

## *Foreword*

Japan, as you may very well know, is a resource-poor nation with an extremely small landmass. Despite this, one in five people is above 65 years old, and what is more, its population exceeds 120 million. To survive, this nation has no other choice but to secure a permanent intellectual edge that goes beyond military strength. Toward this end, participation of senior citizens, whose experience and insight are unsurpassable, is indispensable.

With this intellectual edge, which has its source in creativity, a nation can achieve affluence and even go on to help bring about happiness for humankind, such as using new ideas to create something out of nothing, or adding new value by reinventing existing products. As a matter of fact, this intellectual edge is the *raison d'être* of any organization, whether we are talking about a company or the government.

After World War II, Japan saw a rise in the affluence of its people as it went on to become the world's second largest economic power. While excellent product services realized through diligent work habits certainly helped, it would be no exaggeration to say that creativity played a supportive role.

In an organizational attempt toward supporting this creativity, the Japan Institute of Invention and Innovation has been contributing toward spreading the industrial property rights system and toward realizing the advancement of science and technology for more than

a hundred years since its inception in 1904, and has been carrying out official commendations for inventions nationwide through the presentation of nine special awards, including The Prime Minister Invention Award; The Minister of Education, Culture, Sports, Science and Technology Invention Award; The Minister of Economy, Trade and Industry Invention Award; and the Commissioner of Patents Award.

Meanwhile, the Japan Society for the Advancement of Inventions, a foundation engaged in activities to promote and propagate inventions by mainstay small to medium-sized enterprises, has been subsidizing research fellowships for 27 years and has been supporting the cultivation of creativity among young people for many years by establishing “invention classrooms” for elementary- to middle-school students.

Non-profit institutions also exist, such as the Hatsumeigakkai (Invention Society), and the Japan Creativity Society, a registered association of the Science Council of Japan, which has scholars, researchers, teachers, and businessmen as members. Furthermore, to develop creative potential, international intellectual competitions have been held for mainly high-school students, such as the International Mathematics Olympics, the International Chemistry Olympics, the International Biology Olympics, and additionally, the International Information Olympics.

Where the World Creativity Forum is concerned, in 2006 alone, there were many conferences held, including the American Creativity Association International Conference (America), the 4th Creativity European Association Conference, the 17th International Conference on Creativity in Colleges and Universities (America), the 1st International Conference on Knowledge, Information and Creativity Support Systems (Thailand), the 12th Annual International Creativity Conference in Africa (South Africa), and the 11th International Creativity Conference (Latvia), and many others. How many

Japanese will actually have participated in these international conferences by the end of this year? Is creativity education being adequately carried out in kindergartens, elementary and middle schools, and institutions of higher learning such as universities and graduate schools?

This book is about this creativity and is written by primarily eight individuals, including young, frontline scholars, researchers, and talented businesspeople as a text for university students, while also targeting business entrepreneurs, administrators, and additionally, people who intend to start a business in the future.

Its origin can be traced back to the Japan-US Product Development Conference, where I had the opportunity to serve as co-chairman. This conference was held for five years throughout the mid-1970s. Based on presentation materials and reports gathered from this period, I went on to hold lectures and seminars across Europe and Japan, and in 1988 I published *The Q&A Primer to Information Searching for Developing New Products and New Businesses* (Dobunkan). This book was a compilation of my answers to important questions posed to me at those lectures and seminars. I made use of the compilation at private and governmental seminars and found them to be highly valuable. However, nearly 20 years have already come to pass, and with the concern of assuring the succession of my intellectual property, I gathered a team of young scholars, researchers, and adept businesspeople to publish this new book.

Compared to its earlier version, this book has seen considerable revisions in both format and content and has been further enriched. Firstly, the Q&A format has been discontinued and replaced by the normal text format. This is due to the fact that we have made it a top priority to see the book serve as a textbook for university students. Nevertheless, it is written not only for students, but, as previously mentioned, for businesspeople, researchers, and educators as well.

If you are a reader who is studying the fields of research and development, new product development, and new business development for the first time, then I recommend that you read the book sequentially from the Introduction. If you are a manager or researcher who is in a position to advocate the necessity of R&D, or if you are in charge of the R&D department or product development department and concerned about the gaps found between management strategy, R&D, and product development, I particularly recommend that you carefully read Chapters 2 through 5, where you will find thorough discussions of viewpoints dealing with such topics as the “Darwinian Sea” (the phenomena which refers to the fact that business projects generally fail to materialize soon, even after having goals of commercialization in sight), product development and R&D engineering that deals with the “Death Valley” phenomena (which arises from the gap found between basic research/invention and applied research/product development), marketing research for product development, and furthermore, R&D alliances and outsourcing.

