

Factors Affecting the Effectiveness of Alliance Communication in Orchid Consortium in Indonesia

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ABSTRACT

An application of public goods-based theory that describes the process of alliance based, inter-organizational communication and information public goods. Bureaucratic organisations which develop Indonesia floriculture promote alliance by the activation of networking as a forum for coordination. One of them is an orchid consortium. This is a new cooperation system which is developed to synergize various drive components in the orchid floriculture development. The research objective is to identify factors influencing the effectiveness of alliance communication in the orchid consortium. The research framework was organised around Monge's: the goods, the participants and the action processes. This study used census and sample design as a source of information drawn from the entire population. Primary data were collected from individual consortium participants using a questionnaire to identify relationships and communication networks. The Spearman Rank correlation statistics was used to analyse the relationship between the variables, while Ucinet 6 software was used to assess the activity of the communication network in the consortium. Increasing of individual resources through non-formal education and kinds of knowledge; increased use of connective and communal goods including communication media types and frequency of communication media use; and improvement of the collective action process, the importance of density and centrality in improving the effectiveness of organizational

communication within the consortium orchid as a coordination among stakeholders in the national orchid floriculture development which are competitive and sustainable. All the hypotheses were accepted.

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INTRODUCTION

Alliance is a cooperation of several associations, groups, organisations or among countries to achieve the desired goal (Osborn & Hagedoorn, 1997). Inter-organisational cooperation includes alliance strategic, consortium, partnerships, coalitions and various forms of network organisation (Ring & van de ven, 1994).

Inter-organisational field is one of the major perspectives that has been employed to examine strategic alliance and networks (Osborn & Hagedoorn, 1997). Kumar and van Dissell (1996) argued that inter-organizational information systems as a public goods constitute of the essential infrastructure on which strategic alliances are built. The pattern of alliance and networks can be money, information, materials and messages (Monge & Contractor, 1998).

Orchid consortium is a new form of coordinated, collective actions, cooperation among associations of orchid farmers and other stakeholders. It was built in order to increase the contribution of orchid farms to the national economy and competitive orchid production (DBPF, 2012).

This finding is consistent with van den Ban (1997) who stated that the problems of farmers need to be solved collectively. Rogers (1976) suggested that agricultural communication problems, consisting entirely of people, institutions, forces, processes and situations, are associated with many structures and other complex processes. Additionally, Leeuwis (2009) stated that the most innovation which is needed currently has a collective dimension

such as requirement of new forms of interaction, organisation and agreement among many actors through connectivity such as physical, social, institutional, individual (Monge *et al.*, 1998), as well as geophysical and technological (Kolb, 2008). Teamwork through support effective and strong institutions will be able to spur the growth and competitiveness of the agribusiness systems (Saragih, 2010).

Orchid consortium is a pre-competitive and shared value creation of alliance model. Consortium is a pre-competitive alliance because it is designed to produce the conditions which are necessary to produce an effective form of cooperation competence in the development of orchid propagation that will use the results of the development to compete in product markets and cooperation in developing policies that support conducive climate to the development of orchids. Orchid consortium is also an alliance of shared value creation model because it allows partners to provide better service together in order to compete as a team in the product market.

In an effort to implement an alliance or consortium of orchids that can compete in the product market, it is necessary to support the effectiveness of inter-organisational connectivity in the forms of information and communication systems based alliances among organisations. This form is required in order to increase orchid floriculture development.

A review of previous studies in the field of organisational communication in external communication related to cooperation is

found as follows: factors in the cooperation development (Browning *et al.*, 1995; Lee *et al.*, 2014; Misener & Doherty, 2013; Ucakturk *et al.*, 2012), partnership failure factors (Browning *et al.*, 1995; Shrestha *et al.*, 2008; Alwi, 2007), organisational model of collaboration (Sarinastiti, 2004), strategic alliances (Amrantasi, 2008; Genc *et al.*, 2012), and collaboration technology (Gallupe *et al.*, 1992; Sarinastiti, 2004). However, the study object focuses more on studying cooperation outside the agricultural sector (Browning *et al.*, 1995; Shrestha *et al.*, 2008; Amrantasi, 2008; Lee *et al.*, 2014; Misener & Doherty, 2013). In terms of methodology, these studies have not developed the organisational communication research in the application of the theory in particular external communication (Salem, 1996). Therefore, it becomes important for communication science to have contributed to the study of organisational communication in external communication support agricultural development through the application of the theory.

