

Complexities of Intercultural Engineering across Organizations

Die Komplexität von interkulturellen Engineering-Projekten über Unternehmensgrenzen hinweg

Henning Hinderer

Professor of Business Administration and Technical Sales,
School of Engineering,
Pforzheim University, Germany
Dr.-Ing., Faculty of Engineering,
University of Stuttgart, Germany

Abstract (English)

Engineering projects in international environments entail considerable challenges especially when it comes to managing teams across organizational borders. These are not only driven by technical issues related to the subject of the project. Additionally, the fact that when working together, groups of people with similar boundary conditions such as background knowledge or working objectives tend to create their own collective identity is of importance. This feature contributes to an increasing intercultural complexity. If the project setup furthermore envisages cooperating with an external partner company this complexity increases even more. This happens especially because new sub-groups with a culturally hybrid position are being created. In this context this article analyses culture and collective identities in order to better understand which tasks will have to be managed within intercultural engineering projects. The problems identified are discussed along a generalized setup of an international process standardization project that is developed in three steps. This approach is supposed to, on the one hand, lay the foundation for a deep understanding of root causes of complexities and, on the other hand, the idea is to give practical hints for project managers willing to understand and manage cultural complexity in a target oriented manner.

Keywords: intercultural engineering, collective identity, cultural complexity, cross-company collaboration, managing global projects

Abstract (Deutsch)

Internationale Projekte mit ingenieursbezogenem Aufgabengebiet bringen zahlreiche Herausforderungen mit sich – insbesondere wenn Projektteams über unternehmensgrenzen hinweg aufgestellt sind. Diese Herausforderungen sind nicht nur auf die technischen Aspekte zurückzuführen. Neben anderem spielt dabei auch die Tatsache eine Rolle, dass Personengruppen mit vergleichbarem Hintergrund wie Fachwissen oder einem vergleichbaren Zielsystem im Rahmen einer Zusammenarbeit dazu neigen, eine eigene kollektive Identität auszubilden. Dies trägt dazu bei, dass die zu steuernde Komplexität zunimmt, insbesondere vor dem Hintergrund kultureller Unterschiede und interkultureller Zusammenarbeit. Im Falle, dass eine Projektorganisation zusätzlich vorsieht, dass ein externer Partner im Projekt zu integrieren ist, steigt diese Komplexität um ein Vielfaches. Gerade in diesem Fall spielt die Bildung von zusätzlichen kulturell hybrid positionierten Gruppen eine wesentliche Rolle. In diesem Zusammenhang befasst sich der vorliegende Beitrag mit der Analyse der Komplexität

von Kultur und kollektiver Identität, mit dem Ziel, ein besseres Verständnis für die Anforderungen an ein erfolgreiches Projektmanagement in Engineering-Projekten zu erzeugen. Anhand eines schrittweise aufgebauten, verallgemeinerten Beispiels werden die identifizierten Probleme aufgezeigt und diskutiert. Der gewählte Ansatz soll einerseits die Grundlage für ein tieferes Verständnis von Ursachen und Zusammenhängen erlauben. Zudem sollen aber auch praxisrelevante Aussagen zur Unterstützung von Projektmanagern erarbeitet werden, um das zielgerichtete Management kultureller Komplexität zu unterstützen.

Stichworte: Interkulturelles Engineering, kollektive Identität, kulturelle Komplexität, unternehmensübergreifende Zusammenarbeit, globales Projektmanagement

1. Introduction

International or even transnational companies are characterized by having locations in different world regions (Hill 2008). No matter which approach to internationalization they have taken so far, they are facing similar challenges when it comes to working together in teams – especially across organizational borders.

When growth has been achieved by acquisitions of existing companies with distinct knowledge or when new international subsidiaries could not exclusively be staffed by expats from the home country, the organization becomes fragmented (Kutschker / Schmid:689ff.). People with different know-how are working at different locations. Nevertheless *effectiveness* in terms of letting the best skilled people work jointly on strategic tasks and projects and *efficiency* when trying to achieve the best performance at the lowest costs are common objectives. So headquarters' top management might tend to be willing e. g. to set up teams that are spread over various locations e. g. in order to establish standardized processes in administrative but also in more direct areas of business such as research and development, procurement, production or sales (Huber et al. 2002).

