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Some political and cultural issues in the globalisation of software development: case experience from Britain and India

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Abstract

Global outsourcing of software development is a phenomenon that is receiving considerable interest from North American and European companies currently under pressure to meet their growing manpower resource shortages and find new ways to cut costs. However, these outsourcing arrangements are technologically and organisationally complex, and present a variety of challenges to manage effectively. In this paper we discuss results from an ongoing longitudinal study of a British firm's attempts to develop and manage global software outsourcing arrangements with an Indian software company. More specifically, we focus on understanding management challenges along three key dimensions of culture, organisational politics and the process of distributed development across time and space. The process of globalisation provides the context within which these management challenges can be investigated. © 2001 Elsevier Science Ltd. All rights reserved.

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1. Introduction

While information technology outsourcing in general is not a new concept, having been in existence in facilities management for several decades, global software outsourcing is a relatively more recent phenomenon that became visible only in the early 1990s. The growth of interest in these arrangements is in part due to the pervas-

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iveness, improved efficiency and reduction in cost of communications technologies. This is coupled with the pressure that North American and European companies are experiencing to look globally to meet their current shortages in software development manpower. Companies such as Xerox and Kodak have internationally outsourced major pieces of their information systems operations and while such positive experiences are given prominence in the popular press, other not so successful global software outsourcing experiences are often overlooked.

One of the major reasons for the growth of global software outsourcing is because, unlike material goods, digital information can be transported cheaply and easily. Software development tasks can be exported abroad for potentially increased access to advanced technological expertise and for reduction in costs (Minoli, 1995). Apte (1994) identifies two major categories of global software outsourcing and divides them into "information systems related" and "information processing related" services. While the first category includes software development and maintenance activities, the second concerns the more routine data entry and transaction processing tasks. Either activity can take place on-site ("bodyshopping"), involving physical import of programmers into the host country. Alternatively, work can be undertaken offshore where the development staff are based primarily in their own countries or in some cases a mixture of both.

The worldwide global software outsourcing industry is developing very quickly. McFarlan (1995) points out that a number of countries are entering into the global arena, such as Ireland, the Philippines, China, Vietnam and Russia, who are involved in a range of outsourcing activities. India remains the unquestioned leader for offshore development as a preferred site for North American and European companies. A large pool of highly qualified English-speaking computer professionals, companies with a good track record of successful outsourced projects, a reasonable cost differential (which is fast eroding) and a strong scientific education system means that many North American and European companies are outsourcing their software development activities to India. This is reflected in the fact that, in 1997–98, nearly one-third of the *Fortune* 500 companies outsourced their software development to India (*Software industry in India*, 1998), justifying an earlier World Bank report which conferred to India the status of "most favoured outsourcing destination" for North American firms. By all accounts the growth of the Indian software industry can be described as spectacular, registering an annual growth of more than 50% for each of the last seven or eight years. Nearly 59% of the software produced in India is for the North American market and Europe accounts for about 22% (*Software industry in India*, 1998).

In the excited rush to reap the flexibility and economies offered by developing offshore, many issues of a cultural, social and political nature are yet to be fully investigated and understood. This paper aims to explore some of these issues through the analysis of a specific outsourcing arrangement from a British software house to an Indian software outsourcing company based in Chennai. There are three key sets of issues highlighted in the case. The first issue concerns how the top management in the British firm used Indian outsourcing to bring about change in their own organisation. A second major issue concerns the use of structured information systems

development methodology as a mechanism to create, change and support managerial power structures. The third issue concerns the changing nature of relationships between organisations in developed and developing countries within the present context of globalisation.

The paper starts with a discussion of the research approach, including the theoretical ideas that have helped to inform the analysis of this case study and details of the methodology and methods employed. Following this we provide a discussion and then an analysis of the case, drawing upon the theoretical ideas outlined earlier. Finally we present some concluding remarks.

2. Research approach

Our research approach was aimed at developing an holistic and in-depth understanding of the process of outsourcing and to establish the views of the various stakeholders in their respective situated contexts. Our research approach thus reflects the tradition of studies that collect data of the nature described above, and are broadly classified as "interpretive case studies" (Walsham, 1995). There is an increasing body of work in the information systems (IS) literature based on this approach (for example, Markus, 1983; Suchman, 1987; Zuboff, 1988; Boland & Day, 1989; Orlikowski, 1993; Walsham, 1993; Walsham & Sahay, 1999). The intention was to study the initiation and development of global software outsourcing by examining in detail the actions and perceptions of participants and the context within which these actions took place. Second there was a desire to try and understand how the actions of particular groups contributed to particular consequences. The study was designed as longitudinal and, at the time of writing, data have been gathered for a period of over two years. Historical reconstruction of events was used for the period prior to the start of the research study in 1997 from documents and recollections of the past from the various participants.

