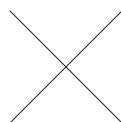




Kazuhide Hayakawa

Director, Executive Corporate Officer,
Chief General Manager, Paint Finishing System Division



Junichi Murakawa

Director, Managing Corporate Officer
Vice General Manager, Paint Finishing System Division and Senior General Manager, Engineering Supervisory Dept.

Joined Taikisha Ltd. in 1979. Held the positions of Corporate Officer, Senior General Manager, Engineering Supervisory Dept., Green Technology System Division; Senior Corporate Officer, Senior General Manager, Sales and Marketing Dept., Green Technology System Division; and Director, Managing Corporate Officer, Chief Executive, Corporate Planning Headquarters before assuming the position above in April 2019.

Joined Taikisha Ltd. in 1976. Held the positions of Corporate Officer, General Manager, West Japan Head Office, General Manager, Nagoya Office and General Manager, Osaka Office, Paint Finishing System Division; and Senior Corporate Officer, Assistant to Chief General Manager, Paint Finishing System Division before assuming the position above in June 2019.

Opening the possibility of creating new value —Paint Finishing System Division's challenges—

The Paint Finishing System Division continues to take on challenges to make the next leap forward while placing importance on “technology,” “environment” and “human resources” in the course of running its global business.

Its initiatives are at the forefront of engineering-driven value creation.

In this section, the dialogue between the Chief General Manager and the Vice General Manager of the Paint Finishing System Division sheds light on the future direction of sustainable growth pursued by Taikisha.

Q. Outline of Business

What kind of business is the Paint Finishing System Business? Please give an account of its business, such as its history and strengths.

A1. It is a job that involves directly getting a grasp of clients' requests and providing added value based on high painting quality. (Hayakawa)

The Paint Finishing System Division pursues painting quality that boosts the added value of the exterior of industrial products and thus its primary operations involve the designing and construction of systems that offer such quality. The Division is a comprehensive system integrator serving as a full turnkey supplier for painting plants, including systems that perform painting tasks, conveyor systems that convey products, robot systems that automate painting, and systems for feeding paint to the painting machine. It mainly deals with paint finishing systems of automobiles, automobile parts, aircraft, railway cars and other industrial products.

I was transferred to the Paint Finishing System Division in 2018; before that, I had belonged to the Green Technology System Division. For this reason, I truly recognize that they are different in their approach to work even though they are in the same company.

In the Green Technology System Division's business, in most cases, we undertake work contracted out from the general contractors with whom the customer placed a construction work

order. In contrast, most projects in the Paint Finishing System Business are based on orders received directly from automobile manufacturers and related parts and components manufacturers who form our main clients. The Paint Finishing System Business, whose competitors are small in number, is in a so-called niche industry. Another major characteristic is that many of its projects are overseas, accounting for no less than approximately 80% of all projects.

As we work closely with clients and are able to communicate directly with them, we are in a position that allows us to directly get a grasp of what they are thinking and what they require. This also means that if there are management inadequacies on the part of Taikisha, the risk of poor construction becomes higher. When the Paint Finishing System Division receives an order for a project, the first step is the design period, and the next step is going to the site and carrying out construction; in many cases, the employee in charge of design remains in charge of construction. Most employees in mid-level and higher positions are capable of both design and construction management.

A2. We have grown with the automobile industry by making things together with clients while engaging in direct dialogue with them. (Murakawa)

Diverse knowledge/expertise is required in our job in maintaining a close relationship with clients, who are specialists of production. In a sense, we have been educated by our clients in some aspects and made improvements and progress jointly with clients as a team in other aspects.

Looking back at its history, Taikisha gained the chance to expand into the Paint Finishing System Business by receiving an order from Nissan Motor Co., Ltd. for a spray booth at its factory in Austin, U.S.A. in 1953. Subsequently, by the late 1960s, Taikisha started doing business with domestic automobile manufacturers, and in parallel with this, Taikisha expanded its dealings to include related parts and components manufacturers as well, bringing the company to where it is today. Taikisha made inroads into overseas plants following an order received from Nissan Motor Co., Ltd. for its South American line in Chile in the early 1960s, and has since been providing paint finishing plants to overseas sites in pace with Japanese automobile manufacturers expanding overseas and forging ahead along with the progress of the automobile industry in Japan and overseas.

