UPSCALE

UPSCALING THE BENEFITS OF PUSH-PULL TECHNOLOGY FOR
SUSTAINABLE AGRICULTURAL INTENSIFICATION IN EAST AFRICA

D1.3:

STRATEGIC PLAN FOR KNOWLEDGE-SHARING AND CAPACITY-BUILDING IN MACS

January/2022

UPSCALE

Author(s)/Organisation(s)	Aila, F. O. (MU), Ombok, B. O. (MU), Odhiambo, G. D. (MU)
Contributor(s)	Khan, Z. (*icipe*), Otim, M. (NARO), Olagoke, A. (LUH), Chidawanyika, F. (*icipe*), Pittchar, J. (*icipe*), Didier, N. (FH)
Work Package	1
Delivery Date (DoA)	31st January 2022
Actual Delivery Date	
Abstract:	This public deliverable documents how UPSCALE proposes to execute both internal and external information sharing and capacity building strategy within the context of multi-actors communities (MACs) of practice. Various communications channels and tools suitable for this purpose are described. A strategy matrix for the three pronged strategy, viz: 1) Establishment of repositories and advocacy knowledge; 2) Collaborative development of information sharing and capacity-building materials to target audience; and 3) Transdisciplinary collaboration and communication through Knowledge Exchange Hub (KEH). It is hoped that this strategy will enable continued engagement with MACs during and beyond the project period.

Document Revision History			
Date	**Version**	**Author/Contributor/ Reviewer**	**Summary of main changes**
26/01/2022	1	Aila, F. O. (MU), Ombok, B. O. (MU), Odhiambo, G. D. (MU)	Drafted the original report
30/01/2022	2	Otim, M. (NARO), Olagoke, A. (LUH), Chidawanyika, F. (*icipe*), Pittchar, J. (*icipe*), Didier, N. (FH), Aila, F. O. (MU), Ombok, B. O. (MU), Odhiambo, G. D. (MU), Khan, Z. (*icipe*),	Revised the report for minor edits; inserted LEAP4FNSSA, FARA, ASERECA; strengthened discussion on co-construction processes; inserted information on: Mobile Apps, mass media & farmers field days and roadshows; inserted.

Dissemination Level		
PU	Public Deliverable	XX
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the Consortium (including the Commission Services)	

UPSCALE

UPSCALE Consortium		
No	**Participant Organisation Name**	**Short Name**	**Country**
1	LEIBNIZ UNIVERSITAET HANNOVER	LUH	DE
2	THE INTERNATIONAL CENTRE OF INSECT PHYSIOLOGY AND ECOLOGY LBG	ICIPE	KE
3	BAYERISCHE FORSCHUNGSALLIANZ BAVARIAN RESEARCH ALLIANCE GMBH	BayFOR	DE
4	EASTERN AFRICA FARMERS' FEDERATION SOCIETY	EAFF	KE
5	JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY	JKUAT	KE
6	KENYA AGRICULTURAL AND LIVESTOCK RESEARCH ORGANISATION	KALRO	KE
7	MASENO UNIVERSITY	MU	KE
8	FH ASSOCIATION	FH	CH
9	RWANDA AGRICULTURE AND ANIMAL RESOURCES DEVELOPMENT BOARD	RAB	RW
10	INOSENS DOO NOVI SAD	INOSENS	RS
11	UNIVERSITY OF KWAZULU-NATAL	UKN	ZA
12	LUNDS UNIVERSITET	ULUND	SE
13	SVERIGES LANTBRUKSUNIVERSITET	SLU	SE
14	UNIVERSITAT ZURICH	UZH	CH
15	TANZANIA AGRICULTURAL RESEARCH INSTITUTE	TARI	TZ
16	NATIONAL AGRICULTURAL RESEARCH ORGANISATION	NARO	UG
17	INSTITUTE FOR SUSTAINABLE DEVELOPMENT	ISD	ET
18	JULIUS-MAXIMILIANS-UNIVERSITAT WUERZBURG	UWUE	DE

