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**The Institutional Limits to Diffusion of Knowledge: A Comparative Study of Three
Japanese MNCs in the UK**

By

**Dr. Ayse Saka
University of Groningen,
Department of International Economics and Business,
P.O. Box 800,
9700 AV Groningen,
The Netherlands.**

Office Tel: +31-50-363 47 57

Fax: +31-50-363 73 37

E-mail: a.saka@eco.rug.nl

Introduction

There is a growing body of literature (Spender, 1996; Grant, 1996) addressing the issue of knowledge as the basis of the firm. Current work has focused on organisational knowledge (Myers, 1996), knowledge-based organisation (Nonaka and Takeuchi, 1995), knowledge works (Cutcher-Gershenfeld, 1998; Fruin, 1997) and knowledge workers (Zuboff, 1996). Expanding literature on knowledge as a source of competitive advantage has also incorporated the international dimension (Inkpen and Dinur, 1998; Appleyard, 1996; Richter and Vettel, 1995), focusing on the importance of knowledge diffusion in strategic alliances. However, relatively few attempts have been made to address the difficulties in implementing alternative knowledge systems, especially in transnational settings. The goals of diffusing knowledge are commonly seen as the requirement for adaptation and improved efficiency in times of change (e.g. Adler, 1992). The paradigm in which the diffusion of knowledge within international collaborations is discussed is commonly economic (e.g. Bresman *et al.*, 1999; Kogut and Zander, 1992). There is an attempt in such studies to link knowledge with a performance outcome (e.g. Buckley and

Carter, 1999; Makino and Delios, 1996). In this sense, the firm is treated as a repository of capabilities and competence, and knowledge is seen as an objectified commodity (Fransman, 1994; Teece and Pisano, 1994).

Although knowledge diffusion has been studied by both IT and organisational behaviour specialists, the focus has largely been on examining knowledge diffusion processes in high-tech firms, such as software development (e.g. Lahti and Beyerlein, 2000). This is mainly derived from the association of knowledge with technology, where technology diffusion is seen as synonymous with knowledge diffusion (e.g. Lynskey, 1999). This study addresses the limits to adoption of knowledge-driven work systems in a cross-site comparison of three Japanese MNCs in the UK. Work systems are defined here as organisational practices that are the product of over three decades of continuous improvement in Japan, driven by people's knowledge, ideas and suggestions. Bearing this definition in mind, work systems are referred to here as knowledge-driven. An attempt is made to complement the national level discussions with the firm level by providing an analysis of the social patterns that shape the diffusion process. Both 'structure and flow' aspects of the diffusion process are addressed (Sorge, 1996). The study acknowledges the idea that employees are a vital component of work systems. This idea rests on the premise that "technology [cannot] be separated from the knowledge, skills, and motivation of the workforce" (Cutcher-Gershenfeld *et al.*, 1998:viii). Similarly, it acknowledges the idea that "structures, such as institutions or rules, cannot be separated from the concrete microlevel social action in which they are implicated" (Karnøe and Nygaard, 1992:82). The paper explores the impact of experiential, practical knowledge that is embedded in habit, skills, routine and/or teamwork (Polanyi, 1966) on the diffusibility of work systems.

The paper is organised into four sections. The following section discusses two distinct views of knowledge diffusion: the objectified and context-dependent views. The study adopts the context-dependent view of knowledge diffusion, and addresses the limits to adoption of alternative work systems in cross-national settings. In the third section, research method and sites are discussed. In the fourth section, characteristics that are

critical in the selected firms' adoption of source companies' work systems are presented through a systematic comparison of cases, and the role of actors in editing work systems is highlighted. The final section draws attention to the multiplicity of adoption processes in the diffusion of knowledge-driven work systems across nations.

The Objectified View of Knowledge Diffusion

The traditional view on knowledge diffusion reflects the interest in structure and technology where tangible characteristics are taken as the primary sources of competitive advantage. However, "individuals act according to what is meaningful for the individuals interacting in and constituting those situations in the flow of daily life" (Karnøe and Nygaard, 1999:83). The complex set of meanings attached to knowledge-driven work systems shapes the way in which structure and technology are interwoven in organisational practice. At one extreme, which is in part reflected by the information technology/knowledge management view, researchers have argued for technological determinism within a contingency framework where particular kinds of technology yield certain predictable outcomes (e.g. Womack *et al.*, 1990). This extreme composes the more linear, mechanistic view of diffusion, where knowledge is seen as imported from, or adopted out of a 'foreign' context in a unitary fashion. Within this view, the diffusion of knowledge-driven work systems is seen as a consequence of "deliberate organisational redesign (usually by managers) to accommodate conflicting pulls from local and imported patterns, to improve the internal fit within the organisation and fit with external environment and to improve organisation's performance" (Westney, 1999:402). This has led to debates on convergence of institutional systems that become uniform or isomorphic with the globalisation of managerial structures and strategies.

According to Kenney and Florida (1993), the most successful firms use teams, quality control activities, rotation and egalitarian management styles. These constitute 'one-best-solution' to organising resources, and assessing technology, know-how, managerial expertise, capital and international markets (Child and Faulkner, 1998). This thinking is especially reflected in the early instances of adoption of Japanese work systems,

characterised by the diffusion of one or two particular management techniques, in isolation from the broader strategy and philosophy by UK management (Beale, 1994). Knowledge, in this context, is taken to be communicated between the sender or the broadcaster and the receiver in a form abstracted from the wider social networks. The complex ensembles of routines that can mould what is being ‘communicated’ is ignored. Knowledge is rather understood as an object that can be created, packaged and diffused, more or less unchanged, from one context to another. The theoretical assumption is that key variables, such as structure and technology, move without friction and in a linear fashion (Clark, 1987). The assumption that variables move in a linear fashion implies that learning occurs in a mimetic or a coercive fashion, and that best practice is diffused through imitation. However, in practice, such variables are shaped by organisational culture and value systems, thus, are sensitive to contexts.

