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Role of External Factors on Application of Strategic Management in Agricultural Knowledge and Information System in Iran

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Abstract

The purpose of this study was to identify external factors affecting strategic management in agricultural knowledge and information system and to examine their relative importance from experts' point of view. Five factors were identified based on the interviews, examination of relevant literature and previous researches; in line with that, a questionnaire was developed to suit this purpose. Face and content validity of the research instrument verified by the research committee. To determine the reliability of the instrument, a pilot study was conducted with 30 Agriculture-Jihad Organization personnel from Qazvin Province. The reliability coefficient (Cronbach's alpha) was computed 0.95, which indicated that the questionnaire had a high reliability index. External factors consisted of sociocultural, policy, economic, technological, and ecological factors. The statistical population was consisted of line and staff experts of Agriculture Organizations of Alborz and Tehran Provinces (N=161). Data were analyzed by SPSSwin20 software. The results showed that sociocultural, economic, ecological, policy and technological factors were the most important external factors affecting strategic management in agricultural knowledge and information respectively.

Keywords:
external factors, diminutions, knowledge and information system, strategic management

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INTRODUCTION

Agricultural production is subject to many uncertainties. Many risks directly affect farmers´ production decisions and welfare. Many events related to weather, marketing and price risks and other hazards whit direct effects on farmer's income, cannot be controlled by them. Decision making in farm production is typically associated with multiple potential outcomes with different probabilities. In this context, farmers have to manage risks in farming as a part of their whole management of the agricultural business. In response to the potential impact of these uncertain events, farmers implement diverse risk management strategies in the context of their particular production plan, financial portfolio of financial, physical and human capital, and degree of aversion to risk. These risk management strategies may include on-farm decisions, changes in portfolio structure, use of market instruments, government programs, and diversification of other sources of income (Byerlee et al., 2009).

Any classification of risk in agriculture is arbitrary. Boundaries between different sources of risk are often blurred. Five main sources of risk can be identified in the literature: production, markets, finance, institutions, and other (Harwood, 1999). Production risks are associated with all events that make final production outcome uncertain when production decisions are taken. They include most climatic events, such as floods or droughts, pests and diseases, and any other hazardous events that may affect yields in agriculture or production from livestock. Market risk refers to uncertainties associated with prices of inputs and outputs. It also includes any other uncertainties from the markets such as the conditions imposed by the contractors. Financial risk is associated with the variability of interest rates or of the value of financial assets, and the availability of credit when required. Risks associated with farm property or physical capital could also be considered under this same category. Institutional risk is increasingly considered as an important source of risk in farming. This includes all types of government actions and regulations that can affect the returns from farming. Changes in policies and laws such as environmental requirements generate institutional risk. A final group of sources of risks could be considered covering environmental risks, health-related risks, and liability risk associated with the legal responsibility of farmers in relation to their production (Antón & Pascal, 2008). Accordingly, there is a need for more information and knowledge on the mechanisms available, their utilization and performance, as well as the assessment of their economic impacts (Antón & Pascal, 2008).

An Agricultural Knowledge and Information System (AKIS) is a network made up of organizations and people who are linked by commercial, professional, or social relationships (Roling & Jiggins, 1998). Such a network may consist of producers, researchers, consultants and extension professionals with a common interest in a particular production technology. An AKIS is a network made up of organizations and people who are linked by commercial, professional, or social relationships. Nature of the links between people and organizations within this system have a critical impact on the effectiveness of technology transfer (Röling, 1998). Ideally, these links are conduits for the dynamic, two-way exchange of information, knowledge, and skills between people both within and between organizations (Kaine et al., 1999).

We are facing with a changing techno-economic paradigm requiring a new and integrated management approach. A relevant option that emerges in this scenario is information and knowledge management, because it enables the strategic use of information to build consensus and promote organizational learning, in turn creating new knowledge to facilitate decision-making (Choo, 1998). A concrete way for companies to increase their competitiveness is to understand that all their information and knowledge, either embedded in their products and organizational processes or stored in the minds of their people, can be managed, because it is the result of a dynamic social interaction. In this area, agricultural agents should pay attention to effective changes, constraints facing, the audience's needs, as well as international changes increasing changes in the range of agricultural knowledge, technology,

and information system (Torres et al., 2011).

