A Study of the Attitudes of Indonesian Managers Toward Key Factors in Information System Development and Implementation

Nils A. Kandelin
George Mason University, USA

Thomas W. Lin
University of Southern California, USA

Ronny K. Muntoro
Universitas Indonesia, Indonesia

The purpose of this paper is to assess the behavioral attitudes of Indonesian information system managers and top level managers towards the organizational aspects of information system development and implementation. Important key factors under investigation include participation, training, top management support, feedback communication channels, and early conveying of information about the change. The study results show that both Indonesian information system managers and top managers have positive attitudes toward all key factors under study except consensus participation. Top management support is considered by all groups of managers to be the most important key factor for the successful development of computerized information systems. Training programs are ranked in the middle in order of importance. Pre-implementation training is consistently ranked higher than on-the-job training by both groups of managers. Feedback communication channels, while obtaining next to the highest mean attitude score, is ranked as the least important factor.

As the development of a world wide “information society” progresses, the governments and businesses in the developing world have increased their participation in this society dramatically. Improvements in hardware, software and telecommunications technology have facilitated the introduction and use of computerized information systems in developing countries (Thorpe, 1984). In addition to these technological improvements, Heitzman (1990) describes three institutional factors that have stimulated use of information systems in developing countries, which are: (1) the growth of multinational corporations and financial markets, (2) international agencies that try to facilitate and regulate the spread of information systems to developing countries, and (3) national programs implemented by the countries themselves.

One major concern expressed by several researchers that are familiar with the conditions in developing countries is that the organizations in the developing countries may not be prepared for computerization and do not have carefully prepared plans for developing computerized information systems (Chandler and Holzer, 1983). Another issue is whether the information systems development techniques that have been perfected in the developing countries can be applied in a different environment. Grimshaw and Ping (1992) performed an exploratory study of the influence of the cultural environment on the application of Western developed information technology (IT) theories and application methods in China. They discovered that the spread of IT in China has not followed typical growth patterns found in the West, which they believe is due to unique Chinese cultural and organizational factors and not to the technology itself. Thorpe (1984) emphasizes even if an information system is a technical success, that socioeconomic factors will determine whether a system is actually used.

Strategies for the development and implementation of information systems have been widely identified in the literature as critical to the success of development efforts. Numerous alternative approaches for systems development exist, such as
bottom-up versus top-down, total-system versus modular, piecemeal versus systems and the “great leap forward” versus the evolutionary approaches, each with their own characteristic advantages and disadvantages (Wilkinson, 1991). In addition to the selection of the particular systems development approach that is appropriate for the organization, the feasibility (the possibility of success) of development efforts must be determined by considering economic, technical and organization aspects. A dominant component of the organization aspect of systems development is resistance to change, which is present to some degree in almost every systems development and implementation effort. (Ahiituv and Neumann, 1986)

Switching from manual systems to computerized systems will most likely cause resistance to change, especially if the change is seen as a threat to the affected employee’s well being. Five methods for reducing resistance to change that were developed from the organization and information systems development research literature conducted in the “western world” are: 1. participation (consisting of three types — consultative, representative and consensus participation); 2. training (consisting of two types — pre-implementation and on-the-job training); 3. visibility of top management support; 4. feedback communication channels; 5. early conveying of information.

This study investigates if resistance to change, a potential impediment to successful information system development, has been recognized by managers in an developing country (Indonesia). The study assesses the attitudes of Indonesian information system (IS) managers and top managers toward the eight key factors (consultative participation, representative participation, pre-implementation training, on-the-job training, visibility of top management support, feedback communication channels, and early conveying of information). Positive attitudes toward these key factors are needed for a successful information system development and implementation. The attitudes of IS managers are studied because IS managers are in an excellent position to play the role of change agents. Top managers are interested in this study because, without their help, the IS managers’ work will be less effective and more difficult.

The approach used in this study is different from the typical user attitude survey. In these studies, the attitudes of users toward specific systems or types of systems are analyzed to identify influential system and user characteristics. In our study, we have chosen to concentrate on specific systems development techniques that might be affected by cultural (American vs. Indonesian) and functional (IS vs. top managers) differences.

**Review of Organization and Information System Literature**

From the organization and information system development literature, there are five organizational behavior factors or methods affecting the eight key factors that are useful in countering resistance to change. These five factors are: user participation in the design process, training, top management support, encouraging employee feedback, and the early conveyance of information about changes. These actions should begin early in the systems development sequence and should continue through the implementation phase.

