

# Assessing Agri-tech Support for Smallholder Farmers in the Philippines: A Multi-criteria Gap Analysis

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## Introduction

In the Philippines, 98.7% of farms are under 7 hectares, with smallholders often isolated and lacking market access [1] [3].

Online agricultural trade accentuates agri-tech firms' roles to reshape the agri-food value chain (AVC), especially in emerging economies [2].

Partnerships with agri-tech have allowed smallholders to participate directly in the AVC [2].

Assessing agri-tech support for smallholders is crucial to advancing rural livelihoods and food system equity.

## Research Questions

1. Which agri-tech support mechanisms do smallholders perceive as most important?
2. Are there any gaps between perceived importance and actual satisfaction with these mechanisms?
3. What are the specific support mechanisms that could strategically reduce such gaps?

## Methodology

In-depth interviews with 16 key smallholder partners of agri-tech enterprises in the Philippines from June-September 2024.

Evaluation of 25 support mechanisms across 8 categories from prior inductive analyses, then using an Analytic Hierarchy Process (AHP) questionnaire and a 5-point Likert satisfaction survey.

A multi-criteria evaluation method, integrating AHP, Visekriterijumska Optimizacija i Kompromisno Resenje (VIKOR), and Importance-Performance Analysis (IPA) [4].

## Results 1: Support prioritization

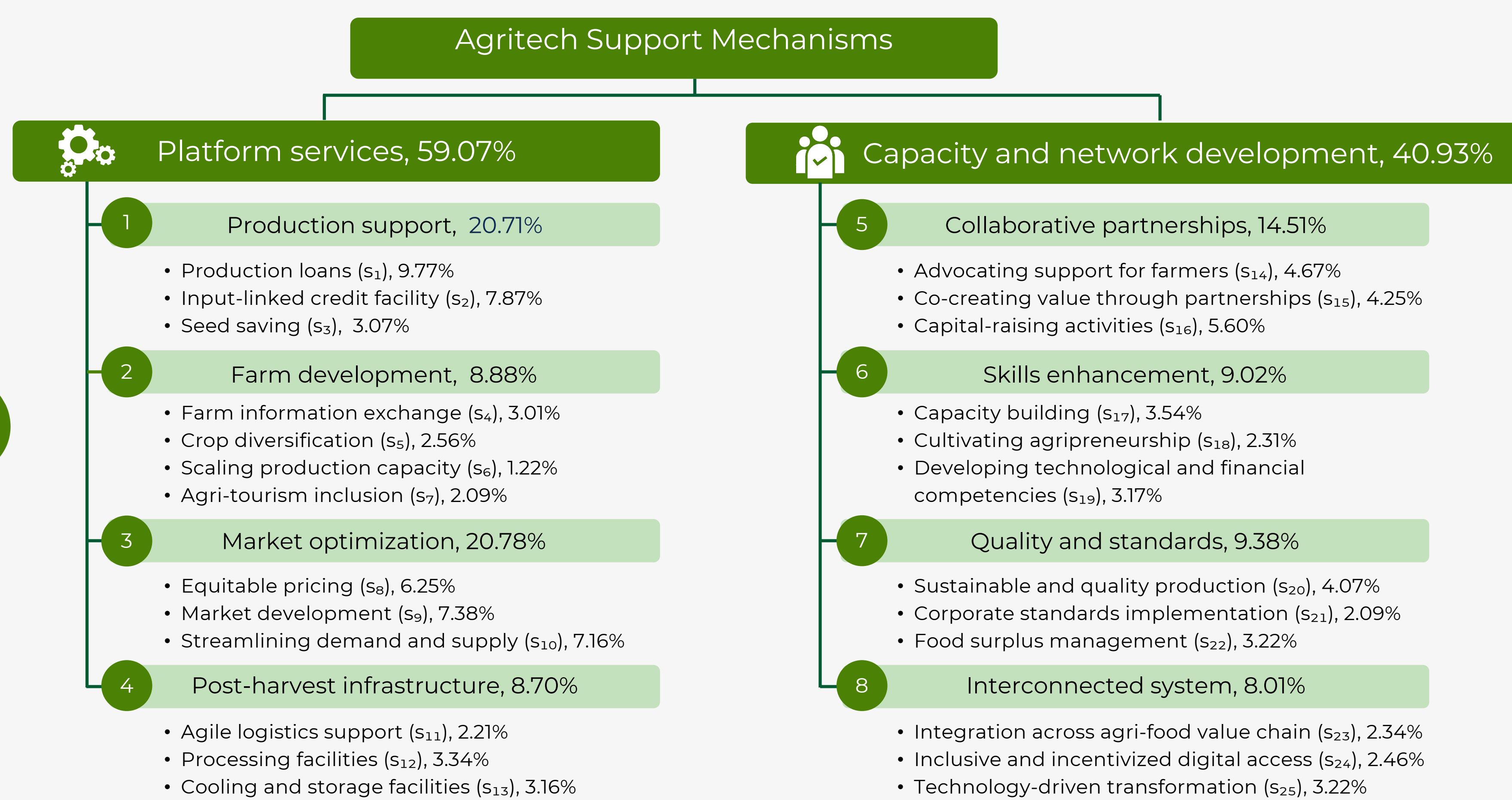


Figure 1. AHP results indicating weights of important support mechanisms by smallholders

## Conclusion

AHP emphasized that smallholders prioritize platform services (59.07%) such as production loans, input-linked credit facility, and market development due to the direct impact on operations and market access.

