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Organizing dreams: Exploring futuristic manufacturing perspectives

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ABSTRACT

Purpose: Technology is now fast transforming how we are to supply within both the services and manufacturing industries. Also with virtual reality technology rapidly becoming available – much user friendlier and affordable - the next challenge is to supply not products but dreams. The purpose here is to explore the possibilities in the manufacturing of dreams of customers.

Methodology: Instead of drawing on psychological literature, the author taps on deep Indian philosophy in exploring the meaning of the unconscious, dreams. Using the ancient, Indian OM [as a glyph in Sanskrit] - widely accepted in spiritual circles as the primordial sound of the Universe - symbolism as a metaphor, the author suggests that deep dimensions of competition --- and roots for future excellence may lie in meeting products that are dreams of customers.

Findings: The author then explores from the Indian conceptualization of dreams to the current practices in supplying the products customers through supply chain management. He finds that large corporations are in an age of knowledge-driven economy, more members of a supply or rather, innovation driven chain. Perhaps chain is too rigid, sequential a word. A better metaphor may be as part of a molecular structure, one that interconnects one organization with several other firms globally.

Research limitations: The community of global manufacturers has yet to clearly realize that the key driver behind the customers' relentless pursuit of quality and best prices --- and as is argued here, increasingly, their dreams lying hidden within the realms of their unconscious.

Implications: At present, there appears to emerge a polarization in terms of organizing of functions: conceptualization of product in the US, with services (soft but labor intensive aspects) in India and the hard, implementation and manufacturing as well as production routed to China. The full impact of what is discussed in this paper will be realized later when global manufacturers seek to conceptualize products not just for the US markets but also for the swelling demand in China and India.

Originality and Value of Paper: With the rapid rise of both Indian and Chinese economies with impact on global management, it is essential for scholars to integrate ancient philosophy. Given the tremendous pressures to meet demand of the future, interactions-oriented, internet-based customers, manufacturing organizations may have to design newer, technology-enabling forms of organizing.

Introduction

One of the recent, highly popular ideas is in the EQ [emotional intelligence] concept. Now for those who lead, he or she must not only possess IQ, intelligence quotient but to score high on the measure of emotional intelligence. In this paper, we like to add to this, yet another critically important dimension: spirituality. Or if you like the terminology to be consistent with concept of quotient: SQ, as the spirituality quotient. Can we who do research into organizations, ignore spirituality when the world is now plagued by a phenomenon, perhaps far worse than a killer virus: terrorism? It is for very good reasons that we deliberately avoided the term, religion. For being spiritual is not exactly the same as being religious. It is outside the scope of this paper to enter such a debate. Simply to say that one may become spiritual yet he or she is not burdened by religious dogmas. Dogmas often divide rather than integrate humanity. What is interesting to discover is that when one extends research to its frontiers, one inevitably has to turn to spirituality for deeper insights. It is much akin to the field of quantum physics (see for example, *Visionary Window*, Goswami¹). In this paper I shall illustrate how very ancient spiritual concepts may be drawn upon to enlighten us in organizing manufacturing for future, internet savvy customers.

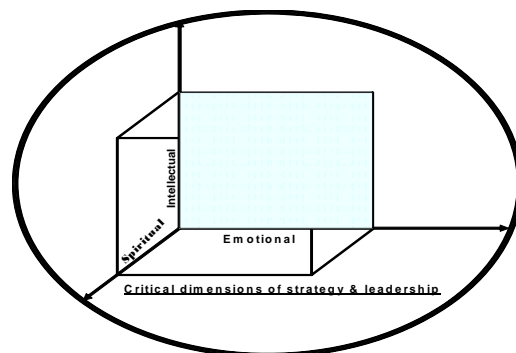


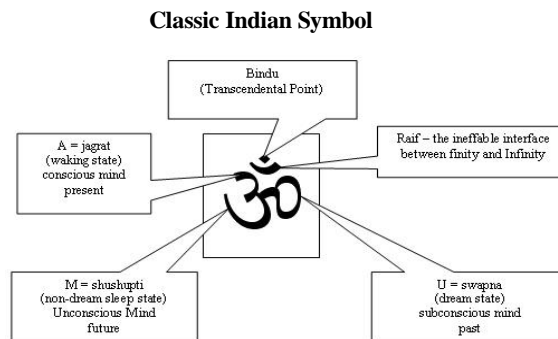
Figure (1): Intellectual, Emotional and the Spiritual

