THE INFLUENCE OF CULTURE ON INNOVATIVE BEHAVIOUR AND MANAGEMENT IN SINGAPORE

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ABSTRACT

48 employees involved in new product development work in Singapore-based firms were surveyed on their work goals and ideal work practices in 1996. It was found that the instrumental nature of the job is ranked the most important by respondents. Thus the job should provide the means for the job-holder to attain the following objectives: learning new skills, contributing to the organisation, advancement in career, and recognition of a good job done. The respondents also value the presence of cooperative co-workers and supportive supervisors. To determine the factors that give rise to the manifestations of the preferences mentioned above, factor analysis was carried out on the data. Five underlying factors were identified, the two most important of which were “Desire for rewards” and “Need for social interaction and security”. The other three factors were “Self-actualisation needs”, “Sense of responsibility” and “Desirable job context”. Given these information, organisations can motivate their employees by developing policies that affect the instrumental and contextual nature of jobs, such as minimising the number of restrictive rules, providing clear structure in projects, placing high value on innovative activities, and creating team environment.

1. INTRODUCTION

It has long been an accepted fact that a universal approach to management does not exist because of the large variety of management context. Successful management approaches to new product development vary according to size of firms, familiarity with technology and market, and national culture. Nakata and Sivakumar have found that initiation activities require participative environment, loosely structured situation, collegial setting, and consideration of a large number of alternatives. These fit the Anglo-Saxon type of culture. On the other hand, implementation activities require strict adherence to well-laid out plans and schedules, respect for hierarchy, focus on a single goal, and stress on efficiency. These requirements appear to be congruent with a large number of Asian cultures. There exists a fair amount of consensus among researchers that it is easier to execute initiation activities
in some cultures and implementation activities in other cultures. These cultural contexts must be well-recognised to enable the project manager to manage effectively in all stages of the new product development (NPD) process.

Before delving into the specifics of the manifestation of the national cultural characteristics of new product development employees in Singapore, it will be useful to examine the framework commonly used to classify these national cultural characteristics. Hofstede\(^2\), followed by a number of other researchers\(^1,3,4\), employ five dimensions to describe national culture. These are:

(i) **Power Distance** Degree of acceptance by the people in society, especially those with less power, that the distribution of power will be unequal. An endorsement of this differential distribution of power will impact the structure within the organisation, e.g., a very hierarchical system of organisation will be more acceptable in a high power distance culture than a low power distance one.

(ii) **Individualism** The strength of ties between individuals in society. Individualistic societies are characterized by loose ties where the personal and family interests are accorded greater importance than the interest of society. Motivation and rewards structure will differ for cultures with differing levels of individualism. Individualistic cultures will find rewarding individuals and working towards individual achievement much more acceptable than in a less individualistic (or collective) culture.

(iii) **Masculinity** The degree to which masculine values like assertiveness, performance, success and competition prevails over feminine values such as quality of life, service, support and solidarity.

(iv) **Uncertainty Avoidance** The degree to which people in a culture avoid novel, unknown and surprising situations. Avoidance of these situations is effected by adherence to rigid structures of laws and rules. This dimension relates to risk taking and entrepreneurship. Society with high uncertainty avoidance dimension requires greater degree of forward planning and control to reduce ambiguity.

(v) **Long-term Orientation** The degree to which long-term values such as persistence and thrift is found in a culture. The opposite are values that may impede progress and risk taking. These values include personal stability, respect for tradition, protecting one’s face. New product development team members who take the long-term view will tend to seek enduring innovation success that contributes to the core competence of the firm.

Numerous studies have indicated that human resource issues play crucial roles in the success of new product development projects\(^5,6\). People make or break a project. Since the national cultural values are manifested through the individual, it becomes important to understand the core work values of people working on new product development projects. Thus, a study that employs the some of the questions from Hofstede\(^2\) was carried out in
Singapore in 1996. 48 employees that work on new product development projects in Singapore-based firms operating in the electronics, chemical and food industries were surveyed to determine the work values they perceive to be important and the work practices they think are ideal.

