Processing People?[*]

A Labour Sociologist's Perspective on Risk Management in IT-Offshoring Projects

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Abstract. Risk management in IT-Offshoring projects is closely connected to problems of organizing IT-work in distributed project-teams. Drawing upon the sociological debate on IT-work as a kind of 'knowledge work' and referring to first results of two case studies conducted in transnational project-teams of a German and Indian IT-company the author describes internal contradictions that occur when IT-companies try to standardize their working processes and thereby reduce the scope for individual decissions of the employees.

1 Introduction

This workshop focusses on a topic which can be discussed from very different perspectives: Risk management is a technological problem, it involves management practices, it reflects legal issues and it affects those who are working in these projects. The sociological debate on IT-Offshoring is somehow different from discussions in the management literature, as literature shall be called in the following that is aimed at giving managers a kind of orientation in organizing Offshoring-projects successfully. Of course management literature includes various contributions from social sciences as well as from economics or computer sciences. The important difference to the sociological debate is, however, that it primarily focusses on the practical aspects of IT-Offshoring. It is intending to give instructions on how to manage Offshoring. Sociological interest, instead, would tackle questions like: How can IT-work be organized transnationally and what conflicts and contradictions occur, for example between management and employees, when work is taken offshore?

Still, some points discussed in the sociological debate on Offshoring of IT-work also play a major role in the management debate although they

are addressed in a different way. Hence sociological perspective on risk management might be a useful contribution to this workshop.

This paper emerged from a research project, the author is currently working on together with Dr. Nicole Mayer-Ahuja. The project is on IT-Offshoring between Germany and India and is funded by the German Research Foundation (DFG). It started in May 2006 and will be finished in November 2008. In this project, the focus is on the organization of transnational project-teams in high skilled IT-work. That comprises IT-services as well as software development, but not BPO projects, for instance in Call Centres.

The project tries to broaden the picture that is usually drawn of work in transnationally operating companies in current academic and political debates in several respects: on the one hand this shall be achieved by focussing on IT-services instead of treating Offshoring as a largely industrial phenomenon. On the other hand, the study tries to examine the validity of the often stated tendency towards disembeddedness, i.e. towards a separation of transnational economic activities from location-specific structures and practices. Arguing that the complex premises and modalities of IT-work have hardly been addressed so far, the project aims at reconstructing them by focussing on IT-Offshorings "double embeddedness": into the structures of transnationally operating companies on one hand and into different local regimes of production and reproduction on the other hand. The latter would contain education systems and labour market policies, but also individual family backgrounds, and the impact of living and working in an IT-hub like Bangalore, for example.

Drawing upon qualitative case studies in one leading German IT-company with subsidiaries in India and one leading Indian IT-company with subsidiaries in Germany, the project is, then, trying to identify central aspects of the functional logic of highly qualified labour in transnationally operating IT-companies.

It has to be admitted, though, that the project is currently just in the beginning of the systematic analysis of the data, which has been gathered during a two-months stay in Bangalore, South India and during the visits in the German subsidiaries of our sample companies[1]. At the present stage, thus, a lot of questions remain unanswered, but even preliminary

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[1] In both sample companies, semi-structured interviews have been conducted with roughly 30 managers and employees on different levels of hierarchy each. The interviews have been recorded and transcribed afterwards. The resulting texts are being analyzed applying the method of content analysis. This phase is not finished yet. In addition to these interviews the study refers to several interviews with experts on the IT-sector, politicians and city-developers.

results may be useful in order to qualify the discussion about the implementation of strong business processes in the name of risk management.

2 The Management Perspective: Dealing with Risks of IT-Offshoring

According to BITKOM's[2] Guideline for Offshoring, the 3 most important risks that companies are concerned about with regard to IT-Offshoring are:

- increased costs for communication and coordination
- unplanned costs for transition, transaction and cooperation mostly in the starting phase of Offshoring and
- the high administrative effort, which might outweigh the reductions of cost (BITKOM 2005, p.16f)

Obviously, all these risks causing increased costs root in organizational problems of IT-offhoring projects. McKinsey's Global Institute (MGI) also stresses the relevance of organizational issues in IT-offshoring projects in the study "The Emerging Global Labor Market" (MGI 2005, p.9) stating that

> "Those companies that find the propect of offshoring difficult generally face company-specific barriers of three types: operational issues, management attitudes to offshoring and structural issues."

