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On September 19, 1997, our name was formally changed from Revay and Associates Limited to Revay Stanley Inc. We, of course, needed time to implement the change; first, we wanted to use up existing stationery and have the new one printed, including business cards, cheques, etc. We have decided, therefore, to make the change official as at January 1, 1998, although proposals, etc. that we have been submitting since September 19, 1997 are made under the new name. From now on, all written communication you may be receiving from us will be in the name of Revay Stanley Inc. The change, as you can see on this issue of the Revay Report, has also affected our logo.

The acquisition of our firm by the Stanley Technology Group took place on August 22, 1994, and was brought to your attention in the December 1994 issue of the Revay Report, where I said, in part:

> *"When this issue reaches you, we will be celebrating our twenty-fifth year, and it was high time to think about ways and means of assuring the continuity and growth of the company."*

In the same issue I pledged to you that both the quality and the scope of our services will continue as in the past. You will, I hope, agree that I kept my word, and the company remained as independent as it has ever been.

The change of the name will not alter that commitment, particularly with respect to services in the field of dispute resolution. It should, however, underscore our ability to serve you from a broader base and with greater additional capacity, especially, in areas of project and construction management services. The Stanley Group has also grown considerably in the interim and the pool of talent we can call upon today to assist us in our services is much deeper and more diversified than it was in December 1994.

It is, perhaps, appropriate in light of the above that the lead article of this issue attempts to look into the future with the view to emphasizing our commitment to our readers always to bring forward looking and generally informative opinions.

What Does the Future Hold for Project Management?

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ABSTRACT

Over the past few years, we have been collecting the best practices of different industries using both formal and informal methods. Some interesting trends emerge pointing the way towards where the profession of project management is heading. By understanding the underlying causes and drivers for change, we can rationally predict where these changes will lead us.

The impact of key technologies, available information and societal influences on projects and their success are presented in this paper. These changes will be profound, powerful and far-reaching. Just three of these include the following.

- Technology and engineering knowledge will continue to double every three to five years, and will likely go faster. Even the largest companies will not be able to retain the required expertise for their core businesses in-house. This will lead to more outsourcing and more on-going training, as well as a growth in the use of alliances, even with traditional competitors. In turn, this will change how we manage projects.
- Telecommunications will merge fully with computer technology, leading to new approaches and attitudes towards information, its security and value. This will have a powerful impact on the management of projects as access to, and the use of, new technologies will be diverse within each significant project. This will extend project management to include technology bridging challenges.
- The gap between the rich and the poor, technology "haves" and "have-nots" will continue to grow, changing both business relationships and viability, as well as the social environment in which we work, making it more volatile than before.

What will these changes mean to the successful project manager? Examples of how some multinational project-oriented corporations have started to prepare for future change is used to illustrate the evolutionary process required to prepare for the projects of the next century.

BACKGROUND

The studies and reviews that led to this paper were driven by the search for best practices in project management. This search, in turn led to development of SMART Project Management. SMART is a project management approach that takes advantage of many existing best practices and a few innovations that help to make these prac-

tices work well together. The resulting process has led to step changes in performance with up to 25% improvements in cost and schedule performance while improving quality. These improvements are based on documented results of field trials in industry.

The overarching issues that emerged from field trials of SMART were linked to two elements. The first element was the working environment and the second was the rate at which this environment was changing. Addressing a static work environment is relatively simple, and is being addressed through the use of the Project Management Maturity Model being developed at The University of Calgary.

This project management maturity model identifies five performance levels for project delivery. To move from one level to the next, all elements of the lower level must be in place. This ensures that the development of project management skills is based on a solid foundation. This structured approach to the development of project management skills is expected to help organizations improve performance for project delivery in a sustainable way.

Addressing the changing and evolutionary nature of the work environment was — and remains — a bigger challenge. A number of large-impact elements were sought, not as exclusive elements that will impact on future project management, but as ones that will significantly change the way we think of projects in general, and their management in particular. Three significant changes were identified, and are examined below.

THE THREE BIG CHANGES

1. Burgeoning Technology

We are seeing the amount of technology available to us doubling every three to five years. This is phenomenal growth that affects the way we do business and the way we live. Yesterday's luxuries are rapidly becoming today's necessities. The capacity to handle the increase in technology options, or even to stay current in any specific area, is decreasing inversely to growth.

There are three ways in which we can handle this. We could double the number of people involved in our business every three or so years. Nobody can afford to do this, as they would price themselves out of the market. We could double the intelligence of our employees each three to five years. There is no evidence of that happening. Or we could do something else. There is a growing body of evidence that we are doing the latter! Here are some of the things we are doing in businesses today.