Other researchers have challenged the “sharp decrease in attention to people management and development issues, and step increase in attention to information technology (IT), information systems (IS) and intellectual capital” (Swan, 1999:4), seeing technological and structural characteristics of work systems as embedded in a social set of norms and beliefs (Thomas, 1994). They pay heed to the context-dependent nature of knowledge. In contrast to the objectified view of knowledge, the context-dependent view acknowledges the stickiness of knowledge and, in turn, the limits to diffusion across different institutional contexts.

Context-dependent View of Knowledge Diffusion

The discussions on the diffusion of knowledge within the manufacturing context have commonly centred on technical issues such as the cost and quality advantages of reduced inventory and efficiency gains from concurrent engineering. The definition adopted here diverges from privileging organisational structures and technological systems as the driving forces of work systems diffusion. Work systems are conceptualised here as “premised on harnessing the knowledge at the point where products are made or services are delivered” (Cutcher-Gershenfeld *et al.*, 1998:69). This definition emphasises the

importance of intangible aspects within a process, in addition to acknowledging the tangible aspects. Work systems, noted as they are in firms' co-ordination mechanisms and organisational routines, incorporate the cognitive dimension, that is beliefs, perceptions, ideals, values, emotions and mental models, that is taken-for-granted (Takeuchi, 1998). Particular means of solving problems, carrying out tasks and arriving at decisions become institutionalised over time with the influence of past and present actions, beliefs and interests (Clark and Mueller, 1994). Within this perspective, culture management and leadership are encouraged "so that tacit knowledge is shared" and explicit knowledge is internalised into the values and tacit understandings of employees (Scarbrough *et al.*, 1998:39).

The context-dependent view of knowledge diffusion considers the plurality of actors, role of social structures, unintended outcomes of power struggles and problems with removing existing practices in the diffusion of work systems. For instance, perceptions of adopters reveal that innovations are "heterogeneous complexes rather than homogeneous entities" (Clark, 1987:60), hence their diffusion is understood to be non-linear. The diffusion process is regarded as dependent on contextual features that are shaped by the societal context, leading to differences in implementation (Swan and Clark, 1992). Firm-specific work systems are shaped by patterns of "knowing as a dynamic activity involving the continuous creation, reproduction, modification and destruction of streams of meaning" (Marshall and Sapsed, 2000:2). In contrast to the emphasis on structural and technical concerns within the objectified view of knowledge diffusion, there is a focus on active processes involving "the formation, redesign and implementation of new ideas" within the context-dependent account (Hislop *et al.*, 1998:429).

The present study builds on the context-dependent view of knowledge diffusion. It adopts an integrated understanding or insight into the social constitution of work systems, paying heed to the interrelated aspects of technology, structure (i.e. largely the tangibles), and people, training, discipline, management-worker relations and social networks (i.e. largely the intangibles) in a process. A firm's knowledge can be "continually re(constituted) through the activities undertaken within the firm" (Tsoukas, 1996:22).

Hence, it is proposed in the paper that the role of actors in shaping work systems is important. Empirical evidence is provided to integrate actors into action and to combine action with constraints by highlighting the limitations to the diffusion process.

Learning about management systems and processes or the acquisition of new knowledge reflects both integration and responsiveness needs of the learner embedded in legitimated structures and cultural understandings (Ghoshal and Westney, 1993). Pre-existing capabilities can enable or limit strategic choice intended to contribute to a firm's performance. The basic premise of this claim is that specific organisational and behavioural tendencies are shaped by certain features of a given institutional setting that is constructed in an evolutionary manner (e.g. Nelson and Winter, 1982). This yields what Boyer (1997) calls 'capitalist diversity' or what Whitley (1999) calls 'divergent capitalisms'. Distinctive patterns of economic organisation become more established within boundaries where the structuring of economic actors and the norms governing their interaction are more strongly established at the regional or national levels. The embeddedness of economic activity within a particular set of national institutional features tends to encourage variation in the enactment of institutionalised rules. In other words, when organisations extend their operations into new institutional contexts, they are highly likely to adapt their existing structures and cultures.

There is a dynamic interaction among episodes of external acquisition of knowledge, its use by firms and the commitment by firms to the extent that the acquired knowledge assumes a taken-for-granted or institutionalised nature. The institutionalised nature of knowledge-driven work systems is achieved when "the employees at the recipient unit attach to the practice symbolic meaning and value, as have the employees from the home country" (Kostova, 1993: 311). This is labelled as the internalisation process in the study. Triggered by operational and/or strategic motivations, work systems are acquired and put to use by management. The role of management is observed in the implementation of knowledge-driven work systems. Furthermore, the acceptance of new knowledge within firms points to the translation of existing knowledge by employees that results in the blending of new knowledge with the existing knowledge or appropriated knowledge.

Figure 1 shows the impact of the key local institutional and organisational characteristics (indicated by the thicker arrows) on the degree of implementation and internalisation of new knowledge or alternative work systems.

Take in Figure 1

It is proposed here that local institutional characteristics such as the skills base in the region in which a firm is located, and organisational characteristics such as the nature of alternative work systems, can be important underlying factors in the degree to which alternative work systems are implemented and internalised. The nature of these work systems is conceptualised in this study as structural, cultural, control-related and technological:

- i. Structural: participation through teams, shift to team structure
- ii. Cultural: commitment to quality improvement schemes, including emphasis on training
- iii. Control-related: degree of Japanese involvement in strategic decisions and operations, visibility in management
- iv. Technological: diffusion of advanced technology

The four types of work systems are selected in such a way that a comprehensive account of the phenomenon under investigation is provided. The context-dependent nature of the diffusion of knowledge-driven work systems is explored through a comparative study of three affiliate firms of Japanese MNCs in the UK.

