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Assessing the capacity for effective multi-stakeholder participation in innovation platforms: The case of Research-Into-Use Project in Rwanda

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ABSTRACT

Innovation Platforms (IPs) are gaining popularity as a practical approach to operationalizing Agricultural Innovation Systems (AIS) thinking to accelerate agricultural development and poverty eradication particularly in developing countries. The strength of IPs lies in the multi-stakeholder interactions to learn together and co-create knowledge and innovations in the agricultural value chains. Multi-stakeholder interactions are characterized by power relations and influence requiring individual actors to deploy their social and communicative competences to utilize the space provided by IPs to influence benefits from their engagement. In current practice, IPs focus on creating space for multi-stakeholder interaction and little attention is given to building the essential competences for stakeholder groups to take advantage of the opportunities in IPs. Using a case of IPs initiated by the Research-Into-Use (RIU) project in Rwanda, this paper identifies a range of competences required by various stakeholder groups and perceived priorities for capacity strengthening. All stakeholder groups recognize social and communicative competences as necessary to foster interaction in IPs, but downplay their need for capacity strengthening. Instead, they perceive technical competences such as utilizing technologies and business skills to be priority for capacity strengthening. This suggests that for IPs to be successful and sustainable, actors will need greater exposure to the importance of the social and communicative competences. This includes engagement of innovation brokers in training and exposure of actors to communicative skills to equitably gain from the IPs.

Key words: Agricultural innovation system, competences, innovation platform, multi-stakeholders, Rwanda

RÉSUMÉ

Les Plateformes d'Innovation (IPs) gagnent en popularité comme une approche pratique de l'opérationnalisation des systèmes d'innovation agricole (AIS), pensée pour accélérer le développement de l'agriculture et l'élimination de la pauvreté notamment dans les pays en développement. La force des IPs réside dans les interactions multipartites pour apprendre ensemble et co-crée des connaissances et des innovations dans la chaîne de valeur agricole. Les interactions entre toutes les parties prenantes sont caractérisées par des rapports de pouvoir et d'influence nécessitant des acteurs individuels susceptibles de déployer des compétences communicatives et sociales afin d'utiliser l'espace fourni par les IPs pour influencer les avantages relatifs à leur engagement. Dans la pratique actuelle, les IPs se concentrent sur la création d'un espace pour l'interaction multi-intervenants et peu d'attention est accordée au renforcement des compétences essentielles pour les groupes d'intervenants afin de tirer profit des possibilités des plateformes. À l'aide d'une étude de cas initié par le Projet Research-Into-utilisation (RIU) au Rwanda, le présent document expose un éventail de compétences requises par les divers groupes d'intervenants et des priorités pour le renforcement des capacités. Tous les groupes d'intervenants reconnaissent les compétences sociales et communicatives comme éléments nécessaires pour encourager l'interaction dans les IPs, mais minimisent leur nécessité pour le renforcement des capacités. Au lieu de cela, ils perçoivent les compétences techniques comme l'utilisation des technologies et des compétences en affaires être prioritaires pour le renforcement des capacités. Ainsi, pour que les IPs aient du succès et soient durables, les acteurs ont besoin d'une plus grande exposition à l'importance des compétences sociales et de

communication. Cela comprend l'engagement des courtiers d'innovation dans la formation et l'exposition des acteurs aux compétences de communication pour gagner équitablement des IPs.

Mots clés : Plate-forme d'innovation, innovation agricole, compétences, système multi-intervenants, Rwanda

INTRODUCTION

The emergence of the agricultural innovation systems (AIS) paradigm has raised hopes for accelerating agricultural development to improve livelihoods and ensure environmental sustainability especially in the developing countries. The optimism with AIS is based on the interactions between a wide range of actors including farmers, extension workers, service providers, processors, policy makers to jointly reconfigure technologies, institutional arrangements, markets and policies to work more effectively with the aim of increasing economic and social benefits to the actors (Leeuwis, 2004; Hall, 2006; Röling, 2009; Kilelu *et al.*, 2013).