The study involved an examination of a single global software outsourcing relationship between the British firm 'Gowing' and the Indian outsourcing company 'Eron', which started with an arrangement signed in 1996. We selected this case for the research for the following three reasons:

- it is a long-term full outsourcing contract of a strategic nature to Gowing;
- Gowing is part of a large British group and this contract could lead to a greater take-up in the future; and
- we had research access to both the British and Indian participants in 1997–99 in both India and Britain.

Data collection was done mainly through semi-structured interviewing. At the time of writing, 42 interviews with senior, middle management and development staff had taken place. The participants were interviewed at periods both in Britain and India. Two field trips to Chennai in 1998 and 1999 led to a total of three days of interviews with key participants including programming staff. Interviews were tape

recorded and lasted one-and-a-half to two hours. Initial interviews were concerned with historical reconstruction of the relationship and fact finding. Subsequent interviews began by asking the interviewee to bring the "story" up to date regarding the events and evolving relationship between the case participants. The interview would then focus on key emerging issues and fill in areas that may have needed clarification or deeper exploration. Informal discussions also took place in corridors or in coffee rooms. These were obviously not recorded but helped provide many valuable and alternative insights, and were written up as notes as soon as possible afterwards.

Other sources of data included attendance at meetings and the presentation and subsequent discussion of an interim document that contained our views on the evolving themes and issues in the relationship. The submission of this report was not part of an explicit and predetermined "action research" strategy, but to provide useful feedback and to ensure our continued research access. However, it turned out that this report did have quite interesting implications as it served as a valuable mechanism for debate and discussion, and subsequently led to several meetings with senior staff at both companies. The report also helped to improve our credibility in the research site and led to management openly discussing strategic issues with us. An unintended consequence of our intervention arose from a passage in the report which indicated the risks of Chennai staff attrition for the British company and made explicit reference to the resignation of a Chennai-based team that had been working on the British account. Unknown to the researchers, Eron had not informed Gowing of this and the report led to a crisis meeting between the two companies with one of the researchers present. As well as providing a lesson in the political implications of writing such reports, it did lead eventually to greater openness between the two companies which, although not an explicit research goal, was a desirable outcome from our perspective.

Following the field trips to Chennai, email exchanges took place on several occasions with Eron staff including one of the company directors. Also, the human resources manager took an interest in the study and reviewed some of the materials being written by us. Secondary material included newsletters, corporate information, press releases and general trade information. A personal diary of changing opinions and thoughts was kept during the course of the study. The data collection led to a binder containing interview notes, observations, email archives and other secondary material.

The approach to data analysis and development of themes broadly followed Walsham and Sahay (1999). Interviews and repeat interviews were held with case participants over periods of time and the interview tapes were all transcribed verbatim by the one of the researchers. Listening to the tapes and transcribing them personally helped to reinforce and clarify what had been said in the meeting and helped to "relive" the interview experience. After transcription, detailed notes were made concerning the ongoing issues revealed in the interview and we tried to examine these issues in relation to theory. At particular stages during the research process, the interview transcripts were reread intensively and we would meet to discuss the issues and relate them to relevant theoretical concepts. We would also discuss these issues with the case participants where appropriate and with colleagues at our respective

institutions. This helped to clarify and refine our interpretations, suggested alternative interpretations and led to further investigation of theory to elaborate on the analysis. Thus the approach involved a continuing dialogue in our minds and amongst ourselves concerning the interview data collected, our interpretations, feedback from the case participants and discussions with our colleagues. This dialogue also involved our evolving reading of the IS literature, related literature and relevant theoretical concepts. We have tried to abstract this process of interpretive reasoning that we followed in Table 1. The table shows an example of two interview instances along with our interpretations and the theoretical insights that we could develop from it.

2.1. Theoretical ideas

As indicated in the previous section, the research approach did not follow a top down method wherein we had an a priori theoretical framework which was then applied to the data. Instead our theoretical frame was one that evolved through a continuous and ongoing engagement of the researchers with the data, reading of relevant literature, together with discussions amongst ourselves and with others. This approach of developing an interpretive analysis has been adopted in a set of interpretive studies, for example Barrett and Walsham (1999) and Walsham and Sahay (1999). Significant themes which resulted from this process concerned the role of culture and power structures situated within the broader processes of globalisation. We were therefore interested in theoretical concepts that would be appropriate to describe and help to shape our understanding of these aspects.