In any case managing teams in such a heterogeneous global context is a complex task. Technical issues, e. g. because of different working standards or software tools, communication problems, time zones, languages, or different partners involved are potential causes for problems that need to

be solved (Phillips / Sackmann 2002). However, additionally cultural differences between groups of people can be expected to appear and will then ask for attention from the project management. This is the reason why an intercultural view on complexity in global projects might help understand situations and avoid future problems in day-to-day management.

This paper focuses on trying to explain how complexity regarding intercultural collaboration increases when working across organizational borders becomes relevant.

2. Approach and structure

Starting from the situation described above basic terms relevant for the further argumentation are explained in the following.

After the subsequent closer discussion of the managerial challenge of managing projects in intercultural engineering a theoretical model is drawn up. This model is mirrored by a generalized example which could take place any time in a real business environment. It is designed to explain particular practical issues that may and will arise when setting up and running collaborative engineering projects across organizations.

Section four shows the increasing cultural complexity starting from a single company setup, moving to a global context, resulting in cross company collaborations when even external partners have to be involved.

A discussion of the described effects accompanies the model and the illus-

trated example. Conclusions are drawn on the effects on project managers who are confronted with the challenges and complexities described.

3. How to understand Intercultural Engineering in this context

In order to draw a clear picture of the challenge discussed within this article it is necessary to clarify and define which terms to use and how. Additionally a closer insight into the setup of the discussed working environment has to be given.

3.1. Relevant issues regarding Intercultural Engineering

Since various approaches exist to describe intercultural complexity it seems to be necessary to clarify the way significant aspects are understood within the argumentation of this paper

Engineering as the business context of the given subject is to be seen as it is described by Mahadevan and Mayer (2012). Thereby the definition of the American Engineers' Council for Professional Development is applied (Encyclopedia Britannica, 2012). This allows for using the term for all types of work with a technical focus such as design of mechanical or electrical devices as well as computer science-related tasks. So for the further discussion the term will be used to describe tasks as *engineering work* whenever people collaborate creatively trying to solve future problems in a technical environment (Rammert 2007). Following that, people working in these areas may be addressed as *engineers* in general.

Intercultural engineering thereby means that these engineers are supposed to be working together in teams that adhere to different *cultures* or rather cultural groups. This indicates the assumption that somehow it must still be possible to differentiate different cultures— even though scholarship does not completely agree upon this issue.

In order to better understand how these teams may act and what reasons might exist for their behavior the term *culture* should not only be used as a 'container' for nationally coined specialties (critique of Hofstede 1980 and related studies, e. g. by McSweeney 2010 or Tjosvold / Leung 2003). In the given subject it should be used to describe a group of no matter how many members with shared beliefs, values, and norms implying a micro-level view on the interpretation of culture (Martin 2003).

The people adhering to one or more of those groups do not necessarily have to come from the same country or region (Phillips / Sackmann 2002). They need not share the same values, beliefs or religious practices (Mahadevan 2008). Immanent to this view and interpretation is that the differentiation between groups helps create a group identity. This may happen because it is easier to have a common 'enemy' than to achieve well-organized co-operation from scratch. An important characteristic of such kinds of groups is the dichotomy of adherence. This means that a person may only be part of one group of a pair of oppositional groups at one time. An example is when workers – or in the discussed case engineers – develop a shared but distant attitude towards corporate management and their decisions. This kind of resulting *collective identity* may be identified in day to day business e. g. by people who, on the one hand, come from the same company or organization but, on the other hand, are talking about 'us' and 'the others' (Baumann 2001, Mahadevan 2008).

Whenever interacting socially, humans construct relative difference between perceived categories of 'us' and 'the others' (Ricoeur 1992). Under normal circumstances, this is a fluid process which constantly creates numerous identities. Yet, collective identities might also become dichotomist and absolute. If this happens, individuals are perceived stereotypically, as inferior and as more alien than they actually are. This process is called *Othering*. In organizations, othering very often occurs as soon as collective identities or the values and

beliefs of an organizational sub-group are endangered, for example, due to processes of change or increasing complexity.

As Goffman (1969) has shown, individuals in organizations interact both formally and informally to create collective identity. Based on Goffman, it is assumed that the *informal practice* in daily business as the source for differentiation and of identity within a group is stronger than formalized organizational structures.

The root cause for this differentiation can be described by the so called *interpretative paradigm*. This explains that *causes* for differences may be found in the different way of how to find and make sense in actions and behaviors and the interpretation of this (Hatch / Yannow 2003). That means that it may make a difference if this sense is being interpreted by an outside observer or by the group members themselves. So the emic (from the inside) vs. the etic (from the outside) view on behavior creates an area of potentially conflicting interpretations that has to be taken into account (Mahadevan 2009).