- We down-size (or right-size!) and after a year or so we are back with the same headcount we had before, this time using consultants.
- We "focus on core business"
- We redefine this core business on a regular basis, making it more focused each time.
- Work that a few scant years ago was "core" to our business is now being out-sourced (such as payroll, recruiting and personnel services, IT services) or is being done through alliance-based groups (such as manufacturing, R&D, marketing and sales).
- Small cottage-industry businesses are recognized as leaders in specific technologies or other forms of expertise and are used as parts of larger teams, where previously such teams were all in-house.
- Competitors are sharing information and resources in areas that were previously considered too sensitive for this to happen.

All of these "emerging" practices are symptomatic of the need to capture the expertise we need to sustain our business. This expertise is now broader and deeper than it ever was — a direct result of explosive technological growth.

Alliances and outsourcing will be the way of surviving in business in the future, as this is the only way in which mutually dependent businesses will be able to carve out a niche in which they can survive. This, however will bring its own suite of challenges. Not least of these will be the need for team members on the inter corporate projects to speak the same language. They will also need to develop their own culture and way of doing business that will likely be independent of the culture of any of the participating organizations. One important issue in this is the need for a common language.

The primary — and arguably the only — source of failure in projects is a breakdown in communication. As we move towards larger teams with more specialized team members, so the challenges we face in effective communication will grow. Technology will impact on our ability to communicate as we develop our use of language to catch up with innovation.

Language also varies between team members, and cultures. If one department or corporate culture dominates a project, then all the project team members from other parts of the organization will be placed at a disadvantage as they try to learn the game rules, norms and language of the dominant (and imported) culture. The resulting imbalance will likely lead to friction and other problems.

Interestingly, as technology has grown, companies and nations have worked hard to develop standards for specific technologies. Examples abound in computer languages, data transmission protocols, process technologies, telecommunications ISO Standards and more. As we move towards increased collaboration between disparate companies and individuals, the need for standards in business management of technology will likely become a necessity. Standards in management practices will help to reduce learning curves, will overcome some cultural barriers and will reduce the amount of rework that is the result of miscommunication.

2. Enhanced Telecommunications

Arguably this is a subset of the previous item. However its impact is so large that it deserves to be considered separately. Telecommunications are merging with other technologies, so that telephone, fax, e-mail, cellular phones, the Internet, computers and television will become essentially the same to the end user in the next few years. As this happens a hierarchy of users will emerge. The richest will have access to the best, while others will only be able to afford lesser subsets of these technologies. Access to technologies will dictate the degree to which we can compete in some industries, and eventually in any business.

Technology "haves" will develop and fight to retain advantages over "have-nots". If human history is going to repeat itself, we will likely see trade barriers develop through the use of technology and language. This trend — if it occurs — will create significant communication challenges as organizations with different levels of communication technology try to do business together. The spotty use of electronic data interchange (EDI) today is perhaps symptomatic of the start of this trend.

Information sharing through today's technology is orders of magnitude easier than it was before. This has a flip side too: illegal or accidental sharing of the wrong information is also much easier. This in turn will increasingly raise issues of who owns intellectual

property. Already a significant barrier to business opportunities, intellectual property issues will continue to be complicated as proprietary information is shared more between businesses.

3. Societal Shifts

Technology haves and have-nots are just one aspect of the next decade's business environment. Already we have seen a shift: most home computer systems are more up-to-date than the ones that the owners use at work. In some communities, it is the exception to find a home without a computer (and in some households, several computers), while in neighboring areas the converse will be true. Individuals may well hold the technological clout that some organizations cannot afford to maintain in the future. Alternatively, technology distribution in organizations will become more diverse as fewer people will be kept current with the latest and best in technology. These few people will likely be chosen for strategic advantages, perhaps based on their role or their need for technology in order to be effective, as well as other factors.

Thus, within communities as well as within businesses, there will be a growing rift between those who have access to technology and those who do not. The people with access to the latest and best in technology will have significant competitive and informational advantages over those who do not. This will contribute to the already visible and growing gap between the wealthy and the poor.

Just as when we entered the industrial revolution we saw new social classes emerge and we saw significant social unrest, so we may well see similar changes as we step into the knowledge era. Large parts of our society are being disenfranchised by the changes that are taking place today. Old standards that dictate social standing based on wealth, position and how you earn a living will need to change. As project managers, we have an increasingly important role to play in addressing the societal issues that our projects create. These may have to do with job creation or with breaking others' bread bowls. As project managers, however, we have limited control over the larger impact issues such as this. We need to bring our clients along with us . . .