Table 1
Examples of the process of interpretive reasoning

Research period	Interview extract	Our interpretation	Theoretical interpretation
November 1997	"Now we have got a rock of discipline right in the middle of the organisation (with the Indians), so unless you've got the specification in here you won't get the code out here. Unless you put a test plan in you won't get anything out" (Managing Director, Gowing)	Indian programmers used the methodology in a highly disciplined way which contrasted with the style of the ex-RDC programmers	*Political analysis*: the structured methodology when embodied by the Indian programmers' disciplined approach became an authoritative resource for Gowing management to facilitate change
February 1998	"Culturally India is not a very assertive culture—Indians tend to go along with what other people say—especially with authority figures" (Eron Human Resource Officer, Chennai)	For some reason the Indians behaved in a submissive manner which was of benefit to Gowing management in gaining control over the organisation	*Cultural analysis*: structures in Indian society tend to hierarchy and deference to authority figures is a norm. This is rooted in issues of caste and familial relations

Our analysis drew on the work of Anthony Giddens, whose writings have been extremely influential in understanding cultural and political issues in the information systems area. Giddens' later writings (1990, 1991) are directly concerned with unpacking the broader processes of globalisation and modernity. Giddens' work was especially attractive to us because it has become influential in information systems research with particular regard to structuration theory (see, for instance, Barley, 1986; Orlikowski & Robey, 1991; Walsham, 1993; Jones, 1999). The theory itself is complex and spans a wide range of theoretical concepts so we provide only a summary of concepts relevant to our analysis.[1]

Giddens suggests that for the purposes of social analysis we consider three linked dimensions of social structure: signification (meaning), legitimation (morality) and domination (power). Whittington (1992) points out that for Giddens (1984) social systems are constituted by the activities of human agents, enabled and constrained by the social structural properties of these systems. These structures define both the rules guiding action and the resources empowering action. The structures exercise no direct control over human actors but the human need for 'ontological security' leads actors to stick to routinised patterns of behaviour that unintentionally reproduce the structures of their worlds. The structures exist only as remembered codes of conduct or memory traces and it is stressed that individual agents retain the ability to act according to will and responsibility. In the sections to follow we discuss the dimensions of power and culture, which we found to be most relevant to our analysis, and relate this to some earlier work in the information systems literature.

2.1.1. Power and politics

Power and politics in information systems design and implementation has been under research for some time. For instance, Markus (1983) was one of the early writers in the information systems discipline to provide a comprehensive analysis of power and politics within a longitudinal case study. More recently, Orlikowski (1991) deals with issues of control in a case study organisation that implemented computer-aided software engineering tools. Walsham and Waema (1994) adopt a political model for the analysis of a case study concerned with information systems strategy formulation and implementation. Given that several authors have stressed the importance of analysis of power relations in information systems, it is significant that little or no research on global software outsourcing has explicitly addressed these issues. However, the issue of power is regarded as important in information systems outsourcing and there are studies that have addressed the issue. For instance, Lacity and Hirschheim (1993) and Kern and Silva (1998) adopt political models to analyse outsourcing case studies but such issues remain unexplored in more global contexts. Also these studies focus primarily on decisions of outsourcing and not so much on the management of outsourcing relationships over time.

For Giddens, all social relations involve power and the resources in the domination

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[1] A fuller account of Giddens' output in relation to information systems research is given in Jones (1999).

structure comprise the facilities agents draw upon in the exercise of power. Giddens distinguishes two types of resource: allocative resources, which arise from command over objects, goods and other material phenomena; and authoritative resources, which are concerned with the coordination of the activities of social actors. However, Giddens recognises a dialectic of control whereas all agents will have some resources that they can use in a bi-directional process. While such a conceptualisation offers a sophisticated analysis of power relations, it needs to be expanded to take better account of the implications of globalisation and issues of cross culture.

2.1.2. Cultural issues

Globalisation processes such as those inherent to global software outsourcing help to bring different cultural contexts to interact with each other, highlighting the need for research on the impact of national and cross-cultural issues. This need has been recognised as vital for multinational firms by a number of IS researchers, for example Harrison and Farn (1990) and Kumar and Bjorn Andersen (1990). Other authors have discussed various elements of national culture and their influence on the processes of information systems development and use. Ein Dor, Segev and Orgad (1992) have developed a list of national cultural variables that affect information systems development. Shore and Venkatachalam (1995) also discuss the influence of national cultural factors on the approaches to parts of the systems development lifecycle. These different studies, in varying ways, emphasise the point that when the process of software development involves development staff from different nationalities there is a need to take issues of national and organisational culture seriously into the research framework. In the words of Gupta and Raval (1999), cultural issues can "make or break an offshore project".