**Participation**

The first organizational behavior factor or method is to let personnel who are affected by the change, the ones who will operate and use the new system, participate in the design, planning, development, and implementation of the change. Baroudi, Olson and Ives’ (1986) study shows that user involvement with information systems projects will lead to a greater chance of success.

Kim and Lee (1989) surveyed Korean business firms and found that “a participative systems development strategy is most fruitful when the systems are relatively unstructured and ill-defined, or complex in nature,” (p. 16) which are characteristics often found in larger, mainframe-based information systems requiring the participation and coordination of many individuals. Change is less likely to be resisted if it originates from within the organization.

Based on his experience in developing information systems in India, Sanwal (1989) states that “Rather than rely on outsiders, the essential organizational requirement is the development of a knowledgeable end user” who is also an experienced administrator knowledgeable about his or her systems application. Internalization of the motives to change should always be attempted whenever possible in introducing and implementing change. One of the best methods of internalizing motives to change is through participation of affected personnel in the activities of the change.

In the information systems literature, participation is mentioned as having the purpose of: 1. Developing realistic expectations about system capabilities, thus reducing disconfirmation of expectations which may lead to deferred resistance to change (Gibson, 1977); 2. Providing an arena for bargaining and conflict resolution about design issues (Keen, 1981); 3. Leading to sense of ownership (Robey and Farrow, 1982); 4. Committing users to the system and reducing resistance to change (Lucas, 1974b and Markus, 1983).

Ives and Olson (1984) reviewed many of the studies on user involvement in the information systems area and found mixed results in the relationship between involvement and participation, and between participation and users’ attitudes toward the system. They suggest that the reason for the mixed results is partly due to the fact that participation was not defined carefully in those studies.

Mumford (1979) divided participation into three categories: (a) consultative participation, where design decisions are made by the systems group, but the objectives and form of the system are influenced by the needs, especially job satisfaction needs, of the user department; (b) representative participation, where all levels and functions of the affected groups are represented in the design team; and (c) consensus involvement, where an attempt is made to involve all employees in the user department, at least through communications and consultation.
Training

The second organizational behavior factor or method is providing adequate training both before and after the change. Sanwal (1989) cites experiences in both India and Kenya that training at all levels in the organization can promote a positive attitude toward the system and help ensure success. A study by Lederer and Sethi (1992) shows that lack of training will lead to information systems implementation failure. Tonkin (1991, p. 14) also argues that to have a successful information systems implementation, training is an absolute requirement.

According to Watson (1979), there are four levels of learning. These four levels are: (a) knowing about, (b) understanding, (c) acceptance, and (d) ability to apply. Before an individual accepts change, he or she will first have to know about, and then understand the change and the new system. This can be achieved by providing proper training. Training will also increase the trainee’s self-confidence and self-esteem in facing the new system. Through training, the individual will feel more comfortable with the new system; he or she will feel that he or she is not left out, and will be more confident in doing his or her new task or using new equipment. Increased confidence will erase fears the trainee might have about the new system, which, in turn, will increase his or her acceptance of the new system.

Training includes both pre-implementation training and on-the-job training. On-the-job training, after the change is implemented, is useful in increasing the trainee’s feeling that he or she is able to apply new found knowledge and skills. This ability to apply is the highest level of learning, and once an individual reaches this level, he or she will most likely accept the new system fully.

Visibility of Top Management Support

The third organizational behavior factor or method that reduces resistance to change is getting top management support and involvement in the change. Top management support and involvement are necessary for the successful implementation of a change and has been cited as playing an important role in successful systems development in India and Malaysia (Sanwal 1989, Han and Render 1989). Not only is it important for the allocation of resources needed for the change, but also to provide a strong signal to employees that the change is an important one, and that support from subordinates for the change is expected. As Senn (1978) puts it: “After all if top management feels that an activity is important enough to devote valuable time and effort to it, perhaps the change is an important, significant and necessary one which all persons should support.”

Senior management support has long been recognized as important for information systems implementation success (Lucas, 1981, Ginzberg, 1981, Jarvenpaa and Ives, 1991, Lederer and Sethi, 1992). What should also not be neglected is that the support should be visible to the employees; i.e., top management must demonstrate its interest and excitement for IS activities (Tafti, 1993). Top management support provides a strong signal about the importance of the change. The stronger this signal is felt by the employees, the less likely the change will be viewed unfavorably by the employees. Most importantly, top management should act as the “champion” to successfully carry out a major IS development and implementation project in an organization.