Anderson and Feder (2004) assert that, agricultural extension can play an important role in development. The goals of agricultural extension includes transferring information from the global knowledge base and from local research to farmers, enabling them to clarify their own goals and possibilities, educating them on how to make better decisions, and stimulating desirable agricultural development. The analysis highlights the efficiency gains that can come from locally decentralized delivery system with incentive structures based on largely private provision, although in poorer countries extension services will remain funded. Chief among these are the large scale and complexity of extension operations, the important influence of the broader policy environment, weak links between extension and knowledge generation institutions, difficulties tracing extension impact, problems of accountability, weak political commitment and support, the frequent encumbrance of extension agents with public duties beyond those related to knowledge transfer, and severe difficulties of fiscal unsustainability.

Rivera et al. (2005) in their research response have responded to this question: How can developing countries encourage the various systems, organizations, and producers concerned with agricultural research, education, and extension, as well as those operating in the public or private sector, to behave as one system with regard to the agricultural development component of rural development? They responded to questions regarding the affecting factors (economic, policy, technology, etc.) on this system.

Assefa et al. (2007) in their research comparing frameworks for studying grassroots innovation with corresponding Agricultural Innovation Systems (AIS) and AKIS, argued that different factors influence these systems such as ecological, economic, social, and policy factors. The results of the study by Ortiz (2006) examining the evolution of agricultural extension and information dissemination has shown that multiplicity and continual change characterize the AKIS, reflecting changes in the agricultural sector as a whole. He studies different effective factors on this system such as social, economic factors, and so on. Bartlet (2010) assert that, economic and technologies factors could affect rural development and act of extension system.

The results of the studies by Campbell and Barker (1997) and Franz and Townson (2008) showed that educators and stakeholders determine the level of success realized in terms of technical feasibility, economic feasibility, social acceptability, and environmental safety and sustainability from these educational efforts through program evaluation and accountability.

Ponniah et al. (2008) in their research reported that agricultural sector in developing world is changing rapidly and is driven by a number of external and global factors, such as environmental, economic, social, policy, etc. Consequently, the demands placed on extension services which have a crucial role to play in promoting agricultural innovation to keep pace with the changing context and improve livelihoods of the dependent poor, have also increased manifold. A number of innovative approaches and methods have been tried in various developing countries in agricultural extension to transform the system and to empower them to respond to the demands and challenges.

Swanson (2008) indicated that major types of objectives are important roles to be played by public agricultural extension systems, private-sector firms, and NGOs in transferring agricultural technologies, improving rural livelihoods, as well as maintaining the natural resources of a country, and finally, in sustainable agricultural development process. These include technology transfer, human capital development, especially the technical and management skills and knowledge that poorly educated farm households need to increase farm income, 3) building social capital, or getting farmers organized into producer groups or other types of farm organizations to carry out specific activities; and 4) educating farmers to utilize sustainable natural resource management practices.

The results of the study by Vanclay (2004) showed that understanding of social issues, the social nature of farming, and the social basis of adoptions needed if agricultural extension is to

be effective in addressing natural resources management issues and in promoting sustainability in its triple bottom line conceptualization. He presented 27 principles the most important of which are as follow: awareness of farming as a social activity, recognition of the social diversity of farmers and social drivers in agricultural, and the socio-cultural basis of adoption.

Mukasa et al. (2004) studied the poverty and gender assessment in Uganda. They indicated that social-culture, economic, ecological, policy, and technological factors have important roles in agricultural and rural development. Tossou and Zinnah (2005) assert that, in the new decentralized system, agricultural extension needs to be flexible, and most of the staff should be in the communes and should be oriented toward enhancing the capacity of farmers and the elected local governments to participate in the process of solving their problems and reach their development objectives, including financing of agricultural extension services. To achieve all this, adequate decision-making power and resources for extension activities should be transferred to commune level.

In his research, Zakaria (2003) identified challenges in developing agribusiness systems and improving agribusiness efficiency and productivity to increase farmers' income and improve their welfare. Welfare, focused on sociocultural, ecological, and policy factors that influence developing agribusiness systems. Qamar (2002) believed that many factors affect agricultural extension system such as social-culture factors. Peterson (1997) also believes that changes of agriculture sector, including infrastructures, ecological, economic, natural, policy, and sociocultural factors have greatest impact on agricultural development.

