Scaling Readiness integration in an online innovation inventory tool

Overview of objectives, design principles, workflows, results and ideas for future mainstreaming of Scaling Readiness in ProPAS

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1. Introduction to ProPAS

ProPAS (Product Platform for Agricultural Solutions) is a platform that intends to link solution holders to their perspective clients, particularly investors and large-scale adopters. Solution holders are invited to submit their solutions and management innovations to the platform. Clients are then encouraged to seek information on needed solutions through the platform, and to download needed information from it.

IITA is the manager of the platform, and obtains useful knowledge on solution supply and demand by tracking its activities. Note that presently the platform is limited to solutions in an advanced stage of readiness in Africa and that special features are included that relate to the solutions for Technology African Agricultural Transformation, a program led by IITA with many partners across the continent. Everyone at IITA and other CGIAR centers are encouraged to submit and access solutions contained in the platform.

ProPAS provides a mechanism to compile and access innovations, management technologies and products needed for Africa's agricultural transformation. Agricultural and development organizations across Africa have a strong record in finding solutions to advance Africa's food security and rural economy, but at the same time recognize that the best suite of solutions for a given situation often remain underutilized.

ProPAS is intended to link innovators and solution holders to the clients who stand to benefit from them most. The platform provides two pathways: it permits users to enter their proven and promising solutions into a database, and then encourages others to sort through its options to reveal the suite of opportunities that can assist their agricultural objectives.

ProPAS can be accessed at: http://propas.iita.org/.

Objective of this document

This document provides an overview of objectives, design principles, workflows, results and ideas for future work related to the integration of Scaling Readiness into ProPAS. It includes references to instructional video on how to properly use Scaling Readiness in ProPAS.

The document explains some of the basic principles of Scaling Readiness and how these have been operationalized in ProPAS. The document can serve for internal or external use.

Feel free to direct any questions to the lead author: Marc Schut (m.schut@cgiar.org).

2. Introduction to Scaling Readiness

Scaling Readiness is an unique approach that provides stepwise guidance for organizations, projects, and programs in achieving their ambitions to scale innovations. Scaling Readiness builds on technology readiness principles developed by NASA, that have been adapted to support scaling of innovation in the agriclutural research for development sector.

Scaling Readiness encourages critical reflection on how 'ready' innovations are for scaling and what appropriate actions could accelerate or enhance scaling. It moves away from simplistic, ineffective approaches to adoption and disseminations, and embraces innovation systems science in a hands-on and action-oriented way that meets the practice of research for development projects.

Through its standardized approach, Scaling Readiness can be used to monitor or stage-gate a portfolio of innovation and scaling investments. It also supports prioritization and decision-making on the advancement of those innovations that can achieve societal outcomes at scale in the most resource-efficient way. Scaling Readiness offers project teams and organizations such as the CGIAR a decision-support tool that guides project teams and portfolio managers in how to maximise return on investment towards achieving the Sustainable Development Goals.

Scaling Readiness can support 3 different types of objectives:

- Evidence-based development, implementation, and monitoring of project scaling strategies
- Management of a portfolio of innovation and scaling investments
- Developing or evaluating projects or programs aimed at achieving impact at scale

As part of ProPAS the main objective for Scaling Readiness is to showcase Solutions or Innovations and their Scaling Readiness.

More information on Scaling Readiness can be found at: www.scalingreadiness.org.

A scientific article on Scaling Readiness was published and can be accessed here: https://www.sciencedirect.com/science/article/pii/S0308521X19314477. All paragraphs explaining "Why are we collecting this information" are based on this publication.

Acknowledgement

Scaling Readiness was developed as an integral part of the CGIAR Research Program on Roots, Tubers and Bananas (RTB) and supported by CGIAR Fund Donors (www.cgiar.org/about-us/our-funders). The development of Scaling Readiness was led by Wageningen University and the International Institute of Tropical Agriculture (IITA) in close collaboration with the International Potato Centre (CIP), Bioversity International and the International Center for Tropical Agriculture (CIAT).

3. Development of Scaling Readiness module for ProPAS

The assignment to develop a Scaling Readiness module for ProPAS was commissioned by the DDG-P4D Dr Kenton Dashiel and the DDG-R4D Dr Bernard Vanlauwe of IITA. The lead author of this report – one of the Founding Fathers of Scaling Readiness – worked with a back-end and front-end designer and data specialist on the design and testing of the Scaling Readiness module.

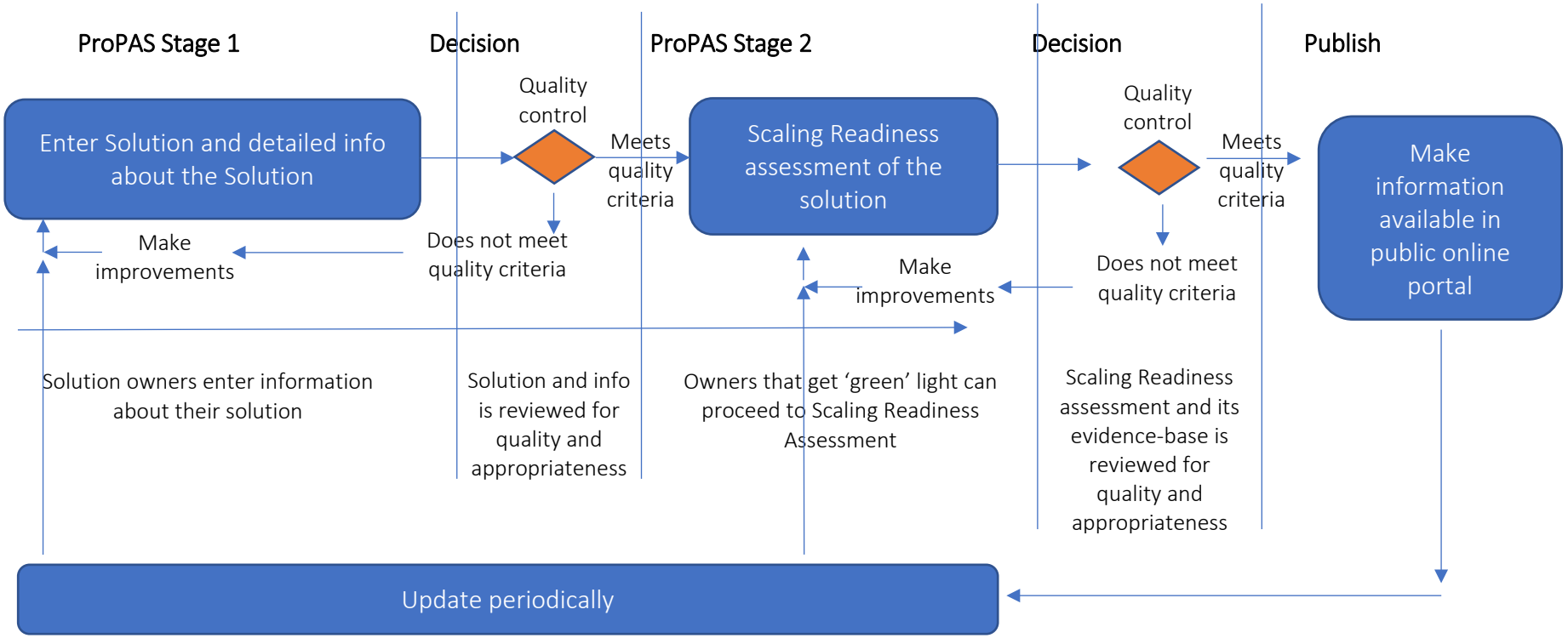
Between June and November 2020, the team had a weekly meeting of 1 hour discuss design principles, followed by design, review, feedback and modifications. The work can be summarized as such:

- Weekly development sprints with 1 hour update and way forward discussions;
- Scaling Readiness deep dive for the development team;
- Scaling Readiness contributed to funding the two consultants;
- Vision: Trying to make things work, keeping it functional and beautiful;
- Two rounds of full system testing using dummy data.

On 29 October 2020, the draft module was presented to the DDG-P4D and DDG-R4D, feedback was received and incorporated.

3.1 How Scaling Readiness fits in ProPAS?

Scaling Readiness integration in ProPAS follows a 2-step strategy. This is to ensure quality, increase efficiency and ensure that only solutions or innovations that have passed a quality control step go into Scaling Readiness Assessment.



Note: It would be recommended to have two quality control steps, one after initial uploading of the Solution and one after the Scaling Readiness assessment is completed, to assess the accuracy and evidence-base of the assessment.

3.2 Principles of Scaling Readiness and back-end data requirements

Innovations that have successfully passed the quality control step can go for Scaling Readiness Assessment. Before the actual assessment can be carried out, some additional information that is not captured or specified during the initial uploading of Solutions during ProPAS Stage 1 (see above figure).

3.2.1 Step 1: Specify the context in which the Solution is to be used

Why are we collecting this information?