Feedback Communication Channels

The fourth organizational behavior factor or method that can be used to reduce resistance to change is the deliberate opening of feedback communication channels among users, MIS managers and top managers for comments and suggestions about the new system. Dissatisfaction with a new system may result because users are having problems with it. If these problems are not addressed effectively, these users might resist using the system any further. If they feel that their grievances are not being listened to, they might generate negative attitudes toward the system and start to blame the system for the ineffectiveness of their work. This will further reduce system acceptance. Maish (1979) reports that positive feelings about the system are associated with the impression that user problems are well provided for. Establishing an image of being sympathetic and helpful apparently pays dividends for the information system.

Early Conveying of Information

The fifth organizational behavior factor or method is the early conveying of information to users by providing accurate and timely information about the change. By providing adequate, accurate, and timely information regarding the change, what the change is expected to accomplish, and the consequences of the change, affected individuals will be able to understand the change and what is expected from them better. This will facilitate their involvement with the information systems project, which a study by Baroudi, Olson and Ives (1986) shows will lead to greater chance of success. Accurate information is also important in managing expectations about the change. Keen (1975) suggests that failures in implementing management information systems may well result from the improper management of users’ pre-implementation expectations. Ginzberg (1981) shows that the degree of realism in the users’ pre-implementation expectations is positively correlated with a range of project success measures, both attitudinal and behavioral.

Research Questions and Methodology

Research Questions

In the early years of computerization of information systems in the United States, the people aspect of the change process was often neglected. It is feared that this phenomenon might be repeated in Indonesia, which is currently in the early stages of developing computer-based information systems. Positive attitudes toward the key factors that are useful in reducing resistance to change are much more important in the developing countries than in the more advanced countries,
because with their low supply of financial and other resources, the less developed countries can ill afford the problems caused by resistance to the new system. The first research question of this study is:

“What attitudes do information system managers in Indonesia have toward the key factors in reducing resistance to change that are identified in this study?”

As mentioned earlier, many authors have shown the importance of top management support for the success of the development of computer-based information systems. Indeed, without the support and consent of top managers, the required resources important for such development would not be allocated. Thus, even if the information system managers have positive attitudes toward the key factors in reducing resistance to change, and are willing to implement those key factors in the computerization process, without the support of the top level managers, the information systems manager would find it more difficult to do a good job. The second research question that is of interest in this study is:

“Do Indonesian top managers have negative attitudes toward the key factors in reducing resistance to change?”

It is also important that both the information system manager and the top manager not only have positive attitudes toward the key factors, but that there is consensus between these two managers on which of these methods should be considered important to implement in their organization. If there is lack of consensus, the chances of implementing the positive behavior actions will be reduced. The third question this study asks is:

“Are there any significant differences in the attitudes toward each of the key factors in reducing resistance to change between the information system managers and the top level managers?”

Several research studies have noted that private managers are different from public managers with respect to their work-related values, reward preferences, needs and personality types (Wittmer, 1991) and that the differences between public and private sector IS management might emphasize different factors than in developing countries (Jain, 1997). In a study of international development programs, Paul (1984) noted, “It appears that public and private managers differ significantly in the degree of control they exercise over their goals, resources, and environment.” Because of these differences which might effect subsequent analysis of the data, we can anticipate that state-owned organization officials’ attitudes towards the key factors related to the change process might be different from those of their counterparts working in private enterprises. The fourth research question is:

“What attitudes do managers working in state-owned organizations have toward the key factors in reducing resistance to change and are there any significant differences in their attitudes when compared to those of managers that work in the private enterprises?”

The data collected for this study permits analysis of the importance of the key factors among and between the two groups of managers. This analysis addresses the fifth and sixth research questions, which are:

“How are the key factors ranked in order of importance?”

“What is the degree of consensus in the attitudes within each group, and are there significant differences in the degree of consensus across the two groups?”

Research Methodology

A questionnaire survey was used in this study. A seven point Likert scale with values from -3 to +3 was used to solicit attitudes. Following Rosenberg and Hovland (1960) and Triandis’ (1971) suggestion, the three components of attitude: cognitive, behavioral, and affective, are measured separately and the total attitude score for each key factor, for each respondent, was calculated as being the sum of the three components divided by three.