Although some multi-stakeholder platforms in Sub-Saharan Africa (SSA) are reported to be contributing to innovation (Nederlof *et al.*, 2011; Tenywa *et al.*, 2011), implementation of interventions under the AIS framework is more complex than the linear technology transfer approaches that most systems in developing countries are accustomed to. In addition, AIS is also associated with several uncertainties (Meijer *et al.*, 2007; Klerkx *et al.*, 2010). Several scholars have cautioned that for AIS to function in the agricultural sectors of developing countries, there is need for the stakeholders to come to a shared vision, and have well-established linkages and information flow network among public and private sectors. In addition, the AIS should provide for conducive institutional incentives that enhance cooperation, adequate market, legislative and well developed human capital (Hall *et al.*, 2001; Biggs, 2007; Spielman *et al.*, 2008). Different capacities are required for the various stakeholders to engage and jointly co-create these conditions. Such capacities are hardly considered and mainstreamed into interventions that apply the AIS approaches.

Innovation platform (IP) is a multi-stakeholder arrangement aimed at operationalizing AIS thinking with reference to specific interest. The Research Into Use (RIU) project supported by the Department for International Development (DFID) and implemented in 12 of the poorest African and Asian countries applied the innovation platform concept to enhance uptake and utilization of agricultural technologies through enabling closer interaction between the research community and a wide range of public and private actors in specific value chains. Rwanda is one of the countries that implemented the RIU project (2006-2009) and

established four IPs specifically for maize, cassava, potato value chains and strengthening farmer organizations. The IP actors were of different categories and included farmers and representatives of farmer cooperatives; researchers and extension workers; processors and input suppliers; financial services providers; transporters; and local leaders and policy makers. The focus was on creating a forum (IP) for these different categories of actors to interact, exchange knowledge and learn from each other for purposes of enhancing their business opportunities. However, the extent and quality of interaction and the benefits therefrom are dependent on the capacities of the individual actors to utilize the space provided to take advantage of opportunities that translate into economic and social benefits. The differences in power and level of influence among the different actors calls for stakeholder targeted capacity building, which is rarely articulated by both the program implementers and individual actors.

The final evaluation of IPs initiated under RIU in Rwanda by University of Edinburgh (2013) outlined three key achievements: (1) Twenty four cooperatives, individual farmers and five regional organizations linked together covering 25,000 farmers. Farmers benefited from better markets and prices following establishment of a warrantage system and up to 12,000 farmers accessed advisory services through community facilitators; (2) Fifty thousand farmers were aware of new varieties and good practice through community radio broadcasts; and (3) Ten thousand farmers accessed better quality seed and about 2,400 of them were trained further in the Farmer Field Schools. The relationships between input suppliers and potato producers also improved.

PURPOSE AND OBJECTIVES

The purpose of this study was to design targeted capacity development interventions as an integral component of the operationalization of IPs to enable them derive the anticipated benefits. Specifically, the study sought to identify the requisite competences and priorities for capacity building for each actor category to enable them benefit more from their participation in the IPs.

METHODS

A cross-sectional survey was conducted in IPs set-up by the RIU project in three Agro-Ecological Zones

(AEZ) of Rwanda. The maize IP located in Nyagatare district and cassava IP located in Gatsibo district, both represented the low altitude AEZ in the Eastern part of the country; the potato IP located in Gicumbi district represented High altitude AEZ in Northern region; while the Karongi IP located in Karongi district represented very high altitude AEZ. The study targeted the entire memberships of 175 persons in the four IPs based on records in RIU office in Kigali, however, 144 (82.3%) were accessed. Out of these, 77 were producers; 14 were processors and input suppliers; 17 were researchers and extension agents; 14 were financial services providers; and 18 were local leaders and policy makers.