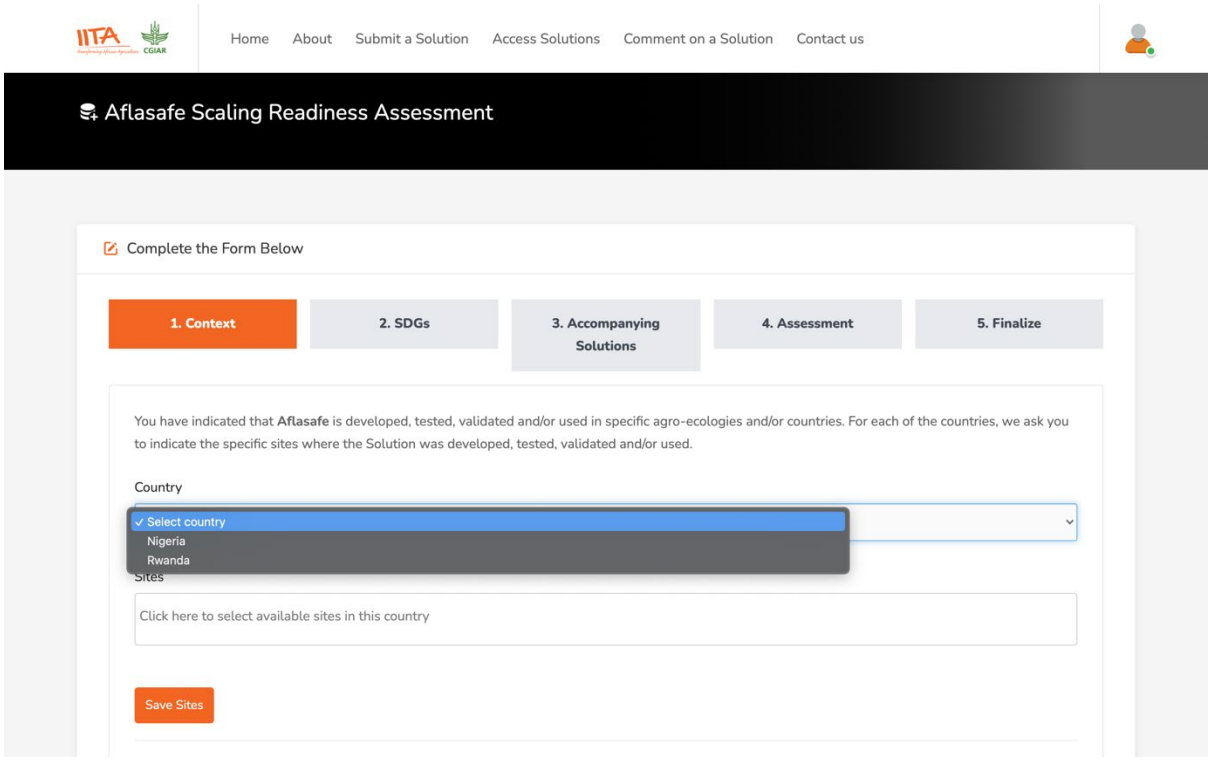
A consistent finding across different sectors (e.g., health, agriculture, and the environment) is that scaling is influenced by contextual conditions, and that 'one-size-fits-all' approaches are unlikely to be effective. The innovation systems literature conceptualizes innovation as the outcome of (changes in) interactions between networks of interdependent actors and stakeholders, the socio-technical context in which they operate, and the rules and institutions that govern their interactions. This finding suggests that an innovation that may be appropriate and scalable in one context, may not fit another context. Secondly, an intervention strategy that may effectively support the scaling of innovation in one context, may not be effective in another context.

Implication for ProPAS: Before being able to conduct a Scaling Readiness Assessment in ProPAS, additional information on context needs to be collected. The Scaling Readiness Assessment cannot be generalized but needs to be conducted for each country * site.

What does it look like in ProPAS?

In line with the above rationale and scientific underpinnings ProPAS collects information on:

- Country/ ies where the Solution is designed, tested, validated and/or used
- Specific sites in countries where the Solution is designed, tested, validated and/or used (first sub-national level e.g. province, state, county).



3.2.2 Step 2: Specify the goals to which the Solution is supposed to contribute

Why are we collecting this information?

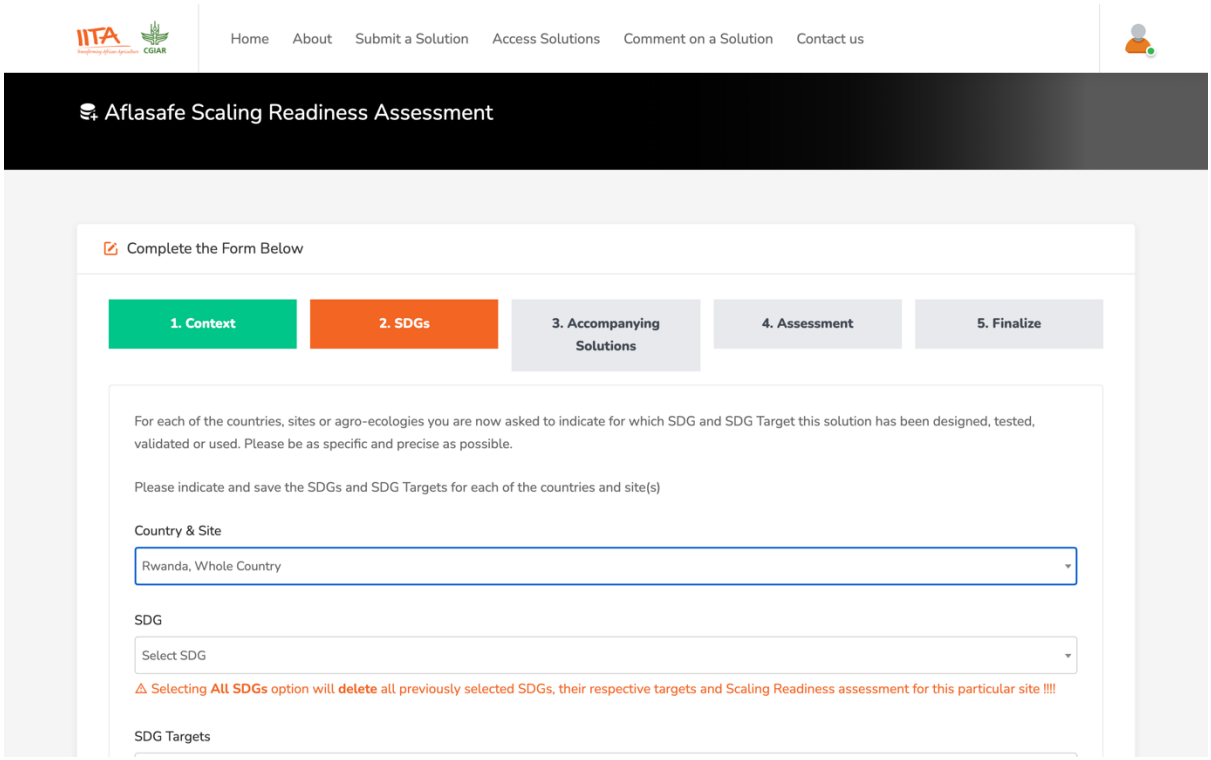
Stating that an evaluation of Scaling Readiness must be contextual opens the question of what and whose boundaries of context should be considered. This question relates not only to the geographical location (space) and temporal horizon (time) to be taken into account but also requires defining what may usefully scale and for what underlying objective. Scaling Readiness of a Solution may be high for some goals or objectives, but at the same time be much lower for other goals or objectives. E.g. an improved maize variety can be Scaling Ready to achieve SDG2 Targets (zero hunger) through its productivity increasing characteristics, but at the same time be not Scaling Ready to contribute to SDG13 (climate action) as it may not be very drought resistant.

Implication for ProPAS: Before being able to conduct a Scaling Readiness Assessment in ProPAS, additional information on goals needs to be collected. Scaling Readiness uses the UN SDG and SDG Target framework.

What does it look like in ProPAS?

In line with the above rationale and scientific underpinnings ProPAS collects information on:

- SDG and SDG Targets to which the Solution is supposed to contribute for each Country * Site combination.



3.2.3 Step 3: Specify the accompanying Solutions or enabling environment that is required to use the Solution

Why are we collecting this information?