In this process, we have been providing made-to-order designs and cutting-edge technologies tailored to clients' needs, which has been our strong point. Another strong point is that we have established business offices in many overseas locations before other companies.

The Paint Finishing System Business currently has three business offices in Japan and eleven business offices overseas (i.e., U.S.A., Mexico, Brazil, Italy, India, Thailand, Indonesia, Malaysia, China and South Korea), in addition to business offices in Canada, Russia and Germany in the form of subsidiaries of affiliates. Client companies are mainly Japanese automobile manufacturers that have expanded into foreign countries, as well as local automobile manufacturers in the United States, Europe,

China and South Korea, in addition to aircraft makers in Japan and overseas.

We started by making things together with clients while engaging in direct dialogue with them, enabling us to form a relationship with various manufacturers. While developing our technological capabilities to gain market recognition in this process, we have grown together with the automobile industry, which we believe has helped make Taikisha into the company it is today.

Clients' requests are wide-ranging; however, many clients request cost reduction while ensuring quality upon the construction of a new facility or the expansion of an existing facility, or in a nutshell, so-called "Value Engineering (VE)/Value Analysis (VA) proposals." There is a constant demand for the creation of high-quality facilities within a limited budget, and it is the toughest issue for clients. To meet their requests, we make proposals by leveraging new technologies as well as our wealth of past experience.

In addition to meeting such requests as a matter of course, if we take environmental conservation as an example, I believe Taikisha's engineering is about providing clients with facilities that can contribute to society by further increasing added value through higher-than-ever energy-saving performance, etc.

At automobile plants, a large portion of its energy is consumed in paint finishing lines. This is because of repeated heating and cooling involved in baking the paint onto the auto body in paint finishing lines. Our Paint Finishing System Division excels in providing facilities with high added value that incorporate technologies to reduce energy consumed in such paint finishing lines, as well as technologies to remove volatile organic compounds (VOCs), which cause air pollution.

A3. We have adapted to the globalization of the automobile industry and formed alliances with overseas companies since the early days. (Murakawa)

Since the early days, the Paint Finishing System Division had set its eyes on China, the world's most populous country, and India, the second-most populous country in the world, and expanded our businesses in both countries with the expectation that their domestic automobile demand would increase in the future.

In 1994, Taikisha entered into a joint venture agreement with the Fifth Design Institute of China and commenced its full-fledged expansion into China. At the time, the automobile market was expected to expand rapidly in China, as it was about to enter into a period of high economic growth.

In the following year of 1995, Taikisha entered into a joint venture agreement with MARGO. ENG in India and made inroads into the Indian market as well. At the time, Japanese automobile companies were aggressively making local investments in India.

In 2011, Taikisha formed a business and capital alliance with Geico S.p.A. ("Geico"), a paint systems company in Italy, and

further enhanced its overseas network of business offices to expand its business into Europe, Russia and South America, among others. Geico looks highly promising as a strategic base in Europe. In contrast with Taikisha, which had lacked experience in doing business with major German automobile manufacturers, Geico has an extensive track record with European automobile manufacturers based on its unique sales strategy, and will thus play a central role in tapping the European market going forward, in addition to approaching local joint venture companies of European automobile manufacturers that have expanded into China.

In 2014, Taikisha entered into a business and capital alliance with Encore Automation LLC ("EAL"), a robot application systems engineering company in the United States, and enhanced its after-sales service framework to expand its paint system robot application business in the North American market. EAL, equipped with powder coating technology, receives many work orders from Chrysler, which solely adopts this technology in the U.S. automobile industry to differentiate itself from others.

In the aircraft industry, EAL has experience in doing business with The Boeing Company, and also deals in automatic polishing and automatic painting, among others. In 2019, Taikisha turned EAL into a wholly-owned subsidiary of TKS Industrial Company.

Going forward, we intend to further expand the Paint Finishing System Division's overseas operations with these allied companies.



A4. Localization through technology transfer is becoming a challenge for survival in an environment of global competition. (Hayakawa)

As explained by Mr. Murakawa, Taikisha has a history of evolving its paint technologies together with automobile manufacturers. Especially in our overseas businesses, we pursued overseas expansion together with clients in response to their requests when Japanese automobile manufacturers expanded overseas. In the early days of overseas expansion, lack of understanding of the local culture and language was a problem for employees of Japanese automobile manufacturers who had to take command at overseas sites. So, to begin with, they selected Taikisha as their business partner for its track record in Japan and its ability to go to those overseas sites with them and communicate in Japanese.

