GOOD PRACTICE TRANSFER WITHIN SMALL CONSTRUCTION SPECIALIST TRADE CONTRACTORS

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Government and institutionally-driven 'good practice transfer' initiatives are consistently presented as a means to enhance construction firm and industry performance. Two implicit tenets of these initiatives appear to be: knowledge embedded in good practice will transfer automatically; and, the potential of implementing good practice will be capitalized regardless of the context where it is to be used. The validity of these tenets is increasingly being questioned and, concurrently, more nuanced knowledge production understandings are being developed which recognize and incorporate context-specificity. This research contributes to this growing, more critical agenda by examining the actual benefits accrued from good practice transfer from the perspective of a small specialist trade contracting firm. A concept model for successful good practice transfer is developed from a single longitudinal case study within a small heating and plumbing firm. The concept model consists of five key variables: environment, strategy, people, technology, and organization of work. The key findings challenge the implicit assumptions prevailing in the existing literature and support a contingency approach that argues successful good practice transfer is not just adopting and mechanistically inserting into the firm, but requires addressing 'behavioural' aspects. For successful good practice transfer, small specialist trade contracting firms need to develop and operationalize organization slack, mechanisms for scanning external stimuli and absorbing knowledge. They also need to formulate and communicate client-driven external strategies; to motive and educate people at all levels; to possess internal or accessible complementary skills and knowledge; to have 'soft focus' immediate/mid-term benefits at a project level; and, to embed good practice in current work practices.

Keywords: good practice, innovation, knowledge transfer, small enterprises.

INTRODUCTION

Institutionally-driven 'good practice' initiatives are widely viewed as making a valuable contribution to improving construction industry performance. The UK construction industry has a number of institutions acting as 'knowledge agencies' promoting industry-wide good practices including, for example, Constructing Excellence, Construct IT, Construction Productivity Network, the Centre for Education in Built Environment and the Construction Industry Research and Information Association. Dissemination of codified good practice may be helpful for certain construction firms to increase awareness and closure of any performance gaps

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they may have. There is, however, little empirical evidence to show that the adoption of these institutionally-promoted good practices yield consistent benefits across different corporate settings in the construction sector. Notwithstanding, good practice is often taken as a given and, to a great extent, much of the existing literature focuses on dissemination of codified good practice. It can be argued that if good practice is to make a sustained, positive contribution it needs to be able to be accessed and interpreted differently depending on the context of use and companies' worldviews. In relation to this, it needs to be acknowledged that firms have different degrees of organizational capacity and capability that will have much bearing on their abilities to create and appropriate value out of knowledge the embedded in good practice (for example, Hansen *et al.*, 1999; Cohen and Levinthal, 1990).

Within this critical context, the aim of this paper is to understand the strategy, practice and outcomes of good practice transfer within a small specialist trade contractor (SSTC) in the construction industry. Specialist trade contracting firms constitute a significant part of the industry. In total, 76 % of all construction firms were specialist trade contractors in 2007 (ONS, 2008: Table 3.1). They employ over 800,000 people (64% of the total construction employment) (ONS, 2008: Table 3.4) and deliver around £13.8 billion output (51% of construction workload) (ONS, 2008: Table 3.3). The paper is structured as follows. First, key issues raised from a review of the relevant are laid out. Second, the aims and methodology of a nine month case study which investigated successful good practice transfer within a small heating and plumbing firm are described. Third, key findings from the case study are reported. Finally, tentative conclusions are drawn.

KEY ISSUES FROM THE LITERTURE

Good practice is broadly defined in this study as 'productive knowledge embedded in administrative or technological practices, and know-how of operational technology and process used elsewhere.' Successful good practice transfer is viewed as 'adopting, adapting and using the productive knowledge.' The definitions indicate that successful good practice transfer need to be explored at both inter- and intra-organizational levels. There are two distinct types of inter-organizational networks: institutional networks and business networks. At the institutional level, the implicitly held assumption of myriad good practice models is that relevant industry actors are motivated, capable, and have the capacity to absorb, adapt, and use good practice. Davidson (2001) is of the view, for example, that the construction industry can greatly benefit from the institutional networks, which act as "knowledge producers" to bundle and pack appropriate good practice, and as "knowledge brokers" to evaluate the merits of good practice and competing technologies (Gann, 2001; Winch, 1998). In contrast, Sexton and Barrett (2005) contend that the role of institutional networks in promoting and diffusing good practice for small construction companies is limited due to relevance and access problems. It can be said that although the institutional networks do play a role, small construction firms tend to form relatively simple, localized business networks and are less likely to be embedded in institutional networks. This leads to the discussion of a complementary type of network for good practice transfer: business networks.

