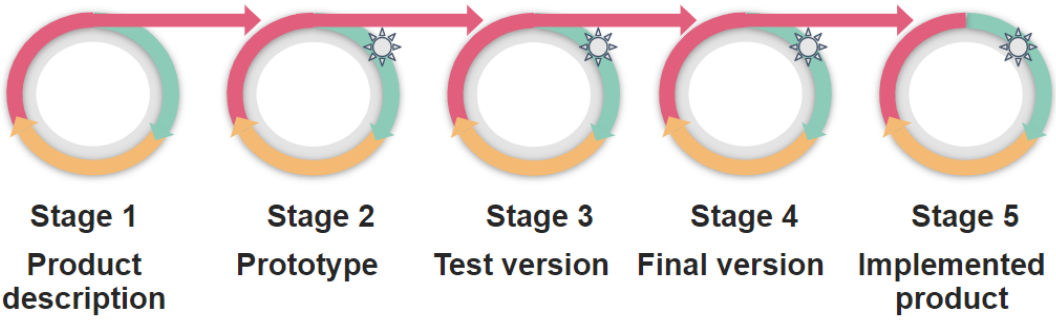
- the availability and interest of users to engage and review intermediary products
- the capacity and resources of your development team to provide intermediary products that hold value to your users
- the total time frame and project deadlines you have to operate within

Depending on the above and the complexity of the product (including user requirements), the number of stages can vary a lot. It is the responsibility of the development team to define the number of stages and what each intermediary product will look like. As a rule of thumb, the more iterations, the better, but working with three stages is seen as being an absolute minimum for the INTERLACE project.

Examples

- Examples of product development stages:

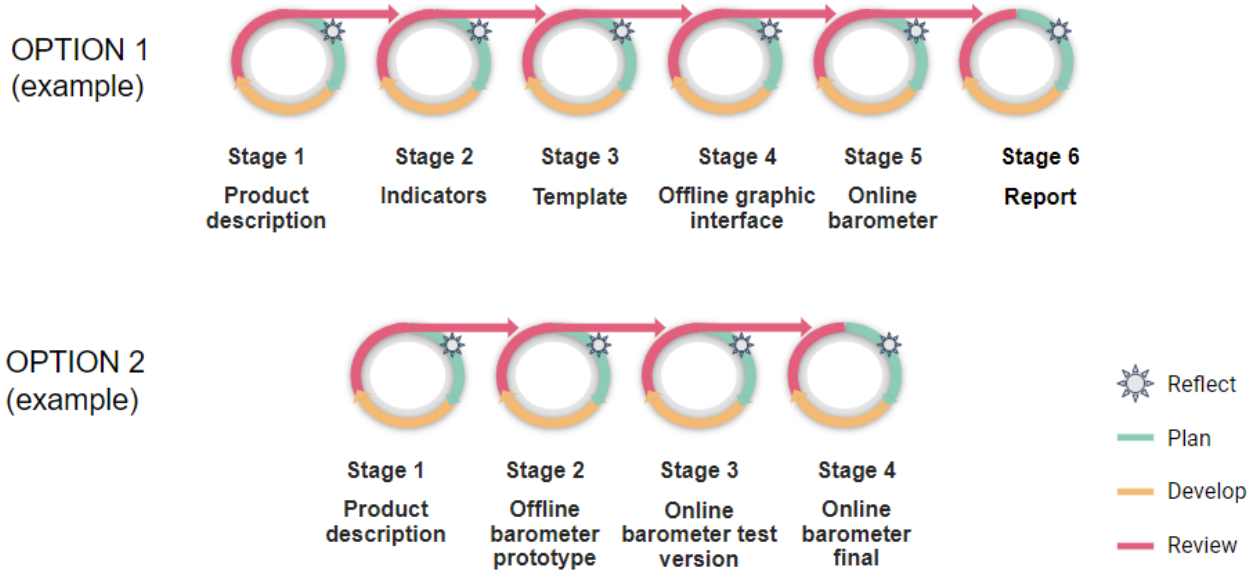




- Example of potential product development stages for project deliverable 4.4 - Summary note of CNA engagement with the Barometer.

Product to be developed: **City Network Accelerator Barometer**

Product vision: the City Network Accelerator Barometer is an information and assessment instrument to depict the state of City Network Accelerator engagement in a visually appealing style for the members of the regional and global city networks, who need to optimise effectiveness and engagement moving forward in the project. Unlike other barometers, based on a set of predefined project indicators, the users will have a say in which indicators are shown and in what format.



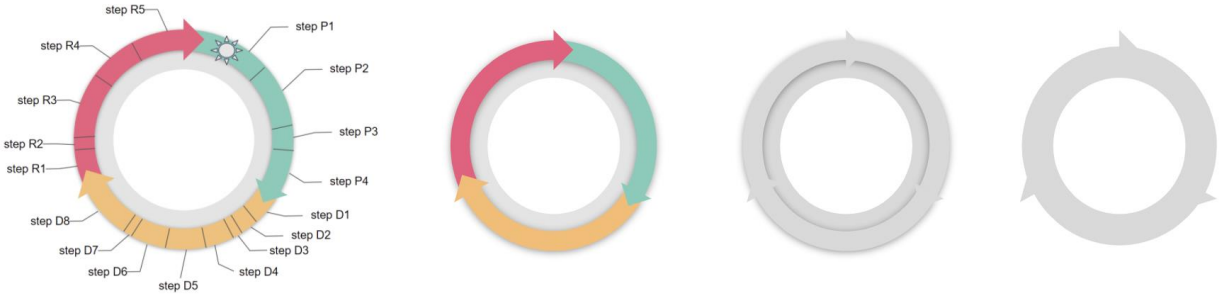
Stages - examples only:

- **Option 1**: every stage includes a review by stakeholders (defining the indicators, agreeing on the template,...), and includes user feedback in the next stage. This approach is also partially linear.
- **Option 2**: A true agile approach would be to immediately create a prototype of the barometer, after collecting (and prioritising) user stories and agreeing on the product description. The prototype could include for example only 1-2 key indicators, and a basic graphic interface. This allows for users to immediately interact and see an intermediary version of the barometer. This basic prototype is then further developed (adding on more functionality based on user feedback) in every stage.

