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Building Better Teams

The value of external knowledge sharing increases when work groups are more structurally diverse.

A conventional wisdom about teams is that they tend to perform better when members exchange knowledge freely among themselves and outsiders. Another widely accepted notion is that diversity among team members leads to better performance because of the range of viewpoints and experience of the different individuals. But are those assumptions accurate, and how do those two factors — knowledge sharing and diversity — relate? Recent research by Jonathon N. Cummings, an assistant professor at the MIT Sloan School of Management, sheds some light.

Cummings conducted a field study of 182 work groups at a Fortune 500 telecommunications company that manufactures a variety of products. The teams had worked on diverse projects, including product development, service improvement, process management and manufacturing. The projects were mainly conducted between January 1998 and January 2000, with an average duration of 15 months.

The average team in the study consisted of eight people. Members differed in their geographic locations (including North America, Asia and the Middle East), functional assignments, reporting managers (including directors and general managers) and business units. Those four attributes were the key factors in determining the "structural diversity" of the teams. Group leaders and members were surveyed to estimate the amount of knowledge they shared with others during their project, including general overviews of their work, specific requirements, analytical techniques, progress reports and results. Senior management assessed the performance of groups on the basis of several criteria, including methods used to solve problems as well as the innovativeness of solutions.

There were two major findings. First, teams that shared knowledge, both intragroup and externally, tended to perform better. This result confirmed much earlier research. Second, as the diversity of teams

increased so did the correlation between external knowledge sharing and performance. That is, structurally diverse teams did not necessarily perform better (or worse) than their homogeneous counterparts. But structurally diverse groups did appear to be better equipped to take advantage of knowledge shared with outsiders.

Previous studies have investigated the demographic diversity of groups, such as differences in the sex, age or tenure of members. But comparatively little attention has been paid to structural diversity, which Cummings found to be a more important factor, at least in terms of team performance and innovativeness. One benefit of structural diversity is that it can help companies avoid reinventing the wheel. Consider a team in the study that was responsible for designing a new electronics device. The group consisted of nine people, located in the United States, Singapore and Israel. To develop a specialized chip for that product, the team was able to modify the existing design of a similar chip developed by another group in Israel. That type of technology transfer would have been far more difficult had none of the team members been based there.

Of course, structural diversity has its drawbacks. For instance, geographic dispersion can greatly complicate team communication and work coordination. But Cumming's study suggests that the benefits of structural diversity outweigh the costs, although he points out that further research is needed in that area. Also, additional work is required to answer "the chicken or the egg" question: Specifically, did knowledge sharing result in higher performance or did better performance lead to more knowledge sharing?

Such issues aside, Cummings advises managers to be more explicit about the importance of knowledge sharing. To encourage greater sharing, he recommends, among other things, cross-functional workshops and "knowledge fairs" to bring people together and specific incentives to motivate employees. For instance, performance evaluations could be based in part on how well workers exchange knowledge with one another.

Cummings' article, "Work Groups, Structural Diversity and Knowledge Sharing in a Global Organization," will appear in *Management Science*. Contact him at cummings@mit.edu.

— Alden M. Hayashi

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COMPENSATION

Does Repricing Stock Options Work?

If retaining employees is the goal, the answer is yes — and no.

Repricing underwater stock options won't help you hold onto top executives, but it can reduce turnover among lower-level employees. So report Mary Ellen Carter and Luann J. Lynch, who have spent five years studying the controversial practice. The results of their research are scheduled to appear in the February 2004 issue of the *Journal of Accounting and Economics.*

An option is underwater when its exercise price — the price at which the holder can purchase a share — exceeds the market price of the underlying stock. Companies can remedy this situation by reducing the strike price of their existing options. Or they can cancel them and issue new options at a lower exercise price. If the new issue occurs within six months of the cancellation, this also counts as repricing under current accounting standards.

Whatever the method used, critics attack repricing as a transfer of wealth from shareholders to the very executives who should bear the responsibility for a company's woes. In reply, firms that reprice typically characterize the strategy as a critical employee retention tool. In addition, defenders argue, repricing holds down the costs associated with overall turnover, which consultants have estimated at 50% to 200% of salary for each lost employee.

But does repricing really work? That's what Carter, an assistant professor of accounting at the University of Pennsylvania's Wharton School, and Lynch, who teaches at the University of Virginia's Darden Graduate School of Business Administration, address in their forthcoming article, "The Effect of Stock Option Repricing on Employee Turnover." After combing through hundreds of proxy statements, they assembled a sample of 74 firms that repriced options in 1998, along with 25 firms with underwater options that did not. (They excluded firms that had repriced in December 1998 because a change in accounting rules had triggered a flurry of repricings then.) All of the companies had similar incentives to reprice, based on a model incorporating factors such as how heavily they relied on options, how far underwater their options were and how well each company and industry had fared over the previous year.

Within this sample, the authors found that repricing had no effect on turnover among a company's top five executives. Between 1998 and 1999, executive turnover increased slightly more for non-repricing firms — by 5.1 percentage points on average, compared with 3.3 percentage points for firms that repriced — but the difference was small enough to be considered coincidental. Controlling for firm size and performance, executive age, prior turnover levels and the magnitude of a firm's underwater option portfolio did not alter this result.

