

# Scaling Readiness

Assessing and accelerating  
scaling of innovations

Scaling is hot!



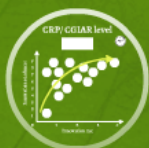
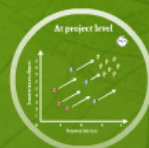
What are we  
scaling?



Science of Scaling



What can we do with it...





# Scaling Readiness

## Assessing and accelerating scaling of innovations

# Scaling is hot!



# What are we scaling?



# Science of Scaling



## What can we do with it...



Developed under:



RESEARCH  
PROGRAM ON  
Roots, Tubers  
and Bananas

Developed with:



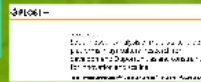
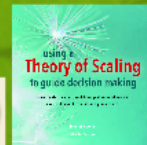
Marc Schut, Murat Sartas, Cees Leeuwis and the CC5.4 Team



# Scaling is hot!



## Context...



- > Value for money in competitive R4D context <
- > (Quick) impact at scale <
- > R&D mandate and identity crisis <
- > Review science agenda to support scaling <
- > Investing in the right types <
- > of R4D and partnerships?

## Scaling the 'old' way

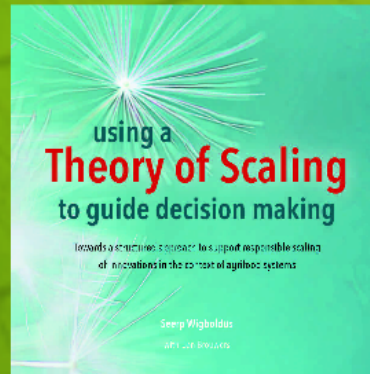
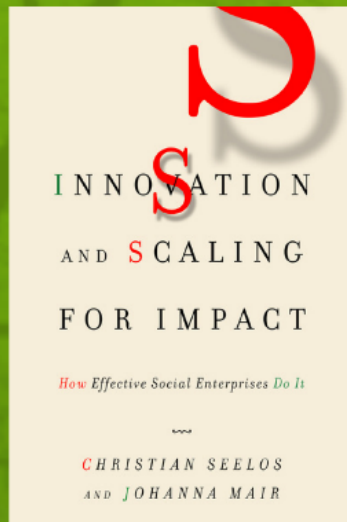


- > End of project or program <
- > No clear strategies of capacities <
- > No financial resources allocated <
- > No scaling experts involved <
- > Limited insights in the needs of scaling partners <
- > Unrealistic ideas about impact <
- > (from idea to reaching 2M farmers in 3 yrs)
- > One size fits all approach <
- > Old tools and media (e.g. flyers, policy brief) <





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Scaling  
the 'old's

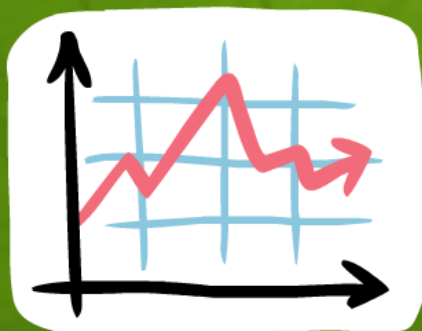


to support scaling <  
right types <  
partnerships?

# Scaling the 'old' way



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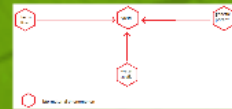
# What are we scaling?

## Innovations are packages



- > Technological innovation (battery strength/ life) <
- > Infrastructural innovation (charging stations) <
- > Market innovation (promotions) <
- > Policy innovation (subsidies for clean vehicles) <
- > Value chain innovation (availability of spare parts) <
- > Mindset innovation (electric cars are 'cool') <
- > Educational innovation (training new mechanics) <
- > Political innovation (fossil fuel lobby?) <

## Innovation is complex



- > Scaling requires us to embrace this complexity >



## Scaling is...



- < Time and space bound >
- < Successful scaling is defined >
- < Constraint by human/ financial resources >
- < Multiple pathways for successful scaling >
- < Not about potential, but about use >



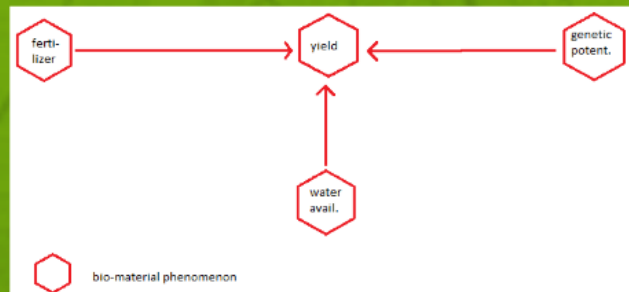
# Innovations are packages



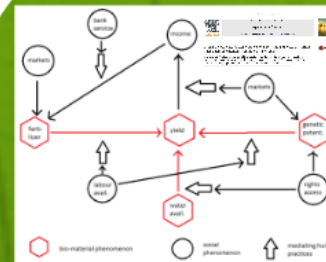
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# Innovation is complex