To grasp a concept as vastly complex as national culture without succumbing to reductionist, instrumental treatment is potentially overwhelming. One approach we identified was to concentrate more carefully on an understanding of the nation and its underlying social structures. Arguably, the only way to achieve that position of awareness is by living and experiencing life in another culture, as suggested by anthropologists involved in ethnographic study (e.g., Geertz, 1973). One of the authors is an Indian national who has spent most of his life in India and the other author, an Englishman, has spent in excess of four months in India between 1996 and 1999 when engaged in fieldwork, teaching and travel.

For our cultural analysis we drew on Sahay and Walsham (1997), who propose a framework which describes possible influences that social structure has on the shaping of managerial attitudes in India and how the structures themselves could be influenced through the role of human agency. The framework was produced by identifying structural properties of social systems which various authors have identified as shaping Indian managerial attitudes. By drawing on structuration theory (Giddens, 1984), Sahay and Walsham (1997) attempt to avoid stereotypes apparent in work which defines 'national character' (Mead, 1951) and the cultural determinism in models such as Hofstede (1980). All Indians are obviously not the same but Giddens suggests that structural conditions may have an impact on agency without adopting the view of people as "cultural dopes" (Garfinkel, 1967) who are unable to act outside

the caging effect of structures. Our examination of social structures would provide a frame for discussion and some tentative explanations.

2.1.3. Time, space and globalisation

Since the very purpose of global software outsourcing is to enable distributed software development, issues of time and space cannot be ignored. The final part of the framework for analysis thus concerns time and space, and draws upon Giddens' later writings (1990). This later work has been found to be of value in the information systems literature by Walsham (1998) and Barrett and Walsham (1999), and Jones (1999) calls for its appropriate inclusion in future research. Although not writing explicitly about information technology issues, Giddens writes extensively on the subject of time–space, social life and globalisation. He identifies some key features of contemporary life that, in his view, distinguish it from life that has gone before. For example, with respect to time and space, Giddens writes that in present times of modernity, social structures are based more in conditions of absence as compared with a previous basis of face-to-face presence. The inclusion of explicit consideration of issues of time and space in our analytical framework will also help enable a fuller exposition of power and culture issues across national boundaries.

3. Case description

Gowing Ltd is a software house that is part of CASS plc, a large group of UK-based companies which is one of the *Financial Times* Stock Exchange 250 companies with an aggressive, entrepreneurial and acquisitive style. Gowing was founded in 1995 as a series of software product acquisitions. In 1998 they employed approximately 100 staff and had a turnover of about £10 million. Although part of the parent group, Gowing is run separately from CASS and is situated in a small Devon town.

Eron plc is an Indian software outsourcing company with a "software factory" located in Chennai serving the USA, India and Asia Pacific regions. It has been established for nearly 20 years and has a subsidiary, Eron UK, which acts mainly as an administrative centre in Britain. In 1998 the company turnover was around £15 million across the group and about 120 staff are employed in the British operations. Eron is among India's top 30 software export houses and has enjoyed substantial growth, especially in the export market.

In 1993, CASS made an offer to acquire a specialist software business called RDC Ltd. The following year the present managing director of Gowing, David Jones, joined CASS and subsequently acquired the rights to a further product from PJ Computing Ltd. Later that year Jones acquired a small company, Hellenic Ltd, which had a product that complemented their existing portfolio. Thus, the Gowing product portfolio consisted of three software products and the staff from PJ Ltd (product A), RDC Ltd (product B) and Hellenic Ltd (product C), which were a result of three acquisitions, making up the embryonic Gowing.

3.1. Nature of work

The software products at Gowing comprised complementary accounting and financial reporting systems that were marketed to a range of large British public corporations. The corporations using these products had similar needs but sometimes customisation was needed. From its inception, the Gowing product portfolio was under constant change due to revisions required by external bodies involving mainly legislative requirements. Other development work comprised maintenance operations and major updates; for example, from a menu-driven to a graphical user interface. Eron programmers were initially used in a bodyshopping role and were supplementing the work of British staff involved in routine development and maintenance operations of the range of financial applications, which were built on an Oracle database platform. Once the Eron staff had fully understood the application, the model of work would change to an offshore model, moving some staff and work to Chennai. At this stage, roughly two- thirds of the Eron team would be situated in India and once this stage was reached, low-level specifications of work to be coded would be sent by the Eron staff in Britain to the Chennai-based team who would return the code for testing. To facilitate communication and the passage of specifications and code, a leased line was in place between Eron's Chennai software factory and Gowing's offices in Britain. Email and telephone were used to clarify any issues or misunderstandings between the Indian team split between Britain and India.