Hence risk management can be considered to be closely connected to questions of work organization.

An important part of the debate about managing IT-Offshoring projects and avoiding its risks is about the creation and implementation of robust and standardized business processes, as precondition for successful Offshoring (BITKOM 2005, p. 35). Certificates for business processes like CMMI, Six Sigma or ISO 900x series become increasingly important when companies choose an offshore service provider. No surprise then, that India, as the world's biggest offshore service provider, is hosting the largest number of certified IT-companies in the world (Upadhya/Vasavi 2006, p. 64).

As a sociologist, I would argue that the strategy of reducing risks by implementing strong processes in the labour process of IT work follows a

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[2] BITKOM is the German Association for Information Technologies, Telecommunication and New Media e.V., representing more 1000 companies in Germany

tayloristic logic of managerial control: Risks are to be avoided by making the execution of working tasks as independent from the executing person as possible. Therefore, the implementation of process models is supposed to go hand in hand with the implementation of strong knowledge management systems[3]. But although standardization is probably the dominant tendency according to the management debate on IT-Offshoring, there are other approaches as well, that doubt the effectiveness of processes and emphasize the importance of people in software development. To cite the Agile Alliance's Agile Manifesto:

> "The point is that the most important factors to consider are the people and how they work together, because if you don't get that right, the best tools and processes won't be of any use. Tools and processes are important, don't get me wrong, it's just that they are not as important as working together effectively." (cited from Grenon/Rainville/Guimont 2004, p.7)

From this point of view, the emphasis has to be put on the actual management of people, on the way they cooperate and work together. Of course, later on, the Agile Software Approach is also taking the form of a process, which questions the clear distinction between process and people orientation that is drawn in this paper. But as the authors of Covansys' Hybrid Value-Driven Delivery Model, an agile offshore delivery process, state:

> "Agile is a set of principles and best practices putting emphasis on communication and flexibility instead of relying on rigid processes and large amount of documentation." (Grenon/Rainville/Guimont 2004, p.7)

Process orientation in this paper shall therefore refer to the kind of processes that would be implying a more tayloristic mode of control, i.e. a higher degree of task fragmentation and less complex and closely monitored tasks for the single developer. Of course, it has to be analysed critically in how far the existence of standard procedures really affects the every-day work of employers. There can be no doubt, however, that the implementation of standard process models aims at controlling and monitoring a companies' processes more effectively, which might well be felt on the shop-floor level as well.

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[3] For a critical discussion of the implications of knowledge management as a means of managerial control, see McKinlay 2005 or Alvesson/Kärreman 2001.

3 The Sociological Perspective: Organizing Knowledge Work

This thought already implies a good step towards what sociologists would be concerned with: Although the sociological debate is not primarily focussed on the practical problems that arise when sourcing IT-work globally, the organizational issues which are referred to as the risks of IT-Offshoring and Outsourcing in management handbooks, are also discussed by sociologists especially among those interested in work organization and labour.

In the sociological debate, software development or IT-work in general has been labelled as a kind of "knowledge-work", supposedly constituting a central aspect of the dominant mode of production in the society's shift from industrial to knowledge society. Although it is worth debating to what extent knowledge work really takes place (see Thompson/Warhurst/Callaghan 2001), the promoters of this concept agree on the impact which this kind of work supposedly has on its mode of organization.

Knowledge work is considered to be highly innovative and creative because of its dependency on changing (customer) demands and the importance of research and development tasks. Therefore, it is argued, the management cannot foresee the whole work process in advance and fragment it into smaller and less complex tasks that could be assigned to individual programmers.

A tayloristic mode of control with its high degree of division of labour and task fragmentation as well as strict regulation of the execution of tasks is therefore often considered to be impossible when talking about knowledge work (Willke 1998, p.169f, Robertson/Swan 2003, p.835f).