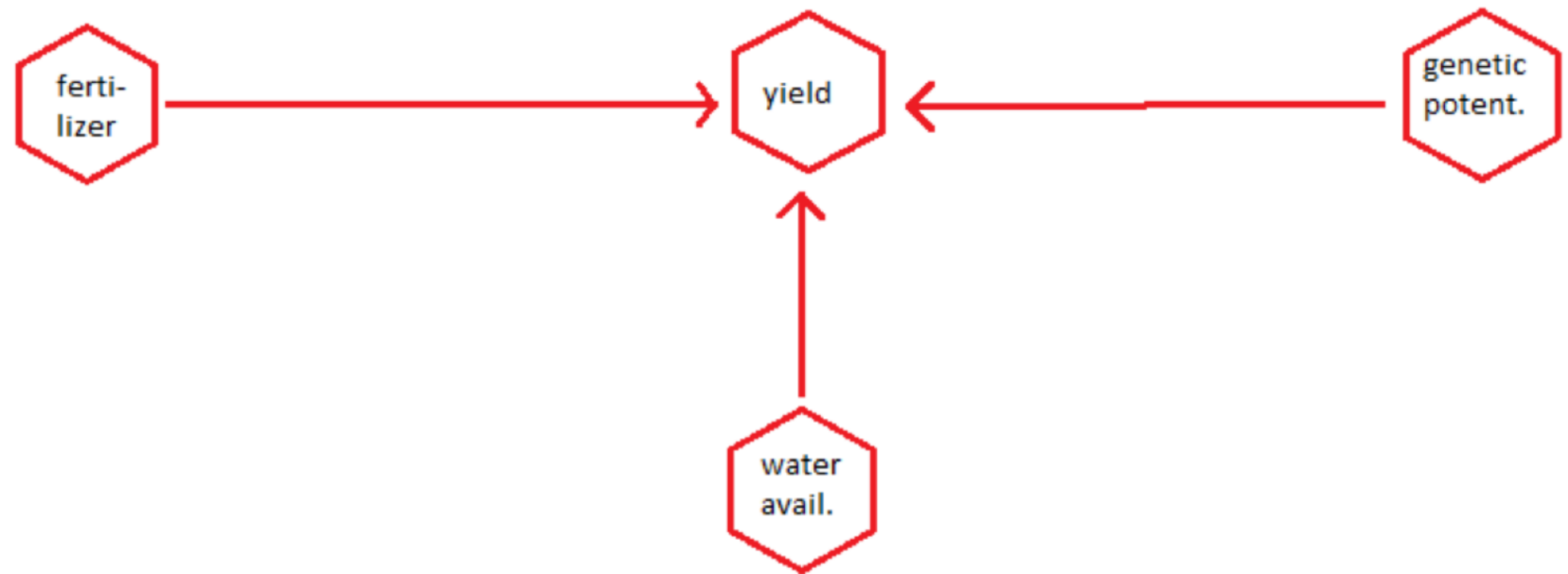


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is...





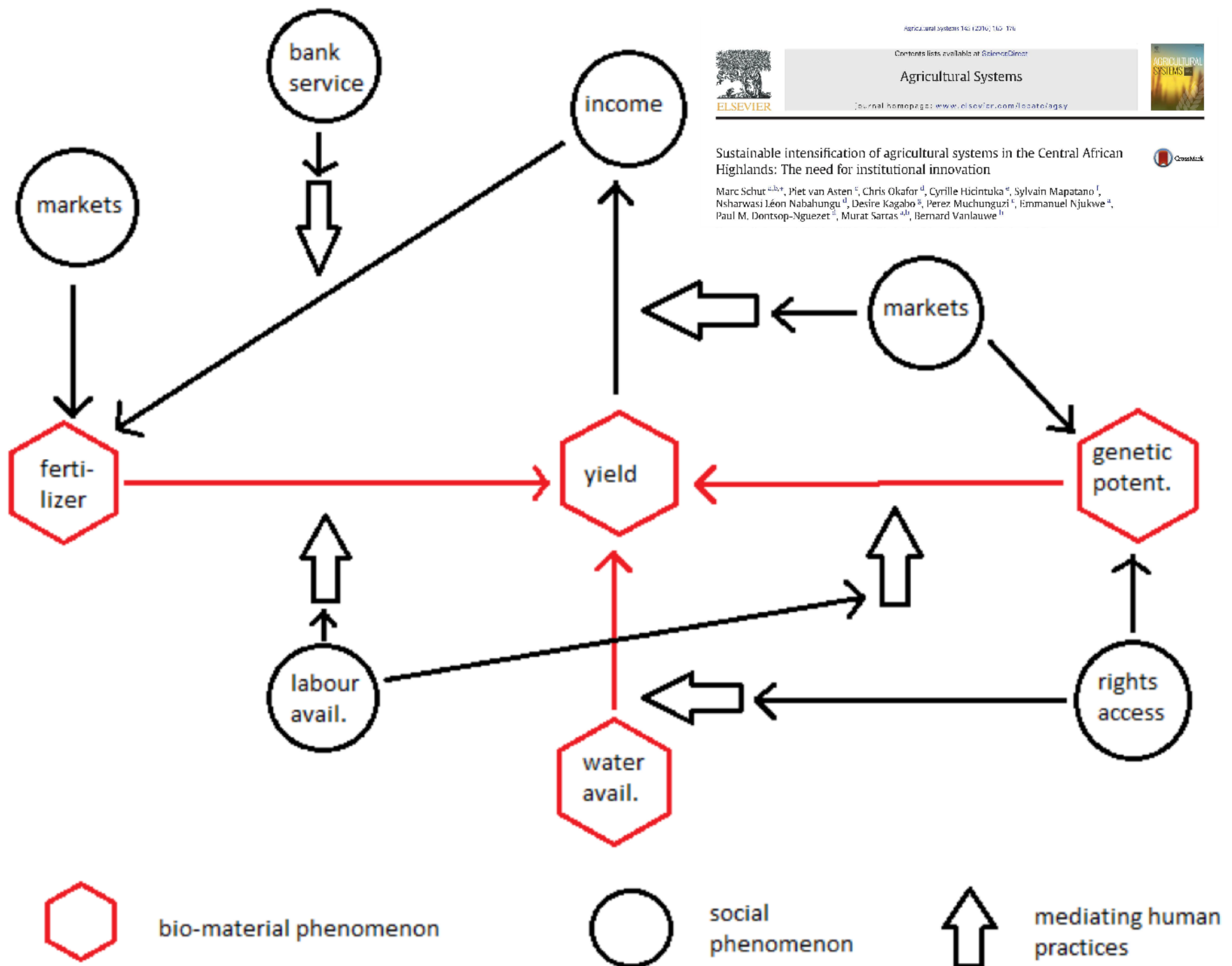
bio-material phenomenon





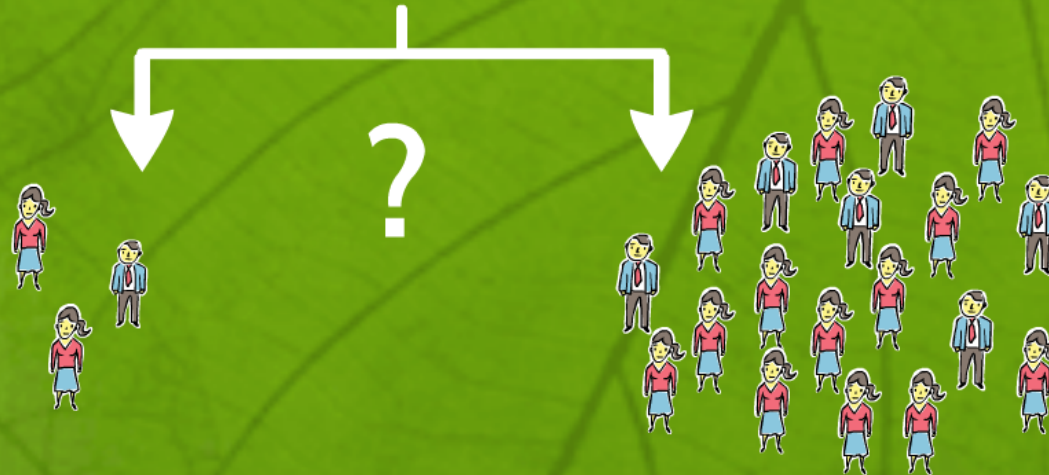
# Sustainable intensification of agricultural systems in the Central African Highlands: The need for institutional innovation

