

Small Business Research and Development: The Key Factor in Japan's Future Economic Development

By Hashimoto Hisayoshi

While the president of a large company enjoys dinner with clients in the restaurant of a nice hotel, the president of a small company is struggling to repair a machine that was causing trouble that afternoon.

While the president of a large company swaps war stories with his elite employees, the president of a small company is teaching high school dropouts and ex-motorcycle gang members how to greet visitors (or more accurately, is begging them to greet visitors at all).

While the president of a large company dozes off contentedly as his elite employees give presentations (he knows that someone will do what needs to be done anyway), the president of a small company is looking over his books, trying to figure out how to get the volume of new orders he needs, how to build networks and connections, and how to wine and dine purchase agents.

Needless to say, the president of a small company has a hard life. Every day he puts his life and everything he owns on the line in order to stay in business. This kind of entrepreneurial spirit possessed by Japan's small business owners is the source of our nation's vitality. These small business owners have led Japan as its "vital majority." It is only natural that they should be looked to as the linchpin of Japan's economic recovery.

The reason that small businesses are even more in the spotlight today is because of the following three roles that they are expected to play. These roles are as follows.

First, they are being counted on to serve as the driving force for Japan's economic recovery, overcoming the recession that has gripped it for the past several years.

Second, as structural changes such as the movement of manufacturing and

other industries offshore and the maturation of existing markets occur in Japan, small businesses are being counted on to achieve a smooth transition to a new industrial structure.

Third, they are expected to become the front-runners of the global economy, find new consumer needs on the global stage, develop new goods and services which meet those needs, and blaze a trail toward new business fields.

Our country's small businesses have developed and stayed competitive with the support of our technological prowess. With the globalization of the economy and the continuing post-bubble economic slump, however, and in addition with the continuing trend among large companies to shift operations overseas and move toward overseas procurement, as well as other factors, it is becoming ever more difficult to do business. Furthermore, it is being predicted that in the future competition with the West and developing countries will intensify even more. Faced with these conditions, it will become even more imperative for small businesses to work toward technological innovation and improvement.

Japan's Small Businesses: A Treasure-house of Ingenuity

For the past 12 years, I have visited a factory without fail on Thursday of each week. By now I have visited over 2,100 factories. When asked why I still keep visiting factories in this way, my response is that without exception, a factory is a place where human toil and effort can almost be physically perceived.

In a factory with 1,000 employees, the place exudes a sense of high-technology which seems to say "a large company's power cannot be matched." In a factory with 100

employees, one gets a sense of the technology resulting from the combined knowledge and know-how of 100 people. But what is really fantastic is to go to a factory with only 30 employees, or better yet a factory with five employees, and see a kind of subtle ingenuity that makes you exclaim "how did they think of that?" or "there's more here than meets the eye!"

That is the kind of place whose ingenuity is enough to make you slap your knee in delight, where you see the self-confident grins of employees as they survey their own handiwork.

In even the tiniest little factory, everyone, from the president down to the lowest-paid part-timer, is putting all their efforts into coming up with ingenious little tricks so as not to fall behind in the technological innovation race. They have got to: if they don't, they won't survive. They can't compete producing things the same way as a large company does. That is why small businesses fight like a cornered animal to come up with ingenious new ways of operating.

If you go to a factory, you can see this. That is why I keep visiting factories, even up to the present day.

From this perspective, I can state with confidence that Japan's small businesses will survive in the age of global competition from manufacturing plants. It could even be put more forcefully: not only will Japan's small businesses survive, they will be asked to ship their products all over the world and support global industry.

Technology: Development and Issues

A survey of the technological development of Japan's small businesses up to the present, however, reveals some unique problems.

First, the research and development

budgets of small businesses are more sensitive to changes in the economy than those of large businesses. Changes in R&D expenditures show that when the economy shows a downturn large companies tend to continue to expand their R&D expenditures, while small businesses tend to simply clamp down. Lately in particular, there has been a striking trend for businesses in every industry faced with worsening situations to cut back on R&D expenditures.

If this trend toward reducing R&D expenditures continues, the technological base which supports our country's industry will become weakened, and it may become more difficult to revitalize industry through technological development and other means. Without technological capability, products don't sell. If products don't sell, there is no money for investment in R&D. So businesses can't manufacture good products. So the products don't sell. So there is no money for investment in R&D... It's a vicious cycle. This is another reason why an early economic recovery is desirable.

Second, the technological development implemented by small businesses is not targeted solely at advanced technology like pure R&D firms: rather, this development encompasses a broader meaning, including constant ingenuity such as the streamlining of production processes and the improvement of machinery and equipment. It could be said that the technology development of small businesses is geared more toward the continuous improvement of everyday activities. Most of these developments are due to the untiring efforts of employees engaged full-time in production activities. Although their developments are different from those of full-time researchers and



Small businesses come up with ingenious new ways of operating

R&D engineers, they have a great impact on improving productivity, quality, and other factors.