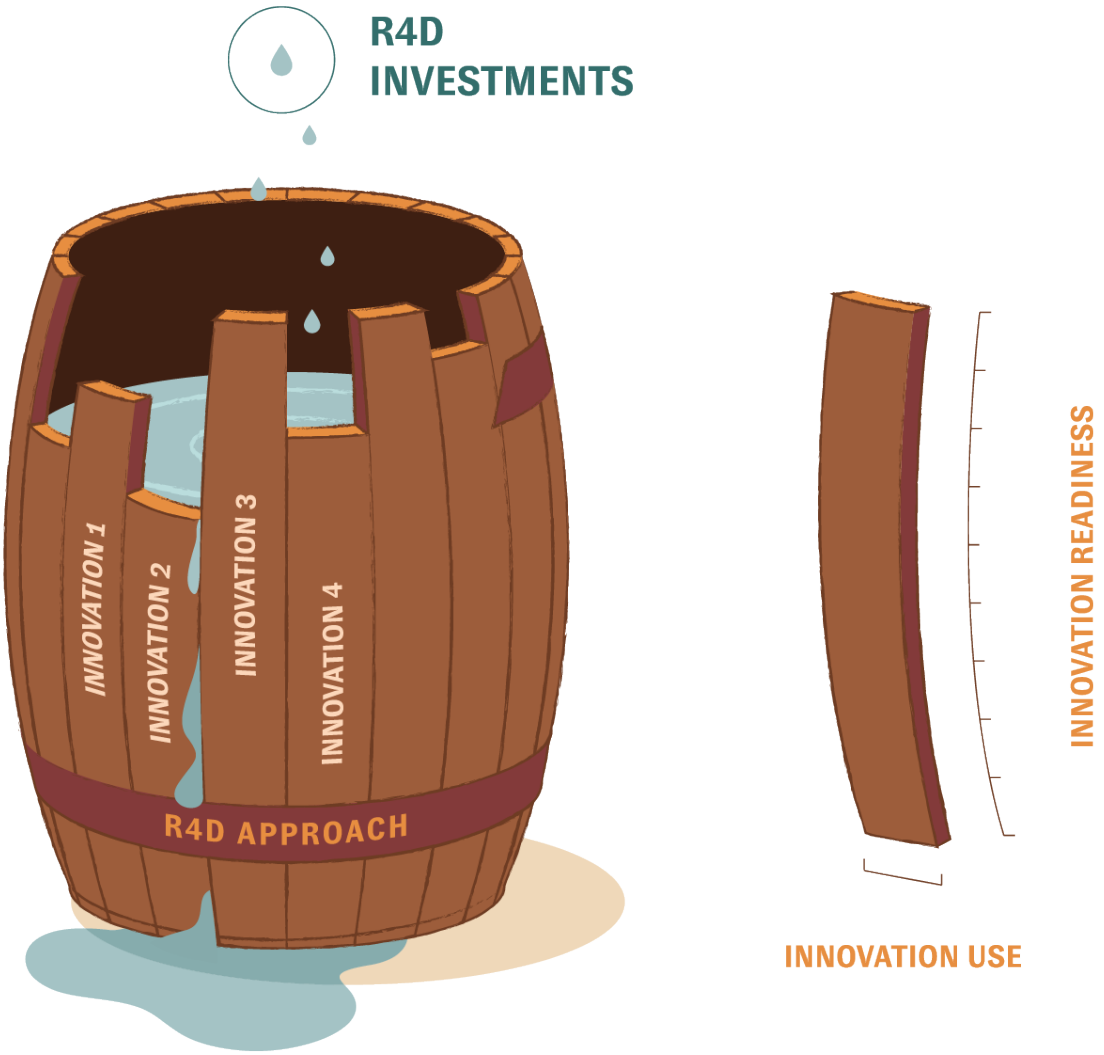
R4D interventions often focus on scaling a specific core innovation (e.g., a new drug or new crop variety) that is assumed to contribute to a societal benefit. These core innovations often form the heart of an R4D intervention. However, the scaling of core innovations is influenced by interactions with other innovations or conditions that can be either enabling or constraining. We refer to these other innovations as complementary innovations. For instance, scaling a new animal vaccine (the core innovation) also requires (1) new vaccine dosage and application practices; (2) certification from vaccine control agencies; (3) establishing or improving vaccine delivery systems; and (4) education about vaccine characteristics and use (the complementary innovations).

What constitutes a meaningful and viable innovation package depends again on the context, which implies that packages can change over time and are likely to differ across locations. Similarly, the composition of an innovation package may need to vary for different beneficiary groups. Using the animal vaccine example again, for countries where resource poor populations are impacted by a specific animal disease, subsidized vaccine distribution through public veterinary services may be an important complementary innovation to ensure equitable and affordable access.

Solutions or innovations scale as part of packages and the accompanying solution with the lowest readiness and use is the bottleneck for increased use in the package. If the enabling environment for the use of a Solution is absent, then the Solution will not be able to

contribute to livelihood outcomes or SDGs at scale. This is illustrated by the Scaling Readiness Barrel (Fig 1.).

Figure 1. Scaling Readiness Barrel to illustrate how innovation(s) with the lowest readiness



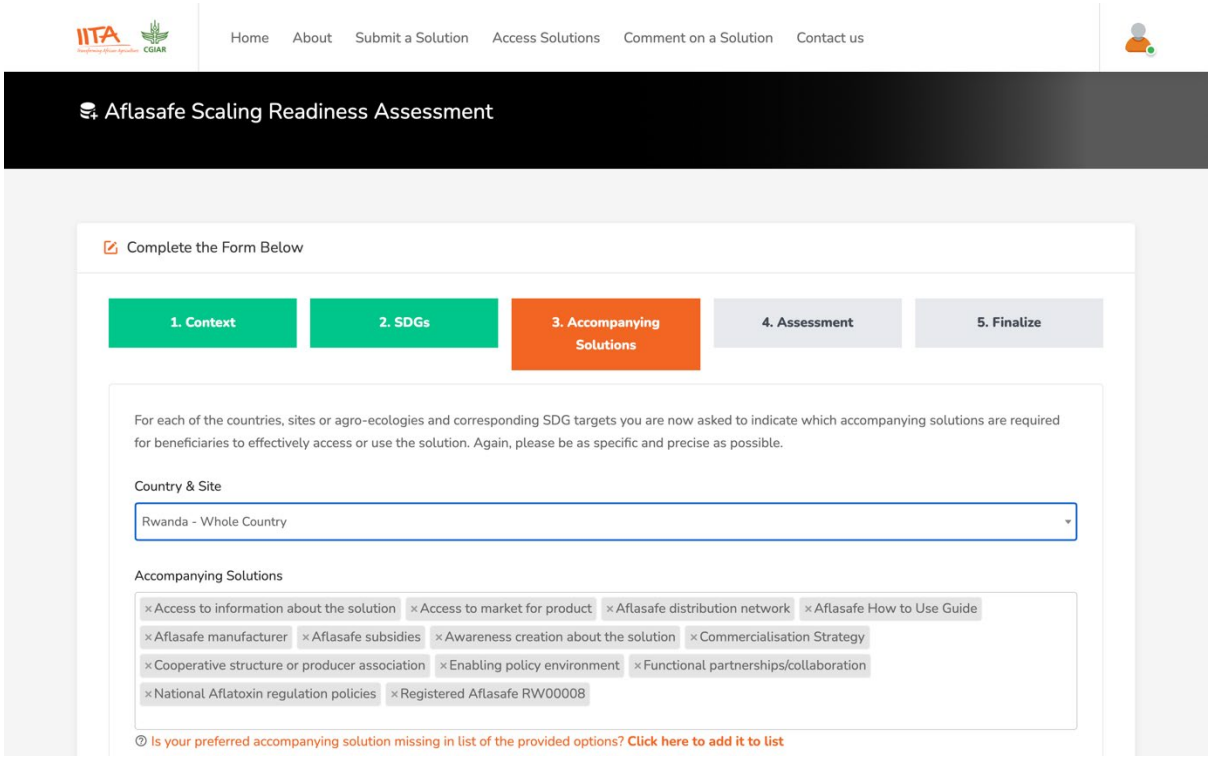
limit an innovation package's capacity to achieve impact at scale.

Implication for ProPAS: Before being able to conduct a Scaling Readiness Assessment in ProPAS, additional information on the complementary solutions needs to be collected. As combinations of solutions or solution packages differ across space and time, the complementary solutions need to be specified for each country * site.

What does it look like in ProPAS?

In line with the above rationale and scientific underpinnings ProPAS collects information on:

- Complementary solutions/ innovations that are required for the Solution to be used at scale
- In ProPAS this is a combination of standardized accompanying solution (access to market, access to information, awareness about the solution) and accompanying solutions that can be specified by the owner.



3.2.4 Step 4a: Conduct the evidence-based context-specific assessment of Innovation Readiness and Innovation Use the (accompanying) Solutions

Why are we collecting this information?

Scaling Readiness builds on technology readiness levels proposed by NASA and the EU are, in essence, a measure of the maturity of a technology wherein maturity is defined as a demonstrated capacity to perform a specific function or contribute to a specific objective within a specific research or development environment (e.g., in the laboratory, under controlled conditions or under uncontrolled conditions). Levels of readiness range from an 'unproven idea' to 'innovation that is validated for use in an uncontrolled environment' with in-between gradations of 'proof of concept', 'tested prototype' and 'demonstrated under controlled conditions'.