Marc Schut <sup>a,b,\*</sup>, Piet van Asten <sup>c</sup>, Chris Okafor <sup>d</sup>, Cyrille Hicintula <sup>e</sup>, Sylvain Mapotano <sup>f</sup>, Nsharwasi Léon Nabahungu <sup>g</sup>, Desire Kagabo <sup>h</sup>, Perez Muchunguzi <sup>i</sup>, Emmanuel Njukwe <sup>a</sup>, Paul M. Dontsop-Nguezet <sup>j</sup>, Murat Sarcas <sup>a,b</sup>, Bernard Vanlauwe <sup>h</sup>





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# Science of Scaling

## Scaling the 'new' way



## Readiness concept

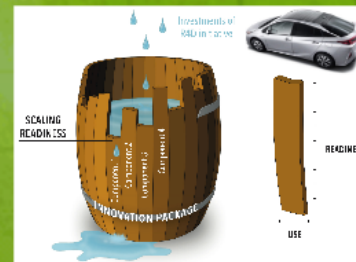


- Sequential approach to innovation and scaling
- Planning along innovation and scaling pathways
- Evidence-based assessment of progress along the ladder
- Project portfolio management
- Responsive R&D investments
- Strategic resource mobilisation

## Principle 1: Innovation Readiness

Level	Readiness
1	Concept
2	Definition of user requirements
3	Analysis and synthesis
4	Validation of design
5	Demonstration of technology
6	Demonstration of system
7	Demonstration of mission
8	Validation of mission
9	Validation of system

## Scaling Readiness



## Preliminary results

- Scaling readiness supports the development of better informed scaling strategies
- Scaling readiness stimulates identification of scaling barriers and guide R&D investment decisions
- Scaling readiness supports adaptive, evidence-based management of innovation and scaling trajectories
- Scaling readiness can guide the identification of partnerships for delivery

## IITA



## Testing the approach



BRANDON  
a system of  
Tools, T-Bots  
and Brains

## Example:



## Principle 2: Innovation Use



# Scaling the 'new' way

## *Where scaling is:*

- < Integral part of project design (Theory of Scaling) >
- < Realistic based on resources allocated >
- < Implemented and monitored by skilled people >  
(Practice of Scaling)
- < Evidence-based investments in R4D partnerships >  
activities
- < Involvement and co-investment of scaling partners >
- < Supported by new media (e.g. ICT-based and tailored >  
to end-user needs)





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# Readiness concept



Federal Ministry  
for Economic Cooperation  
and Development

Discovery - proof of concept - piloting - scaling

- > Stepwise approach to innovation and scaling <
- > Planning along innovation and scaling pathways <
- < Evidence-based assessment of progress along the ladder >
  - < Project portfolio management >
  - < Rationalise R4D investments >
  - < Strategic resource mobilisation >





# Technology Readiness Levels

- TRL 0: Idea.** Unproven concept, no testing has been performed.
- TRL 1: Basic research.** Principles postulated and observed but no experimental proof available.
- TRL 2: Technology formulation.** Concept and application have been formulated.
- TRL 3: Applied research.** First laboratory tests completed; proof of concept.
- TRL 4: Small scale prototype** built in a laboratory environment ("ugly" prototype).
- TRL 5: Large scale prototype** tested in intended environment.
- TRL 6: Prototype system** tested in intended environment close to expected performance.
- TRL 7: Demonstration system** operating in operational environment at pre-commercial scale.
- TRL 8: First of a kind commercial system.** Manufacturing issues solved.
- TRL 9: Full commercial application,** technology available for consumers.