2. METHODOLOGY

The firms that participated in the study were selected based on their willingness to participate in the study. A letter explaining the intent of the study and soliciting cooperation for the study was sent to the top manager of each firm, usually the Managing Director or General Manager. Firms that agreed to participate usually referred the researchers to the technical manager in charge of new product development within the firm or Strategic Business Unit.

An interview was conducted with the technical manager of the firm and covered the new product development process of the firm. A few sets of questionnaires on the work values and perception about organisational issues in the context of new product development were left with the technical manager. The technical manager then channelled these to the employees involved in new product development. The questionnaires were then collected by the researchers or mailed back to the researchers. The questions in the questionnaires are extracted from the study of Hofstede. These questions have been used in a number of countries over a large number of studies. Hence, there is no question about the validity of the questions that are used in this study.

3. SAMPLE CHARACTERISTICS

The participants come from nine firms. Of these, four were local firms and five were foreign multinationals. The three industries covered were the electronics, chemical and food industries. There were originally 66 questionnaires that were returned by the employees involved in new product development from these firms. However, some of these questionnaires were filled in by employees who were born and grew up outside Singapore and Malaysia. Some of the countries included China and India. 18 questionnaires belonged to this category. These questionnaires were excluded from the analyses that were undertaken as the national culture values of these people are expected to be different from those born and raised in Singapore and Malaysia.

A total of 48 completed questionnaires were analysed. These are completed by those who were born and who grew up in Singapore or Malaysia. The large number of Malaysians working in Singapore and the ease of adaptation of these people to the local condition make it tenable for these two groups to be aggregated together for analyses and discussion.

There was no attempt to collect data based on the ethnic make-up of the Singapore workforce. There were two reasons for this. Firstly, the questions eliciting a respondent’s membership in racial groups are sensitive and may create a barrier to the respondents answering the questions. Secondly, the thesis of the study is that the impact of the work
values and related issues are influenced more by national culture rather than ethnic culture. This is consistent with Hofstede’s study. Hence, the unit of analysis should be people within a national culture rather than along ethnic lines.

4. MANIFESTATIONS OF Core Work VALUES

4.1 Personal Work Goals

The personal work goals of NPD personnel were surveyed. Altogether, 20 statements were presented to the respondents who indicated the importance of each statement as applied to their personal situation. Duncan multiple range test carried out identified 4 categories of variables, ranked in importance from the most important set of work goals to the fourth most important set. The importance placed by respondents on the work goals within each set, though differing in average importance scores, are not significantly different from one another. The following discussion will focus on the identity and implications of work goals.

The most important set of work goals, i.e., Rank 1, is given in Table 1. The goals indicate that the NPD employees desire to be in a situation where there they can contribute to organisational success. The respondents desire that such contribution be recognised and translated into opportunities for advancement to higher levels. This path to personal and organisational success is perceived to be enhanced in an environment populated by cooperative people and supervisors who enjoy good working relationships with their subordinates. In this setting, it is important for the job to present opportunities for learning, whether inherent in the technical aspects of the job or from the management effort required.

<table>
<thead>
<tr>
<th>Table 1. Personal Work Goals that are Rank 1</th>
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<tr>
<td>Opportunity to learn new skills</td>
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<tr>
<td>Opportunity for advancement to higher levels</td>
</tr>
<tr>
<td>Good working relationship with direct supervisor</td>
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<tr>
<td>Working with cooperative people</td>
</tr>
<tr>
<td>Recognition for a good job done</td>
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<tr>
<td>Contribution to success of organisation</td>
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The next most important set of work goals is given in Table 2. While the most important work rank 1 goals relate to the instrumental nature of the job, that is, features of the job that allow the job-holder to achieve advancement within the firm, this next most important set relates primarily to self-fulfilment. This fulfilment relates to the desire to participate in decisions affecting the future of the organisations. These decisions will be manifested in plans that the respondents will want the freedom of means to implement. This freedom will enhance the element of variety and adventure on the job. All these factors facilitate the achievement of self-esteem. Time for the family is an important consideration too. However, the desire for intangible self-fulfilment is balanced by the desire for tangible rewards – the desire for higher earnings.
Table 2. Personal Work Goals that are Rank 2

Opportunity to attain higher earnings  
Freedom to use own approach in the job  
Participation in decisions affecting the future of the organisation  
Element of variety and adventure in job  
Develop own identity and self-esteem  
Sufficient time for personal and family life

Table 3 shows the relatively unimportant goals. Rank 3 goals relate to the security of employment. This survey was carried out in 1996 before the Asian economic crisis and the full employment situation give rise to the perception that employment security is relatively unimportant. Linked to employment security is the firm recognising loyalty and service of employees and therefore retaining their service. Furthermore, a planned career development is a sign that the firm intends to keep the employee for a considerable period of time.

