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## Kasetsart Journal of Social Sciences

journal homepage: <http://www.elsevier.com/locate/kjss>

## Information orientation of small-scale farmers' community enterprises in Northern Thailand

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### ARTICLE INFO

#### Article history:

Received 5 June 2016

Received in revised form 25 August 2016

Accepted 26 August 2016

Available online xxxx

#### Keywords:

agricultural information,  
agribusiness performance,  
information management,  
information orientation,  
small-scale farming

### ABSTRACT

Small-scale farmers contribute between 50 and 70 percent of the global food supply; however, in rural areas, small-scale farmers who own factors of production, ineffectively use information in their agribusiness and have inadequate information for decision making as a result of the digital divide and information asymmetry in the agricultural sector. Such phenomena can be attributable to the lack of the application of an information orientation (IO) model in the field of agricultural information management under a developing country context. This paper identified issues on information technology (IT) for agricultural development in rural northern Thailand and explored the agribusiness performance of small-scale farmers' community enterprises based on their IT capabilities. In-depth interviews with 15 experts and focus group discussion with 55 small-scale farmers in rural northern Thailand were employed in this study. By evaluating three IO capabilities of small-scale farmers' community enterprises, the results revealed that they possess a low-to-medium level of information behavior and values (IBV), a low level of information management practices (IMP), and a low level of information technology practices (ITP). The IO study sheds light on the actual issues of the IT capabilities of small-scale farmers' community enterprises that have been ignored in rural Thailand for a long time. The results suggest that there is ability to: (1) develop their agribusiness acumen; (2) detect and identify relevant information; (3) dynamically seek and respond to the changes in their competitive environment; (4) effectively manage their information over the life cycle of information use; and (5) proactively share information and knowledge with peers, local elites, experts, and government officials without language barriers. Achieving these outputs will be the key success factors in leveraging Thai agriculture in rural areas. The work calls for a bold new role for IT in agricultural development with the development of rural areas beyond being merely techno-centric but rather incorporating a human-centric element.

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### Introduction

The agricultural sector is the upstream part of agricultural and food value chains. The increasing integration of geographical agribusiness chains can be considered both a

threat and a challenge for rural development (Trienekens, 2011). Poor small-scale farmers in developing countries who have limited resources and scarce access to markets and information meet major constraints in the adoption of technological innovations and may therefore, be excluded from trade (Ruben, Slingerland, & Nijhoff, 2006). Throughout Thailand, information communication technologies (ICTs) have become increasingly integrated into the dissemination of information to farmers. For decades

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Peer review under responsibility of Kasetsart University.

<http://dx.doi.org/10.1016/j.kjss.2016.08.018>

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Please cite this article in press as: Raungpaka, V., & Savetpanuvong, P., Information orientation of small-scale farmers' community enterprises in Northern Thailand, *Kasetsart Journal of Social Sciences* (2017), <http://dx.doi.org/10.1016/j.kjss.2016.08.018>

“traditional” forms of ICTs have become more prevalent in advisory service provision. Radio and TV programs feature agricultural information (Sylvester, 2013). However, rural ICTs related to agriculture in Thailand are not well developed compared to developed countries such as Japan, which efficiently utilizes its agricultural resources to expand its manufacturing and research foundation (JFIR, 2009). Furthermore, in remote northern Thailand, small-scale farmers have inadequate information for decision making regarding their agribusiness as a result of the digital divide and information asymmetry in the agricultural sector (Kahan, 2011). Thailand, being an agricultural country, needs to sustain agricultural development for economic growth. One of the policies of the Thai government on agricultural development in the past few years has been to emphasize IT infrastructure investment on hardware, software, and databases (NLA, 2015). However, the key success factors to create conditions for better agribusiness performance are to develop the mindset of small-scale farmers regarding effective information use in their agribusiness, as well as to educate and train them to embrace the right behavior and values for working with relevant information (Marchand, Kettinger, & Rollins, 2000). The information orientation (IO) model of Marchand et al. (2000) was selected to address these IT-related problems affecting the economic agribusiness performance of small-scale farmers' community enterprises in rural northern Thailand, because it demonstrates a distinctive human-centric view in IO. In addition, the model suggests an interaction among humans, technology, and management capabilities to improve business performance (Marchand et al., 2000). To the best of our knowledge, this IO model has never been applied to small-scale farmers in Thailand. The objective of this research was to explore small-scale farmers' community enterprises, based on their IT capabilities. Therefore, the central research question is posited as “To what extent do small-scale farmers' community enterprises perform with regard to information orientation capabilities?”

