Applying a knowledge-focused management philosophy to immature economies

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Abstract

As firms, especially manufacturers, seek value-creating opportunities, many are moving operations to low-cost labor centers. Can firms in the mature economies seize these windows of opportunity to increase productivity in immature economies before wages rise to make their own profits, thus increasing shareholder value? This paper contemplates the ideas that a knowledge-focused management philosophy, whether technological, process-oriented, organization structure focused, or cultural can provide managers with techniques to seize this opportunity to create value by increasing labor productivity with less expensive labor. Measuring the value created after implementation of knowledge-focused management programs can be hard and usually requires comparison to pre-implementation metrics.

Introduction

It is natural that mature economies move manufacturing jobs to immature economies in order to reduce labor costs. But with lower labor costs comes reduced skill or quality – laborers in immature economies have little skill of experience in producing goods at the quality level demanded in the mature economies. Consequently, the objective of using cheaper labor to produce identical goods is often fraught with challenges. But, perhaps there are management techniques that can accelerate the requisite learning by inexperienced laborers. Indeed, knowledge-focused management techniques offer opportunities for firms to transfer explicit and tacit knowledge from employees in mature economies to those in immature economies more quickly than wages would rise, thus allowing the firm and investors to profit on the timing difference.

As firms in mature economies relocate factories to seize lower costs in the immature economies, cheap resources can only be part of each firm's total solution[1]. What's really valuable to a firm and investors is productive labor and capital. So, mature economies (e.g. the USA, Hong Kong) are valuable to immature ones (Mexico, southern China) precisely because they can transfer their institutional knowledge to make cheap labor and capital more productive. In the future, when the laborers in immature economies are sufficiently productive they will earn higher wages[2]. At that later time, such laborers will in turn be able to afford the higher-priced goods and abundant services offered by mature economies and themselves seek to hand-off manufacturing to cheaper labor and capital. So, that is the

challenge: can firms in the mature economies seize these windows of opportunity to apply knowledge-focused management techniques to increase productivity in immature economies before wages rise to make their own profits, thus increasing shareholder value?

What is knowledge management?

Let us take a step back. What is knowledge management (Gupta *et al.*, 2000) (a more commonly-used term than our preferred term, "knowledge focused management")? Its goal is getting the right information to the right people at the right time to maximize profit. However, its role is "helping people share and put information into action in ways that strive to improve organizational performance (O'Dell and Jackson Brayson, 1998)." In economic-speak, that means increasing labor productivity. The goal described above focuses on the output of KM while the role recognizes that there is also an input. In fact, some experts describe KM's continuous cycle of input and output.

One of the key concepts in knowledge management is the interaction between tacit knowledge (that which is derived from experience and can not easily be catalogued) and explicit knowledge (that which can be documented and catalogued). Ikujiro Nonaka of the University of California, Berkeley provides an illustrative metaphor to describe this interaction: the spiral of knowledge (Nonaka, 1991). Figure 1 illustrates this logic of tacit knowledge becoming explicit and then again tacit, but at a higher level. The notion is that tacit knowledge is socialized between people (tacit-to-tacit communication) until it can be articulated (externalized), at which point

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Figure 1
The spiral of knowledge

tacit-to-explicit communication occurs. The new explicit knowledge is compared, contrasted, and combined with other explicit information to make it more widely usable (explicit-to-explicit communication). Then, as other people encounter this new knowledge, they internalize it, making the newest results their own tacit knowledge. This resulting tacit knowledge is adequately critiqued and widely understood such that the people involved in the spiral now operate on a higher plane of knowledge.

This interaction implies that operating on a higher level of knowledge represents higher value. Correspondingly, Nonaka's process of socialization, articulation, comparison, and internalization implies a value-creating process.

Building on this model, Ronald Burt recognizes that there is a cost to achieving this value. Burt describes that with higher cost (more difficult) knowledge spirals, higher value can be expected. The easier spirals often already occur within existing, cohesive organizations that naturally foster tacit knowledge. Likely, the market already recognizes this intangible asset inherent in the cohesive organization structures and has rewarded the organization's stock price with higher valuation or has increased demand for the organization's product, increasing the product's price. So, marginal improvements in such low-social-distance situations will create only marginally smaller value. The more difficult and resource intensive knowledge spirals exist when overcoming

large structural distances (Burt, 2001)[3]. Examples of such difficult, high-cost/high-value situations occur when the task involves selecting an organization's best practices to share across the large structural distances. As you might imagine, multinational corporate mergers present some of the most difficult, costly knowledge spirals but ultimately lead to large value creation.