The survey questionnaire was developed in a two-stage process. The first stage involved workshops in which the different categories of actors in their respective IPs separately identified the competences they needed to benefit economically and socially from their involvement in the IPs. The validity of the instrument is inherently assured at this stage as the potential respondents themselves identify the relevant competences that were measured. In the second stage, the competences generated from the four IPs were collated for each actor category and transformed into a 10-level likert scale for scoring on the basis of two criteria; importance of the competence and perceived need for capacity building. A score of 10 meant that the competence was extremely important or greatly needed for capacity building; while a score of 1 meant that the competence is not important or does not require capacity building. The instruments for each actor

category were then administered to the individual members to rate the different competence items.

The data were analyzed using the Statistical Package for Social Scientists (SPSS) computer program. Using Principal Component Analysis (PCA), related competences were clustered into thematic areas for capacity building. The competence items were then prioritized using One-Way ANOVA-means plot, which compares the mean scores of each competence item on the two criteria; importance and need for capacity building. When the median for importance is plotted against that of need for capacity building, the four quadrants represent different priority areas as illustrated in Figure 1. A plot of the mean scores places each competence item in either of the four priority quadrants.

RESULTS

Priority Competences for the Producers

The top priority competences for producers were in the thematic areas of business and access to and use of technical knowledge and skills. Information sharing and technology dissemination were second priority (see Table 1). This may imply that the producers perceive themselves empowered enough to achieve their intended objectives or that social empowerment only becomes important after they have enhanced their productivity and business capacities.

Ability to access and utilize existing technologies and business skills were the priority areas for capacity building among the producers. Whereas the social empowerment competences could provide a