¹ Goswami A., *The Visionary Window: A Quantum Physicist's Guide to Enlightenment*, (2000), Quest Books.

Spirituality

In the realm of spirituality, one of the most ancient and universal symbols is OM. Here we draw upon its basic elements as is commonly and popularly understood within spiritual circles. Increasingly in a highly interconnected universe, we should in our writing and research acknowledge not just recent published literature as is customarily done but as responsible scholars acknowledge the deeper, more ancient roots to the seeds of our ideas. This is only logical for unlike the past, many of the Eastern spiritual traditions there are now widely acknowledged in the West and there are often Western masters in Eastern spirituality. In writing this paper and commenting on symbolic meanings of OM as a glyph, I found it useful to draw for use as an illustrative diagram, the symbolism as presented by Swami Nishchalananda Saraswati that is available on the internet (see note to the Figure below). One aspect of OM that is particularly relevant for my work here is in this symbol as one encouraging besides symbolizing the "...formless into form..." A concept I shall utilize as a basis for organizing the manufacturing of dreams. Briefly what are the elements of the glyph representing the sound of OM? To begin from the top, it is *bindu* --- that is the point of transcendence. Perhaps, instead of transcending, we use the term in an analogical sense, as transforming. As applicable in manufacturing industries, where the brought-in raw materials are put into continuous production flows and are transformed [in some cases, assembled] through manufacturing, production flow processes into products. So theoretically, there is in manufacturing, similarly, a *bindu* [or point] where the product emerges out of the underlying materials or many, many parts. The whole product is much more than its parts.

Now there is the curvy stroke just beneath the *bindu*, the *raif* which is as presented in Figure (1) an interface. The divide between what is the finite and an opposite quality, that which is infinite. In other words, ascending beyond the *raif* [interface], what is once infinite becomes finite. Together, the concept of *raif-bindu* may be seen as demarcating the point of transformation: of the materials, parts and other inputs [heat, chemicals, energy, etc.] into *finite* products. What remains are these symbolic elements: *jagrat*, *shushupti* and *swapna* within OM may be bundled together under one word, simply as aspects of the states of the human mind. The conscious state of being is indicated as *jagrat* and other states of the mind as in the subconscious [*shushupti*] and dream [*swapna*]. All these elements of the glyph are portrayed as lying beneath the *raif-bindu*: the divide between what is yet-to-be [infinite possibilities] and the definite or finite, having passed through the *bindu* point of transcendence.



Source: http://www.mandalayoga.net/index-newsletter-en-mantra_om.html

Figure (2): The Symbol of OM

Having explained the elements of OM², I turn next to develop my paper on the future, one of new, enabling technology.

A future of enabling technology

In the not too distant future, technology will become available that enables a 'richer, more colorful and even playful' dreaming of products. All this to happen before organizations actually supply them. Moreover with the growing availability of the visual technology (photography and now, towards moving images) being embedded into daily use products, especially hand-phones, future customers are expecting manufacturers to have on their website, three-dimensional visualizations of their dream products. The global scene of manufacturing is now changing at a far more rapid speed than ever before. For example, the competitive edge now for suppliers is to also bring forth innovations (see, Schildhouse, 2006) thus changing the focus of supply chain management. The development of the logistics industry had largely been transformed, fueled and driven by internet technology. Writing about enhancing corporate performance through value-added productivity in the late 1980's (Foo, 1989), the critical focuses then tended to be internal with throughput performance metrics. That is the attention was on the production floor, focused on transforming raw materials into finished goods.

