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Global R & D

堀場　厚
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総　説

Horiba
R & D
Policy

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In the market concerned with the technology of measurement instruments and equipment, which is where Horiba's main strengths lie, we are witnessing a disappearance of the traditional boundaries that have delineated this technological area as well as the manufacturing industry that has grown around it. Simply put, our market has transformed into a single integrated global entity.

Since our basic stance is to provide the world market with Horiba products, we will naturally face the necessity of specialization in our global activities, if we are to be responsive both to international commercial realities and to the needs of the market. For this reason, internationalization is seen as a key point in Horiba's future, equally affecting our efforts in the commercial sphere and production, and especially those in the area of development.

About twenty years ago, Horiba first began to establish itself in international activities. During this time, we have established offices overseas as bases for Horiba sales, development, and production. For the most part, these overseas offices have been in the industrialized nations, which are the main markets for measurement and analysis equipment. Since the beginning of our ventures into foreign markets, we have made concerted efforts to incorporate our overseas offices as locally-based entities.

In addition to Horiba subsidiaries already based in the U.S., Germany, Britain, and France, we have a sister company in Italy. Recently we have established two new branches, one in Austria -- to deal with the unification of both Eastern Europe and the EEC countries -- the other in Korea, which has recently shown remarkable industrial development.

We have paid careful attention to the location of our subsidiaries. Considering the various features of the area markets, we have set up Horiba subsidiaries as follows: Three plants in the U.S. -- two in California (one at Irvine for environmental research and one in the Silicon Valley at Sunnyvale for semiconductor research) and one in Detroit (automotive). Five plants in Europe -- two in Germany (one in the suburbs of Frankfurt (automotive) and one at Langenfeld near Hanover, (for environmental research); one in Britain, at Northampton (automotive). One in France, at Ferney next to Geneva, for environmental, scientific, and chemical research; and one in Austria (environmental). In Asia, one in Seoul, Korea, for automotive research.

All these subsidiaries are ideally situated for R & D purposes to give us vital up-to-date information. In the future, we will continue in our efforts to enlarge and enhance the various functions of these subsidiaries, as well as to integrate them into a unified network. Effective unification of the functions of these subsidiaries into the Horiba Group is necessary to enable the Horiba

brand to penetrate globally; without this, it would impossible for us to survive in the global market.

Let us look at some concrete examples of what is being done on world-wide basis -- the types of equipment being produced, technological development, and production techniques.

First, to explain our global specialization in the industry, the Horiba group of people behind the development of computer software in the United States is perhaps the most appropriate example. It is said that this development of computer programs is one of the areas most sensitive to local requirements in technological development. Here is where our software is created for analytical instruments/systems developed and manufactured in Japan, and large-scale system-engineering (S.E.) is worked out for such clients as the world's major automobile manufacturers and local governmental environmental protection organizations.

At the beginning, the main job was to install the necessary application software to meet American standards for our main product, Japanese-manufactured automotive exhaust gas analyzers. Recently, in the U.S., we have begun to accept increased orders for large self-contained Turn-Key-Base systems, and our market there is gradually expanding beyond that of automotive products. Also both in Japan and Germany, we develop software and implement S.E. With the present shortage of programmers and systems engineers in Japan, the role of our subsidiaries as developmental strongpoints is becoming more and more important in covering this kind of shortage. We plan to strengthen our activities in this area, including bringing qualified programmers and systems engineers to Japan for extended periods of stay.

We have been actively promoting projects such as joint development and technical/sales cooperation with other companies in Japan and in foreign countries. In consequence, the number of joint projects with foreign companies has increased remarkably over the past seven or eight years. Naturally, we can make public here only those projects where a firm agreement has been entered into by both parties; if we were to list those joint projects where an agreement is pending or under negotiation, the number would be much higher.

Among our many joint projects are the development of ion electrodes with the Institute for General and Analytical Chemistry Technical University in Hungary; blood cell counters with the ABX S.A. in France; industrial gas analyzers with the Westinghouse Electric Corporation in the U.S.; portable automotive exhaust gas analyzer with the Foshan Analytical Instruments Factory in China; Fourier Transform Infrared spectrometer with the MIDAC Corporation in the U.S.; and robot driver with the WECO Industrietechnik GmbH in Germany.