Fe'li et al. (2013) investigated current status of Iranian Agricultural Extension System (IAES) and its foresight for 2025. This research was done in three phases which consisted of investigating current status of IAES, identifying the external factors affecting on IAES for 2025, and developing its view for 2025. Results showed that in the first phase, the majority of respondents believed that both status of currently internal sub-system of IAES, including extension policy clearness, achieving objectives, budgeting, personnel, considering the target groups, linking with agricultural research, organizational structure, and external factors, including linking with other organizations, ecological, political, economic, social, IT, environmental, and infrastructural factors, were at moderate level. The majority of respondents also stated that IAES needed to reform at a moderate level. At the second phase of the research internal changes of agriculture sectors, including type of crops, tools of production, market demands, how to produce, the characteristic of agricultural plots and production factors were identified. As the same way, external changes including infrastructures, ecological, economic, social, linking with other organizations, IT, farming, political and demographic factors were identified until 2025.

Agbamu (2000) and Diffenbach (1983) reported that technological factors had a strong effect on the development of agricultural sectors in many countries. Kizilaslan (2007) showed that there is a significant relationship between sociocultural, environmental, and policy factors with activates rural woman and agricultural development. Therefore, there is a need for receiving permanent support from rural women with the appropriate and reliable information through agricultural extension services. Leeuwis (2004) and Zook (2004) reported that economic and policy factors have most the most drastic effect on extension system.

According to the mentioned facts, and due to the influence of surrounding structures and external movement, modification planned, purposeful, comprehensive, balanced, and contingency system on agricultural knowledge and information system, It needs ongoing management and process-oriented with the changes required in agricultural knowledge and information system, as well as participation of all institutional agents in collaborative and flexible procedures in accordance with competitive world are essential.

In this research, the some of the related research about affecting factors on application of strategic management in agricultural knowledge and information system that done with some of the

researcher and related with results of this research, can be seen in Table 1.

This study aims to identify external structures that are supposed to influence strategic management in agricultural knowledge and information system.

MATERIAL AND METHODS

This research employed a quantitative methodology. Five factors were identified based on interviews and relevant literature. External factors consisted of sociocultural, policy, economic, technological, and ecological factors. Accordingly, a questionnaire was developed to examine the viewpoints of respondents on the relative importance of identified external effective factors on application of strategic management in agricultural knowledge and information system in Iran. All statements were developed in five-point Likert type scale ranging from very little (1) to very much (5). Face validity was examined by a panel of experts consisting of faculty members at Science and Research Branch, Islamic Azad University, Tehran, Iran as well as some specialists in the Ministry of Agriculture. Minor wording and structuring of the questionnaire were made based on the recommendations received from the panel of experts. To determine the reliability of the instrument, a pilot study was conducted with 30 Agriculture-Jihad Organization personnel from Qazvin Province. The reliability coefficient (Cronbach's Alpha)

Table 1
Related Research with Effective External Factors on Application of Strategic Management in AKIS

Factors	Variables	Researchers
Sociocultural	The level of farmer's education, the development of an entrepreneurial culture, the farmer's participation in decision-making rural projects, the level of family and local information, believes and values of the rural community	Campbell and Barker (1997), Mukasa et al.(2004), Swanson(2008), Anderson and Feder (2004), Kizilaslan (2007), Zakaria(2003), Ortiz (2006), Qamar (2002), Assefa et al. (2007), Peterson (1997), Ponniah et al. (2008), Franz and Townson(2008), Fe'li et al. (2013)
Policy	Make decision and proper policies in order to develop sustainable agricultural development, appropriate government policies to support agricultural knowledge and information system, changes in agricultural policy, the level of managerial changes at the level of education, extension and agricultural research	Zook (2004), Leeuwis (2013), Rivera et al. (2016), Peterson (1997), Kizilaslan (2007), Tossou and Zinnah (2005), Ponniah et al.(2008), Mukasa et al. (2004), Zakaria(2003), Fe'li et al. (2013)
Economic	The subsidized agricultural inputs, The number of poor and smallholder farmers, The share of employment than in other economic sectors (industry and services), agriculture's share of income compared with other economic sectors (industry and services), participation of private sector in financial costs	Rivera et al. (2016), Bartlet (2010), Peterson (1997), Ponniah et al. (2008), Zook (2004), Leeuwis (2013), Mukasa et al. (2004), Fe'li et al. (2013)
Technological	Demand-driven upgrade in technology, support services for the use of information technologies, adaptation of technologies offered by research centers of agriculture, access to technology related equipment (computer, internet, etc.), being suitable extension programs with farmers conditions (economic, social, cultural)	Bartlet (2010), Mukasa et al. (2004), Swanson (2008), Agbamu (2000), Diffenbach (1983), Rivera et al. (2005), Vanclay(2004), Franz and Townson (2008), Fe'li et al. (2013)
Ecological	The appropriateness of the amount of precipitation, the suitability of the soil, the appropriate temperature, The appropriateness of the amount of evaporation, number of recently drought	Campbell and Barker (1997), Mukasa et al. (2004), Kizilaslan (2007), Zakaria (2003), Ponniah et al. (2008), Ortiz (2006), Swanson (2008), Assefa et al (2007), Peterson (1997), Franz and Townson (2008), Fe'li et al. (2013)