Actually, a survey of the technology development activities of small businesses shows that compared to medium-term objectives such as new product development and developing new material uses, more capital and personnel are invested toward saving labor costs, streamlining production and processing operations, and quality improvement, which have a direct impact on daily business activities. This shows that small businesses are working to make the most of their scarce capital and personnel resources for their technology development activities.

Third, compared to large companies the proportion of researchers to other employees and the proportion of capital spent on research and development to total sales at small companies is much smaller.

Of course, as shown above the production activities of small businesses themselves constitute research and development. It is a fact that there is a strong tendency to continuously look for new ways of implementing production and developing new products during the

production process. From this it is obvious that small businesses are withstanding the onslaught of a so-called era of "mega-competition" solely through a type of development which uses no full-time researchers and incurs no R&D expenditures.

Japan's small manufacturers face a number of handicaps, including personnel costs which are a digit or more higher than other countries, extremely high distribution costs, and multiple regulations. In order for these small businesses to remain price-competitive with the manufacturers of the rapidly-growing East Asian countries, they must

continue to develop new high value-added products and increase non-price competitiveness. This, however, necessitates serious efforts toward research and development.

Research and development has also been called an investment in the future. Certainly, it is a vital activity which determines the future of a business. Even if the development fails, and there is no return on the investment, there are many indirect benefits of development, such as attracting young employees, improving the image of the business, making it easier to understand new equipment and machinery when it is introduced, and improving the production process.

Fourth, in the past parent companies and outsourcing firms have played an extremely important role in the technological development of small businesses, but lately this has been changing rapidly.

The presence of outstanding subcontracting firms is vital to Japan's economy. Since Japan's period of rapid economic growth, parent companies have actively given subcontractors technical guidance. Most of this guidance was geared toward quality improvement and

rationalizing production and processing operations, but it also extended to providing information concerning new technologies and guidance on the improvement of mechanical equipment. In exchange for this, parent companies expected absolute loyalty from their subcontractors. In recent years, however, a feeling of mutual independence from the parent company has begun to take hold in both subcontracting companies and parent companies. In addition, as subcontractors begin to consider working for more than one parent company, the relationship between parent companies and subcontractors is beginning to become less close. Enterprise groups, which were once like families, are now more like a group of friends, and recently have begun to turn into groups of mere acquaintances. The kind of technical assistance seen from parent companies in the past simply cannot be expected now.

On the other hand, parent companies have begun to demand that firms be able to come up with technological proposals such as quality improvement, price reduction, and the development of company products. Subcontractors which do not put forth an individual effort to improve their level of technology will not be able to survive.

Fifth, network-style development will likely become essential to the advancement of research and development. In addition to the rapid development of technology, a variety of knowledge and expertise are necessary for product development as well. No matter what the industry, information and computer technology is indispensable, as well as knowledge of materials. This includes chemistry, biotechnology, processing methods, etc.

No matter how you put it, small businesses are short of personnel. For this reason their limited staff can only cover a limited range of knowledge and experience. Consequently, they must employ network-style

development making effective use of external development resources.

Small Businesses Develop Technology in a Network

An analysis of the current R&D activities of small businesses reveals that the method of actively pursuing research and development which makes the best use of a company's knowledge and resources is the use of a network. The types of external resources which can be used are universities, public research institutes, and exchange with other industries.

In recent years, the most striking growth in the use of external resources has probably been in the use of universities. According to a Ministry of Education survey, joint research between universities and private companies has skyrocketed in recent years, going from 705 joint projects in 1988 to 2,001 by 1996. This growth trend will surely continue in the future. A system of laws is now in place, making joint research easier than before, and above all there has been a transformation in the enthusiasm toward joint research shown by university professors. There is no excuse for not using this resource. Small businesses should actively participate in the open houses of university research labs, networking and building relationships with the professors. It may even be possible to recruit a few recent graduates.

The next resource to consider is the public research institute. There are 170 of these institutes nationwide. Equipped with test facilities and demonstration equipment, these institutes are waiting to be approached by small businesses. Universities were not created to serve small businesses, but these research institutes were. Their budgets are also larger than those of universities, and they have more experience with technical exchange. Small businesses should definitely consider this resource.

Finally, there is the enterprise network consisting of businesses in

different industries.

In order for small businesses to survive these trying economic times, they too will have to strengthen their horizontal affiliations, and create systems whereby they are able to respond to any order. One method for doing this is to create a network of companies in various fields, which share their technological specialties with one another in order to broaden their technological coverage. It is also possible to split up a large order among several companies that one company alone cannot handle. Several business groups around the country have already led the way with this type of network.

