Cultural Differences and Process Adaption in International R&D Project Management

Li, Jihzen; Li, Xing

Publication date:
2009

Document Version
Publisher's PDF, also known as Version of record

Link to publication from Aalborg University

Citation for published version (APA):

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

? Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
? You may not further distribute the material or use it for any profit-making activity or commercial gain
? You may freely distribute the URL identifying the publication in the public portal?

Take down policy
If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from vbn.aau.dk on: december 31, 2018
Cultural Differences and Process Adaption in International R&D Project Management: The Case of Alcatel-Lucent China Research Technology Center

LI Jizhen & LI Xing
Cultural Differences and Process Adaptation in International R&D Project Management: The Case of Alcatel-Lucent China Research Technology Center

LI Jizhen* & LI Xing

Abstract: In the era of globalization, Western companies have started to explore China as a source of technology. Yet, Western R&D project management processes in China are frequently facing many problems. Some of the problems can be conceptualized by analyzing a number of known cultural contrasts between Chinese and Western ways of business interaction, such as collectivism versus individualism, personal relationship and group harmony versus impersonal contractual attitude, strong versus weak uncertainty avoidance, etc. A case study on Alcatel-Lucent China Research Technology Center shows how R&D project process can be effectively tuned to align with local cultural environment through a new generation stage-gate process model. The overseas company’s branch has recognized the need to make its process both faster and more effective for telecommunication software development, and has gained remarkable project success. At the same time, lessons and recommendations on the adaptability to Chinese style business and management interactions will be drawn from the case study for international companies that locate R&D projects in China.

Keywords: R&D project management, Stage-gate process, Culture differences, Process adaptation, Localization.

* A visiting scholar from Research Center for Technological Innovation, Tsinghua University, Beijing, P.R.China, 100084. During his stay at Aalborg University in early 2009, he was affiliated with the International Business Research group, Department of Business Studies, Aalborg University.
1. Introduction
Since China initiated an open-door policy and started the economic reform process thirty years ago and especially in recent years, there have been an increasing number of oversea firms in telecommunication industry branch their research and development (R&D) projects into this potential country. The increase of foreign enterprises in China can be explained by three major reasons: Firstly, China is a huge strategic market with the largest consumer population in the world. It has had a high economic growth rate (the annual GDP growth rate has been up to 9% for 30 years) which was accompanied by the emergence of the top-level telecommunication service carriers and partners, such as China Mobile, China Telecom and China Unicom etc. This has created a great deal of business opportunities. In particular the China 3G application has a business market of more than 10 billion dollars, implying a big cake for main equipment providers around the world. Secondly, the strategy of cost reduction requires skillful but relatively cheap human resources, which can be satisfied by China's comparative advantage in this field. Thirdly, the Chinese government provides strong support such as significantly low tax rates to foreign firms, especially to those in high-technology industries.

The trend is obvious that modern-day telecommunication firms no longer operate solely in their domestic environment. In this connection it is of strategic importance to pay increasing attention to the issue of the role of national culture in project management, or in any international collaborative projects that cross national boundaries. In the private sector strategic partnerships continue to expand from the transnationalization of manufacturing and marketing to the transnationalization of research and development.

As a consequence, firms, especially multinational companies (MNCs) increasingly have to deal with individuals from other cultures, and in this case, from China, which has distinctive historical and cultural context to which business must respond positively. Similarly, some prior studies on construction industry in China also referred to the problem of cultural integration, i.e. maintaining a balance between global efficiency and response to local cultural difference in host nations [1], [2].

Despite of the fact the most people seemingly understand the role of national culture in transnational business interactions, some of them tend to be satisfied with their general comprehension and do not deem it necessary to look deeper into the components of the role of national culture, i.e.
behavioral variables that impact on the success of project collaboration. Many specific questions on the study of cultural linkages to the outcome of project management need to be further explored, such as 1) the peculiar cultural dimensions that affect project management; 2) the possible suggestions/solutions to management or collaboration problems linked to the influence of culture, etc.

This paper discusses the importance of cultural differences and the adaptation of R&D project management process through an empirical analysis of how a western company, Alcatel-Lucent Technology Ltd. can be adjusted in accordance with China’s cultural characteristics in the expansion of its world-wide software development project management. This paper is organized into four sections: The first section contains the introduction, whereas the second one provides a research review of prior studies on national characteristics and business culture. With this theoretical background in mind, problems in cross-cultural management, which were experienced during Alcatel-Lucent China R&D projects, will be presented in the third section. Then an analysis based on Hofstede’s four-dimensional cultural framework will follow in the fourth section [3]-[5]. The conclusion of will be drawn at the end.