## Literature Review

IT and its business value started to appear in information systems (IS) research in the mid 1990s (Barua, Kriebel, & Mukhopadhyay, 1995; Mukhopadhyay, Kekre, & Kalathur, 1995). Ross, Beath, and Goodhue (1996) identified three key IT assets which together with IT processes would contribute to business value. These three key IT assets were categorized into human assets, technology assets, and relationship assets. Much of this work (Barua et al., 1995; Mukhopadhyay et al., 1995) has attempted to examine the direct connections between IT assets and business performance (for example, creating competitive advantage, lowering cost, enhancing differentiation, and spawning new businesses). Bharadwaj (2000) altered categorization of IT assets to include IT infrastructure, human IT resources, and IT-enabled intangibles. Bharadwaj, Sambamurthy, and Zmud (1999) empirically verified the IT capability and provided a useful tool for benchmarking IT capability and it serves as a foundation for operationalizing a key dependent variable in IT-business value research. Later Bharadwaj (2000)

suggested a measurement of IT assets that contribute to firm performance and the future growth potential of firms, with the following dimensions: IT/business partnerships, external linkages, business IT strategic thinking, IT business process integration, IT management, and IT infrastructure. Wade and Hulland (2004) have reviewed many previous IS studies and offered a categorization scheme by developing the following eight key constructs: IS planning and change management, IS infrastructure, IS technical skills, IS development, cost effective IS operation, IS-business partnerships, management of external relationships, and market responsiveness. The link between IT resources and firm performance has been investigated by a number of researchers (Nevo & Wade, 2011; Wade & Hulland, 2004). Marchand et al. (2000) have elaborated the link between IT capability and firm performance and found empirical evidence to support the IO model and showed three separate dimensions of the IO construct. Their study found that information operation, which measures an organization's capabilities to effectively manage and use information, influences business performance.

### *Information Orientation (IO): Objective and the Research Framework*

Marchand et al. (2000) proposed the IO model to examine how the interaction of people, information, and technology establishes an orientation towards the use of information and business performance at the organization level. They developed 15 competencies or measures associated with effective information use. These factors were validated using data from a large-scale, cross-sectional survey in 22 countries and 25 industries. The measures were classified into three indicators. The dimensions within each information capability influence an orientation toward information use that is measured as the interaction of the three distinct information capabilities as follows. *Information behavior and values (IBV)* covers the capability of a company to instill and promote behavior and values in its people for effective use of information. This includes integrity, formality, control, transparency, and proactiveness. *Information management practices (IMP)* involves the capability of a company to manage information effectively over the life cycle of information use including sensing, collecting, organizing, processing, and maintaining information. *Information technology practices (ITP)* covers the capabilities of a company to effectively manage IT applications and infrastructure to support operations, business process, innovation, and managerial decision-making. In this empirical investigation, they found that IBV, IMP, and ITP capabilities are critical in determining the performance of an organization. The study indicated that an organization must excel at all three capabilities (in essence, having “high” IO) to achieve superior business performance. Being high in this orientation (IO), predicts higher business performance. Each of the capabilities alone is necessary but not sufficient for higher business performance.

The findings of Marchand et al. (2000) imply that without a solid understanding of the effective use of information and its relationship to business performance, the organization could not identify the information system for

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