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TEMPLATE USE AND THE EFFECTIVENESS OF KNOWLEDGE TRANSFER

Leveraging knowledge assets within the firm is fundamental to realizing competitive advantage (Zander and Kogut 1995, Argote and Ingram 2000). Teece, Pisano, and Shuen (1997), echoing Nelson and Winter (1982), suggest that the most critical knowledge assets are embedded in organizational routines. A fundamental hypothesis states that the use of templates—actual working instances of the firm’s routines—increases the effectiveness of leveraging such assets through transfer within the firm (Nelson and Winter 1982, Winter 1995). This claim, however, has been contested to varying degrees, with some claiming that adherence to a template decreases performance (e.g., Kostova 1999) and others suggesting that it has little effect (e.g., Baden-Fuller and Winter 2006).

In this paper, we explore the connection between template use and the effectiveness of knowledge transfer through an 8-year, real-time investigation of three transfer efforts—two successful and one not—within 15 western European countries. The setting for our study is Rank Xerox (now Xerox Europe). Specifically, we focus on how reliance on a designated benchmark impacts the extent of adoption of transferred practices and their performance at the recipient site. To this end we treat the experience as a naturally occurring, repeated-treatment quasi experiment (Cook and Campbell 1979). In addition, we probe causal inferences drawn from the experiment by examining over a dozen plausible alternative explanations. The paper provides a replicable measure of template use as well as empirical grounds for evaluating the fundamental connection between template use and knowledge transfer effectiveness.
THE ADVANTAGE OF USING TEMPLATES

It has been argued that firm capabilities are often based on a set of organizational routines (Teece et al. 1997) that embody an important part of a firm’s productive knowledge (Nelson and Winter 1982). Leveraging that knowledge is seen as essential to realizing competitive advantage (Zander and Kogut 1995). Leveraging such knowledge, as Teece et al. (1997) argue, often entails reusing it effectively in a different setting. Not only does it make economic sense for a firm to leverage superior routines by reusing, or copying, them rather than recreating them de novo in each new setting, but it makes sense to do so before competitors do (Nelson and Winter 1982, Teece et al. 1997, Rivkin 2000). A firm has an inherent advantage over potential imitators in reusing its own routines because it generally has privileged access to them (Winter 1995). When replicating its own routine, the firm can directly observe it in its totality. An imitator, in most cases, cannot directly observe the entire routine to be copied, thus being at a disadvantage, especially when imitating less visible, yet potentially still essential, aspects of a routine.²

Nelson and Winter (1982, pgs. 119-120) use the term template to refer to working examples of organizational routines. In their conception, templates contain both critical and non-critical aspects of the routine, providing the details and nuances of how the work gets done, in what sequence, and how various components and sub-routines are interconnected. Scrutinizing the template not only allows for an examination of factors that may not be publicly available

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¹ In theory, varying environmental conditions may change the key success factors of any given routine, rendering it ineffective. However, evidence suggests the advantage of leveraging capabilities via the replication of successful routines tends to persist despite widely varying environmental conditions (Ingram and Baum 1997, Jensen and Szulanski 2004, Szulanski and Jensen 2006).

² It should be noted that the replication of organizational routines may not necessarily lead to an increase in performance. While we are arguing that the use of templates may increase the effectiveness of knowledge transfer,
outside the firm but may also increase the likelihood that aspects of the routine that are tacit (Polanyi 1962) or causally ambiguous (Lippman and Rumelt 1982) are nonetheless transferred. Because leveraging knowledge assets through the replication of firm routines involves recreating productive knowledge from the source site, it follows that using the original routine as a template may facilitate the transfer of knowledge within the firm.

This claim, however, has been contested to varying degrees. For instance, international business scholars suggest that insisting on adhering too closely to a template decreases transfer effectiveness by inhibiting local adaptation (Bartlett and Ghoshal 1989; Prahalad and Doz 1987) and increasing local resistance (Kostova and Zaheer 1999). Baden-Fuller and Winter (2006) offer two examples of situations where principles (ideas encapsulating the knowledge to be transferred) are utilized more effectively in the transfer effort than are templates (working examples of the knowledge to be transferred). Finally, Rivkin’s (2001) sobering analysis of the possibility for deriving competitive advantage from the reproduction of complex knowledge, makes little mention of the actual value of using templates.

Notwithstanding the potential practical and theoretical importance of templates for realizing competitive advantage, systematic empirical evidence of the effect of templates is scarce. Perhaps of special concern is the absence of an accepted measure of template use.

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it is possible that firms could replicate routines that achieve substandard results. A successful transfer in this regard may be effective, yet diminish recipient unit performance.
MEASURES

Setting

To empirically examine the hypothesis that template use increases the effectiveness of knowledge transfer, we report on a case study that includes a repeated-treatment quasi experiment that occurred naturally at the western European units of Rank Xerox. Under substantial pressure from Xerox headquarters to increase financial performance, Bernard Fournier, then CEO, launched a series of initiatives in September 1992 to increase revenue by identifying, documenting, and transferring best practices associated with sales processes. The initiative was headed by a team of managers known internally as “Team C.”

While the first initiative in the series, referred to as Wave I (launched early spring 1994), proved successful, the launch of the second initiative, Wave II (launched late autumn 1994), stalled. The third initiative, Wave III, referred to internally as Telesales (pilot units implemented in the autumn of 1995, general implementation January 1996), was again successful. We investigated the period from 1992 to 1999.

Data Collection

We followed Yin (1989) during the initial data collection, employing, during this stage of the research, a descriptive case study methodology aimed at accurately describing the three transfers. This stage of the data collection occurred in real time over the entire 8-year period. The company granted us full access. Team C’s leader, Carlos Camarero, acted as host and main informant throughout the entire period. Camarero facilitated access to all members of Team C as well as to senior managers of many of the country business units (CBUs). We visited headquarters at least once a year and several CBUs before, during, and after selected interventions and had access to
individuals and internal company documents as required to clarify ongoing findings. Data on each “wave” were collected from multiple data sources, including interviews, direct observation, company documentation, a survey, and archival data.

Following the initial data collection, and once members of Team C had approved our depiction of events, we published a set of case studies detailing the three waves (Szulanski and Casaburi 2004a 2004b, Szulanski, Deutsch, Fueyo, and Casaburi 2004). At this point we recognized that the data comprised a naturally occurring, repeated-treatment quasi experiment following the methodology developed by Cook and Campbell (1979), which would allow us to test the longstanding and fundamental hypothesis that template use increases the effectiveness of knowledge transfer. With a firm hypothesis in mind, we then re-approached our sources to collect additional data on the independent variable, template use. We collected additional firm archival data consisting of every document the firm still possessed concerning Team C (nearly 5,000 documents) and utilized semi-structured interviews to focus on the role of templates (internally referred to as “benchmark units”) in the knowledge transfer process. We gathered additional data from the firm as necessary to address alternative explanations as they emerged. The following two sections detail how we measured the use of templates and the effectiveness of the knowledge transfer.