Instead, management of knowledge work is supposed to rely on normative or indirect forms of control (Kunda 1992), whereas hierarchical forms of coordination and control are considered contraproductive (Töpsch/Menez/Malanowski 2001, p. 307, Robertson/Swan 2003, p.832). Moreover, hierarchical coordination is supposed to be replaced by reliance on self-coordination, which would allow for a more complete usage of co-workers' abilities (Heidenreich/Töpsch 1998, p.16, Alvesson 2000, p. 1102, Castells 1996, p. 246), but limits the possibilities to standardize the working process (Hermann 2004, p. 20). In theory, then, employees in these jobs are granted a high level of autonomy in planning and executing their working tasks (Abel/Pries 2005, p. 111, Thomson/Warhurst/Callaghan 2001, p. 926). At the same time, stable corporate structures are supposed

to lose importance due to an increase in project work, facilitating telework as well as non-standard employment relationships.

If this was true, companies would obviously become more dependent on individual employees, enhancing their negotiation power at the labour market.

Due to these specific characteristics of so called knowledge work, especially the limited possibilities of clearly defined, separated working tasks and standardized procedures, high qualified service work, like software development and IT-service work, used to be considered very difficult to transfer globally (Boes 2005, p.17). But the last two decades made this picture change a lot: From the 1990s, IT-work has actually been transferred to low-cost destinations, and software companies have started to develop software in project teams spread all over the globe.

4   The Impact of Outsourcing and Offshoring on IT-Work

The rise of IT-Offshoring is argued to be part of a broader trend towards standardization within the IT-sector (Boes/Kämpf/Knoblach/ Trinks 2006, p. 7). This standardization has mainly two aspects:

1. On the one hand, services and products get standardized: They are considered to be best suited for Offshoring, if a low degree of complexity and creativity is needed for their execution or production.
2. On the other hand, the companies' structures and business processes get standardized on the supplier side as well as on the demanding side. Generally both sides try to stick to certified processes, as it is considered to be optimal if both sides have similar processes in place. This is supposed to reduce the need for extensive communication. (BITKOM 2005, p. 35)

Carol Upadhya and A.R. Vasavi (2006, p.63f), focussing on Indian IT service-companies, identify 3 reasons for this trend:

1. The last two decades have given rise to a more factory-like software development process in general. This is caused by "the increasing complexity of software products, [...] the imperative of continually reducing time to market due to sharp competition, and the consequent need to divide work among many software engineers" (Upadhya/Vasavi 2006, p.63) This trend is enabled by the emergence of structured programming and object-oriented programming languages, making modular programming possible.

2. Offshoring and Outsourcing business is very much customer driven. As reducing costs is still one of the most important reasons for Outsourcing and Offshoring, customers are closely monitoring the projects and governing them by strict timelines. So, service providers are under heavy pressure to increase productivity and efficiency, which makes them adopt more structured forms of organization.
3. The introduction of international quality certifications like ISO 9000 series and CMM are also considered to strengthen the trend towards standardization and routinization.

Upadhya/Vasavi argue that the trend towards standardization of products and services also affects the working processes in IT companies and thus reduces the quality of work for employees in this sector.

This position is challenged by authors arguing that standardization of products and services does not affect the working processes as such to a great extent. As Ilavarasan/Sharama (2003, p.6) conclude in their study on Indian IT-companies:

> "Thus, one can conclude, that software work seems to be un-routinizable at the moment and will continue to be so for a long time."

According to this position, software work is still very dependent on the employees, who need to be granted "enough space to use [their] creativity and imagination in the work" (Ilavarasan/Sharama 2003, p.6). The quality certificates are rather seen as marketing to attract and satisfy customers than as a means to increase managerial control.

So, in the light of the above discussion and given the notion of IT-work being knowledge work - with its special characteristics - the following questions arise: Is there a unique tendency towards IT-Offshoring? What kind of contradictions occur in the labour process, considering different management strategies? And, does the nature of knowledge work limit the standardization and routinization of software work?