# Principle 1:

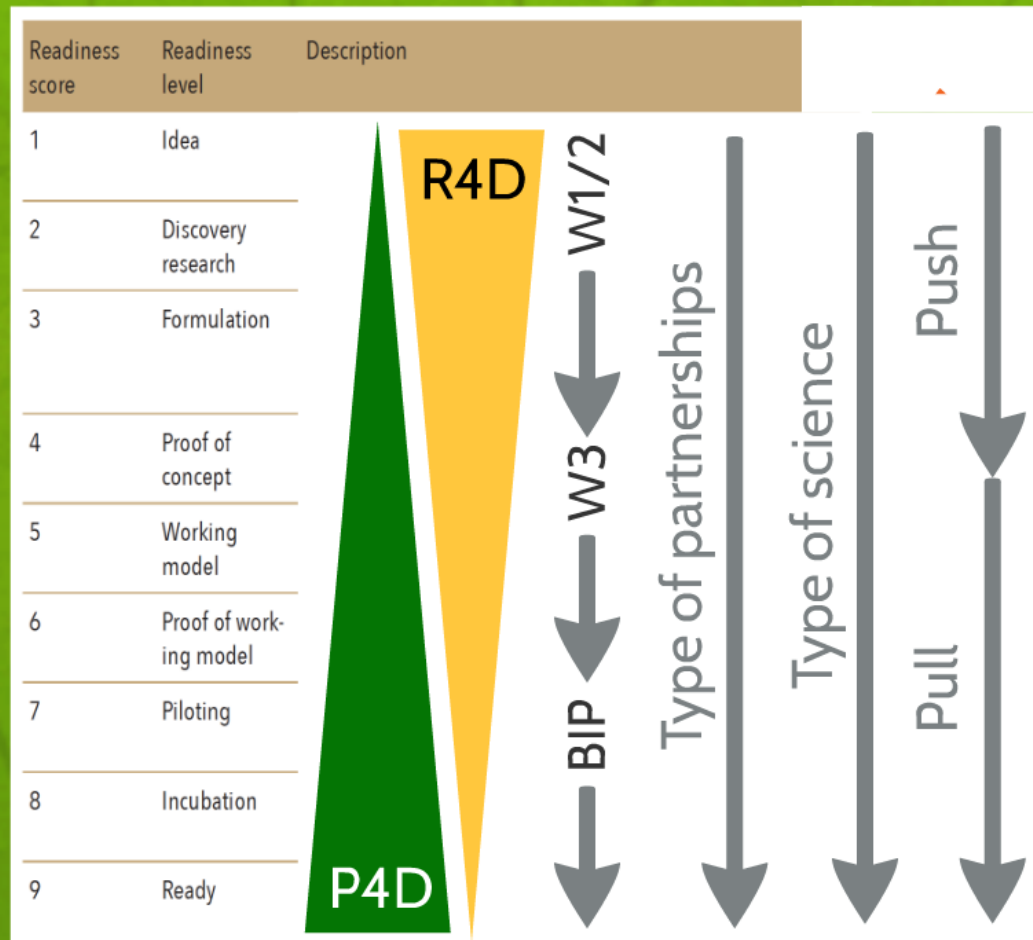
## Innovation Readiness

Readiness score	Readiness level	Description
1	Idea	Genesis of the idea. Development of the key elements of the initial concept (e.g. objectives, functions, intended users)
2	Discovery research	Research on the principles and conditions under which the innovation can be developed and may work.
3	Formulation	Innovation designed as a solution to an applied problem. Key properties and functions have been described as well as the potential intended and unintended effects of its application.
4	Proof of concept	Validation of innovation using existing evidence.
5	Working model	Testing of the innovation in controlled environment by the technology /innovation development team
6	Proof of working model	Validation of the innovation in controlled environments
7	Piloting	Testing of the innovation in natural/real/uncontrolled conditions
8	Incubation	Validation of the innovation in natural/real/uncontrolled conditions with support from an AR4D project
9	Ready	Validation of the innovation in natural/real/uncontrolled conditions without support from an AR4D project



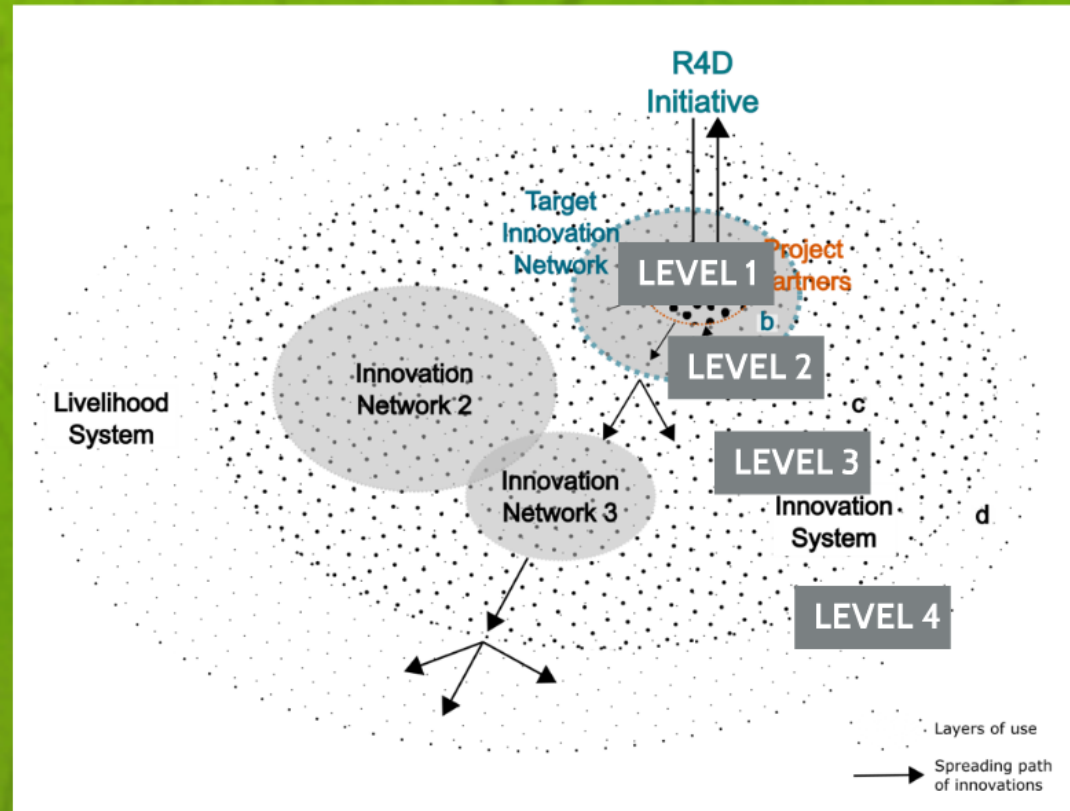
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# IITA