Once logistics, now chained supply

To properly grasp what is happening in today's world one has to make sense of the big picture (one possible depiction is in Figure () below) in the transformation of the logistics scene as wrought by the internet. Of particular interest here is in the *buying-in* function that had been transformed in phases from mere internal data processing to integrated logistics strategy and now still in practice of supply chain management.

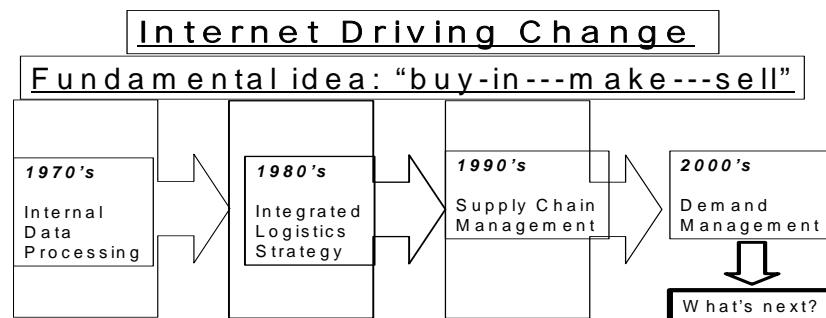


Figure (3) Internet Driving Change

The change is still on-going and a clear trend is a tendency towards demand management. Such a transformation towards demand must be read in context of the

² For more explanations: <http://hinduism.about.com/library/weekly/aa022200.htm>

internet. Even more subtle social changes may be expected when newer technologies are in place that may facilitate more personal, direct mode of communications. Not just in a portion of the communication net but as patterned in the above Figure, across many lines over the globe and at any one time. That is when the time comes with newly implemented technologies are put in place enabling richer, deeper and more personal exchanges of intentions, ideas, and even possibly of what one dreams of through the media of face-to-face, voice-on-voice communications. Costly technologies when embedded allow for direct face-to-face communications. Now, imagine this happening across the globe when these are embedded as part of the standard computer, note-book or even i-pod purchases.

Project Risk in Internet Age

One key implication of the internet fostering global, massive interactions is the heightened risk of investing in new projects. In the past, the motto in economics is in seizing *first mover* advantage. Is that still as true for all products? Maybe the advantage may also lie in being most effective, first follower who enhances on the product concept. Now for the implication on project risk: as information travels at the speed of a click, competitors globally are able then to quickly strategize what the *next* generation product is likely to be. So any sales projections a manufacturer relied for mass producing even a winning product are likely to be thrown off track. *Why?* The competitors globally are very likely to respond in just a year or even months, no longer a decade with an even cheaper, more effective and thus better selling model.

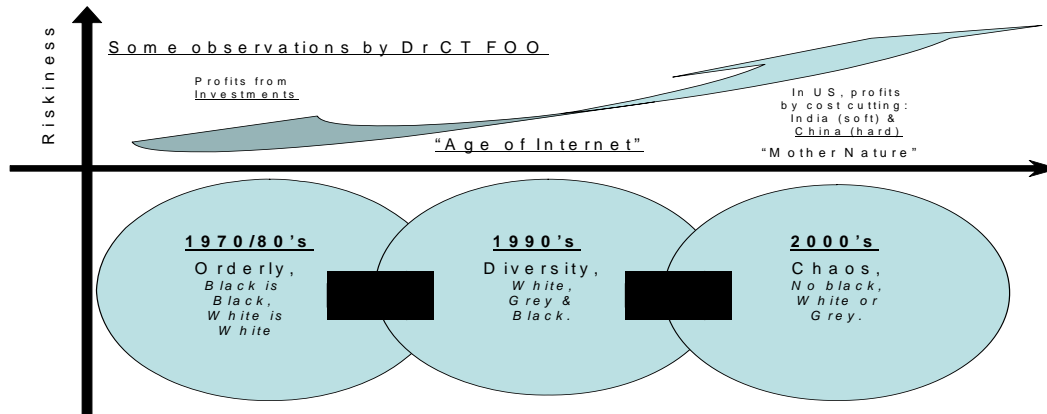


Figure (4): "Riskiness" of Projects

How do you then reduce the inherent, production risk?