2. Methodology
In recent years socio-cultural influences have increasingly been identified as determinants of marketing behavior. Marketing has been revealed as an economic as well as a cultural phenomenon. It is common sense nowadays that cultural understandings play an important role in the successful outcomes of business. By “cultural understanding” we refer to the deep cultural aspects which need to be explored and comprehended, rather than to superficially observable phenomena.

There is no unified concept which encapsulates the term “culture”. It is defined by some scholars as collective mental programming: According to these definitions it is that part of our conditioning that we share with other members of our nation, region, or group but not with members of other nations, regions, or groups [6]. Culture can be seen as a totality of complexities which includes knowledge, beliefs, arts, morals, customs and any other capabilities and habits acquired by man as member of society [7]. It can also be understood as “unstated assumptions, standard operating procedures, ways of doing things that have been internalized to such an extent that people do not argue about them” [8]. However, we must be
careful in avoiding any generalization and categorization of the notion of culture, for example, “western culture”, “Asian culture”, etc. This is because many cultural elements can simultaneously found in many nations. In this context it is worth mentioning the research conducted by Edward Hall many years ago, but which is relevant today. He developed the concept of “high context” vs. “low context” communication styles [9]. The former refers to an environment in which communication occurs more by context and less by words. In other words, communication understanding is more dependent on the contextual reciprocity rather than simply on verbal exchanges. Problems in interactive communication can occur when a person is expecting one context level of communications but gets another (see figure 1).

*Figure 1. People of low context vis-à-vis people of high context*

![Figure 1. People of low context vis-à-vis people of high context](image)

Hall’s thesis is that countries and communities of high context culture are characterized by the following features: Dense and intersecting networks and long-term relationship orientation, strong boundary awareness, relationship being more important than task [9]. By contrast, countries and communities of low context culture in relative terms present the opposite characteristics: Loose networks, shorter term, compartmentalized relationships, and task being more important than relationship.

In a high context culture it is important to understand the knowledge that lies “below the waterline” (see fig. 2 below), i.e. those implicit patterns that are not fully conscious, and which include the elements which are hard to explain even if you are a member of that culture. By contrast in a low context culture knowledge is “above the waterline” and it is explicit and consciously organized.
There are several taxonomies that identify and operationalize components of national culture [10], [11]. Two additions are contributed by Schwartz [12] and Trompenaars [13]. Schwartz proposed to classify natural cultures according to 10 criteria (achievement, benevolence, conformity, Hedonism, power, security, self-direction, stimulation, tradition and universalism). The last criterion has a two-dimensional structure (openness to change vs. conservatism and self-enhancement vs. self-transcendence) [12]. Trompenaars used seven cultural orientations, and five of them were based on how people relate to each other: Universalism vs. particularism, individualism vs. collectivism, neutral vs. emotional, specific vs. diffusion and achievement vs. ascription [13]. The remaining two orientations are people’s attitudes about time and environment. In addition to Trompenaars’ work [13], Smith et al. identified a three-dimensional model with two primary dimensions (achievement vs. ascription and individualism vs. collectivism) based on a survey of workers across 43 countries [14]. However, these new taxonomies have not been extensively applied because of their recent date.

By contrast, Hofstede’s taxonomy has been extensively used by a number of researchers [14], in particular by Bond, who based his research on the Chinese Value Survey (CVS) [15]. The data were classified according to the components of factors from four dimensions (power distance, individualism, masculinity and long term orientation), three out of which are the same as in Hofstede’s model of cultural dimensions. For the reason that substantive prior researches and corresponding usages of Hofstede’s

---

1 A statistical analysis cannot reveal these dimensions. These were prior to the statistical analysis.
framework were highly correlated with Chinese culture, we intend to rely on them in order to reveal the comparative values of our results to those of prior researches.

Hofstede’s taxonomy has four dimensions: individualism vs. collectivism, large vs. small power distance, strong vs. weak uncertainty avoidance and masculinity vs. femininity [3]. He examined 116,000 questionnaires which were distributed among the IBM employees in similar positions, but across 74 countries/regions and he ranked cultural scores on each dimension ranging from 0~100. Our study focuses on cultural differences between the West and China, which are among the important factors in the success of international business interactions.