VIKOR analysis revealed a significant gap between actual and ideal satisfaction levels of platform services and capacity and network development.

The IPA analysis identified 8 priority areas for improvement, showing gaps where platform services fail to match the importance smallholders assign to them.

Future directions for stakeholders could focus on crop insurance, contract enforcement, and market reframing toward quality and safety to better address smallholder needs and close existing support gaps.

## Results 2: Gap analysis

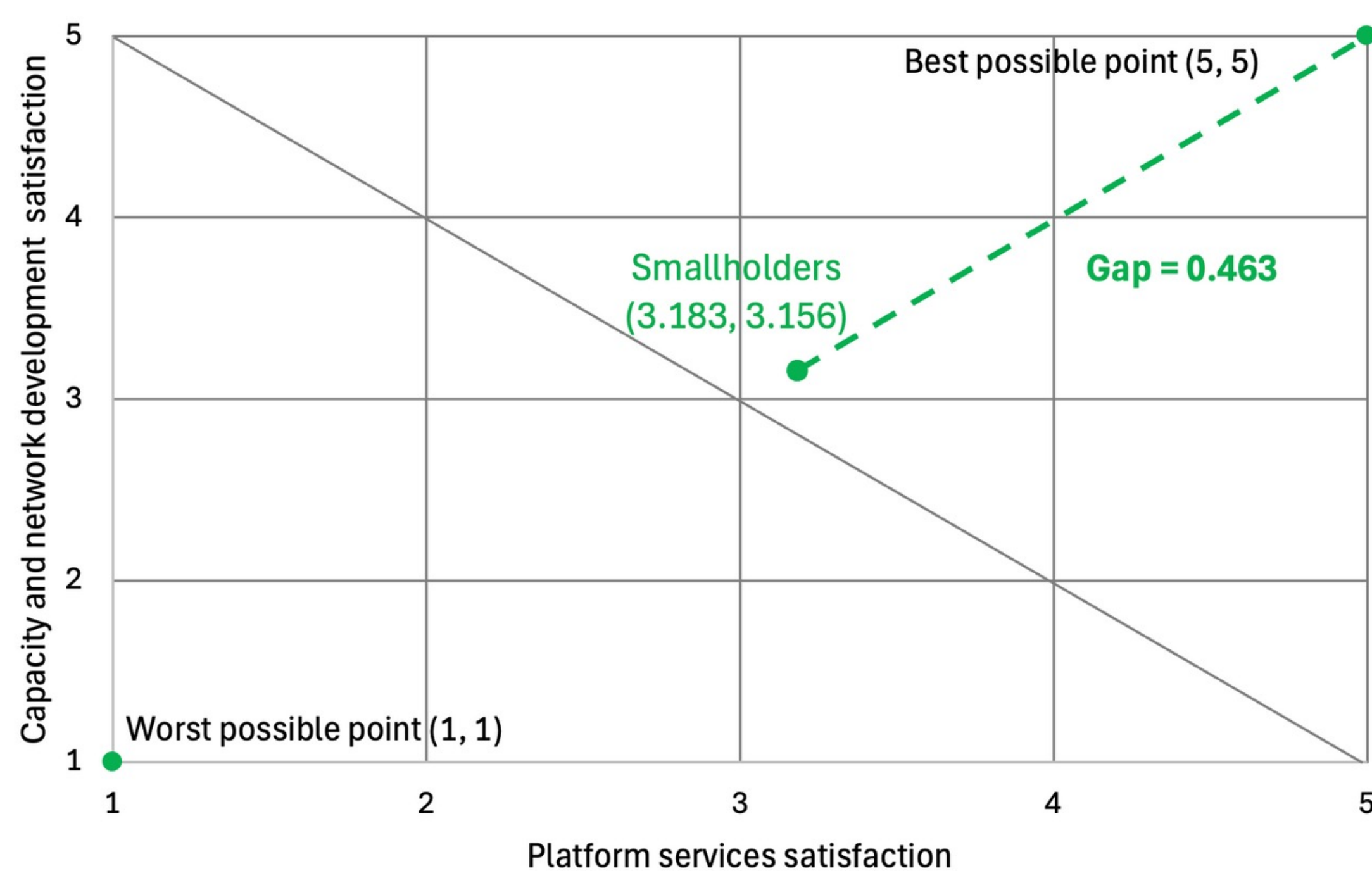


Figure 2. VIKOR analysis of broad support mechanisms' satisfaction and perceived importance