Tips and tricks

- When starting with an Agile approach it is sometimes difficult to estimate how long a stage should take. In an agile framework, a stage is sometimes called a 'sprint' and typically lasts no longer than a month. This can act as a rule of thumb although it should obviously be adapted to the amount of user stories you plan to tackle.
- A common pitfall is to spend too much time estimating the total number of stages your product will go through. Your major focus should always be on your next stage(s).

Planning your stages...



Next stage
> detailed planification

Following stages
> general planification

Resources

- Read more about the benefits of a longer or shorter stage time length in an agile framework.
- Read more on product roadmaps, and the pros and cons of adding dates to them: https://www.romanpichler.com/blog/should-product-roadmaps-have-dates/

5.4 Setting up a meeting strategy for your team

To stimulate interaction and communication, popular agile frameworks use a series of meeting types. For the INTERLACE project, the following (adapted) **meeting types** are suggested:

Table 5: Overview of meeting types in the INTERLACE project.

Meeting type	Participants (who?)	Content (what?)	Format
Stand-up meetings	Product development team	Discuss what's done, what's planned, what's stuck (problems). Link to printable agenda	Regular meetings: flexible, short - 15 min max - high frequency (concept of Daily Scrum stand-up meeting)
Reflection meetings 	Project deliverable lead initiates the meeting with the product development team	Evaluation meeting + user feedback is accepted and worked into the product requirements of the next stage.	After each stage (iteration).
Impact Task Force meetings	Sub-groups of users and stakeholders from the Impact Task Force	Users discuss, test and validate products after each stage.	Frequency depends on # of stages.
WP meetings	Different development teams	Discuss and solve emerging problems of the agile process, share lessons learned, improve and adapt your workflow to your needs.	Dedicated time during WP meetings (+-15mn)

The **Meeting strategy** for a development team and its relevant users is made up of a selection of these meeting types and involves deciding on an appropriate frequency. Each development team (or Work Package) is responsible for deciding on its own meeting strategy and sticking to it. The meeting strategy can be adjusted to fit the team's needs.

Tips and tricks

- Set a fix day in the week to have your stand-up meeting, and book it in everyone's calendar. It saves you on the hassle of doodles.
- Not everyone from your development team will be there each time for the stand-up meeting. That is fine. However it should not happen too often, or you will end up communicating in parallel.

Resources

- More about stand-up meetings
- More about evaluation meetings, or retrospectives

Printable stand up agenda

STAND UP AGENDA 🕓 15’
1. Coffee, tea, welcome,...
2. New user stories added?
3. What’s done since the last stand-up?
4. What will I work on until the next stand-up?
5. Any problems? Help needed?

Meeting ‘etiquette’

- A facilitator leads the agenda and checks time. 15 minutes should really be a maximum.
- Meeting goes in rounds, one person at a time
- Just facts and updates, no discussions about content. If something requires further discussion (and it will happen a lot!) then schedule a separate meeting with those involved
- Agree on a sign to signal speakers they are taking too much time

5.5 Co-production platform and Interlace Hub

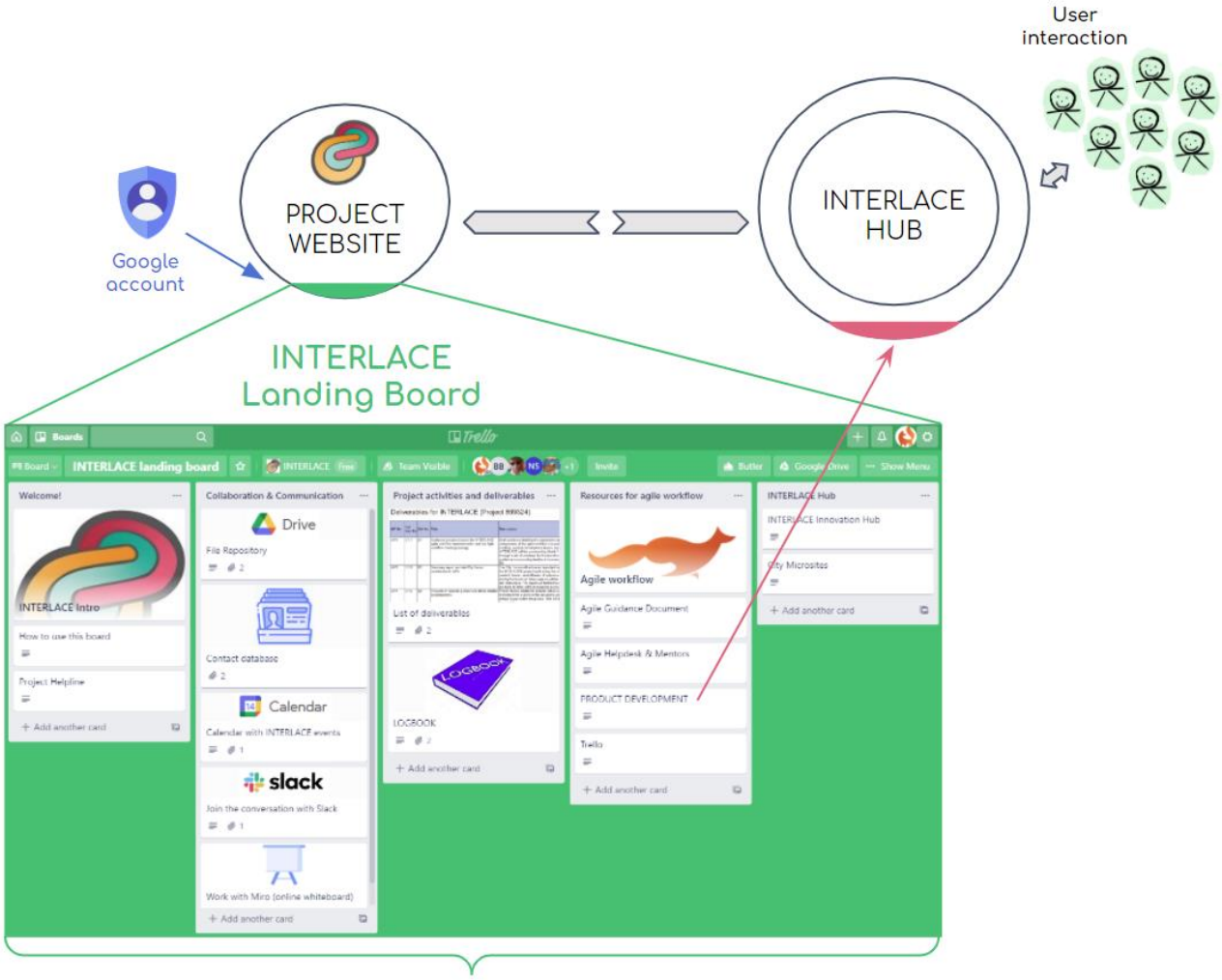
To create a shared vision and understanding, everyone needs to continuously be on the same page. One way to achieve this is to create full transparency in the workflow: everyone in the project has access to the information they need in an easy, convenient and accessible way.