The questionnaires were distributed to 15 state-owned organizations and 15 private enterprises in Jakarta. The sample size of 15 was determined using the criteria developed by Bratcher, Moran and Zimmer (1970) and were randomly selected from a list of 64 large organizations who were known to have developed and implemented a mainframe information system and had their own internal IS department. To facilitate data collection, only organizations located in Jakarta were chosen. Each organization completed two questionnaires: one questionnaire by the information system manager and the other by a top manager.

The range of experience of the top public managers is from 8 to 32 years and for public IS managers is from 6 to 27 years. The range of experience for top private managers is from 1 to 39 years and for private IS managers is from 2 to 24 years. Public IS managers have from 1 to 22 years IS working experiences, and private IS managers have from 1 to 18 years. For private managers, 60% have master’s degrees and 30% bachelor’s. For public managers, 70% have master’s degrees and 20% bachelor’s degrees.

An Analysis of Results

Table 1 presents the summary survey results with respect to means of attitudes of information systems managers and top managers.

Attitudes of Information System Managers

To evaluate whether IS managers have negative attitudes toward each of the key factors, eight T-tests were performed, one for each key factor. Since the scale used ranges from -3 to
where 0 represents neutral attitude, the null hypotheses (H0) is stated as \( \mu \) (mean) <= 0 i.e., having neutral or negative attitudes. The results of the tests are summarized on the first line of Table 2.

The results show that consensus participation is the only factor for which the null hypotheses of IS managers having neutral or negative attitudes cannot be rejected. Visibility of top management support has the highest mean value followed by feedback communication channel. For the training programs, pre-implementation training seems to be more favored than on-the-job training. Representative participation seems to be the most favored participation factor by IS managers.

**Attitudes of Top Managers**

The results of the T-tests performed on attitudes of top managers are summarized on the second line of Table 2. Like IS managers, top managers have positive attitudes toward all of the factors, except for consensus participation, which is the single key factor for which the null hypotheses cannot be rejected. Similar to the attitudes of IS managers, attitudes of top managers are most positive for the visibility of top management support followed by feedback communication channel. On-the-job training has a higher mean value than that of pre-implementation training. Consultative participation scored the highest among participation methods followed by representative participation.

**Differences in Attitudes Between Top and IS Managers**

The third research question dealt with the concern that the top manager of an organization might have attitudes towards the key factors that are more negative or less positive than the IS manager of the same organization.

Table 2 shows the result of the paired T-tests that were performed to test the null hypotheses: \( \mu \) (top managers - IS managers) <= 0. To perform this test, the attitudes of the top manager from each organization toward a key factor is subtracted with the attitude of the IS manager from the same organization. A T-test is then performed on the difference.

Table 2 shows none of the differences were difference large enough to reject the null hypothesis that top managers had the same or less positive attitudes towards these factors compared to IS managers.

**Differences in Attitudes Between Public and Private Managers**

Table 2 shows the results of T-tests that were performed to evaluate the difference in attitudes between managers working in state-owned organizations and managers working for
private enterprises. The null hypotheses is specified as: \( \mu_{\text{private}} - \mu_{\text{public}} \).

The tests rejected the null hypotheses for consensus participation, but for all other factors the attitudes of private managers are not significantly different from public managers. Table 2 shows that the difference is negative (which further analysis shows to be significant) which is a result of private managers have a more negative attitude toward the factor than public managers. This can be interpreted as meaning that private managers are more reluctant to use this particular factor than the public managers.

**Attitudes Toward the Participation Methods**

The results so far have shown that the attitudes of all groups toward consensus participation is not significantly positive. We would like to see whether significant attitude differences exist toward the three participation methods. The hypotheses state that attitudes toward consensus participation would be lower than attitudes toward representative participation which, in turn, would be lower than the attitudes toward consultative participation.

For the statistical test, Dunnett’s T3 procedure is used (Dunnett, 1980a, 1980b). The null hypotheses for this procedure is specified as: \( \mu_{j} - \mu_{k} \) where \( j \) and \( k \) are the two participation methods being compared. The output of Dunnett’s T3 procedure is a confidence interval for \( \mu_{j} - \mu_{k} \). If this interval does not contain zero, the null hypotheses is rejected. Table 3 shows the result of these tests. The results indicate that for all groups (IS managers and top managers), attitudes toward consensus participation is significantly lower than attitudes toward representative or consultative participation, and that there is no significant difference in the attitudes toward consultative and representative participation.