**Template Use.** In line with the conception of templates as working examples, a replication initiative is said to have used a template when (1) the practice or routine being replicated exists at the time of the initiative, (2) is composed of a single or connected series of processes, (3) is observable, and (4) is consciously used in the replication process. A template is not used if any of the above are missing; that is, if the practice is not active, being either dormant still an idea and has not been implemented yet (is not currently observable); if it consists of
unconnected pieces (removing the possibility of observing the interconnections between the subroutines); or if its existence is ignored during replication. In this paper the use of a template is recognized by the designation of benchmark countries that possess the particular routine being transferred and that are explicitly involved in the replication process.

The Effectiveness of the Knowledge Transfer. We utilize two measures of knowledge transfer effectiveness. First, we measure the level of adoption of each initiative by the recipient units. This measure includes both the number of recipient units adopting the initiative and the level of implementation at each site. Level of implementation within a particular unit can be affected by other variables, such as difficulty of transfer, but also reflects the level of effort put forth by the recipient. Adoption is a suitable measure of the effectiveness of knowledge transfer because knowledge does not transfer if a recipient unit does not implement the routine in question. The level of implementation was measured through internal company assessments of implementation efforts that were jointly determined by headquarters and the recipient units. These assessments were taken a year after implementation efforts began for each transfer initiative.

Second, we measured the performance of the recipient units following implementation of the transferred routine. If one assumes, as is the case with each template in this study, that the routine being transferred was achieving superior results compared to those of the recipient units, one should expect to see an increase in performance in the recipient units upon effective implementation. As such, pre- and post-transfer measures of recipient unit performance are a good gauge of the effectiveness of the knowledge transfer effort. Performance is measured using

3 Templates do not have to exist solely within a firm. If an external routine possesses the above characteristics it may also be considered a template.
available quantitative indicators, which included sales force productivity, sales force coverage of potential customers, and the ratio of selling costs to revenue.

ANALYSIS OF THE EFFECT OF TEMPLATE USE

Here we describe the practices comprising the template or templates for each wave and the process used to transfer them. The description of each wave is followed by a discussion of the results of the measurement of template use and knowledge transfer effectiveness for that wave.

Wave I

**Wave I Implementation.** The first wave of the Team C initiatives (Wave I) began in 1993, with the practices being presented for implementation in early 1994. For Wave I, Team C searched for current, discrete best practices that could be easily transferred and implemented separately. These best practices would be transferred to other countries, with the originating country designated as the benchmark that others could consult and emulate.

Of a total of 40 identified best practices, Team C selected 10 that were then validated in situ to ensure that they did, in reality, produce superior results and were potentially transferable. The team emerged from this effort with 9 validated best practices for revenue growth.\(^4\) Top management dictated that each country fully implement at least 4 of the 9.

Team C spent considerable time with each practice analyzing the key success factors underlying the superior results, eventually reducing these to a manageable number of factors that could be easily implemented. They prepared and distributed an implementation manual written in easy-to-understand language. The manual first presented the data showing the differences in performance between the benchmark practices and those in other countries and then detailed the
key success factors underlying the practices and how to implement them. The manual also included contact information for each benchmark site so that recipient units could contact key, experienced personnel for help in implementing each practice. After the manuals were distributed, Team C leaders visited each of the recipient countries multiple times to monitor implementation progress and help with emerging problems.

**Wave I Results.** According to the definition of a template as an organizational routine comprising a connected set of processes that are functioning, observable, recurrent sets of behaviors, Wave I clearly used a template, or rather a set of templates. The nine practices were distinct sales practices, each currently in operation within a particular country unit. That unit was specified as a benchmark unit and actively used to transfer the practice, resulting in a set of nine separate templates for use in the knowledge transfer process.

Adoption of Wave I practices was high. The countries were required to implement only four of the nine practices in order to reach internal implementation targets. All 15 countries involved with the transfers met the goal of completely implementing at least four practices within 1 year. Many implemented more. Table 1 shows the extent of implementation by practice.

| Insert Table 1 here |

Not only was Wave I well implemented but the transferred practices also performed strongly in the recipient units. Overall, in 1994 Wave I replicas generated over $100 million in additional revenue across all practices and nearly another $100 million in 1995, far outpacing

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4 See the Appendix for a description of the Wave I practices.
An example of performance gains was the increase in unit sales of color copiers attributable to the Wave I “MajestiK” initiative. Within 1 year of implementation, Switzerland was selling 328%, the Netherlands 300%, and Norway 152% more copiers (Stewart 1996). Every transferred practice generated a substantial increase in revenue beyond the costs of implementation, which totaled approximately $1 million, with the average revenue increase exceeding the firm’s target by 154%. Table 2 indicates the aggregate revenue gains attributable to each of the nine practices. Such increases in performance helped raise the average revenue per salesperson from $368,000 in 1993 to $400,000 by the end of 1994 (statistically significant at the $p < .05$ level).

**Wave II**

**Wave II Implementation.** Team C was inspired by the dramatic results of Wave I. Beginning in the second half of 1994, Team C decided to escalate the exploitation of existing practices to a more sophisticated level by defining an overarching best practice for the company’s entire sales process. At the core of the Wave II initiative was the idea of increasing salesperson coverage of potential customers. Traditionally, Rank Xerox had rewarded salespeople based on the number of copiers sold per month. This led most salespeople to focus on current customers rather than focusing on prospecting potential customers. This tactic typically ensured the salespeople adequate sales per month but did not expand Rank Xerox’s market share, which was approximately 15% in the European market. Internal data, adjusted for

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$^5$ While we do not have evidence beyond what is listed here of a direct link between Wave I and the additional revenue, the Rank Xerox management at the time, which did have data on the direct link, attributed the
market size and photocopying volume, showed that countries that focused more heavily on covering potential customers were substantially more productive. Team C concluded that an overarching best sales practice focused on coverage could potentially triple the revenue gains achieved by Wave I.

Measuring sales productivity by the coverage of prospective customers instead of the number of copiers sold, however, entailed a basic shift that would alter not only how sales activity was measured but also daily salesperson behaviors and how the CBUs were assessed. Shifting the focus to coverage required changing more than just the incentive structure. A focus on coverage also required better territory planning and more intensive use of databases in order to track prospects and ensure that salespeople were contacting those clients who were about to replace equipment and who would potentially purchase enough new equipment to make the call worthwhile. Likewise, targeting, lead generation, activity planning, reporting, monitoring, and training activities had to be realigned to support the new focus. Nine different interdependent activities, or sub-processes, had to be changed to adequately support the focus on coverage.