The INTERLACE **co-production platform** is hosted on the project website. This is where the online tools and resources of the agile workflow are made available – for example, file sharing, task management, events calendar, messaging and more. The purpose of the co-production platform is to provide a ‘virtual workspace’ supporting each of the development stages. It’s where the agile workflow process is managed.

The INTERLACE **Hub** functions as the ‘shop window’ of the project. It is where the products of the agile workflow process are packaged, promoted and made available to users and the wider nature-based solutions community. It is also where the various ‘user stories’ will be told and brought to life through blogs, articles, videos and other media; and where the intermediary stages of product development can be showcased for the purpose of engaging wider audiences in testing and feedback.

The Hub is in development at time of writing (WP5) and will be initially launched at the end of February. Following this initial launch, all project partners will be invited to develop a clear vision for the Hub and embark on creating the user stories that will guide its development journey, guided and inspired by the agile approach.

The figure hereunder summarises how we envision the INTERLACE co-production platform and its link with different tools and components of the project.



Entry point to:

- **Google Shared Drive**: online storage and sharing of documents
- **Google Docs and Sheets**: work in the same document at the same time
- **Google Calendar**: overview of INTERLACE meetings
- **Slack**: communication workspace (channels per wp)
- **Miro boards**: online whiteboards
- LOGBOOK: Google Sheet to streamline input by cities
- **Agile resources**: access to the agile guidance document and more
- **Product development overview**: the project will use an Agile Datasheet for work visualisation, interlinkages and easy reporting, linked to the Interlace Innovation Hub for user interaction.

Figure 6: Elements of the INTERLACE co-production platform.

5.6 Agile mentors

The agile team in the INTERLACE project consists of four people (see table below). On popular request we have implemented a 'mentor system': the agile mentor will support the implementation of the agile workflow.

There is a mentor per Work Package (WP). This allows the mentor to better understand the work package and provide more tailored advice concerning the products that are being developed under this work package. Each WP has a first contact and backup contact for specific agile requests. The different mentors will meet on a regular basis to exchange ideas and lessons learned from their respective work packages.

Table 6: INTERLACE Agile mentors.

Agile mentors	First contact		**Backup** (cc the backup in your communication!)
WP2		Julie Callebaut (INBO)	Nicolas Salmon
WP3		Dieter Mortelmans (INBO)	Sander Jacobs
WP4		Nicolas Salmon (YES Innovation)	Julie Callebaut
WP5		Sander Jacobs (INBO)	Dieter Mortelmans

Contact

The best way to get in touch with the agile team is via the Slack Channel #agile-workflow-questions. Slack is a communication platform where you can chat one-on-one or in chat rooms (channels). Benedict Bueb is the Slack manager for the INTERLACE project. You can contact him in case you have any questions.

6. Monitoring and evaluation

6.1 Pathway of change

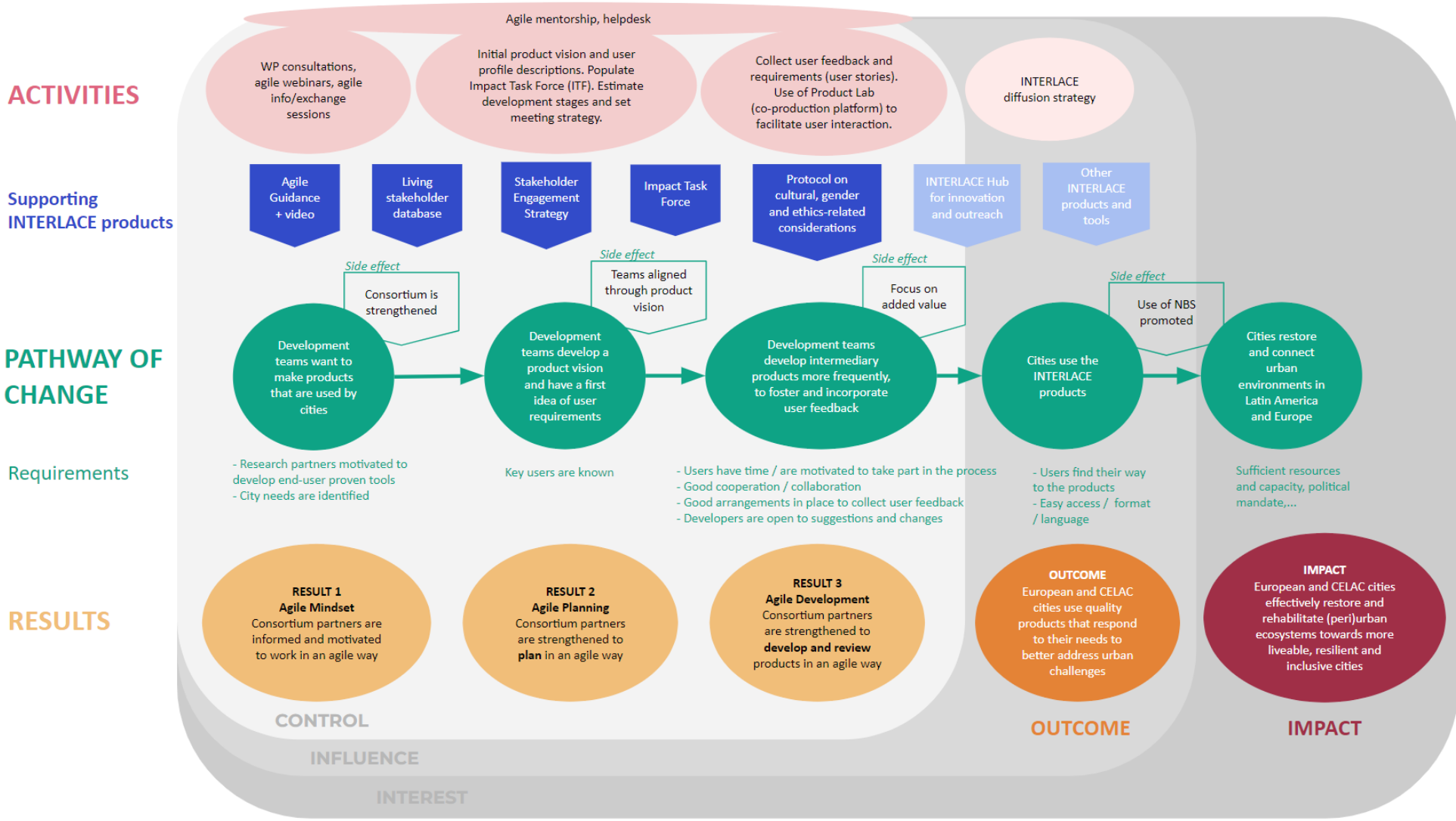
To better track the agile transformation the project aims to achieve and to improve the impact assessment, a pathway of change was developed (see green bubbles in Figure 7). This pathway of change is a logical chain explaining the intended path to impact, by breaking it down into a step-by-step process. In complex environments, this simplified narrative highlights the essence, and can inform the development of a monitoring and evaluation plan. It can be used to define indicators and to map or identify priorities for collecting data related to these indicators.

