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## INCENTIVES FOR INVOLVEMENT OF PRIVATE SECTOR IN TECHNOLOGIES DISSEMINATION FOR DEVELOPING VALUE-CHAIN LINKAGES TO IMPROVE SMALLHOLDER CASSAVA PRODUCTION IN SOUTHEAST ASIA: THE CASE OF THE SON LA CASSAVA VALUE-CHAIN

Dominic Smith<sup>1</sup>, Jonathan Newby<sup>2</sup>, Cu Thi Le Thuy<sup>3</sup> and Rob Cramb<sup>1</sup>

<sup>1</sup>School of Agriculture and Food Sciences, The University of Queensland, Brisbane, Qld 4072, Australia.

<sup>2</sup>International Center for Tropical Agriculture (CIAT), Vientiane Office, Lao PDR.

<sup>3</sup>International Center for Tropical Agriculture (CIAT), Ha Noi Office, Vietnam.

### 1 INTRODUCTION

The recent boom in global markets for cassava has created livelihood opportunities for many smallholders in Southeast Asia. Research has generated an abundance of technologies that could enhance the productivity and sustainability of these cassava producers. Many of these have been developed with farmers using participatory evaluation methods. The challenge has been disseminating these technologies beyond a projects sphere of influence.

We hypothesise that, in particular contexts, private-sector value-chain actors have incentives to invest in the promotion of new technologies. In other contexts, there is little incentive for private-sector involvement, and support from public-sector or non-government actors will be required.

We present a framework to analyse the incentives for private value-chain actors to invest in the dissemination of different technologies. We then test this framework through an analysis of the value chain linking smallholder cassava producers in Son La with starch factories and dried chip processors.

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### DISCUSSION AND CONCLUSION

The technology characteristics of new varieties and the community mean that the potential adoption of new varieties is relatively high.

There is a significant incentive for the starch factory to promote new varieties. However, they lack strong long-term links through the value chain. Traders supplying the factory have strong upstream links in the value chain, but have little incentive to promote new varieties as they lack the ability to exclude other traders from capturing the benefits of their investment.

In order to facilitate engagement of traders and widespread dissemination of varieties, traders could be incentivised by the factory subsidising the sale of stakes to larger traders and supporting large traders and commune level traders to multiply planting material for sale to farmers.

There is a significant incentive for fertiliser companies to promote improved fertiliser use as farmers use small quantities of fertiliser and lack knowledge of appropriate formulations and application rates. The linkages of fertiliser companies to farmers are strong due to their distribution networks through input supply shops down to the local level. One of the key investments in facilitation of the adoption of fertiliser for cassava production will be working together with fertiliser companies to develop appropriate formulations based on trial results.

