OM of manufacturing: exploring futuristic manufacturing perspectives

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Abstract
Purpose – Technology is fast transforming how we supply both services and products. With virtual reality technology rapidly becoming available and much user friendlier and affordable than before, the next challenge is to supply not just products but also dreams. The purpose here is to explore the possibilities in manufacturing the dreams of customers.

Design/methodology/approach – Instead of literature from psychology, the paper taps on deep Indian philosophy to explore the unconscious. For the unconscious is the source of dreams. The ancient, Indian OM is widely accepted in spiritual circles as the primordial sound of the universe. Using this OM symbol as a metaphor, the paper suggests that deep dimensions of competition – and roots for future excellence – may lie in creating products that are the dreams of customers.

Findings – The paper then explores from the ancient Indian conceptualization of dreams to the current practices in supplying products to customers. It finds large corporations are more members of a supply or rather, innovation driven chain. That is despite being in an age of knowledge-driven economy. Perhaps, the 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/implications – The community of global manufacturers has yet to realize that the key driver behind the customers’ relentless pursuit of quality and low prices – and as is argued here, increasingly, their dreams – may lie deeply hidden within the realms of their unconscious.

Practical implications – What is emerging is a triangulated polarization in terms of organizing of functions: conceptualization of product in the USA, 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 raised in this paper will be realized later as and when global manufacturers seek to conceptualize products not just for the US markets but also for the swelling demand in China and India.

Originality/value – With the rapid rise of both Indian and Chinese economies with enormous 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 for the organizing of the dreams of customers.

Keywords Strategic manufacturing, Oriental philosophy, Technology led strategy, India, China

Paper type Conceptual paper

Introduction
One of the recent, highly popular ideas is in the emotional intelligence (EQ) concept. Now for those who lead, he or she must not only possess intelligence quotient but to score high on the measure of EQ. 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. It is adequate for our purpose to state that one may become spiritual without being overburdened by religious dogmas. Dogmas often divide rather than integrate humanity. What is interesting to discover is that when one extends research to its outermost frontiers, one inevitably has to turn to spirituality for deeper insights. In that sense, management is much akin to the field of quantum physics (see for example, Visionary Window, Goswami (2000)). 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.

**Spirituality**

In the realm of spirituality, one of the most ancient and universal symbols is OM. Here, we draw upon some of its basic elements as is popularly understood within many spiritual circles. In a highly interconnected world, we should in our research writing acknowledge not just recent literature but as responsible scholars, to also trace 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 are now widely acknowledged in the West. Moreover, there are often Western masters within in Eastern traditions of spirituality. In commenting on the 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 Nishchalanananda Saraswati. This is available on the internet (see note to the Figure 1).

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 shown in Figure 2 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. These may be bundled together under one word for convenience 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.

Having explained the elements of OM (For more explanations: http://hinduism.about.com/library/weekly/aa022200.htm), 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. There is now growing availability of visual technology to the public. For example, with photography and moving images being embedded into daily use products, especially hand-phones, we can anticipate that future customers will expect manufacturers to have on their web site, 3D visualizations of their dream products.

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**Figure 2.**
The symbol of OM

Source: http://www.mandalayoga.net/index-newsletter-en-mantra_om.html
The global scene of manufacturing is now being transformed far more rapidly than before. For example, the competitive edge now for suppliers is to bring forth innovations (Schildhouse, 2006) thus refocusing the role of the traditional 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 1980s (Foo, 1989), then the critical focuses tended to be internal with throughput performance metrics. The attention was mainly on the production floor and the key to competing focused on productivity in the transforming of raw materials into finished goods. Within just two decades, how the scenario had shifted.

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 3) 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.

And change is on-going and a clear tendency is towards demand management. Such a transformation towards demand must be read in context of the internet. Even more subtle social changes may be expected when newer technologies are in place that may facilitate more personal, direct mode of communications – the internet ready hand-phone. Imagine a time when even newer technologies are being put in place that enabled richer, deeper and more personal exchanges of intentions, ideas. The days of the customer communicating conveniently via technology to manufacturers of what one dreams of getting out of a given product may be much closer than is realized.

Project risks in internet age
One key implication of the internet fostering global, massive interactions is in 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 major products? Maybe the advantage may better lie in being the most effective, first follower. That is for the manufacturer who has the knack to add on innovatively to the original product concept for the consumer market.

The implication on project risks in launching a new product is that as information now travels at the speed of a click, competitors globally are able to immediately strategize on more innovative configurations for the next generation of the given product. So any

![Internet Driving Change](image)

**Figure 3.** Internet driving change
sales projections a manufacturer who relied upon mass producing even a winning product are in the danger of being thrown completely off track. For in just a year or even months cheaper, better endowed models may begin to flood the market.

A snapshot representation of how the scene had been transformed from the past to the present is shown in Figure 4: "Riskiness" of projects. The y-axis depicts the "riskiness" of manufacturing projects over time (x-axis). The times of 1970s and 1980s are relatively orderly and predictable and as such less risky to embark on new investment projects. This applies to general macro-environments including political, economics and social. The world then was clearly in demarcated regional blocs of powers: communist (black) and capitalist (white). Using color as a metaphor, what is black is black.

Then in 1990s, the global scenario went through a magic like transformation with the collapse of the Union of the Soviet Socialist Republics. Precisely in this decade that the internet was introduced but its presence was far less omnipresent than now. The world was no longer as clear cut as before. China though with powers tightly held by a communist party was fast on track to be transformed even though it was planned to be stages into a fiercely capitalist state. The face of Europe too was altogether altered. Again using metaphor, diversity began to emerge in 1990s with the different tones in the shades of colors: black turning to grey. Given political uncertainty, clearly the overall project risks must had been higher in the 1990s than the preceding era.

Now with in our 2000s internet is powering the growth of massive economies China and India. Firstly, internet enabled fast cross-border outsourcing: USA to India, for services and USA to China, manufacturing. What ensues, then? One word: chaos. For costing is no longer as straightforward. A manufacturer that mass produces at the wrong, high prices is running high risks of being stuck with dead stocks. How does a manufacturer then drastically reduce the inherent risks in undertaking production? That is for a manufacturer not to be caught manufacturing unsold quantities of a product in the internet age. The strategy should be to shift from investments in the supply side, i.e. push technology towards technology for enabling the pull, demand side of the equation.

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Figure 4.
"Riskiness" of projects
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 shown in Figure 5. 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.

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 central aspects. Of the two, the least developed and yet most important is in the configurability of product (Figure 6). 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 (Figure 6) 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.

This architecturally speaking is the direction towards which manufacturing enterprises may gravitate in the future. Ross et al. (2006) argued correctly that

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![Diagram](image-url)
enterprise architecture indeed should be seen as an integral part of corporate strategy. That the architectural plan of the network of firms behind a product becomes the basis in 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 in Figure 7.

The Chinese character as used is drawn from Tang dynasty period in sounding out “OM”. Even more interesting, the ancient Chinese had upon seeing the glyph □ 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 (Figure 8).

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), manufactures may then gain first mover advantages!

References

Further reading

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