## Results 3: Gap reduction

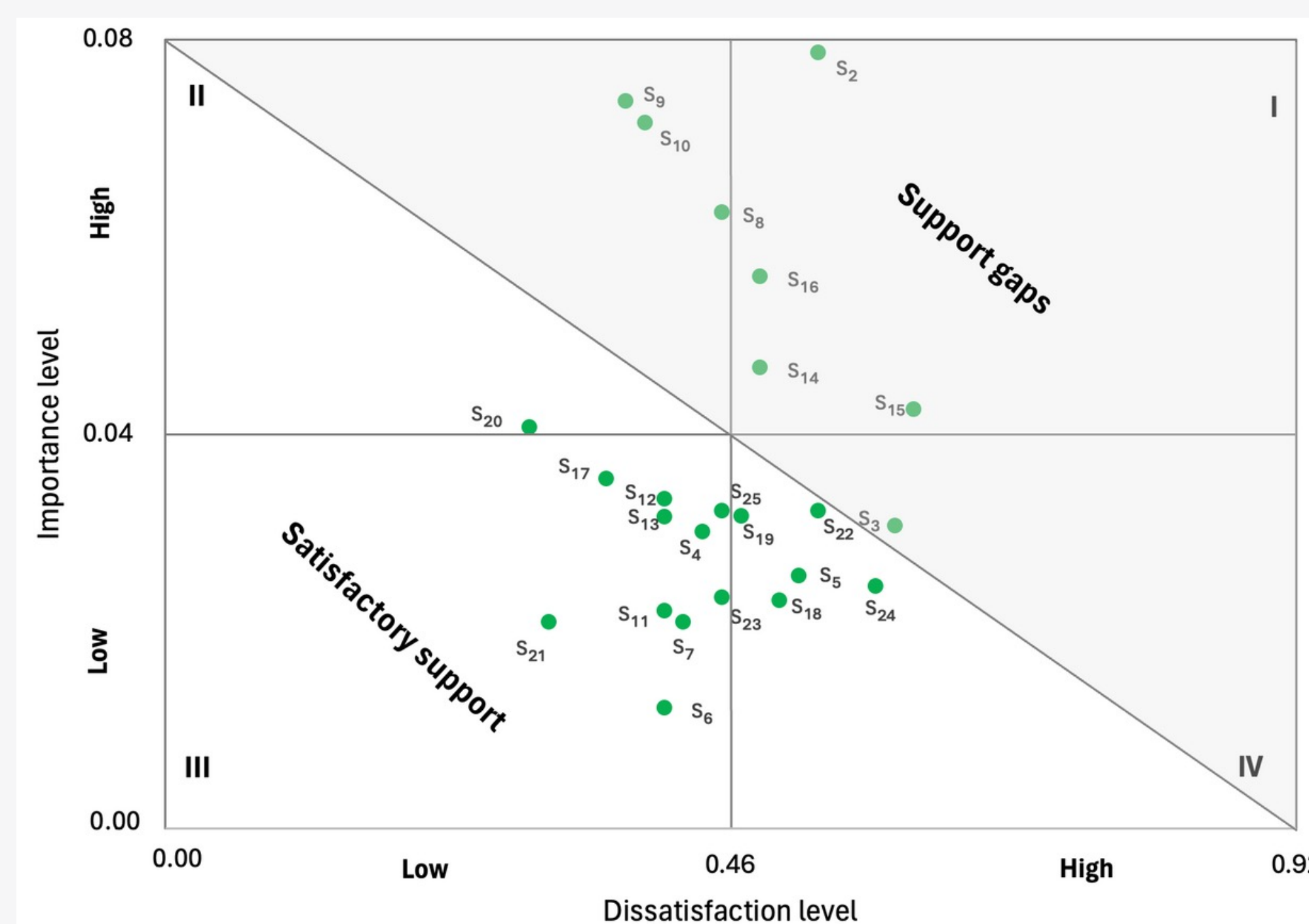


Figure 3. IPA analysis of importance-dissatisfaction of agri-tech support mechanisms

- Farmers on  $s_1$ ,  $s_2$**   
When calamities hit, we get little protection, making loan repayment difficult and interest burdensome.
- Farmers on  $s_8$ ,  $s_9$ ,  $s_{10}$**   
Agri-tech gives better farmgate prices, but when they can't absorb our surplus, we are forced to sell cheaply to middlemen.
- Farmers on  $s_{14}$ ,  $s_{15}$ ,  $s_{16}$**   
Despite agri-tech support, local markets devalue our produce, and their efforts often come too late, forcing us to cut prices.

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## References

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