For readers concerned with matters of how to go about planning, selecting, and evaluating R&D projects, they should refer to Chapter 3, where the decision making process is introduced. Based on a broad perspective, this process includes the criteria for determining whether to continue (extend) projects, and for determining when to abort them. Interspersed with illustrative examples, it particularly delves into discussions on terminating difficult and unsuccessful projects. Furthermore, regarding the ideal evaluation system, it asserts that judgments should be made in light of the importance of corporate policies and general societal norms.

This book attaches great importance to the new ways information is being systematized and turned into assets, and recognizes these very ways as the key basis for R&D, new product development, and new business development. For this reason, Chapter 4 has been intended for managers and CIOs (executives in charge of

information) who experience great pains in handling the strategic management of development information, and additionally, for those in charge of information development and management.

In Chapter 5, with respect to advancing R&D, new product development, and new business development, we discuss thoroughly how to link sources of information with basic research and sources of information with applied research, in addition to discussing the management of personnel training. We then go on to consider a shortcut to the successful development of information as an asset, which is a thorny issue for CIOs and those in charge of development. The chapter concludes with the assertion that “the foundation for this must lie strictly in the solid training of personnel in the concerned field.”

This book is divided into two parts: Part 1 is introductory and includes many illustrative examples, and Part 2 is the case example section. Readers who are already well-versed with the contents of Part 1 will do well to begin from Chapter 6’s case example on Coca Cola Japan’s “Karada Meguri Cha<sup>TM</sup>” (a health-oriented tea whose Japanese name literally translates to Body Circulation Tea). There, you will find an extremely elaborate record of a time-consuming search for information carried out by the person in charge. This record lays down the core philosophy behind new product development, builds its basic strategy, and emphasizes that the design phase is the very phase you should apply your time, passion, and resources. There is adequate recognition of the lesson that compared to the cost of withdrawing a product due to an undesirable sales performance stemming from a lack of preparation before the product’s release, it is overwhelmingly cheaper to call off a product from the market after spending an ample amount of developmental cost and time prior to its release. This case is considered to be crucial and offers plenty of suggestions for heads of R&D and research workers.

As a third large feature, in addition to the noteworthy case example of the product recommendation website equipped with the Web recommendation engine in Chapter 7, I have included in Chapter 8 robot development case examples, which is something that Japan prides itself on. According to the Chairman of the Board of Yaskawa Electric Corporation, Mr. Shin Nakayama, who claims that the 21st century is the “age of robots,” Japan once had 200 robot business-related companies, but as a result of excessive competition, there are approximately only 50 companies surviving today, with only two in Europe and one in the US. With regard to industrial robots, he adds that Japan overwhelmingly leads the world.

However, I must point out that this book does not touch upon the subject of robots for military use. I am hoping that readers interested in this field will proceed with their own research, even though there are many facets of it that remain undisclosed. I encourage this because there is an undeniable possibility that research in military-use robots will spur the advance of civilian-use robots in the same way research in the military use of the Internet had contributed towards spreading the civilian use of the Internet in the past.

Additionally as a fourth feature, while the primary theme of this book is concerned with new product and new business development, cases on management and maintenance have also been added to prompt discussion on how to protect developed products and product materials in crisis situations. After all, new products and new service businesses also need to take into account the significance of remaining sustainable in the market after undergoing their R&D and market entry.

This is why even risk management personnel are also considered as this book’s target readers. Furthermore, it will become clear through these cases that those in charge of Corporate Social Responsibility (CSR) affairs have an important role to fulfill in this field as well and are far from being unrelated to it.

Finally, as a special feature, readers will find not only spectacular stories of successful new products and businesses, but also stories of failure and chance (and even stories of how a failure can lead to success) sprinkled here and there throughout the book. The king of inventions, Thomas Edison, once responded to a newspaper reporter, “Genius is one percent inspiration and ninety-nine percent perspiration.” This quote is well-known, but on a separate occasion, he commented that he had never achieved anything of value through mere coincidences and that his various inventions were not brought about by chance at all, but were created by dint of sheer work. This is important to note as well. While simple, the remark has its feet on the ground and I believe it will become a motto for creative undertakings.

It would make me happy if this book is found to be helpful by readers who are enthusiastic about such activities.

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