CORPORATE RESPONSES

We have already discussed the three responses possible by corporations, and seen that the only viable option is already under way. Many project managers on large or interdisciplinary projects are already struggling with cultural, social and conflicting business issues. They will typically find that communication has become more than just a mechanistic process. And these issues are currently not really addressed well. As one example, team building is only part of the solution to effective communication. Which raises the question of why we seem to need team building more now, when we did not seem to need it in the same way ten years ago?

Where is all this leading? Corporate responses have been mixed in reacting to the changes that are taking place. They include the following elements:

- increased use of alliances and other longer-term business relationships
- increased use of risk-sharing processes in contracts
- more collaboration with the competition
- more out-sourcing of non-"core" businesses
- increasingly focused and narrow definitions of what core business is all about
- greater use of external expertise in core business
- role shifts into two main categories: specialist producer and integrator
- more collaboration on the development of technology standards

All of these changes point towards blurring of corporate entities, just as we are seeing technologies blurring. The interaction between companies or legal entities will become much more complex to accommodate project needs within the core competencies of the businesses involved. Key individuals or small businesses with niche technologies or expertise may well carry dominant roles in projects involving multinationals. Some standards in management become an obvious need in this new work environment.

FUTURE TRENDS

Technology growth will not slow or stop. It will accelerate. So the changes already discussed will continue to happen, only more quickly. Risk will undoubtedly increase. As a result, alliances and other shared risk, resource, expertise and technology relationships will need to evolve and develop. The roles of specific players in the project will likely change as a result. Previously we saw three or four clear roles, splitting the project vertically: Client, Designer (Engineer, Architect, other), Constructor and Operator. Now we are seeing horizontal splits as well, as companies reconfigure themselves as Producers, Integrators, Distributors, Marketing and Sales and possibly other splits of the traditional business package.

Exchange of people between organizations will also be likely in the future. Already we see the use of a "hired gun" for project manager as well as other key team members on projects. It is likely that new joint venture companies will be formed to act as employers or brokers for employees who are then shared between the different organizations.

Some construction industry specific changes will include the following.

- 3-D CAD and GIS will likely merge to create richer virtual design environments in which real-time simulations will be possible.
- Internet-based trading will create a truly global market for goods and services.
- Contracts will become simpler with greater reliance on trust as the number of contracting organizations and the complexity of relationships increase.
- Robotics and automation will, at long last, take over many areas of the construction process from design through contract administration to logistics and construction in the field.
- Constellations of companies will establish themselves as habitual partners or alliance members in order to compete more effectively.
- Projects will be integrated vertically (owner, designer, contractors, suppliers) as well as horizontally (process plant, co-generation, hotel expansion, real estate speculation, etc.).

There is strong evidence of many of these things starting to happen today.

STARTING TO SOLVE TOMORROW'S PROBLEMS

The first thing that becomes obvious is that we will need stronger and more universally acceptable standards for project management skills and expertise. These skills and the required expertise will likely go beyond PMBOK as we know it today.

SMART Project Management, the product of three years of research into best practices in several industries and testing of ideas on live projects is a start on this process. What needs to be challenged is whether it is the right start. And where it needs to go next in its evolution, to prepare for tomorrow's needs. Already SMART Project Management has demonstrated significant savings to its users. And its users — so far — have been experienced and skilled project managers and their teams.

Interestingly, though, despite significant savings in both cost and time, as well as discernible improvements in quality reported by participating companies in the use of SMART, it seems to be a non-sustainable process. The problem is that teams revert to old practices as soon as they can. The problem has been diagnosed. Without a solid foundation of good project management practices as promoted by PMI, there can be no sustainable enhancement in project performance.

To address the need for a structured growth of project management skills, the Project Management Maturity Model was developed. This model has five levels. The first one is where everyone starts. The second is where you would be if you were a PMP and your employer or client allowed you to do everything you know to be needed for effective project delivery. At level three, predictable project outcomes are a symptom of achievement. Level four gives you performance at about 25% to 30% better in all aspects than equivalent projects bench marked at level 1. The fifth level is for those who can consistently outperform those at level 4 through controlled and managed continuous improvement. The model is currently being refined and will be tested and published by the author.

CONCLUSIONS

We need to start acting now to address future changes — at least the ones that we can reasonably predict. We can influence the future. Let us do so constructively to improve project management and its value to business. This is bigger than any single organization, association or institution. It is a project in itself that will require careful planning to be implemented effectively. Developing some global standards for project management in the next century will achieve the following.

- We will speak the same language, and thus will reduce communication problems
- Learning curves for new teams will be significantly reduced
- Errors and rework will be reduced or eliminated
- Process improvements will be shared and thus will be easier to implement and will do the most good

The bottom line is SOMEONE will do this work. And the participants will benefit from the results, gaining competitive edges through faster and more effective delivery of projects and the related products to market.

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