Funding Scheme: Research and Innovation Action (RIA) ● Theme: H2020-SFS-2019-2
Project Start Date: 01 November 2020 ● Duration: 60 months

Table of contents

List of tables

List of figures

List of Abbreviations and Acronyms	
ASARECA	The Association for Strengthening Agricultural Research in Eastern and Central Africa
AU	African Union
EC	European Commission
EU	European Union
EWA-BELT	Linking East and West African Farming Systems experience into a BELT of sustainable intensification
FARA	The Forum for Agricultural Research in Africa
FNS	Food Nutrition Security
FT	Farmer Teachers
GA	General Assembly
InnovAfrica	The Innovations in Technology, Institutional and Extension Approaches towards Sustainable Agriculture and Enhanced Food and Nutritional Security in Africa
KEH	Knowledge Exchange Hub
LEAP4FNSSA	Long-term EU-AU Research and Innovation Partnership for Food Nutrition Security and Sustainable Agriculture
MACs	Multi-Actor Communities of practice
PPT	Push Pull Technology
RSM	Regional Stakeholders Meeting
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
SSA	Sub-Saharan Africa
TD	Transdisciplinary research
UPSCALE	Upscaling the Benefits of Push-Pull Technology for Sustainable Agricultural Intensification in East Africa
VKC	Village knowledge centre
WP	Work Package

1   Introduction

Deliverable D1.3 on Strategic Plan for Knowledge-Sharing and Capacity-Building in Multi-Actor Communities (MACs) of Practice develops a multi-actor transdisciplinary knowledge-building strategy among UPSCALE partners, research, extension providers, policy and various value chain stakeholders. This strategy covers both internal and external information sharing, support/dialogue/exchange/relationship building, action/behaviour change and decision guidance, in the context of MACs, participative research tasks and multi-stakeholder workshops. This strategy is aimed at breaking the disciplinary barriers to foster knowledge sharing and capacity building among MACs.

2   Objectives

The objectives of D1.3 are:

    i)   To establish repositories and advocacy knowledge resources.
    ii)   To develop information sharing and capacity-building materials.
    iii)   To continuously provide information to UPSCALE partners, MAC stakeholders and the broader public through the Knowledge Exchange Hub (KEH).

3   Conceptual Framework: Stakeholders and Communications Strategy

Information Sharing   Support/Dialogue   Exchange Relationship Building   Action/Behaviour Change Decision Guidance   participative research tasks   multi-stakeholder workshops
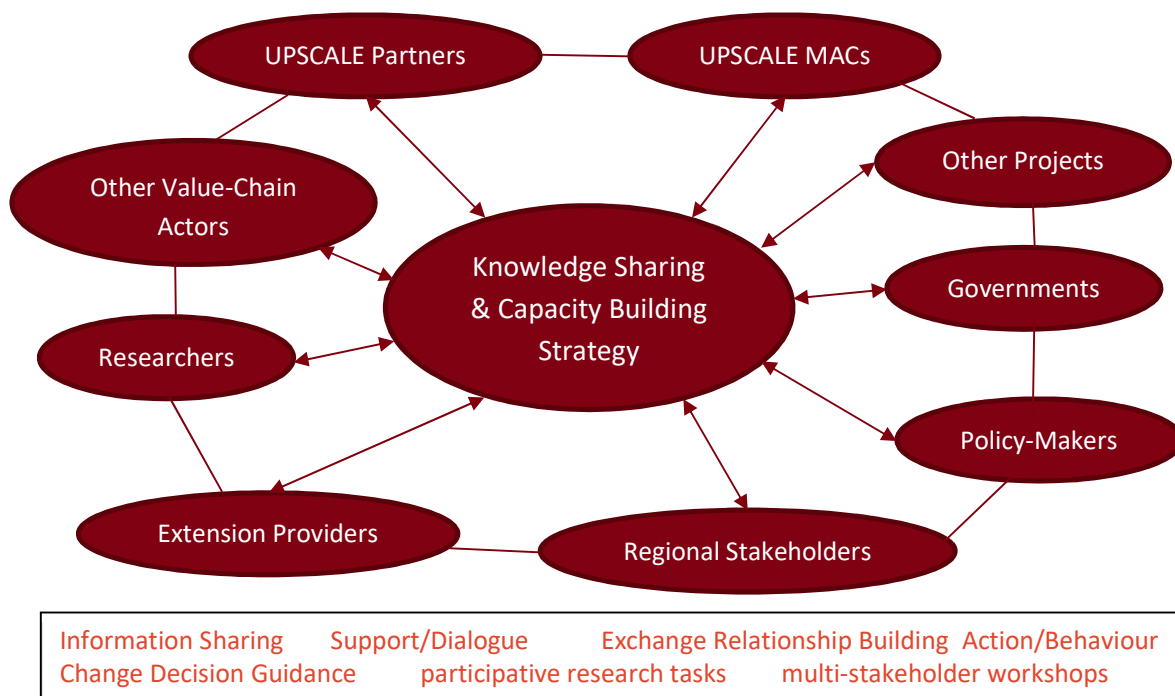
Figure 1 Knowledge Sharing and Capacity Building Strategy for MACs