**Rank of the Key Factors**

Subjects were asked to rank the key factors in the order of importance for the successful implementation and development of computerized information systems. The means of these rank scores (rank means) were computed, and then the means were once again ranked (mean ranks). These numbers are shown in Table 4. The results indicate that visibility of top management support is ranked number one in order of importance by all groups, except for private IS managers, who ranked representative participation as the most important key factor. Representative participation is ranked either second or first by managers. Training programs are mostly ranked in the middle (between third and sixth).

It is interesting to note that consensus participation, which received the lowest mean attitude score from all groups, was not ranked last by most of the groups. Both top and IS managers from state organizations ranked it number seven. Private IS managers ranked it number five, while private top managers was the only group that ranked it last. Similarly interesting is the fact that feedback communication channel, which had the next to the highest mean attitude score, was ranked last by most of the groups.

**Differences in the Variance of the Attitudes**

Consensus within a group can be measured by the variability of the attitudes of the members of the group. A low group variance indicates high consensus, while conversely, a high variance indicates low consensus.

Table 5 shows the variance of the responses of top managers and IS managers. Looking at the numbers, we find that none of the groups consistently have higher consensus across all key factors. Except for representative participation, where the IS managers have the lowest variance compared to the other group, the variances of the two groups for each key factor do not seem to be significantly different. To test this, the Brown and Forsythe (1974) procedure was performed. The results of the Brown Forsythe tests confirm our earlier observation, i.e., there is not significant difference in the variances of the two groups, except for the attitudes toward representative participation.

---

**Table 3: Result of Dunnett’s T3 Text**

<table>
<thead>
<tr>
<th>Subjects = IS Managers</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Suit vs. Rep</td>
<td>(-1.470, 0.313)</td>
<td>Fail to reject HO</td>
<td></td>
</tr>
<tr>
<td>Suit vs. Sens</td>
<td>(-0.403, 2.276)</td>
<td>Fail to reject HO</td>
<td></td>
</tr>
<tr>
<td>Rep vs. Sens</td>
<td>(0.901, 2.936)</td>
<td>Reject HO</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subjects = Top Managers</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Suit vs. Rep</td>
<td>(-0.690, 0.757)</td>
<td>Fail to reject HO</td>
<td></td>
</tr>
<tr>
<td>Suit vs. Sens</td>
<td>(0.840, 2.619)</td>
<td>Reject HO</td>
<td></td>
</tr>
<tr>
<td>Rep vs. Sens</td>
<td>(0.795, 2.606)</td>
<td>Reject HO</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subjects = All respondents</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Suit vs. Rep</td>
<td>(-0.620, 0.287)</td>
<td>Fail to reject HO</td>
<td></td>
</tr>
<tr>
<td>Suit vs. Sens</td>
<td>(1.029, 2.152)</td>
<td>Reject HO</td>
<td></td>
</tr>
<tr>
<td>Rep vs. Sens</td>
<td>(1.216, 2.203)</td>
<td>Reject HO</td>
<td></td>
</tr>
<tr>
<td>Key Factor</td>
<td>IS Rank</td>
<td>IS Mean</td>
<td>IS Rank Mean</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>--------------</td>
</tr>
<tr>
<td>Participative Management</td>
<td>4.86</td>
<td>5</td>
<td>4.08</td>
</tr>
<tr>
<td>Representative Management</td>
<td>3.57</td>
<td>2</td>
<td>3.59</td>
</tr>
<tr>
<td>Training</td>
<td>6.07</td>
<td>7</td>
<td>6.38</td>
</tr>
<tr>
<td>Pre-Implementation</td>
<td>4.00</td>
<td>3</td>
<td>5.08</td>
</tr>
<tr>
<td>On-the-job</td>
<td>5.57</td>
<td>6</td>
<td>5.62</td>
</tr>
<tr>
<td>Visibility of Training</td>
<td>2.93</td>
<td>1</td>
<td>1.85</td>
</tr>
<tr>
<td>Top Management Support</td>
<td>7.00</td>
<td>8</td>
<td>6.69</td>
</tr>
<tr>
<td>Feedback Communication</td>
<td>4.57</td>
<td>4</td>
<td>5.08</td>
</tr>
</tbody>
</table>

**Table 4: Rank Means and Mean Ranks of the OB Methods**
Table 5: Variance of Attitudes of Top Managers and IS Managers

From the eight key factors, all groups and all respondents as a whole strongly agree in their attitudes towards two methods: visibility of top management support and feedback communication channel. The variance scores for these two methods are among the lowest. The variance of the attitudes of IS managers for representative participation is lower than that of visibility of top management support, but the other groups’ variance score for this key factor is high.