That is of having produced unsold quantities in the internet age. The strategy should be to shift investments in *supply* i.e. push technology towards technology enabling *pull*, demand oriented.

Mind of Customer

To properly do this, managers of corporations in the future will have to learn to grasp the minds of customers. As it is already known in Western psychology, there are the unconscious [subconscious] and the conscious aspects of the mind. Yet these

concepts are nothing new to Indian mysticism and spirituality. The subconscious and conscious as well as very interestingly, dreams are all depicted as part of the elements that made up the very ancient symbol of OM. The key as is illustrated in Figure (5) below. What is critical is neither in the push nor pull but in enabling meaningful, dream product interactions. That is in having technology in place for customers to communicate to organizations not their product choice *per se* but their dream product. That a customer is able via technology, show-case to the organization what is in their dreams. In other words, let the prototype of the next product emerge through technology enabled interactions with customers.

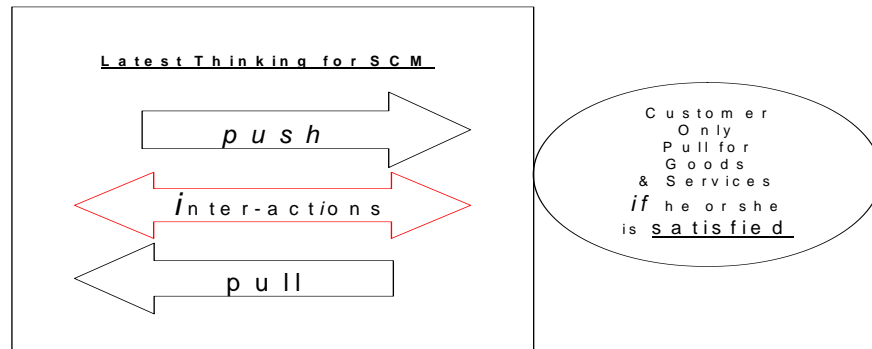


Figure (5): Customer interactions

The Artificial Manufacturer

There is an underlying circular dynamic in the currently popular notion of mass *customization* strategy. That manufacturing had traveled a full circle. In the past, in the era of the craftsmen, it was a case of providing to the preferences, needs and requirements of one customer. Following the onslaught of mass production manufacturing across the world, the goal was to satisfy the needs of the typical customer, now it is for satisfying *any* even one customer. The challenge is to do what is possible via new technology to meet the specific requirements of the customer --- and at affordable prices. Conceptually, the future of manufacturing for consumer goods is likely to gravitate towards these two critical aspects. Of the two, the least developed and yet most important is in the *configurability* of product. The idea is to design a process where the customer is able to realize through configuring technologically, his dream product. The other is in *automated* network of firms to realize the dream for the customer. That is to supply the customer's uniquely configured product yet the product is manufactured at an affordable price.