How do we apply these concepts?

Certainly, senior executives contemplating using modern knowledge management techniques should remember traditional management techniques such as understanding your competitive structure, understanding your competitive advantage, defining the strategic problem you plan to solve, maintaining focus when implementing the strategy, and ensuring you know how to measure results afterward. In fact, use of a knowledge-focused management philosophy is not a revolutionary program, but rather logical application of high-value-added communication techniques. Additionally, executives should realize that knowledge-focused management techniques are much more than just technological tools. However, managers should be aware that they can apply knowledge-focused management techniques to accelerate increases in labor productivity and profits.

In our view, knowledge-focused management techniques can be manifested in several different channels – technologies, organizational structures, corporate cultures, or business processes. Oft-cited examples of common technologies certainly include groupware, customer relationship management software, or even more mundane statistical packages and e-mail software – any tool that captures strategic data, catalogues it, and makes it available to employees who avail themselves to it. But the key is for management to pursue actively the capture of data, the organization of data into information, the usage of information to create knowledge, and the dissemination or accessibility of such knowledge throughout the firm in employees' daily jobs. The channel (whether technology, organizational structure, business process, or corporate culture) is only of secondary importance.

Among the more easily visualized of these channels, organizational structure examples emphasize employees sharing tacit and explicit knowledge. Further, the most value-added examples emphasize those employees who actually translate tacit knowledge to explicit knowledge. Since economies' factors of production generally favor labor to capital 7-to-3, we can see that improving labor productivity (in the form of more effective organizational structures) will have a bigger "bang for the buck" than improved capital. Curiously though, it appears that firms in mature markets focus primarily on investing highly-productive capital in immature markets and might overlook investments in improving labor productivity by getting the right information to the right employee at the right time.

'... Daimler-Chrysler is an example of a company that implemented some very simple yet effective knowledge-focused business process and cultural management techniques to improve the productivity and profitability of low-cost labor and capital...'

As you can visualize, the techniques may employ some cutting-edge innovations (see Lee and Hong, 2002), but do not necessarily need to do so. Some firms have practiced knowledge-focused management for decades just in the normal course of doing business. Others are awakened to the possibility of becoming industry leaders by implementing knowledge-focused management programs (see Prasad, 2000; Beckett *et al.*, 2000).

British Petroleum has been a significant user of knowledge-focused management techniques applied to its organizational structure. Its exploration and production division (known as BPX) initiated organizational, procedural, technological, and cultural efforts to identify and share the best ideas across the global organization in order to ensure smart investments when performing expensive searches for oil deep beneath the earth. BPX's primary strength was in its use of organizational structures to encourage spirals of knowledge to create value. At BPX, managers were expected to include far-flung peers and external experts in decision-making processes as well as to rotate throughout BPX's organizations sharing tacit and explicit knowledge and challenging embedded practices with outside perspectives. Make no mistake, this is an expensive, flexible organizational structure that purposefully rotates managers and quickly creates teams from among remote managers. But, for BPX, the technique has

fostered industry-leading thinking and saved the company at least hundreds of millions of dollars (Berzins *et al.*, 1998; Hansen and von Oetinger, 2001).

Daimler-Chrysler is an example of a company that implemented some very simple yet effective knowledge-focused business process and cultural management techniques to improve the productivity and profitability of low-cost labor and capital. Its decision to manufacture automobiles (let alone its wildly successful Chrysler PT Cruiser) in inexpensive Mexico instead of the expensive US factories provides some insights into how firms in various mature markets might apply knowledge-focused management techniques to profit on the structural shift in manufacturing from mature to immature markets.