What is common to all these projects is the mutual benefit the partners have derived from them. That is, our overseas partners supply us with both their technology and their products; in return, we provide our product-development know-how, our production technology, and our quality-control experience.

In our attempts to promote cooperative development and technological exchange, recently we have been extremely active in collaborating with research laboratories and universities abroad.

In the United States, for example, we have worked together with the University of Michigan in the research and development of engine performance test system. The software researchers described above are leading this program. Also, we are participating in research of combustion control phenomena at the University of California and have sent our staff from our R & D division in Japan to this project.

At the moment, we are in the process of establishing a crystal factory in Phoenix, near Arizona State University, where the study of optics is among the most advanced in the world. Optics-related products and technology are now attracting the attention of manufacturers throughout the industry, and we expect optics to play an important part in the future development of Horiba.

We are now preparing for the future possibilities of joint research in this vital area, and, in addition to our various collaboration projects with Japanese universities, we are also active on a global scale.

Needless to say, in order to succeed in these strategies for the internationalization of the company, we must acquire talented people who have a global sense of the industry. It is not enough to train businessmen, as we have done in the past, but what we need most now is to train those who will be active on the international stage of research, development, and production.

It is already about fifteen years since we started the study program to send our head office staff to subsidiary companies abroad. In this program, we try to send two or three people a year, on the average. In addition to this, we regularly send staff as students overseas, to such institutes as the University of California.

We also encourage our leading technical engineers to attend academic meetings and conferences at least once a year and to publish reports on their research activities. In order to give younger researchers the opportunity to gain a broader perspective, we invite staff from overseas subsidiary companies to Japan to participate in intercompany meetings to be hold here.

Though this wide range of activities, we are constantly striving to promote overseas study and international exchange. We believe this new

journal, Readout, will help to inform the world of Horiba's technology and developmental strengths, and we hope that the material contained in the future issues of the journal will result in new opportunities to exchange information and technology on an even greater scale.

We aggressively seek talented people on our staff, both from abroad and from Japan. The United States is probably the best place to recruit talented manpower. However, the problem is whether we can manage these people efficiently. We must make further efforts to understand the relevant aspects of American culture; and, at the same time, we must make effective use of Horiba's proven principles of management. This, of course, applies not only to the United States, but it is a key to success everywhere in overseas operations -- and will ultimately be essential to the future development and expansion of Horiba.

The following are important questions that need to be considered in the future especially for the development:

1. Training researchers who will be active on an international scale

2. Training both (1) researchers, who will develop basic technology, and (2) planners, who will develop products and equipment that are even more responsive to the needs of the market

3. Developing more efficient research techniques, to enable us to compete with the research facilities of mammoth corporations

4. Further practical initilizations of our special strengths (*e.g.*, extremely fine measurements and real-time measurements) to fields more immediately applicable to the general community, such as science, sports, and medicine.

To realize this last goal, we are concentrating on the maximization of the ***packaging effect*** that is unique to Horiba. The unique appeal of Horiba products is the result of our dedicated integration of what are usually thought to be two separate activities: ***basic research*** and ***product development***. At Horiba, we see our real contribution to the industry as the successful merger of two intimately related ***vectors***, the ***vector of creativity*** and the ***vector of successful application***.

We feel that the very best original thinking in basic research can be cultivated only when an employee has both the opportunity and the personal responsibility to follow up his own creative achievements and see them through into the successful development of the ultimate product. In this way,

at the outset the creative act itself is stimulated by the overt realization that one's ideas are contributing materially to the community in the form of tangible results and useful products. We believe that in this integration of these two vectors lie the unique strengths of Horiba -- the strengths that give us the ability to make better products with the least time lag from the needs of our customers.

We are proud that our research and development are econd to none for a company of any size, and that we are world-renowned for our creative strengths sense of timeliness in product development. Our ultimate goal is to be one of the world's leaders in this global industry.

Located in Irvine, California,
HII's new headquarters building