However, individuals may adhere to more than one group at the same time. E. g. technical project management may be executed by an engineer. So this person adheres to the potential groups 'project management' and 'engineers' each with a collective identity at the same time. The etic perception of this person may depend on the very specific situation. According to Mahadevan (2010b) these individuals may be addressed as *bi-cultural* due to their hybrid position uniting two different collective belongings in one person.

All these issues lead to the conclusion that when discussing successful *Intercultural Engineering* it is also about managing *cultural complexity* within and especially across organizational borders.

3.2. What has to be managed

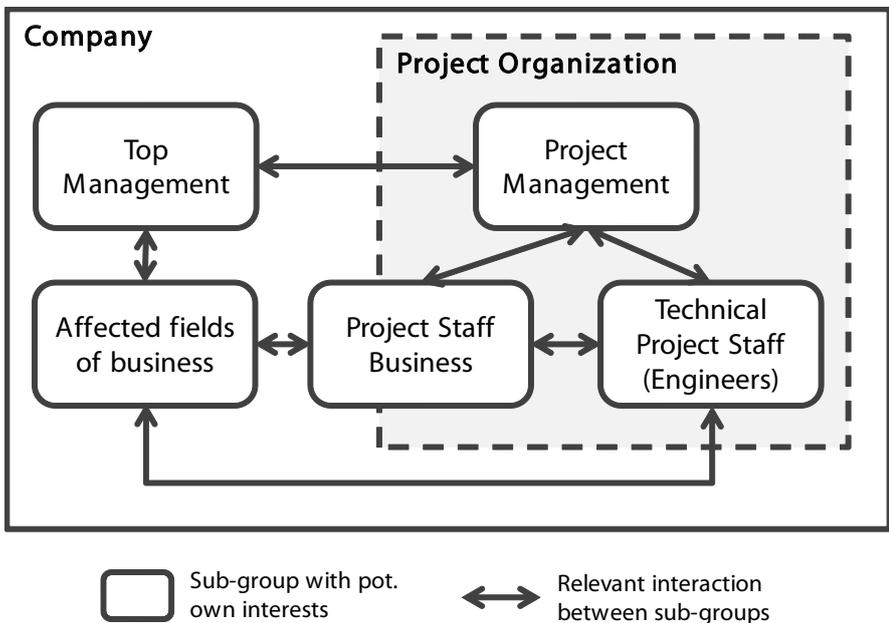
In intercultural engineering projects, various issues have to be managed by the project management. At first sight

it has to be ensured that an appropriate solution for the given problem will be achieved in time and budget. However beneath the sheer complexity of the technical problems that have to be solved e. g. when jointly designing new products, production processes or IT systems (a detailed example will be given and discussed in the following sections) other issues e. g. language, time lag, communication systems or even varying legal boundary conditions have to be managed (Binder 2007).

Additionally project management as well as the team members have to deal with cultural complexity that may be driven by a fragmented, globalized or even delocalized organization. Furthermore it has to care take of the interests of the project's different groups of stakeholders inside or even outside the project team (see 3.3). In terms of the interpretation of culture explained above numerous different sub-groups might arise. This may result in individual behavior based on group specific values and objectives which then may lead to collective identifications and a perception of groups of 'us' and 'the others'.

Factors that result in differentiated groups may be interpreted as dimensions of interculturality. Dimensions that could be the cause for fragmented sub-groups may be gender, religion or ethnic group adherence, territorial origin, or age. In an engineering or business situation the allocation of power, know-how and skill set, fears, or shared objectives can also enforce a differentiated perception of group affiliation. All these factors might lead to different interpretations of tasks, decisions and actions (e. g. Phillips / Sackmann 2002). What makes it even more difficult to assess and understand a specific case is that the importance and effect of a single dimension may vary over time (Mahadevan 2010a).

When striving for a successful engineering project misunderstandings and exaggerated opposition between distinct groups have to be avoided. In order to be able to manage the possible or the de facto cultural complexities of a distinct



Exh. 1: Setup for a singular company. Source: Own figure.

case a good understanding of what the critical factors are and how to find a way to come along and create a working collaborative environment across organizational borders is necessary. It is a management task to create intercultural competence not only within the management team but also within all affected groups of stakeholders. Accepting and not mixing inside view and outside view of actions makes the difference and requires intercultural competence.