Photo 1+2: Trialling new cassava varieties on sloping land in Son La

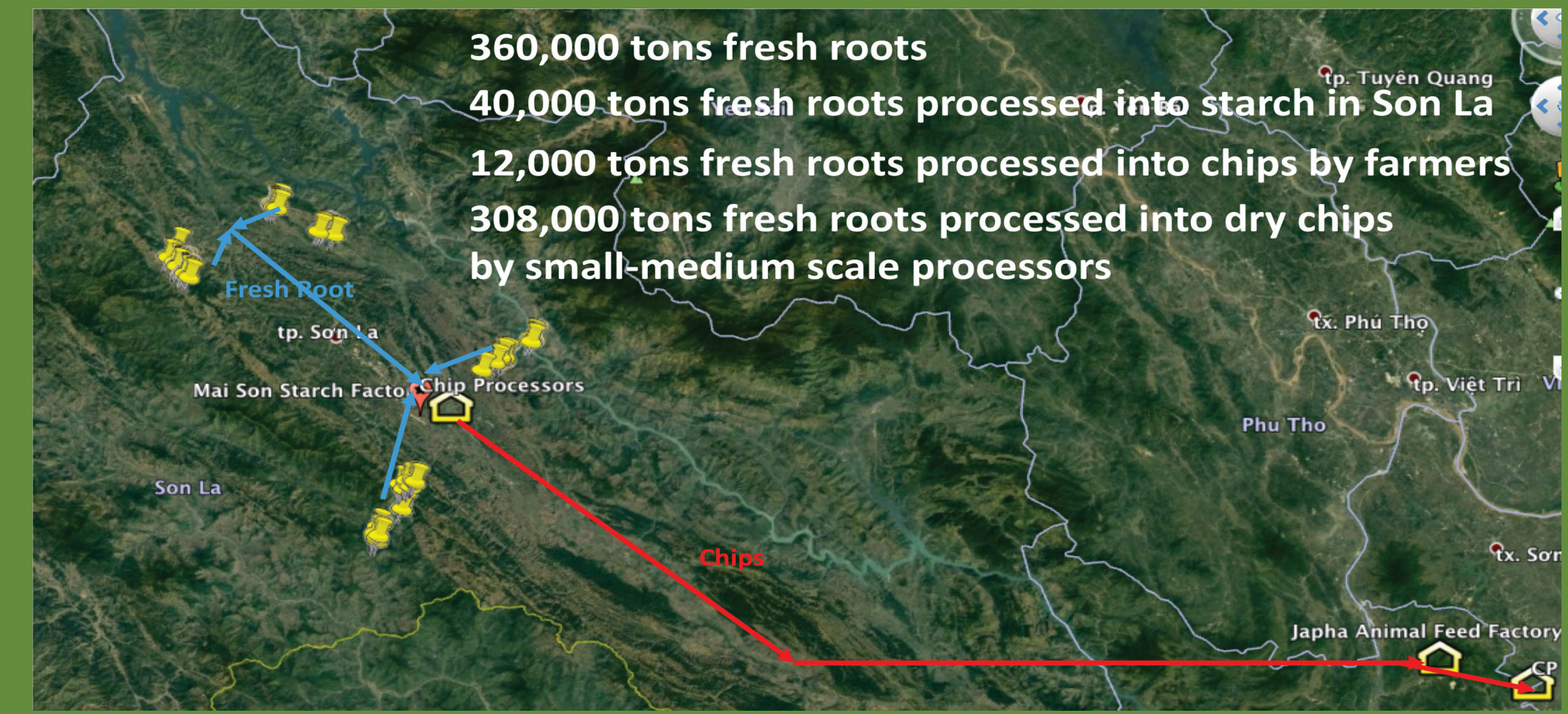


Photo 3: Son La Cassava production and sales (2016)

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### RESEARCH APPROACH

There has been considerable research into the factors that influence the adoption of agricultural technologies and innovations. The following framework builds on this literature to analyse the incentives for private value-chain actors to invest in the promotion of different technologies, taking into account (1) the characteristics of the technology, (2) the nature of the production system, and (3) the features of the value chain, including the ability of agribusiness actors to capture the benefits of any investment in technology dissemination.

The peak level of engagement of a value chain actor with a technology is influenced by the variables and sub-variables in the right hand two quadrants (Relative advantage of the technology and relative advantage for the value chain actor to engage with the technology). The scale of diffusion is influenced by the variables and sub-variables in the two left hand quadrants (learnability characteristics of the technology and characteristics of the value chain that influence the ability to diffuse the technology).