The pathway of change for the agile approach in the INTERLACE project is used for a careful review of the existing indicators initially proposed to monitor the agile workflow. These initial indicators were evaluated based on their measurability and relevance related to the results (outputs), outcome and impact as formulated in the pathway of change.

Figure 7 represents the pathway of change for the agile approach in the INTERLACE project, including related project activities, supporting elements and requirements. A brief explanation of the different elements is given below:

- **Pathway of change:** logical steps needed for an agile transformation in the project (main focus of the figure).
- **Requirements:** the requirements or assumptions for each step of the pathway of change. If these conditions are not met, it will be difficult to go through the change process.
- **Side-effects:** not the main goal of the pathway of change, but (un)expected results due to the project activities. These can be positive or negative/not-desired effects. Figure 7 is mentioning a few positive side-effects.
- **Activities:** project activities related to implementing an agile workflow in INTERLACE and related to each step of the pathway of change.
- **Supporting products:** specific INTERLACE products which support the different activities and the pathway of change. Products of WP1 ‘Foundations for Inclusive Collaboration’ are presented in dark blue. Other INTERLACE products and tools are presented in light blue.
- **Results** (outputs): results generated by the activities. Different activities (and products) are put in place to create an agile mindset within the consortium, to plan and develop products in an agile way.
- **Outcome:** expected effects if an agile workflow is implemented.
- **Impact:** expected long-term effects.
- **Sphere of interest, influence, control:** these three levels in the figure indicate what is inside and rather outside of the sphere of control of the project/WP1.

Figure 7: Pathway of Change - INTERLACE Agile approach.



6.2 Indicators

During the first phase of the project, a series of indicators was selected to monitor the agile workflow, evaluating the agile engagement of the consortium, agile implementation and the added value of an agile approach in the project.[10]

Based on the new pathway of change, the initial set of indicators will be re-evaluated and modified, to allow for improved monitoring of the results (outputs): the agile mindset, agile planning and agile development. An additional set of indicators will be proposed to monitor the outcome.

The new agile M&E plan envisions a more participatory approach, with a joint vision supported by all partners to make the impact monitoring and learning successful. All project partners need to agree and understand the pathway of change, proposed indicators and suggested tools, including the level and frequency of reporting. Commitment and time investment of all partners will be necessary, as well as discussing our M&E ambition as a consortium. The agile M&E plan also forms part of the overall project M&E plan. Therefore it is crucial we take the necessary steps to align the M&E action plan for the coming years with all partners and the coordination team.

6.3 Monitoring & Evaluation Tools

During the first project phase, the following Monitoring & Evaluation (M&E) tools have been used to monitor the agile engagement of the consortium and the level of agile implementation. Additional M&E tools and methods will be selected once the pathway of change and new proposed indicators are approved.

- **Agile Poll**
  Questionnaire to monitor the agile mindset of the consortium partners during the first phase of the project. The questions were set up with Mentimeter and used as a temperature check.

  Questions of the agile poll:
  - What is your role in INTERLACE? Multiple choice: advisory board, city representative / city focal point, knowledge broker, work package (co-)lead or task lead, other consortium partner
  - How well do you understand the Agile workflow? (scale 1-10)
  - To what extent are you applying an Agile workflow for your work? (scale 1-10)
  - What do you miss, or need more of, to apply an Agile workflow for your work? Multiple choice: more Mentor guidance, webinars on specific agile techniques, agile videos, exchange with other development teams, inspiring examples, comprehensive written guidance, software, digital support, other
  - I know who my agile mentor is (Yes/No)
  - I know who is in my development team (Yes/No)
  - I have read or consulted the Agile Guidance document (Yes/No)
  - I have watched the video on the INTERLACE agile workflow (Yes/No)
  - I found my way to the INTERLACE landing board (Yes/No)
  - What do you need more? What do you miss? Open ended

- **Agile Datasheet**

The agile datasheet is an Excel template to collect data related to:

[10] See INTERLACE M18 Periodic Report (Technical Report Part B) for a selection of these indicators and first monitoring results.

- Agile engagement activities: date, type of activity, number of participants, attendees names, video views.
- Agile product development: overview of all project deliverables with information on product lead, identification of key users, product vision, user stories, stages, number of users involved, etc.

The monitoring sheet allows for easy entry and analysis of the data. Data is collected on a regular basis by the agile team with input from all WP's. The main goal is to assess whether there is an increase in taking up an agile approach within the project.

- **Agile Retrospectives**

The agile team holds yearly retrospectives (reflection meetings) to evaluate their project activities. During a retrospective the team discusses what to do more of, what less, what to keep doing, what to start doing, what to stop doing (see Figure 8). Results from the Agile Polls are taken into account.