3.3. A setup indicating intercultural collaboration

In order to illustrate the above introduced approach to describing cultural complexity in engineering collaborations, in the following a setup representing a generalized case as it could occur any time in real life business is presented and described.

In the first step of the setup the case describes a singular company working at only one or just a few locations that are not spread very far. The task for the engineering project is the IT implementation and rollout of business processes in a standardized way for this company. The overall objective in this example is to increase the efficiency in corporate processes by using the company's business related IT systems for which enter-

prise resource planning (ERP) systems from companies such as SAP or Oracle are examples.

Due to this the project deals with the handling of the goods receipt process. That means that after a successful project the complete company is supposed to work in the same way with the same kind of barcode scanners using the same formats of labels and the same business documents, e. g. order, advanced delivery notice, delivery note or goods receipt. It also means that a number of fields of business are affected by the new process like logistics, warehousing, finance and IT.

The engineering task herein is to figure out a suitable process and IT solution and to implement that in the operational organization as well as in the company's ERP system. The business problem and requirements can only be described and assessed in an appropriate way by individuals working in the respective fields of business. Because of this a close collaboration with representatives from these fields has to take place. This is achieved by establishing an extended project team which is staffed not only with technical but also with business people. Exh. 1 schematically shows what the project setup may look like.

The blocks shown in the figure represent different groups of stakeholders of the project. These groups have their own interests and are constantly creating collective identities through practice. The figure only shows a simplified abstraction of a potential real setup since there could be more sub-groups e. g. business unit managers or software developers. In addition the different fields of business could be depicted separately. However in favor of the clearness of the message of the illustration these blocks are symbolized by the universal block for the *Affected fields of business*.

The relations from group to group are drawn in bi-directional arrows. They describe the requirement for interaction and collaboration in the project setup. This also indicates the necessity to achieve an intercultural understand-

ing for positive co-operation within the engineering project in general.

Top Management of the company charges the project and interacts with the *Project Management* by defining targets and by approving project deliverables. Top management is responsible for the company's earnings and is willing to increase process efficiency. At the same time it will take care that the project's budget will not be exceeded. Project management, on the other hand, is striving to achieve the required implementation of the standardized processes in time and also in budget. However, the objectives behind the actions of the groups may result in different behaviors. E. g. when the project needs more financial resources than planned for previously in order to achieve the best technical solution a conflicting situation might occur. Top management will probably not assess the situation in the same way as project management will do. A decision preferring the more economic but technically second best solution might cause a reaction of incomprehension since in the perception of project members that might lead to a situation where business requirements cannot be completely fulfilled anymore. Project management may think that 'they' from top management do not know what they are talking about – and feel distinct.

Continuing this, project managers will have to sell the decision to the project team in any case. It is to be expected that in the engineering team the described reaction may even be stronger, resulting in an increased cultural distance between technical staff and project management.

For the *Affected fields of business* the attitude towards the project might be that they are willing to improve their day-to-day work but with the least possible changes and effort. In addition the importance of the usability of a future solution may differ from the more solution oriented view of the technical staff. This difference could result in the perception that the engineers do not understand business requirements because they are too concentrated on

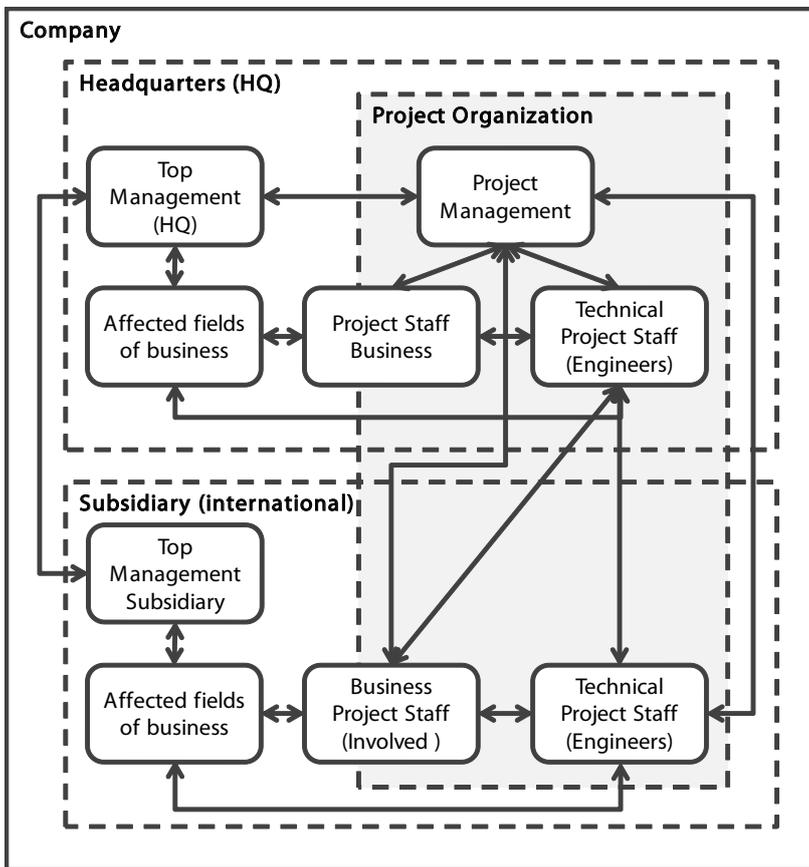
the technical solution and disrespect the requirements from business. These should be decisive from the business point of view because only the people from the affected fields of business will have to work with the new solution in the end.