Table 1. Four comparative index values of Western and Chinese cultural dimensions

<table>
<thead>
<tr>
<th></th>
<th>U.S.</th>
<th>Denmark</th>
<th>Great Britain</th>
<th>Taiwan</th>
<th>Hong Kong</th>
<th>Mainland China</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Distance</td>
<td>40</td>
<td>18</td>
<td>35</td>
<td>58</td>
<td>68</td>
<td>80</td>
</tr>
<tr>
<td>Individualism</td>
<td>91</td>
<td>74</td>
<td>80</td>
<td>17</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Masculinity</td>
<td>62</td>
<td>16</td>
<td>66</td>
<td>45</td>
<td>57</td>
<td>66</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>46</td>
<td>23</td>
<td>35</td>
<td>69</td>
<td>29</td>
<td>30</td>
</tr>
</tbody>
</table>


Table 1 shows the different scores on the comparative culture dimensions. The Chinese data reveal the characteristics of a larger power distance, lower individualism and comparatively less masculinity. Uncertainty avoidance records mixed scores: In Taiwan it is stronger than in the U.S., Great Britain and Denmark, while U.S. and Great Britain in turn show higher values than Hong Kong and Mainland China. In the following case study we will examine China’s specific context, referring to but not being constrained by the above empirical data.

Omitting one of Hofstede’s four major cultural dimensions – “masculinity”, Shore and Cross (2005) proposed six dimensions: 1) power distance; 2) uncertainty avoidance; 3) individualism–collectivism; 4) future orientation; 5) performance orientation; 6) humane treatment. This is because they find out that the aspect of gender differentiation and assertiveness has less influence in comparative cultural studies. However, in our studies, we still regard the dimension of masculinity–femininity as being relevant in the Chinese context.
3. Empirical case and analysis
The role of culture in business interactions, in particular on R&D project management, has become a popular research topic [16], [17]. Many studies focus on cultural factors or variables that are subsequently identified as facilitators or barriers to success [18], [19]. Understanding cultural factors is important for two reasons: 1) It provides guidelines to the screening of new R&D projects; and 2) it leads to insights about how R&D projects should be managed. Among them, process adaptability to certain market environment is found to be a critical one. Next we will examine the case of Alcatel-Lucent China Research center.

Lucent Technologies entered China in 1984 under AT&T (spun off in 1996) and established the first research facility in Beijing. On December 1, 2006, Lucent Technologies was merged with Alcatel, with its headquarter in Paris. Having operations in more than 130 countries, Alcatel-Lucent is a local partner with global reach.

China, one of the most rapid developing markets in communication industries in the world, plays a crucial role in Alcatel-Lucent’s global development strategy. In 2008 Alcatel-Lucent had about 10,000 employees in China, of which more than 4,000 were R&D-related staffs. China is one of the countries where Alcatel-Lucent locates its main R&D and production centers. With strong competence in local R&D and production, Alcatel-Lucent set R&D centers in Beijing, Shanghai, Chengdu, Qingdao and Nanjing respectively.

In this combination of western and eastern cultural environment, cross-culture management is an important factor that needs to be considered for successful operations. On the basis of the previous theoretical discussions on cultural aspects in communication interactions, the following sections contain some empirical comparisons which explain the differences between the Chinese and western R&D project teams as well as the cultural implications of these differences. Thereafter we present the lessons learned from Alcatel-Lucent R&D centers in China about the encounters between high context culture and low context culture.

3.1 Power distance and hierarchical relationship
Here the issue is embedded in one of China’s central cultural and political phenomena - large power distance, which makes the relationship between
superiors and subordinates existentially unequal. The terminology “power distance” is defined as “the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally” [20]. It is believed that such a characteristic historically stems from the Confucian tradition that has dominated Chinese society for centuries. One of the key principles of Chinese Confucianism has been that stability of society is dependent on the respect given by each individual to the hierarchical roles.

Social and political hierarchies are historically and culturally deeply rooted in Chinese society. In China, people at the low levels of the hierarchy have to give full obedience to their superiors; and this top-down awareness is much stronger than that in Western countries. Chinese employees seldom challenge the decisions of their managers, even if they indeed feel dissatisfied with certain situations such as heavy pressures on tight time schedule or the technological level of individual assignments. These dissatisfactions may cause anomalies which jeopardize the project accomplishment. By contrast, Western counterparts are more readily to speak out their opinion without giving too much awareness of power distance and hierarchical relations. Chinese employees are accustomed to strict hierarchy in terms of order-giving and job description. It is normally taken for granted that it is the manager who is supposed to define how to do, when to do and what to do. Therefore, it is difficult for managers in China to hear critical voices from levels below.

Alternative intermediary channels should be available. For example, managers could stand outside the door while the team members in the meeting room propose comments or suggestions on what managers should continue to do or should not do. These comments and suggestions can be summarized as a unanimous report to managers for further project improvement.

3.2 Relationship orientation
The relationship between individualism and collectivism is one of the most important cultural dimensions when it comes to understanding the potential implications of culturally based differences between Chinese and Western project managers. This is particularly the case with regard to the styles and conceptions of their work. In line with our position, and on the basis of an empirical comparison of matched samples of Chinese and Western construction projects, Chen and Partington reach to such a conclusion
emphasizing the importance of understanding and adapting to the “relationship dimension” in cross-cultural management processes [2].