However, in spite of this elaboration, the maturity scale is not sufficient for understanding the potential of a core innovation and/or an innovation package as a whole and its readiness to go to scale and contribute to the desired objectives. Many documented ready innovations have failed to be used at scale, such as improvements to child and maternal health and agroforestry management practices that use fodder shrubs or improve tree fallows. In

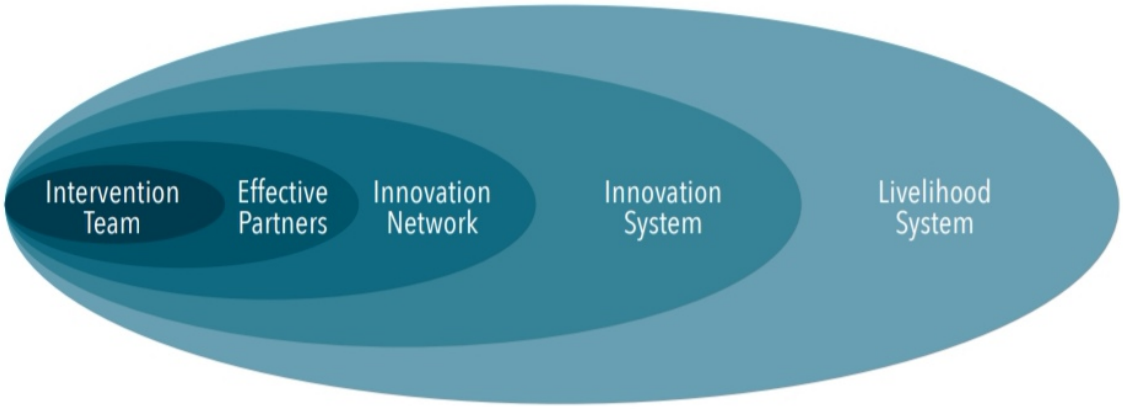
addition, not every innovation may have a demonstrated capacity to perform a specific function or have a desired impact. For example, multi-stakeholder innovation platforms have been increasingly utilized in the agricultural R4D sector to advance innovation and scaling, but evidence of their effectiveness to achieve impact is scarce. To put it more simply, innovations with a low potential for achieving impact are sometimes used at scale, whereas innovations with a high potential for achieving impact are not necessarily used at scale. Thus, while it is important to capture the maturity of innovations that are part of an innovation package (i.e., innovation readiness), it is also necessary to incorporate additional variables if we want to fully understand and assess scaling potential.

Inspired by innovation scholars and network science, we argue that the scaling potential of a core innovation and/or innovation package is – at a given point in time – also shaped by the social networks in which the innovations are embedded, supported and used. In other words, whether or not an innovation is likely to scale depends on who and how many users are already using it, and how such users are positioned in the social network. Thus, it makes sense to distinguish between network environments in which the innovation still receives considerable support and protection (e.g., a project or intervention), and network environments in which it has been used without any form of support (e.g., as part of livelihood systems). This thinking aligns with the literature on strategic niche management, which points to the importance of gradually reducing protection of innovation initiatives (niches) over time and the ability of niche-level innovations to reconfigure dominant policies, procedures and practices (regimes).

If innovations are used only by R4D intervention teams, their partners and beneficiaries who are directly linked to or incentivized by the intervention, then the scaling potential is still low, irrespective of the number of team members, partners and direct beneficiaries using those innovations. When we frame the intervention in these terms, it creates a different perspective on claimed scaling achievements such as “this new crop variety is used or adopted by 25,000 farmers in Zambia”. Such statements do not reveal much about the performance of the R4D invention unless we are provided with information on who these farmers are and what was their relation to the intervention. In other words, numbers tell only part of the story. Instead, the position of those using innovations in the innovation network is a much better indicator of the innovation’s scaling potential. Such a variable also captures whether the innovation users operate within a protected space (controlled environment), or whether they use the innovation in more unprotected conditions (uncontrolled environment). Therefore, we propose a scaling readiness variable that indicates in what type of networks an innovation or innovation package is already being used. We will refer to this concept as innovation use.

More information on the levels of Innovation Readiness and Innovation Use can be found in the Annex 1a and Annex 1b.

Figure 2. Stakeholder typology for those involved in innovation development, scaling and use, based on a network approach.



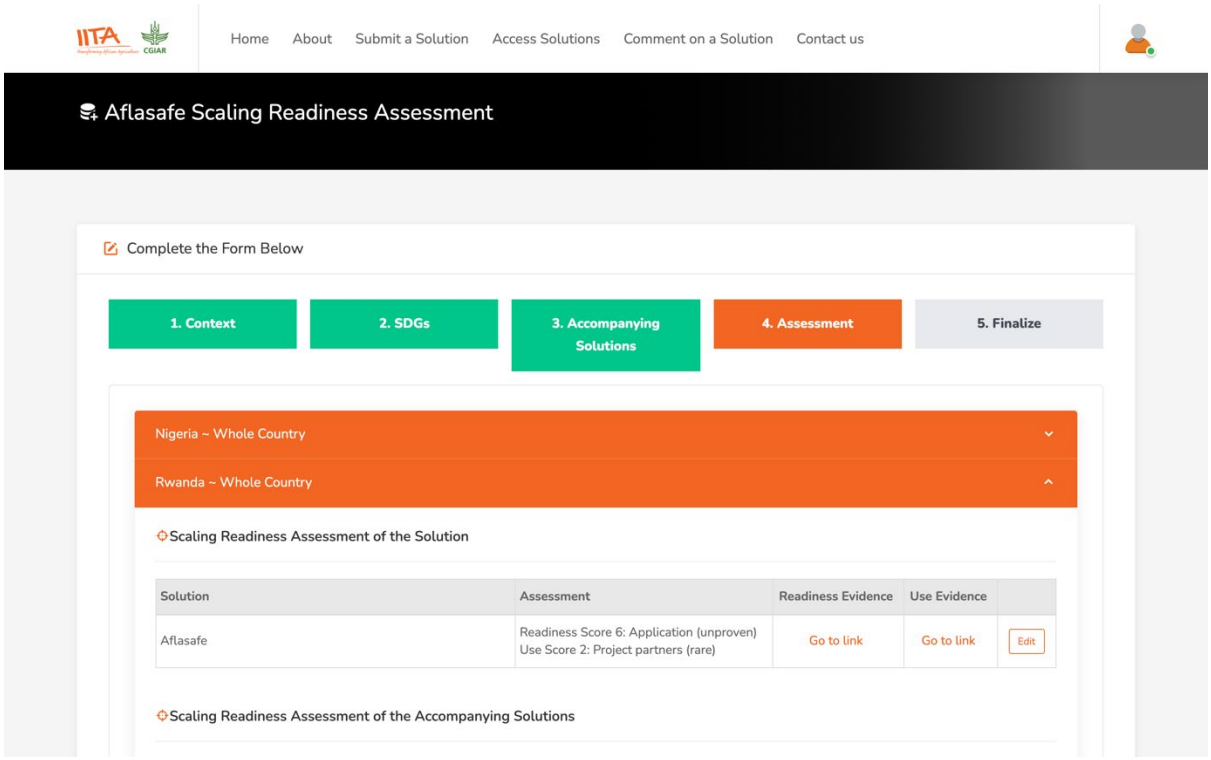
It is important to reflect briefly on how and by whom such assessments may be made. In R4D, the design and scaling of health, agricultural, environmental and other societal innovations often depend on continuous coordinated support from donor-funded interventions. Sustaining this support depends on, among other factors, the perceived potential and impact of the innovations at scale, and the progress achieved by researchers and innovation developers during previous interventions. Therefore, such closely involved parties are likely to have an interest in overstating innovation impact potential towards donors. This possibility can create a conflict of interest when assessing innovation readiness and innovation use. In Scaling Readiness, therefore, documented evidence (e.g., scientific papers demonstrating proof-of-concept, data collected through rigorous and/or independent monitoring and evaluation systems) are required to support claims of innovation readiness and innovation use levels. Whenever such documents are not accessible by the R4D interventions, experts are requested to provide their judgements. We seek to minimize self-reporting biases by encouraging the assessment of innovation readiness and innovation use by independent experts.

Implication for ProPAS: Each of the solutions and accompanying solutions in the innovation packages is individually assessed for its Innovation Readiness and Innovation Use. The assessment should be evidence-based.

What does it look like in ProPAS?

In line with the above rationale and scientific underpinnings ProPAS collects information on:

- Innovation Readiness and Innovation Use scores for each of the context-specific combination of Solutions and Accompanying Solutions.
- Evidence source that supports the scoring of Innovation Readiness and Innovation Use.



The decision-tree that determines the Innovation Readiness and Innovation Use scores is provided in Annex 2a and 2b.

3.2.5 Step 4b: Provide information on the interventions and partners that contributed to designing, testing, validating or increasing the use of the Solution

Why are we collecting this information?

In the AR4D sectors innovation and scaling trajectory are supported, catalyzed and accelerated by different types of interventions (policies, projects, programs) and through different types of partnerships. It is important to capture which interventions and partners supported specific design, testing, validation or increased use of (accompanying) solutions as this kind of information can support intervention design or partnerships for similar innovation packages in other contexts. Collecting the information

