

Interview with Dr. Tsuyoshi Abe, Senior Vice President & General Manager of the Marketing Headquarters, Yokogawa Electric Corporation

A VUCA World in Digital Society

By Japan SPOTLIGHT

Our key question in the Nov./Dec. 2018 issue is how digital technology, playing a key role in the Fourth Industrial Revolution, will affect the nature of our social economy. According to a distinguished IT engineer and business executive of Yokogawa Electric Corporation, Dr. Tsuyoshi Abe, digital society can be described as a “VUCA world” — that is, a world of Volatility, Uncertainty, Complexity and Ambiguity. How is it that digital society can be described as such? What are the key characteristics of this world? How well can Japanese businesses adjust their management style to this world?

In the following interview, Dr. Abe introduces this VUCA world based on his wide range of working experience in Intel and Yokogawa as senior vice president of the marketing headquarters with semiconductor and IT engineering expertise. We will apparently need knowledge of both engineering and natural sciences to survive in this digital society. Thus, the classical distinction between natural science departments and social science departments at universities could become meaningless.

(Interviewed on Aug. 30, 2018)

Introduction

JS: Could you please introduce yourself briefly?

Abe: I am the general manager of the Marketing Headquarters at Yokogawa Electric Corporation, the largest measurement and process automation equipment maker in Japan and the third-largest one in the world. Yokogawa has been a leading company in the area of process automation in industrial automation for a variety of production plant facilities, such as oil, gas/LNG, refinery, chemical, pulp/paper, power, food, medicine and so on, since we developed a distributed control system in 1975 as a pioneer. Over the life cycle of a plant facility, Yokogawa has been providing optimal solutions for the efficiency of the facility as well as its safety and security.

Our Marketing Headquarters is a bit different from those of other companies. We have 10 activities under our supervision (*Chart*), and this distinguishes us from others. The first one is to make mid-term or long-term business plans and monitor them. We announced a new mid- and long-term plan in May 2018. The second one is to



Dr. Tsuyoshi Abe

create new business. We are eager to develop a new business that we have never tried. Yokogawa was founded in 1915 as a measurement equipment maker but these past 40 years has been engaged in working on production and sales of control equipment for plant facilities to achieve process automation and design of control rooms. I believe we are now at a point to reconsider our business for the future. In line with this thinking, we founded amnimo Inc. in May 2018, a new company aiming to provide Industrial Internet of Things (IIoT) services that can be easily carried out by our customers. This company is 100% affiliated to the Marketing Headquarters, a non-profit center.

The third activity is marketing for the existing industrial automation or process automation business. The R&D center, named the innovation center, is also under

our supervision, which is unusual. Market communication, product branding, managing M&As and strategic alliances, activities related to patents and global standards are also subject to our command. Finally, industrial design is another activity supervised by us, which is very unique. I believe it is only Yokogawa in Japan that has so many business activities supervised by its Marketing Headquarters

CHART

Accountabilities of Yokogawa Marketing HQ



Source: Yokogawa Electric Corporation

and there are very few companies like us in the world.

I think these 10 business activities are all assets of marketing. We are now living in a so-called VUCA world where the key to surviving competition must be to make business decisions as quickly as possible. Considering that we must fail fast and fail forward in this volatile and uncertain business world today, our Marketing Headquarters must make decisions faster than environmental changes. It will probably be difficult to survive in a VUCA world unless even a factory makes a decision as quickly as the Marketing Headquarters does.

I had been working for Intel for 31 years and transferred to Yokogawa in 2016. I have knowledge about semiconductors and ICT industries thanks to my experience with Intel. When I became interested in working in other business areas like the energy industry and the biology industry, I got the chance to be transferred to Yokogawa.

The VUCA World

JS: VUCA world is a term describing digital society. Could you explain to us exactly what this means by showing us specific examples?

Abe: Yes. In recent years, the World Economic Forum's annual conference at Davos in Switzerland has always covered topics related to VUCA. This conference is an important venue for policy-oriented discussions among leading politicians, journalists, businessmen and academics worldwide. VUCA stands for Volatility, Uncertainty, Complexity and Ambiguity.

VUCA is what the law of increasing entropy in the second law of thermodynamics tells us about nature. Simply put, natural phenomena always move toward disorder and diffusion, according to this law. First, any natural phenomenon starts with stability, but as time goes by it becomes volatile and uncertain, and then cause-and-effect relations concerning this natural phenomenon will be ambiguous. Under these circumstances, there will be an increasing variety of responses to this phenomenon, because of this ambiguity. There will be many exogenous variables which could influence this phenomenon, and also many multiple interdependencies among these variables will be observed. This increased complexity leads to unpredictability about the future progress of the phenomenon. In the final stage, the ambiguity of the cause-and-effect relations of the phenomenon reach extremity, and because these relations remain completely unknown we cannot apply empirical deductions to achieve a solution. This law of nature must be applied to our social development today. As our society faces unprecedented large-scale changes, we cannot predict the future of any social phenomenon.