Research Methods and Sites

The study employs a two-step comparative historical analysis that combines detailed case studies of three companies, hereon labelled as Teniki UK, Nissera UK (both

pseudonyms) and the Rover-Honda collaboration, with a systematic comparison to determine the necessary and unnecessary conditions for the implementation and internalisation of Japanese parent/partner companies' work systems. In Djelic's (1998:14) words, detailed case studies ensure that "historical and contextual singularities are not being disregarded", and systematic comparison "allows for a significant theoretical leverage and represents a powerful tool, thus making generalisation possible". The research focuses on participants' perceptions of continuous improvement activities and related structural changes. The challenge here is to understand and interpret complex forms of social activity, which are defined by the actors themselves in terms of their own subjective meanings.

The field research draws on 73 open-ended and semi-structured interviews¹ conducted between 1998 and 2000 with Japanese advisors, directors, UK team leaders, operators, electrical engineers and managers across personnel and training, sales and marketing, product engineering, design and quality, finance, logistics operations, the liaison office and manufacturing integration and purchasing in the UK sites. Participant observation in the UK subsidiary firms over one week, which enabled the researcher to be sensitive to the context-dependent, specific nature of diffused work systems, complements the interviews. Information is also gathered through factory tours and interviews conducted with Japanese electrical engineers and managers (two at Teniki, six at Nissera and eight at Honda) in international operations, production, general affairs, quality assurance, corporate finance, engineering, corporate planning and control, and design functions in Japan. The type of information sought is concerned with the meaning for individuals of events, relationships, social structures, roles and norms (e.g. Hamper, 1991).

The research sites are selected with the intention to include a brownfield subsidiary, a greenfield subsidiary and a technical collaboration site in an effort to address the need to incorporate the social context in which organisational practices are embedded.

Teniki UK (pseudonym for the brownfield site) was owned by a British firm before being acquired by a Japanese car component manufacturer, Teniki, in 1996. It employs 170

people and is located in a centre for tourism, where large portion of the labour force (38.8 per cent in 1997) is employed in the public sector. Teniki UK's senior management was replaced with a more market-oriented, quality-conscious team upon its acquisition. Since 1996, there have been six Japanese advisors in the technical and development, operations, sales and marketing areas at Teniki UK. Having no line responsibility, they are brought in from the parent company to act as technical experts, avoiding hierarchical position as a control and filter mechanism. The people side of management is left to local managers.

The second case company, Nissera UK (pseudonym for the greenfield site), was founded in 1988, as part of a strategy to serve major Japanese customers in Europe. It is established on a greenfield site located in a centre for manufacturing, where the manufacturing base accounts for 38.5 per cent of the jobs in the area. The company employs 300 people (in 1999). Its senior management team changed composition during the initial years of its foundation from 60 per cent Japanese employees to the current 6 per cent. There are 12 Japanese managers—two senior directors, eight managers in the engineering area and two managers in the financial area—serving liaison roles between the subsidiary and the parent company. The production management and supervisors are predominantly British and recruited locally.

Both Teniki UK and Nissera UK employ continuous improvement in quality and reliability through a programme of total quality improvement, serving their customers' needs Just-In-Time.

The Rover-Honda Collaboration is the technical collaboration site. The strategic alliance between the Rover Group and Honda was formed in 1978 as part of a strategy to increase economies of scale and to serve customers in the European market. The Rover Group was looking for a collaborative partner to restructure its organisation and to save the company from lack of new projects, whilst Honda wanted to increase its sales volume in Europe. At the start of the collaboration, both companies were on an equal footing in terms of sales volume. However, Honda was profitable and growing rapidly while Rover was making a loss and produced projects that had a negative impact on the corporate image.

Although, there have been a series of collaborative projects over the course of Rover's partnership with Honda, the present study focuses on the Rover 200/Honda Concerto (coded the R8/YY) project, as this constituted 'side-by-side' work rather than arm's length relationship with Honda, given the similarity in goals and the leveraged learning from the previous collaborative project. The R8/YY project was seen as the most successful project by both the Rover engineers and senior managers, in terms of the degree of collaboration, quality and process improvement, problem resolution and learning benefits. It was also a turning point for Rover in financial terms. It marked the initiation of structural and cultural change and replaced a core product line at Rover.

The following section provides a comparison of the structural, cultural, control-related and technological work systems diffused to Teniki UK, Nissera UK and Rover in an attempt to highlight the institutional limits to diffusion of knowledge.

Persistence at the Local Level

Conscious efforts to institutionalise meanings, values and norms at the brownfield, greenfield and technical collaboration sites are not very effective in changing organisational behaviour. Institutional arrangements at Teniki UK are noticeably more persistent, hence more resistant to change, than those at Nissera UK and Rover. The three firms are created at different times under distinctive circumstances, hence exhibit variation in the transplantation of Japanese work practices (Powell, 1991). The factors that have an impact on the degree of implementation and internalisation of knowledge-driven work systems in the three firms are summarised in Table 1.

Insert Table 1 About Here

A striking point to note is that the nature and influence of key institutional characteristics can differ from region to region within the same sector in the same country. The degree to which knowledge-driven work systems are implemented and internalised is likely to

vary accordingly. The impact that the difference in societal settings can have on work systems diffusion is detailed below:

i. Local Institutional Context

Unlike the findings publicised in the Japanisation literature (e.g. Oliver and Wilkinson, 1992), the level of industrial dispute is not found to have a significant impact on the degree of internalisation of Japanese work systems in this study. A low level of industrial dispute in the region in which Teniki UK is located does not necessarily facilitate the internalisation of alternative work systems. Similarly, high levels of industrial dispute in the regions in which Nissera UK and Rover are located do not impede the internalisation of Japanese work systems. On the contrary, the Teniki UK workforce displays resistance to new methods of work despite the low level of trade union strength in the area. This is due to the dominant effect of a pre-existing culture and its negative influence on the level of internalisation.