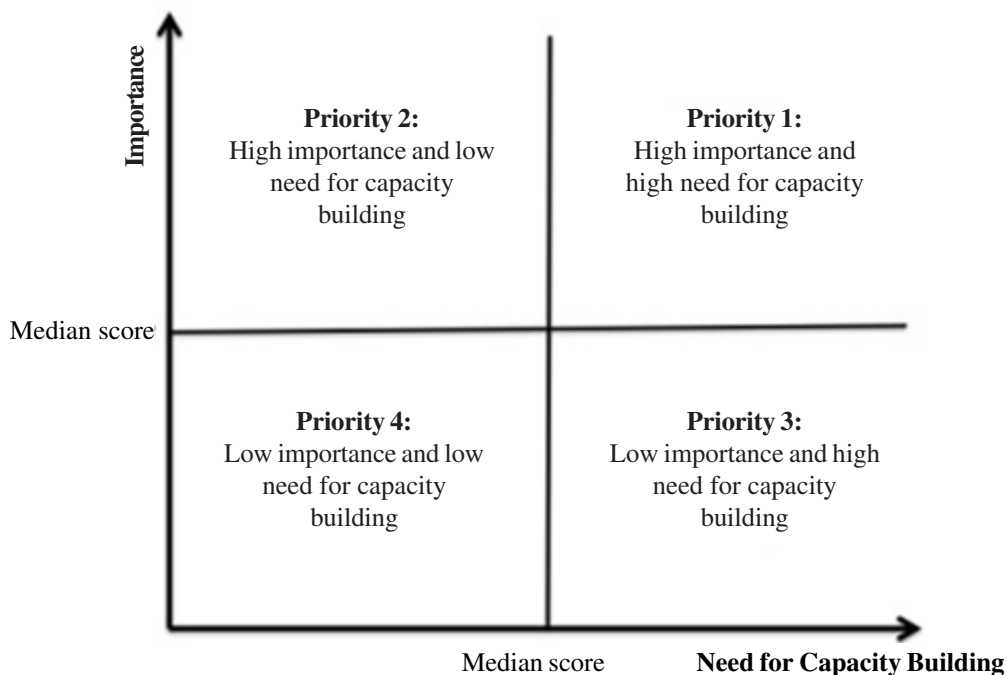


Figure 1: Competence prioritization model

Table 1: Priority competences for the producers

Thematic area	Competences	Mean scores (n=77)		Priority			
		Importance	Need for capacity building	1	2	3	4
Farmer social empowerment related competences	Taking initiative to source for knowledge and technologies that enable achievement of development vision	8.22	7.84	x			
	Articulation of demand for research and advisory services that matches with business/development plans	7.49	7.36				x
	Negotiation with different actors for fair deals	7.49	7.18				x
	Courage to get started with new ideas to take advantage of market opportunities	7.49	7.17				x
	Financial management and discipline - wise use of money including the culture of saving and investment	7.42	6.77				x
	Critical analysis and decision-making	7.05	6.42				x
	Lobbying and advocacy - making themselves visible and felt by other actors including the politicians	6.99	6.30				x
	Self-confidence and believing in own potentials	6.22	5.75				x
Access to and use of technical knowledge and skills	Skills in machinery and irrigation equipment use	8.58	8.03	x			
	Pests and disease management	7.99	7.95	x			
	Post-harvest technologies (storage, processing, packaging and marketing)	7.97	7.78	x			
	Searching for market information and utilizing it to expand markets	7.03	6.94				x
	Share knowledge, learn from each other and openness to change	7.62	6.83		x		
Business related competences	Organizing and managing group dynamics	8.38	7.99	x			
	Seeds multiplication	8.17	7.90	x			
	Business planning based on a development vision	7.95	7.78	x			
	Standards and branding of product	7.43	7.04				x

mechanism for better access to knowledge and technologies, and business opportunities, the producers value more the tangible benefits that directly enhance productivity and income. Farmers are not aware of the importance of the empowerment related competences necessary for them to interact effectively with the other actors. Only one item (pro-activeness to source for knowledge) out of eight was in the top priority category. Most of them were not rated to be important and hence no need to build capacity. Figure 2 illustrates the plot of the competences on the priority model while Table 1 elaborates the priority competences in their respective thematic areas.

Priority competences for researchers and extension workers

For the researchers and extension workers, the top priority for capacity building was in the thematic area of participatory and multidisciplinary engagement with stakeholders and communication (see Table 2). Specifically, participatory or action research and knowledge exchange including linkages between research and extension are emphasized as top priority for capacity building. Although researchers and extension workers have for a long time been criticized for inadequate communication skills especially with their clients, they do not perceive themselves requiring capacity building in communication related aspects.

There is, however, a contradiction in perception of the researchers and extension workers. Whereas they indicate that applying a variety of approaches to influence change is a priority area for capacity building, it is difficult to do so without focusing on the communicative aspects and if they were already good enough in communication, then influencing change wouldn't be a serious constraint. This may signify

limited understanding of how researchers and extension workers could influence change apart from merely making technology available. Recent literature in the application of innovations emphasizes the role of brokerage (Klerkx *et al.*, 2009), which to a large extent is a function of extension workers. Communication is a key competence in brokerage and yet the extension workers and researchers in this case did not think it was so critical.

Further, the ability to function effectively in multidisciplinary teams and facilitating learning and knowledge exchange among different actors in the value chain relies to a great extent on the communication abilities. It is therefore difficult to address the priority competences through capacity building without having a strong focus on people-centred aspects such as communication, accepting criticism, responding to demand and self-reflection which are not perceived to be critical. The distribution of competence items on the priority model is illustrated in Figure 3.

Competences for processors and input suppliers

The priority areas for capacity building for processors and input suppliers are in the areas of post-harvest handling and value addition, and business skills development. Specifically, the top priorities are value addition technologies (including storage), market intelligence and response to opportunities, and realistic assessment of business risks. Whereas business planning, overcoming fear and learning from experience, and quality assurance were considered important, there was no urgency for capacity building as shown in Table 3.