Table 3. Personal Work Goals that are Rank 3 and 4

Security of employment  
Recognition of loyalty and service  
Planned career development  
Opportunity to help others  
Working in well-defined job situation with clear requirements  
Good physical working conditions  
Being consulted by supervisor in his/her decision  
Live in a desirable area

The relatively least important work goals relates to clarity of job requirements, good physical working conditions, desirable location to live in, and helping others. Consultative direct supervisors ease any difficulty about the expected work performance by offering a channel of communication. Further uncertainty is avoided by having clearly defined job situation with clear requirements. Job clarity and good physical working condition is relatively less important and can be traced to the fact that a certain amount of uncertainty is bound to be present in new product development projects. This expectation creates the perception that perfect clarity of job task is not achievable. Also, the physical working conditions of new product development personnel are much better than at the shopfloor and therefore, improvement in such working condition may not be a major issue.

Finally, it seems that helping others is not a very high priority for the respondents. This is not surprising when we noted that the high priority goals are related to achievement of tangible rewards for self. In a situation of limited personal time and resources, the goals that do not lead to these tangible rewards will get neglected.
4.2 Ideal Work Practices

The respondents were also surveyed on their views relating to their level of agreement to seven ideal organisational situation and processes listed in the questionnaire. There does not exist any strong indications of either agreement or disagreement with the seven statements; the average scores for all the statements clustered around a small band of between scores of 3 to 5 (score of 4 is neutral). Table 4 shows the two items with average score above neutral, that is, there is a tendency to agree with these statements. The two statements in Table 4 clearly indicate the desire of the respondents to avoid ambiguity and to enhance the probability of gaining rewards. The presence of more than one superior, as would be the case in a matrix organisation, imposes uncertainty in the subordinate’s situation in terms of his roles, expectations, and authority. There exists an ever-present potential for conflicts in a multiple superior situation and when such conflicts arise, the subordinate is caught in the crossfire that may put his career in jeopardy. Working for a large organisation provides for a well-structured job, a well-respected status, higher rewards. The career path is also better defined compared to the situation within a smaller organisation.

Table 4. Statements of Ideal Work Practices that Respondents Agree With

| Organisation in which a subordinate has two bosses should be avoided at all costs | Working in a larger organisation is more desirable than a smaller one |

Table 5 shows the five statements where the average scores are below neutral, i.e., there is a tendency on the part of the respondents to disagree with the statements. It is interesting to note that the respondents tend to disagree that a superior can be a good manager without precise answers. This implies that the NPD employees expect their managers to have solutions to every problem. It will be rare to encounter situations where joint exploration and discussion of issues in a participative mode to solve problems are carried out. Managers cannot afford to show their ignorance on any issue.

Failure is a common occurrence in a new product development project. However, in the Singapore context, respondents are leery of openly assigning blame to individuals. They would just as quickly assign blame to the environment, unforeseen situation, or bad luck. This may be a manifestation of the element of face-saving in the Asian context where it is important to discover a way out of a bad situation without damaging a person’s ego or standing in society (the workplace in this context).

The next two items in Table 5 focus on the employee’s relationship with the organisation. Mixing work with pleasure and breaking organisational rules for the benefit of the firm in certain situations are acceptable behaviours. These responses convey a perception that the respondents tend to see their life as very closely intertwined with the organisation that provides for his livelihood. Finally, the respondents disagreed that a person’s career should remain in the same organisation. Respondents expect to move as a way to achieve greater rewards.
Table 5: Statements of Ideal Work Practices that Respondents Disagree With

One can be a good manager without precise answers to questions raised by subordinates
When people fail, it is usually their own fault
Work and pleasure should not mix
An organisation's rules should not be broken, even in the best interest of the organisation
A person's career should remain within the same organisation

5. ALIGNING INNOVATION CONTEXT TO CORE WORK VALUES

Principal component analysis with varimax rotation was carried out to consolidate the 20 items relating to core work values into a smaller number of factors. These factors represent the underlying forces that are manifested in the responses given to work value items. The analyses yielded five interpretable factors from a total of 20 variables (those from Table 1 to 4).