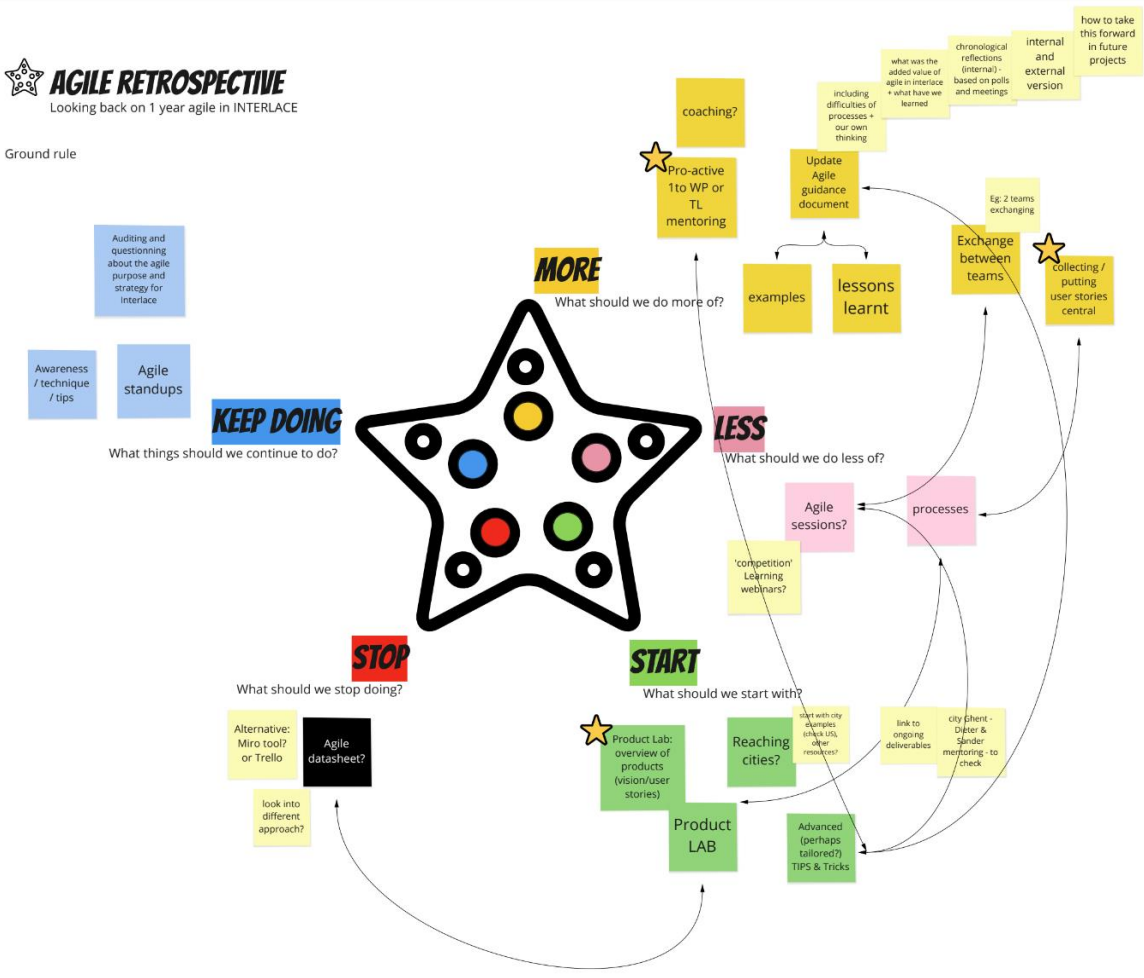
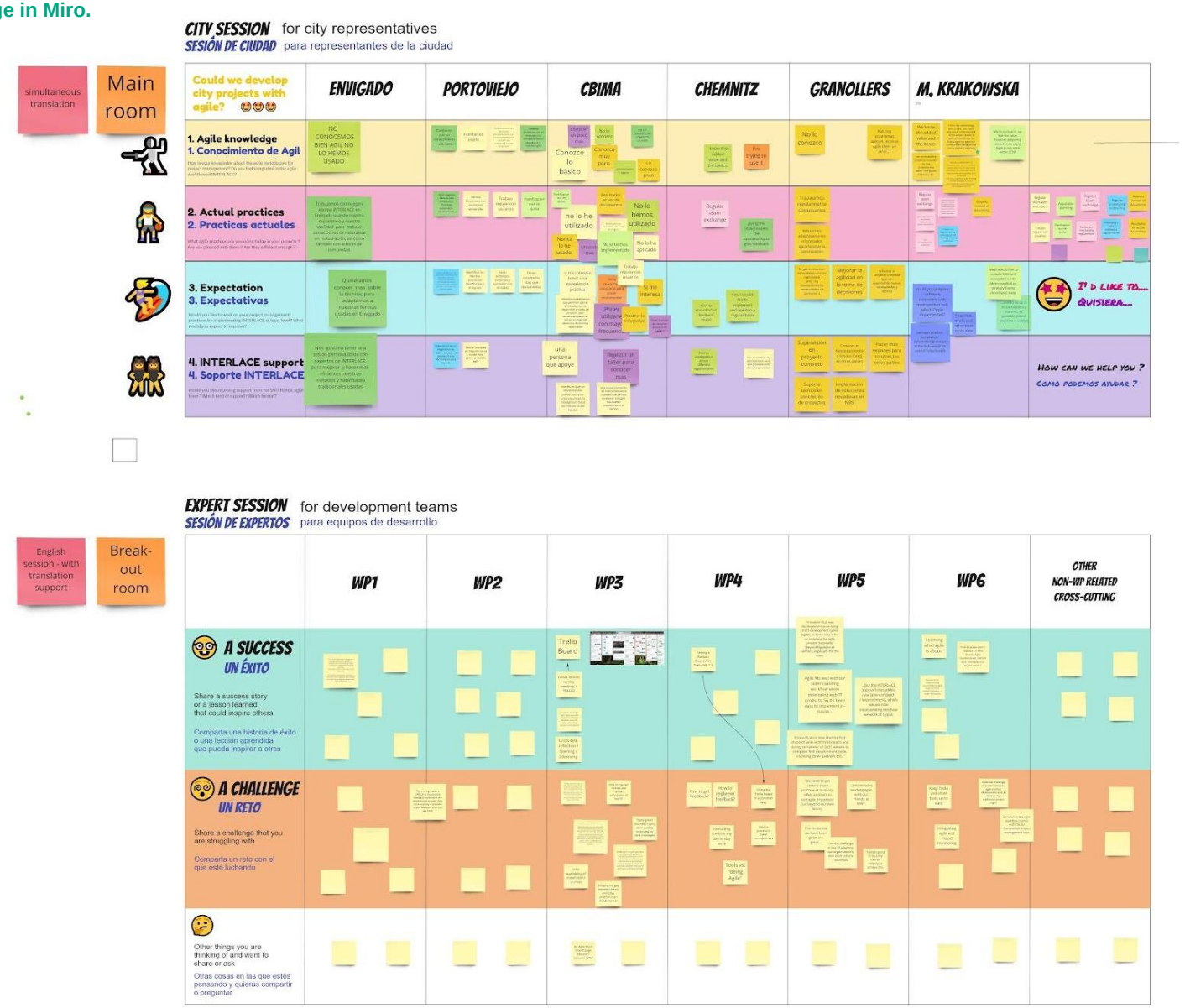


Figure 8: Screenshot of agile retrospective in Miro.