Discussion and Conclusions

This study is one of the first to examine the differences in attitudes between IS managers and top managers towards information systems development organizational methods in Indonesia. It adds further insight into Indonesian culture and how it affects attitudes towards the key factors examined in this study. Although this study leads to important conclusions, it is subject to some limitations. These results also suggest several areas for future research.

Participation Methods

The results of the current study show that Indonesian managers, both top and IS, have positive attitudes toward representative and consultative participation, but have negative attitudes toward consensus participation. The results also show that private managers’ attitudes toward consensus participation are more negative than those of public managers. Ives and Olson (1984), in their review of research on user participation in the development of information systems, list only one study, done by Mumford (1979), that looked at consensus participation. Mumford champions consensus participation and emphasizes that the user and system analyst will learn in applying this approach. The user learns about work design and systems, and the analyst learns how to let users control more of the design process. But a study by Hirscheim (1985) shows that, although users have reported benefits from participation methods, users have also complained of disadvantages of using these methods, especially consensus participation. The main complaint was that consensus participation leads to delays in the design phase: finding sufficient time and opportunity to bring people together for discussion and consultation was found to be very difficult. Too large a number of people involved in the design group led to problems of coordination and control. In a few instances, the study reports, there was a feeling of “not getting anywhere.” Thus, it seems that consensus participation is also unpopular in the western countries.

The results indicate that there is no significant difference between the attitudes of managers towards consultative and representative participation methods, but representative participation, which is commonly suggested in information systems textbooks, is consistently ranked higher than consultative participation by both groups of managers.

Hofstede (1982) suggests that models of participative management are out of place in Indonesia. His reason is because of the high tolerance of power distance in the Indonesian culture, i.e., the Indonesian subordinate expects the superior to behave in an authoritarian fashion. The subordinate expects the superior to be like a good parent: a benevolent autocrat.

Unfortunately, Hofstede does not mention what level of participation will not work. In fact, he does not differentiate between the three types of participation. The subordinate’s expectation certainly is not fulfilled in the case of consensus participation. But in the case of consultative and representative participation, the problem of power distance is not as great.

Consultative participation does not violate the harmony of the parent-child relationship. It is much like a father asking a child his or her opinion. Both parties know that the decision-making authority is still in the hands of the parent.

In the case of representative participation, the representative that will be selected will be one that the subordinates respect, someone who is their immediate parent. They trust him or her to make the decisions for them and know that parent will bring their needs and wants to the representative’s meetings. Relationships among the representatives will not face any power distance problems because the representatives will all be relatively at the same power level. Thus, as long as the participation methods do not cause any power distance problems, Indonesian managers are still willing to apply such methods.

The question left to be answered is: “Why do managers rank representative higher than consultative participation?” Follow up interviews with several managers yielded one reasoning that was given most often. The interviewees pointed out that the central idea of the committee approach in the development of information systems, which they learned from American textbooks, is representative participation. They, therefore, prefer representative over other participation methods. Thus, familiarity with the factor seems to play a role here. In addition, the interviewees also believed that the development of a computer-based information system requires more than just a symbolic gesture of participation, which means, representative
participation is needed to be successful.

**Training Programs**

The data analysis reveals a generally positive attitudes toward training programs, particularly towards pre-implementation training. The reason is most likely that despite the effects of training programs on resistance to change, these programs are useful for various other purposes (e.g., staff development). Regardless of the purpose that the respondents had in mind when they responded to the questionnaire, Indonesia’s development of computer-based business systems benefit from the positive attitudes that the respondents have toward the training programs.

**Attitudes Toward Visibility of Top Management Support**

The importance of top management support and involvement for the successful development of information systems is well known. However, no studies with USA managers have investigated how this factor will rank compared to the other key factors. We therefore cannot do a one-to-one comparison between the attitudes of American versus Indonesian managers. But it is clear, from the results of this study, that Indonesian managers feel that the visibility of top management support is the most important factor to employ, to ensure the successful development and implementation of computerized information systems. One probable reason is because of the high power distance that Indonesian managers have as shown in Hofstede’s (1982) study.