These five factors are shown in Table 6, which ranks the factors from the most important to the least important. Duncan multiple range tests carried out on the means of the five factor scores identified two groups of factors that are significantly different. It is seen that a “Desire for rewards” and the “Need for social interaction and security” are significantly more important than the other three factors. These three are “Self actualisation needs”, “Sense of responsibility”, and “Desirable job context”.

Table 6. Ranking of Factors Representing Core Work Values of Product Innovation Personnel

<table>
<thead>
<tr>
<th>Factors</th>
<th>Average Score (Maximum 7)</th>
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<tbody>
<tr>
<td>Desire for Rewards</td>
<td>6.4</td>
</tr>
<tr>
<td>Need for Social Interaction and Security</td>
<td>6.1</td>
</tr>
<tr>
<td>Self-Actualisation Needs</td>
<td>5.8</td>
</tr>
<tr>
<td>Sense of Responsibility</td>
<td>5.8</td>
</tr>
<tr>
<td>Desirable Job Context</td>
<td>5.7</td>
</tr>
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</table>

A correlation analysis carried out found that each of the five factors was significantly and positively correlated with at least one other factor. This implies that there exists a tendency for all the factors to have high values or low values simultaneously. This is an indication that the underlying national culture is such that the NPD employees accept a holistic perspective of values and activities related to job and non-job situations. This is in contrast to findings for other countries that indicate that employees separate these two perspectives into independent compartments. The implication of the holistic perspective is that the job is expected to play a substantial role in fulfilling the employees' aims and desires in a number of aspects. This makes it critical to provide a well-designed job that not only account for the achievement of the job objectives but must also dovetail neatly into the
values desired by the employee. It is not in the employees’ mindset to receive income from the job and search for fulfilment elsewhere. This is especially so when it is noted that employees in NPD may spend more than 60 hours a week at the workplace, leaving very little time for non-work activities. Given that the most important core work value is a desire for rewards and need for social interaction and security, what can a NPD manager do to align the innovation tasks to these values? The recommendations given in the following discussion are derived from a correlation analysis between the actual work practices and the five factors.

How should the NPD employee’s desire for reward be met? The study shows that provision of challenges that has clear targets, an environment supportive of innovative activities, flexible superiors and team-based work are effective. Clear targets minimise the ambiguity of the level of achievement required to attain certain reward levels. The setting of clear targets for the NPD technical personnel may be more difficult that that for a marketing personnel. This is because technical achievement rarely translates directly to profitability without the intervention of non-technical personnel. However, a firm can recognise that and set the targets at the appropriate level where the results can be evaluated in an objective manner. This is usually at the team level whose members are jointly responsible for the commercial performance of the final product. This is also consistent with the structuring of the project work in a team-based manner that makes it possible to assign responsibility for outputs to specific teams. Diffuse or non-team environment is usually not amenable to the provision of the level of detail necessary to identify the individuals responsible for the outcomes of any project. Hence, the preference for a team-based work environment. Firms that are supportive of innovative activities typically place innovation high on their priority on and therefore are more likely to reward, or at least value, staff involved in NPD. These staff will have access to senior managers and a career path that leads up the hierarchy. Finally, flexible superiors are less likely to stymie initiative that can lead to superior performance in NPD that can bring great rewards.

As important as the provision for attainment of reward is the perception by employees that social interaction and security are taken care of. Working in an environment where employees feel that people can be trusted is correlated to social and security needs. This environment can be cultivated by forming teams of members who have worked well together before. Chopping and changing team members must be kept to a minimum. At the same time, it is essential to recognise that putting a member on too many teams simultaneously may deprive him of the opportunity of forming work and social relationships with co-workers. Thus, unless a member is a scarce key resource that has to be shared, it is more advisable to keep teams together on a project to project basis. Security needs are provided by clear job strategies and environment supportive of innovators. These two items impose directions, unambiguous expectations and sense of one’s worth and value to the organisation.