In an effort to replicate the success of Wave I by again reusing internal knowledge assets, Team C analyzed each of the countries looking for best practices that corresponded with one or more of the individual sub-processes. They found these scattered randomly throughout the countries. The assembly of the best-in-breed sales sub-processes resulted in a composite process that detailed new action plans for each aspect of the Rank Xerox sales process. The different sub-processes were considered separate but sequentially interdependent modules which,
together, comprised the new “Sales Force Management Activities Model.” The sequentially interdependent nature of the modules was made explicit to the CBUs both orally and in writing.

As with Wave I, an extensive manual was produced, which detailed the superior performance of the sub-processes, or modules, in the countries where they were currently in operation and included key success factors and steps for implementing each sub-process. The book was written in easy-to-understand language but also in exacting detail that carefully described the plan for combining the modules into a coherent and complete new sales process. Once the manual was ready, it was presented to the management teams of each CBU by Team C leadership in a series of “road shows” meant to increase motivation for implementing the new practice. As with Wave I, Team C members traveled extensively during the implementation process to monitor progress and to encourage and support implementation.

**Wave II Results.** Unlike Wave I, Wave II did not have a template to use. The definition of a template requires that a practice be composed of a single or interconnected series of practices that are observable and currently in use. The practices that were being replicated in Wave II, while existing in separate business units, did not exist as a unified, functioning whole in any one location. Had the transfer consisted of separate, distinct practices as in Wave I, templates would have existed for each sub-process. However, the practices were linked conceptually but had never been tested or used together before. The new sales process consisted of highly interdependent modules that, as a whole, had not been tested and were not in operation, resulting in a transfer without a template. Team C member Ricardo Morais explains, “We tried to do something ideal but totally logical. But that thing, with those pieces, never existed [before] in that way.”
Unlike Wave I adoption of the new sales practice was low. Some countries openly refused, but most feigned enthusiasm while only giving implementation a token effort.\(^7\) Moreover, average sales force coverage, the key metric for Wave II, remained stagnant, and sales force productivity actually declined. Within a year of launch, the CEO discontinued the project, and the CBUs ceased even token attempts to implement the project.

Of course, there was at least partial implementation of the new practice in many locations. However, the new sales practice consisted of a series of nine interdependent modules. For the practice to operate effectively all nine modules had to be implemented satisfactorily. Over a year into the implementation effort only one country, Greece, had sufficiently implemented more than two thirds of the modules necessary to operate the Wave II practice. The average level of implementation was under 40%,\(^8\) with more than one country at only 11\% completion. Furthermore, regarding those who had reported full implementation of specific Wave II modules, upper management suspected that many had not actually done so. Instead, they were believed to have implemented only cosmetic changes in an effort to placate top management without making the fundamental alterations necessary to fully implement the modules. For instance, a year into the implementation process, despite self-reports showing reasonable levels of implementation, only about 10\% of the salespeople were actually using the database software central to Wave II success.\(^9\)

\(^7\) This is similar to Zbaracki’s (1998) study of TQM adoption where managers often engaged in rhetoric that was not followed by actual implementation of the practice.

\(^8\) For comparison purposes, there was 100\% implementation of Wave I. This is calculated as adequate implementation (4 or 5 rating from Table 1) to fulfill the requirement of four practices within 1 year. With Wave I all countries adequately implemented all nine practices within 2 years. Even if one were to require all nine practices to be implemented in the first year, the implementation rate would have been 63\%, substantially higher than Wave II implementation.

\(^9\) This is reported by Camarero and was derived from Team C monitoring of Wave II implementation.
Table 3 shows the color-coded implementation self-reports submitted approximately a year after the Wave II launch. Red indicates critical problems with the implementation. Yellow indicates that significant improvement is required before the practice can be considered to have been implemented. Green indicates that implementation is satisfactory. The figures in the table represent the number of modules in each color category. A full year into implementation, most countries had not made much progress.

Wave III—Telesales

Wave III—Telesales Implementation. On a separate assignment during Wave II, the CEO suggested that Camarero, the head of Team C, visit the Rank Xerox operations in Dubai, United Arab Emirates. Since 1993 the salespeople there had contacted customers mostly by telephone, rather than face-to-face as was done in Europe, primarily to escape typical temperatures that exceed 44 °C. The results, in the eyes of both the CEO and Camarero, were extraordinary. In late 1994 Camarero visited Dubai to observe the operations. He was impressed with the results and, as implementation of Wave II began to falter in 1995, he decided to analyze the Dubai situation further. While, at the time, he did not recognize it, later he realized that the sales practice in Dubai, called “Telesales,” accomplished almost exactly what he was trying to do with Wave II and in many of the same ways. Indeed, the Telesales practice in Dubai focused on coverage and incorporated all nine of the interdependent sub-modules of Wave II, with the exception that three were embedded in a piece of software. Through using the telephone as the
primary mechanism for customer contacts, the results were even better than had been expected with Wave II. As Camarero explained,

“We found out that [in Europe] our salespeople were averaging ten customer visits a day, but only one of them was effective. This way (i.e., using Telesales) they could rapidly complete the effective transaction and had plenty of time left to average 2.5 effective transactions per day, thus doubling their productivity.”

Camarero decided to transfer the Telesales practice to the western European countries. Following the same method used in Wave I and Wave II, he extracted the key elements of the Dubai practice. He then put together a manual similar to that used in both previous waves, detailing the extraordinary performance of Dubai, describing the key factors of the Telesales practice, and explaining how to implement it.

The management in Dubai had embedded the elements having to do with database management, reporting, and record keeping in a piece of software called TeleMagic, making integration of those three aspects of the sales process relatively easy. Team C considered the information technology (IT) aspect of the project to be an important enabler. As one Team C member, Ricardo Morais, suggested however, he never would have been able to use IT as an effective enabler for the project if Dubai had not already been using TeleMagic. Not only did Dubai’s use of TeleMagic provide the initial impetus for the use of IT (the understanding that one could use such software, which was commercially available, to sell large copy machines by telephone), but it also provided the understanding of how to successfully connect the software with the less technological aspects of the Telesales practice. The key success factors, while

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10 The Telesales practice did not begin with Dubai. Dubai transferred the practice from Rank Xerox’s Colombia unit, where the practice had initiated a year or two prior to Dubai’s adoption in response to the abduction of two salespeople.
including IT, referred to all nine interdependent sub-processes, and Dubai was used as a referent multiple times to solve non-IT related implementation problems.