While the people-centered business skills such as communication and negotiation skills, transparency,

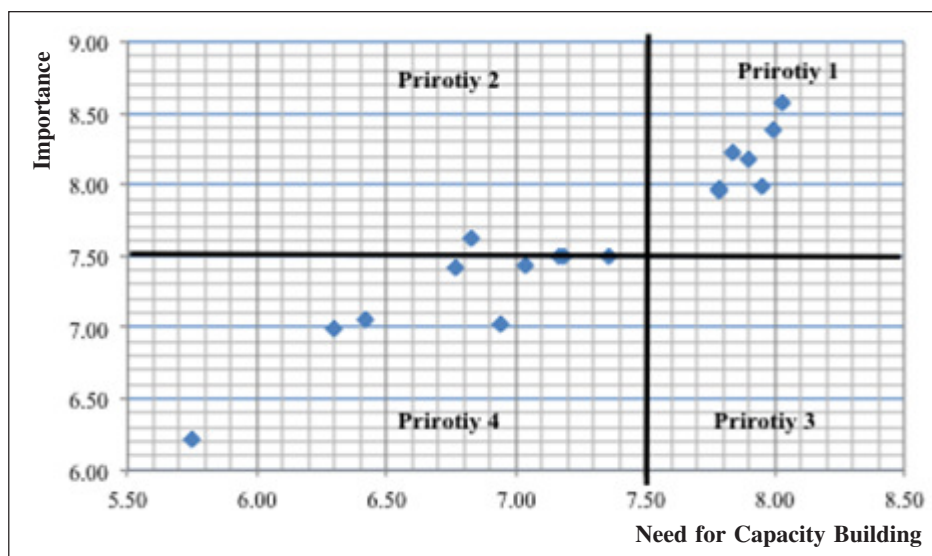


Figure 2: Distribution of competences required by producers on the priority model

Table 2: Priority competences for researchers and extension workers

Thematic area	Competences	Mean scores (n=17)		Priority			
		Importance	Need for capacity building	1	2	3	4
Participatory and multi-disciplinary engagement with stakeholders, and communication	Creating linkages between Research, Extension and End Users and Markets	9.41	8.76	x			
	Engaging with the community and other actors to develop relevant knowledge and technologies (action research)	9.00	8.41	x			
	Facilitating learning and knowledge/technology exchange	8.76	7.71	x			
	Team work - working in multidisciplinary teams	8.47	7.88	x			
	Thinking in a value chain perspective	8.06	7.59	x			
	Accepting criticism and feedback in a positive manner	7.29	6.06				x
	Good communication skills to interact with different client categories	7.12	5.76				x
	Commitment to respond to demand and in a respectful manner	7.06	6.12				x
	Self-reflection and providing constructive feedback	6.18	5.53				x
Networking and change management competences	Brokering and negotiating partnerships, linkages and networks that benefit all IP actors	7.47	6.47		x		
	Translating demand into research question and service delivery action plans	7.12	7.53			x	
	Managing group dynamics, and multiple and divergent expectations	6.59	6.59				x
	Applying a variety of approaches to influence change with persistence	7.82	7.12	x			

honesty and fairness, and decision making are essential in competitive private sector business (Prafka, 2009), the processors and input suppliers did not perceive them to be important for capacity building. Figure 4 illustrates a plot of the mean scores for the various competences for the processors and input suppliers on the priority model.

Competences for financial services providers

The priority capacity building required by financial services providers was in marketing credit services to clients especially farmers and timely response to demand which sometimes necessitates reviewing the lengthy processes for credit access (Table 4). Though competences in realistic enterprise assessment were

perceived as important, there was no urgency for capacity building.

Ironically, whereas communication skills, and counseling and motivation may be essential in successful marketing of credit services and recovery, they were not perceived to be important or that such competences already exist. Figure 5 illustrates a plot of the mean scores for the various competences for the financial services providers on the priority model.