For example, in the recent US presidential election, Hillary Clinton won 64.2 million votes, while Donald Trump won 62.2 million votes. But Trump won more electors than Clinton did and became president. There were very few who predicted this outcome before counting ballots started.

Looking at a company's corporate value, in the taxi business Uber has the largest corporate value in the world, I believe. However, they do not own a single car. Likewise, Alibaba, with the largest sales channel in the world, has no stock of any shop item. Assuming that the largest media in the world now is Facebook, it has no contents of its own. Though Airbnb is supposed to be running the largest

accommodation-providing service in the world, it has no real estate. You can see that companies with no fixed costs have the larger corporate value. We have a limitless number of those examples.

I had been working in the semiconductor business while I was at Intel. In the 1970s, American firms were leading the business and in the 1980s Japanese firms like NEC, Fujitsu and Panasonic emerged as its frontrunners. However, after the 1980s, Korean firms like Samsung prospered and very few Japanese firms have survived the race until now. Thus we see changes in the leading companies in this domain very quickly. Prosperity and decline happened very rapidly.

There must be no other business area where such a speedy change among the principal players has happened every decade. In our VUCA world, such speedy changes have become the new normal and they occur now in many sectors. This is amazing and at the same time terrifying.

JS: Our manufacturing industry is not solid anymore. Is platform business replacing it?

Abe: Yes, it is. “Digitalization” or “digital transformation” is bringing about this situation. In digitalization, anybody can copy any product or technology. When the Japanese manufacturing industry was highly competitive, there was the Trinitron picture tube for television sets, which was a technology that made a clear and beautiful picture in color for TVs. Such technology, or any other, can be copied easily by anybody in our digital era. Thus, such new technology users would lose competitive advantage in a very short period. Under these circumstances, any technological competitiveness would be lost quickly and price would be the sole factor determining the winner of the competition. Any TV maker successful in selling the product at the cheapest price would dominate the market.

We have a hypothesis of an S-shaped curve concerning the life cycle of a product. A company is gaining profits when its products are on the upward trend of the curve. After that, arriving at the peak, it will be a mature industry. It took more than 33 years for the Trinitron picture tube to prevail in the market. As it expanded in the market slowly, the producer gained profits over a long time and this product assured the company of big profits. However, another more recent component of TV sets — the liquid crystal panel — had a steeper S-shaped curve and it could bring in profits for only 10 years. Such rapid change in best-selling goods is a major

characteristic of digitalization. Under such circumstances, any delay in management decisions could be fatal for earning profits, as the best market situation for a company will be over if management remains reluctant to make a decision on changing the principal products for sale. Such cases can be observed in many sectors in this VUCA world.

Rules of the Game in the Digital Economy

JS: The speed of digitalization is high and the regulations necessary for smooth operation of digital business are lagging behind the trends. For example, the European Union adopted General Data Protection Rules (GDPR) in May 2018 to try to meet the increasing need for privacy protection resulting from that enormous amount of private data being processed by digital technology. But it does not seem to be good enough to achieve the goal.

Abe: Yes, exactly. The GDPR is an attempt to deal with Complexity in the VUCA world. Another issue could be related to taxation in terms of the macro-economy. Our tax system seems to fail to deal with the increasing e-commerce emerging everywhere through digital transformation. Tax authorities have not found any countermeasures yet to collect tax from such e-commerce. They have not decided yet where to tax e-commerce — the venue of the server or the company’s headquarters. They cannot keep up with cyber business. Governments must be pressed to find a solution as quickly as possible.

The same is true of a company’s decision-making process. In Japan, changing business decisions too frequently was traditionally considered bad management. But today, a quick change of decision is considered good management. This is a big change in the decision-making process largely adopted by Japanese firms. PDCA (Plan-Do-Check-Action) is not working any longer. Japanese businesses have been fully tuned to raising the quality of a product by the PDCA process. However, PDCA cannot keep companies up with the rapid changes in market situations. Today another decision-making process has been adopted by some Japanese firms — OODA (Observe-Orient-Decide-Act). Under this process, more decision making is left to the factories or the shops working on the daily

business and facing the reality of the market directly. As a matter of fact, Yokogawa's mid- and long-term business plan adopted in 2018 recommended OODA, while also retaining PDCA. If we have the wrong plan at the starting point, then the PDCA process would produce the wrong outcome, in which case we would need OODA.

To achieve OODA, we would need a different team in our shops or factories. We would need a team of employees with a diversity of talents and expertise, like those portrayed in films like *Mission Impossible* or *The A Team*. Diversity is a key word. A team with the same kind of talents or capacities would not be able to achieve the desired outcomes. People with diverse talents and expertise at the business spots directly dealing with customers will need to observe, decide and act quickly.