Such a situation could also happen to the group built by the staff that was assigned to represent the business part within the project. They are charged e. g. to express requirements or to test solutions. The block representing the *Project Staff Business* is depicted as not fully being part of the project's organization since they surely are part of the project itself but they will also still be involved in the daily business. That means that affected people will – due to their hybrid position in the project – on the one side somehow feel to be a part of the project but at the same time also feel as outsiders e. g. due to the reporting structure they still belong to in the regular daily business. It may also happen that they remain disjointed because they represent 'the others', meaning the users of the solution located outside of the project team.

Additionally there might be different depths of understanding regarding the technical problems occurring in the project. This may result in a behavior of the 'real insiders' of the project – in this case the engineers as the technical project staff – increasing the gap between the two groups by making them even more alien than the business staff might ever see themselves.

On the other hand in the perception of the colleagues in the affected fields of business involved the project staff business represents the project and its solutions. By this they might somehow also be segregated from their regular teams and be confronted with similar conflicts as the engineers as described before are.

In any case the setup for a singular company already contains various subgroups constantly creating their own collective identities and group cultures. To get along with this situation is already a challenging task.



Exh. 2: Setup for an international company with headquarters and subsidiary.
Source: Own figure.

The solution has to be implementable in all locations and, due to that respect, the local requirements from the subsidiaries. So the local team members have to communicate these requirements to the central project team.

Because the overall objective of the project requires a company-wide standardized solution it has to be rolled out to all locations which again requires close co-operation with local teams from all locations.

What can be seen in the figure is that the number of necessary interactions between the relevant sub-groups rises. E. g. the top management from headquarters interacts with the newly added top management of the subsidiary. As an example of this interaction the top management of the subsidiary receives the order from headquarters that a standardized solution shall be implemented. For the subsidiary a standardized solution may not be completely desirable. A solution dedicated only to the subsidiary may fit better to the individual requirements than a standardized one could ever do. Nevertheless for headquarters it might be a good idea to try to increase efficiency by having streamlined processes. People could be exchanged much more easily and IT support that may be provided centrally will create less costs compared to a solution per subsidiary. Because of these different interests the top management of the subsidiary may come to the conclusion that ‘they’ from headquarters are not really interested in the local concerns and do not understand how business has to be done in a location. And again distinct collective identities may be noticed.

A similar thing might happen when the top management of the subsidiary has to tell the affected fields of business that there will be a new, centrally designed solution for the goods receipt process. Once again – this time for the local top management – this has the consequence that they as group of individuals find themselves in a hybrid position where they have to unite views and values of corporate top management as well as those indicated by local interests.

4. Increasing cultural complexity

When extending the project setup with additional stakeholders the situation regarding cultural complexity changes significantly.

4.1. Collaboration in an international enterprise

In international environments a project as described in the given example will have to work not only nationally but with numerous locations in different regions of the world. That means that new stakeholders have to be added to the setup. Exh. 2 shows the extended example showing an international organization with headquarters and local subsidiaries.

The project is being managed centrally with a core team of business and technical staff. Additionally people from both disciplines of each subsidiary are integrated into the project team.

The chance for a lack of understanding gets even higher when people from the local teams have to be sent to work in the project team, since these people will have to reduce their time for their day-to-day work and as a consequence leave more work for their regular teams. The circumstances for the local engineers are comparable.