5 Process Implementation in German and Indian IT-Offshoring Companies: Impressions from Case Studies

The first question can easily be answered: There is of course no single way of Offshoring, but very different Offshoring strategies. The most important distinction here may be the distinction between service-companies

which usually operate out of low-cost-locations and product-companies which tend to be based in Europe, Japan or the U.S. The project tries to cover this spectre by conducting case studies in one Indian service-company and one German product-company.

Usually, it would be argued that standardization would be much more important in service-companies due to higher competition and customer pressure. In product-companies - painting a very rough picture here in order to make the point clearer - however, one would expect to find unrestrained knowledge work.

But the first interviews of the study already showed that the dividing line is by far less clear: Standardization is indeed more pronounced in the service-company but there is considerable scope for individual decision left. On the other hand, the product company has already implemented many processes which should actually not work at all in the sphere of knowledge work.

It may thus be argued that a certain mid-level of standardization is generally required when distributing high-skilled IT-work across the globe. But at the same time, excessive implementation of process models can destroy the basis for successful and satisfying IT-work, generating new organizational problems instead of solving the old ones.

The following sections shall give some idea of the working realities that are referred to here:

5.1 First Case: The Service-Company

The first company (company A) is one of the big Indian IT-service companies with 60.000+ employees. This company has offices and customers throughout the world, but the major part of the business still comes from the U.S. They have just entered the European market, which is considered very difficult to handle. So there are just a few customers in Germany at this time.

The portfolio of this company contains the whole range of IT-services, from rather simple support and maintenance projects to more complex software development and research projects.

Employees and managers from two project-teams dealing with German clients were interviewed. One project team was doing a support project for the web-portal of a big German company that included technical support as well as content management. The other project developed a new application for a German customer from the financial sector.

The market for IT services being very competitive, Indian service-companies are not only competing among themselves but also with big

multinational companies that have opened their own development centres in India. This puts additional pressure on the service companies to reduce the costs and to be as efficient as possible. To prove their effectiveness, Indian service companies put very much effort in the certification of their business processes. Company A for example is certified for ISO 9001, CMM Level 5 and mandatory implementing Six Sigma. According to managers of this company, customers demand the effective implementation of these process models as a precondition for starting a project.

Hence, there are standard prescriptions for every kind of service the company offers, with detailed descriptions of the necessary project steps and a detailed list of requirements to be met and documents to be produced before entering the next stage. According to the standard descriptions for the different kinds of projects carried out by the company, the course of every project is planned in very much detail in the first phase of the project. Together with the customer, a clear list of tasks is negotiated and for each task the necessary time for completion is defined. The estimation of the necessary working time is based on the experience in former projects and sector-wide best practice standards. This way, the overall task is fragmented into smaller and less complex subtasks, that are assigned to the programmers in the project team. Usually, the distribution of working tasks is not discussed within the team but assigned by the project manager. The time-frame of these tasks is more about hours than days and is assigned to the programmers individually.

This already standardizes the labour process and the working tasks of the employees to a great extend. But this tendency is still increased by a very tight system of technical control over the labour process.

The progress of the execution can be constantly monitored by the superiors via a tool that is not only used to assign tasks to the members of the project team, but also to track working times spent on these tasks. The employees are to document their work on a daily basis with this tool. This tool plays the double-role of being the basis for accounting and project management at the same time. All in all, the structures and processes implemented in this company form a very standardized and factory-like labour-process. As Indian colleagues put it in their study on Indian IT-service companies:

> "A significant outcome of the rationalisation of software production is that programming and other IT work are being reduced to measurable quantities of time, effort, productivity, and output mimicking in many ways the old Taylorist system of factory management." (Upadhya/Vasavi 2006, p. 65)

But this way of management is causing its own contradictions, too. By reducing the complexity of working tasks and decreasing the employees' level of autonomy in the work, the attraction of work is reduced as well. As a consequence, the service-companies in Bangalore are facing a higher rate of attrition compared to the product-companies (see Upadhya/Vasavi 2006, p. 66f). Routinization and the monotonous character of work is one of the major complaints among developers in company A. Employees who have left the company also talk about the low visibility in this big company and the feeling of being lost. So employees tend to head for a job in product companies whose work is considered to be much more attractive.