3.2. Early days 1995–1996

David Jones, Managing Director of Gowing, initiated the outsourcing of software development in November 1995. The motivation for outsourcing given was primarily a resource issue with a desire to "tap into" the large Indian software manpower pool. It was perceived that outsourcing to India could provide a logistical advantage in that people can be found at short notice as well as with a high level of English literacy. It was perceived that large numbers of Indian computer science graduates could be hired at relatively lower costs than in the United Kingdom. According to Gowing figures, programmers in the United Kingdom tended to cost on average 30% more than Indian programmers. Resource rather than cost was the primary motivation in Gowing's case since their geographical position in Britain was perceived as unattractive and, when coupled with a countrywide shortage of experienced programmers, presented recruitment and retention problems. An important factor for Gowing management was the need to form a coherent organisational culture as the company was made up of a series of corporate acquisitions.

> Staff who came with these different acquisitions had very different views of organisational life and of how software development should take place. (Jones, Managing Director, Gowing).

Gowing management wanted to form a homogeneous disciplined approach to work with an emphasis on efficiency and quality. This factor was another key motivation

for outsourcing to India with Eron. The outsourcing activity began with four Indian Eron programmers on site at Gowing's Devon offices who were to assist with product development workload in product A (the ex-PJ Computing product). Initially this work involved mainly continued maintenance operations. Eron introduced to Gowing their quality methodology, which exists in the form of a traditional "lifecycle" style methodology that was consistent with International Standards Organisation accreditation. The methodology prescribes a structured, disciplined approach to development and project management.

3.3. Emerging issues 1996–1998

Over time, Gowing management gradually increased their trust in the competence and capability of Eron programmers. This trust was primarily gained by the application of a disciplined approach to development, which involved a compliant adherence to procedures that Gowing management perceived to be a characteristic typical of the Indian Eron programmers. As a direct consequence of this, it was decided by Gowing Management that a senior Indian Eron project manager would be moved from Chennai to Devon and the Eron staff would take over the Gowing product A development. Staff originally from PJ Computing had drifted to other companies by this time and Eron Indian programmers usefully filled the gap. Subsequently the Indian team was split and two-thirds of the Eron staff working on product A were transferred offshore to Chennai with the remainder onshore at Gowing.

As the Indian programmers showed competence in the product A development, it was decided by Gowing management that the Eron methods and employees were to be subsequently "rolled into" Gowing product B, which was currently wholly staffed by ex-RDC programmers. The implication of this was that the RDC staff would be required to use Eron quality methods under the supervision of the Eron project manager and comply with the standards imposed by the methodology. This led ultimately to the resignation of the ex-RDC Ltd programming staff and a complete adoption of the Eron methodology and staff for all development work in Gowing. A period of intense development took place until the products were seen to be well understood and robust by all the staff. All three products are now wholly developed by Eron staff both on- and offshore.

4. Case analysis

4.1. Cultural analysis

At the inception of outsourcing, there was a conflict between the sub-cultures of the respective organisations that made up the embryonic Gowing. The existence of these groups, in particular the RDC staff, was a major factor in the inception of outsourcing. The Managing Director of Gowing was keen to "weld together" a coherent organisation through what he called a "sociological experiment":

Let me tell you about an interesting sociological experiment. I ended up with a mix of people, a bunch of RDC people, a bunch of ex PJ people and some people from Hellenic. So I ended up with three different sets of people from different walks of life with different views of life.

These differing organisational realities stemmed from a fundamental difference in opinion about the nature of the software development process. The most significant sub-culture was represented by the ex-RDC employees who had developed the original system. Product B was initially wholly staffed by ex-RDC programmers who represented a very informal culture. For example, their informal dress style clashed with Gowing's formal style, and relationships within the RDC staff were perceived by Gowing management as existing in the form of "a kind of brotherhood". The RDC developers viewed software development more as an art than an engineering activity, preferring to give less attention to the "less creative" tasks of documentation and use of methodologies. They preferred the "hands on" programming involvement instead, which they considered to be enough for the task. Used to a low-surveillance management style, the RDC approach clashed with the moves to a highly disciplined approach at Gowing:

> In the RDC side of the organisation there was a certain arrogance about the way you design systems and basically it was totally informal, there was no acknowledgement that project management, systems development methodology and standards were a good thing and so on. (Jones, Managing Director, Gowing).

The potential for use of Indian programmers and structured development methods was seen by Gowing management as a way of facilitating change, improving control of development processes and to help create a corporate ethos that could ensure the long-term survival of the organisation. A key feature in this seemed to be the Gowing management perception that the Indian developers were "more compliant, traditionally skilled and less aggressive" than their British counterparts. This cultural feature is recognised by the Chennai team:

> India is not a very assertive culture; Indians tend to go along with what other people say, especially with authority figures. When coupled with geographical separation it becomes difficult, especially at Gowing. (Eron Human Resource Officer, Chennai).