- **Agile exchange**

Consortium-wide exchange moments on working agile, facilitated online by the agile team. During a session with city partners, different aspects are gauged like agile knowledge, actual practices, expectations, support requests. During a session with research partners, successes and challenges are shared between different development teams.

Figure 9: Screenshot of agile exchange in Miro.



7. Lessons learnt

7.1 Top down vs bottom-up agile deployment

An agile workflow can be deployed in a top-down or bottom-up manner, or both at the same time. In a top-down approach, the project leadership will prepare an agile framework to put in place across all the teams and, once this preparatory step is done, implement it. In a bottom-up approach, one or more teams will act as pilot teams, and a framework will be tested and incrementally developed until it is ready to be replicated and upscaled.
Each approach has advantages and disadvantages and should be chosen carefully in regards to the project context. For example, in the case of a project with a clear hierarchical structure, a top down approach can work very well and create important momentum to achieve an agile transformation. For more horizontally structured projects, a bottom-up approach will be preferred: a main advantage is that it relies on individual intrinsic motivations to transform into agile teams.

Within INTERLACE, as in most Horizon 2020 or Horizon Europe projects, there is a coordinator and WP leads. During the project proposal phase there was a willingness by all of them to work in an agile manner. This created the necessary momentum at the start of the project to roll out an initial agile framework. On the other hand, the hierarchical structure of an EU research project relies on the respective responsibilities of each project partner towards the EU Commission rather than on a unique top-down chain of command between the coordinator, the WP leads and the project partners. Also team workflow management is mostly defined by each project partner internally, within their respective management structures. A purely top-down approach would therefore very likely fail as there is no clear mandate to actually enforce an agile framework. Instead, a framework should be developed that takes into account the respective working environments of the individual team member and builds as much as possible on their intrinsic motivation to work in an agile manner.

To achieve that, the agile team started with broad WP consultations to present what an agile workflow is about and to discuss how an agile framework could be implemented including WP team needs, concerns and objectives. The proposed agile workflow for the project was presented to all project partners via webinars. At the same time, in close cooperation with the project coordinator and WP leads, teams were nudged to achieve an agile transformation, for example by keeping track of product vision developments or by agile mentors attending WP meetings. Bottlenecks and barriers to achieve that transformation were taken up by the project coordinating team in close cooperation with the EU project officer. These include for example a reformulation of deliverable content or format as initially stated in the project proposal or shifting deliverable deadlines based on the identification of new user needs. Hence a combination of top-down (nudging, support) and bottom-up mechanisms (informing, framework co-creation) were used.

7.2 Creating the agile mindset

Following the choice to apply a hybrid, top-down and bottom-up agile deployment in the INTERLACE project (see section above), creating an agile mindset among the project teams is a key component to achieve a successful transition. Arguably creating this mindset is essential for any successful agile transformation but it is especially important when relying on voluntary participation and buy-in from teams that are new to agile. While many can adhere to the core values and principles of an agile workflow (see Figure 10), the actual agile framework that is used should also build as much as possible on the intrinsic motivations and working environment of the team members to be successful.

Figure 10: Some key agile values and principles.
(Source: https://www.transform-action.net/cultura-agile/)

Therefore, within the INTERLACE project, the agile team initially invested a substantial amount of time into communicating about what agile is about, why an agile workflow would be implemented and how it could help teams reach their objectives. At the same time, an iterative process was kicked off early on to develop a pilot framework for the agile workflow, and WP teams were consulted regularly for input and feedback.

Over the course of the first six months of the project, the understanding of what an agile workflow is and how to apply it has improved (based on a self-assessment by consortium partners). Based on our own monitoring, the agile process put in place since month 4 is partially implemented and understood by the INTERLACE consortium. Not all product planning and development work systematically applies the recommended agile framework.

7.3 Fake agile: from being agile to doing agile

A recurrent challenge when transitioning towards an agile workflow and shifting from a traditional, plan-based or waterfall approach, is to combine both into a mixed framework. This is perhaps not so surprising as shifting from a traditional waterfall approach to an agile approach takes a lot of effort and a switch in planning mindset, and many teams fall into the trap of an 'iterative waterfall' (a waterfall framework happening in an iterative way). An example of an interactive waterfall is referred to as Scrumfall or Scrummerfall (a mix of Scrum and Waterfall, see section 2.2 Examples of agile frameworks), where teams use a waterfall approach in each of their Scrum sprints. While this may sound good in theory, where one could imagine combining the best of both approaches, it has a very high risk of becoming counter productive in practice.

Scrummerfall: The practice of combining Scrum and Waterfall so as to ensure failure at a much faster rate than you had with Waterfall alone.

(Source: Brad Wilson, Agile coach at Tier 3.)

A reason why such mixed frameworks emerge in the transition to agile is that it is fairly easy for new teams to embrace the agile values and principles. It is much more complex and time-consuming to put them into practice and move away from often deeply anchored routine behaviours. In other words, it is a long road from being agile towards doing agile (see Figure 11).

"Agile adoption (a change in a process to one that is consistent with the agile values and principles) may be quite fast. It can be measured in days or weeks. However, an agile transformation (the process of transforming an organisation's culture and nature to one of agility) requires a change in the way people think and feel and it can take a long time, sometimes even years."