Inward investment, that is government initiative for investment, is low in the centre for tourism in which Teniki UK is located, whilst it is high in the location sites of Nissera UK and the Rover-Honda collaboration. The low inward investment seems to influence the internalisation of Japanese work systems negatively. There is less attempt by the UK government “to raise skill levels, encourage the adoption of quality management standards and even to strengthen trade associations” (Deakin *et al.*, 2000:60). According to Lane (1996:275), Britain’s limited role in industry has negative implications for aligning the social infrastructure with the needs of the industry, “particularly in the fields of financial risk-sharing, research, education, and training”. The social isolation of enterprises, due in part to the dispersion of individualism and aversion to dependency, has had consequences for investment and innovation behaviour. For example, small and medium-sized supplier firms tend to lack the social system that can provide expertise and skill. This can mean inadequate access to long-term finance due to the lack of government sharing and relations regulating competition and co-operation (*ibid.*).

In line with Sharpe's (1997) arguments, this study shows that the absence of a pre-existing culture on the greenfield site of Nissera UK facilitates the internalisation of highly institutionalised Japanese practices, as the new workforce has fewer preconceptions. Hence, a new set of work procedures can be introduced with comparatively less resistance. Nissera UK can also employ a skilful workforce, given the location of the company in a centre for manufacturing. By contrast, in a brownfield site like Teniki UK, organisational inertia leads to practices that more closely resemble local practices. Such a limitation, to a degree, also applies to the technical collaboration site of Rover-Honda. Strong lines of demarcation at Rover have led to a defending of job territory and have challenged the drive towards increased flexibility in the manufacturing area. However, the engineers, on which this study is focused, showed less resistance to the internalisation of Japanese work systems due to the difference in the nature of their work, the skills base and the learning leveraged from the previous collaborative work with the Japanese partner, Honda.

In the present study, the degree of implementation and internalisation of Japanese work systems tends to be high where there is a favourable local institutional context, characterised by a high inward investment and location on a greenfield site, as that at Nissera UK. In addition, the absence of a pre-existing culture is more conducive to the internalisation of Japanese work systems than a non-unionised labour market. In other words, the impact of the location site on the internalisation of alternative work systems is stronger than that of the level of industrial dispute in a given system. In contrast to what is depicted in the literature (e.g. Elger and Smith, 1994), a large supply of unskilled workers and a location in a centre for tourism (as exemplified by Teniki UK), where labour can be expected to be relatively free of preconceived ideas in manufacturing, do not facilitate the internalisation of Japanese work systems. Where there is low inward investment and location on a brownfield site, the degree of internalisation of Japanese work systems tends to be low. However, a high level of industrial dispute, location in a centre for manufacturing and a large supply of skilled workforce are not necessarily obstacles to the internalisation of diffused work systems, as is illustrated by the Rover-Honda case.

An analysis of the key characteristics at the organisational level, as presented in the following section, can provide a more robust explanation of the impact of the institutional variation on the implementation and internalisation of work systems. In such an analysis, the operational and strategic motivations of management in the implementation of work systems are considered. In addition, employees' values and interests in the internalisation of alternative work systems are taken into account..

ii. Organisational Context

Organisational Structure: The Shift to Team Structure

There has been a shift in the organisational structure of Teniki UK, Nissera UK and Rover towards a flatter team structure. This has had an impact on worker response to alternative work systems. Although operators at the two subsidiary firms are cynical with regard to the structural transition, those at Nissera UK have been more successful in adopting a team-based structure than the operators at Teniki UK. Similarly, Rover engineers, working on the R8/YY project, have been relatively successful in facilitating a transition to a project-based organisation.

Given the segregation between management and workers, the shift to a team structure at Teniki UK met a challenge. The company faces difficulty in instilling high levels of commitment among operators. At Nissera UK, the experience of a shift to a team structure in 1997, upon the build-up of skills imparted by Japanese expatriates in the early years of the company's establishment, is better received. However, fluid job descriptions evident in the Japanese parent company are not widely observed in the UK subsidiary. Operators perceive team leaders as above the work group rather than as members of the team. Unlike the situation at the parent company, team leaders and assistants have clearly defined responsibilities and their positions are treated as managerial ones at Nissera UK. This is reflected in Production Manager's (30 July 1999) claim that "team leaders do not do the work. As long as they make sure the system is in,

what comes out is efficiency, cost and quality”. As Iwata (1982:52) notes “unlike the American-style [or in this case the UK-style] companies where the institutional structure is quite logically arranged on the basis of clearly defined individual tasks, work is allocated to sections and divisions in Japanese companies”. This seems to validate the argument that it is common practice for firms to mimic the tangible parts of work systems, such as the structural elements, and fail to recognise the intangible cultural elements, such as team spirit, that are integral to the operation of the system (Cutcher-Gershenfeld *et al.*, 1998).

At Rover, a team-based approach to solving problems at an engineering level fostered a “synergistic atmosphere because it [brought] together a multidisciplinary team focused on achieving a common goal within a deadline” (Loo, 1996:7). The project-based structure adopted at Rover, with the initiation of the R8/YY project, was seen as beneficial in creating a team effort to delivering projects on time. Nevertheless, from Honda’s perspective, the implementation of such a structure at Rover could not be effectively carried out. Functional managers continued to have more control than project managers. The top-down and hands-off management limited the degree to which a team culture could complement a team structure. There was a dichotomy between the demands of a system that was strongly embedded in a network of mutual obligations and commitment (i.e. Japan) and those of a system that discouraged co-operation and collaboration between business partners (i.e. the UK).

Although, all three firms found it difficult to develop and replicate ‘esprit de corps’, which is seen as essential for operational improvements (Liker *et al.*, 1999), Nissera UK and Rover have, in relative terms, been more successful in running team-based activities, such as quality circles. In addition to the length of time that the team structure has been in place, Nissera UK employs a more skilled workforce, and is provided with long-term financing by the parent company. Unlike that at Teniki UK, Japanese managers have offered hands-on training to older operators and have been heavily involved in shop-floor activities at Nissera UK. In other words, Japanese expatriates have attempted to carry over the institutional co-operation feature of their business system that encourages

investment in skills development into the UK system (e.g. Orrù, 1997). ‘Self-quality control’ can be observed in practice among some of the older workers who have been trained by the Japanese. In spite of what may be seen as adversarial industrial relations in the area in which Nissera UK is located, the human resource practices of Japanese expatriates in the early years of establishment resulted in a sense of shared commitment between workers and management. At Rover, the internal dynamics of a project-based organisation was seen as conducive to solving problems quickly. From Rover’s perspective, common goals in completing the project, in addition to leveraged learning from the previous project, positively influenced co-operation and knowledge sharing on the R8/YY project. As Mair (1998:411) argues, prior to the R8/YY project, “in the early years of collaboration for the Ballade-based Acclaim and first Rover 200 (1979-1984), no attempt was made to learn”.