# Principle 2: Innovation Use

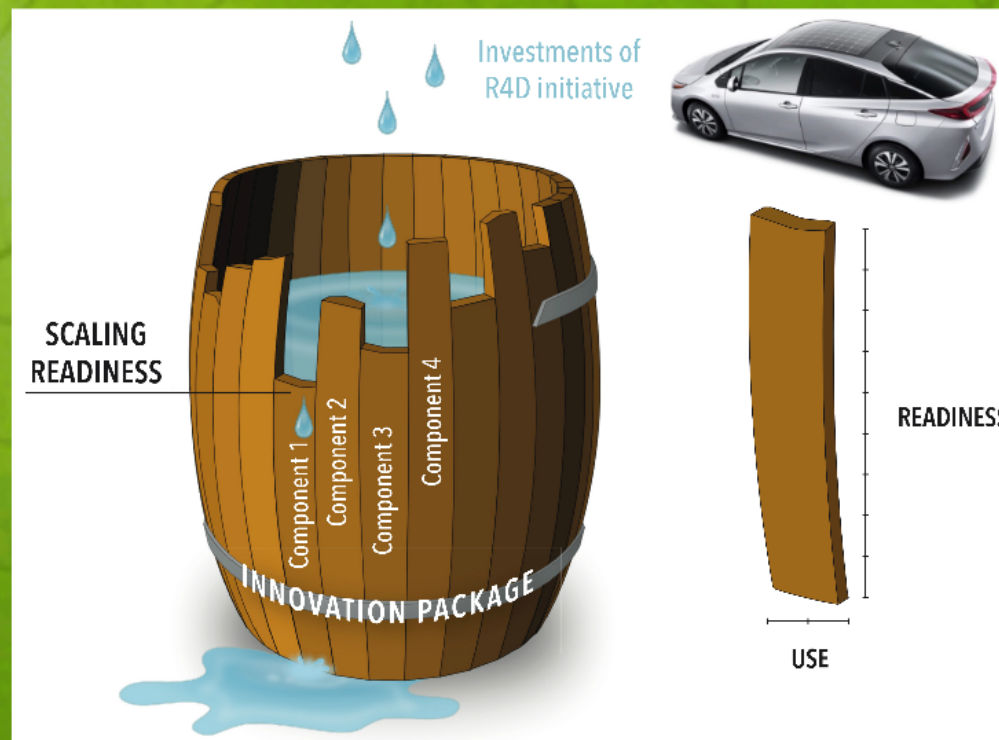


LEVEL 1 - Project Partners  
LEVEL 2 - Direct Connections of Project Partners  
LEVEL 3 - Agricultural Innovation Systems  
LEVEL 4 - Livelihood Systems



R4D Initiative		
7	Piloting	Testing of the innovation in real conditions
8	Incubation	Validation of the innovation in real conditions with support from the R4D Initiative
9	Ready	Validation of the innovation in real conditions without support from the R4D Initiative