Business networks have received significant attention from researchers due to their central role in successful knowledge transfer. Both in the general literature (Barnett and Storey, 2000; Leonard-Barton, 1995) and construction literature (Sexton and Barrett, 2004; Dulaimi *et al.*, 2003), there is a general consensus that close business

networks promote good practice transfer by sharing knowledge and resources. Some evidence indicates that it is likely that SSTC firms will find the formation and maintenance of close business networks challenging. In an examination of the skills requirements necessary for effective supply chain partnerships in the UK construction industry, Briscoe *et al.* (2001) opine that current skills, knowledge and attitudinal requirements of small construction firms need to be bolstered in order to achieve better supply chain integration. However, as Dainty *et al.* (2001) point out, specialist trade contracting firms' mistrust and scepticism within existing supply chain relationships will hamper the progressive transition towards further supply chain integration.

In summary, this section has reviewed two distinct types of inter-organizational networks from an inter-organizational knowledge transfer perspective. Although there has been a strong and consistent emphasis on the role of institutional networks for facilitating good practice transfer, "business network" appear to be more influential in terms of knowledge transfer within SSTC firms. However, establishing and maintaining strong business relationships is necessary but not sufficient for successful good practice transfer. SSTC firms require substantial in-house capacity and motivation to recognize, adopt, interpret, adapt and use good practice available elsewhere (Cohen and Levinthal, 1990). In other words, SSTC firms need to be adept at innovating at their firm's level. The concept of 'innovation' is defined variously and no single definition is accepted by various stakeholders. This research adopts Sexton and Barrett's (2003: 626) definition of innovation: "the effective generation and implementation of a new idea, which enhances overall organizational performance." In the construction literature, the crucial role of innovation champions and sponsors during the change process inherent in innovation is well recognized (Seaden *et al.*, 2003; Winch, 1998). They are known to steer the innovation journey by motivating others and protecting it from disruptive actors (Nam and Tatum, 1997). In the general small firm literature, it is shown that the owners and senior management significantly influence the whole direction of the innovation journey, including the selection and use of institutionally-driven good practice.

Within this broad network context, the prevailing theory of good practice transfer is often based on three key models: a "black-box" model; a linear model; and, an evolutionary view of good practice transfer. According to the 'black-box' model of good practice transfer, good practice is regarded as something that can be identified and validated through systematic measurement such as benchmarking (for example, see O'Dell *et al.*, 1998). Advocates of this model believe that adopting certain good practice will produce similar performance levels in any setting. However, the "black-box" mode does not provide a full account of how and why good practice does or does not transfer, and the reason why different performance levels are achieved by adopters of the same good practice. Further, as the metaphor "black-box" implies, this model does not provide much insight on the process and context of good practice transfer.

The liner model of good practice transfer suggests that good practice transfer follows a simple, rigid, linear sequence of steps. This model assumes that increasing inputs (more ideas) would lead to increased outputs (more adoption). Advocates of this model focus on the production side of knowledge and technological "push" of good practice (Kline and Rosenberg, 1986). They believe that actors in the production side of knowledge can facilitate good practice transfer process. Following from this logic, institutionalized knowledge producers and/or disseminators such as higher education and further education institutions, professional associations, public/private RandD

centres, public agencies, and regulators are the only active force pushing the good practice transfer process by capturing, codifying, packaging and diffusing good practice transfer. Mean while firms are perceived to be rather passive receivers or mere adopters of preconceived solution. Thus, the good practice transfer process is portrayed in the model as linear and unidirectional, leading from ideas to firm or industry-level change.