However, by the time their second and third factories were established at overseas sites, local contractors who had worked as Taikisha's subcontractors during the construction of the first factory learned the skills and became Taikisha's competitors.

Although the training of local subcontractors cannot be neglected, they will become Taikisha's competitors in the next chapter if we upskill them, posing a huge dilemma. As there is no effective solution to this, we will be required to constantly

train new subcontractors and, at the same time, promote cost reduction to beat the competition. It is also important to provide value without being dragged into price competition by leveraging our strength, that is, our deep knowledge of special specifications unique to clients gained from our extensive construction experience.

On the other hand, we must promote localization by minimizing the number of Japanese staff at our overseas business offices going forward. We need to enhance national staff education and further promote technology transfer.

To deal with these challenges, we are engaged in a trial in which overseas national staff have been assembled in Japan to be provided with education at actual sites in Japan. We also plan to launch a trial of on-the-job education for resident national staff at overseas construction sites to be provided by Japanese employees dispatched from Japan.

Q. Response to changes and growth axis What are the issues currently faced by the Paint Finishing System Division? Where is the Division heading?

A1. The Paint Finishing System Division's portfolio needs to be expanded from a long-term perspective to prepare against changes. (Hayakawa)

The automobile industry is now entering a so-called once-in-a-century transformational period. While the interpretation of this transformation varies slightly from automaker to automaker, not many manufacturers expect exterior paint finishing to disappear from automobiles, at least for now. Rather, they seem to be more conscious about differentiating themselves by paint finishing.

Exterior paint finishing of automobiles is not expected to disappear immediately, but in the long run, it might change in conjunction with changes in materials, or the task of paint finishing itself might disappear. The reason why steel is used in the exterior of automobiles is that it is affordable and easy to procure and process. Another major reason is that in the event of an accident, steel's strength ensures the safety of persons inside the vehicle. If automated driving becomes widespread in future society as a whole, hardly any accidents will occur, so the material will no longer be steel; it is expected to be replaced by plastics, resins and other materials colored from the start. By the time the world of automobiles has undergone so much change, paint finishing may no longer be necessary. It is likely to take many years for us to get there. This is because accident-free safety cannot be realized without eliminating all non-autonomous vehicles.

That said, I believe it will be necessary to expand the Paint Finishing System Business's portfolio to prepare against changes from a long-term perspective. For this purpose, we are working on the automation of polishing and painting processes of aircraft

and railway cars as new fields other than automobile paint finishing. Automatic scanning, automatic polishing/painting/ decorating and other such technologies currently being developed here are expected to be in high demand not only in aircraft and railway car industries but also in other industries, such as machine tools, housing equipment and precision machinery, creating an opportunity for market expansion.



A2. We are pursuing automation by applying robot and conveyor technologies. We are also promoting development to adapt to Internet of Things (IoT) and artificial intelligence (AI). (Murakawa)

In February 2019, Taikisha opened the Technical Center in Zama City, Kanagawa Prefecture by consolidating and expanding the technological development bases of the Paint Finishing System Division.

One of the development themes tackled at the Center is the automation of various processes based on the application of robot technology. Automation of polishing and painting processes for aircraft and railway cars is also part of this effort. As the conventional process involved attaching a paint-spraying gun to the tip of a robot arm for use in automobile paint finishing, the Center completed a device that automates the task of stripping old paint from the surface by replacing this part with rotary sandpaper for polishing purposes. Having already completed the basic robot technology for these kinds of applications, we hope to deploy the technology proactively.

On the other hand, adapting to the IoT and AI trend in society is also a significant development theme. Taikisha has developed "i-Navistar," a system for suspending operation and analyzing causes when a quality defect arises by utilizing IoT and AI based on various sensing data in automobile paint finishing lines. Since

its release in February 2019, many customers—especially automobile manufacturers—have shown interest, and Taikisha has already built a track record of orders received. Going forward, we will pursue the widespread popularization of i-Navistar by overcoming issues in expanding businesses in the fields of IoT and AI, including introducing camera and image processing technologies in place of conventional sensors, aimed at reducing costs of various sensing required for information volume input.