Carter and Lynch explored and discarded a number of alternative explanations for this finding. After collecting detailed compensation information on both sets of companies, they rejected the hypothesis that non-repricing firms offered executives other loyalty-inducing incentives, such as more cash, options or restricted stock. They also found no evidence that executives at non-repricing firms had larger ownership stakes or inferior outside opportunities compared with those at firms that repriced. Instead, they concluded, when it comes to retaining a company's leaders, repricing simply doesn't work.

Outside the executive suite, the story is somewhat different. In 1997 and 1998, overall turnover was about the same at both sets of firms. But in 1999, non-repricing companies experienced nearly twice as much turnover as firms that repriced. (The authors based their analysis on a proxy measure that counted the options that were forfeited, cancelled or expired in a year. This procedure relied on the supposition that employees typically lose unvested and underwater vested options when they leave.)

Carter offers two possible explanations for these seemingly contradictory results. Regular employees, she suggests, may be more sensitive to the status of their options because these account for a larger portion of their wealth. What's more, compared with top-level managers, subordinates who are dissatisfied with their compensation may find it easier to make a move. After all, while each company needs just one chief financial officer, many firms hire legions of programmers, Carter points out.

Repricing options for those legions — even excluding top executives — can be a costly affair. After a repricing, a company must take a charge to earnings if its quarter-end share price exceeds the new exercise price it has set. (Firms sometimes evade this requirement by canceling their options and reissuing them after six months and a day.) In addition, managers must consider less measurable costs. One is the risk of diluting the options' effectiveness as incentives. Another is the danger of alienating shareholders, who often object to granting employees more protection than they themselves receive. However, on the basis of her research, Carter argues that repricing deserves a second look. "It is pigeonholed as bad and evil because it's a wealth transfer," she says, "but there seem to be benefits that companies should think about as well."

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— Mary Kwak

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ENTREPRENEURSHIP

The Truth About Software Startups

It's not the size of the budget but how it is used that determines success or failure of the enterprise.

For years, startup software companies have assumed that bringing a product to market first and then investing more than their competitors in sales, marketing and product development was the road map to a winning outcome. However, a new study charting the common characteristics of both successful and unsuccessful software companies claims that, on average, winners are not first to market and do not spend more on sales and marketing or product development. Rather, successful companies become large, profitable businesses for a variety of unexpected reasons.

In "Building a Great Software Business in Booms and Busts Alike: An Empirical Analysis of the Operational Performance of Formative Stage Companies," Bain Capital Ventures professional Jeffrey Crisan and managing director James Nahirny analyzed financial results from 1990 through 1998 for 304 publicly held software companies. Their baseline criterion for labeling a company as successful is what they call the "Rule of 126" — that is, these software companies achieved $100 million in revenue and earnings before interest and taxes (EBIT) margins of 20% within an average of 6 years after company formation. Companies were considered failures if they had never had a profitable year and had never reached $40 million in revenue.

The authors closely examined the common characteristics of the 61 "successful" and 39 "unsuccessful" companies that met their criteria and interviewed industry executives as well as academics to provide a real-world context for their findings.

A key finding is that sales-force productivity is an excellent predictor of long-term success. "Sales-force productivity is the critical differentiator," says Crisan. "In successful firms, sales forces are 80% to 120% more productive than in unsuccessful ones."

Moreover, the authors found that, on average, total sales and marketing expense had no relationship to long-term company success. Successful companies spent about the same on sales and marketing as companies that failed. In fact, operational research conducted with Jim Maikranz, former senior vice president of sales at SAP AG, and Michael Krupka and Jeffrey Schwartz, both managing directors at Bain, has led the authors to conclude that sales success is not about how much a company spends.

"It's about developing a finely honed, repeatable sales message that will resonate with customers," Crisan points out. "Only after this has been achieved can a software firm effectively grow both its sales and its sales organization."

SALES-FORCE PRODUCTIVITY IS AN EXCELLENT PREDICTOR OF LONG-TERM SOFTWARE SUCCESS.

Spending more on R&D did not necessarily produce successful products either. In fact, failed companies spent more on R&D than successful firms. For example, in the third year of operations, unsuccessful companies, on average, spent $3.8 million on R&D versus $2.4 million among the Rule of 126 companies. Interviews revealed that successful companies often obtained customer feedback early in beta testing and only invested in features that customers needed. Unsuccessful companies, the authors say, often had large, inefficient product-development teams, relied less on customer input and added features that customers didn't want.

With regard to first-mover advantage, among the 14 companies for which the authors had comprehensive data, about three-quarters of the leading products were not first to market. Examples included Microsoft Corp., which did not market the first operating system (IBM actually had one before contracting with Microsoft), and Siebel Systems Inc., which leads in the CRM market over first movers Vantive and Clarify. Furthermore, many who emerged as market leaders did not produce what was widely considered the best product on the market. Independent experts from the corporate world and academia who closely followed the software market at the time were asked to rate the eventual product winners on a scale of 1 to 5 (with 5 being significantly superior); on average, they gave the winners a 3.5 — that is, a good product, but not the best on the market.