Because of the paternalistic nature (as a result of the high power distance) of the Indonesian culture, and the respect that Indonesians have for the “elder,” Indonesian managers feel that without the blessings and support of top management, attempts to implement projects within the organization will not be successful. Follow up interviews reveal that this is not just an opinion, but more as an absolute faith, especially if the project is going to be undertaken in Indonesia. This applies both to public and private managers.

**Attitudes Toward Feedback Communication Channels**

Indonesian managers have positive attitudes toward feedback communication channels (it has the highest mean attitude score), but they rank this factor as either the second least or the least important among the eight key factors investigated in this study.

Formal feedback communication channels in the form of grievance or suggestion boxes, are still scarce in Indonesia, but feedback information from employees does find its way to management. This communication channel is in the form of “go-betweens” which often are informally established.

Hofstede (1982), in his study, mentioned the important role that “go-betweens” have in Indonesian business. This importance is the result of the high power distance of the Indonesian culture, the strong need for harmony and for the preservation of face, and the collectivist nature of Indonesian culture. Having “go-betweens” solves the delicate problem of sending messages to the superiors that subordinates think might disrupt the harmony, and might injure the prestige of the superiors. The “go-between” is usually a person that is accepted by both parties, superiors and subordinates, thus reducing the power distance problem, and his or her words are thus felt as less threatening by the superiors compared to if the subordinate were to present the message directly.

Furthermore, according to Hofstede, opinions in Indonesia are predetermined collectively. Having a personal opinion different from the one prevailing is considered a sign of bad character. The employee who is not satisfied with a situation will first discuss his or her feelings with colleagues to gauge their feelings on the matter. If he or she finds enough support from the group, he or she will then seek out and inform the “go-between” that there is a collective opinion of dissatisfaction with a particular situation. Since the message brought to the superiors is then perceived as a collective opinion, especially if the “go-between” is able to stress this point in his or her presentation, the matter will get more weight than if the single employee would present his or her grievances individually. There might be more than one “go-between” involved, one for each hierarchical level that the message has to go through. Remember that each go-between is effective only up to a certain hierarchical level. Beyond this level, the power distance problem will be too large for the “go-between.”

Follow up interviews reveal that the reason feedback communication channel is ranked either last or second to the last, even though it has a high mean attitude value, is because the interviewees felt that a formal feedback communication channel is not necessary to implement, due to the existence of “go-betweens.” They felt that if there were any important information that employees will need to convey to their superiors, the superiors would surely get it from the “go-betweens.”

**Attitudes Toward the Early Conveying of Information**

Early conveying of information about a change is meant to reduce resistance to change that might be caused by false rumors, and to better prepare employees for the change. It will also aid management in managing employees expectations about the change, i.e., expectations about the computerized information system (Keen, 1975; Ginzberg, 1981).

Indonesian managers seem to realize this as have positive attitudes toward this method. They realize that, in a collectivist culture, it is necessary to establish employee attitudes that are positive towards upcoming projects as soon as possible. It is easier to create positive attitudes than to change a group’s negative attitude. The above reasoning was revealed in the follow-up interviews.

An additional reason that was given is tied to the need for the visibility of top management support. The managers believe that the chances of successfully implementing a project is increased if top management support and involvement is shown as early as possible.
Attitudes of Public Versus Attitudes of Private Managers

The results show no significant difference between attitudes of public and private managers toward seven of the eight key factors. The only statistically significant difference between the attitudes of these two groups is in their attitudes toward consensus participation. Thus we can say that, generally, there is more similarity than difference in their attitudes. There are three probable reasons for this.

The first reason is that the respondents are all from organizations in Jakarta, the capital city of Indonesia, where many foreign companies operate and where foreign culture has influence. The implication of this is that these managers are most likely to be exposed to western influences, regardless of whether they work in private or state institutions, thus forming the same attitudes for both public and private managers.

The second reason is because this study involves computerized systems, which are related to high technology. These high technology systems bring with them not only the hardware and software, but also western influences in the form of literature and modes of operation. Because both public and private managers receive the same influences, their attitudes become similar.

The third reason is that the managers have a very similar education background. Approximately 90% of all managers from both public and private organizations have university educations. In fact, the government managers in Indonesia are more likely to be western influenced because these managers have a better chance of being sent abroad (usually to a western country) to further their studies.