The research question is, “What are the factors affecting the communication effectiveness of alliance? Using a conceptual framework drawn from the previous research and literature on alliances and inter-organisational communication, the authors examined the relationships between connectivity and communality of goods, characteristic of participant, collective action and social network and communication effectiveness of alliance. Extending Monge’s *et al.* (1998) work, the authors focused specifically on

inter-organisational communication and information system of orchid consortium in Indonesia. First, the authors reviewed the relevant literature for factors influencing the communication effectiveness of inter-organisational communication. Next, methods and procedures for conducting this quantitative study were outlined. Finally, the results and the implications are also discussed.

LITERATURE REVIEW

This theory application research is based on Inter-organizational Communication and Information (ICI) System for Producing Public Goods in Alliances (Monge’s *et al.*, 1998). Public good is anything that results from a collective action by interested parties that possess two defining characteristics “impossibility of exclusion and jointness of supply” (Monge *et al.*, 1998). Marwell and Oliver (1993) described four key affecting factors regarding collective action in public goods, as follows: (1) the characteristics of the good; (2) the characteristics of the participants; (3) the collective group of participants and (4) the characteristics of the action processes.

The Monge’s model of alliances based on the ICI system that produces public goods is based on Marwell and Oliver’s (1993) four-part frameworks consisting of the good, the participants, the group and the action processes.

The first framework is the characteristics of connective and communal collective goods. Based on Fulk *et al.* (1996), the ICI system is two classes of public goods named

connectivity and communality. Connectivity as a public good is the ability to reach other members of the inter-organisational collective (e.g., participants in the alliance) through the ICI system. A system is fully connective if each member can reach other member through direct communication. Communality as a public good refers to collective storing and sharing information such as through an electronic bulletin board or an expert database to which users have full, unrestricted access. Communality is created when participants exchange information through shared databases. Monge's propositions 1 and 2 predict that the total resources contributed will impact organisational effectiveness.

PROPOSITION 1. *Over time, increases in the provision of connectivity through an alliance-based ICI system will be associated with increases in organisational effectiveness in the form of overall (a) quality of information available, (b) amount of information generated, and (c) member satisfaction with the process.*

PROPOSITION 2. *Over time, increases in the provision of communality through an alliance-based ICI system will be associated with increases in organisational effectiveness in the form of overall (a) quality of information available, (b) amount of information generated, and (c) member satisfaction with the process.*

The second framework is the characteristics of participants. Monge *et al.* (1998) and Marwell and Oliver (1993) stated that to produce public goods, the ICI system also depends on participant's interest, as well as costs and resources contributed. The likelihood of contributing is related to the level of interest in seeing the good realised. Costs for the physical system typically include hardware, software and the application of political or other resources to induce expenditure of the necessary financial resources. Social connectivity and information contributions require a different set of costs, including both subjective and objective factors. They include such things as learning how to use the new system, making useful contributions to the database, compiling informations, giving up established ways of doing things, developing new ways of working, as well as developing and maintaining the interactive social networks required to use the system. Participants choose how much information resources they will contribute to an alliance based public goods. Key information resources include data, knowledge and human intelligence.

PROPOSITION 3. *Over time, increases in participant interests in an alliance-based ICI system will be positively related to increases in participant gains.*

PROPOSITION 4. *Over time, decreases in the participant costs associated with using a new alliance-based ICI system will lead to increases in participant gains.*

PROPOSITION 5. *Over time, increases in the anticipated and/or actual use of the system by a participant's key collaborators will lead to increases in participant resources contributed.*

The third framework is characteristic of the group. Characteristics of the group of the ICI system for producing public goods are heterogeneity and group size. Heterogeneity of interests (ability to benefit) and resources (ability to contribute) across participants affect collective action. Participants with the greatest interest in the shared good will contribute the most, while those with the least interest are most likely to free ride on others' contributions. Similarly, those with the least resources are least likely to contribute to collective action. Group size refers to the size collective to prevail in creating a public good.