Incidentally, from my long experience of observing business groups in many different industries I would say that the most important factor for this type of network is for someone to serve as coordinator. In any group that has enjoyed a long relationship, there is always a superb central figure holding things together. This person is a good conversationalist, gets along well with people, and builds networks with all types of people, from the owner of the local bar to artists and university professors. This person finds the key to technological innovation, and puts it to use in his or her own work.

My own opinion is that nothing is bound to last for long if it is not done in self-interest. A strong desire to take advantage of some opportunity - say exchange with other industries - along with burning enthusiasm is what first turns an activity into a thing of magic. Any activity based only on a desire to help others will not last long.

If you only pursue your own short-term interests, however, your partners will lose their trust in you, causing you to become isolated and unable to achieve your objectives. Treating your partners with kindness and looking out for their interests is a shortcut toward maximizing your own long-term interests. As the saying goes, "grasp all, lose all." When it comes down to it, the results of actions taken in the pursuit of your

own self-interest do not differ much from unselfishness. These actions also benefit your partners.

As the president of a certain company once told me, "I am often given the opportunity to act as an organizer, but there is no special formula for organizing people. All it takes is flexibility and consideration. At first sight, being a manager may appear like a lousy job, but there are great rewards to be reaped from managing. After you've been a manager many times you start to become naturally attentive to detail, and become a good judge of character. That's why when I'm told that my employees are 'absolutely needed' to serve as PTA directors, directors of their neighborhood association, etc., I tell them to cheerfully accept the position and perform their duties to the best of their abilities." This company not only performs community service, but also sends personnel to serve as directors of neighborhood associations and PTA organizers. The company does this because it considers employees who form close relationships with the local community and win its trust to be valuable assets.

A Recommendation for Rugby-style Management

I am currently the coach of the Saitama University rugby team. Through my experience I have come to think that rugby might be the model for small business management in the 21st century.

You need a lot of different types of athletes to play rugby. It's not enough to have a bunch of big guys on your team, but you can't win with nothing but fast runners either. You play a good game of rugby by taking advantage of every player's unique abilities and playing as a team. This is what is so great about rugby. The coach doesn't send in signals like in baseball: once play has started, each athlete works independently from his own position, playing to the best of his ability. He is responsible for all his own decisions on the field.

One of my favorite aspects of the rugby spirit is the concept of "all for one, one for all." In rugby, team play is more important than individual play. In fact, there is no individual recognition in rugby such as prizes for the highest scorer or the most tackles. This is because every athlete, no matter what his position (even if he spent most of the game on the bench as a substitute), makes the same contribution toward victory and shares in the same joy. This is also a wonderful aspect of rugby. It's like the teamwork exhibited by Japan's small businesses.

Another important thing is the spirit behind the phrase "no side," which is said after a rugby game. This is the phrase used to dispel the sense of home team versus opponent, recognizing the fact that they are all rugby players. After a big game, players go out and exchange their sweat and mud-soaked jerseys with the players of the opposing team. In games between adults there is the custom of throwing a party after the game where players praise each others' performance during the match. Most rugby players tell of the joy of having met lifelong friends through rugby. This is also wonderful. I would like small businesses to be like that too.

Japan's Economy Has Hidden Potential. There is a Light at the End of the Tunnel!

Times are hard right now, but moaning about how tough things are won't accomplish anything. All that small businesses can do is prepare for the worst and deal with the conditions with which they are presented by mobilizing their knowledge, efforts, technology, know-how, and human networks. Small businesses have always created their own futures.

For me, speaking with the presidents of small companies is a kind of hobby. During the parties following gatherings and other occasions, I always ask "how's business?" Lately, about one or two among ten people

have started to answer "I think things are starting to get a little better." Around the end of last year, almost no one answered this way. This almost certainly means that the economy is improving (this is probably only natural, given the massive influx of capital in the form of governmental deficit bonds).

At any rate, people are not going to stop riding the trains, they aren't going to stop playing *pachinko*, and they aren't going to stop eating. All that is needed is a change of mood for consumption to pick up again.

Japan's hidden potential must not be underestimated. During the "energy shock" when OPEC raised its oil prices, people thought that there was no way that Japan, with its scarce resources, could continue. During the time of the high yen as well, it was said that it was obviously impossible to sell the same thing at twice the price, and that only specialty items could be exported.

The strength that Japan possesses more than any other country is that even if it isn't number one, even if no one is singing its praises, there is always a multitude of small businesses working their utmost to keep making things just a little bit better, all the while holding on to their hopes and dreams.

The thing that I most fear now is that current economic conditions will make the presidents of small businesses lose their entrepreneurial spirit. The Japanese economy is going through a difficult phase, but Japan's foundations are still strong. They have been supported by Japan's small businesses.

Don't worry. There's a light at the end of the tunnel. Don't give up! **MITI**

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