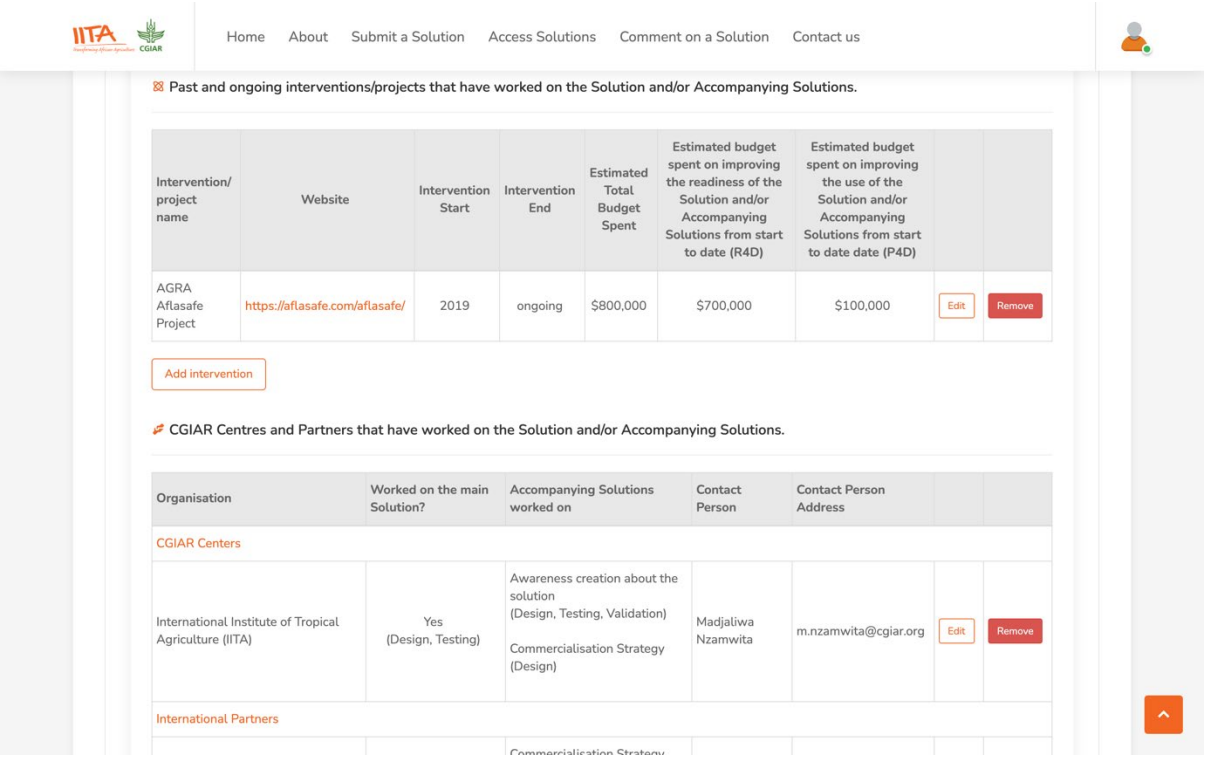
Implication for ProPAS: For each context * site ProPAS collects information on which intervention and partnerships supported the design, testing, validation or increased use of (accompanying) solutions.

What does it look like in ProPAS?

In line with the above rationale ProPAS collects information on:

- Interventions that supported (accompanying) Solution design, testing, validation or increased use for each of the country * site
- Partnerships that supported (accompanying) Solution design, testing, validation or increased use for each of the country * site
- Contact details of persons in partner organisations

- Indicative budget spend on improving Innovation Readiness (R4D) and Innovation Use (P4D)



3.2.6 Step 5: Periodical adaptation and evidence-based Scaling Readiness assessment of the Solution and Accompanying Solutions for different context and goals

Why are we collecting this information?

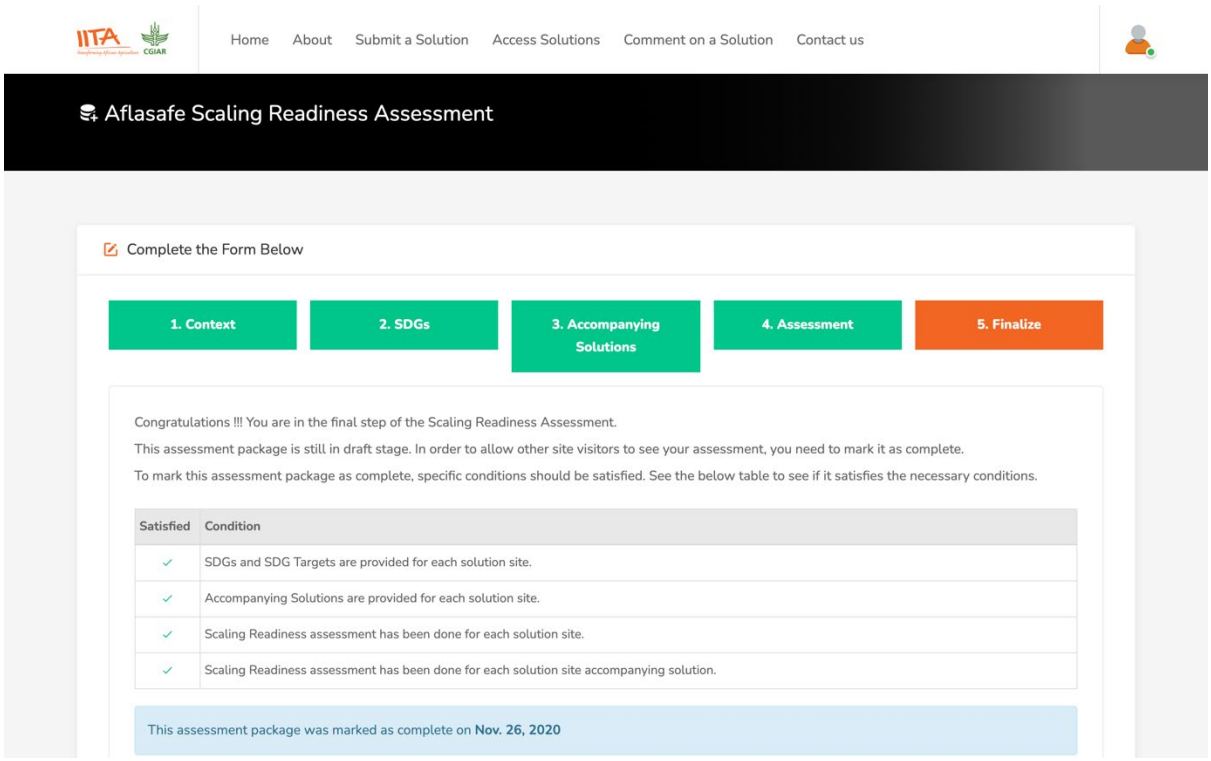
Several studies have noted that the success of similar R4D interventions may vary considerably over time. For example, in agriculture, the 'green revolution' is a good example of how the scaling of uniform high input use in farming (e.g., fertilizers, improved crop varieties) had differential impact over space and time. Thus, Innovation Readiness and Innovation Use are likely to change (increase or decrease) over time as a result of interventions and investments.

Implication for ProPAS: For each context * site periodical Scaling Readiness assessments should be conducted (e.g. once per year) so that IITA has insights in the changes in Readiness and Use of its Solution packages

What does it look like in ProPAS?

In line with the above rationale and scientific underpinnings ProPAS collects information on:

- Date of Scaling Readiness assessment.



3.3 Scaling Readiness in the front-end ProPAS dashboard

3.3.1 Main Scaling Readiness Assessment data in the dashboard

Once all information is provided and published, the data can be accessed through the ProPAS dashboard. The dashboard shows context and time specific Scaling Readiness Assessment of the Solution Package for a specific context (country * site) and time (assessment date). The dashboard displays the Solutions and Complementary Solutions, their scores of Innovation Readiness and Innovation Use, and related position in the Scaling Readiness graph.

Scaling Readiness Graph

Overview of Solution (orange) and accompanying Solutions (in green)

3.3.2 Additional Scaling Readiness data and information in the dashboard

Three other Scaling Readiness metrics are captured in the dashboard:

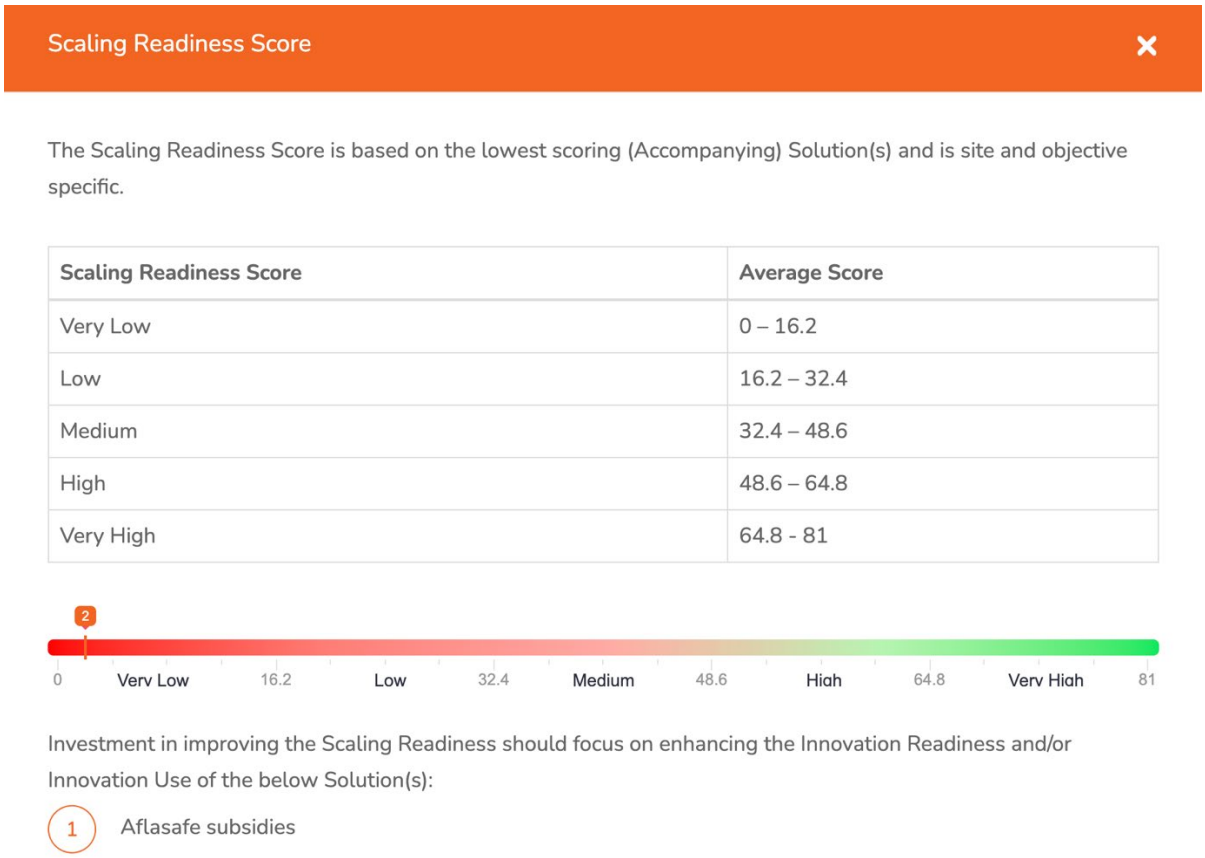
1. Scaling Readiness Score

The Scaling Readiness Score is based on the lowest scoring (Accompanying) Solution(s) and is site and objective specific.