Transdisciplinary (TD) MACs will be designed to participate in co-design and co-construction of knowledge. Therefore the Knowledge Sharing and Capacity Building Strategy for MACs (Figure 1) recognises the multiplicity of stakeholders who work collaboratively in the co-construction processes. Co-construction of knowledge will require engagements, conversations, and external dialogues among MAC members, UPSCALE partners, researchers, extension service providers, policymakers, government agencies, other EU-AU projects and various value chain stakeholders. Intentionally, UPSCALE MACs will be designed as a platform that incorporates participants and other stakeholders along push-pull technology (PPT) value chains. By targeting each audience group, this strategy will enable participatory information sharing as well as capacity building on sustainable intensification of push-pull technology. The strategy will enhance scaling-up PPT through multi-actor technical and commercial interaction along the value chain. It will also serve as input to targeted dissemination and communication efforts (WP8) for stakeholders including farmers and the wider public not directly participating in MAC and project events.

The communications strategy identifies communications channels and tools used for information sharing and capacity building. These channels and tools are described in Strategic Communication and Dissemination Plan (D8.1) and cover online, offline and interactive communications. The communications channels and tools comprise of: UPSCALE visual identity (logo, colour palette, templates and EU funding acknowledgement); online presence (UPSCALE Website plus the knowledge exchange hub (KEH), how to engage partner websites, social media channel mix and other channels, newsletter and promotional materials; networking and liaising with other projects; and promotional events and stakeholder engagements. This strategy will use appropriate communications channels and tools.

The strategy is divided into internal and external information sharing and capacity building strategies. Each of these strategies is described subsequently. Thereafter a strategy matrix is presented.

4 Internal Information Sharing and Capacity Building Strategy

This strategy will strengthen the implementation of transdisciplinary knowledge sharing, co-design and co-construction processes among the UPSCALE partners. The partners exhibit diversity of expertise and therefore need a seamless/unified front in engaging with one another. The project has developed several deliverables/protocols that guide internal information sharing and exchanges. These include the Project Management Platform (D9.1), Strategic Communication and Dissemination Plan (D8.1), Exploitation and IPR plan (D8.11), Project Management Plan (D9.2), Data Management Plan (D9.3)[1], H - Requirement No. 1 (D10.1), POPD - Requirement No. 2 (D10.2), NEC - Requirement No. 3 (D10.3) that guide internal information sharing and capacity building.