Sahay and Walsham (1997) point out that Indian managers and developers tend to be members of different social systems arising from both work- and non-work-related systems such as intellectual groups, local community and family. These systems have various rules and resources embedded within them which managers and developers draw upon in their process of creating agency and making action mutually intelligible, which in turn can potentially either reinforce or change social structure. Often these rules and resources drawn upon to form these systems are conflicting, for example the work norm of efficiency would clash with the family norm of helping

a relative. There is thus constant tension and contradiction in the creation and articulation of agency. Norms of hierarchy often seen in Indian family relations and the caste system are structural conditions that can be interpreted as being drawn upon by Indians both implicitly and explicitly in developing agency. The caste system has contributed to value systems relating to status, power and relationships. Partly as a result, social relations are often seen to be hierarchical amongst Indians and people show status consciousness. In India, social relations tend to exist between groups of a particular social standing which tends not to be as rigid in Britain. Hierarchical structuring is so ingrained in India that it is often easier to work in a superior subordinate role than as equals on contractual terms (Sinha, 1988). The impact of this when staff work in Britain is expressed by a senior Indian Eron project manager based in Britain:

> Most of our guys are submissive in attitude, they are shy. In India, you mingle exclusively with people of your own social standing. In the UK that doesn't exist. Our programmers' behaviour changes when they come to Britain, they tend to be submissive even if they are authoritarian at home. (Eron Project Manager).

The highly aggressive competitive style of Gowing may have also contributed to the Indians' preference for accommodation rather than conflict by the adoption of a more submissive posture. The Hindu virtues of contentment, absence of desire and stability tend to oppose the dynamic striving for success and unlimited consumption that capitalist systems like the one at Gowing emphasises. Roland (1984) states that, in Indian work relations, the superior is seen to be "kind" and the subordinates "submissive". A consistent theme from many interviewees was the Indian desire to please and to avoid confrontation:

> When presented with a piece of work and asked if they can meet the deadline the Indians will always say "yes", even when it can't be done. (Product Manager, Gowing).

This perception of the Indians feeling a desire to please may be related to the need for accommodation but also a sense of duty to the family and one's superiors. Our interviews with Indian developers indicated that their intentions were positive and not simply ingratiating behaviour. They indicated that they would work overtime to complete the tasks if necessary. Sinha and Sinha (1990) make the point that in India failure in one's role would bring shame not just on oneself but on the family as well. More practical reasons for the perceived submissive behaviour of the Indian developers relates to their supplier–customer relationship with Gowing, which existed without significant trade union protection. Eron employees could be sent back to India if Gowing found them to be unsuitable in any way. In addition, members of the Eron team in Britain were working in a foreign land, dealing with accents that were in some cases alien to them, facing the uncertainty of immigration requirements and the absence of social and informal support groups that they would find typically at home in India.

The "traditional skilling" of Indians, which was of interest to Gowing, reflects the emphasis on discipline in Indian schools with traditional rote learning approaches and mathematical skills forming a large proportion of the curriculum. As a result, generally Indians tend to be mathematically adept and disciplined in their thinking.

4.2. Political analysis

This case also demonstrates the use of a structured information systems and project management methodology as resources of power to create an organisational reality in accordance with the wishes of Gowing management. The Eron structured systems development methodology formalised work arrangements at Gowing:

> I could import a whole load of people who worked to methodology, project plans and were traditional in the way they worked. So they would sit there and wait for a product manager to bring a specification. If the product manager came over and chatted to them and then said "can you start now" they would say "no, not without a specification." He'd say "what's a specification", they'd say "you've got to write down what you want" so he'd go off. (Jones, Managing Director, Gowing).

The introduction of this structured methodology helped to oust the RDC programmers from Gowing since they were perceived as a counter-organisation because of their relaxed, informal and undisciplined style of working.

> Now we have got a rock of discipline right in the middle of the organisation, so unless you've got the specification in here you won't get the code out here. Unless you put a test plan in you won't get anything out. (Jones, Managing Director, Gowing).

Clearly the "rock of discipline" referred to by Jones comprised the Indian programmers together with their structured methods of analysis, design and project management. The use of the structured methodology when embodied by the Eron Indian developers contrasted with the established development style of the RDC staff. Comments from interviews with Jones reveal his motivation:

> The RDC staff didn't think we would but we rolled the Eron methods into their product area.