was computed 0.95, which indicated that the questionnaire had a high reliability index. According to George and Mallery (2003), a Cronbach's alpha ≥0.7 is appropriate for conducting a study.

The statistical population included line and staff experts of Agriculture Organizations of Alborz and Tehran Provinces (N=161), all of whom were surveyed. Data were analyzed by SPSS software. Descriptive statistics including mean, standard deviation, and coefficient of variation (CV) were applied to prioritize the external factors and their related statements according to their impotence from experts' viewpoint.

RESULTS AND DISCUSSION

121 respondent were staff experts and 40 of them were line experts. The average age and work experience of them were 42 and 15 years, respectively. In addition, 103 (63.97 percent) of them had a B.Sc. degree and 94 (58.39 percent) of them were women. The perception of respondents about sociocultural factors that could affect application of strategic management in agricultural knowledge and information system was shown in Table 2. The highest coefficient of variation refers to the beliefs and values of the rural community (CV=0.23) and the lowest coefficient of variation corresponds to the level of farmer's education (CV=0.33).

The result is in line with research studies conducted by Anderson and Feder (2004), Assefa et al (2007), Campbell and Barker (1997), Franz et al. (2008), Fe'li et al. (2013), Kizilaslan (2007), Mukasa et al. (2004), Ponniah et al. (2008), Peterson (1997), Ortiz (2006), Swanson (2008). In fact, their research showed that rural development has been emphasized as the main developmental strategy in many countries, especially in developing countries, where most of the populations live in rural areas. Therefore, it is emphasized the important role of agriculture and rural development in developing countries. Experts believe that it especially depends on human resource development. Finally, human resources development is one of the most important dimensions of agricultural and rural development. In other words, human resource development is a key variable and considered as a necessary precondition for achieving sustainable agricultural and rural development.

Overall, the objectives and policies of rural development are to reduce rural poverty, increase productivity, provide equal access to rural facilities, improve the quality of livelihood through providing basic infrastructures, enabling poor rural individuals, and strengthening rural institutions. These objectives can be addressed by providing new and appropriate agricultural knowledge and information to farmers which in turn is dependent on applying strategic management adapted to local conditions.

Based on the perception of respondents, the level of managerial changes at the level of education, extension and agricultural research were the most important policy factors that affect application of strategic management in agricultural knowledge and information system (CV=0.28) and the least important was the appropriate government policies to support agricultural knowledge and information system (CV=0.34). The result are consistent with studies done by Anderson and Feder (2004), Assefa et al. (2007), Campbell and Barker (1997), Fe'li, et al. (2013), Franz and Townson (2008), Kizilaslan (2007), Mukasa et al. (2004), Ponniah et al. (2008), Peterson (1997), Ortiz (2006), Zakaria (2003), Zook (2004). In fact, their research studies in this field illustrate that policy strategies depend

Table 2
Sociocultural Factors that Effect on Application of Strategic Management in AKIS

Sociocultural factors	Mean	SD	CV	Priority
Believes and values of the rural community	3.67	0.88	0.23	1
The level of family and local information	3.39	0.90	0.26	2
The development of an entrepreneurial culture	3.57	1.00	0.28	3
The farmer's participation in decision-making rural projects	3.69	1.08	0.29	4
The level of farmer's education	3.43	1.14	0.33	5

Scale: 1=Very Little to 5= Very Much

on the characteristics of risk and require an integrated set of tools and instruments that governments can have an effective role in managing the use of these strategies, hence the need to have an integrated approach to risk management systems becomes evident. This also applies to the agricultural knowledge and information system. Some of the roles to be played by the government can include training, development of information sources that may reduce information asymmetries in risk related markets, and ensuring an appropriate integration between private and public initiatives. Sharing of policy experiences among different countries can also be an important source of knowledge and policy improvements, these results can be summarized in Table 3.