A3. In view of the future impact of the novel coronavirus (COVID-19), we will respond to changes based on finely-tuned strategies. (Hayakawa)

Now, I would like to comment on the impact of the COVID-19 pandemic on clients' industries.

In automobile-related industries, which have suffered a global market slowdown combined with supply chain disruptions as a result of the COVID-19 pandemic, there are concerns that manufacturers' earnings might deteriorate, but I believe that innate demand in the automobile market has not disappeared, despite uncertain prospects for the immediate future. While the trend in investments in automobile production facilities is

expected to be subdued due to decreased demand for some time to come, we intend to formulate a strategy to turn this difficult situation into an opportunity.

Likewise, for aircraft and railway cars, demand seems to have declined in a manner similar to the automobile market; nonetheless, we will boost Taikisha's presence in these markets, which will be huge in a "Living-with-COVID-19/Post-COVID-19" world.

A4. Allied companies' proprietary technologies will be shared within the entire Group. Efforts will also be made to build a governance system. (Hayakawa)

With the aim of further enhancing the Paint Finishing System Business, Taikisha convenes an alliance meeting to share Geico and EAL's proprietary technologies within the Taikisha Group as a whole. Taikisha is pushing ahead with alliance activities while maintaining a good relationship based on mutual respect with Geico and EAL, both of which have a common passion for creating something new, notwithstanding differences in country and culture. Going forward, we intend to promote collaboration among the business offices in development plans and tasks such as experiments as well, to build an alliance relationship at a deeper level.

We believe that the key to governance of allied companies lies in the board of directors—including Taikisha employees who serve as directors in those companies—playing a central role in

governance. On top of this, it is important that Taikisha determines its policies in response to reports on matters brought up by the board of directors by making its business divisions scrutinize and give careful consideration to the content of such reports.

Being mindful as a member of the Taikisha Group sharing common management policies, we are pursuing prosperous coexistence by heading in the same direction. As we believe it is important to facilitate communication and build a relationship based on open-mindedness for this purpose, we convene monthly meetings with allied companies in an effort to build a robust governance system by holding discussions not only on business performance but also on important matters, including those related to management.

Q. Approach to and vision for the future

What are your thoughts about the future of the Paint Finishing System Division?

A1. We will identify and fulfill the ideals and needs of painting plants by adapting to the automobile industry, which is entering a period of major transformation. (Hayakawa)

As explained earlier, the automobile industry, which is a major client of the Paint Finishing System Division, is entering a period of dramatic transformation. In addition to the transformation of automobiles themselves (i.e., CASE: Connected, Autonomous/Automated, Shared & Electric) and significant changes in the mode of operation (i.e., MaaS: Mobility-as-a-Service), production systems are also undergoing change.

On the other hand, automobile paint finishing lines are shifting from conventional large and heavy systems to simpler systems. Especially in terms of eco-friendliness, there is a trend towards zero CO₂ emissions, reduction of VOC emissions (higher coating efficiency) and simplification of systems.

In order to adapt to such changes in the environment, the Paint Finishing System Division has launched the "Dream Plant

Concept" initiative. The objective of the "Dream Plant Concept" is to create a vision of plants to be pursued by Taikisha based on the ideals and needs of painting plants sought by automobile manufacturers, to realize "zero CO₂ emissions," "100% coating efficiency of paints," and "unmanned plants" through the simplification and automation of systems. We will not only contribute to clients' profits but also help reduce the impact on the global environment by striking a balance between the two. While designing, engineering planning and development divisions are playing a central role in this initiative, we will incorporate many opinions of young engineers who will lead the next generation of the Paint Finishing System Business to pave the way for a new era of paint finishing systems.

A2. We will contribute to society with our technologies, focusing on energy-saving and environment-responsive technologies. We will take on challenges based on new ideas. (Murakawa)

Earlier, I gave environmental conservation as an example and

stated that Taikisha's engineering is about providing clients with

facilities that can contribute to society by increasing added value through superior energy-saving performance, etc. For us, as you may expect, energy-saving and environment-responsive initiatives in the construction of paint finishing plants are the centerpieces of our efforts.