(Source: Mesquida Calafat, A. Mas and M. Pacheco, "Fake Agile: What Is It and How to Avoid It?" in IT Professional, vol. 24, no. 02, pp. 69-73, 2022. doi: 10.1109/MITP.2021.3139826)

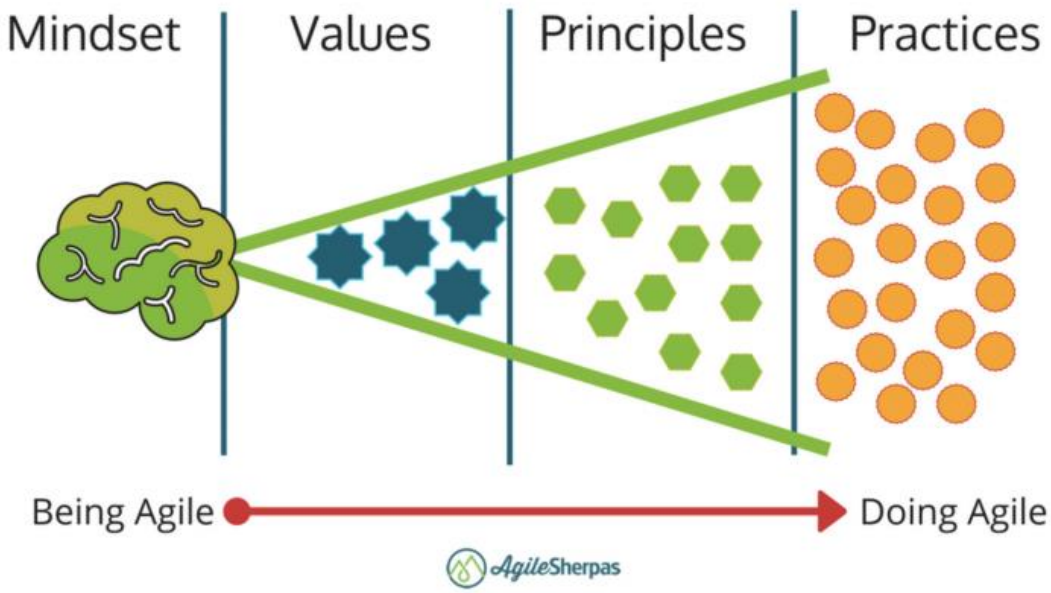


Figure 11: From being agile towards doing agile.
(Source: https://www.process.st/fake-agile/)

In the INTERLACE project we initially identified hybrid approaches that were mixing traditional and agile workflow management as 'fake agile'. This was to help create awareness among consortium partners, that despite embracing the agile mindset, many were not yet 'doing agile'. During the course of the project we decided to stop using the term, as it tends to categorise teams into two groups, while the focus should remain on the pathway of change to achieve an agile transformation. Also 'fake agile' could be interpreted as a deliberative attempt to apply a minimalist form of agile, while in reality it is part of a longer process of continuously adapting, shifting and redirecting towards an effective agile framework.

When starting to apply the agile framework in the project, a distinction between 'agile light' versus 'agile advanced' was made, differentiating between teams applying certain elements of the agile framework and other teams aiming to take it a step further. Also in this case we decided to move away from this 'agile light'

versus ‘agile advanced’ approach. The reason for this is to simplify and focus on the essentials: ‘are you working agile or not’ (according to the INTERLACE agile definition). A split approach into ‘light’ or ‘advanced’ sparks controversy, and has as an effect that certain development teams settle with ‘light’ too easily from the start. The criteria (defining agile light/advanced) are also constraining: it is not about the tools that are used (e.g. Agile Datasheet or Product Lab), but about the core values and principles of working agile: is there a product vision, are key users known, is feedback collected and incorporated into the next version, how often is this done (updated user stories) etc. Flexibility should be given to the teams when it comes to using certain methods or tools (see also lessons learnt section). The use of the Product Lab is not a good criterion, since we are experimenting with a new tool to visualise and support the agile workflow (out of project scope).

7.4 Working remotely

To manage agile workflows on a day-to-day basis, many agile coaches emphasise the benefits of holding daily or regular stand-up meetings, paired with a physical board. This allows for increased interactions and collaboration among the team, better engagement from the team (but also management, stakeholders, other teams), better visibility (if the board is present in a meeting room for example), customization options etc.

Figure 12: A physical Scrum board in a meeting room.
(Source: PATboard.com)

Physical tools could not be used within the INTERLACE project. Most of the teams are composed of people located in different countries and even continents. Additionally, the COVID pandemic forced many to work remotely from home. The INTERLACE agile workflow therefore had to rely fully on digital tools. To remediate some of the lost benefits of physical interactions, the agile team set up a mentoring system to support the teams remotely. Agile mentors could attend team meetings and answer questions or provide advice and practical tips to help organise teams and at the same time ensure teams stay engaged.

7.5 Agile interface

Different tools and interfaces were generated at the beginning of the project to respond to a need to concretise the agile principles by instruments that facilitate their implementation (agile google sheets, Trello boards, Slack

channels). On the other hand there was also a desire within the consortium to discover new working tools. This shortcut of “agile process = agile tool” was particularly noted during the project kick-off meeting where the main expectations from the consortium were focused on the proposal of new digital tools to facilitate the learning of the agile organisation. After a needs analysis and evaluation of different alternatives, the use of Trello was proposed for organising and tracking tasks at different scales of the project. Trello was thus adopted by the coordination team, by WP1 and by WP3.

Agile datasheets (google sheet databases) were developed to monitor the application of the agile workflow processes in the different WPs. It allows the development teams to organise the key information at each stage of the agile process (members of the development team, product vision, user stories, user feedbacks, etc.). It also allows the team in charge of monitoring the agile development to monitor the progress of each development team.

It is interesting to observe that these tools developed and proposed initially, as well as certain traditional practices, have gradually evolved through changes proposed by the development teams and, for some, have been replaced by other tools perceived as more effective. For example, google sheets have been replaced by Miro boards which facilitate interactive compilation, email communication has been partly replaced by the use of Slack - organised by the project coordination - and, more spontaneously, by WhatsApp which is widely used in Latin America, also in professional contexts. Several development teams have replaced the traditional monthly or bi-monthly meetings by weekly stand-ups which are typical of agile practice.

7.6 Time zones

The time difference between Europe and Latin America reaches up to eight hours during the summer. This represents a major challenge for cooperation, especially when organising meetings and other exchange moments, and especially in light of using an agile framework that invites regular and spontaneous exchanges within the development teams. The strategy adopted by INTERLACE was to systematically concentrate the exchange moments during the few hours that worked jointly on each continent, i.e. late afternoon in Europe and early morning in Latin America. By applying this approach systematically to annual meetings, steering committee meetings, WP meetings and INTERLACE events (Cities Talk Nature), this practice has spread naturally to the majority of inter-place exchanges and has made it possible to relativise this fundamental difference between teams. Furthermore, the almost systematic use of shared online files has allowed cooperative work sharing on common objects (text, database, Miro, presentation, etc.) in near-real time - in reality most often staggered between night and day depending on the continent - without the time difference being felt as a problem.