# Scaling Readiness



Principle 2  
Innovation U

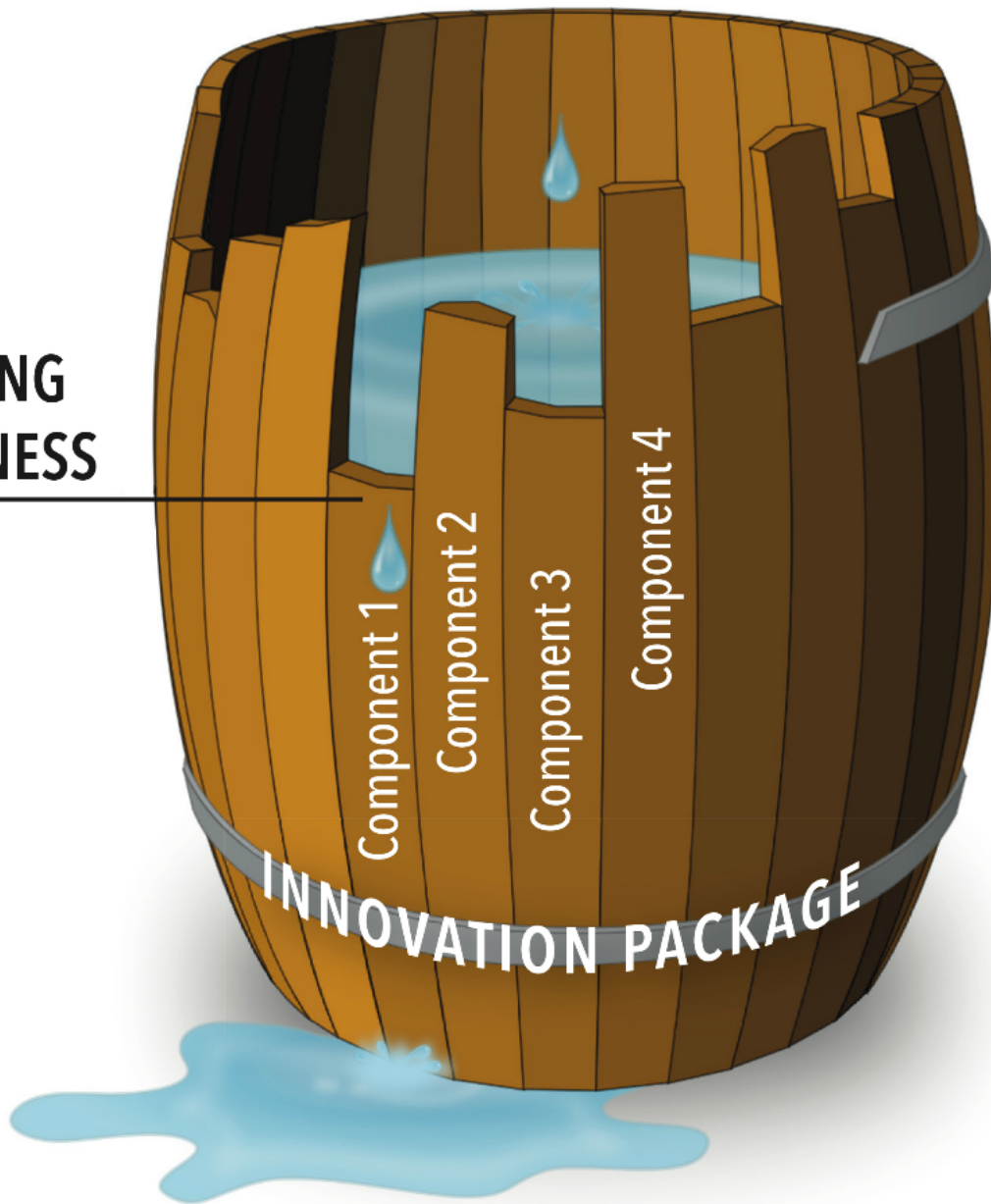
esting the  
approach



Investments of  
R4D initiative

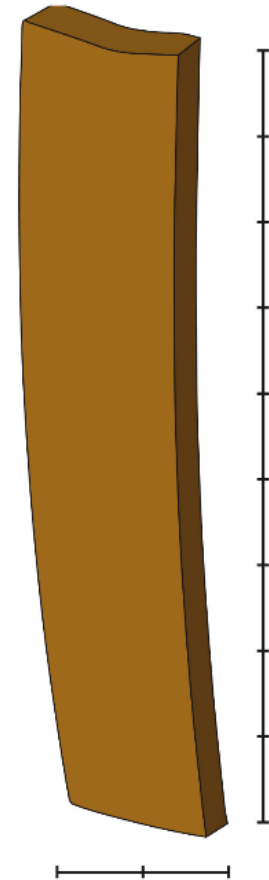


SCALING  
READINESS



READINESS

USE

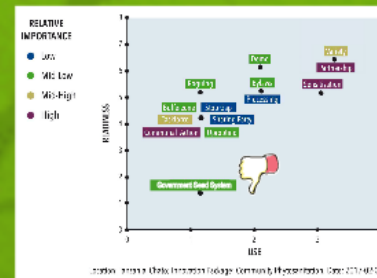


# Example:

## Step 1: Participatory analysis of innovation package

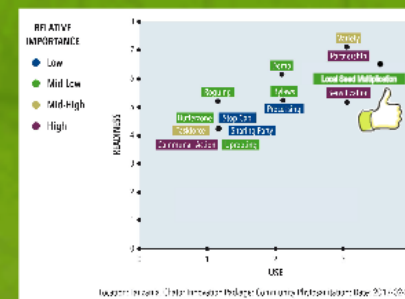
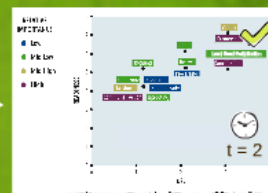
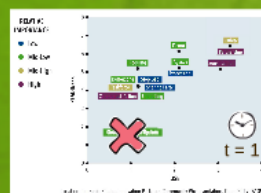


## Step 2: Assess scaling readiness

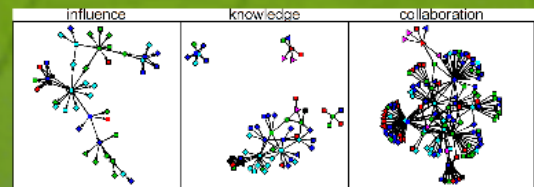


## Step 3: Management decision

### Step 5: ME&L



## Step 4: Partnership & intervention strategy





# of innovation package

Processing  
New cassava varieties  
Sensitization  
Uprooting  
Government seed system  
Demo's  
Partnerships

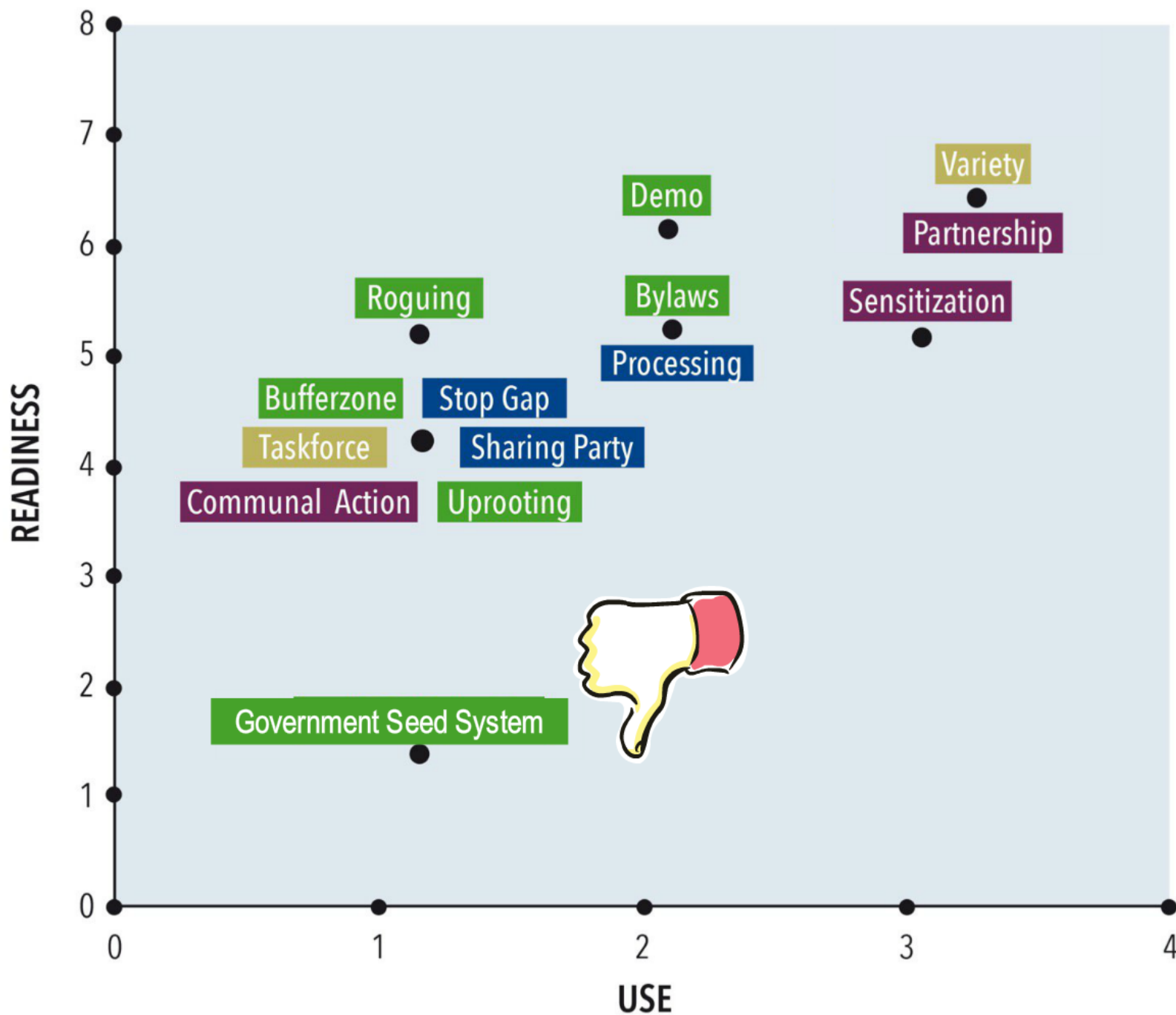
CBSD Taskforce  
Stop gap crops  
By-laws  
Community action  
Roguing  
Bufferzone