We meet clients' needs and society's requirements by taking advantage of various environmental technologies, including reducing energy usage by suppressing the airflow in booths and the temperature in drying ovens, in addition to saving electricity by reusing the temperature of high-temperature exhaust gas and refining electrodeposition tanks, and even reducing harmful VOCs by improving the coating efficiency of paints. This requires an eagerness to take on challenges based on new ideas without being bound by existing systems and concepts.

On the other hand, clients who are progressive in their environmental initiatives, for example, Toyota Motor Corporation, has set a target to reduce CO₂ emissions from new vehicles, life cycle and plants to zero by 2050. Even in resolving

clients' issues like this, we will approach clients proactively by endeavoring to make proposals that are more effective, including energy-saving by utilizing solar power generation, wind power generation and other renewable energy, introducing energy management systems and curbing the generation of CO₂ emissions through heat source conversion in drying ovens.

We are engaged in initiatives to contribute to society by leveraging the technologies that we have nurtured to date also with respect to themes other than environmental conservation. In July, we released "Barrier Cube," an emergency shelter to be assembled in the event of a disaster to reduce the risk of COVID-19 infections at indoor evacuation centers, based on the application of results yielded from the development of paint booths and air filters. We intend to continue widening the range of our social contribution in various ways.

A3. We are striving to upskill employees and improve their quality of life by focusing our efforts on education for increasing the value of human resources as well as on the improvement of operations. (Murakawa)

Employees are the biggest assets of Taikisha as an engineering company; nothing is more important than internal education that boosts the value of employees. To begin with, in order to realize the career plans of young employees in Japan, Taikisha has formulated an upskilling education plan that would serve as a basis for their plans. Having enhanced various materials so that they would be useful in practice, including how to use them, we are striving to raise their standards on an ongoing basis over an education period of ten years from the time they join the company. In addition, we hold workshops for acquiring qualifications and recommend employees to take the TOEIC test, given the large number of overseas works.

Furthermore, in terms of initiatives for work style reform, we are improving operational efficiency and simplifying operations in consideration of work-life balance as a measure to adapt to changes in the lifestyles and values of the younger generation. This increases the time they can spend with their family, for leisure and on self-improvement, contributing to better quality of life for each and every employee.

Among operations, overseas construction work, in particular, is deemed to give an enormous sense of fulfillment upon completion to the employee who had to be in charge throughout the entire process, not only the construction of the system designed by him/her while cooperating with local staff at an overseas business office but also all other tasks until the system is handed over to the client. However, an employee cannot be assigned to such overseas construction work without having solid knowledge and experience as an engineer. For this reason,

the Paint Finishing System Division conducts basic education and education tailored to on-site operations targeted at personnel ranging from new recruits to employees in their tenth year of employment and puts them on job rotation to improve their design capabilities and site management abilities.

On the other hand, for the education of national staff, we conduct technology transfer based on on-the-job training (OJT) throughout the progression of the project. In addition, for the training of persons responsible for safety management, we conduct training sessions in Japan in an effort to improve their operation standards through such means as lectures on management methods and site inspection tours. In recent years, there has been an increasing number of "self-contained" projects at overseas business offices, giving rise to the need to carry out technology transfer further with respect to new systems, including acquiring new skills. As for national staff, our challenge for the future is to pursue qualitative improvements in terms of project management, cost control and other aspects, while improving technological capabilities, and make enhancements on the compliance front as well.

As explained by Mr. Hayakawa, headhunting of skilled individuals is rife overseas, resulting in the outflow of human resources to competitors. We must make solid profits at overseas business offices while focusing efforts on improving the treatment of national employees and engaging in communication with them. We will also reflect appropriate personnel assessment in distributing the profits, in an effort to retain national employees.

A4. As a promising business division, we will develop human resources with a positive mindset for taking on challenges and grow together with them. (Hayakawa)

Our motto in the Paint Finishing System Division is to continue to take on challenges in new fields at all times while ensuring solid business performance in its core business.

Our specific initiative going forward will be to master paint technologies and realize paint finishing with 100% coating efficiency at an early date. We intend to apply robot and conveyor technologies and take on various automation challenges as well. Especially for robots, we will expand the possibilities infinitely by substituting the tip of a robot arm with an alternative device without limiting ourselves to automobile

paint spray guns, which are the mainstay in our current business.

The Paint Finishing System Division is a business division with enormous future potential. We hope to develop human resources with a positive mindset for taking on challenges and continue to grow together with them.