Organisational Culture: Commitment to Quality Improvement Schemes

In line with the suggestions in the literature, pre-existing set of strategies, structures and technologies shape the pattern of change towards the ‘Japanese model’ (Fligstein, 1990; Dedoussis and Littler, 1994). In the given cases, actual activities do not conform to the prescriptions of practices implemented in Japan (Meyer and Rowan, 1977) and alternative work systems are renegotiated and adapted. For example, older workers at Teniki UK work according to their own rules and enjoy the freedom created by a weak control mechanism in the factory. They jig machines when they do not work properly, eat and drink in their cells, fill in production time sheets at the end of the day rather than on an hourly basis and manipulate scrap rate figures. The role of actors in blending existing work systems and aiming towards adaptation can be observed especially in cases where the nature and degree of Japanese investment is indirect and low.

The experience of developing interdependency, trust and shared knowledge is unique to a specific workplace, context and group of people (Cutcher-Gershenfeld *et al.*, 1998). Hence, Teniki UK, Nissera UK and Rover have had difficulty imparting source companies’ continuous improvement activities, such as discipline in the workplace and

5C housekeeping principles—classifying, clarifying, cleanliness, clean-up and custom—, by securing the commitment of all parties to the process. The ability of the team leaders in the two subsidiary firms and the project leaders at Rover to maintain good communication within and across teams, and to motivate operators and engineers to engage in continuous improvement activities is influenced in part by the institutional variation in worker commitment and flexibility between Japan and the UK. Unlike in Japan, a minimum involvement philosophy has been the tradition in the UK (Dore, 1973). Continuous improvement schemes are implemented, even though they are not fully internalised at Nissera UK and Rover, whilst they have failed at Teniki UK. In other words, there have been attempts to extract parts of the continuous improvement system for transplantation in the UK subsidiary. The Japanese belief that “good housekeeping should provide an environment conducive to improved work habits, quality and care of facilities” (Schonberger, 1982:67) is not felt by operators and those enforcing the system at Teniki UK. For instance, “people do not read the quality audits. They just put a check. Somebody at the end of the day should look at the sheets” (Senior operator in Air Element). The low skills level of the workforce at Teniki UK, given its location in a centre for tourism rather than manufacturing, has a negative impact on the internalisation of parent company’s practices. “Teniki UK is located in an area popular for farming and armed forces. It is not an industrial location, so the education level is not high. 60 per cent of the people have not more than three GCSEs” (Personnel and Training Manager, 15 February 1999). At Nissera UK, the implementation of continuous improvement schemes has not yet been fully internalised by the operators, given the way local management administers Kaizen initiatives. In accordance with Ackroyd *et al.*’s (1988:17) argument, initiatives mediated by the orientation of British management are less straightforward in their effects.

We were forced to go on this course [on quality circles]. They called it ‘family circle’. It is a big joke. Everything is a joke. It could be better if they were straighter with us. As long as we are concerned, they have deceived us. They will start with something and if it does not suit them, they will change it. (Operator in cluster assembly)

It is questionable to what degree local management has understood the importance of intangible elements in quality control (QC) efforts.

There is an emphasis on certificates in the UK. They initiate change from an analysis on paper. We analyse not on paper but in people's minds. It is based on experience, which includes lessons learnt from mistakes. You ask yourself the question of how you can improve. We have less documents, information on paper than the Europeans.

(Japanese Senior Advisor in Sales and Marketing at Teniki UK,
17 December 1998)

The UK affiliate firms seem to have a limited ability to generate “organisational cultures, involving high levels of worker commitment and flexibility” (Warner, 1994:510) that underlie the technical and structural elements of continuous improvement schemes as a result of conflicting organisational legacies between Japan and the UK. Along Taylorist lines, there is rather a standardisation and simplification of jobs so that workers can be easily substituted in the UK. The distinctive patterns of work system characteristics of task control, workplace relations and employment practices, and the level of commitment that these characteristics support, differ between Japan and the UK. Teniki UK, among the three companies investigated, displays the lowest level of commitment to the diffused system. Its group norms reflect the British attitude to questioning authority, which contrasts with the Japanese subtle hierarchy in the form of ‘harmony and family unity’ (e.g. Lincoln, 1990). There is resistance, especially among older Teniki UK operators, given their preference for traditional British manufacturing system.

At Nissera UK, management had a strong approach to discipline until 1997. Strong attention paid to the implementation of continuous improvement schemes, in addition to availability of financial and human resources, meant that the level of commitment to such schemes was higher at Nissera UK than at Teniki UK. George and Levie (1984) argue that limited emphasis on training and waning interest in the QCs for not delivering the

quick savings expected are frequently cited as reasons for the failure of QCs in the UK. At Nissera UK, the hands-on training of the operators by the Japanese in the initial years of the company's establishment taught them the skills of 'an apprentice' working with his/her 'master' and learning a 'craft', "not through language but through observation, imitation and practice" (Nonaka and Takeuchi, 1995:63). However, Japanese management's training, supervisory and advisory roles reduced over the years at Nissera UK as the phase of implementing new management systems and practices in the organisation was completed. Currently, weaker attention is paid to the implementation of continuous improvement principles with the replacement of Japanese expatriates by local management. "Although they had more strict rules, Japanese managers would help you work. They would go to the source of the problem. British managers make up titles and waste money" (Operator in Printed Circuit Board manufacture).