PROPOSITION 6. *Over time, across participants in ICI systems, greater interest heterogeneity will be associated with increases in the amount of resources contributed toward connectivity and communality within an ICI system.*

PROPOSITION 7. *Over time, higher correlations between resources and interests where resources and interests are heterogeneous will be associated with increases in the amount of resources contributed toward connectivity and communality within an ICI system.*

The fourth framework is the action process. The factors that relevant for the action process are collective decision

and action, network density and network centrality. Collective decision refers to the process of communication in coordination. Network density refers to the proportion of organisations in the network to which an organisation is directly connected. Network centrality is the sum of the length of the shortest paths by which an individual or organisation typically "reaches" or connects to every other individual or organisation.

PROPOSITION 8. *Over time, increases in the density of extant communication networks for each organisation will lead to increases in the amount of resources contributed toward connectivity and communality within an ICI system.*

PROPOSITION 9. *Over time, increases in the centrality of communication networks for each organization will lead to increases in the amount of resources contributed toward connectivity and communality within an ICI system.*

Alliance communication in orchid consortium organised around Monge *et al.*'s (1998) three of four frameworks in Inter-organizational Communication and Information System (ICIS) for Producing Public Goods are the good, the participants and the action processes.

The identification of variables that influence the effectiveness of alliance communication in the orchid consortium is based on individual unit analysis. Figure 1 serves as an organising framework for both the theoretical discussion and the subsequent testing of hypotheses.

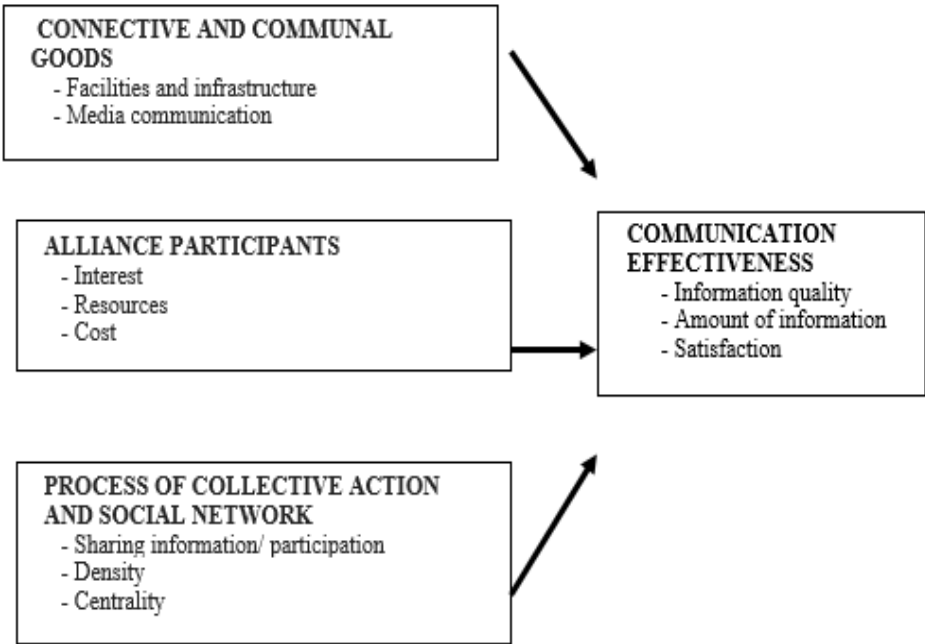


Fig.1: Factors associated with communication effectiveness

METHODS

The research hypotheses are as follows:

- H1: There is a correlation between the level of connective and communal goods characteristics and organisation’s communication effectiveness.
- H2: There is a correlation between the attribute of characteristic of participant and organization’s communication effectiveness.
- H3: There is a correlation between social networks and collective action and organization’s communication effectiveness.

Participants and Procedures

The study population consisted of 28 individuals or representative participants

of Indonesia Orchid Consortium members from seven cities including Jakarta, Bogor, Depok, Bandung, Cianjur, Yogyakarta and Malang in Indonesia. The participants were all of those population members with various professions, i.e. academician, researcher, policy maker, farmer, trader, etc. They were recruited to complete the mail questionnaire with the response rates of 100% over a 6-week period. After the initial mail invitation, the author called the participants to remind them about the questionnaire.

The questionnaire items consist of question relating to the availability of supporting infrastructure, the type of communication media, frequency of the use of communication media, interest level, formal education, informal education, the

amount of knowledge contribution, the amount of cost contribution, collective action, density of communication network, local centrality, global centrality, betweenness centrality, quality of information, quantity of information and communication satisfaction.