According to project managers in company A, this does not yet pose a threat to projects' delivery. The standardization of the working tasks accompanied by an effective knowledge management system that is given a high priority has enabled this company to reduce the dependency upon its employees to a large extend. As the project managers told us, it only takes them around three weeks to train new employees to replace leaving team members and there are backup plans for every position in the team.

But talking to developers showed a somehow different picture. Even though routinization and standardization of the working processes is advanced in this company, the working process is far away from being totally independent from the employees. As developers explained, there are definitely delays in the course of the project if a person leaves the company. Very often this does not mean a delay to the timings of the overall project, as it can be compensated by an increase of the working times of the rest of the team. The team faces increased workload every time a person leaves the team, so the delay caused by leaving team-mates does not yet lead to shifted timings but to overtime work of the colleagues. Hence leaving team-members can still be considered a risk for project timings as the capability to increase overtime work for the team is limited.

Additionally, the process descriptions, although they reduce the whole production process to less complex tasks that can be done in several hours by an individual developer, are far from completely eliminating complexity. There remains the need for communication, as task definitions are unclear or dependent on other tasks causing the need for close cooperation of the developers. This cooperation happens on a very informal basis, so that the willingness and motivation of the employees affects the efficiency of the cooperation to a high degree.

The cooperation can be even more difficult if programmers do not stick to the coding guidelines or simply forget to document their code

in compliance to companies' standards. So, ensuring compliance to the defined standards and guidelines is an issue for the company, as process descriptions and guidelines to follow have reached a high level of complexity by themselves, making it very difficult for the developers to keep at least parts of them in mind.

For the service company, the situation is roughly as follows: The competition for customers forces the service company to signal quality and standardize the processes according to reputable process models. This way, the working processes get standardized and routinised, decreasing the attractiveness of work but not abolishing the dependency on the employees. Accordingly, poor motivation of the employees might still be a risk for the success of the project.

This could be the reason for service companies in Bangalore to offer various benefits apart from work as our sample company does. They build big campuses and put much effort in the quality of the buildings and the work environment. If asked for the positive aspects of working at company A, most of our interviewees named the work environment and the campus before the character of work or the technologies they were working in. Another attempt to bind people to the company - a quite surprising one from a German perspective - is the company's strategy to create couples within the company, making each other stay in place. This strategy shall be realized by granting "dating allowances": Employees having a date with another are refunded for the costs of the date.

So, company A obviously feels the need to fight attrition even by quite unusual measures which signals the remaining dependency on the employees even in such a highly standardized working process.

5.2   Second Case: The Product-Company

The other company (company B) is a big German product-company, with a subsidiary in Bangalore, employing around 40.000 people worldwide, out of which around 3000 are in Bangalore. This case study comprised interviews with developers and managers from one team of this company, developing a module of a new standard software package in Bangalore. The rest of the software is developed in different locations all over the world, whereas the most important part is still done in Germany.

The team is again subdivided into several subunits, each dealing with a separate functionality of the module. All subunits are managed by project managers in Germany and a counterpart in India, but the division of labour between the German manager and his or her counterpart in Bangalore varies considerably. This results in different communication and

cooperation structures within these teams. I will get back to this point later.

Company B does not face the same pressure to implement standard process models as there is no direct customer contact in the development process. So company B is not certified for any CMM Level, but for ISO9000 series. As managers told us, it was not introduced for signalling quality but for internal quality assurance and raising productivity. The last years, this company failed to reach their margins, so that there is laid high priority on increasing productivity in the next years. For this purpose, the management is testing the implementation of Six Sigma in some projects as well, but the compliance to Six Sigma is not compulsory yet.

Still, it is not only the smaller number of certificates making a difference to the service-company here, moreover, it is also the relevance of these process descriptions in the work process that makes work in the product-company less standardized and routinised.