Various communications channels have been established for information sharing and exchanges. These include EMDESK (a repository), UPSCALE Website, knowledge exchange hub (KEH) and consortium emailing list/address. Partner email lists and telephone numbers are shared for quick bilateral communications. Given the Covid-19 pandemic, restricting in-person engagements, partners engage via online tools such as Zoom as an alternative to face-to-face meetings. Where travel

---

[1] These deliverables/protocols identified here are "Confidential, only for members of the consortium (including the Commission Services)" except D9.3 on Data Management Plan that is public.

regulations permit, partners can travel for in-person meetings with prior arrangements. Partners congregate during workshops, general assemblies, status meetings and participate in knowledge exchange and capacity building.

The knowledge resources/products that will be developed by the consortium include: posters, brochures, flyers, handbills, cartoon books, conference proceedings, training manuals/materials/reports, meeting minutes, blogs, newspaper articles, practice abstracts, events reports, scientific papers, policy briefs, standard operating procedures, radio talk shows, advertisements, social media handles, protocols etc. These products will be tailored to specific and targeted audiences based on the Strategic Communication and Dissemination Plan (D8.1). Special emphasis will be put on optimizing the continuous flow of research results to MACs for future research and innovation efforts and orientation, taking into consideration agro-ecological and socioeconomic challenges and barriers (WP 7).

Partner meetings will be participatory to facilitate information flow, foster dialogues and exchanges, and permit prompt feedback. Follow-up activities will be encouraged to enable relationship building and longer-term engagements. Partner capacities will be built through social learning and experiential learning as leaders are role modelled.

During the 1st General Assembly (Kick-Off Conference), partners were trained on transdisciplinary research. A follow-up training was carried out during the second half of the first year. As the consortium moves to its 2nd General Assembly (GA), partners are going to share their outputs in the first year of implementing the project. Valuable information will be shared. The partners will participate in the Regional Stakeholders Meeting as well. Partners participate in other projects and networks/platforms meetings and conferences that enhance their capacity. Some of these projects and networks/platforms are shown it Table 1:

Table 1: Some Projects and Networks/Platforms Connected to UPSCALE

Entity	Entity Type	Brief Description	Website
INNOVAFRICA	Project	The goal of InnovAfrica is to improve FNS i) by integrating sustainable agriculture intensification systems, innovative institutional approaches with novel extension and advisory services, and ii) by enhancing capacity building and knowledge sharing in smallholder farming in Sub-Saharan Africa (SSA) through a strong EU-Africa Research and Innovation Partnership	www.innovafrica.eu/
EWABELT	Project	The EWA-BELT project aims at developing Sustainable Intensification (SI) of agriculture productions in organic, agroforestry and mixed crop and livestock farming systems in 38 study areas of 6 countries belonging to EAST (Ethiopia, Kenya and Tanzania) and WEST (Burkina Faso, Ghana, Sierra Leone) Africa.	https://ewabelt.eu/

Soils 4 Africa	Project	The aim of Soils4Africa is to provide an open-access soil information system with a set of key indicators and underpinning data, accompanied with a methodology for repeated soil monitoring across the African continent. The soil information system will become part of the knowledge and information system of FNSSA and will be hosted by an African institute.	https://www.soils4africa-h2020.eu/
LEAP4FNSSA	Network/Platform	A Co-ordination and Support Action (CSA) whose main objective is to provide a tool for European and African institutions to engage in a sustainable partnership platform for research and innovation in Food Nutrition Security and Sustainable Agriculture	https://www.leap4fnssa.eu/
FARA	Network/Platform	The Forum for Agricultural Research in Africa (FARA) is the apex continental organization responsible for coordinating and advocating for agricultural research for development (AR4D). FARA serves as the technical arm of the Africa Union Commission on matters concerning agriculture science, technology and innovation.	https://faraafrica.org/
RUFORUM	International NGO/Platform	A consortium of 147 African universities operating in 38 countries in Africa whose mandate is to oversee graduate training	https://ruforum.org/
ASARECA	Not-for-profit sub-regional organization/Platform	A not-for-profit sub-regional organization of the National Agricultural Research Systems (NARS) of 11 member countries, namely: Burundi, the Democratic Republic of the Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, South Sudan, Sudan, Tanzania and Uganda. ASARECA brings together scientists from the national agricultural research institutions of the member countries, national agricultural extension service providers and other strategic development oriented partners to generate, share and promote knowledge and innovations to solve common challenges facing agriculture in the member countries.	https://asareca.org/