Recent moves to introduce Western project management processes into China recall the need for caution in transferring management theories and practices across cultures. Not only are there a number of well-known contrasts between Chinese and Western cultural values that shape management beliefs in important ways, but evidence shows also that the cross-cultural transfer of management processes in general is not always successful [2].

It is normal that in Western low context cultures personal matters such as family and marriage issues are generally disassociated from professional matters. But they are not necessarily disassociated in the Chinese context where professional and personal relationships are often intertwined.

The observation is related to two dimensions which are related to the theoretical discussion of high context culture vs. low context culture. The first is a low degree of individualism, or self-centered awareness. In countries of high context culture, it is more desirable to promote face-saving in order to avoid direct confrontation. As a result, the word “no” is seldom used, even if clear disagreement is obvious, and the word “yet” has to be contextualized when referring to an agreement. Human relations are of highest priority and sometimes they even prevail over professional ones. Historically the Confucian heritage largely paved the way to the Chinese low level of individualism, and it emphasizes the value that people should overcome their individual preferences in order to keep a harmonious atmosphere. Accordingly, maintaining “face-saving” in the sense of dignity and self-respect is considered to be the basis of harmony.

Second, in such cultures with gender differentiation and assertiveness where there is a weak dimension of masculinity but a strong element of femininity, people tend to prioritize close relationship, and they emphasize cooperation, solidarity, modesty and quality of work life. Therefore, setting up a project team requires more frequent team-building activities. Even with tight project schedules they are ready to play the host by turns to organize collective dinner or leisure activities at weekends. To stay together in a private environment is regarded as personally and professionally conducive. By contrast, the experiences of Chinese staffs from the collaborations with Western colleagues show that their team
building is usually carried out after project closeout. Usually the form is “Let’s go Dutch”. It is even possible to be omitted in some small projects.

An Alcatel-Lucent China R&D product quality improvement program was initiated according the following lines: Normally a project work is divided into several feature tasks, and each has a feature owner being responsible for technical implementation and sub-team leadership. In additional to the established review process, a “second feature owner” is assigned to the one who does his/her own feature and who is willing to help others and take charge of documentation review and code inspection procedure. The relationship among team members is strengthened through the working process. On the other hand, quality is improved given the second owner’s more objective leadership role at the review checkpoint.

3.3 Uncertainty avoidance
An international joint project usually involves a certain degree of cultural uncertainty that is mainly caused by assumptions and estimates calculated at the planning phase, and such uncertainty will influence the project implementation as well as the final result. “Uncertainty avoidance” is defined as “the extent to which the members of a culture feel threatened by ambiguous or unknown situations” [21]. The subjection to detailed guidelines or rules within the Chinese project team indicates the fact that as a high context culture, Chinese employees relatively keep high alert on uncertainty avoidance since institutional written guidelines strictly control the work process and clearly describe the rights and duties of the team members, thus decreasing ambiguity while increasing predictability. Table 1 indicates that the Taiwanese show similarly stronger uncertainty avoidance than Americans. Then how to explain the weaker uncertainty avoidance index of Hong Kong? The answer is not difficult to find from the historical explanations that before 1997 Hong Kong had been a British colony for a century, and it is not abnormal that Hong Kong was highly influenced by Western low context culture in terms of weak uncertainty avoidance.

In comparison with the Western R&D team at Alcatel-Lucent China R&D center, the Chinese team has more guidelines, such as estimation guideline, IMR (Initial Modification Request) guideline, moderator guideline, and so on. Instead of violating the company’s global R&D process based on the stage-gate model, those guidelines and rules have actually strengthened the description of different situations and the rules of corresponding action.
Without these additional directions, Chinese engineers would have felt unclear what to do.

3.4 “Not Invented Here” Syndrome
At the Alcatel-Lucent China R&D center the relatively strong uncertainty avoidance of the Chinese team has caused a syndrome called “Not-Invented-Here (NIH)”. The “Not Invented Here” (NIH for short) syndrome is considered as a management pathology, in which a team refuses to use a technology that is not their own invention. That is, employees with the NIH syndrome refuse to apply a foreign technology because they cannot get credit from the non-indigenous technology. Examples of such a syndrome have often occurred in a Chinese project team. However, on the other hand, if a technology is created by a renowned technician or scientist, who is well-known in that particular technology area, it will be much easier to be accepted and transferred.

One of the effective problem solutions is to establish a communication and exchange mechanism. Those Chinese and Western researchers, who usually act as technology scouts to some extent, have the opportunity to visit each other’s workplace and stay there for a period of time. These direct experiences will increase the probability to gain technology information and strengthen the confidence level.

