

Industry-Defence-Academia—A Strategic Ecosystem

—A Source of Competitive Advantage for the Industry—

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Occam's Razor and SWOT Analysis of India Inc.

In the field of philosophy there is a conceptual tool called the Occam's razor. The Occam's razor is used to simplify a complex situation by cutting out the aspects--which are many and hence confusing--of the situation which are not relevant or do not have a significant impact on the situation and retaining the rest--which are few hence easy to concentrate on.

Our focus here is to reach a broad understanding of the current and future global environment in which India Inc. finds itself. Using the Occam's razor, we can do a rudimentary SWOT analysis of India.

Trend → Globalization

Opportunity → Products, Technologies & Markets cease to be bounded by Inter-National Boundaries.

Mantra → *Thou Shalt Find Trans-National Markets.*

Trend → WTO Regime

Threat → Intellectual Property Rights are strictly safeguarded across the Globe by Law.

Mantra → *Thou Shalt not Reverse Engineer.*

Trend → India--Global Human Resource Leader

Strength → India--One of the largest pool of Technologically savvy Human Resource--is capable of exploiting this opportunity to the maximum extent.

Mantra → *Thou Shalt focus on Technologically sophisticated Products & Markets.*

Trend → Need for Sustainable Competitive Advantages

Weakness → No culture of developing, patenting and protecting technology and hence obtaining *sustained, legally-enforceable monopoly and leadership* in certain selected technology areas.

Mantra → *Thou Shalt Patent, Produce and Profit.*

Can One Lead By Following?

Given the above situational analysis, how can the hopes and dreams of India Inc. to be a World Leader be realized? To be a good leader, first be a follower. Let's follow today's Global Leader and see how it reached its Superpower status.

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During and after World War II US established itself as a Superpower. *Economy, Military and Technology* are the three pillars of US's Geo-Strategic Power. These three Pillars are not exactly pillars but are intertwined in very complex formations where they reinforce each other and build synergy.

The Strategic Ecosystem

The Industrial-Military-Academic Complex is the source of US's Competitive Advantage as a Nation and consists of the Industry-Defence Labs-Universities as the institutional triad. These institutions work in a highly collaborative manner and the benefits accrue mostly to the US Inc. and hence the American public.

The Academics carry out an analysis of the various trends globally including economic, military and technology trends. This yields a forecasted map at various future times of the global and local economic opportunities for the Industry. Further, the military threats to the US economy at future times is analysed. This analysis is further reinforced by the technology trends which could either enhance or reduce the competitiveness of the US Industry.

The Industry takes these studies to map out its future product and technology innovations. Also any markets to enter or exit globally are also decided guided by these studies. Any substantial investments globally which seem to be threatened at some later date are taken up by the Industry with the Government and the Military for appropriate actions. The Industry further works out the technologies which need to be developed further and share them with the Government. The Government funding agencies announce the technologies of national importance and lay out enormous funds for their development. These funds are utilized by the Industry for research purposes in collaboration with the National Labs and the Academia. Since until mass production & consumption starts the costs of these technologies are initially very high, the Military is the sole customer for them.

The Military is the largest single customer of the Industry. They are the buyers of pioneering and expensive technologies and instrumental in testing them. The Military also makes sure that any closed or hostile markets or sources of competitive threats to the US Industry are neutralized at the earliest. The Military further requires its own needs fulfilled by the Industry and Academia for the development of technologically sophisticated futuristic weapon systems which provide it with a Competitive edge.

Several other countries have studied, understood and assimilated this concept and are establishing their own Strategic Ecosystem. China, Israel, Germany, Japan and South Korea are some of the examples. *Under Dr. Kalam's Vision 2020 India too is laying the foundations of this Strategic Ecosystem.*

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Given the space constraint the Strategic Ecosystem concept will not be elaborated further in this article except for one important point. The Strategic Ecosystem will not be threatened if it is located within the Country. However, it allows a strong base to project its forces, both of the economic as well as the military, to selected destinations in the globe.

The Technological Ecosystem

This discussion brings us to the establishment of a Technological Ecosystem. The idea will become clear as soon as we take any technology and break it down into its component parts. Consider a new manufacturing technology. This technology will most likely be designed around a new equipment. This equipment will require certain consumables to operate. The producer of this consumable is a part of the ecosystem. The equipment will require some maintenance requiring a maintenance service provider within the ecosystem. The equipment will require trained manpower. This requires training service providers. Producers of spare parts are also a part of the ecosystem. The developer and producer of the equipment are parts of the ecosystem. The description of the ecosystem is far from complete but this should suffice to give a feel for the concept.

The goal has to be to establish a major portion of the Technological Ecosystem within the country in the selected technology areas crucial to the Industry and Defence. The advantages this allows to the Industry in those leadership areas are tremendous. The US has a clear leadership in most technologies in the electronics Industry since it has established a complete technological ecosystem within the country. China is on its way to establish a complete technological ecosystem in several technologies in the manufacturing industry.

Industry-Defence Labs-Academia Interaction

This brings us to the path of creating, establishing and developing a Strategic & Technological Ecosystem within India.

Establishing the Strategic Ecosystem in India requires substantial structural changes in the Defence and R&D funds of the country and also the orientation of the Industry. The Government has to actively promote well-funded programs where it brings the Industry, Defence Labs and the Academia to work together on well-defined strategically crucial technologies. These technologies are to be chosen based on the interests of the defence forces as well as on the areas the Industry is trying to establish a global leadership in.

The technological ecosystem of these selected technologies has to be mapped out and the participants have to be identified and included from the beginning of the programs.

Ecosystem Benefits to the Industry

The Industry will benefit in terms of finance, marketing, technology, outsourcing and human resource development by interacting with the Academia and Defence Labs.

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The capital investments in the Universities, IITs and Defence Labs can be leveraged by the Industry in terms of using the R&D equipment and inexpensive human resource there. In the US, it is fairly common with most top MNCs (Intel, GM, GE, IBM, AT&T, Boeing etc.) and several SMEs using this route. In the UK, Rolls Royce has followed this path by establishing Centers of Excellence in various UK universities to maintain its competitive advantage in Advanced Turbines

Industry can obtain an easy path to the international markets for new technologies by developing these markets via joint participation with the academia in international conferences, papers, workshops and seminars. This creates awareness, credibility, interest and interaction with the potential global customers. Interaction with the academia as part of technology consortiums helps in forging links with other parts of the ecosystem during the development phase. These will either themselves be future customers or will be strategic allies in finding the customers.

The Strategic Research Foundation has taken up an initiative to encourage and facilitate the establishment of the Strategic and Technological Ecosystem in India. Discussions with personnel from the Defence Labs, IITs and Industry show a strong interest in this area. The Foundation's Vision is to establish this Ecosystem in India within the next 5 years.

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