Partners will make the following reports periodically, where applicable:

i.   bi-annual technical and financial reports
ii.   publications lists
iii.   risk management reports
iv.   dissemination reports
v.   gender query reports
vi.   press releases (before an event)
vii.   events reports (after an event)
viii.   deliverables
ix.   project status reports

5 External Information Sharing and Capacity Building Strategy

The external information sharing and capacity building strategy will reflect on how the UPSCALE project seeks to engage MACs within UPSCALE as well as other stakeholders and the general public. MACs are dynamic, therefore will require a dynamic and evolving communications strategy. This strategy is subdivided into two:

i.   Communications strategy for UPSCALE MACs, and
ii.   Communications strategy for other stakeholders and the public.

Each of these is described subsequently.

5.1 Communication Strategy for UPSCALE MACs

UPSCALE MACs will be engaged continually during the project. They will participate in meetings as well as convene/organise stakeholder meetings. The meetings will be designed to be open and participatory. During meetings, the members will agree on the agenda, set terms of reference, agree on actions to be taken and agree on the way forward. These meetings will provide opportunities for information sharing as MAC members freely share their experiences, opportunities, and challenges. The National Coordinator, who is represented in the MAC meetings will present a project update to the members. Cutting edge results from the research will be presented and discussed to see their applicability within the specified MACs contexts.

WP1 on Multi-actor transdisciplinary coordination will bring together and coordinate stakeholders and partners for a transdisciplinary research effort with high transformative potential at all stages of the project. Through coordination of transdisciplinary events and workshops in each study region, WP1 will enable participative approaches throughout the research and innovation process, ensuring co-design and co-creation of knowledge by key stakeholders and project partners as the key to long-term sustainability, impact and exploitation of the project results. For this, WP1 will lead the development and merging of Multi-Actor Communities of practice (MACs) around sustainable intensification in cooperation with existing platforms and related ongoing projects.

UPSCALE will implement a transdisciplinary approach by assembling stakeholders in Multi-Actor Communities of practice (MACs) which will build knowledge and push-pull innovations 'from the ground up' and across the value chain of agricultural products, as the participatory basis for activities throughout the project, and for long-term sustainability and impact of the project results. Farmers will be directly involved in all steps of development and implementation through test farms, collaborative

workshops, and field days. Many farmers using push-pull are highly motivated farmer-teachers in their communities. Through long-term engagement with *icipe* and other East African UPSCALE beneficiaries, a strong network of participating farmers is available that has experience in collaborating with scientists, extension services and agencies at various levels. Further, to reach out to actors along the whole value chain, communication and dissemination activities are planned.

In UPSCALE, we will use experiments and large-scale data to expand knowledge of push-pull applicability to scales beyond individual farms, and develop simulation and dissemination tools as well as multi-actor methods for 1) optimal targeting and upscaling of dissemination efforts of the existing technology, and 2) expansion and integration of push-pull principles into cropping systems and integrated soil, water and pest management approaches where they are currently lacking.

In UPSCALE, we will explicitly address trade-offs between scales and the multiplicity of pathways towards sustainable intensification by connecting research at field, landscape and regional to national and international levels, while considering the high context-specificity of sustainable intensification strategies. For this, the cross-scale benefits and challenges of the push-pull technology will be a major focus in light of existing production systems and emerging practices. Therefore MACs will engage in co-construction processes especially when they synthesize evidence from research coupled with their practice to formulate best practices, action plans, policy dialogues, policy briefs etc.

MAC meetings will identify members' training needs/gaps. In particular, MACs identified transdisciplinary research skills as a gap in the first year of operations. The inputs from the training needs analysis (TNA) will be incorporated into the design and content delivery of the training programme. Some lessons include the need to translate training materials into local dialects (in which participants are comfortable).