In the initial years of the Rover-Honda collaboration, there seemed to be more 'fait accompli' learning at Rover. In other words, the company dealt with *results* rather than *processes* that led to results (Cooper and Law, 1995, emphasis added). Underlying philosophies were learnt as more projects of collaborative nature were carried out over time. Continuous improvement schemes were fully implemented but only partly internalised by Rover engineers. Regular visits to Honda, establishment of a liaison office in 1985 and joint engineering team meetings with Honda engineers facilitated the internalisation process. Personal relations and the accompanying trust embedded in social networks were an important means by which Rover acquired and shared tacit knowledge. Company visits and boundary-spanning individuals encouraged socialisation, whereby tacit knowledge could be acquired through experience (Nonaka and Takeuchi, 1995). Habitual routines and a pre-existing organisational setting were redesigned in order to integrate Honda practices. Some of the integration mechanisms involved staff dedicated to the development of the collaboration with liaison roles and joint meetings that enabled co-ordination through lateral communication and negotiation rather than hierarchy. Furthermore, inter-personal inter-firm networks were used, in addition to communication and joint decision-making mechanisms, for co-ordination and integration (Grandori and Soda, 1995). Nonetheless, the interpretation and use of Honda practices were far from

smooth. Differences in work styles required open-mindedness and understanding. It was difficult to break “method[s that were] embedded in individual expression” (Manufacturing Integration Manager, 25 August 1999). Doing so necessitated heavy involvement in training. There was a high level of training in quality skills and car development system at Rover.³ Direct involvement with the Japanese and emphasis on training by the local management were two means of avoiding ‘watering down or dilution’ of Honda practices.

Control Mechanism: Degree of Involvement by the Japanese

The internalisation of Japanese work systems is also influenced by the control mechanism which complements structural and cultural practices that are diffused. The cases in question demonstrate that the nature of management intervention in the implementation of Japanese work systems is crucial in shaping the internalisation process. Such intervention points to the active process of internalisation involving actors’ decisions to accept new ideas.

Although the extent to which Japanese expatriates are involved in day-to-day running of the business and manpower planning differs across the three cases, the pressure exerted on the technical and strategic side of affairs is considerable in the two subsidiary firms. In the case of Teniki UK, there is high and indirect involvement by Japanese management in the activities of the affiliate firm. There is also considerable financial pressure in terms of parent company demands on rapid profitability at Teniki UK, despite the interest on the parent company’s part to develop skills at the UK operation. This arises from Teniki’s lack of flexibility in financial control over the UK division’s activities, given the role of a major Japanese car manufacturer in Teniki’s operations.

The way the company development has been financed has restricted that [the adoption of Japanese practices]. Japanese normally take a very long-term view in any investment. They are always for the future. For some reason, the way this business has been financed is through short-term

loans instead of a large-share capital by the parent company. And the request has been that we make a very quick return on the investment whereas normally you would have maybe a few years' grace. (Operations Manager at Teniki UK, 18 January 2000)

This points to the impact of contextual factors, such as that of the form of ownership on the diffusion of Japanese systems, which is commonly ignored in the literature on cross-national diffusion of work systems. In contrast to what is commonly cited in the literature (e.g. Sako and Sato, 1997), Teniki UK receives short-term financing from the Japanese parent company. As the cases here show, a long-term outlook to development is more facilitating in the degree to which Japanese work systems are internalised at the UK affiliate firm than a short-term perspective. By the same token, the parent company of Nissera UK is also heavily involved in its subsidiary's decisions with regard to the provision of technology and finances for investment. Although Nissera has not exerted stringent budgetary control over its UK division, in general, there has been high and direct level of control at Nissera UK since its establishment. Nissera has exercised personal/cultural control through direct supervision and expatriate control (Harzing, 2000). As the responsibility for design rests with the parent companies, the two subsidiary firms operate more as assembly operations, dependent on imports of manufactured inputs from Japan (Elger and Smith, 1994).

In the case of Rover, the local management pressure to follow the 'Honda' way in design and development became apparent during the R8/YY project. Nevertheless, as Rover was not 100 per cent owned by Honda, Honda's exercise of control was not of the same nature (i.e. in the form of direct supervision) as that of the Japanese parent companies on the two subsidiary firms. At Rover, personal/cultural control was exercised more through socialised, informal communication and management training (Harzing, 2000). Although there had been high and direct involvement of Honda in joint development practices, the method of diffusing know-how from Honda to Rover had not been as smooth as that to Honda's subsidiary in the US. For instance, Rover engineers could be shown the assembly line or order of tasks for a given process, but they could not receive any information on measurements or dimensions.⁴

Technology Diffusion

Teniki UK, Nissera UK and Rover, in comparison to their parent/partner companies, are not profound examples of advanced technology. As opposed to George and Levie's (1984:26) argument that "the Japanese industry is not leagues 'ahead' of us in terms of use of robots and automated equipment", there is evidence from the cases to suggest that the Japanese parent/partner companies, are more technologically advanced than their UK subsidiary/partner firms, in at least the automotive manufacture industry. In spite of the low diffusion of technology to the adopter firms, such as to Nissera UK, the degree of internalisation of work systems is relatively high due to an emphasis on a structural and cultural shift. This seems to suggest that technology is secondary to people problems of implementing Japanese work systems. It is also reflective of the Japanese emphasis on the 'soft' dimension of management (Pascale and Athos, 1996). Culture, commitment, motivation, involvement and trust emerge as being more important than technology in the internalisation of continuous improvement schemes.

Teniki and Nissera's willingness to diffuse technology and know-how, to their UK subsidiary firms is greater where there is a high level of perceived competence, an ability to develop one's knowledge base and successful performance in terms of strong financial status on the part of the subsidiary firm. For example, "since 1993, Nissera UK has had bad profits. They could not manufacture anymore. Nissera brought manufacturing, such as product machine part, from Japan to UK [sic]. Since then, Nissera has minimised know-how transfer" (A Quality Assurance Manager at Nissera, 13 April 2000). Furthermore, it is believed that "they [Nissera UK] do not need advanced technology or know-how. They cannot meet customers' advanced expectation", as "they [Nissera UK] do not understand our product [that is instrumentation]. They understand the manufacturing process, how to move the instrument, but cannot see the bigger picture, how to fit the product" (ibid.).