The evolutionary or so called 'chain-link' model (Kline and Rosenberg, 1986) of good practice transfer recognizes the highly complex process of knowledge transfer and innovation. It appreciates the importance of having the right set of skills to successfully match argues that the accumulation of knowledge necessary for innovation comes from complex and dynamic interactions. It is contended in the evolutionary model that the role of knowledge produced by institutional actors remain important in the process, but it must be integrated with knowledge from various other actors in the value chain. The evolutionary model provides a deeper insight on the process and context of good practice transfer and how the content of good practice is shaped and adjusted to meet market requirements.

Two main research questions appear relevant and important from the perspective of good practice transfer within SSTC firms.

Q1: Are there resultant benefits in good practice transfer from the perspective of small specialist trade contracting firms.

Q2: If so, how can small specialist trade contracting firms successfully acquire knowledge embedded in good practice, and assimilate, integrate, and exploit the new knowledge for achieving sustainable competiveness.

RESEARCH AIMS AND METHOD

Empirical data came from a nine month single case study. The chosen single case study approach was justified as the case study represented a critical extension of theory on good practice transfer for gathering in-depth understanding of the phenomenon (Yin, 1994:38-40). Generalization is bounded by the argument set out by Yin (2003:39) that the results are generalized to theory (which is analogous to the way in which scientists generalize from experiments to theory) rather than to the wider population of SSTC firms.

A small heating and plumbing firm was chosen for the case study for two reasons. First, the case study firm was of an appropriate 'small' size, having 28 staff. Second, the firm was a type of specialist trade contracting firms or specialist trade contractors (Mintel, 2004: Tale 4.3). The firm was established in 2002 and its main office is located in the North West of England. It specializes in supplying, installing and commissioning residential gas heating equipment (e.g. radiators and boilers) and plumbing fixtures (e.g. blending valves and tubes) for the social and private housing sector. The case study is divided into two distinctive but overlapped phase: an exploratory phase and an action research phase: the exploratory phase case study confirmed the utility of the concept model and all the variables indentified within the case study firm, while the action research phase built upon this understanding and operationalized variables for actually implementing innovation.

KEY RESEARCH RESULTS

The research findings suggest that successful good practice transfer can be defined as: 'the evaluation and acquiring new ideas appropriate and helpful to the firm, and

adapting, implementing, and integrating those ideas with existing experiences and knowledge of the firm in order o achieve overall business performance improvement and, ultimately, sustainable competitive advantage.' The research results further developed and validated a model of successful good practice transfer within SSTC firms. It was noted by the interviewees that understanding and improving good practice transfer requires investigations of both the external and internal contexts. These are discussed below (see Figure 1).

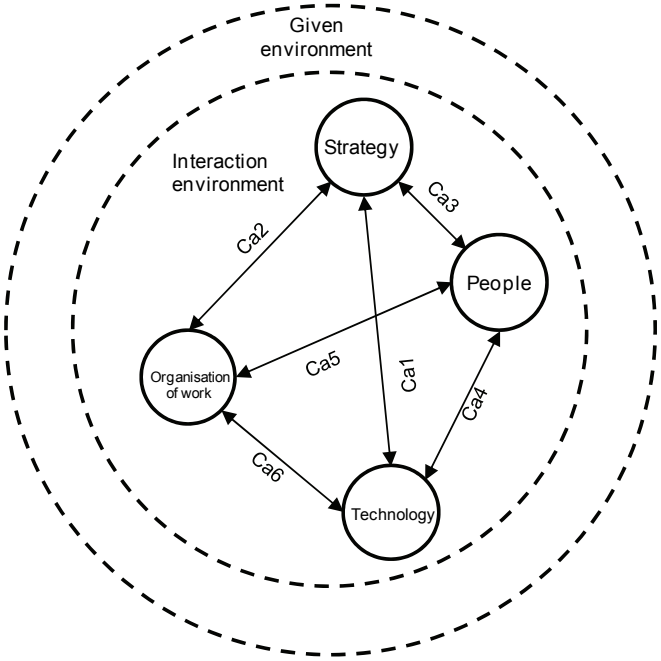

Figure 1: A model of successful good practice transfer within SSTC firms

The external context

The model discerned the external context of the SSTC firms into two: given environment and the interaction environment. The given environment is that part of the business environment which the SSTC firms are influenced by, but which they cannot influence themselves, including the 'task environment' (the environment where client interaction occurs) and the 'competitive environment' (the environment where firms compete for customers and scarce resources). The interaction environment is that part of the business environment which SSTC firms can interact with and influence.