Additional to the project immanent drivers of cultural complexity the other etic dimensions like territorial origin or religion become much more important. So the group of engineers may consist of people from different countries – all again bringing their individual boundary conditions into the project.

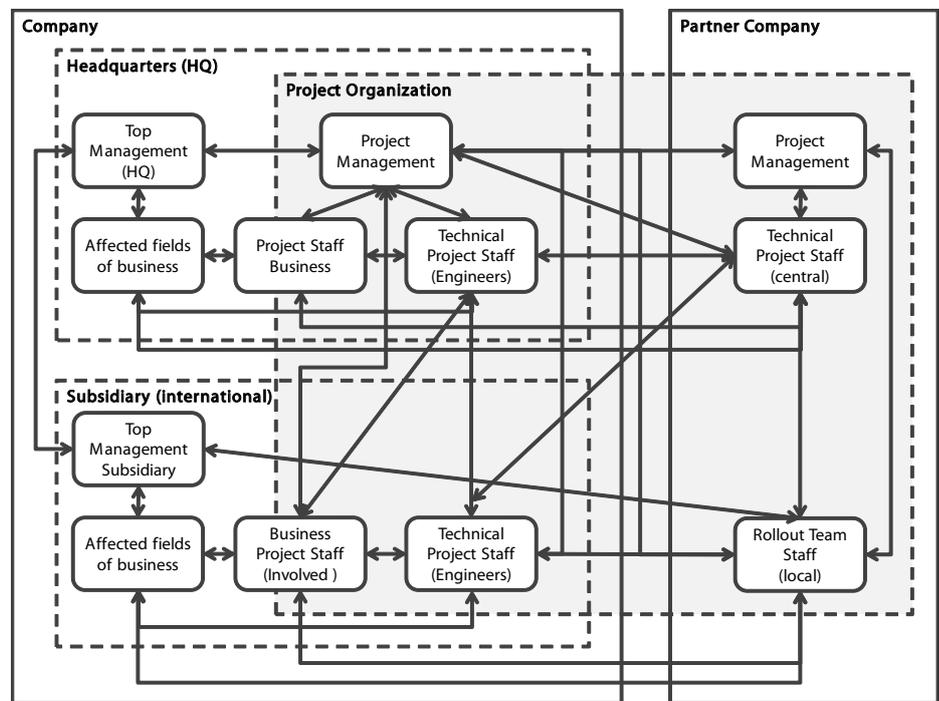
So apart from the increased challenge to find a suitable technical solution for the standardized process, the *cultural complexity* is being multiplied by each additional subsidiary that has to be considered in the project.

4.2. Including an external partner in the project

In the further development of the example it is assumed that the workload of the described project is too high for the company itself. Daily business has to go on and not enough people can be disengaged from their regular work. So the top management of the company decides to hire an external partner to cooperate in the project. To involve external partners in labor intensive projects is very common e. g. in IT implementations or in engineering projects.

The external partner will help with technical staff for the solution and with rollout teams. Since these external people also need their internal organizational structure it is very likely that the partner will establish their own project management that will then have to work together with the company-internal project management.

The new project team members will bring their technical and business expertise and their manpower but also their own background and corporate culture into the project. So the project gains a new cultural dimension that



Exh. 3: Setup including an external partner organization. Source: Own figure.

has to be taken into account. The fact whether a person belongs to the internal or the external partner will lead to new sub-groups each having its own collective identity.

Nevertheless the externals are supposed to be a part of the project team. By joining this team and by accepting project immanent values and behaviors and objectives the external projects members gain new roles. That means that they too may become bi-cultural in terms of being insiders of the project but outsiders of the partner company at the same time.

What happens to the project organization when the external partner is integrated in the project is depicted in Exh. 3

The new groups from the external partner are supposed to support and co-operate with the groups that existed before. The central technical project staff is extended by a group of external engineers. For the support of the rollout in the subsidiaries local rollout teams may also be staffed with external help. Due to that the new groups might also interact with all the other groups where an interaction has been established before. In addition interaction with the

internal business and technical project teams as well as with the local rollout teams will take place.

The consequence is that the intercultural complexity again rises. And that happens not only because there is one new player. That alone could already be problematic because of many reasons that can occur when companies work together e. g. budget discussions or technical challenges. However, in comparison to the steps before, what is very noticeable is the very high number of new intercultural relations and interactions between sub-groups that occurs – especially because of the new project organization. Moreover all of those new relations may cause problems and, for all, their own approach to handle the challenges of interculturality has to be found. This complicates the management of the cultural complexity in such engineering-related collaborations enormously.