When the entire US automobile industry recognized the huge cost saving from using less-expensive Mexican labor, investors and managers were particularly intrigued. But, critics might ask, "What about Mexican labor productivity?" After all, it's not as though the Mexican laborers had experience in complicated auto manufacturing. Chrysler decided that it could identify the knowledge it had gained through sharing knowledge with Japanese and European partners and rivals along with its own Detroit know-how to purposefully share explicit and tacit knowledge with inexpensive Mexican laborers. Additionally, creating a knowledge-sharing culture at the Mexican facility allows on-going improvements to its operations. When facing an assembly problem, teams at the Mexican facility interact with employees in mature markets, share ideas, experiment, and practice solutions within their teams until they identify an optimal solution that meets specifications. Further, application of Japanese best practices for quality manufacturing alongside European assembly techniques and US-style knowledge management have created Daimler-Chrysler's second-best manufacturing operation world-wide (2001) according to J.D. Power and Associates, the auto-industry analysts. That is impressive for an operation constructed of employees, all of whom had to learn from scratch how to build cars about a decade ago. Moreover, the PT Cruiser has become one of Daimler-Chrysler's most profitable products. Manufacturing in low-cost Mexico and exporting over 90 percent of the output (mainly to the USA) appears to be a profitable formula, as Daimler-Chrysler is increasing manufacturing capacity in

Mexico and is increasing its workforce by one-third (while reducing its workforce back home) (Smith, 2001).

Technology offers some obvious labor productivity solutions. The consulting industry has embraced technology solutions, most obviously groupware applications, to share explicit knowledge across people in their global firms. Quantifying the value in increased sales or reduced costs consulting firms have experienced purely from their groupware applications is not possible. However, evidence such as all of the major global consultancies employing such networks indicates that they find such tools helpful and profitable (see Christensen and Baird, 1997).

How do we measure the value of knowledge?

Presumably, CEOs will demand to know the forecasted value of their investment in knowledge-focused management programs. Unfortunately, as seen in some of the previous examples, measuring the exact financial gain from knowledge-focused management programs is difficult at best, highly uncertain usually, and impossible at worst. Nonetheless, by predicting business process performance improvements, sometimes a financial value can be derived.

Perhaps because meaningful measurement is commonly regarded as the most difficult aspect of knowledge-focused management programs, there is a significant amount of academic research on the topic. Measurement philosophies range from apathetic (i.e. some argue it is hardly worth measuring results because quantitative results are crude and disadvantageously time-consuming (O'Dell and Jackson Grayson, 1998)) to disciplined. Any of the metrics from competing philosophies could help management gauge whether their efforts are helping or hurting. For those who do measure (and most experts argue that some measurement is sensible), measurement methods range from purely operationally-focused to financially-focused. No matter what metrics are used, hopefully, those selected can at least be presented as instructive evidence to investors to complement the public financial statements.

If corporations question whether their intended implementation would have a positive value proposition, they would logically look toward similar

implementations. Unfortunately, getting this information from competitors or other firms can (not surprisingly) be difficult. A suggestion, however, would be to work with a consulting firm to learn of their own past experiences and that of their successful implementations.

If later, after implementation, firms still struggle with questioning their degree of success operationally, a few relativistic metrics might help. In Table I are listed some metrics along with definitions and caveats.

Because measurements are difficult to quantify and because the discipline of knowledge-focused management is still nascent, prominent financial metrics do not yet exist. However, some theory exists. Building on the accounting notion of goodwill, some researchers have offered a market-valuation-based metric. Also, a few rigorous measurements have been offered.

Goodwill in accounting is defined as the premium someone is willing to pay for an asset (or set of assets) above the asset's book value. Using this foundation, Skandia AFS, Sweden's largest financial services firm, developed the following logic to capture much of the intangible asset's value. All intellectual capital can be viewed as a debit accounting entry. In effect, borrowing the knowledge from people's heads or customers' perceptions, the firm has a liability to these parties. Since accountants require double-entry bookkeeping, there must be a corresponding credit entry. The equally valued asset is the market premium above book value. This model is shown in Table II.

In our opinion, this is a reasonable perspective, but has too many flaws to be practical. First, for intellectual capital, the value of the market premium changes constantly with each trade of the firm's stocks. Does this imply that the firm correspondingly borrows or returns intellectual capital? Doubtful. Second, goodwill traditionally has a fixed value precisely because it has been measured in an arm's length transaction (i.e. a subsidiary company was acquired for above book value and the difference is now a goodwill asset). This model includes goodwill as a variable value, counter to generally accepted accounting principles. Third, because this model measures intellectual capital broadly and not specific explicit or tacit knowledge, it is difficult to know exactly what is being included. Since accounting is a fairly precise discipline, including such an imprecise measurement seems destructive.