Implications

The general implication of the research findings is that Indonesian managers, both information system and top managers, are willing to use the key factors in reducing resistance to change (except for consensus participation). Consultative and representative participation methods have good chances of being implemented in Indonesia; top management support is mandatory, and this support should be visible right from the planning stage; training programs, especially pre-implementation and on-the-job training programs, are most likely to be implemented; formal feedback communication channels are less likely to be implemented.

Limitations

This is an attitudinal study and it has captured attitudes but not actual behavior. Respondents could have provided what they perceived as the normative answer (the correct answer) instead of revealing their true attitude. Attitudes are only indicators of behavior.

Attitudes towards the participation methods were solicited from IS and top managers but not from the lower level (department) managers or users. Therefore, the results of this study do not indicate if the department managers and employees are willing to engage in participation efforts.

All the organizations that participated in the study are located in the capital city, Jakarta. In the future, however, additional organizations located in other cities, such as Semarang, Surabaya, Bandung, Palembang and Medan, may computerize their information systems. What effect these future developments may have on the generalizability of the results of this study is unknown. Studies to determine if geographical effects exist should be performed in the future as computerization spreads throughout Indonesia.

Future Research

Future research into the consistency of attitudes and actual behavior of Indonesian managers and users regarding the key factors in this study should be performed. This would aid in identifying the issues and problems that cause inconsistencies between their attitudes and actual behavior.

The usefulness of the techniques examined in this study, particularly the participation methods, should also be further investigated. The effect of different situations and conditions, such as different stages in systems development, upon the success of these techniques should be investigated. These results could be used to help develop guidelines for the effective application of these techniques.

Further investigation into the differences between Indonesian and managers from other regions in Indonesia and from other developed and developing countries could also be conducted. These types of studies would help determine how the research findings described here could be applied elsewhere. Further understanding of the differences between Indonesian and managers in developed countries could help determine the applicability of the various IS development techniques described in the literature, the majority of which are based on research conducted using U.S. and European IS personnel and organizations.

Finally, the impact of changes in the economic and information technology environment on management attitudes could be analyzed. Of course, research of this nature is an ongoing endeavor, as new economic and technological factors influence information systems development in the developing countries. An example of this type of research is the study by Abdul-Gader, who studied the use of computer-mediated systems in Saudi Arabia. (Abdul-Gader, 1996)

Acknowledgments

The authors wish to thank Professor Linda Christie, the participants in the University of Southern California I.S. Research Forum and the 1996 International Comparative Management Conference for their comments and suggestions on an earlier version of this paper.
References


Nils A. Kandelin is Assistant Professor of Accounting at George Mason University in Fairfax, Virginia (U.S.A.). He received his Ph.D in accounting information systems from the University of Southern California. His research interests include IS security and auditing, systems analysis, design and development, and management control systems.

Thomas W. Lin is Accounting Circle Professor at University of Southern California. He received his Ph.D. in accounting and information systems from the Ohio State University. His main research areas are in cost management, management control systems, and IS security and audit in the Pacific Rim.

Ronny K. Muntoro is Professor of Accounting and Management at Universitas Indonesia. He received his Ph.D. in accounting information systems from the University of Southern California. His main research area is in IS development and management in the Pacific Rim.
Related Content

Cultural Impacts on Acceptance and Adoption of Information Technology in a Developing Country
[www.irma-international.org/chapter/cultural-impacts-acceptance-adoption-information/61763/](www.irma-international.org/chapter/cultural-impacts-acceptance-adoption-information/61763/)

Structural Influences on Global E-Commerce Activity
[www.irma-international.org/article/structural-influences-global-commerce-activity/3562/](www.irma-international.org/article/structural-influences-global-commerce-activity/3562/)

The Global Digital Divide: Evidence and Drivers
[www.irma-international.org/article/the-global-digital-divide/201005/](www.irma-international.org/article/the-global-digital-divide/201005/)

Business Continuity Challenges in Global Supply Chains
[www.irma-international.org/chapter/business-continuity-challenges-global-supply/19135/](www.irma-international.org/chapter/business-continuity-challenges-global-supply/19135/)

ICT in Regional Development
[www.irma-international.org/chapter/ict-regional-development/18973/](www.irma-international.org/chapter/ict-regional-development/18973/)