Measurement and Analysis

Connectivity and communality are described by the availability of facilities and infrastructure support, quality of facilities and infrastructure support, quantity of communication media used by participants and frequency of using the communication media.

The characteristic of participant is described by level of interest, level of formal education, level of informal education, amount of knowledge contribution and amount of cost contribution.

Social Networks and Collective Action. The factors that are relevant for the action process are collective decision and action such as sharing information/participation, network density and network centrality.

The validity test of the instrument was conducted using the Pearson product moment correlation ($r=0.401-0.995$). The reliability test was done by using the Cronbach alpha method (value 0.783-0.964). The unit of analysis is individuals. The primary analyses were Spearman Rank Correlation (SRC). These analyses were used to determine the relationship between the variables of ordinal scale data. Ucinet 6 software used to assess the activity of the communication network in the consortium.

RESULTS

Results of the relationship between Connective and Communal Goods Characteristics, Alliance Participant Characteristics, Process of Collective Action and Social Networking and Alliance Communication Effectiveness by Spearman Rank correlation statistics are shown in Tables 1, 2 and 3.

DISCUSSION

Goods' Characteristics versus Communication Effectiveness

Data in Table 1 show that there is a significant correlation between the quantity of channels, the quantity of information and satisfaction in the process. It means that more than one alternative channel used by members to find information and connect with other consortium members, the more information can be extracted by the consortium members and the more satisfied they are with the communication process. The finding demonstrated an association between frequency in using channel with the quantity of information and satisfaction in the process. This is in line with Monge's (1998) and Marwell and Oliver's (1993) results which indicate that the information and communication systems for the production of public goods in the alliance are affected by connectivity or the ability to reach out to other alliance members. Connectivity information system (Child & Shumate, 2007) will increase the effectiveness of communication. The use of the media must to be adjusted to the needs because the media have different capacities

TABLE 1
The correlation between the characteristics of connective and communal goods with communication effectiveness

Connective and communal good characteristics	Communication effectiveness		
	Information Quality	Information Quantity	Satisfaction
Level of facilities and infrastructure supported availability	0.304	0.190	0.154
Level of facilities and infrastructure supported quality	0.274	0.181	0.261
Quantity of channel	0,234	0.455*	0.503**
Frequency in using channel	0.290	0.474*	0.466*

Note: * significantly correlated at $p < 0.05$ and ** highly significant correlated at $p < 0.01$

TABLE 2
The correlation between participants' characteristic and organisation's communication effectiveness

Participants' characteristics	Communication effectiveness		
	Information Quality	Information Quantity	Satisfaction
Level of interest	0.301	0.241	0.178
Level of formal education	0.114	0.071	0.095
Level of non formal education	0.254	0.404*	0.331
Amount of knowledge contribution	0.192	0.425*	0.428*
Amount of cost contribution	-0.098	0.102	0.228

Note: * significantly correlated at $p < 0.05$ and ** highly significant correlated at $p < 0.01$

TABLE 3
The correlation between social networks and collective action with Organisation's communication effectiveness

Social Networks and Colective Action	Communication effectiveness		
	Information Quality	Information Quantity	Satisfaction
Collective action	0.609**	0.729**	0.687**
Density	-0.426*	-0.511**	-0.568**
Local Centrality	0.572**	0.607**	0.626**
Global Centrality	-0.316	-0.221	-0.123
Betweeness Centrality	0.493**	0.431*	0.453*

Note: * significantly correlated at $p < 0.05$ and ** highly significant correlated at $p < 0.01$

in sending data (D'Urso & Rains, 2008). The more varied the information media/channels used to support communication, there will be more ways to establish communication between members of the alliance. By frequently and continuously increasing the contribution in using media and communication, social connectivity

and satisfaction will be achieved in the communication process. The infrastructure is most commonly used by members of the alliance to access mailing list, e-mail and SMS. SMS and email are channels chosen for personal relationship, while mailing list as one of the collaborative information and communication systems that built alliances to share information among members of the consortium. The communication media is most widely used as a forum for finding and sharing information. Gallupe *et al.* (1992) and Sarinastiti (2004) and Walsham (2002) stated that supportive collaboration system and computer system will increase the quantity of information. Communication media such as e-mail and mailing list will increase the number of ideas by reducing social barriers and can serve as the media for consultation among its members.