Table I
Metrics with definitions and caveats

Relativistic performance metric	Definition	Caveat
Benchmarking	Compare your firm's key performance metrics against those of leading firms in your industry	Requires that competitors have volunteered such information as complementary information in financial statements or to authors/journalists/trade groups
Competency	At an employee level, classify the activities an employee performs before and after the program implementation. Calculate "bottom-up" values to understand how employee activities contribute to overall performance in each state	This is better suited to routine employee activities. Therefore, it will often become more difficult to measure in knowledge-focused activities
Business worth	Estimate your business performance against costs of missed or underutilized opportunities. Pose the following questions: What would happen if the information we use now disappeared? What would happen if we doubled the amount of key information available? How does the value of our information change after a day, a week, a year?	This requires visualization techniques and can serve as an important guide for action, but will not produce meaningful quantitative metrics or reflect marginal changes

Table II
Assets and liabilities

Assets	Liabilities
Traditional financial assets	Traditional financial liabilities (e.g. debts, equities)
Non-financial assets (e.g. goodwill, technology, competence)	Non-financial liabilities (intellectual capital)

Other models are less broad and, perhaps, more practical. Still, these additional models are imprecise. Some representative models are listed in Table III.

As can be seen, measurement is still imprecise. Fortunately, continuing to use traditional metrics of business processes and financials before and after an implementation can likely provide the most accurate measures of all. After all, while you may not calculate a precise predictive measurement, you can certainly calculate precise post-implementation measurements.

Conclusion

As firms, especially manufacturers, seek value-creating opportunities, many are moving operations to low-cost labor centers. When moving operations, firms can capture increased value by upgrading labor productivity while still paying the prevailing lower local wages. A knowledge-focused management philosophy, whether technological, process-oriented, organization structure focused, or cultural can provide managers with techniques to seize this opportunity to create value by increasing labor productivity with less expensive labor. Measuring the value created after implementation of knowledge-focused management techniques usually requires comparison to pre-implementation metrics. So, firms should capture existing performance metrics before implementing management changes. Firms' equity valuations might increase if the operational improvements are listed alongside traditional financial metrics, adding detail behind the traditional accounting. As more research is performed, predictive measurement

Table III
Representative models

Performance metric	Definition	Caveat
Calculated intangible value (Bahra, 2001)	Compares a company's own return on assets (ROA) with published ROA for the industry	If this measurement is used, ensure that the firms being compared all perform highly similar business functions. For example, if knowledge management is implemented in the North American retail banking department of a multinational financial services firm, compare ROA against North American retail banking industry figures, not worldwide financial services firms
Colonized reporting (Bahra, 2001)	Suggested by SEC (Securities and Exchange Commission) commissioner Steve Wallman, this approach supplements traditional financial statements (which provide a black and white picture) with additional information that adds color. Examples: brand values and customer satisfaction measures	None
Return on intangible resources (ROIR) (Bahra, 2001)	A measurement of the value creation or destruction of an intangible resource. Calculated as the negative log of the ratio of value input and value output from a resource. If ROIR = 0 (i.e. ln 1), then the resource is being serviced optimally. That is, the marginal return on the final dollar invested was zero. Any additional investment will return a negative marginal return	Dr Pike, the model's author, describes inputs and outputs in terms of soft values. He uses this measurement to gauge relative figures (which can show trends, positive returns, and negative returns), but does not show scientific absolute measurements

techniques may emerge to improve and standardize the value expected from knowledge programs. This would certainly help guide managers as they survey the impact of various knowledge-focused management options.

Notes

- 1 Indeed, if the price of labor and capital truly represents its marginal productivity, then cheap capital implies low productivity.
- 2 Interestingly, some argue that wages in China may rise more slowly than other immature economies because the incredibly large population (roughly 1.3 billion) and labor supply constantly exerts downward pressure on wages.
- 3 Burt describes structural distances as a function of physical separation and cultural separation as well as the number of people involved in a knowledge transfer. Presumably, other factors that separate groups of people in a knowledge transfer could also be included in the social distance concept.

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