The respondents indicated that the number of poor and smallholder farmers was the most important economic factors that affect application of strategic management in agricultural knowledge and information system (CV=0.25) and the least important was the subsidized agricultural inputs(CV=0.37). Bartlet (2010), Fe'li et al. (2013), Leeuwis (2013), Mukasa et al. (2004), Peterson (1997), Ponniah et al.(2008), Rivera et al. (2016), Zook (2004) pointed out that the importance of decision making policy in the development of sustainable agricultural development. In fact, agricultural risk is an interrelated "system" in which markets and government actions interact with risks and farmers' strategies. Government programs may underpin the development of market strategies, but they may also crowd out market developments or on-farm strategies. The result of these interactions is the set of risk management strategies and tools that are available and used by farmers. The available strategies are not the simple addition of government programs, market instruments, and on-farm decisions; they are all mutually interdependent. Accordingly, economic problems and lack of adequate funds and facilities to improve farmers lives and working conditions, if these are provided they would certainly have a more effective role in agricultural development. However, this requires appropriate agricultural knowledge and information that can be conveyed by agricultural knowledge and information system applying good strategies for effective knowledge

Table 3
Policy Factors that Effect on Application of Strategic Management in AKIS

Policy factors	Mean	SD	CV	Priority
The level of managerial changes at the level of education, extension and agricultural research	3.80	1.08	0.28	1
Changes in agricultural policy	3.71	1.15	0.30	2
Make decision and proper policies by government in order to develop sustainable agricultural development	3.62	1.19	0.32	3
Appropriate government policies to support agricultural knowledge and information system	3.63	1.24	0.34	4

Scale: 1=Very Little to 5=Very Much

Table 4
Economic Factors that Effect on Application of Strategic Management in AKIS

Economic factors	Mean	SD	CV	Priority
The number of poor and smallholder farmers	0.25	0.94	0.25	1
The share of employment than in other economic sectors (industry and services)	0.28	1.03	0.28	2
Agriculture's share of income compared with other economic sectors (industry and services)	0.28	0.97	0.28	3
Participation of private sector in financial costs	0.33	1.13	0.33	4
The subsidized agricultural inputs	0.37	1.18	0.37	5

Scale: 1=Very Little to 5=Very Much

Table 5
Technological Factors that Effect on Application of Strategic Management in AKIS

Technological factors	Mean	SD	CV	Priority
Demand-driven upgrade in technology	3.43	0.97	0.28	1
Support services for the use of information technologies	3.37	1.00	0.29	2
Adaptation of technologies offered by research centers of agriculture	3.57	1.09	0.30	3
Access to technology related equipment (computer, internet, etc.)	3.36	1.07	0.31	4

Scale: 1=Very Little to 5=Very Much

Table 6
Ecological that Effect on Application of Strategic Management in AKIS

Ecological factors	Mean	SD	CV	Priority
Number of recently drought	4.09	0.93	0.22	1
The appropriate temperature	3.58	0.93	0.25	2
The suitability of the soil	3.62	1.07	0.29	3
The appropriateness of the amount of evaporation	3.42	1.07	0.31	4
The appropriateness of the amount of precipitation	3.47	1.29	0.37	5

Scale: 1=Very Little to 5=Very Much

delivering. These results can be noted in Table 4.

Table 5 shows the perception of respondents about the technological factors that affect the application of strategic management in agricultural knowledge and information system. The highest coefficient of variation refers to demand-driven upgrade in technology (CV=0.28) and the lowest coefficient of variation refers to access to technology related equipment (computer, internet, etc.) (CV=0.31). many researchers emphasized the importance of demand-driven improvement in technology and support services for the use of information technologies (Agbamu, 2000; Bartlet, 2010; Diffenbach, 1983; Fe'li et al., 2013; Franz and Townson, 2008; Mukasa et al., 2004; Rivera et al., 2016; Swanson, 2008; Vanclay, 2004). Their research illustrates that a risk management system is composed of many different sources of risk that affect farming, different risk management strategies and tools used by farmers such as different pieces of technology and all government actions that affect risk taking in farming. In fact, researchers and extension agents must pay attention to these factors for better acting in future.