How is it determined:

- Innovation Readiness * Innovation Use of the lowest scoring (accompanying) solution in the package
- Based on the score, the Scaling Readiness is determined along a gradient of Very Low, Low, Medium, High, Very High

What does it look like in ProPAS:



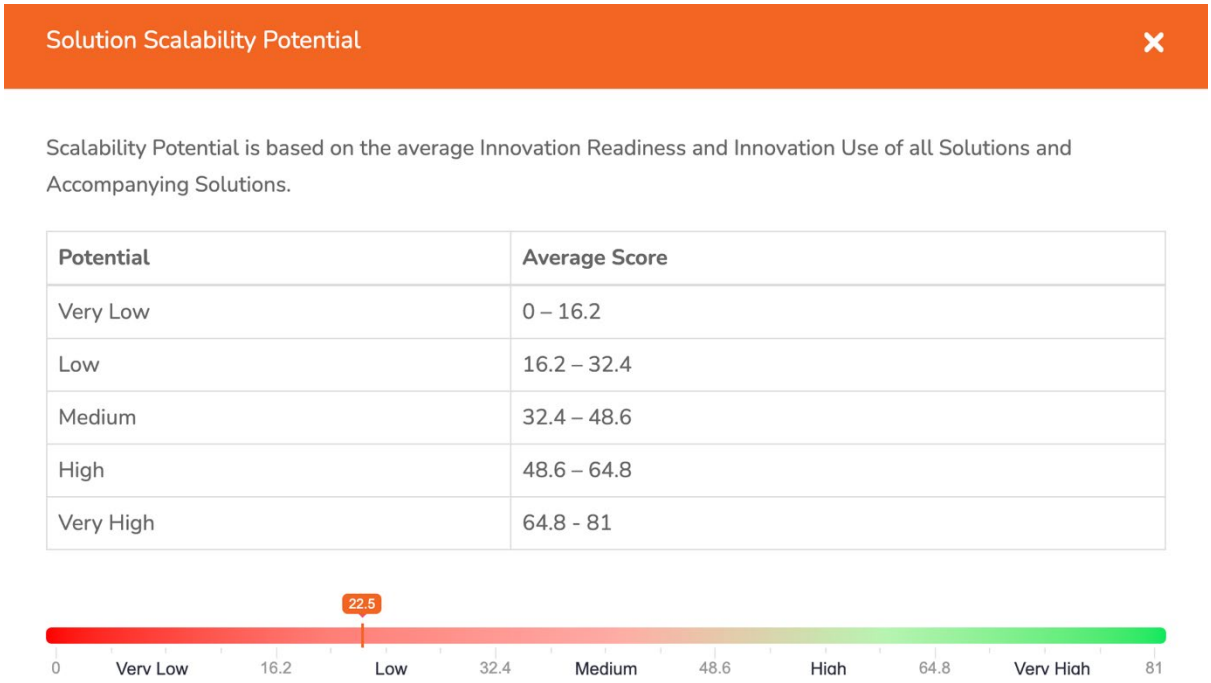
2. Solution Scalability Score

Scalability Potential is based on the average Innovation Readiness and Innovation Use of all Solutions and Accompanying Solutions.

How is it determined:

- Average Innovation Readiness * Innovation Use scores of all (accompanying) solution in the package
- Based on the average score, the Scaling Readiness is determined along a gradient of Very Low, Low, Medium, High, Very High

What does it look like in ProPAS:



3. Score Credibility

Scaling Readiness Credibility is based on the extent to which the Scaling Readiness assessment is evidence-based.

How is it determined:

- It calculates the percentage of Innovation Readiness and Innovation Use assessments/ scores that were evidence-based

What does it look like in ProPAS:

Score Credibility

Scaling Readiness Credibility is based on the extent to which the Scaling Readiness assessment is evidence-based. Out of the 28 required evidence, only 5 were provided which gives a credibility of 17.9%.

Scaling Readiness Assessment of the Solution

Solution	Readiness Evidence Provided	Use Evidence Provided
Aflasafe	Go to link	Go to link

Scaling Readiness Assessment of the Accompanying Solutions

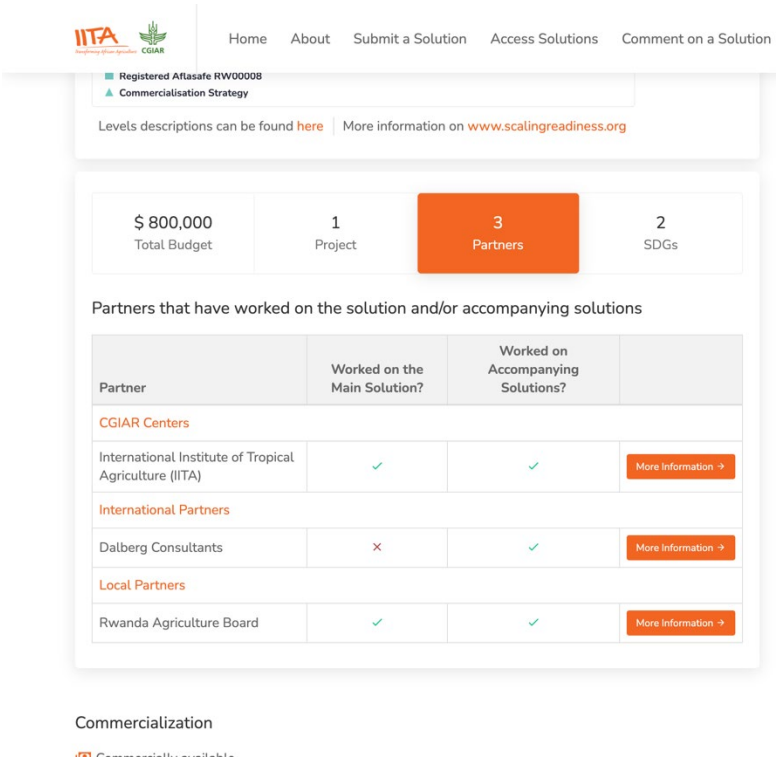
Accompanying Solution	Readiness Evidence Provided	Use Evidence Provided
Access to information about the solution	×	×
Access to market for product	×	×
Awareness creation about the solution	×	×
Cooperative structure or producer association	×	×
Enabling policy environment	×	×
Functional partnerships/collaboration	×	×
Aflasafe How to Use Guide	×	×

Access to evidence provided on the Innovation Readiness and Innovation Use of the Solution is public. Evidence on the Innovation Readiness and Innovation Use of the accompanying Solutions is not public.

3.3.3 Other data and information in the dashboard

There are two other Scaling Readiness functionalities integrated in the dashboard:

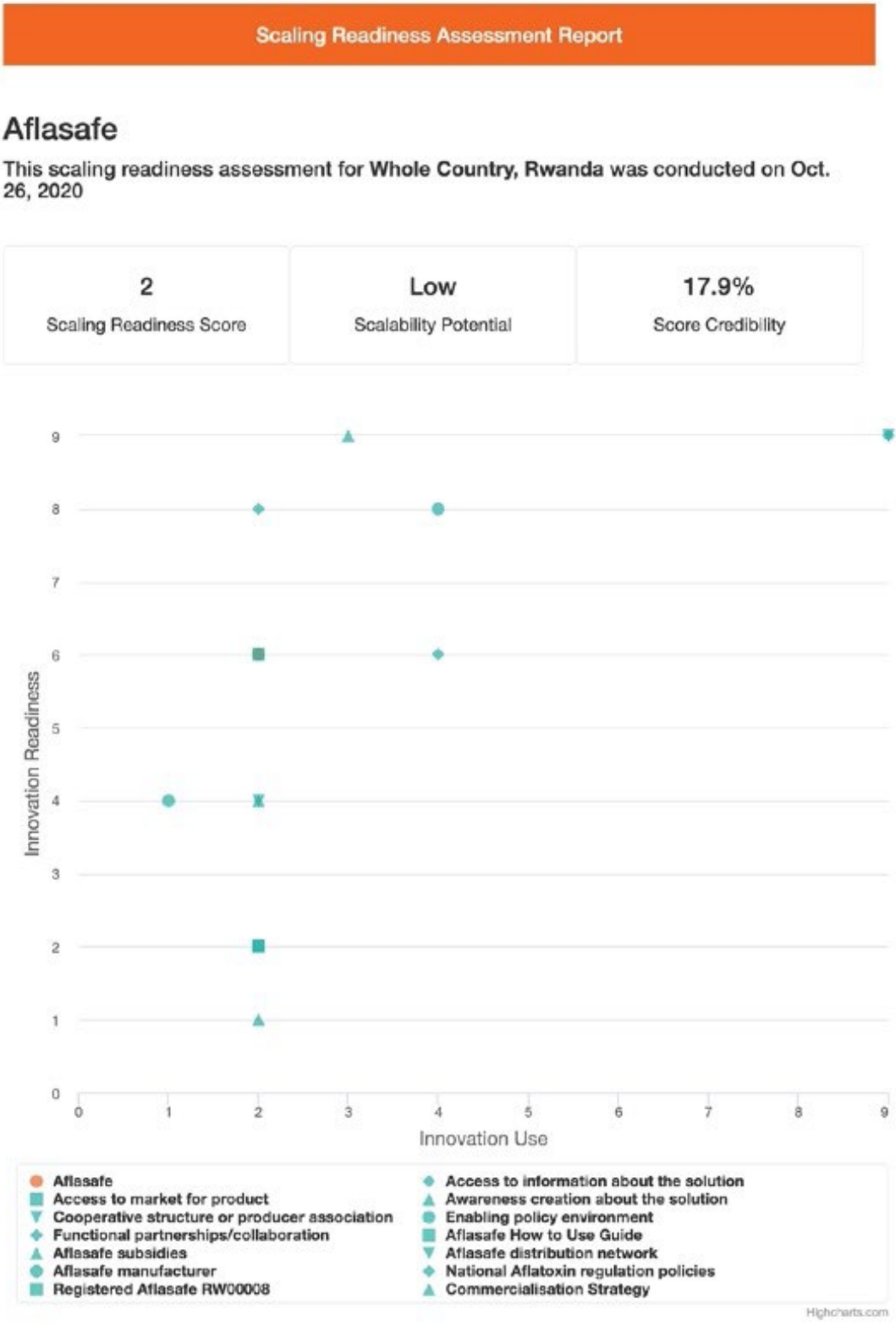
1. Summary data on budget, projects, SDGs and partnerships



Each of the fields provides an opportunity to access more detailed data, e.g. on the SDG targets that the Solution aspires to contribute to.

2. Opportunity to download the Scaling Readiness assessment as PDF

This will enable easy integration of the Scaling Readiness assessment into reports, presentations, etc.

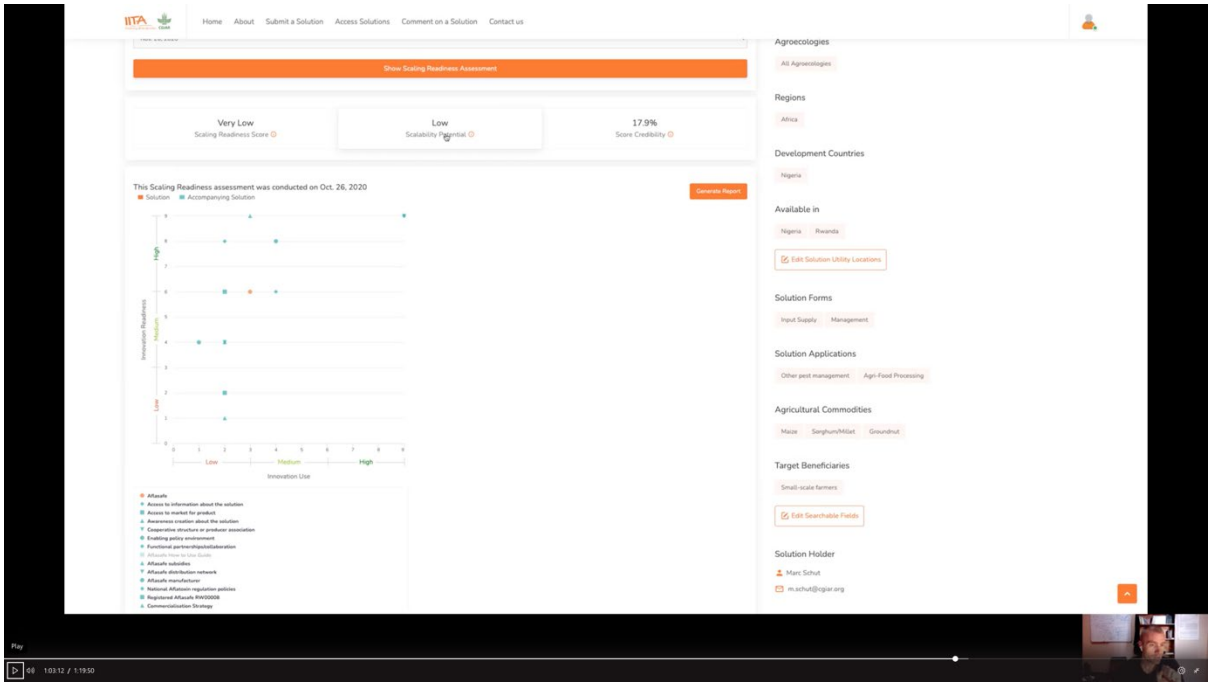


4. Online tutorials on the development and use of Scaling Readiness in ProPAS

Two online tutorials have been developed. The first explains the key decisions and design principles and choices behind the Scaling Readiness module in ProPAS (Section 4.1). The second one explains how Solution owners should carry out the Scaling Readiness Assessment in ProPAS (Section 4.2).

4.1 Tutorial on the development of the Scaling Readiness Assessment module in ProPAS

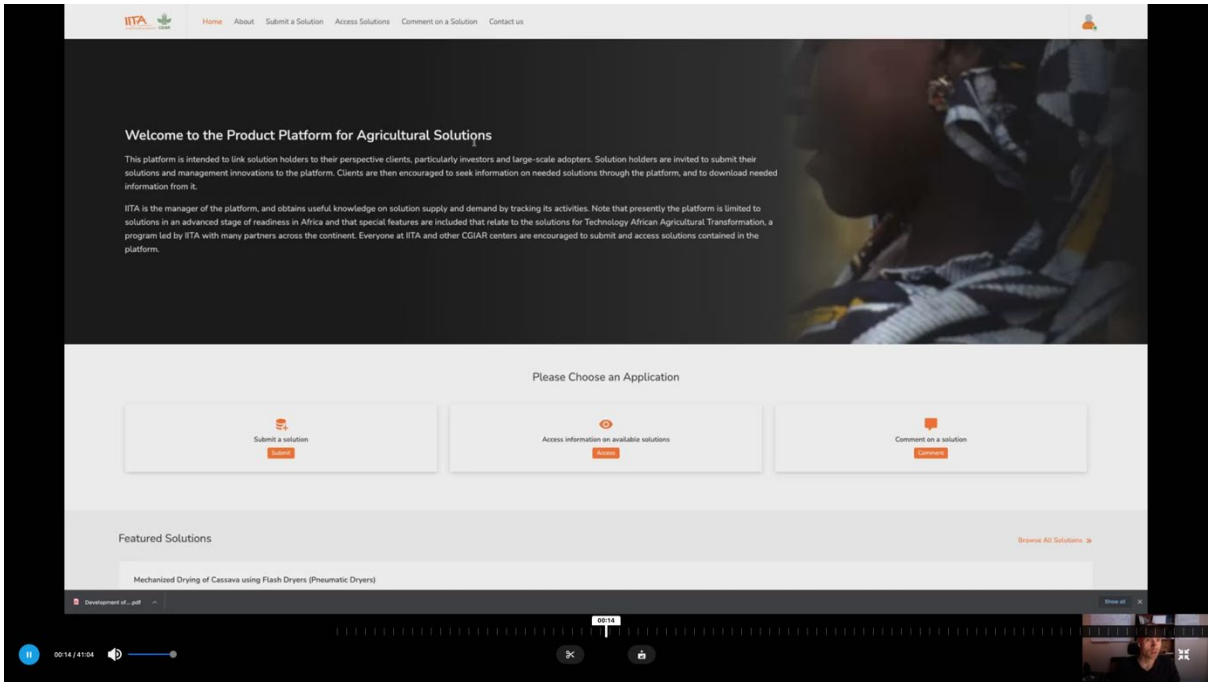
The online Tutorial can be found here:
https://www.dropbox.com/s/vi8prkxwz7j7nge/Meeting%20with%20Schut%2C%20Marc%20%28IITA%29.mp4?dl=0



The gitlog file that was kept during the development and testing of the Scaling Readiness Assessment module can be accessed here:
https://www.dropbox.com/s/02skd49r0f26kzq/propasgitlog.txt?dl=0.