## Step 5: ME&L

# RELATIVE IMPORTANCE

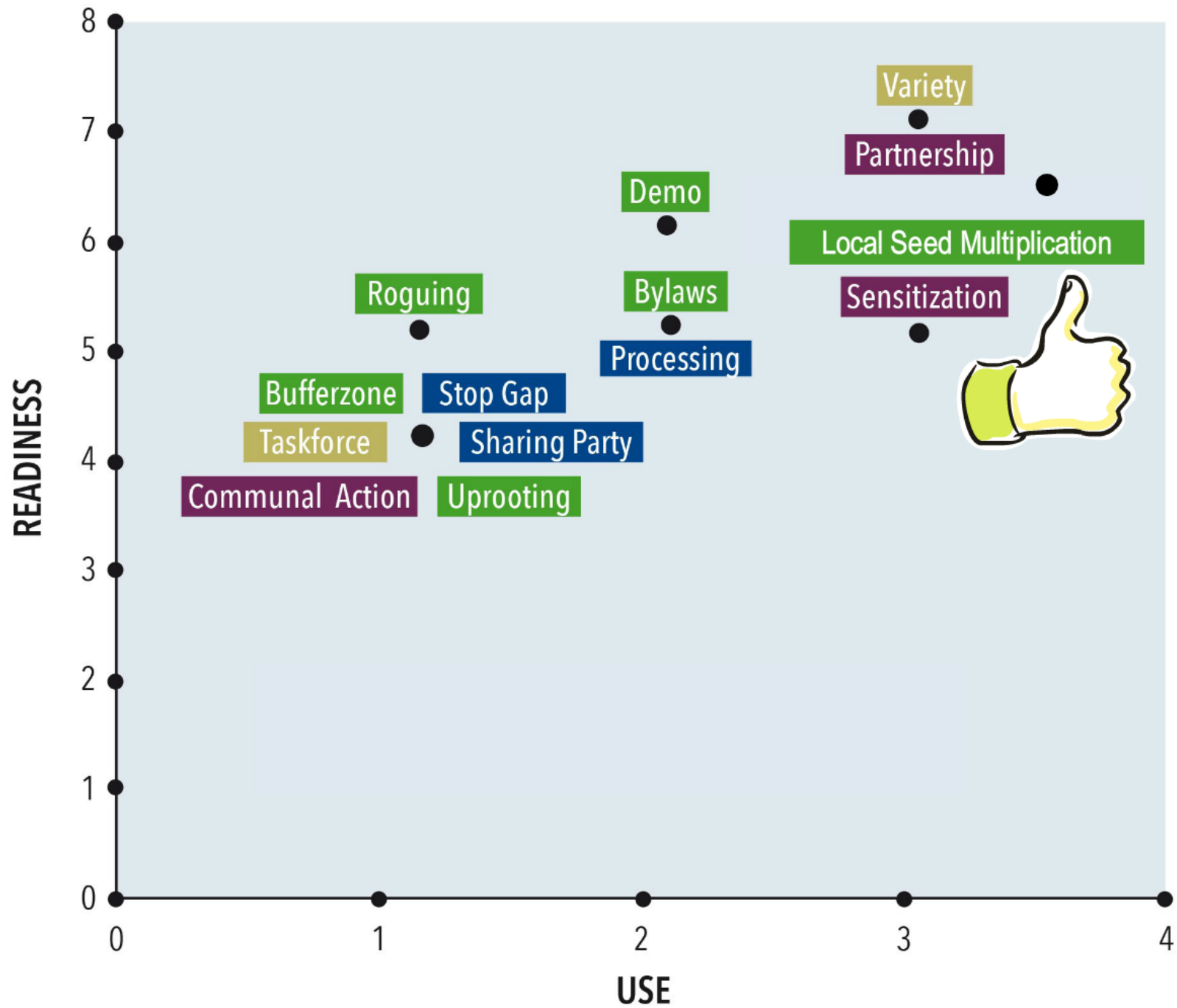
- Low
- Mid-Low
- Mid-High
- High





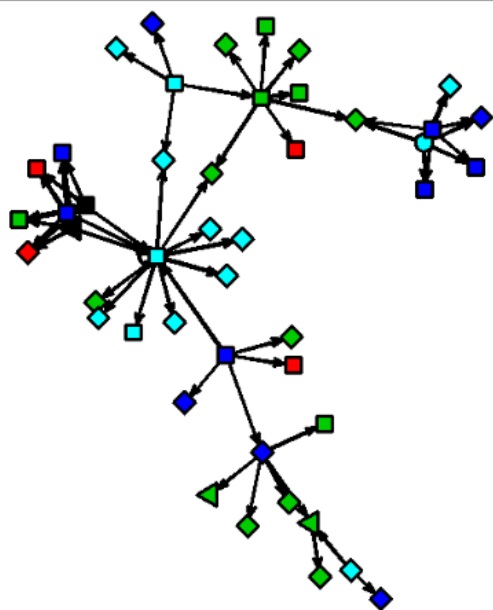
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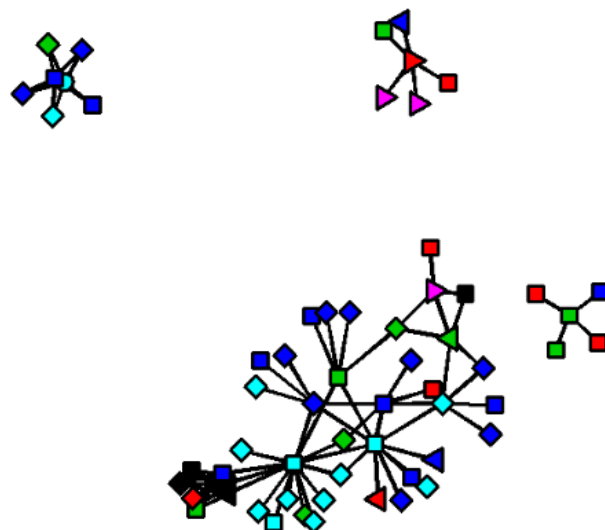


