

S 2 I NEWS

October/November, 2003*

S2I News is a monthly publication of Strategies 2 Innovate. It aims to present information on topics important to today's business leaders. We hope these articles will help you develop a clear framework useful for guiding your organization's innovation and strategy.

This is the first edition of a new series examining the challenges organizations will face over the present decade in the area of innovation. Our past series include developing a core competence strategy and best practices for managing innovation.

Strategies 2 Innovate supports business leaders in developing and implementing successful innovation strategies. Read about us and visit our **knowledge portal** at the web address below, or call us toll free at 1-866-978-8242.

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Innovation During A Decade of Challenge

As the present decade unfolds, organizations will continue to face major challenges in the area of innovation. The basis for these challenges, we believe, stems from three main factors. First, we have just witnessed an incredible decade and a half of innovation in information technology that has permeated almost every industry sector. For those students of innovation theory, what we have seen could well be described as a techno-economic paradigm⁵³. These are long periods of intense technological change characterized by rapid economic growth opportunities. Past historical examples⁵⁴ of such phenomenon include early mechanization, steam power and railways, electrical & heavy engineering, and Fordist mass production. The current and fifth wave of technological innovation is that of the information and communications technology wave of the 1990's.

Each of these past periods of intense economic activity has been followed by recession or depression. Although similar in nature to the common business cycle of expansion and contraction, the contraction period associated with techno-economic paradigms can cut much deeper. What we have seen in the past three years after the bursting of the tech bubble has been just that – an extensive contraction in economic activity with massive layoffs in the technology industry.

The second factor relates to what are called key factor industries. These industries provide the fuel that drives techno-economic paradigms. For the railways it was the steam powered locomotive, for the current ICT wave it is microelectronics technology.

Advances in microelectronics have made possible ever increasing performance levels of personal computing and associated software applications, as well as larger scale computing capabilities in mainframes and workstations. These have opened the window for powerful business applications such as ERP and CRM to become common place within organizations which, together with office applications, have given rise to the massive productivity gains seen over the last decade.

So where's the problem in all of this? Well, advances in microelectronic processing technology are now seeing the limitations of their own success. The progress of performance increase over time has closely followed what is called Moore's Law. Devised by Dr. Gordon Moore in 1965, it simply states that the number of transistors (the basic building block of any silicon chips) per square inch would double every 18 months. This trend is made possible by continual advances in manufacturing technology requiring ever increasing investments in capital equipment.

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*Editorial: Due to factors outside of our control, we have combined our October and November issues. See the end of this newsletter for a brief explanation.



LARRY VAN DEN BERGHE, Ph.D.

Larry van den Berghe is the Founder and Principal of Strategies 2 Innovate. He has 20 years international experience in the aerospace and information and communications technology industries in England, Australia, Singapore and Canada. He has been an active manager and contributor in R&D and new product development in electronics, VLSI and software. He holds two US patents, one UK patent and has a number of publications. He is a Chartered Engineer (UK) and a Fellow of the Institute of Electrical Engineers.

Larry is also an adjunct professor for the Management of Technology @Distance graduate program at the University of Waterloo and a past faculty member with the Technical University of British Columbia. He has developed courses in new product development, strategic management of innovation and technology, entrepreneurship and knowledge management. His recent research on core competencies examined the adoption of emerging technologies for product innovation within the Canadian information and communication technology industry.

He holds a Ph.D. in Management Sciences (Management of Technology) from the University of Waterloo, a M.Sc. in Microelectronics (with Distinction) from Middlesex University, London, U.K. and a B.Appl.Sc. in Applied Physics from Curtin University, Perth, Western Australia. Larry has served as Chairman, Board of Directors, serves on the Education Committee of the Saskatchewan Advanced Technology Association and is V.P. Public Relations of a Toastmasters International Club.

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These new production lines are being installed at sky rocketing costs. In order to achieve required returns on invested capital, these manufacturing plants need to work at high utilization rates. The combination of high utilization together with huge manufacturing capacity means that silicon chips must be pumped out in massive volume.

This brings us to our third factor – saturation. We have all witnessed how the excessive rate of capital expenditure in the global telecommunication infrastructure over the last decade came to an abrupt end in 2000. The market became saturated and infrastructure over-invested on a global scale, tipping the business cycle into a contraction phase that spread across many industry sectors. We are now only just seeing a slow return to

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growth after almost four years of contraction, inventory depletion and product lifecycle completion.

This new growth, however, will not match that seen in the past decade. We believe that the capacity of our key factor industry, microelectronics, has outpaced the global volume capacity to absorb its new products. This excess capacity will remain until new applications appear that are far more complex and require greater levels of silicon integration. The challenge is that such applications do not currently exist and far exceed the requirements of ordinary users. This self-limit comes as we approach the top of the innovation s-curve.

Next issue we continue this theme by looking at how we believe organizations should adapt to this environment and how new industry leaders will carve out their place by adopting a more integrated approach to innovation. See you then!

Larry van den Berghe

For more information and for references to the literature as identified by superscripts notations (e.g. ¹) please visit our innovation strategy knowledge portal www.strategies2innovate.com and follow the links to “Knowledge References.”

Editorial Continued

Factors outside of our control resulted in an unstable internet service and webpresence causing us to delay transmission of our newsletters. We now expect a stable environment from our new internet and web-hosting services providers and are pleased to resume our newsletter distribution.