4.2 Tutorial for data entry Scaling Readiness Assessment module in ProPAS

The online Tutorial on how to properly enter data in ProPAS can be found here: https://www.dropbox.com/s/p2sra49tosnozge/Meeting%20with%20Schut%2C%20Marc%20%28IITA%29%20%281%29.mp4?dl=0



5. Limitations and ideas for further development of Scaling Readiness in ProPAS

The design team identified a number of limitations of the current system for Scaling Readiness Assessment:

- Initial solution inventory data requirements not always clear
- No information on gender/ diversity
- No SDG-based assessment
- Self-assessment by solution leaders (bias)
- No structure yet for review/ quality control
- No dashboard for internal management and decision-making

In addition, the design team also identified a number of ideas for the further development of Scaling Readiness in ProPAS:

- Improve initial data entry steps ProPAS (Phase 1)
- Test and refine ProPAS and Scaling Readiness module with dedicated user groups (solution holders)
- Have an additional quality control step after the Scaling Readiness assessment is completed, to assess the accuracy and evidence-base of the assessment.
- Enable dynamic Scaling Readiness assessment and visualisation in the dashboard
- Develop a back-end & dashboard for internal decision-making/ portfolio management
- Set up a taskforce/ unit that can perform quality assurance of the system
- Integrate annual ProPAS updates in staff PAR cycle for sustained use

6. Annexes

Annex 1a: Levels/ scores of Innovation Readiness

Innovation Readiness score	Innovation readiness level	Description
0	Idea	Genesis of the innovation. Formulating an idea that an innovation can meet specific goal.
1	Hypothesis	Conceptual validation of the idea that an innovation can meet specific goals and development of a hypothesis about the initial idea.
2	Basic Model (unproven)	Researching the hypothesis that the innovation can meet specific goals using existing basic science evidence.
3	Basic Model (proven)	Validation of principles that the innovation can meet specific goals using existing basic science evidence.
4	Application Model (unproven)	Researching the capacity of the innovation to meet specific goals using existing applied-science-evidence.
5	Application Model (proven)	Validation of the capacity of the innovation to meet specific goals using existing applied science evidence.
6	Application (unproven)	Testing of the capacity of the innovation to meet specific goals within a controlled environment that reflects the specific spatial-temporal context in which the innovation is to contribute to achieving impact.
7	Application (proven)	Validation of the capacity of the innovation to meet specific goals within a controlled environment that reflects the specific spatial-temporal context in which the innovation is to contribute to achieving impact.

8	Incubation	Testing the capacity of the innovation to meet specific goals or impact in natural/real/uncontrolled conditions in the specific spatial-temporal context in which the innovation is to contribute to achieving impact with support from an R4D.
9	Ready	Validation of the capacity of the innovation to meet specific goals or impact in natural/real/uncontrolled conditions in the specific spatial-temporal context in which the innovation is to contribute to achieving impact without support from an R4D.

Annex 1b: Levels/ scores of Innovation Use

Innovation use score	Innovation use level	Description
0	None	Innovation is not used for achieving the objective of the intervention in the specific spatial-temporal context where the innovation is to contribute to achieving impact
1	Intervention team	Innovation is only used by the intervention team who are developing the R4D intervention
2	Effective partners (rare)	Innovation has some use by effective partners who are involved in the R4D intervention
3	Effective partners (common)	Innovation is commonly used by effective partners who are involved in the R4D intervention
4	Innovation network (rare)	Innovation has some use by stakeholders who are not directly involved in the R4D intervention but are connected to the effective partners
5	Innovation network (common)	Innovation is commonly used by stakeholders who are not directly involved in the R4D intervention but are connected to the effective partners
6	Innovation system (rare)	Innovation has some use by stakeholders who work on developing similar, complementary or competing innovations but who are not directly connected to the effective partners
7	Innovation system (common)	Innovation is commonly used by stakeholders who are developing similar, complementary or competing innovations but who are not directly connected to the effective partners
8	Livelihood system (rare)	Innovation has some use by stakeholders who are not in any way involved in or linked to the development of the R4D innovation

9	Livelihood system (common)	Innovation is commonly used by stakeholders who are not in any way involved in or linked to the development of the R4D innovation

Annex 2a: Decision-tree to score Innovation Readiness

Question level 1	Answer options level Q1	Question level 2	Answer options level Q2	Question level 3	Answer level Q3	Innovation Readiness level	Evidence
1) Which statement fits best with the current status/ maturity of the (accompanying) solution?	1a) The (accompanying) solution is at its genesis where there are some **ideas and hypotheses** about how it could contribute to specific societal outcomes	2) What statement fits best with the current status/ maturity of the (accompanying) solution?	2a) The (accompanying) solution is an **idea**, no hypotheses have been formulated	→		0 Idea	N/a
			2b) The (accompanying) solution is an idea for which theory-based **hypotheses have been formulated**	→		1 Hypothesis	Provide evidence to support the claim
	1b) The (accompanying) is at the level of **basic model** where hypotheses on its contribution to achieving specific societal outcomes are tested or validated (basic model)	2) What statement fits best with the current testing and/or validation of the hypotheses?	2a) The hypotheses underlying the basic model are being **tested**	→		2 Basic model (unproven)	Provide evidence to support the claim

			2c) The hypotheses underlying the basic model have been **validated**	→		3 Basic model (proven)	Provide evidence to support the claim
	1c) The (accompanying) solution is being tested or validated for its capacity to contribute to specific societal outcomes **under controlled conditions**	2) What statement fits best with the current status/ maturity of the (accompanying) solution?	2a) The (accompanying) solution is at the level of **working model** that is being tested or validated for its capacity to contribute to specific societal outcomes **under fully-controlled conditions** (e.g. laboratory or greenhouse)	3) What statement fits best with the current testing or validation of the working model?	3a) The capacity of the working model **is being tested** under fully-controlled conditions	4 Working model (unproven)	Provide evidence to support the claim
					3b) The capacity of the working model **has been validated** under fully-controlled conditions	5 Working model (proven)	Provide evidence to support the claim

			2b) The (accompanying) solution is at the level of **application** that is being tested or validated for its capacity to contribute to specific societal outcomes **under semi-controlled conditions** that reflect its end-use-context (e.g. on-station or on-farm trials)	3) What statement fits best with the current testing or validation of the application?	3a) The capacity of the application **is being tested** under semi-controlled conditions	6 Application (unproven)	Provide evidence to support the claim
					3b) The capacity of the application **has been validated** under semi-controlled conditions	7 Application (proven)	Provide evidence to support the claim
	1f) The (accompanying) solution is at the level of **incubation** and is being tested or validated for its	2) What statement fits best with the current status/	2a) The innovation has been **tested under un-controlled conditions** without	→		8 Incubation	Provide evidence to

	capacity to contribute to specific societal outcomes **under un-controlled conditions** that reflect its end-use-context without support of an organization or project	maturity of the (accompanying) solution?	support of an R4D organization or project.				support the claim
			2b) The innovation has been **validated under un-controlled conditions** without support of an R4D organization or project.	→		9 Scaling Ready	Provide evidence to support the claim

Annex 2b: Decision-tree to score Innovation Use

Question level 1	Answer options level Q1	Question level 2	Answer options level Q2	Question level 3	Answer level Q3	Innovation Use level	Evidence
1) Which statement fits best fits with the current use of the (accompanying) solution?	1a) The (accompanying) solution is currently not being used					0 No use	N/a
	1b) The (accompanying) solution is currently being used by organisations or people (incl. farmers) that **receive resources** for its use (project partners)	2) Which statement fits with the current use of the (accompanying) solution by project partners?	2a) The (accompanying) solution is **only being used by** the organizations and/or people that lead the project			1 Project (lead)	Provide evidence to support the claim
			2b) The (accompanying) solution is being **used by some** project partners			2 Project partners (rare)	Provide evidence to support the claim
			2c) The (accompanying) solution **is commonly used** by			3 Project partners (common)	Provide evidence to support the claim

			the project partners				
	1c) The (accompanying) solution is currently being used by other organisations or projects that **do not receive resources** for its use (next-users)	2) Which statement fits best with the current use of the (accompanying) solution by next-users?	2a) The (accompanying) solution is used by **other organisations or projects that are directly related to** the project partners involved in its original design, testing and validation (direct next-users)	3) Which statement fits best with the current use of the innovation by direct next-users?	3a) The (accompanying) solution is **used by some** other direct next-users	→ 4 Direct next-users (rare)	Provide evidence to support the claim
					3b) The (accompanying) solution **is commonly used by** direct next-users	→ 5 Direct next-users (common)	Provide evidence to support the claim
			2b) The (accompanying) solution is used by other organisations or projects that **are not directly related to** the project partners involved in its original	3) Which statement fits best with the current use of the innovation by indirect next-users?	3a) The (accompanying) solution is **used by some** indirect next-users	→ 6 Indirect next-users (rare)	Provide evidence to support the claim

			design, testing and validation (indirect next-users)				
					3b) The (accompanying) solution **is commonly used by** indirect next-users	7 Indirect next-users (common)	Provide evidence to support the claim
	1d) The (accompanying) solution is currently being used by beneficiaries (e.g. farmers, extension officers, households, citizens) that **do not receive resources** for its use (end-users)	2) Which statement fits best with the current use of the (accompanying) solution by end-users?	2a) The (accompanying) solution **is being used by some** end-users	→		8 End-user (rare)	Provide evidence to support the claim
			The (accompanying) solution **is commonly used** by the end-users	→		9 End-user (common)	Provide evidence to support the claim