In this context, Alcatel-Lucent China R&D personnel try to shy away from ambiguous situations because the “Not Invented Here” Syndrome can generate a sentiment of uncertainty. By contrast, it is relatively easier for people of low context culture with weak uncertainty avoidance to accept technologies that look different or risky. But Chinese technicians, burdened by the NIH syndrome, have incomplete information about the Western inventors. Therefore, they feel a degree of ambiguity and have little confidence in their quality. As a result, repelling the framework and setting-up their own looks like a good idea for the purpose of uncertainty avoidance.

4. Process Adaptation
Although Chinese business culture cannot avoid being influenced by its relations with MNCs, it is equally important, perhaps even more so for foreign MNCs to adapt to Chinese culture when they are doing business in China.
But we think the basic point is the R&D project process adaptation. The stage-gate process, as a template or road map for driving R&D projects from idea to launch and beyond is well planned and executed [22], [23]. It breaks the R&D project management process into stages with each being made up of a set of prescribed or mandated parallel, cross-functional activities. Between stages are go/kill decision points or “gates”, which open or close the door for projects to move to the next stage and weed out the mediocre projects. A funneling effect is the result. In his earlier stage-gate model, Cooper [24] describes five linear, sequential stages with five gates interspersing between, namely, preliminary investigation, detailed investigation, development, testing & validation and full production & market launch. Since the 1990s the process has been successfully implemented by many leading western firms.

4.1 Stage-gate process speed-up
Alcatel-Lucent’s software project management process is based on a stage-gate model, which is called Quality Gate Procedure. It provides a general list of tasks whose completion is important to new product development. The purpose is to reflect the driving criteria for defining, creating, and verifying the hierarchical development work, i.e. releases, products, and features. A release is a full solution, which consists of multiple product lines. And a product line in turn covers several features which interwork to serve specific functions. In this procedure, twelve Quality Gates are prescribed as:

Gate12: Candidate Feature List and Release Ownership Assigned
Gate11: Feature Teams formed, Project Plan Drafted, Customer Requirement Document completed
Gate10: Project Plan baselined & Requirements Complete
Gate9: High Level Design baselined & Architecture Complete
Gate8: Detailed Design baselined
Gate7: Coding completed
Gate6: Developer Test completed
Gate5: Feature Test completed
Gate4: Product line Test completed
Gate3: Release system integration test completed
Gate2: First Customer acceptance testing completed
Gate1: General availability
Each stage-gate consists of a series of tasks to release product line and feature levels. A formal review will be held at the end of each stage-gate to check the completion of the tasks, then a go/no go decision will be made by the gate keepers.

Overlapping Gates
Each new stage requires the absolute completion of the tasks of the previous stage. Sometimes the project has to be put on hold because just one task remains to be completed. For the quicker tasks this is time-losing since the subsequent work is not allowed to go on. As a consequence, the project is slowed down. By contrast, the adjustment by Alcatel-Lucent China encourages stage-gate overlapping. Some tasks (not all), normally in the next stage-gate, can be lifted to the current one. For example, at Gate 6, when the code is relatively stable, the Feature-test team, which belongs to Gate 5, may be allowed to start their work in parallel with the Developers’ testing. Or, the developers can add some feature test cases into their Gate 6 test plan. The similar scenario can happen between Gate 4 and Gate 3, and between Gate 3 and Gate 2. As a result, the potential software defects that may leak to the next gate can be captured by the work strengthened in an earlier Gate. The work at the next gate will be performed more smoothly and quicker. As a result, the cycle time of the project is reduced and costs are saved by the “earlier detect, earlier fix” method.

It is necessary to point out that such overlapping may cause the redistribution of the project effort. In the above example, the effort on feature testers will be reduced if their test cases have been run by developers in the earlier gate. What leaves to them in Gate 5 is only the repetition. But the work load of the developers may become bigger. Consequently, close cross-functional cooperation and a spirit of team-work is a prerequisite. Even if developers and testers run their respective cases in parallel, risk still exits. If the stability of the software is not at the desired level, overlapping gates would not result in smoother work in the following gate. On the contrary, this will add unexpected cost to the project. The project team should have full recognition of those facts, consequences and risks.