For example, after implementation had been under way for a couple of months the pilot centers discovered that they did not know how to operate Telesales for salespeople responsible for key accounts with major corporations. It did not seem to make sense to approach large firms by telephone for sales often totaling tens of thousands of dollars. In response, Camarero returned to Dubai. There he found that those responsible for key accounts used the telephone as much or more than those responsible for smaller firms because the units of large corporations often bought separately and were headed by people who were too busy for numerous personal visits.

The Telesales initiative began in late 1995 with a series of pilot implementations in Lisbon, Birmingham, Lyon, Brussels, and Madrid. To persuade the managers of these units to undertake the initiative, Camarero not only shared with them data proving the superior performance of Dubai but also flew them to Dubai so they could observe the practice in operation. The Telesales practice, like Wave II, was considerably more complex than the practices transferred in Wave I in that it involved a fundamental restructuring of the sales force management process that relied on a series of interdependent modules. As a consequence, implementation was not quite as smooth as in Wave I. It took a few months for the pilot units to begin to reproduce the superior results found at Dubai, along with a number of iterations back to Dubai to answer questions that were originally unforeseen.

After a few months, however, the transferred practice achieved comparable results, and the pilot units were designated as benchmarks for the rest of the corporation. As he had done in persuading the pilots, Camarero brought hundreds of managers to the pilot in Lisbon to observe the operations in an explicit attempt to increase the motivation to adopt the new practice. In his
view, Telesales materialized the theoretical model of Wave II. He said, “It was an opportunistic exercise where theory turned into practice. It allowed potential recipients to see, eat, chew, and touch the practice. It was seeing with their own eyes that $2 + 2 = 4$, not just being told”

**Wave III—Telesales Results.** Fulfilling the requirements of a template, the Telesales practice was, at the time of the transfer, observable and currently in operation as a functioning, complete practice in Dubai. It was not a set of discrete, independent practices as in Wave I, but, unlike Wave II, the interdependent sub-practices in Telesales were in operation as a combined whole. As with Wave I, both adoption and performance were high. Within 6 months of launch, the initiative had been fully implemented in all 15 Rank Xerox western European countries. The chairman’s statement in Rank Xerox’s 1996 Annual Report noted that Telesales significantly improved sales coverage (a key Telesales metric) and increased market share. Within a year of implementation, average sales coverage had increased by 11% (significant at the $p < .01$ level when lagged to allow for issues of incomplete data for 1996), with some units increasing as much as 30%. Sales productivity rose accordingly (significant at the $p < .001$ level), while the ratio of gross profit to sales expense doubled (significant at the $p < .001$ level) without a significant loss of customers that might be expected if the practice represented only short-term sales at the expense of long-term customer satisfaction.\textsuperscript{11}

**Analysis of the Evidence**

Table 4 compares key performance metrics for pre- and post-implementation of the three waves. The comparison highlights the conclusion that Wave II was not successful, while the other two initiatives were. Given the size and complexity of the Telesales initiatives, we include the key

\footnote{\textsuperscript{11} They experienced a 1\% decline in customer loyalty which was attributed to downsizing and fluctuations of customer loyalty in the industry as a whole.}
metrics lagged one year as well. While technically one would expect the same lagged effect for Wave II, the lack of implementation forestalls any such effect. Because relatively few, if any, implemented Wave II to any meaningful degree, the effects seen in 1996 and 1997 can safely be related to Telesales, which was fully implemented within 6 months of launch. $T$ statistics comparing the means of the 15 major Rank Xerox European countries across time periods, as well as $p$ values, are reported below the metric where available.

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Overlaying the patterns of template use, adoption, and performance discussed above produces the pattern shown in Table 5.

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All available indications suggest that template use and the effectiveness of the knowledge transfer efforts are correlated.

To further our analysis, we treat the evidence as a naturally occurring, repeated-treatment quasi experiment. We do so to assess the extent to which the evidence might support the basic claim that template use enhances the effectiveness of knowledge transfer, that is, to assess the degree to which the data may be suggesting a causal relationship (Cook and Campbell 1979).

Such an approach is applicable to situations when there is only one population and where the treatment is applied, removed, and applied again to the entire population (Cook, Campbell, and Peracchio 1990). While the researcher is not expected to have control over the incidence of the treatment, he or she is expected to know precisely when the treatment occurred (Cook 1991). The specific research design is known as a repeated-treatment quasi experiment (Shadish, Cook,
and Campbell 2002) or repeated-measures design (Trochim 2001; see Barlow and Hersen 1984, for an application in psychology). The quasi-experimental nature of the design increases the need to carefully weigh potential alternative explanations.

The explanatory power of the design, which is depicted below, hinges on the repeated incidence of the treatment. $X$ indicates application of the treatment, while $/X$ indicates its removal. The most interpretable outcome occurs when $O_1$ (the first observation) differs from $O_2$, $O_3$ differs from $O_4$, and the $O_3-O_4$ difference is in the same direction as the $O_1-O_2$ difference.

$$O_1 X O_2 / X O_3 X O_4$$

The treatment in our study occurs when a template is used in the transfer. When a template is used we will expect to see both higher adoption and better performance at the recipient unit than when a template is not used. That is, we expect that $O_2$ (adoption and performance post Wave I) will be higher than $O_1$ (adoption and performance prior to Wave I) and that $O_4$ (adoption and performance post Telesales) will be higher than $O_3$. This is clearly consistent with the evidence.

**ALTERNATIVE EXPLANATIONS**

We now consider alternative explanations for the observed pattern of outcomes. In order for alternative explanations to template use to account for the observed pattern, either they must follow the same pattern as that of template use—that is, be applied, removed, and applied again (Cook and Campbell 1979, Shadish et al. 2002)—or there must be at least one plausible explanation for each one of the three waves of the experiment. To increase the chances of generating a comprehensive set of alternative explanations, we organized plausible alternatives following the quasi-experimental logic suggested by Cook and Campbell (1979), categorizing
the alternatives into selection, maturation, history, attrition, instrumentation, and testing (see Shadish et al. 2002, pg. 55). Within these categories, we begin with the most plausible rival explanation and continue in decreasing order of plausibility. Table 6 below summarizes the alternative explanations and the arguments against them.