The research findings further suggested that the given and interaction environment provide a broad context in which good practice transfer does (or does not) take place. Two elements were identified as most influential in the given environment: regulations and legislation; advancements in generic ICT and innovation in components side. On the other hand, the nature of business relationships and competition was the primary factor in the interaction environment. Though both given and interaction environments are relevant, more direct thrusts of good practice transfer come from the nature of business relationships and competition in the interaction environment. Secure supplier bases, value-based relationships with customers and close institutional contacts embedded in the local business systems were found to yield a favourable context for successful good practice transfer.

The internal context

The internal context consisted of four key variables: strategy, people, organization of work, and technology. These four internal variables were labelled as 'organizational resources.' Each variable is discussed as follows.

Strategy

Strategy is the overall purpose and long term direction of the SSTC firms.

The research results demonstrated the importance of appropriate strategy in successful good practice transfer within the SSTC firm. Formulating, communicating, and implementing an overall direction and purpose of the firm set a favourable backdrop for successful good practice transfer. A clear customer-driven focus combined with the firm's proactive stance towards balancing between external issues (customer's requirements) and internal issues (firm's needs) was shown to be critical for successful good practice transfer.

People

People are viewed as possessing appropriate skills, knowledge and motivation required to perform the work of the SSTC firm.

The research findings indicated that multi-skill environment should be enhanced by encouraging staff members towards a common goal. The majority of employees (including the top management) of the firm were from the trade background and accountable for executing routine site operations. In these circumstances, the top management's commitment and time for linking different operational areas were clearly shown as critical to instigating and maintaining a momentum throughout the good practice transfer process.

Organization of work

Organization of work is about creating, managing and coordinating project teams and business networks both within the SSTC firm and across its current and potential business partners.

The research findings confirmed that relationships with the firm's supply chain were crucial to facilitating innovation activities. Whist the case study firm had relatively tight business relationships with key suppliers located within close geographic vicinity, it had a paucity of well established customers in its target market. Consequently, developing deeper customer relationships were found crucial to match firm's needs and wants with customers' requirements for successful good practice transfer.

Technology

Technology is the combination of techniques, materials, machines, tools, computers, and other equipment that are used to convert or change inputs into work output of the SSTC firm.

The research findings signified the importance of enabling technologies for supporting successful good practice transfer. The generic and standard nature of production technologies for administration and site operations meant that a diverse range of customers' requirements could be accommodated with minimum adaptations to the firm's technological base. However, lack of supporting organizational routines and measures at a business level hampered the process of adapting and using good practice, which was evidenced in the action research.

On top of the organizational resources, it was seen that the SSTC firm needed to have organizational capabilities to mesh all organizational resources in order to successfully adopt, adapt and use good practice. Figure 1 shows organizational capabilities for successful good practice transfer interlinking all the four organizational resources discussed above.

Ca1: Capabilities to prioritize and focus areas
The case study firm could not make significant progress when there were too many issues on the firm's agenda for improvement and without being prioritized and put into perspective. In the action research, prioritizing and focusing appropriate areas of improvement provided a focus of the top management's proactive and direct involvement in the process of good practice transfer. Good practice considered workable immediately and/or saleable to customer in a mid-term was more likely to draw the top management's attention and commitment.

Ca2: Capabilities to develop and operationalize organizational slack
The case study firm operated with limited organizational resources that can buffer shocks in the external or internal environment. Among others, finance, staff, and particularly management's time and commitment where identified as three key elements of organizational slack in relation to successful good practice transfer. When organizational resources and capabilities were not allocated and released, it was difficult to make sufficient progress towards successful good practice transfer.

Ca3: Capabilities to sense stimuli and absorb knowledge
The firm widely scanned the external environment to spot broad market trends, noticeable moves of the key business partners (particularly customers and suppliers/consultants) and local institutional contacts through social interactions. The top management was located at the fulcrum of sensing and responding to the external stimuli. Sensing the external stimuli also positively affected the firm's receptiveness to new practice and identifying appropriate market opportunities to exploit new practice.