Beyond MAC meetings, MACs will engage with each other. They will share common communication channels. They will co-plan activities, invite members to their functions and participate in members' functions. In this regard, these actions will be organised in consultation with the National Coordinators who will ensure that the Strategic Communication and Dissemination Plan (D8.1) is used appropriately. The responsibility for engaging the media before, during and after these events lies with the National Coordinator, on behalf of the UPSCALE Project.

5.2 Communications Strategy for External Stakeholders and the Public

There are several opportunities for engaging other stakeholders and the general public. Some of these channels and tools include:

 i. UPSCALE Website
 ii. Knowledge exchange hub
 iii. Mobile App
 iv. Social media (LinkedIn, Twitter, Facebook)
 v. Policy dialogues and Policy briefs
 vi. Farmer trainers
 vii. Village knowledge centres
 viii. Mass media
 ix. Farmer field days and roadshows

5.2.1 UPSCALE Website

The website, UPSCALE (upscale-h2020.eu) has been set up and is running. It conveys project information to the public. It is the public image of the project. It will be updated regularly according to the policies prescribed in the Strategic Communication and Dissemination Plan (D8.1). It conveys the brand promise and reinforces the communication efforts of the project. It curates important project information such as press releases, events reports, and public project reports. It is agile and interactive permitting a bidirectional flow of information between the project and the public.

5.2.2 Knowledge exchange hub (KEH)

The knowledge exchange hub (KEH) has been developed and implemented in the UPSCALE Website. The project and MACs will provide important project information and resources through KEH. This will enable the continued flow of relevant information to the public. The project will develop and domesticate the eGranary App (EAFF) that will relay relevant market data to the public. The data will include PPT products availability, quality, lot sizes, prevailing market prices, markets etc. The intention is to provide market information to smallholder farmers and sensitise PPT commodity value-chain actors on product availability, market prices and locations.

5.2.3 Mobile Apps

To facilitate reach and boost uptake of push-pull technology, UPSCALE will utilize mobile applications to provide key information, training and decision support to relevant stakeholders. Within UPSCALE, we have developed an intercropping decision app that can guide an identification of suitable intercropping configuration for a specific field by walking a potential user through a quiz on selected on-farm biophysical constraints. All currently available configurations are rooted in scientific, as well as local ecological knowledge. UPSCALE will continue to integrate emerging knowledge and new developments into this app and relevant others.

5.2.4 Social media channels

UPSCALE will use social media platforms such as LinkedIn, Twitter, Facebook as prescribed in Strategic Communication and Dissemination Plan (D8.1). These interactive channels will be used to engage the public before, during and after project events and stakeholder engagements.

5.2.5 Policy dialogues and policy briefs

MACs will participate in policy dialogues during their engagements. These dialogues will be used to unlock barriers to as well as promoting opportunities for sustainable intensification in agriculture through PPT technologies. MACs alongside EAFF will synthesise their findings and prepare policy briefs that enable engaging in external policy dialogues. The policy briefs will be curated on the Website.

5.2.6 Farmer teachers (FT)

A special case of knowledge exchange platform is farmer teachers (FT) who are champion PPT farmers or early adopters. These farmers are equipped by *icipe* to disseminate PPT technology to smallholder farmers in their localities. *icipe* has developed a training curriculum that equips these knowledgeable or experienced farmers. The farmers engage their neighbours, use their farms as demonstration plots and work with field staff to deliver PPT training within the localised context. This model developed by *icipe* will be adapted by UPSCALE project across the study regions.

5.2.7 Village knowledge centres (VKC)

UPSCALE will seek to model information flow to smallholder farmers in a way that influences their attitudes and fosters behaviour change for adoption of PPT. This will include demonstrating effectiveness and viability of PPT at scale, intensification efforts- including diversification to other crops and farming systems. This calls for adopting/adapting best practices gleamed from the INNOVAFRICA project, reflecting on the sustainability of the model beyond the project period.