Also, respondents indicated that the appropriateness of the amount of precipitation was the most important ecological factors that number of recently drought (CV=0.22) and the lowest coefficient of variation refers to appropriateness of the amount of precipitation (CV=0.37). These results can be summarized in Table 6. These results are commensurate with the findings of studies conducted by Campbell and Barker (1997), Fe'li et al. (2013), Franz et al. (2008), Kizilaslan (2007), Mukas et al. (2004), Peterson (2008), Ponniah et al. (2008), Ortiz (2006), Swanson (2008), Zakaria (2003). They believe that strategic management measures need to identify different factors such as ecological factors which are less control on them by farmers.

As can be seen in Table 7, results from the Perception of respondents about measurement of the components of strategic management in agricultural knowledge and information system. The highest coefficient of variation refers to the level of formulation of policies or strategies to strengthen the linkages between the actors of agricultural knowledge and information system (CV=0.22) and lowest coefficient of variation refers to how actors interact in agricultural knowledge and information system (farmers, planners, extensions' experts, researchers) (CV=1.08).

As shown in Table 8, the sociocultural factor is the most important effective factor on application of strategic management in agricultural knowledge

Table 7
Measurement of the Components of Strategic Management in AKIS

Components of strategic management in AKIS	Mean	SD	CV	Priority
Formulation of policies or strategies to strengthen the linkages between the actors of AKIS	3.83	0.87	0.22	1
Supply resources and inputs that affecting on the actions and communications of activists in AKIS	3.62	0.88	0.24	2
The role of agricultural organizations about Farmer's influence	3.80	0.96	0.25	3
Farmer's view in relation to joint ventures activists in AKIS	3.55	0.25	0.90	4
Assess the strengths and weaknesses of each of the actors in AKIS	3.65	0.26	0.96	5
The role of extension on the interaction management of actors AKIS	3.55	0.29	1.05	6
How actors interact in AKIS (farmers, planners, extensions' experts, researchers)	3.60	0.33	1.08	7

Scale: 1=Very Little to 5=Very Much

Table 8
Importance of Affective External Factors on Application of Strategic Management in AKIS

Affective Factors	Mean	SD	CV	Priority
Sociocultural	3.55	0.765	0.21	1
Economic	3.46	0.763	0.22	2
Ecological	3.63	0.860	0.23	3
Policy	3.68	0.943	0.25	4
Technological	3.41	0.900	0.26	5

Scale: 1=Very Little to 5=Very Much

and information system. Nevertheless, technological factor is the least important effective factor on application of strategic management in agricultural knowledge and information system.

CONCULSION AND RECOMEENDATIONS

The results of this study highlighted the importance of sociocultural, policy, economic, technology, and ecological factors that have effect on the application of strategic management in knowledge and agricultural information system.

Regrettably, the results of this research indicated that the role of extension on the interaction management of actors in agricultural information and knowledge system and how actors interact in agricultural knowledge and information system (farmers, planners, extensions' experts, and researchers) was less than moderate. The cause of this can be either lack of being agricultural extension policy and theoretical foundation in this field, or lack of use of the available agricultural extension policy in developing extension programs. Moreover, investigating this issue indicated in detail that the program planning phase such as assessing the clients' needs was the main item which has received due attention by extension and research program planners in agricultural knowledge and information system.

This result supports the previous study by Fe'li et al. (2013). The significantly positive relationship was also identified between respondents' viewpoints on components of strategic management applying of strategic management in agricultural knowledge and information system. According to this result and apart from the effect of the sample size on the meaningful relationship, it seems that formulation of policies or strategies to help strengthen the linkages between the actors of agricultural knowledge and information system have most effective than the others. This issue can due to the gradual attention by planners and officials in the agricultural sector and the use of the strategic management in agricultural knowledge and information system.

This suggests that there is an urgent need for the reform whether in developing agricultural extension and research policy in this field such as using one extension and educational approach

or model, using feedback getting from evaluation to improve the current programs, using the participatory approaches, and so on, as well as extensive use of available agricultural extension and research policy in this field.

Some of suggestions are as follows:

• Identify other affective external factors on application of strategic management in agricultural knowledge and information system,

• Identify encourages and facilitates in application of the strategic management in the agricultural knowledge and information system,

• Identify barriers and restrictions in application of the strategic management in the agricultural knowledge and information system.

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