Ca4: Capabilities to motivate and develop people
One of the primary barriers against using new ideas and practices was 'change resistance' from the site workforce result from the firm's little appreciation in training and motivating people. The motivation and development issues were one of the key restraining forces hampering the process of successful good practice transfer. However, motivating and developing people were delayed as far as possible until it became unavoidable by regulations or by imminent business needs.

Ca5: Capabilities to embed knowledge in on-going practice
The project focus allowed the firm to legitimize expenses and activities related to successful good practice transfer. It was also easier for the top management to convince employees to adopt, adapt, and use good practice when it was part of project requirements. Equally, without 'project-pull', employees and top management alike put good practice transfer aside.

Ca6: Capabilities to access and combine complementary capabilities
The firm benefited in developing its own measures by accessing and combining complementary capabilities through on-going social interactions. However, if the required capabilities for successful good practice transfer were not within the firm's existing in-house capabilities, the firm tended to hire external consultants to address the short-term capacity problem at the expense of developing long-term capabilities.

As all organizational resources and capabilities are subject to becoming absolute, it was postulated that SSTC firms need to possess, develop, combine, and adapt all organizational resources and related capabilities in order to achieve "dynamic fit" with the changing environment over time. In other works, the firm need to have dynamic capabilities.

DC: Dynamic capabilities to possess, develop, combine, and adapt all organizational resources and related capabilities
The research findings confirmed the importance of dynamic capabilities and provided broad evidence (albeit limited to the specific key performance indicators (KPI) innovation). When the firm changed organizational resources and capabilities over time reflecting changes in the external environment, the specific process of the KPI innovation was facilitated. However, move evidence is needed to fully refute or confirm the findings.

CONCLUSIONS

The research findings of this study challenge all of the three key models of good practice transfer described in the literature: black-box model, linear model and evolutionary model. These tensions with the literature are discussed below.

"Black-box" model of good practice transfer
The research findings in this study provide evidence that the causal link between a higher performance level and the content of good practice remains unclear. This is consistent with the observation put forward by Davies and Kochhar (2002) and Pettigrew (1997) in that mere adoption or presence of good practice in an organization does not guarantee a higher performance. Adoption of good practice was also not followed from a hard, systematic measurement of good practice and its indicative performance improvement gains. This implicitly assumed technological imperativeness and automatic transfer of good practice in the black-box model were not substantiated through the findings. A deductionistic view of good practice in the 'black-box' model was in contrast to the specificity of learning taking place in the innovation process. In short, the black-box model of good practice transfer was deficient in explaining the content, context and process of good practice transfer.

Linear model good practice transfer
The research findings challenged this liner view of good practice transfer. Knowledge flow was not unidirectional and linear; the process of good practice transfer was heavily dependent upon social interactions which constituted as a conduit of feedback and feed forward of ideas. Further, the evidence indicated that influence of institutional knowledge producers/disseminators in good practice transfer within the SSTC firm was not as influential as indicated in the linear model of good practice transfer. This was mainly because the institutional knowledge networks were not closely aligned to and embedded in the local business networks through which meaningful inter-organizational knowledge transfer took place. It was observed that there were multiple sources of good practice, and the transfer processes were bound to specific economic and relationship circumstances.

Evolutionary view of good practice transfer
The non-linearity of good practice transfer found in this study is consistent with the evolutionary model. However, there were two major differences between the evolutionary model and the research findings of this study: the top management takes a dominant role in decision-making and plays a significant part in good practice

transfer process within the SSTC firm; and, there was consistently low interest in developing long-term human resources such as developing new skills of employees and forging new social relationships.

This observation is in line with the literature pointing out that appropriate patterns of social interactions and network configurations for managing knowledge and innovation are contingent upon the specific production context and value proposition of the firms (Cross *et al.*, 2005; Hansen *et al.*, 1999). The research findings give speculation that SSTC firms producing simple, craft-based, commodity-like products and services may better off using documented procedures to create and delver value in a reliable and efficient manner. In contrast SSTC firms producing customized and innovative products/services would be suited to adopting a different approach involving proactive and intense social interactions with clients and supplier networks.

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