# Partnership & intervention

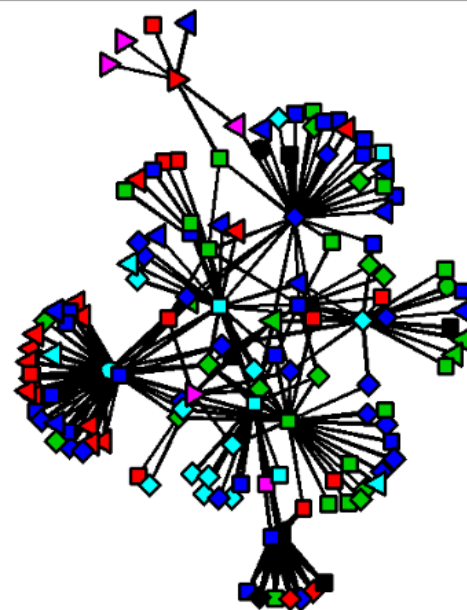
influence



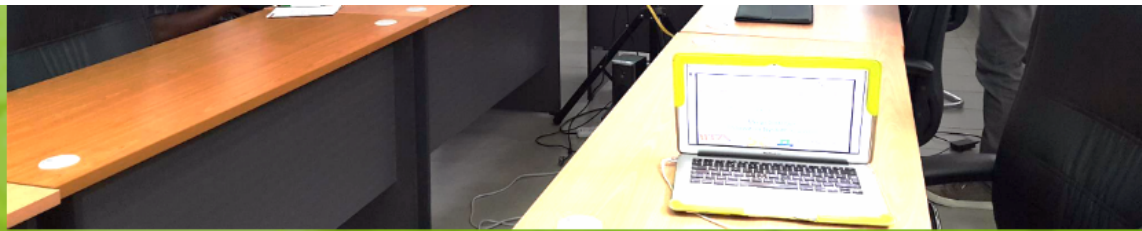
knowledge



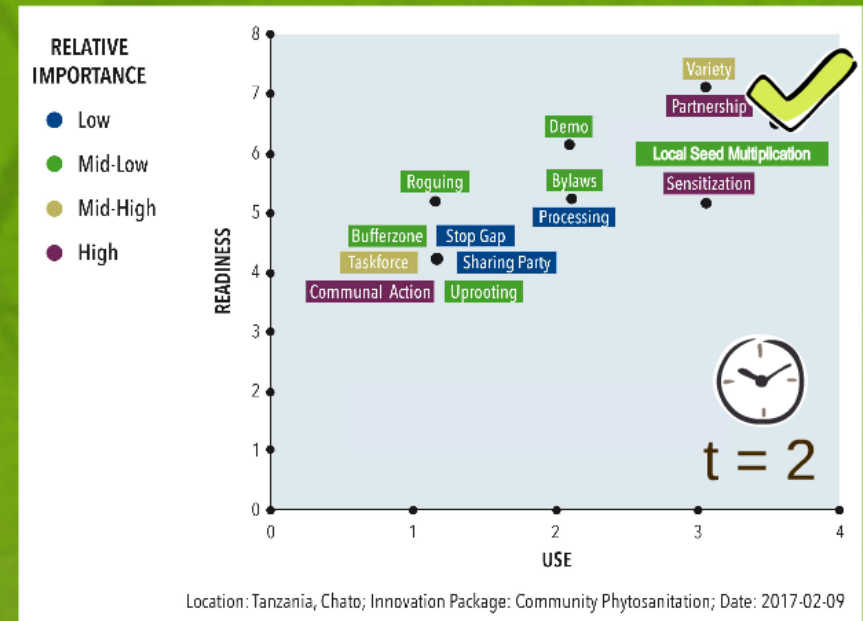
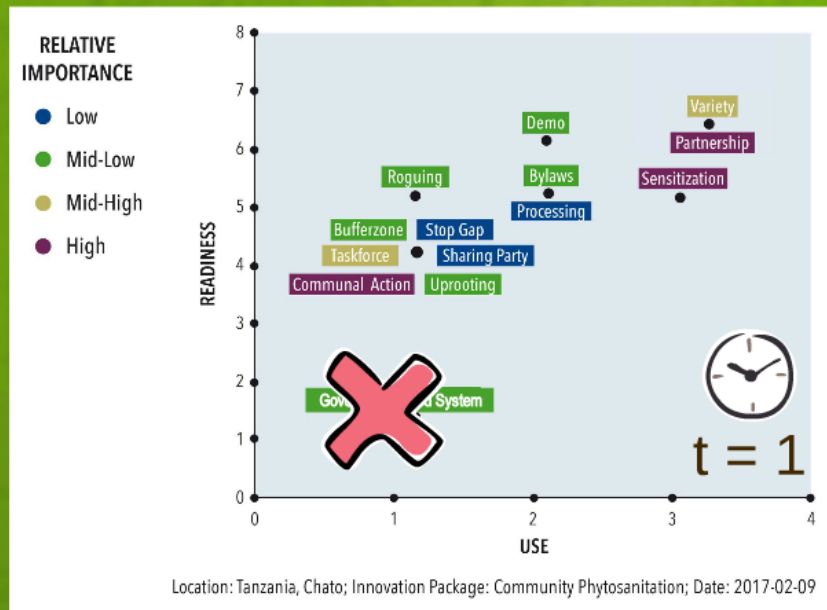
collaboration







# Step 5: ME&L



# Step 4: Partnership & i

## A stylized world map with a blue background and dark brown landmasses. The map is divided into four panels by vertical fold lines. Numerous red circular pins with white centers are placed across the map, each containing a logo. The logos include the ITA (International Trade Association) logo, which features a blue circular emblem with a tree and the letters 'ITA' in orange, and the CAT (Central American Trade Association) logo, which features a green circular emblem with a tree and the letters 'CAT' in green. The pins are distributed across North America, South America, Europe, Africa, and Asia, indicating a global presence.







## Developed under:



**RESEARCH  
PROGRAM ON  
Roots, Tubers  
and Bananas**

## Developed with:



**WAGENINGEN**  
UNIVERSITY & RESEARCH



**CIP**  
INTERNATIONAL  
POTATO CENTER

A CGIAR RESEARCH CENTER



**Marc Schut, Murat Sartas, Cees Leeuwis and the CC5.4 Team**



## Assessing and accelerating scaling of innovations



**Context...**

- Value the request to interpret the RUC context
- Obtain request at scale
- Identify immediate and longer term needs
- Review various agencies to support scaling
- Identifying in-flight types of RUC and partnerships

**Scaling the old way**

- Don't understand or anticipate the true breadth or weight of the request
- Not prepared: people are directed to the quality agency to handle it
- Unfamiliar agency is the owner of the RUC and partners
- Unfamiliar, unknown about it and it
- From client to long lead time to a yes or no
- Client can try all agencies
- Old standard methods for a long history to get it

**Innovations are packages**

Successful innovations are packages of ideas, people, processes, and products. They are not just ideas or products, but a combination of all four. The package is the innovation.

**Innovation is complex**

Innovation is a complex process that involves many different people, processes, and products. It is not a simple linear process, but a complex, interconnected network of activities.

**Scaling is...**

Scaling is the process of growing a business or organization from a small, local operation to a large, global one. It involves many different challenges, including finding new markets, developing new products, and building a strong management team.



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