Competences for local leaders and policy makers

Table 5 shows that top priority competences for the local leaders and policy makers are knowledge on agriculture-related laws and regulations, and developing

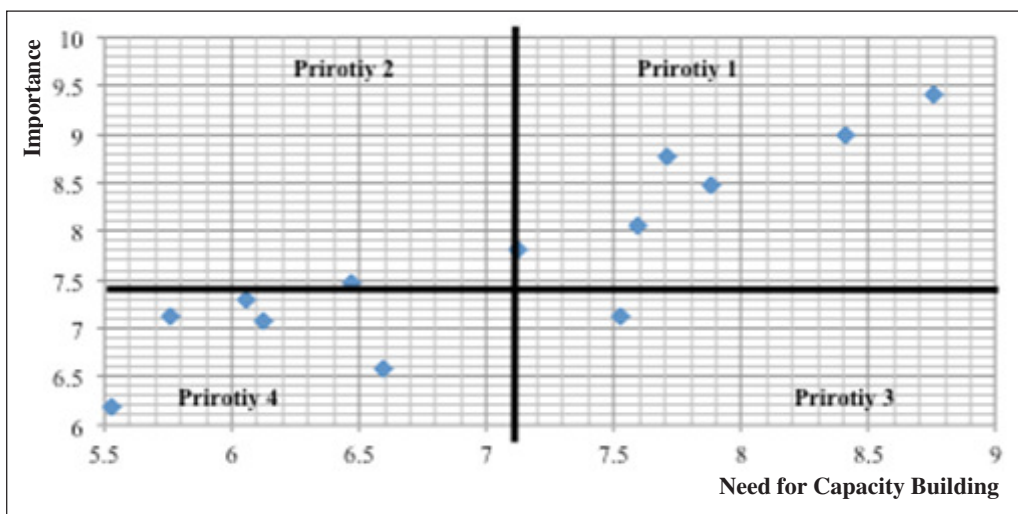


Figure 3: Distribution of competences for researchers and extension workers on the priority model

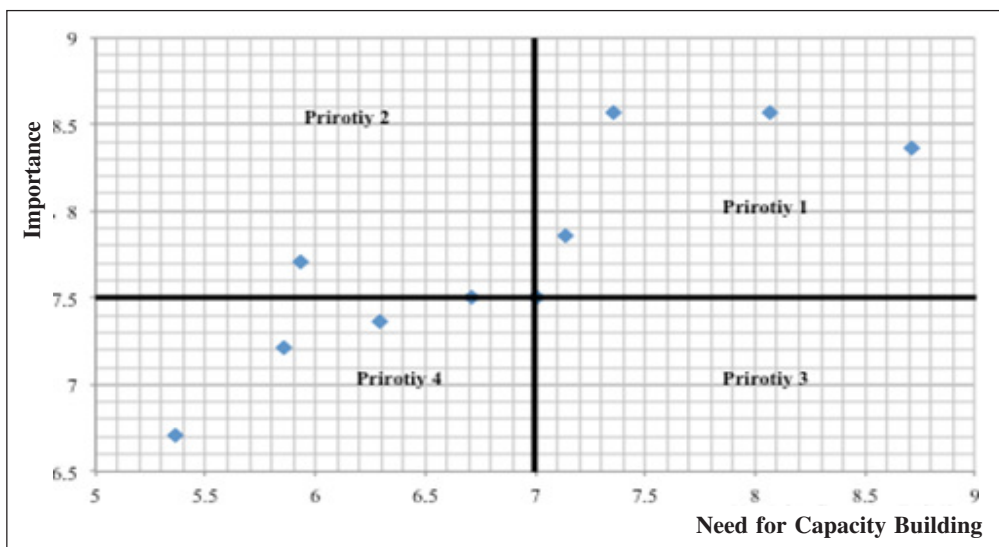


Figure 4: Distribution of competences for processor and input suppliers on the priority model

Table 3: Priority Competences for Processors and Input-suppliers

Thematic area	Competences	Strength n=14		Priority			
		Importance	Need for capacity building	1	2	3	4
Postharvest handling and value addition	Knowledge and skills in food processing technology, packaging and marketing	8.57	8.07	x			
	Knowledge and skills in storage, machinery and other equipment	8.36	8.71	x			
	Quality assurance and compliance to established standards	7.71	5.93		x		
People-centered competences for agribusiness and networking	Overcoming fear of failure and learning from experience	7.50	7.00		x		
	Transparency, honesty and fairness	7.36	6.29				x
	Good communication and negotiation skills	7.21	5.86				x
	Self-assessment and decision making	6.71	5.36				x
Business Skills	Business planning and management	7.50	7.00		x		
	Knowledge and skills in Standards and product branding	7.50	6.71				x
	Market intelligence and timely response to market opportunities	8.57	7.36	x			
	Identifying business opportunities and realistically assessing risks	7.86	7.14	x			