JS: Consumers and producers have been considered separate entities. But from now on, will consumers need to participate in the business decision-making process to meet the needs of the market more quickly?

Abe: Yes. In our VUCA world, innovators are not the enterprises anymore. Since around the middle of the 2000s, end users in general have been considered innovators, due to the influence of digitalization, namely in this case the emergence of SNS. I would say at least 70% of innovators now are general end users. So it would be meaningless for a company to think about future business on its own. Corporations will need to collaborate with their customers even from the stage of R&D. So I believe R&D will be turned into C&D (Connect and Develop), meaning product development by collaboration between the corporation and the customers. Among the 25 projects running in parallel in my office, most of them are such C&D projects.

JS: It is often pointed out that Japanese companies today fail to create attractive products for customers and that Japan's stagnant economy is due not only to government policies but to Japanese business firms. But I guess many big Japanese companies are beginning to understand what the VUCA world means and are now prepared to produce goods that meet customers' needs.



Abe: Yes, that is true. They are successful in producing attractive goods. I think the big question for them is marketing. A good example is mobile phones. Japan has a population of over 120 million and the third-largest mobile phone market in the world, so Japanese companies can survive just by selling goods only in the Japanese market. Their first priority would be the Japanese market, while South Korea, for example, has a population of only 50 million and thus naturally targets a global market. Which market a company gives priority to would make a big difference between the sales strategies of the two nations' companies. In Southeast Asia, for example, there are many contagious diseases spread by mosquitoes, such as Zika fever or malaria. Both Japanese and Korean companies sell many air conditioners in Southeast Asia, but while Korean air conditioners are equipped with ultrasonic technology to ward off mosquitoes, Japanese ones do not have it. As Koreans target a global market as their first priority, they produce goods on the basis of an ethnological analysis of the nations overseas to understand the authentic needs of those countries. Japanese marketing strategy has not reached that stage yet.

There are of course some success cases for Japanese companies. For example, Panasonic's washing machines have won a good reputation in India. By sending their employees to live in India, they found that a sari, an Indian woman's traditional clothing, was easily damaged by existing washing machines. So they added a button for

washing a sari specifically to their washing machines for Indian customers, which won great support from Indian women.

Human Resources Needed for Digitalization

JS: What kind of talents among human resources will be needed in the age of digitalization?

Abe: I think there are five key elements necessary for human resources in this century as digitalization continues.

The first one is, needless to say, ICT literacy. You must be a master of a PC and smartphone, and in addition data literacy for analyzing statistical data would be desirable. The second one is communication capacity, including language capacity, as you may need to be active anywhere in the world. The third one is competency in collaboration — you will need the capacity to collaborate with diverse colleagues and partners. The fourth one is leadership. We will need leaders who can take initiatives in a transition period where no fixed values are dominant. Last but not least, creativity. As digitalization continues, robots and AI will replace human jobs to raising efficiency, so I believe that people will have to play a key role in creating new jobs.

Concerning Japan in particular, I think we should have more individuals with dual or triple degrees. Thus in the age of digitalization we will need intrapersonal skills, which are lacking in Japan. People with such skills will be much more creative in digitalization where the distinction between social science and natural science is blurred and an interdisciplinary approach would be productive.

JS: In order to achieve such human resources, will we need to reform the Japanese education system, and if so, how do you think we could change it?

Abe: It is difficult to change our education system. One thing I can clearly say is that we will have to change our working performance assessment system in companies. The current Japanese working performance assessment is based upon a zero-sum formula. If you fail to achieve your goal, you will get a negative assessment and vice versa. We should give up this system.

Instead, we should set high targets and even if we fail to achieve

them, any attempt to achieve them in this process would need to be assessed. We have very few methods of assessment. But it is often said that failure is the mother of success, so we will need to improve our assessment methods. Otherwise, we will not be able to realize large-scale innovations.

Mitigation of Income Inequality

JS: Income disparity is rapidly growing in all capitalist nations. Unless we mitigate it, capitalism may not be sustainable. In the digital society, we can see a rise in the sharing economy, for example Uber, which offers a taxi-sharing service. Would this mean less income inequality? Would it be considered a positive aspect of the digital society?

Abe: In my personal view, income disparity will not be mitigated but will even expand in the digital society. The authentic sense of “digital divide” will be literally “expanded income inequality”. However, I am not pessimistic about the future of the digital society. I think the basic philosophy of capitalism could be changed from an “egocentric” one to an “ecocentric” one. So many large enterprises are now pursuing the 17 Sustainable Development Goals (SDGs) announced by the United Nations in their next mid- and long-term business plans. Among those SDGs, inclusive growth (growth based on equality) and environmentally sustainable growth are included. Yokogawa is no exception. We have decided to pursue all of those goals. Of course, we are trying to earn money, but the money must be used for more ecocentric or altruistic purposes. **JS**

Written with the cooperation of Naoko Sakai who is a freelance writer.