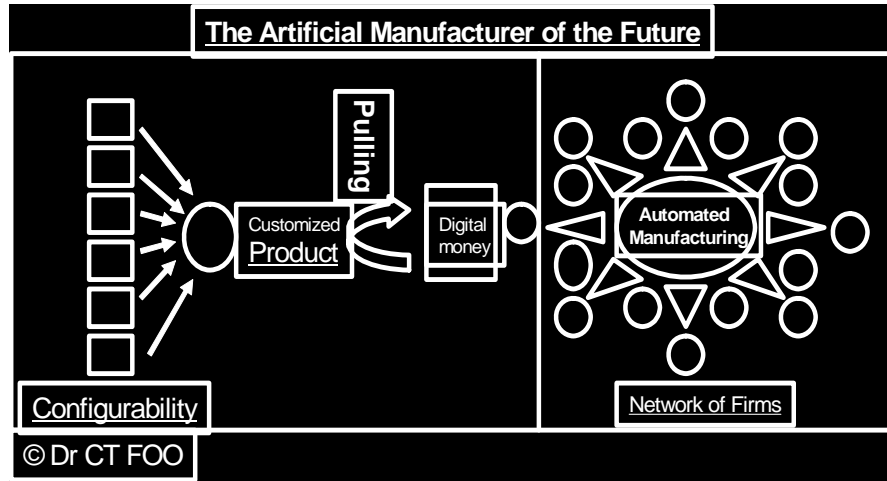


Figure (6): The Artificial Manufacturer

This architecturally speaking is the direction towards which manufacturing enterprises may gravitate in the future. Ross, Weill and Robertson (2006) argued correctly that enterprise architecture indeed should be seen as corporate strategy. That the architecture becomes the foundation for implementing business decisions.

The Symbol of OM for Manufacturing

Since the global center for manufacturing is gravitating towards China, it is useful to explore how OM is symbolized figuratively, using Chinese character. Indeed the typical rendering in Chinese of the sound of OM is as follows:



Figure (7): Om in Chinese

Note for Chinese readers: 古代人是用唐音[河洛、闽南语]; 北京喻字，音为 OM

Figure (6): OM in Chinese

The Chinese character as used in drawn from Tang dynasty period in sounding out "OM". Even more interesting, the ancient Chinese had upon seeing the glyph 唵 in the Sanskrit remarked it to be a Heavenly character. Using the glyph as a guide, I conceptualize what I will term as the manufacturing OM (see Figure (7)):

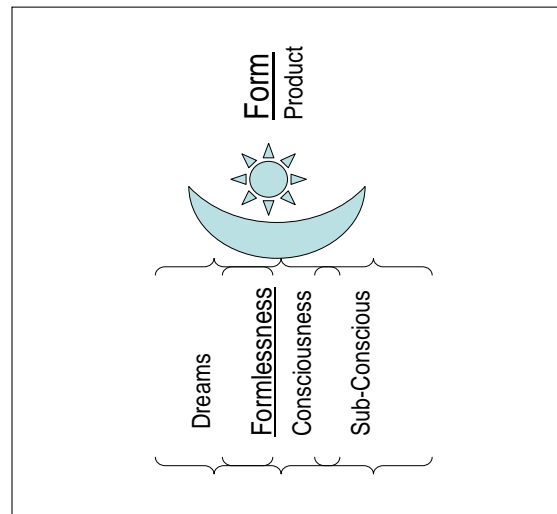


Figure (8): Manufacturing OM

This is to provide a synthesis between management and spirituality through using this primordial sound of OM as reflected in Sanskrit as a symbol. That what is form [a specific product] truly emerges out of the formless [wants, preferences, dreams]. The future role of growing IDM technology [*interactive design media*] as applied to manufacturing is to facilitate the path of this transformation. And to grasp the principle that what is form, emerges out of the formless. By tapping on the formless [*dream products of customers*], manufacturers may then gain first mover advantages!

References

Schildhouse, "One on One: An Interview with Lori Vegso" By Jill Schildhouse, Summer 2006, Vol. 42, No. 3, p. 2, *Journal of Supply Chain Management*.

Foo C.T., Managing Corporate Performance In Technological Industries, *Singapore Management Review*, 1989, January, Vol. 11(1) 37-46.

Foo CT, Competitive Aesthetics, Semiotics, Chaos and Leadership: Corporate Photography Strategy for the CEO", *Corporate Communication: An International Journal*, 2006, Volume 11 (2), pp 109-125.

Ross J.W., P. Weill and D.C. Robertson (2006), *Enterprise Architecture As Strategy*, Harvard Business School Press.