Table 4: Priority capacity needs for financial services providers

Themes	Competences	Strength (n=14)		Priority			
		Importance	Need for capacity building	1	2	3	4
Enterprise and risk management	Timely response to demand	10.00	9.36	x			
	Counseling and encouragement/motivation	8.43	6.93				x
	Realistic enterprise assessment	9.71	6.21		x		
Marketing and customer care Skills	Good communication skills	8.86	4.36				x
	Marketing credits services to clients	9.86	9.93	x			

good governance and leadership skills. Need and evidence based policy influence was perceived to be important but capacity building in the same was not an urgent matter.

Lobbying and advocacy and communication skills were surprisingly not perceived important by the local leaders

and policy makers presumably because they perceived themselves to be good enough at that.

Figure 6 illustrates the distribution of the competences for the local leaders and policy makers on the priority model and Table 5 elaborates on the priorities.

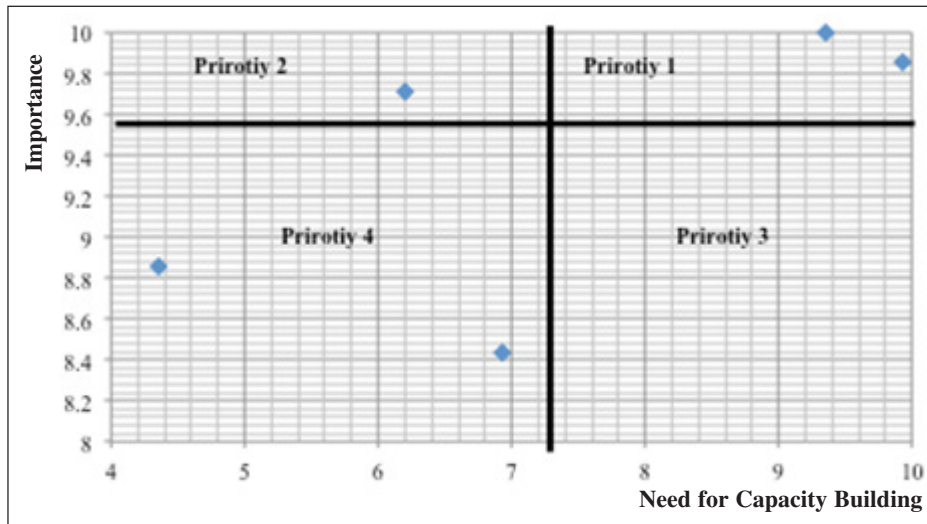


Figure 5: Distribution of competences for financial services providers on the priority model