Fuzzy Gate Review
The fuzzy gate review is reflected by two aspects. First, it is recognized that the nature of up-front work such as market research, concept testing or technology assessment is fuzzy. The amount of information is limited at this stage, and some prior gate exit criteria are not set at 100% completion.
of tasks. For example a completion rate of only 70% and 80% is required at Gate 12 and Gate 11 respectively. Second, even for later gates whose exit criteria is 100% completion, a “conditional pass” decision is possible, given that the gatekeepers have enough confidence that the still “open” task will not cause too much impact on further development work, and that it will be closed in a timely manner. For instance, a project Gate 4 target date may be reached, however, the completion rate of the testing cases is only 95%, with 2 software bugs still to be fixed. If the severity of these bugs is not very high, and if a concrete action plan with a reasonable target fix time is in place, at the gate may be given a “conditional pass” signal. As a result, the project can go ahead without unnecessary waste of time.

Being aware of “incomplete information” the major intent of the classical stage-gate process is to mitigate project risk in a stage-by-stage flow, while the fuzzy gate review allows decision making upon incomplete information. The tricky balance is between timely decisions and risk management, which needs high level project management skills, and deep analysis carried out by experts from cross-functional areas.

Process Exception
Previously projects had to go through all gates. It requires strict adherence to the scheme. But this may not be suitable for all projects. Sometimes the technical complexity of a project is not very high, so it is not so risky to manage it via a simpler, but more efficient way. It is not necessary always to maintain a high level design gate for small application software. Frequently critical cases force a project team to wavier some tasks. An example may be a significant change of the delivery date that is urgently requested by the customer while the project is still in the middle way. The customer has already understood the related risk and is willing to pay for the change. A possible solution is to bypass some gates, or to combine several testing gates, for instance Gate 5 and Gate 4. All above situations can be handled by a process-control mechanism according to which the project manager fills out a form, where he states the reason for the deviation from the standard procedure, proposes the alternative and lists impacts and risks clearly. Then he/she hands in the form to a senior management group for review. Once the exception form is approved, the project can go ahead with the agreed process deviation. The exception record and the related history have to be saved in a database for audit.

A word for warning, however, the senior manager may not be so close to the project as the project team, and so he or she usually needs time for deep
investigation and evaluation before making a decision. But very urgent cases may not allow for much waiting time. Modern-day advancement of internet technology can shorten the turnaround time to some extent, but that can not resolve the root cause of the problem. Another concern is more subtle. For the same reason as the above, senior managers may take a risk avoidance attitude and be not willing to approve an exception easily. Generally speaking, process exception is possible, but it is difficult.

**Fast Feature Procedure**
The reason to establish a Fast Feature Procedure is similar to process exception. However, they are different in several aspects. First, exception is normally raised during the project execution. By contrast, a Fast Feature Procedure needs to be determined at the project planning phase. Secondly, there are strict criteria to define a fast feature project. Conditions such as low technical complexity, small development effort, urgent business needs, no impact to system performance or customer request to FOA (first office acceptance) are all mandatory. Thirdly, there are multiple ways to speed up a fast feature project. Paper work is reduced to a minimal level. For example, the design and development of testing plan can be combined into a single document. Most gate reviews can be done in terms of desktop review. Formal meeting review is only used at the end of relatively critical gates such as Gate10, Gate 6, Gate 4 and Gate 3.

The Fast Feature Procedure does not mean the methodology is informal. Rather, the team has to work more seriously, with the intention deep in mind to meet customer needs better, and to try the best to improve the development efficiency.

**4.2 Intensive market oriented upfront work**
Though Gate12, Gate 11 and Gate10 have already specified up-front work of a project, there are still a couple of activities to strengthen the job. They are not mapped to a particular gate, nor do they belong to a particular project. Rather, they are more considered as preliminary stage for portfolio projects. We discuss these activities in frequency turn.

**User group meeting**
The user group meeting is organized once a year. Representatives from cross-functional areas such as marketing, pre-sales, R&D or customer service get together and listen to feedback from major, innovative customers. The strengths and weaknesses of previous products get
identified, and new ideas about potential business opportunities are discussed. Since the participants from both sides are normally senior managers, they get a better view of intents or concerns of each other. After the meeting the Alcatel-Lucent China Research Center will take series actions to revisit the strategy of the organization, to modify the evaluation criteria of projects, to do the initial screening, and then to figure out new product development roadmaps for the next year accordingly.

**Front-end Review Board**
Senior managers from cross functional teams, with support of specialist in their teams, hold bi-weekly review meetings. The purpose is to trace a dynamic environment closely and to form a universal understanding and an action plan at senior management level. The items on the meeting agenda include results of preliminary market and technical assessments, detailed customer needs studies and the business and detailed financial analysis. There are three major benefits. First is the effective management of the portfolio of projects. Live/kill decision on projects are often made by the review board, so the scarce resources of the organization can be focused on the most promising projects that can fulfill the strategy best. Secondly, the market-oriented work results in early and clear product definitions, which benefits time saving during the development cycle. Thirdly, a strong customer-focusing signal can be passed to all project team members by the follow-up action plan from the review board.