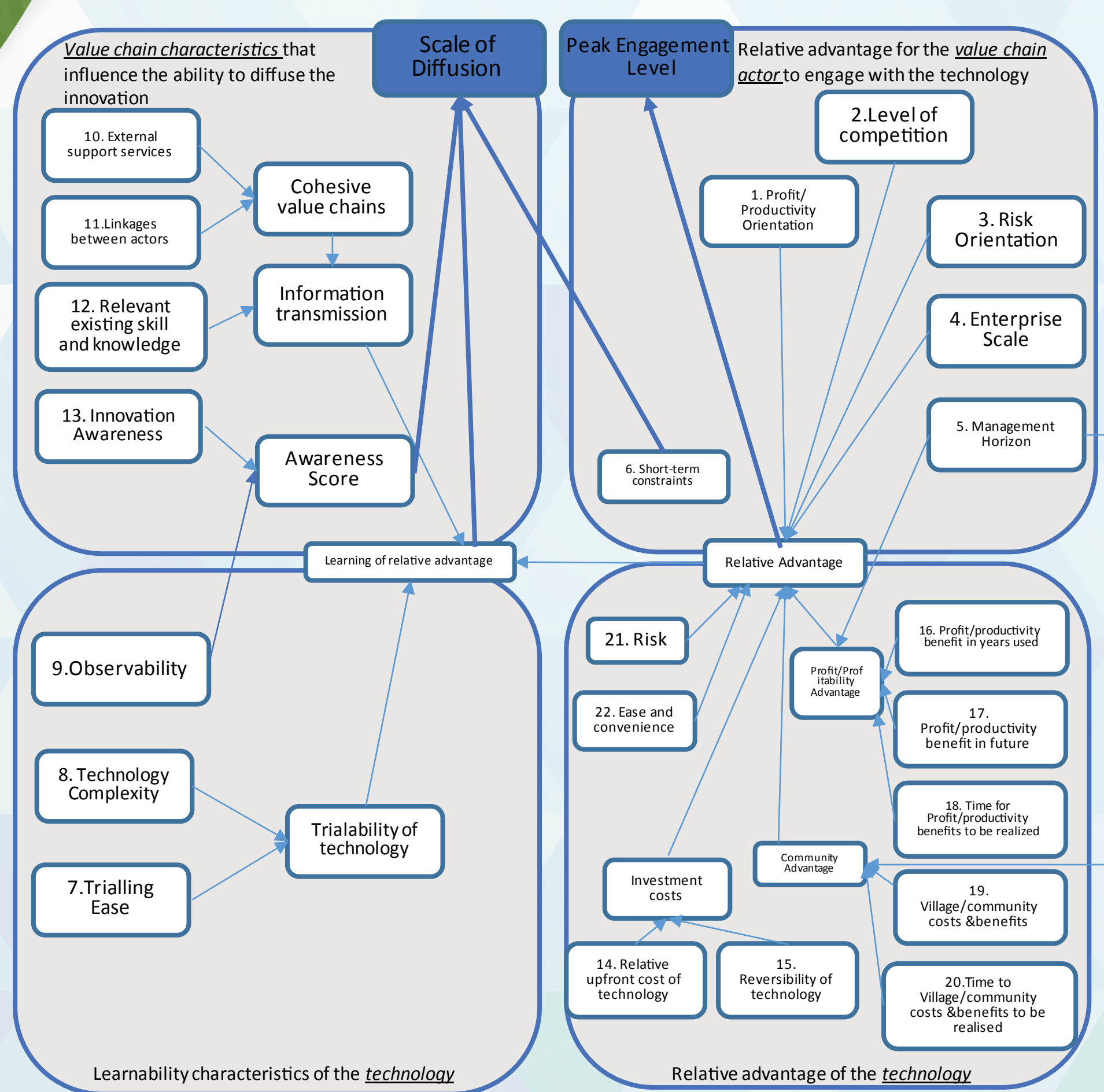


Figure 1: Diffusion Framework

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### RESULTS

Learnability characteristics impacting on diffusion and adoption in Son La include the fact that the government extension system is not specifically oriented towards cassava, there are not many farmer-led groups and there is a medium level of awareness of problems/potential interventions. Relative advantage characteristics observed in Son La were increasing market orientation, small scale production, high risk aversion and medium community benefit orientation. Two main technology types were prioritised by stakeholders for introduction through the Son La value chain:

Improved varieties specifically bred for desirable characteristics including increased root production, high starch content of roots, drought resistance, pest and disease resistance. The main entry point/partner for an intervention introducing improved varieties in the cassava value chain in Son La could be the Mai Son Starch Factory.

Fertility Management - The main entry point/partner for an intervention introducing more effective fertiliser treatments in the cassava value chain in Son La could be fertiliser production companies active in Son La and their associated networks of agricultural input supply shops.

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