They also refute the common belief that software must be given away initially to ensure market penetration. While all companies discounted in the first year, successful firms generally had higher gross margins in the second and third years. The authors extrapolate that these firms understood that maintaining higher prices tests a product's potential for success, inducing marketers to articulate a compelling customer value proposition.

These findings lead the authors to suggest that new software firms should emulate the tactics of successful ones in several ways. For example, they advise companies to build products to solve a well-defined customer problem; to charge a high, sustained initial price to reflect the value being provided; and to limit product complexity to only essential features. They also suggest that a sales force be developed with a targeted industry expansion in mind, only staffing fully when a company can articulate a clear, repeatable sales message to its customer base. The common traits for success, say the authors, can be used as benchmarks to gauge a company's progress.

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— David Smagalla

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CORPORATE STRATEGY

The Benefits of Managing for Value

A global survey reveals that focusing explicitly on value is a catalyst that both instigates and manages change.

Few would argue that achieving the right balance between change and control is one of management's key tasks. But after several years of declining stock prices, conservative modes of corporate governance appear to be in vogue, belying the belief that management's real responsibility is to create — not preserve — long-term value.

To investigate how a focus on maximizing stock-market valuation delivers superior returns over the long term, CFOs from publicly quoted companies based in 19 countries were surveyed. Among the 100 respondents (mainly small- to mid-cap companies along with several major multinationals — all of which managed for value), researchers found that the companies whose stock outperformed the average for their industry sectors in their domestic stock markets (so-called "outperformers") placed their emphasis on the strategic, the external and change; underperformers focused on the tactical, the internal and control.

COMPANIES THAT OUTPERFORMED THE AVERAGE PLACED THEIR EMPHASIS ON THE STRATEGIC, THE EXTERNAL AND CHANGE.

This survey, which explored each company's understanding of value, the impact of value on strategy, and approaches to operational implementation and to mergers and acquisitions (M&A), revealed three interrelated characteristics of outperformers: a new approach to M&A, a focus on strategy and an enhanced understanding of risk and value.

Mergers and acquisitions. Outperformers tended to make fewer and larger acquisitions, whereas underperformers employed M&A as a tactical tool and tended to focus on improving the postacquisition integration by creating better-designed compensation targets.

Outperformers did not use M&A to achieve growth at any price: only one-third experienced above-average sales growth, with about half achieving above-average profit growth. However, more than two-thirds of outperformers did attain above-average economic profit growth (that is, profit minus a charge on the capital used by the business), a measure of "good" growth. In this way, outperformers increased their long-term return on capital employed (ROCE), while achieving a modest increase in growth.

In contrast, underperformers were more likely to see a focus on value as a way to build a stable platform. Their sales growth for the three years before and three years after implementing a focus on stock-market valuation was three times that of the outperformers, and they were significantly more likely to justify acquisitions on the basis of growing the top line. Most importantly, however, ROCE declined 4%.

Strategy. Outperformers employed a strategy process that focused on gaining better insight into strategic choices combined with rigorous use of valuation tools. They were significantly more likely to use value drivers to focus employees' efforts, though the total numbers of managers trained or the depth and type of compensation scheme were not noteworthy. To benchmark ongoing business-unit performance, respondents used an average of two metrics, with old-style accounting-related measures (ROCE and return on net assets) being the most common ones.

Outperformers did not relegate planning and strategy formulation to finance or business-development units. Instead, they used a different process to avoid becoming overly focused on costs and short-term earnings. First, they used value to gain a better understanding of the implications of their choices.

Secondly, outperformers combined creative thinking with analytical rigor. A striking observation was that the top one-third of companies in terms of performance used a greater range of valuation tools, with discounted cash flow being the most popular. However, outperformers were twice as likely to use comparable multiples and four times as likely to use real options. Comparable multiples provide an important external dimension, and real options help to model flexibility and the value of information.

Risk and value. Outperformers were significantly more likely to drive their focus on value by implementing a companywide "managing for value" (MFV) program. In other words, a serious attempt to focus on value appeared to work. Perhaps more interestingly, the survey results show that outperformers and underperformers used different approaches to risk management.

Outperformers were more focused on external risks, such as being overtaken by the competition, their position in the value chain or losing a major customer. This strategic thinking appears to have made them better aligned with the capital markets. In contrast, underperformers were more concerned with internal reporting and control. For them, MFV was more a tactical tool whose adoption coincided with a severe decline in corporate performance — implying that it had no impact or had even made things worse.

The 2003 report is "Outperformance: How To Achieve Better Returns in the Long Run" by P. Roeloffs, Rotterdam School of Management, Erasmus University; M.A. Rosellón Cifuentes, PricewaterhouseCoopers Netherlands and Rotterdam School of Management; and B. Savill, PwC Netherlands. Contact Rosellón at miguel.rosellon@nl.pwcglobal.com.

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