Technical information between Teniki and its UK division is exchanged more at technical and business conferences.

We introduced our new technology in air induction systems at one of these conferences [i.e. the technical exchange conference]. We also have overseas global conference. In the first Global Business Conference, we discussed technical matters. Key engineers gathered in Japan and discussed problems that occurred in each overseas plant. In the following Global Business Conference, we discussed quality matters—how to manage to keep the same quality standards across all plants. (Deputy General Manager in International Operations at Nissera, 7 April 2000)

The nature of the information exchanged at these conferences is more explicit than tacit, hence can be disseminated through a conference medium.

The Rover case clearly indicates that investment in IT could not act as a surrogate for people transfer, for Honda strongly emphasised teamwork, personal relations and trust. According to Dore (1997:25), “economic transactions in Japan are much more commonly embedded in face-to-face social relations”. Interactions are embedded in associative cultures, where people tend to utilise associations among events that may not have much of a ‘logical’ basis. Communication is characterised by face-to-face contact, which takes place among individuals who share a large body of information based on both historical and contextual modes (Hall, 1976 in Kedia and Bhagat, 1988). Using Sivula *et al.*’s (1997) model of knowledge management in alliances, one can summarise the successful outcome of the R8/YY project in terms of the Japanese partner’s willingness to share its knowledge and Rover’s willingness and capacity to absorb external knowledge (Cohen and Levinthal, 1990).

There is evidence to suggest that work systems are embedded in and diffused through social relationships and interactions. The diffusion process entails sharing understandings through the synthesis and interaction of team members rather than “about moving knowledge around from person to person so that each expands their range of knowledge” (Swan, 1999:10). In the cases concerned, Japanese expatriates serve as influential actors in the diffusion of the source companies’ work systems to the UK adopter firms. They

serve to promote particular kinds of practices among members of the social system (Swan *et al.*, 1999).

Conclusion: The Appropriation of Work Systems in Diffusion

The paper draws a distinction between the objectified and the context-dependent view of work systems diffusion, whereby the former model presumes that the only problems worth considering are inside the user firm at the stage of implementation (Clark *et al.*, 1992). This study adopts the latter view in an attempt to investigate the diffusibility of meaning, value attached to work systems. It demonstrates that where the original meaning of the source company's practices is difficult to diffuse, the existing work systems are likely to be redefined and restructured until eventually they become routine. The argument that work systems can be treated as an object that is created, packaged and moved in an unchanged form from one unit to another in a communications model (Hislop *et al.*, 1998) is rejected. Rather, it is suggested that a practice becomes infused with value when it is accepted and approved by employees (Kostova, 1999).

The research findings suggest that firms attempt to locally interpret alternative work systems rather than submit to environmental pressures. There is support for the argument that the adoption of work systems by an organisation is importantly determined by the extent to which the system is institutionalised (Tolbert and Zucker, 1983). Incompatibility in institutionalised patterns of operating is not necessarily shaped by technical efficiency criteria. There is an enactment through social patterns of interaction. As the cases in this study show, diffusion of knowledge-driven work systems incorporates variability in actors' responses to similar institutional environments.

The present study rejects the argument that there is a convergence in institutional systems given the pressures of globalisation. Although, there is evidence to suggest that 'path-dependent' distinctiveness of national forms of capitalist organisations still apply (Ferner, 2000), firms are not as uniform or isomorphic within each capitalist system as is suggested by authors such as Orrù *et al* (1991). As the present study shows, the diffusion

of practices across nations does not necessarily promote convergence. Rather, there is 'persistent differentiation' (Djelic, 1998) when local institutional differences and the role of actors at the firm level are taken into consideration in attempts to examine cross-national diffusion of work systems.

This paper presents multilevel influences on the implementation and internalisation of Japanese work systems. There is, thus, not a focus on social patterns of interaction at the firm level alone. There is an attempt to highlight the structural determinants of the diffusion of work systems as well as the process of internalising within organisations. The paper shows the following influences on work systems diffusion: (i) the institutional context to which the work systems belong, (ii) the adopter firm characteristics and (iii) the nature of the work systems that are diffused.

The reshaping of practices depends not only on institutional differences between work systems that are embedded in distinct local and national contexts, but also on organisational characteristics, such as demographics, logistics and financial stability (Clark and Mueller, 1994). The comparative analysis of the diffusion of work systems has shown that, far from convergence arguments, there is the reshaping of continuous improvement schemes in a new institutional setting.