Participants' Characteristics versus Communication Effectiveness

The findings presented in Table 2 show that there is a relationship between the level of informal education with the quantity of information. It means the more informal education such as training course in all aspects of orchid agribusiness industry (e.g., GAP/SOP, cultivation, management, cloning which have been followed by members of the alliance), the more information and knowledge about orchid agribusiness are controlled by the members of the alliance and can be used as materials for other members. Baumann and Bonner (2013) argued that the most valuable in group is expertise. Browning *et al.* (1995) suggested

that expertise increases the likelihood of success. The finding also shows that there is a relationship between the quantity of knowledge and the quantity of information and satisfaction in the process. In other words, the more the data, information and knowledge provided by the alliance members in various aspects of the agribusiness of orchid (i.e. propagation system, technology, marketing, human resources, institutional, regulatory and policy management), the more information can be obtained by other alliance members in orchid agribusiness. The more amount of knowledge can be contributed and discussed in the meeting and the discussion on the mailing list, the more things can be discussed and there will be a solution to solve the problem in order to achieve satisfaction in the communication process. Penley (1978) argued that the combination of diverse viewpoints and varied types of knowledges would lead to a better solution to a complex problem. The source of information or knowledge is a power and an important resource for the success of the organisation (Tsai, 2000; Minei & Bisel, 2013). Research on sharing information has found a positive relationship (Mohr & Spekman, 1994; Lee *et al.*, 2014) between the quantity of information that contributes to members' satisfaction of the communication process.

Collective Action and Social Networking versus Communication Effectiveness

The results in Table 3 show that there is a significant correlation between the process of collective action and communication

effectiveness (i.e., the quality of information, quantity of information and satisfaction in the process). This means that the higher the level of participation contributed (attendance and contribute ideas), the more decision making by deliberation and consensus in meetings will improve the quality of information (i.e., quality of information obtained both time and accuracy in the content and suitability based on need), the quantity of information (i.e., the amount of information, ideas, responses given by members of the consortium and members' satisfaction in the communication process). This is in line with the statement of Marwell and Oliver's (1993) that the process of collective action will be increased through coordination and collective decision-making. Research on collective action process found a positive relation between coordination and members' satisfaction (Mohr & Spekman, 1994; Kauffeld & Lehmann, 2012, Child & Shumate, 2007) but no support for the relation between satisfaction and members' participation (Mohr & Spekman, 1994).

Research on social network (Table 3) shows that there is negative correlation between density and effectiveness of communication. Communication was more intense in high complexity issues than in low complexity issues. It showed that alliance members more strongly ties to one another when there were high complexity problems that need to discuss or to solve by all members than in low complexity problems. It shows that ties among the members are dynamic and the relationship

among them are interdependent. Research on collective action found positive (Mohr and Spekman 1994) for correlation between interdependent and member satisfaction.

Results on centrality (Table 3) revealed a positive correlation between centrality (degree and betweenness) and communication effectiveness. This means that: 1) the more relationships possessed by a member, the more the alternative ways to meet the needs of information possessed and there is less dependence on mediators, 2) the more members in a consortium can act as mediators for the institution they represent, the better the information will be conveyed to others, and 3) the more information that can be contributed and the easier it is to communicate with other members.

CONCLUSION

Variables that really connect to information system and inter-organisational communication are the kinds and frequency of communication media, level of formal education, level of informal education, collective action process, local centrality and density. Thus, it can be concluded that the 1st, 2nd and 3rd hypotheses are accepted.

Information and communication systems among orchid inter-organisational consortium include: a) collective and communal goods, b) individual resources (informal education and kinds of knowledge); c) group resources, and d) process of collective and social process. These factors can influence communication effectiveness, and thus, be considered as

basic components for decision maker to increase orchid consortium effectiveness.

This study highlights the need to increase the use and frequency of interpersonal communication media and hybrid media, especially participating actively in sending technology information, report of events, and research report. We encouraged the participants to improve their interactive approach continually in duty, social and emotional aspects by discussing all the subjects in the mailing list to reach communication effectiveness in the quantity and quality of information and also communication satisfaction.

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