The bureaucratic and structured approach was filtered through into the rest of the company:

> So that has meant that the rest of the organisation has had to bend to the methodology and work this way and that's how it works now. Even people who wouldn't do it in the past now subscribe to it.

The rigid structured approach encapsulated by structured methods of analysis and design is reminiscent of the "mechanistic" organisation portrayed by Morgan (1986). Software development and management was perceived by Gowing management as a machine-like process, where the programmers became like replaceable machine parts. Importantly, the Eron staff at Gowing were trained to "work to specification", which inevitably enabled greater control for Gowing management. This view was reinforced by language used in interviews that included references to Tayloristic organisations such as "Burger King" as representing the pinnacle of service organisation.

   Much has been written about the limitations of structured methods of analysis and design. However, their potential use as instruments of power, surveillance and coercion is of particular interest here. Winner (1977) defined technology as comprising artefacts, techniques and methods of organisation. He goes on to point out that a technology may contain assumptions and can be used to further the interests of those controlling it. Similarly Latour (1996), in his Actor Network conceptualisation, posits technology as a "non-human" actor that carries the inscribed assumptions and interests of the technology developers and speaks "on their behalf" in other situations. In this case, the methodology with its inscribed assumptions of structure and discipline is used by Gowing management as an instrument of power:

> By getting this formal lump of formal process in the centre of the company it has spun out and I can safely say now that everyone here subscribes to the idea of how systems are developed here. (Jones, Managing Director, Gowing).

   It is worthwhile examining in more detail how structured methods were used in this case as a power resource to facilitate change. As discussed earlier, Eron brought the accredited Eron Quality Methodology into Gowing. This is a structured development and project management approach that is similar to the traditional systems analysis lifecycle, having products, deliverables and forms in keeping with many structured approaches. Wastell (1996) has argued that structured methodologies reflect a metaphor of the development process as a rational technical process embodying a rational engineering approach to system development. Baskerville, Travis, and Truex (1992) also make the point that structured methods for information systems development are based on scientific principles, thus embodying a reductionist paradigm. In this way methodologies facilitate a control dimension by providing a coherent framework within which walkthrough techniques, audit procedures, quality control and inspection procedures can be incorporated (Ahituv, Hadass & Neumann, 1984).

   In this case, the mechanisation and division of labour brought about by the process was rejected by the counter-organisation of the RDC programmers. This was in part because the bureaucratic and rule-bound nature of the Eron approach helped to increase the control that Gowing management had over the development process. The standardised documentation helped to make the surveillance process transparent and visible, enabling the Gowing management to perceive that the Indian programmers were conforming to the prescribed procedures. Thus the methodology facilitated

a division of labour and systematisation of practices which allowed knowledge to be stored, systematised, disseminated and exchanged.

In an organisation like Gowing where the main "product" is software, the Eron methodology helped to disassociate the Gowing management from the RDC methods of development (described by Jones as "design on the back of a cigarette packet") and towards the Fordist production or assembly-line approach. Methodologies of this nature promote discipline among developers by specifying a structure for the development process and thus the transparency of work to surveillance. When coupled with the compliant nature of the Indian developers, the formal process of software production was laid open to Gowing management.

4.3. Globalising tendencies

The third dimension of the study concerns the context of globalisation and how some of the political and cultural issues can be better understood within this backdrop. It is important first and foremost to consider some of the aspects of globalisation that are reflected in this case. On the face of it, globalisation provided Gowing with greater options in time and space to hire programmers to do their software development. As reflected in the quote below, these global options were used by Gowing in a way that represents a commodification of human labour:

> I don't care who does this work, it could be David Jones, it could be someone in India or it could be you — I simply don't care, I just want it done. (Product Manager, Gowing).

At a deeper level, the course of events at Gowing provides an interesting example of the processes of globalisation demonstrating some mutual and bi-directional effects. The effects of globalisation are often discussed in terms of the impacts (quite often negative) that Western culture and management methods have in other cultures, a process that in recent years has been intensified by the effects of mass media. For example, the work of Ritzer (1995) identifies a burgeoning "McDonaldisation" of society, a thesis that essentially rests on a critique of the increasing pervasiveness of supposedly scientific, systematic and arguably dehumanising management methods. Other authors have been critical of the exploitation of developing countries for cheaper labour costs due to the ease of shifting production facilities overseas (e.g., Beck, 1992). The implication of information technology in the processes of globalisation has led some authors to warn of the implications of "electronic sweatshops" involving greater control and surveillance of workers (Attewell, 1987). Other authors discuss cultural imperialism, which rests on the assumption of cultural convergence brought about by ubiquitous Western mass media bringing images, symbols, products and entertainment into developing nations (e.g., Hall, 1991; Martin, 1995).