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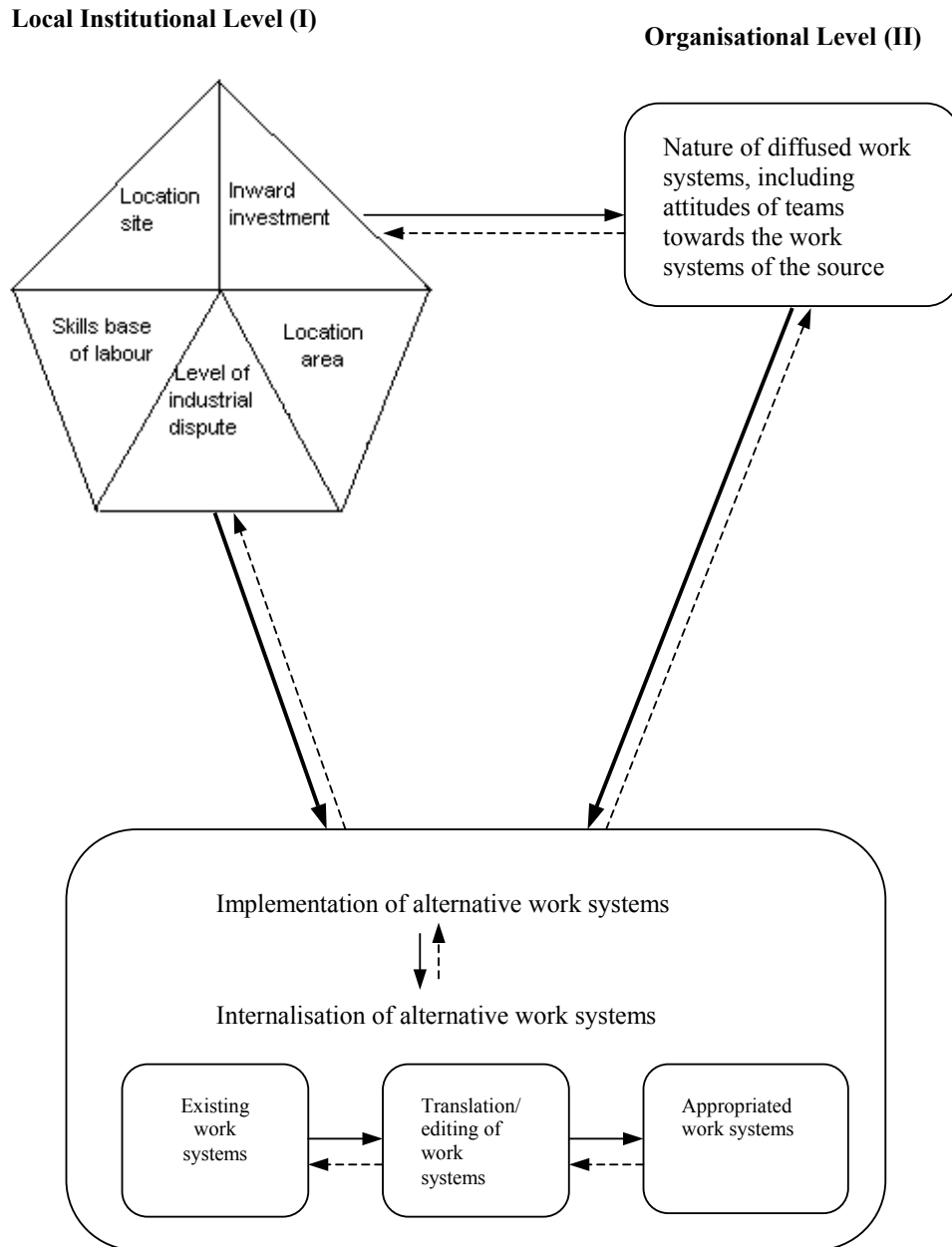
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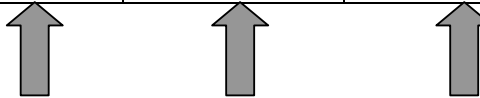
Figure 1. Diffusion of Japanese Work Systems



Source: Adapted from Kostova (1999)

Table 1. The Degree of Implementation and Internalisation and Key Institutional Characteristics at Play

Degree of implementation and internalisation		Teniki UK	Nissera UK	Rover-Honda R8/YY Project
	Implementation	Low	High	High
	Internalisation	Low	Medium	Medium



<i>Local institutional level</i>	Location Site Area	Brownfield Centre for tourism	Greenfield Centre for manufacturing	Traditional home of Britain's car manufacturing base
	Skills base	Low in manufacturing	High in manufacturing	Medium in engineering
	Inward investment	Low	High	High
	Level of industrial dispute	Low	High	High
<i>Company characteristics</i>	Size (in 1999)	Medium (170 employees)	Medium (300 employees)	Large (37,675 employees at the start of the R8/YY project in 1985, ~39,000 in 1999)
	Age (year of acquisition/ establishment/ commencement to data collection/end of project)	3 years (1996-1999)	11 years (1988-1999)	11 years (1978-1989)
	Nature of work	Assembly of carbon canister (37%), Air Intake Systems (35%)	Assembly of instrument clusters for automobiles (83%), motorcycles (13%), construction machines (4%) (in 1999)	Automobile design, engineering, and manufacture
	Form of ownership	Subsidiary relationship, 57% of Teniki shares held by Japanese car manufacturer	Subsidiary relationship, Parent company is not owned by a car manufacturer	Technical collaboration, 20% mutual shareholding arrangement in 1990
	Terms of financing	Short-term orientation	Long-term orientation	Long-term orientation

	Number of Japanese expatriates and their roles in the UK	4 (MD is British) Advisory role	12 (including MD) Mainly director role	Regular visits by Honda engineers between 6 and 8 weeks (1986-1989), liaison office established in 1985 Advisory role
	Skills level of the workforce/ Symmetry of expertise with the Japanese firm	Low	Medium	Medium [as compared with Honda]
Organisational Level	Nature of diffused practices - Organisational structure	Shift to team structure in 1999	Shift to team structure in 1997	Shift to team structure in 1985
	- Organisational culture: Commitment to continuous improvement schemes * Emphasis on training	Low	High (till 1997)/Medium thereafter	High in quality skills and car development system
	- Control-related: Degree of involvement by the Japanese	High, Indirect	High, Direct	High, Direct
	- Technological: Technology diffusion	Low	Low	Medium

Source: Data collected between 1998 and 2000

Endnotes

1. 20 of the interviews were conducted at Teniki UK and Teniki, 20 were drawn from Nissera UK and Nissera, whilst the remaining 41 were carried out at Rover and Honda.
2. In general, the Department of Trade and Industry (Department of Trade and Industry, 1995) in the UK defines a small firm as one with fewer than 200 employees and a medium-sized firm as one with 200-500 employees. Teniki UK, with 170 employees, is not defined in this research as a small-sized firm, as its historical trend does not suggest maintenance of a small size.
3. There was no formal training in familiarising employees with cultural differences between Japan and the UK until the early 1990s. Rover expatriates were dispatched to Japan with limited training at best “with the assumption that knowledge of the business should compensate for the lack of cultural understanding” (Pucik, 1996:158).
4. Honda felt that such information was too confidential to be disclosed to technical collaborators, as it was developed over a period of 10 years, with references to cases of failure and success.