**On-site technical consultant**
This happens most likely at the engineer level. Technical experts, often the core developers or system engineers, are assigned to stay with the customers for some time. Their responsibility is to provide immediate technical support for the customer’s technicians, who are at the front line of the system operation. Since the problem often can be resolved very soon on site, the pressure to the entire back-end team is alleviated significantly. Besides, the experience of working with customers will build market-oriented intentions deeply in the experts’ mind. The most important point, however, is that they will bring back customer ideas about potential new products, which can spare the project team much time to do up-front analysis intensively.

Several words of caution here: Marketing, pre-sales and customer service teams have different channels of communication with customers. They will collect information themselves, which may conflict with what R&D experts get. Thus, good collaboration between teams is important to form a
comprehensive understanding of customer needs. Otherwise the up-front analysis of new project development may become too chaotic.

5 Conclusions
R&D Project management, as a method of synthesis, is not universal. It has to adapt to be effective in the global economy.

From the perspectives of high context culture vis-à-vis low context culture and by applying Hofstede’s framework of four cultural dimensions, the paper examines a few cases of problematic experiences, such as interactive communication, ways of thinking and doing things, derived from Alcatel-Lucent China Research Center. The paper analyzes the cross-cultural factors such as power distance, individualism, masculinity and uncertainty avoidance. In addition, the paper intends to place an emphasis on cultural understanding, mainly cultural heritage as a crucial factor contributing to the understanding and adaptation to Chinese business interactive behaviors. The adaptive resolutions and actions taken by Alcatel-Lucent to bring cultural sensitivity into management have heuristic learning effect to other MNCs that locate R&D projects in China. To understand the implications of those culture differences have a significant impact on the success of their R&D projects in China.

Acknowledgement
The authors want to thank the National Natural Science Foundation of China for providing financial support for the research (Project number: 70810100 and 70873070), and Dr. PU Xin who worked as a senior project manager in Lucent China Research and Technology Center and who later became a PhD student in the Research Center for Technological Innovation in Tsinghua University. We are also grateful for the comments that contributed toward improving the paper.

The authors also wish to thank Wolfgang Zank, associate professor at the Department of History, International and Social Studies, Aalborg University, for his great effort in reviewing the paper and especially for his assistance in polishing the paper’s English language.
References