Interestingly, in this case, the Indian software analysts were trained in the rigorous International Standards Organisation accredited methodology. The effect of globalisation involved the disembedding of this Western-derived methodology into the Indian

context where it was embodied by the Indian developers. The embodied methodology was then re-embedded into the British context by the Indian developers when they commenced work for Gowing, which had particular impact on Gowing staff. A similar example of the bi-directional effects of globalisation is demonstrated by another case study of software outsourcing to India by Japanese firms (Sahay & Krishna, 1999). In this case too, the Indian programmers who typically have had prior software development experience with North American firms are seen to bring in structured software development methodologies like the "waterfall methodology" to the Japanese firms. The Japanese approaches to software development typically do not involve extensive documentation but rely more on discussions and personal face-to-face contact. The introduction of these methodologies is creating some disquiet within the Japanese firms, whose managers are feeling rather uncomfortable with the changes that are being implied by the move to written work. They describe the Indians to be "too Westernized" and are contemplating the change of the offshore outsourcing model to an on-site one where the need for written communication could be minimised.

A further effect of globalisation manifested in this case concerns the two-thirds of the Eron team located in Chennai who were separated across time and space from their Eron colleagues based at Gowing's offices in Britain. The Eron division of labour between Britain and India was such that the social relations with staff who performed the programming role were disembedded from the local British context. The India-based part of the Eron team had no communication with the Gowing staff in Britain and their only contact, comprising task-focused specifications and the subsequent return of completed code, was through their Eron colleagues. The circumstance of absence across time and space was significant because interviews indicated that the India-based team was not made party to any events or power play that was taking place in Britain. When coupled with the factors discussed in previous sections, Gowing management was presented with very different social structures, circumstances and global options than may have been experienced using a local outsourcing company based in Britain.

The general point being made by these examples is that software outsourcing in the context of globalisation will provide us with interesting examples in the future of how the local interacts with the global. Also, we will see that globalisation effects are not necessarily going to be uni-directional from developed to developing countries as in the traditional model, but increasingly we will be finding examples of local events (like in India) shaping global structures. Future studies of global software outsourcing will thus need to seriously look at these local–global relationships and how they influence, and are also influenced by, the processes of outsourcing.

5. Conclusion

A central argument of this paper concerns the need to understand the complex cultural and political implications of software outsourcing within a global context to India, a trade that is becoming increasingly important. The study of the global

software outsourcing relationship between Gowing and Eron is ongoing. Gowing has continued in its acquisition of new companies and Jones has been promoted within CASS to take control of several group companies where he has begun to implement the same outsourcing strategy.

It is important to consider the implications for the research and practice of software outsourcing to India. The research implications include the provision of a framework for examining the issues involved in Indian outsourcing and global software outsourcing generally that takes into account macro theory. Giddens' theoretical writings allow for a sophisticated analysis of the various structural forces that come into play as the process of software development becomes more globally distributed. The case study highlights the need to view this phenomenon in the light of a broader social context and the backdrop of the effects of globalisation. Specifically, the case analysis highlights the value of examining global software outsourcing from a structurational viewpoint. The case demonstrates the effects that globalisation brings when sociological structures from different countries are brought together across time and space, and knowledge in the shape of methodology is disembedded, embodied and re-embedded. The implications of globalisation are seen to be both mutual and bi-directional.

In a period of extreme excitement and optimism regarding the so-called "virtual" organisation, the case study presents a contribution to that debate sensitising theorists to some of the unintended and also potentially negative and often overlooked implications. Walsham (1994) alluded to this point in an exchange with Mowshowitz (1994). Organisation theorists or IS designers concerned with developing methodologies or frameworks would be made aware of the political and cultural implications of the outsourcing of knowledge work.

With regard to the implications for management practice, the case study provides insight into some "information age" practices. The case explains how globalisation provided the opportunity to circumvent the British workforce and key political advantage to Gowing management. However, this strategy takes a view of organisation which is concerned with the abstract requirements of a task and the required means which in a sense are stripped away from the task itself. Workers are seen in an instrumental way to be satisfiers within the process. This strategy represents a reinforcement of the Fordist methods of production which have significant implications on issues of long-term job satisfaction, respect for the worker and their loyalty to the company. This position has been subject to extensive critique elsewhere in the information systems literature (e.g., Mumford, 1983). The strategy at Gowing is particularly noteworthy given that the most recent writings on the management of "knowledge organisations" and "network organisation" call for partnership, trust and co-operation with employees (for example, Handy, 1995). This case study offers a different picture based on a management paradigm focusing on narrow economic issues at the cost of the loyalty, emotion and aspiration of employees.

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