At the next level of importance are factors that include self-actualisation needs, sense of responsibility and desirable job context. Self-actualisation needs, which are related to the desire to maximise one’s potential, are important when the more basic needs are met. In the job context, this translates into being able to exercise one’s skills, knowledge, and talent. An organisation that can harness this desire towards the achievement of its objectives
stand to gain a competitive advantage from the effective management of its intellectual assets. A way of harnessing intellectual power is to create an environment that is supportive of the activities of innovators. This includes placing innovative activities high on the organisation’s agenda, providing adequate quality resources for innovative activities and allocating time for innovator’s own interest. Over and above these structural items, the process of managing innovative activities should not be too bound by rules or procedures. The presence of excessive rules and procedures hamper the exercise of the initiative on the part of the NPD employees who may lose their enthusiasm after being made to give a presentation to ten committees to justify a modification that may make the product better. Instead of rules, it may be better to manage the NPD project on the basis of a number of principles that covers the critical requirements of the project. These principles can be couched in a form such as: any suggested change must not increase cost, make it less manufacturable, and delay project completion. The proposer must then satisfy himself first that the principles are adhered to and convince the project manager of the wisdom of the course of action. Any breach of principles can then be traced to the proposer.

It is found that respondents who desire more responsibility felt that they are currently bound by too many rules and procedures. The NPD manager should examine these rules and see if they can be removed or relaxed under certain circumstances without jeopardising the projects. The presence of too many rules tends to dilute the sense of responsibility of the NPD employees who may perceive their role as ensuring the adherence to these rules rather than as an intrapreneur. Furthermore, those with a greater sense of responsibility feel that company’s rules can be broken if it benefits the firm. Hence, a further relaxation of rules will decrease the chances of “unnecessary” rules being broken, thereby creating a band of mavericks that can do whatever it takes to succeed. Rather, a minimalist approach to the setting of rules can encourage an entrepreneurial approach that may provide the environment to encourage teams to take ownership of projects and increase commitment. This is further supported by the fact that flexible superiors who are not a strict “sticker” to rules can engender and encourage a greater sense of responsibility. The best approach seems to ensure that the project objectives are clear, and the important milestones and budgets are understood, after which the NPD manager should leave the team alone.

The other factor at the same level of importance is having a desirable job context. This refers to the state of the environment surrounding the job rather than the job itself. Hence, two very similar jobs targeted at achieving the same outcomes can have very different contexts. The practices that engender a positive job context are very similar to those for the other factors. These include being able to work in a team environment with trusted teammates, having flexible supervisors, being guided by clear goals and strategies, and working in an environment supportive of innovators.

6. COMPARISON WITH OTHER COUNTRIES

It was observed that the desire for rewards and the need for social interaction and security are the most important work values for respondents in this study. This result is consistent with a number of studies carried out in Asian setting. These studies found that the formation, maintenance and employment of social networks are very important elements of work
values. This is akin to the need for social interaction and security that was observed. Pearson and Entrek\textsuperscript{in}\textsuperscript{7} found that Singapore and Malaysian managers employ widespread networking and solve problems through the use of network instead of pushing up the hierarchy. Preserving relationships appears to be of overriding importance. Gamble and Gibson\textsuperscript{8} study carried out in Hong Kong attested to the same. In that case, the preservation of relationships even carried over to performance being evaluated in terms of personal relationships with superiors.

Redding and Hsiao's\textsuperscript{9} study of Chinese senior managers in Hong Kong, Taiwan and ASEAN found that an overriding driver of work values stem from insecurities associated with being immigrants in foreign lands. This drive translates into a number of values perceived as being very important, two of which is relevant here. The first is the maintenance of social order through respect for authority. This echoes the study by Gamble and Gibson\textsuperscript{8} that harmonious relationships with superiors are important and is consistent with our findings that social interaction is valued. The other important value that Redding and Hsiao\textsuperscript{9} finds is the passion for education that is used as the key to mobility in professions and therefore respectability. The importance of working for tangible and intangible rewards found in Redding and Hsiao's\textsuperscript{9} study mirrors our present findings that desire for reward is a very important value.