Insert Table 6 about here

Selection: Systematic Differences in Conditions Cause the Observed Effect

One potential alternative explanation is the use or misuse of IT. In essence, Wave II may have failed by not effectively utilizing IT, while Telesales was successful solely because of its innovative use of software. However, such an explanation belies the fact that the Telesales transfer initiative succeeded not simply because of the TeleMagic software. Indeed, the template, as it existed at Dubai, provided not only the software but also the idea and proof that copy machines could be sold by telephone, the scripts for how to sell by telephone, and an example of all nine interdependent sub-processes working concurrently in a single practice. Contact software, including TeleMagic, was available publicly, but it is unlikely that a third-party software vendor could have provided the level of information necessary to recreate the superior results obtained by the template site. Telesales was not reducible to software alone as evidenced by the repeated iteration back to Dubai to solve implementation problems unrelated to IT.13

12 There are other potential categories of alternative explanations such as Ambiguous Temporal Precedence, Regression to the Mean, and Additive and Interaction Effects which are not included here as the repeated-treatment design renders them less relevant.

14 An example of non-IT related iteration occurred the first time the pilot was to make a Telesales call. That day Camarero and 29 senior managers were on hand to make the first telephone call, only to find out that they did not know what to say. How do you sell expensive copy machines by telephone? As a result, they went back to Dubai to obtain the telephone scripts.
Connected to this potential explanation is one suggesting that the pattern arises from differences in the level of complexity and interdependence among the three initiatives. For instance, Wave I was simpler, consisting of completely separate, modular practices that were extensions of existing practices, requiring only moderate levels of change while Wave II was made up of nine interdependent practices that had to be implemented in serial fashion, ultimately requiring a large change in existing routines causing the different results.\textsuperscript{14} The Telesales practice, however, effectively embodied the Wave II model. While somewhat less interdependent (embedding three of the nine interdependent modules in software), it still required the serial implementation of seven interdependent modules and resulted in the same large-scale change as Wave II. For complexity alone to be an alternative explanation, one would have to argue that the point of maximum complexity, beyond which a practice cannot be effectively implemented, lies somewhere between seven and nine serial, interdependent processes. While theoretically possible, such a result seems unlikely.

Alternatively, the pattern of success may be due to Team C’s use of pilot centers during the Telesales phase and not during Wave II. While their use for Telesales likely had an impact on knowledge transfer effectiveness, this underscores rather than negates the value of template use. One could argue that even with a complex practice, a pilot center is easier to establish because one has tighter control and may be able to engage in more rapid experimentation in order to achieve desired results. However, the practice in Dubai was transferred to six pilot centers concurrently, all of them successful within a short period of time. The case description highlights the specific role of the template in (a) persuading the heads of CBUs to undertake a pilot and (b) providing a reference during the implementation of the pilot centers as unforeseen problems

\textsuperscript{15}This is similar to the concept of multiplicative relationships developed by MacDuffie (1995).
arose. Furthermore, the pilots were then used as templates during the process of transfer to the rest of the units. In a sense, pilot centers may play a role of intermediate template. For instance, in this particular case there was some question as to whether a practice from a small city like Dubai would be relevant to large European urban centers. The use of pilots allowed for additional testing of the knowledge embedded in the template routines before widespread implementation. Pilots as intermediate templates highlight rather than undermine the argument that templates in general increase the effectiveness of knowledge transfer.

Another potential explanation is that the CBUs were under significant pressure to improve sales revenue prior to Wave I and that the subsequent Wave I success removed that pressure. While this possibly explains the lack of adoption of Wave II, Rank Xerox continued to be under some, albeit less, pressure from Xerox USA to improve performance. Moreover, the same lower level of pressure to improve performance held for the Telesales phase as well as for Wave II. Pressure would had to have been high for Wave I and Telesales and low for Wave II for this explanation to have been the cause of the pattern of adoption noted in the description.

The level of pressure for adoption is related to the issue of top-management support. Potentially Wave I and Telesales enjoyed high top-management support while Wave II did not. This is not the case, however, as all three initiatives had significant top-management support, with Wave II actually enjoying more support than Telesales. Indeed, the CEO personally introduced Wave II as one of the top priorities for the Rank Xerox western European countries the year it was introduced, something he did not do for Telesales. In addition, bonuses were tied to the implementation of Wave II while they were not for Telesales, suggesting somewhat lower support. This indicates that the observed pattern was not due to the different levels of top-management support and strengthens the case against differing degrees of pressure for adoption.
Had there been an increase in pressure for adoption, one would expect to see increased degrees of pressure or support from top management during that wave. That this did not occur during the Telesales phase argues against these two potential explanations.

It may also be that the levels of adoption and implementation resulted from a perception of the initiative as either a good or bad idea. However, the idea of coverage was fundamental to both Wave II and Telesales and dated to 1988—prior even to the beginning of Wave I. As senior Team C member Olaf Odlind pointed out, “In the beginning we didn’t have Telesales. . . . But we had from the beginning [the idea of] 100% coverage of the buying window in the sales process.” It is still possible that CBU management may have perceived the embodiment of the idea, not the coverage idea itself, as good and appropriate in Telesales and not in Wave II, but such an argument underscores the use of the Dubai template proving the efficacy of the idea, something which could not be done in Wave II because it had no template.

**Maturation: Naturally Occurring Changes Over Time Cause the Observed Pattern**

While cyclical forces in the firm’s business cycle may have caused the pattern of performance, it is not likely. Each phase of the sequence of treatment, removal of treatment, and treatment spanned multiple months and did not coincide with the natural business cycle. If this explanation were to have caused the observed pattern, one would see specific segments, such as removal of the treatment, occurring at times of the year when sales were typically low. This does not occur. Furthermore, outside the interventions observed in the experiment, the main direction and processes of the organization did not change significantly during the period of the experiment.

Alternatively, the pattern may be caused not by the business cycle specific to the firm but by the general business climate in Europe. However, aggregate GDP, after a slight decline of .37% in 1993, rose consistently through the period, varying from 1.6% to 2.75% growth. Again,
one would expect to see a period of growth, decline, and growth, coinciding with the timing of treatment, removal of treatment, and second treatment. This did not occur.

**History: Concurrent Events Cause the Observed Pattern**

Another possibility may be that the observed pattern is due solely to chance. A simplistic analysis that treats each “wave” as a transfer that either succeeds or fails yields a total of eight possible success or failure patterns. Under such a scenario, the highest probability of observing the actual pattern by chance is no higher than 15%, assuming a two-thirds probability of success for each transfer, and is 12% when assuming a more realistic .5 probability of success. At the other extreme, when each wave is conceived as 15 independent transfers (one for each of the 15 countries) the probability of all 15 countries achieving success by chance (.5 chance of success) in either Wave I or Telesales alone is a negligible .00003 per wave. Of course there is likely to be some degree of decision interdependence, although Rank Xerox country managers, especially those heading country units with natural European rivalries, enjoyed significant autonomy from one another. A conservative assumption would take into consideration the differing adoption rates observed in Wave I and Wave II, considering at least two separate groups: early and late adopters. Even considering such high decision interdependence, the probability of the observed pattern is lower than .02. Thus, it seems unlikely that chance alone could explain the observed pattern.

