

# From the galapagos effect to global markets: Expectations on corporate engineers



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In the current era when “sustainable development” has become a key word, one of the high hurdles for the Japanese industries to overcome is declining aggregate demand due to the shrinking population. Manufacture of many general-purpose industrial products has already shifted to developing countries, and there is a tendency to seek additional functionality as a means to find new opportunities in the domestic market. Occasionally, a significant number of companies compete for functionality in a small market, resulting in formation of a Japan-specific market. Such specificity would become an entry barrier to a given market. And yet, there are risks of higher technology costs and the Galapagos Effect of the products, because competition for higher functionality will inevitably intensify as product life cycles shorten in such a specific market. I believe that important measures for Japanese industries are not only to expand the domestic demand through creation of new demand but also to pursue business expansion in overseas markets and ensure profits flowing back from the accompanying technology royalty revenues by leveraging sophisticated technologies through competition.

Now that countries with huge populations are in the development stage, business development in global markets has become at least as important as that in the U.S. and European markets, and success in global markets largely depends on business strategies in volume zones. In many cases, there are large gaps between Japanese standard qualities and demand characteristics in volume zones. How to cope with such gaps, especially in such fields as functional products and composition products, is a challenging issue that the Japanese industries must confront. Engineers will be reluctant to change (or downgrade) functions or even might feel fear when doing so, partly because they take pride in their products as the fruits of competition for higher functionality and partly because they have taken quality improvement for granted ever since they joined their respective companies. However, every product is an accumulation of a number of technologies that constitute functions, and in this sense, it is a creature of a historical series of technologies. Essential missions of corporate engineers are to make full use of their holding technologies, to design products which meet market needs, and ultimately to strive to enhance corporate value.

Speedy product development is necessary to achieve satisfactory results in global markets where every nation seeks entry opportunities. In such a situation, products tend to be developed in a way that replaces raw materials and removes some functions from formulas of Japanese standard qualities. However, the success ratio of this method is far from high. Rather, products should be developed in another way that upgrades qualities of primitive products to such levels that satisfy market needs through technology application and quality design, or in the so-called method of addition.

Technologies flow naturally from a higher place to a lower place, with technologies in a lower place subsequently improving. Sooner or later, developing countries will skip some processes and become head-to-head competitors in technology competition. This makes perfect sense if you consider how Japanese products have changed their positioning in global markets since World War II. In general, developing countries seem to follow the same historical path that Japan passed, although they have different social backgrounds, and advancement of informatization has also made differences between then and now. My gut feeling tells me that the answer to “how to cope with global markets” can be found in the post-war history of Japanese industries.

Therefore, it is important to maintain our technological advantage, but at the same time advanced specifications and technological advancement have blurred boundaries of academic fields and disciplines, and now provide new soil to create innovative technology which can cause a paradigm shift. I believe that the following actions will provide the foundation for our nation’s sustainable development: to promote open innovation both horizontally and vertically with collaboration among industry, government, and academia at the core; to accumulate innovative technologies; to take a leading role in intellectual property and global standardization through the flexible application to global markets; and to become a Nation of Creative Technology.

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