UPSCALE will use several dissemination and up-scaling approaches to enhance knowledge and uptake of Push-pull. Public media channels and events

5.2.8 Mass Media

Mass media, classified into electronic (radio, television) and print media (brochures, leaflets, booklets, and magazine). Mass media has the advantage of reaching a large number of farmers quickly compared to other personal information pathways. These methods are particularly useful in creating awareness of a new idea and serve as a valuable tool for stimulating farmers' interest in the new idea. To address the disadvantage of transmitting less detailed information unidirectional information flow, limited interaction and delayed feedback, mass media outreach will be complimented with synchronized interactive methods, e.g., field days and farmer teachers.

5.2.9 Famers field days and roadshows

Field days and road shows will be deployed to directly demonstrate and explain Push-pull. Field day sessions take between 4 to 6 hours involving structured presentation of live plants as participants walk through the field plot to view the demonstrations. Farmers directly interact with the facilitators as well as with other farmers and exchange ideas and experiences. Facilitated hands-on training and physical participation of the farmers will be encouraged. The effectiveness of Farmer Field Days as a model to enhance innovation adoption in the project counties will be evaluated at the end of each field day. Road shows will be used to reach a wider audience on mobile caravans and will be used to announce and complement field days. Print media will be distributed at road shows.

These approaches will be used singly or in a combination to build farmers' capacity and providing them with management and problem-solving skills through learning by experience in the field. Previous evaluation of effectiveness and efficiency of the different dissemination methods showed that farmers have specific preferences for pathways and this in turn affected their decision to adopt, the extent of use and the speed of uptake.

These approaches will be used while embracing the strength of Farmer Groups approach which is a key entry point in delivering new technologies to farmers. MACs will facilitate such participatory approaches to enhance adoption besides encouraging equal participation of women and youth. Due to the complexities of factors that affect scaling up, vertical, and horizontal processes will be applied. In the vertical approach, the intent is to influence policy makers while in the horizontal process the aim is to spread the technology across communities and institutions and geographic boundaries. In both processes the efforts will be made to

institutionalize Push-pull technology in the national extension system to jointly address the factors that influence going to scale.

6   Strategy Matrix

Table 2: The Communications Strategy Matrix

	Issue	**Strategy**	**What**	**How**
1	Establishment of repositories and advocacy knowledge resources through compilation of success stories	Generating activities' process and operational reports Developing regular project status updates to all stakeholders. Providing input to the Knowledge Exchange Hub	MDESK repository, UPSCALE Website and Consortium emailing list/address, online platform for project engagements and meetings	Dynamic and evolving. In person and online meetings.
2	Collaborative development of information sharing and capacity-building materials to target audience.	Production relevant communication materials to specific audience including such key stakeholder audiences as; farmers, policy-makers, and businesses agents in the value chain.	Posters Pamphlets Technical advisory notes Brochures Media outreach	Setting up local accessible units for farmers' interaction and information sharing Translation of knowledge resources/materials to local languages (where required)
3	Transdisciplinary collaboration with communication through Knowledge Exchange Hub.	Categorising information for different target groups Identifying effective communication paths, models and mediums to different target groups	Co-creation of information through engagement and participation of all stakeholders Sequencing of information for specific audience or target groups	Establishing Village Knowledge Centres (VKCs). Expanding Farmer Teachers (FTs) model across the project implementation countries. Policy briefs Sharing Market information

7   References

EWA-BELT Project | Horizon2020 Program | Creating a Belt for the Sustainable Intensification in the Sub-Saharian Africa (ewabelt.eu)

https://asareca.org/

https://faraafrica.org/

https://www.leap4fnssa.eu/

icipe - International Centre of Insect Physiology and Ecology

RUFORUM https://ruforum.org/

Soils 4 Africa - Horizon 2020 programme of the European Union (soils4africa-h2020.eu)

UPSCALE (upscale-h2020.eu)

www.innovafrica.eu/