5. Implications

In engineering projects cultural complexity needs dedicated attention. This is especially true in cases which involve cooperation across organizational boundaries.

For company top managers this means that it should not be underestimated to what extent this complexity is being increased when external partners are supposed to be integrated. It is not only that new projects members have to get involved in technical issues but also that there must be a dedicated task to make externals become ‘insiders’ – at least to the ends of the project at hand. This requirement might end up in a certain amount of costs being created. However, if misunderstandings and problems within the project can be avoided it is assumable that these costs will pay off in the overall project calculation.

For project managers the implication is that they should draw their attention to the process of creating and developing sub-groups with collective identities. When handled appropriately this process does not necessarily mean a risk

to the project’s success. However to be aware of the drivers and potential effects may help to enable people to interact in a beneficial way. Especially sub-groups that work in the in-between and may develop hybrid identities and multiple belongings – in the discussed case e. g. the project staff business – need special attention. These groups may help to increase acceptance within the affected fields of business in case management succeeds in not letting the perceived strangeness and distance between ‘insiders’ and ‘outsiders’ grow too much. Regarding externals, this awareness may even lead to better benefit from their experiences and a more neutral view on company-inside conditions. In summary, this involves balancing and integrating etic and emic perceptions across organizational boundaries. In such a way, new, helpful, creative ideas may find better acceptance and could be exploited in a much more target oriented way.

Yet, as often with hybrid individuals, those working across professional and organizational boundaries constitute a minority within the international project. Therefore, it is likely that they will be perceived solely in terms of their “otherness” but not in terms of their specific skills and competencies which might contribute to the overall project’s success. In such a way, their position is similar to the one occupied by bi-cultural individuals within the wider societal field (Mahadevan 2010b). As literature suggests (ibid.), these bi-cultural individuals can only leverage their full potential if they are able to integrate *all* their identities into one. Hence, to strengthen the position of professional or organizational hybrids, corporate human resource development needs to devise measures of how to utilize the specific potential as organizational and professional boundary-spanners.

For project members in general it might be helpful to have background information about the discussed effects of building collective identities. If all stakeholders are aware of that they might be more open and more willing to overcome distances, avoid othering of groups and

create a successful project outcome. This suggests that organizational members need to be made aware of the interpretative cultural paradigm and how this influences their daily practice.

This means that human resource development and external interculturalists need to integrate these issues in a target oriented training program. This could help to increase awareness *before* misunderstandings and escalations in a project appear and by this maybe even avoid these. It might also be possible to acknowledge cultural complexity in today's internationalized project-work across organizational boundaries most fully. However, this raises the practical issues of how to develop human resources which work beyond organizational boundaries. It also implies that both human resource managers and interculturalists need to be aware of all cultural aspects of an international project across organizational boundaries, not only the organizational or the national-cultural ones. Furthermore, it raises the question of which skills and capabilities are actually needed on the human resource department's and the interculturalists' side. Surely, this must go further than mere HR-related and national-cultural knowledge. This suggests that methods of collaborative training which acknowledge the various areas of expertise of *all* actors involved needs to be pursued and developed. For doing so, both integrative and collaborative theories and practices need to be devised.

6. Conclusion

Intercultural engineering in globally co-operating projects holds numerous possibilities to create misunderstandings and conflicts. Besides other more technical project aspects it is the cultural complexity which increases significantly the more stakeholders and sub-groups are involved in the project.

One of the root causes for this complexity is that sub-groups with distinct objectives, target systems, skill-sets or boundary conditions tend to create their own collective identity. This will

result in different interpretations of projects goals, the approach to power or hierarchy, or to management decisions. Even with people who nominally work in the same field of business it cannot be taken for granted that they will act in a comparable way. For example it might be decisive whether a person works at the headquarters or the subsidiary. Headquarters staff might be willing to integrate, standardize and to increase overall company efficiency. However people from a subsidiary may prefer to stay flexible and to protect their freedom and individuality. These kinds of differing boundary conditions may even also be identified between different subsidiaries.

Cultural complexity increases when a project not only has to collaborate across internal organizational borders. As soon an external partner has to be involved the number of intercultural relations drastically rises. This is the case because external people – no matter in which position they work within the project – will always bring their outside view and attitude into the project. Moreover this also means that for all these relations a specific solution to overcome cultural barriers has to be found.