A similar explanation is that the pattern of results in the dependent variable is due mainly to competitors actions rather than to actions taken by Rank Xerox. However, the pattern is observed simultaneously across 15 different countries and temporally follows the application and removal of the treatment. For competitors to be the cause, one would expect variable
performance and timing of performance changes across the 15 countries, as competitors’ positions are not likely to be the same in all locations.

**Attrition: Loss of Respondents Causes the Observed Effect**

It may be possible that the results were achieved because the individuals involved were not the same in each wave of the experiment, thereby creating differential performance by virtue of differing personnel. However, Rank Xerox experienced only typical personnel changes during the period in question, with no turnover in Team C and minimal attrition in top CBU management.

**Instrumentation: The Nature of the Measures Changes Over Time, Causing Confusion With theObserved Effect**

This threat to validity involves potential measurement error in the independent variable. If change in the template itself or adaptation of the practice during the transfer process creates enough measurement error, whether a template was “used” may be called into question. However, each wave used the same process, involving the codification and transfer of key success factors (codification that clearly involved the use of templates). The implementation of the key success factors becomes a primary method for judging the extent of implementation, providing a rough measure of similarity to the original. Moreover, the Telesales initiative provides further evidence that the template was a critical part of implementation as there were multiple iterations back to Dubai to address unforeseen questions.

**Testing: Exposure to the First Treatment Affects Results of Later Treatments**

A typical threat in quasi experiments is testing, where subjects discover the nature of the treatment from their first exposure and alter their later responses as a result. This type of alternative explanation, however, is more viable in psychological tests where one is measuring
subjective states than it is in tests measuring the effect of concrete actions. The interest here is in the possibility that an action resulted in an increase in knowledge transfer effectiveness, whether or not the subjects understood the cause-and-effect relationship at the time. Nevertheless, the actors involved in the transfers did not understand the nature of the treatment until after the experiment was over, minimizing testing as an alternative explanation.

Finally, we recognize there may be unmeasured variables that account for the results. However, the repeated treatment design helps to mitigate this. The fact that the result was replicated in the second treatment, which was applied years after the first treatment, significantly enhances the possibility that the results arise from the use of a template and not some other cause.

**DISCUSSION AND CONCLUSION**

Our direct empirical investigation of template use and the effectiveness of knowledge transfer contributes to the literature on knowledge transfer, firm capabilities, and evolutionary economics. It does so primarily by yielding a replicable measure of template use and providing empirical support for the fundamental claim that template use enhances the effectiveness of knowledge transfer. Furthermore, our field evidence allows us to complement extant knowledge by suggesting several roles that templates may play during the transfer process.

**A Measure of Template Use**

We defined template use as the reliance on an organizational practice that is currently in existence, is observable, is composed of a single or connected set of processes, and is consciously used in the replication process. According to this definition, a template was not used in the Wave II initiative because it relied on existing sub-routines that were scattered throughout
Europe. Such a collection of practices does not constitute a template because those wishing to
scrutinize the original could not find the composite routine working as a complete set in any one
location. The poor performance of Wave II suggests that attempts to combine parts of existing
routines may result in decreased transfer effectiveness.

In light of this, the investigation of templates reported here contributes to the literature on
the capabilities-based view of the firm. The findings suggest that it may be difficult to parlay a
collection of small practices or the modification of an existing practice into a core competence.
This suggests a source of variance in combinative capabilities (Kogut and Zander 1992). Without
a tangible instance of the “resource” or “capability,” that is, without a template, the resource may
not really exist—at least not in a readily replicable form.

The Roles of the Template: Referent and Persuader

Templates play the role of referents during the transfer process. Specifically, through closer
scrutiny of the original, templates are used to resolve problems that arise during the replication
attempt (Nelson and Winter 1982, pg. 123, Winter and Szulanski 2001), the importance of which
is likely to increase as routines become more difficult to transfer. The Rank Xerox example
illustrates exactly such a pattern. A template was used more frequently as a referent during the
Wave III-Telesales initiative than during the simpler Wave I initiative. During Wave I the
template was primarily used as a reference by the source units and Team C to codify the key
success factors of the various practices. Iteration was infrequent because the practices, once
understood, were fairly simple to implement. The Telesales initiative was larger and more
complex than Wave I, encompassing more people and several interrelated sub-processes. As
expected, the amount of iteration between template and replica increased in the Telesales wave.
The concept of templates as referents, then, suggests an explanation for the pattern of iteration between original and copy that is seen in the data. It does not explain, however, the variance in the pattern of initiative adoption. Having access to a template does not ensure that the template is used. A referent is especially useful after implementation has begun.

The definition of template suggests yet another mechanism of operation, that of persuasion. A template, in this usage, is something that ought to be copied—being synonymous with concepts such as prototype, model, and exemplar, an “example or model deserving imitation” (Oxford English Dictionary 1989)—such as an organizational practice being transferred because of consistently superior results. This suggests that the existence of a template may help initiate the transfer. Organizations often have difficulty getting recipient units to adopt new practices. The use of templates, as scholars in the change management literature have suggested (e.g., Armenakis and Harris 2002), helps overcome resistance by demonstrating results and providing evidence of efficacy, that someone else in the organization has already done it.

Without a template there is no data on potential results and nothing to observe showing whether an idea, a composite of previously unconnected routines, or significant adaptation of an existing practice will work as planned. Recipients have to rely on faith rather than proof when making the decision to implement, thus lowering the incentive to adopt. In talking about Wave II, Camarero described this problem as follows:

“What we did was to take pieces of the best practices and create the perfect model that was seen as artificial because in reality it was artificial because nobody had this thing. There is nothing new about [the pieces]. But this [model] is absolutely new. Nobody had done it before, nobody had seen this model. So the reaction, the human one, was, ‘Oh, I will not be able to implement this thing..’ But because they could not escape that they had to do it they took the second way out saying, ‘I’m going to do it,’ with the clear intention not to touch it.”
In contrast, concerning Wave III – Telesales he said:

“I took them [to Dubai] in order to get credibility, because they look at you and they say ‘Dubai produces double?’ They don’t like it. They don’t want to believe it. This is the principal about best practices—denial. [But] they went and talked to the people and checked if it was true. It confirmed the performance. So what do you do after that? You have no choice but to believe, even if you don’t want to believe. The results are the results and nobody can go against that.”