There are guidelines and templates for the execution of working tasks in this company as well, but they are not that much taken into account by the employees. Some guidelines are implemented in the IDE's of the programmers so that basic coding conventions are automatically followed, but the majority of guidelines is given in different documents. Similarly to the service-company, these guidelines are that complex no developer is completely aware of them. Additionally, the compliance to these guidelines seems to be less strict. Developers admitted that in high pressure phases of the project they just skip the process requirements and finish their job, as the processes are seen more like obstacles in the development process. The project managers also differ in the way they insist on the compliance to the coding guidelines.

That affects the working tasks themselves. Developers are not given short-term tasks as they are in the service-company. The time-frame of tasks in the product-company is more about days and weeks than hours. And the execution of tasks also requires more problem solving capabilities because the tasks are not defined in that much detail. As the development of one part of the software is highly dependent on the development of other parts of the software being developed in other subsidiaries of this company, there is a huge need for communication and cooperation between the developers of the different parts. That introduces a considerable amount of unpredictability to the working processes developers have to deal with.

Company B also does not rely that much on technical control. There is no knowledge management system in place, and project management is much less computer-based, as there is no time- and task-tracking tool. Tasks are distributed in team-meetings and can usually be discussed within the project-team.

As a result, the labour process in company B is more dependent on the employees than in the service-company. Accordingly, attrition causes much more trouble to timings of this company's projects because it takes long to replace leaving team-members. Project managers estimated that it usually takes about half a year to turn a new employee into a fully productive member of the team. But as the employees - at least the ones that have been interviewed in this case study - appreciate the work they are doing and value the level of autonomy they are granted in executing their work, usually employees do not leave because of the work's quality.

Still, the work's quality is not the same in all the subunits. As stated above, the way different subunits are managed by German project managers and their Indian counterparts varies from subunit to subunit. Some subunits are very much involved in strategic decisions concerning the technical design of the overall software package and the plans for the further development of their module and others are not. This difference considerably affects the satisfaction of the developers as the overall technical design limits the developers' possibilities to implement their own ideas and to create their own solutions. The teams with less participation were facing higher attrition rates and ran into problems concerning the timings of their deliveries.

Additionally, as company B is increasingly emphasizing the implementation and compliance to standard process descriptions as stated above, the work quality might change in all the teams in future. This might undermine the motivation of the employees posing organizational problems to this company as well. As a colleague stated in her case study of an Australian IT-company:

"The case study emphasized the dialectical relationship between autonomy and control. In effect, managers, facing the heightened indeterminacy of creative employees labour, walked a tightrope between autonomy and getting profitable work done by the deadline. For employees, this necessity of profitability meant autonomy was limited to the use of their skills and their time. Management could have increased profitability by routinizing the work, but employees would have left, which would be how they would express

their resistance, as the work would no longer fit their social identity." (Barrett 2004, p.790)

Current situation is similar for company B: Offering very attractive work for the employees, company B is not facing trouble with high attrition rates yet. But the less controlled and more autonomously organized labour process bears some risks concerning profitability and efficiency of work. The attempt to introduce standard process models or to ensure compliance to already existing process prescriptions in order to reduce these risks faces resistance in the employees' job orientation and their demand for creative and challenging work.

6   Conclusion: Relevance of individual and structural factors in risk management

Although attrition - according to statements from the management of both companies - does not endanger the productivity of projects and lead to problems in keeping the deadlines yet, it still points to the limits of process orientation as a means in risk management in general. Referring to two case studies in IT-companies in Bangalore, this paper stressed mainly two points:

1. It is possible to standardize IT-service work to a large extent to increase the productivity of projects and to reduce the risk rooting in a very people dependent approach to software development, as it is done in the service-company of our sample. But even the highly standardized labour process of the service company is still dependent on the employees in a way that their motivation and commitment is crucial to the success of the projects. This is even far more the case in the product company of our sample.
2. India, or especially Bangalore, with its booming IT-industry poses some difficulties to the companies, as employees, empowered by the labour market, are very flexible and very demanding concerning the offered jobs.

Hence, the implementation of strong business processes and a more structured approach to software development might be an important point in risk management, but in destinations like India, where a booming industry offers lots of opportunities for the employees, enabling them to be very choosy and demanding regarding the job they want to do, the sheer reliance on processes might cause additional problems without solving the old ones.

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