It is a management task to handle the project immanent complexity and to provide the intercultural competence necessary for all stakeholders of the project. However when understanding the general approach described above at least it should be possible to understand why this is necessary and what the drivers of complexity are. Project managers should be enabled to identify upcoming differentiators along the potential dimensions of interculturality within a given project setup. As well they should be able to identify critical relationships between groups and find ways to build the competence to handle the resulting cultural complexity. When doing so the distance between stakeholders may not disappear but may be used in a beneficial way. Individuals or groups in culturally hybrid positions could better bring their extraordinary know-how and experiences by offering new and maybe

more beneficial approaches to solve the project's given problem.

Due to that when training people or when selecting staff for an intercultural engineering project the intercultural competence should play a significant role. Sensitized people who are aware of the causes for the behavior of themselves and of others will then probably work in a more focused way on the targets of the project and be more willing to overcome distance between 'us' and 'them'.

For further work in the given subject it would be interesting to investigate additional setups e. g. matrix organizations to particularize the findings regarding complexities of intercultural engineering aspects especially detailing the effects of culturally hybrid positions. From a more technical point of view it might also be helpful to search for a transparent approach to assess and compare the complexity of different setups and project situations.

7. References

Baumann, Z. (2001): Identity in the Globalising World. *Social Anthropology* 9 (2), pp. 121-129.

Binder, J. (2007): *Global Project Management. Communication, Collaboration and Management Across Borders*. Burlington: Gower Publishing Ltd.

Encyclopedia Britannica (2012): *Engineering*. <http://www.britannica.com/EBchecked/topic/187549/engineering> [accessed 17. September 12, 2012].

Goffman, E. (1969): *Wir alle spielen Theater. Die Selbstdarstellung im Alltag*. München: R. Piper.

Hatch, M. Y. / Yanow, D. (2003): Organization theory as an interpretative science. In: Tsoukas, H. / Knudsen, C. (Eds.): *The Oxford Handbook of Organization Theory*. Oxford / New York: Oxford University Press, pp. 63-87.

Hill, C. W.-L. (2008): *International Business. Competing in the Global Marketplace*. Irving: McGraw Hill.

Hofstede, G. (1980): *Culture's Consequences: International Differences in Work Related Values*. Beverly Hills: Sage.

Huber, T. / Alt, R. / Lehmann, G. (2002): Templates - Standardisierung beim Business Networking. In: Österle, H. / Fleisch E. / Alt, R. (Eds.): *Business Networking in der Praxis*. Berlin: Springer, pp. 251-271.

Kutschker, M. / Schmid, S. (2006): *Internationales Management*. München: Olenbourg Wissenschaftsverlag.

Mahadevan, J. (2008): Kultur als kollektive Identitäten in der Praxis. In Koch, E. / Speiser, S. (Eds.): *Interkulturelles Management*. München: Mering, pp. 169-193.

Mahadevan, J. (2009): *Redefining Organizational Culture. An interpretative anthropological approach to corporate narratives*. URL: <http://www.qualitative-research.net/index.php/fqs/article/view/1227/2670> [accessed 17. September 2012].

Mahadevan, J. (2010a): Interkulturalität heute. In: Baudson, T. G. / Seemüller, A. / Dresler, M. (Eds.): *Grenzen unseres Geistes*. Stuttgart: Hirzel Verlag, pp. 101-112.

Mahadevan, J. (2010b): Chance für Bi-Kulturelle. *Personal* 12 (1), pp. 26-28.

Mahadevan, J. / Mayer, C.-H. (2012): *Towards a Collaborative Understanding of Intercultural Engineering*. In this Issue.

Martin, J. (2003): Meta-theoretical controversies in studying organizational culture. In Tsoukas, H. / Knudsen, C. (Eds.): *The Oxford handbook of organization theory*. Oxford / New York: Oxford University Press, pp. 392-419.

McSweeney, B. (2010): Dynamic diversity. Variety and variations within countries. *Organization Studies* 30 (10), pp. 933-957.

Phillips, M. / Sackmann, S. (2002): *Managing in an Era of Multiple Cultures. Graziadio Business Report 2002*. URL: <http://gbr.pepperdine.edu> [accessed 12 September 2012].

Rammert, W. (2007): *Technik – Handeln – Wissen*. Wiesbaden: Verlag für Sozialwissenschaften.

Ricoeur, P. (1992): *Oneself as Another*. Chicago: Chicago University Press.

Tjosvold, D. / Leung, K. (2003): *Cross-Cultural Management*. Aldershot: Asgate.