Therefore, because of demonstrable results and evidence of efficacy, using a template is likely to increase the adoption of a transferred routine. As with the referent mechanism, the data in the Rank Xerox case fit this theorized pattern well. Wave I and Telesales both used templates and were adopted by all countries, while Wave II did not use a template and was poorly adopted. The existence of the templates and the published results they created seemed critical to adoption. With all three initiatives, data from the practices (with Wave II this consisted of data from the unconnected sub-processes) were explicitly used to persuade, and with Telesales this was combined with extensive observation of the template. With all three initiatives, recipient units were highly skeptical and unwilling to initially adopt the practices. With Wave II they remained unconvinced, as the composite practice was nowhere in operation and there was no data showing that the practice, in its totality, was practicable. However, with Wave I and Telesales, the existence of data proving successful results of the working practices as well as opportunities to observe the practices overcame the resistance.

Limitations and Future Research

Our conclusions are drawn from the study of a single company and pertain specifically to sales practices. It should be noted, however, that the type of best-practice transfer process that Rank Xerox underwent, internal benchmarking, is ubiquitous across industries, and its basic format is relatively independent of the type of practice being transferred (Camp 1989). Moreover, replicating superior templates is a fundamental mechanism underlying the growth of chain and
franchise organizations (Bradach 1998). Finally, we are not aware of any characteristics of Rank Xerox or of its served markets that would systematically enhance or dampen the effect of using templates. Hence, we expect the results to be applicable outside of Rank Xerox.

Another limitation of our study is that while we can provide anecdotal evidence of the different mechanisms by which the template affects the effectiveness of the transfer, we cannot establish systematically how and through which mechanisms the template enhances the effectiveness of the transfer. This suggests the need to further examine the specific mechanisms through which templates affect the transfer process.

As Teece (1998) points out, while there are many potentially valid research issues that one could identify in the management of knowledge assets, there are several topics that are particularly salient and warrant special attention. One of them is the need to test whether firm-level competitive advantage flows fundamentally from difficult-to-replicate knowledge assets. The analysis of Rank Xerox provides some evidence that it does. Furthermore, it suggests that substantial progress could be achieved in that agenda by attending to the concept of templates.

In specific, the rich description of the Rank Xerox example raises additional questions about templates that deserve additional study. First is the possibility that templates serve two primary purposes: both to persuade adoption and to overcome implementation difficulties during transfer. Are these the primary mechanisms through which templates operate? In addition, the description of the Telesales phase raises the possibility of intermediate templates. The concept of intermediate templates raises questions of if and when they are needed when an original template exists, their characteristics vis-a-vis original templates, the nature of their intermediate role, and how to deploy them effectively. Finally, the description of the Telesales phase also raises the possibility that suitable templates may exist unnoticed in firms. While firms have
lamented for years that they often don’t know what they know (O’Dell, Grayson, and Essaides 1998), this study highlights the potential role of top management in bringing such knowledge to light. While the idea that template use increases the effectiveness of knowledge transfer has been a foundation of studies addressing the question of differential firm performance, much work is still needed to understand the mechanisms through which successful transfer occurs.

Table 1: Extent of Wave I Adoption\(^a\) by Practice Where Data Available\(^b\)

<table>
<thead>
<tr>
<th>Practice</th>
<th>Average</th>
<th>UK Jan ‘95</th>
<th>Germany Sept ‘95</th>
<th>Switzerland Dec ‘95</th>
<th>Austria June ‘95</th>
<th>Spain Nov ‘95</th>
<th>Nordic*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Majestik</td>
<td>3.8</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Customer Retention</td>
<td>3.7</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Docutech</td>
<td>3.8</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>DocuPrint</td>
<td>3.5</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>New Major Accounts</td>
<td>3.8</td>
<td>5</td>
<td>-</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Comp. MIF</td>
<td>3.2</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Analyst Time Billing</td>
<td>3.7</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CEP</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>XBS</td>
<td>4.2</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>% Target Achieved (4 practices)</td>
<td>100%</td>
<td>150%</td>
<td>150%</td>
<td>175%</td>
<td>175%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Rated on a scale of 1-5 with 1=no implementation, 2=planned implementation, 3=partially implemented with major work still required for full implementation, 4=implemented with minor work still required for full implementation, 5=completely implemented. Concerning % target achieved Rank Xerox considers 4s and 5s to indicate a practice having been implemented.

\(^b\) All 15 Rank Xerox European countries implemented at least four practices. Implementation data by practice is only available for nine.

\(^c\) Nordic is the average for the geographic region comprising Sweden, Norway, Finland, and Denmark

Table 2: Extent of Wave I Success by Initiative

<table>
<thead>
<tr>
<th>Practice</th>
<th>1994 Revenue Est. (SM)</th>
<th>1994 Revenue Identified (SM)</th>
<th>% Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Majestik</td>
<td>25</td>
<td>45</td>
<td>180%</td>
</tr>
<tr>
<td>Customer Retention</td>
<td>10</td>
<td>21</td>
<td>210%</td>
</tr>
<tr>
<td>DocuTech</td>
<td>5</td>
<td>15.2</td>
<td>304%</td>
</tr>
<tr>
<td>New Business Major Accounts</td>
<td>5</td>
<td>5.2</td>
<td>104%</td>
</tr>
<tr>
<td>DocuPrint</td>
<td></td>
<td>4.5</td>
<td>-</td>
</tr>
<tr>
<td>Competitive MIF Identification</td>
<td>10</td>
<td>1.6</td>
<td>16%</td>
</tr>
<tr>
<td>Analyst Time Billing</td>
<td>3</td>
<td>1</td>
<td>33%</td>
</tr>
<tr>
<td>Second Hand Centralized Printers</td>
<td>4</td>
<td>2.6</td>
<td>65%</td>
</tr>
<tr>
<td>XBS</td>
<td>3</td>
<td>4</td>
<td>133%</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.1</td>
<td>154%</td>
</tr>
<tr>
<td>Cumulative Total through 1995</td>
<td></td>
<td>approx. 191.6</td>
<td></td>
</tr>
</tbody>
</table>
Table 3: Extent of Wave II Adoption

<table>
<thead>
<tr>
<th>Country</th>
<th># of Red Modules</th>
<th># of Yellow Modules</th>
<th># of Green Modules</th>
<th>% Green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>22%</td>
</tr>
<tr>
<td>Belgium</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>56%</td>
</tr>
<tr>
<td>Denmark</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>66%</td>
</tr>
<tr>
<td>Finland</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>66%</td>
</tr>
<tr>
<td>France</td>
<td>0</td>
<td>7</td>
<td>2</td>
<td>22%</td>
</tr>
<tr>
<td>Germany</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>22%</td>
</tr>
<tr>
<td>Greece</td>
<td>0</td>
<td>2</td>
<td>7</td>
<td>78%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>56%</td>
</tr>
<tr>
<td>Italy</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>22%</td>
</tr>
<tr>
<td>Norway</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>22%</td>
</tr>
<tr>
<td>Portugal</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>66%</td>
</tr>
<tr>
<td>Spain</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>11%</td>
</tr>
<tr>
<td>Sweden</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>11%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>56%</td>
</tr>
<tr>
<td>UK</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>11%</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>52</td>
<td>53</td>
<td>39%</td>
</tr>
</tbody>
</table>