<table>
<thead>
<tr>
<th>No.</th>
<th>Author(s)</th>
<th>Title</th>
<th>Pages</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Olav Jull Sørensen</td>
<td>Marketing Issues in Peasant Agricultural Development</td>
<td>55</td>
<td>1983</td>
</tr>
<tr>
<td>2</td>
<td>Hans Gullestrup</td>
<td>The Ecol-Humanistic Technology - the new Technology as Experiences from the Past</td>
<td>33</td>
<td>1983</td>
</tr>
<tr>
<td>3</td>
<td>Georg Sørensen</td>
<td>Transnational and the Transfer of Technology to the Third World</td>
<td>31</td>
<td>1984</td>
</tr>
<tr>
<td>4</td>
<td>Georg Sørensen</td>
<td>International Bureaucracies and Aid: The Political Economic of the 'B-Share'</td>
<td>11</td>
<td>1984</td>
</tr>
<tr>
<td>5</td>
<td>Georg Sørensen</td>
<td>Notes on Materialism and Boredom - Western Development Ideals</td>
<td>12</td>
<td>1984</td>
</tr>
<tr>
<td>7</td>
<td>Georg Sørensen</td>
<td>How much Poison is Another Man's Meat? - Notes on the Logic of World Systems Analysis</td>
<td>29</td>
<td>1984</td>
</tr>
<tr>
<td>8</td>
<td>Georg Sørensen</td>
<td>Peace and Development: Looking for the Right Track</td>
<td>18</td>
<td>1984</td>
</tr>
<tr>
<td>9</td>
<td>Georg Sørensen</td>
<td>The Twists and Turns of Development Theory - A Comment on &quot;The European Experience&quot; by Dieter Senghaas</td>
<td>19</td>
<td>1984</td>
</tr>
<tr>
<td>10</td>
<td>Jacques Hersh &amp; Ellen Brun</td>
<td>Aspects of Soviet Participation in a Shifting World Economy</td>
<td>45</td>
<td>1984</td>
</tr>
<tr>
<td>11</td>
<td>Olav Jull Sørensen</td>
<td>Marketing System Development and Labour Migration: Analysis and Consequences</td>
<td>41</td>
<td>1984</td>
</tr>
<tr>
<td>12</td>
<td>Georg Sørensen</td>
<td>How Cold is the Second Cold War? - An Assessment of the Scope of 'the Great Contest'</td>
<td>23</td>
<td>1984</td>
</tr>
<tr>
<td>13</td>
<td>John E. Kuada</td>
<td>Agricultural Development in the Third World</td>
<td>23</td>
<td>1984</td>
</tr>
<tr>
<td>14</td>
<td>Olav Jull Sørensen</td>
<td>Profiles of Tanzanian Peasants and their Marketing Implications</td>
<td>52</td>
<td>1984</td>
</tr>
<tr>
<td>15</td>
<td>Jørgen Kristiansen</td>
<td>Urban Passenger Transport in Developing Countries - Socio-economic Impact and the Choice of Technology</td>
<td>58</td>
<td>1985</td>
</tr>
<tr>
<td>16</td>
<td>John E. Kuada</td>
<td>Marketing Systems in a Development Process</td>
<td>35</td>
<td>1985</td>
</tr>
<tr>
<td>17</td>
<td>Georg Sørensen</td>
<td>Some Contradictions in a Rich Concept on Development</td>
<td>14</td>
<td>1985</td>
</tr>
<tr>
<td>18</td>
<td>Olav Jull Sørensen</td>
<td>Marketing of Agricultural Inputs/Implements and Profiles of Farmers in Kenya: Project Preparations</td>
<td>47</td>
<td>1986</td>
</tr>
<tr>
<td>19</td>
<td>Georg Sørensen</td>
<td>Development Through the Eyes of a Child</td>
<td>17</td>
<td>1986</td>
</tr>
<tr>
<td>20</td>
<td>Georg Sørensen</td>
<td>International and External Intertwined: 5 Obstacles to Development in India</td>
<td>20</td>
<td>1986</td>
</tr>
<tr>
<td>22</td>
<td>Olav Jull Sørensen</td>
<td>Co-operatives: Movement-to-Movement Cooperation. Some Conceptual Views</td>
<td>15</td>
<td>1986</td>
</tr>
<tr>
<td>23</td>
<td>John E. Kuada</td>
<td>Financing Rural Food Marketing Systems in Ghana</td>
<td>16</td>
<td>1986</td>
</tr>
<tr>
<td>25</td>
<td>John E. Kuada</td>
<td>Food Marketing in Ghana, the Role of Rural Food Traders</td>
<td>53</td>
<td>1988</td>
</tr>
<tr>
<td>26</td>
<td>Henrik A. Nielsen</td>
<td>Monitoring Rural Development in Bangladesh</td>
<td>22</td>
<td>1989</td>
</tr>
<tr>
<td>27</td>
<td>Hans Gullestrup</td>
<td>The Ethical Dilemma in the Intercultural Co-operation, or: The Development Aid Worker=s Personal Problem (in Danish).</td>
<td>26</td>
<td>1991</td>
</tr>
<tr>
<td>28</td>
<td>Chaiwoot Chaipan</td>
<td>Current Issues on Economic Development in East and Southeast Asia</td>
<td>24</td>
<td>1991</td>
</tr>
<tr>
<td>29</td>
<td>Henrik Nielsen</td>
<td>Databased Information on Danida-Projects 1962-91: Overview and Analysis of the Daniproj-Database</td>
<td>55</td>
<td>1992</td>
</tr>
<tr>
<td>30</td>
<td>Hans Gullestrup</td>
<td>Evaluating Social Consequences of Social Changes in the Third World Countries</td>
<td>24</td>
<td>1993</td>
</tr>
<tr>
<td>31</td>
<td>Johannes Dragsbaek Schmidt</td>
<td>In The Shadow of the Pacific Century - Comparative Perspectives on Externalities Influence on Economic Policy-Making in Southeast Asian Would-be NICs</td>
<td>106</td>
<td>1993</td>
</tr>
<tr>
<td>32</td>
<td>Henrik A. Nielsen</td>
<td>Local Community Development Around the Bay of Bengal: Context, Crises and Perspectives</td>
<td>27</td>
<td>1994</td>
</tr>
<tr>
<td>33</td>
<td>Johannes Dragsbaek Schmidt</td>
<td>Southeast Asian State Responses to a Regionalized World Economy</td>
<td>21</td>
<td>1994</td>
</tr>
<tr>
<td>34</td>
<td>Johannes Dragsbaek Schmidt</td>
<td>Semi-autonomy in Economic Policy-making: The Case of Thailand</td>
<td>28</td>
<td>1994</td>
</tr>
</tbody>
</table>
No. 51: Li Xing: The Dynamics of East Asian Intra-Regional Economic Relations. 22 pp, 1995.
No. 56: David Harvey: Globalization in Question. 22 pp, 1997.