7.7 Impact Task Force

The Impact Task Force (ITF) was theoretically defined in the preparation phase of the project as "a pool of experts and end-users, who have relevant knowledge or interest to contribute to specific product development". After redefining this concept in relation to the organisation of the agile workflow, a specific process for putting it into practice was formalised and agreed and then implemented. This is detailed in document D2.1 (Summary report of activities and lessons learned from the Impact Task Force (ITF) - Intermediary version month 18) which is updated regularly.

In month 18, the ITF database had 115 active members, with a good representation of the two regions and countries involved in INTERLACE, a good balance between experts from the INTERLACE consortium and members from the local CNAs, a balanced gender balance and a varied range of professions without over-representation (cf. Figure 13).

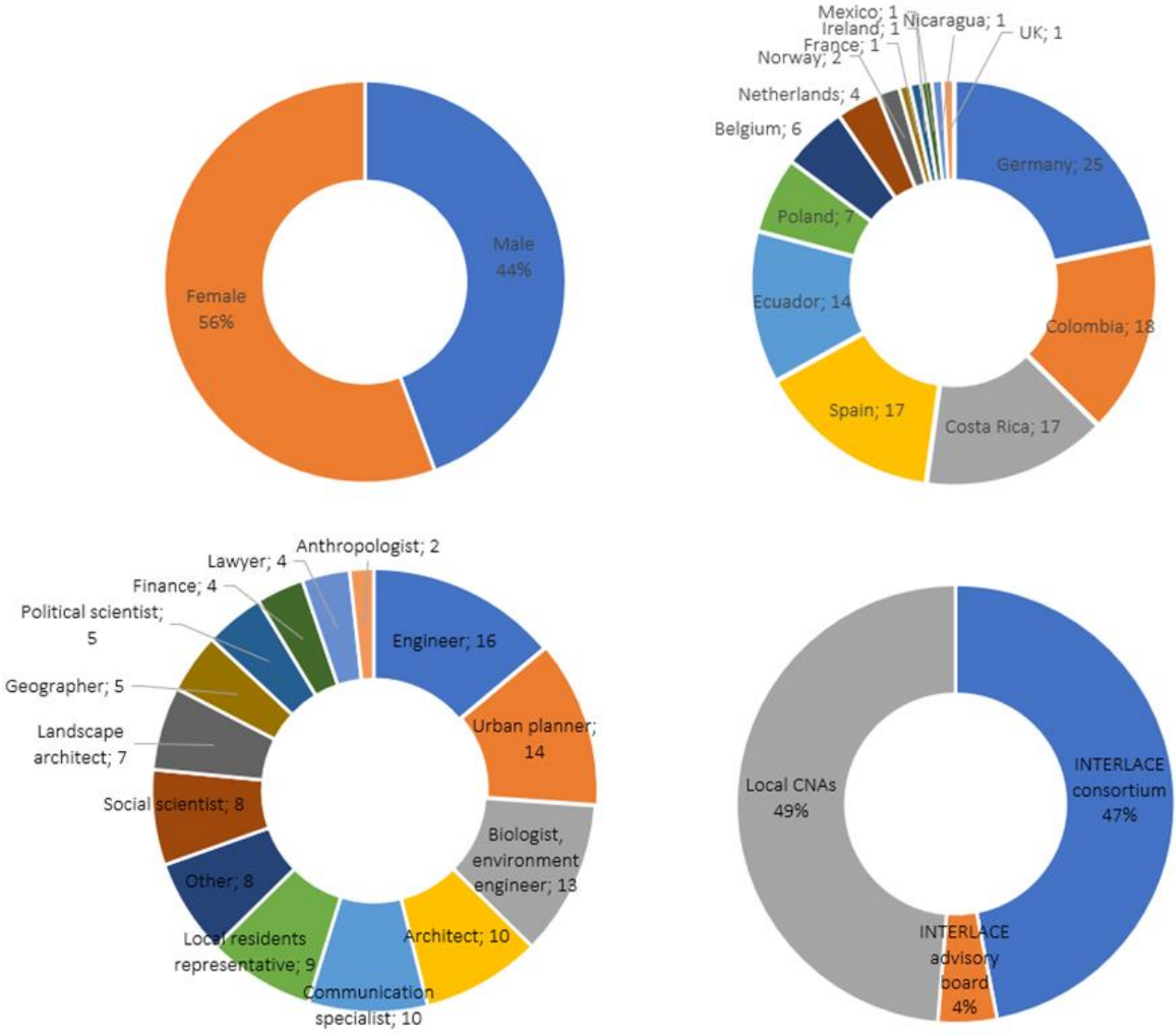


Figure 13: Statistics analysis of the ITF composition in M18 (115 members): gender, operating country, current profession/practice, and how the members are affiliated to the ITF.

In Month 18, two main products applied the ITF protocol and used its database:

- The Urban Governance Atlas (WP2): the process was launched in May 2021 with a group of 18 ITF members identified and contacted, sourced mainly in the INTERLACE consortium (including city partners) and in the Advisory Board. There were 14 positive replies.
- The nature-based solution Assessment Framework (WP3): the process was launched in November 2021 with a more complex selection process implemented with the development team, which led to identifying a group of 33 potential members. This group is balanced between women and men, between Europe and CELAC and also between INTERLACE consortium members and external participants. 15 persons confirmed their participation, with, in this case, more participation from the INTERLACE consortium members (10, against 5 external participants).

The operational application of the ITF for these two products mentioned above (Urban Governance Atlas and the Nature-based solutions Assessment Framework) is rich in learning:

- The availability of ITF members is not guaranteed despite their initial registration with the ITF. It is therefore essential to have a sufficiently large pool of people to cover any unavailability.
- ITF members suffer from a lack of visibility on the various products planned for development by INTERLACE. They would like to be able to "reserve" for the product they are most interested in, and to do so, need to understand the full development programme and its timetable. Again, this demand should be met by the Product Lab.
- It is often difficult to involve end users who do not speak English in ITF sub-groups. This language difficulty is a real barrier that we are having difficulty overcoming at the moment.

It is important to be able to extend the database to new profiles, in particular to be able to involve end users who are experts in their field, who are fluent in English, and who are preferably outside the INTERLACE consortium. Work is underway with the Product Lab to make it the starting point for involving members from Conexus, the global CNA and volunteers who are simply interested in participating (since the Product Lab opens up cooperation publicly).

INTERLACE
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Project Partners

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