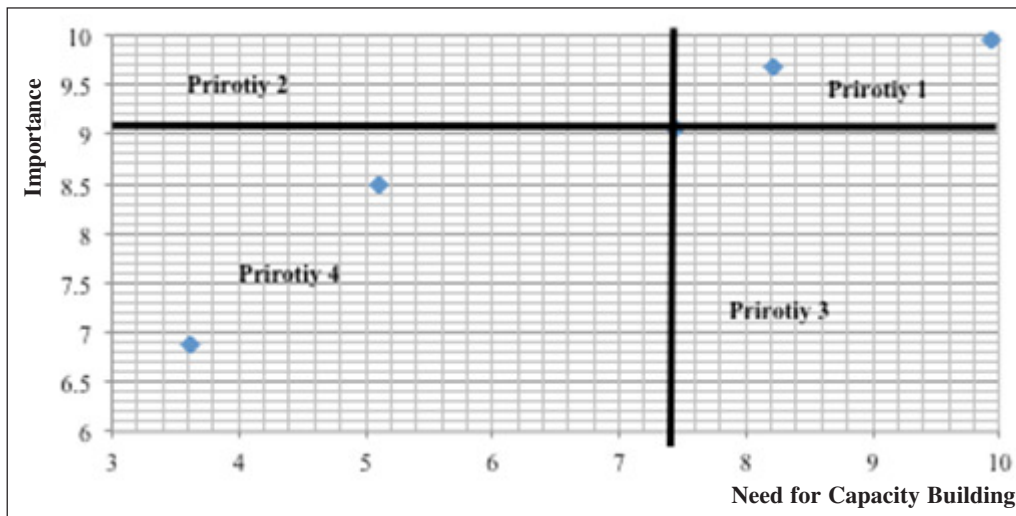


Figure 6: Distribution of competences for local leaders and policy makers on the priority model

Table 5: Capacity needs for local leaders and policy makers

Competences for local leaders and policy makers	Strength (n=18)		Priority			
	Importance	Need for capacity building	1	2	3	4
Knowledge on agriculture laws and regulations	9.94	9.94	x			
Lobbying and advocacy	8.50	5.11				x
Good governance and leadership skills	9.67	8.22	x			
Influencing policy processes based on expressed needs	9.06	7.44		x		
Good communication skills	6.89	3.61				x

CONCLUSION, RECOMMENDATIONS, AND IMPLICATIONS

Shifts from one approach of research and development interventions to another are not merely change of *modus operandi* but they also entail a shift in competences (including knowledge skills and attitudes) for the various actors. The AIS approach and in particular, the innovation platform is characterised by greater interaction between actors in a constructive manner - requiring a levelled playing ground for doing so. Levelling ground implies dealing with complexities of power relations, building mutual respect and trust as well as enhancing the communicative capabilities including negotiation and conflict management. Such competences are part of the software, which drives the orgware to enhance the organizational capabilities that lead to better generation and use of the hardware or technologies. The competences required for gainful participation in IPs may vary across different stakeholder categories depending on their levels of empowerment and experience. In addition to creating space and facilitating interactions between actors in an IP, it is critical that their capacity needs are identified and addressed as part of the intervention.

The communicative and social skills are essential to all stakeholders to enable collective action in the IPs. All the stakeholder categories identified such competences - meaning that they recognized their relevance in enabling IPs to function, however these were not highly prioritized with respect to relative importance and need for capacity building. The priority competences for capacity building for all stakeholders were those that are associated with their conventional roles and ways of doing things. This may imply that engagement in IPs did not significantly influence the behavioural change among the actors and or change of expectations different from the status before IPs. If new ways of engagements and roles had been found and tested, the social and communicative competences identified by the various stakeholder categories would have been more highly prioritized for capacity enhancement. It is possible that actors can continue to do what they always did and in the way they always did it even when they are engaged in IPs – simply a shift in place of engagement and not much of what they do. The effectiveness of IPs is not only embedded in creation of space for the actors to interact but even more important is the enhancement of essential competences for the individual actors to constructively and gainfully utilize the space.

Appreciation of the value of key interactive competences is apparently not obvious even to the stakeholders who greatly need them. In many

developing countries where there is not a long history and experience of various actors working together in the value chain and where social and technical structures create barrier for actor interaction, it is imperative that capacity development is made an integral element of the IPs. As the stakeholders develop the essential competences and test them in real-life, they appreciate their value and are more likely to prioritize them for capacity development. Bringing this to realization by the different actors in the IP is probably the role of what Klerkx *et al.* (2010) and other scholars call innovation brokers or intermediaries. Thus deliberate engagement of innovation brokers to expose and train the stakeholder groups to appreciate and value the social and communicative competences can potentially increase the functionality of IPs and is the impetus for their evolution and sustainability. Innovation brokers such as training institutions, NGOs and extension organisations need to systematically analyse the roles of various stakeholder groups and support those groups to develop the requisite competences for beneficial interactions in the IPs.

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STATEMENT OF NO CONFLICT OF INTEREST

We the authors of this paper hereby declare that there are no competing interests in this publication.

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