The studies carried out in non-Asian setting show very different results from our study. In these studies, the most important work values relate to self-achievement and self-actualisation. Respondents in these studies value the ability to apply their innate capabilities to challenging problems\textsuperscript{10,11,12}. This is true whether it involves R&D professionals in 18 European countries and United States\textsuperscript{10}, managers in manufacturing plants in United States and Germany\textsuperscript{11} or professionals in Sweden\textsuperscript{12}. Hoppe\textsuperscript{10} found that amongst the R&D professionals that he surveyed earnings and employment security were among the relatively less important values, unlike what we found in our study. Kuchinke\textsuperscript{11} found that use of inspirational leadership and intellectual simulation works well among the workers in US and Germany. These approaches appeal to workers to utilise their innate abilities to achieve challenging tasks. In Sweden, Aronsson et. al\textsuperscript{12} found that professionals desire work that provides intellectual stimulation, freedom and independence, appreciation of innovative thinking and initiative taking, and constructive utilisation of personal qualities and disposition. Very few professionals reflected pay and career advancement as very important.

Clearly, the comparison of our study's results with other studies reveals some interesting observations. Our results are consistent with other studies carried out in Chinese setting but differ from those carried out in Western setting. What could account for these differences? Hofstede's\textsuperscript{2} study shows that of the four dimensions used to characterise national culture, two of them do not vary between Singapore and the Western countries. These two dimensions are masculinity and uncertainty avoidance. The masculinity score was about average for Singapore and a number of Asian countries while it is mixed for the Western countries. Similarly, there was no discernible separation of the two groups of countries on the uncertainty avoidance score. The two dimensions where Singapore and Western countries differ are on the Individualism score and the Power Distance score. In general, Singapore and countries in the region score lower on Individualism and higher on
the Power Distance compared to the Western countries. The implication is that Singapore is more collectivistic and more accepting of the unequal distribution of power. Of the observations, the differences in individualistic score seem to explain the findings better than the power distance score.

Hofstede\textsuperscript{13} finds that individuals in a collectivistic culture will tend to see their identity as intertwined with the social network. Thus, maintenance of harmony in all relationships is important. These relationships will include peer to peer as well as superior-subordinate relationships. This collectivistic tendency in Singapore and the regional countries can explain the importance of social interaction in this region compared to the focus on the individual achievement that is valued by the more individualistic countries of the West.

The other important factor perceived as important in Singapore, namely, the desire for reward, should not be seen as culture bound. This importance of this factor does not appear to differ across countries. The difference that can be observed from above is the types of rewards desired and the way in which this reward is achieved. In Singapore, social interaction and network plays an important role. In the West, individual capabilities appear to be the primary means for achieving rewards.

7. CONCLUSION

The preceding discussion shows that national culture does affect the management of new product development project. The impacts are manifested through preference for certain work situations that has its foundation in the personal values and work goals. The most important work goals are the attainment of rewards, the opportunity to learn and the conduct of one’s work in a conducive environment. The slightly less important work goals are the demand for jobs with a pleasant work context, and the achievement of stability in work situations.

It is noted that the ideal work practices reflected the important work goals and predominant cultural attitude. These ideal work practices encompass the actions and situations that facilitate both the attainment of rewards and the avoidance of uncertainty. These include not having two superiors and even the breaking of rules for the benefit of the organisation. It is also seen that the employee’s life is very much intertwined with his job and there is the expectation that fulfilment and personal satisfaction will be achieved through work. It is noted that an organisation’s effectiveness in NPD can be enhanced by aligning its practices to satisfy the NPD employee’s important core work values, namely, the desire for rewards and the need for social interaction and security. Towards this end, the organisation must minimise the number of restrictive rules, provide clear goals and strategy in every NPD project, place importance on innovative activities, create a team environment, and assign flexible superiors to manage the projects.

Finally, it is noted that the relatively more collectivistic nature of the national culture of Singapore manifests itself in the perception that social interaction is very important as a work value. This is contrasted to the importance placed on self-actualisation in the more individualistic Western countries.
8. ACKNOWLEDGEMENT

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9. REFERENCES