Table 4: Wave I, Wave II, and Telesales Performance Metrics Compared using T-tests

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Sales Coverage</td>
<td>Not applicable</td>
<td>29.14</td>
<td>29.14 (t 0.00, not sig.)</td>
<td>32.36 (t 2.07, p &lt; .10)</td>
<td>33.11 (t 3.70, p &lt; .01)</td>
</tr>
<tr>
<td>Mean Sales Coverage vs. 1994</td>
<td>Not applicable</td>
<td>30.53</td>
<td>Not applicable</td>
<td>33.01 (t 2.50, p &lt; .05)</td>
<td>33.89 (t 2.53, p &lt; .05)</td>
</tr>
<tr>
<td>Mean Direct Sales Revenue</td>
<td>368</td>
<td>400 (t 2.50, p &lt; .05)</td>
<td>385 (t 1.36, not sig.)</td>
<td>452 (Not available)</td>
<td>481 (t 4.74 p &lt; .001)</td>
</tr>
<tr>
<td>Mean Ratio of Gross Profit</td>
<td>Not available</td>
<td>1.06 (t 2.82, p &lt; .01)</td>
<td>Not available</td>
<td>2.02 (t 7.89, p &lt; .001)</td>
<td></td>
</tr>
</tbody>
</table>

a 1995 sales coverage data were available only by geographic region (northern, southern, and central) except for the three largest countries (Germany, France, and the UK) for a total sample size of 7. In order to make comparisons with other periods, similar aggregate means are computed for geographic areas in other periods as well.

b Comparisons for 1994 versus 1996 and 1994 versus 1997 include data for each country involved in the transfer effort, rather than regional aggregates, for a total sample size of 15.

c Data for direct sales revenue in 1996 is available only in aggregate form, not broken down by country.

Table 5: Correlation between Template Use and Knowledge Transfer Effectiveness

<table>
<thead>
<tr>
<th>Adoption</th>
<th>Wave I</th>
<th>Wave II</th>
<th>Telesales</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Successful</td>
<td>Yes</td>
<td>Unsuccessful</td>
<td>Successful</td>
</tr>
<tr>
<td>Yes</td>
<td>Wave II</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 6: Summary of Alternative Explanations
**Explanation** | **Counter Argument**
--- | ---
**Selection** |  
Wave II and Telesales dependent on IT, not template. Wave II did not utilize effectively, while Telesales did. | Practice in Dubai consisted of nine interdependent sub-processes of which only three were embedded in software. Moreover, template provided (1) idea for use of software, (2) routines for how to use it, and (3) routines for connecting software to non-IT based sub-routines. Dubai clearly used as template outside of use of IT.  
Pattern is due to differences in complexity and sub-process interdependence. | Telesales similar to Wave II in complexity and sub-process interdependence.  
Pattern due to differential expectations as to ease of implementation and subsequent actions, especially the use of pilot centers. | The use of pilot centers underscores importance of templates because template in Dubai clearly used to establish pilot centers and pilot centers themselves were then explicitly used as templates.  
Pattern due to differences in pressure to improve results. | Level of pressure was similar for both Wave II and Telesales.  
Pattern due to differences in top-management support. | All three had top-management support, with Wave II having significantly more support than Telesales.  
Pattern due to differing perceptions of initiative as “good” or “bad” idea. | Idea for both Wave II and Telesales, 100% coverage, was identical. Moreover, template in Telesales was explicitly used to persuade CBU management it was a “good” idea, highlighting the value of templates.  
**Maturation** |  
Phase of business cycle caused the pattern. | The processes of treatment, removal of treatment, and re-treatment did not coincide with natural phases of the business cycle.  
**History** |  
Pattern due to luck. | The serial pattern occurred simultaneously, albeit not necessarily independently, in 15 countries.  
Pattern due to competitors’ situations. | Pattern occurs similarly across 15 countries. Competitors’ situations not likely to be the same nor to change simultaneously in all 15 countries.  
**Attrition** |  
Pattern due to personnel turnover. | No turnover in Team C and minimal turnover in CBU top management.  
**Instrumentation** |  
Changes in the template or implemented practice make it difficult to tell if a template was used. | Process of implementing extracted key success factors provides a measure of similarity. Description of Telesales implementation provides evidence of direct template use.  
**Testing** |  
Understanding of cause and effect following first treatment biases removal of treatment and re-treatment. | Actors didn’t understand nature of treatment until after entire experimental period was over, and interest is in concrete actions, not psychological states.  

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Szulanski Gabriel, Michael V. Casaburi. 2004b. Rank Xerox (C): The success of telesales. INSEAD: Fontainebleau, France

APPENDIX: DESCRIPTION OF WAVE I PRACTICES

| Customer Retention | A plan to encourage current customers to repurchase equipment from Rank Xerox by providing special incentives to salespeople for customer retention as well as technological database aids for tracking customer equipment stocks, usage requirements, and contract expiration dates. |
| MajestiK | An initiative to increase market share in the European color copier market. |
| DocuTech | An initiative to sell offset printers to commercial and educational users by focusing on overall document solutions rather than on traditional product or price selling. |
| New Bus. Maj. Accts | A plan to establish salespeople whose sole responsibility is generating new business. |
| DocuPrint | A plan to accelerate sales of the newly launched line of high speed network printers, particularly to the banking and insurance industries, by emphasizing the product’s image printing capabilities and systems integration features. |
| CSO Competitive MIF ID | An initiative for rapid updating of the Rank Xerox company wide sales database to track competitive information and provide salespeople with reliable leads. |
| Analyst Time Billing | A plan to sell the value-adding, problem-solving consulting services of Rank Xerox technical analysts. |
| XBS | A plan to educate salespeople on how to sell facilities management services effectively through the creation of simple packages and pricing options (i.e., Rank Xerox providing to the customer a packaged service consisting of both equipment and manpower). |
| Second Hand CEP | An initiative to regain control of the secondhand market for centralized mainframe printers (typically found in data centers) by repurchasing secondhand machines, refurbishing them, and reselling them to very price sensitive targeted accounts. |