SHAPING A BETTER FUTURE

Building Value and Building Excellent Products for JTEKT

Four years have passed since we established JTEKT Group Vision.
On this occasion, we have held a panel discussion with five engineering-related directors to reflect upon the Building Value and Building Excellent Products components of JTEKT Group Vision and talk about the direction of future initiatives.

A reflection on Building Value and Building Excellent Pro ducts for JTEKT

Moderator Reflecting upon history to date, what are the milestones that JTEKT has accomplished in terms of Building Value and Building Excellent Products?Moreover, in order to realize this Vision moving forward, what are your thoughts on JTEKT's unique strengths?

Miyazaki Looking back at our company's history, which is close to a century long if we include our predecessors, Koyo Seiko was a company founded on the bearing business, but afterwards it came to also offer auto parts and systems, and even production equipment. Furthermore, Toyoda Machine Works' origins lie in the machine tools division of Toyota Motor Corporation, but the company expanded from production equipment into auto parts. JTEKT is a young company conceived through a merger in 2006 but both companies shared a common trait before merging of not being stuck in the status quo and instead expanding business areas by leveraging our respective strengths. Even today, companies that do business in both the auto parts and production equipment fields are few and far between, so this is a unique characteristic of JTEKT and the backbone that has supported our advancement to date. Even in regards to future Building Value and Building Excellent Products, this characteristic is a strength we can leverage and I think there is much value that only JTEKT can offer.

Takahashi In terms of traces of past growth, I think one major point is that we firmly caught the giant wave of motorization that washed over us from the 1960s onwards. With the popularization of automobiles, we were able to largely expand our business areas to include not only bearings and production equipment, but also propeller shafts and steering.There is a need to have the ability to foresee changes in social structure, but I think JTEKT still carries the DNA our predecessors conceived.

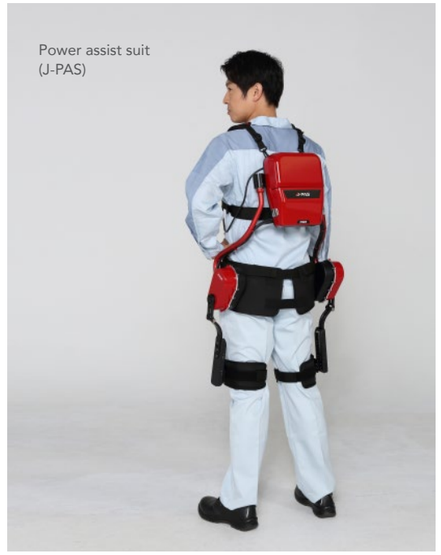
Hayashida Additionally, I definitely believe another factor that has contributed to "Building Value" up until now is the technological capabilities we have refined over many long years. JTEKT's five basic technologies are material engineering, tribology, precision machining, electronic control technology and measurement/analysis, however a major behind-the-scenes factor to the advancement of our products and services is, I believe, our unceasing quest for these "seeds".

Initiatives and outcomes in recent years

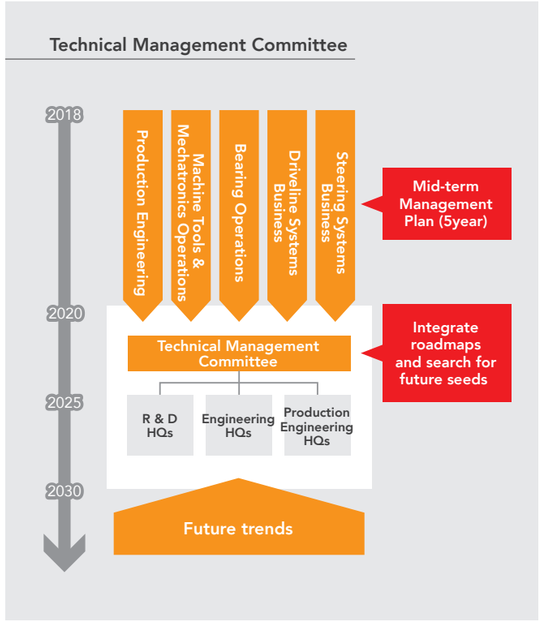
Moderator To date, each individual business headquarters has leveraged this strength and engaged in initiatives aimed at the realization of JTEKT Group Vision. What do you think some concrete outcomes have been?

Takahashi For the creation of new value, we must convert the aforementioned strengths into concrete businesses with greater speed, and deliver them to the market and society.
This requires the establishment of an internal platform able to track changes in society. Last year, in our efforts to promote new businesses, we focused on our planning promotion function with small teams and strengthening of our function to monitor new business themes from a multifaceted perspective.
The power assist suit is the perfect example of a new business that was conceived from the establishment of this function and I think the fact we have been able to build such a platform that we can utilize moving forward is a major step forward.

Segawa From the aspect of "foreseeing", I think our Technical Management Committee, which updated its processes last year, is serving a significant role.
To date, the Engineering Headquarters has considered which technologies, products and services we should offer in the future with a primary focus on the mid-term management plan established by the business headquarters however we were not sufficiently preparing ourselves as we did not see beyond the scope of this mid-term plan.
Hence, as of last year, with Engineering Headquarters taking a central role, roadmaps on future social trends and technologies have been shared and integrated with the Production Engineering Headquarters, Research & Development Headquarters, etc. and we have become able to smoothly consider the preparations required for pursuit of seeds ten years into the future. Collaboration between individual business headquarters is strengthening, and I feel we have created a good, open-minded environment in which we can stimulate each other.


Power assist suit
(J-PAS)

Takeoka A similar initiative is being promoted by the Production Engineering Headquarters also. From last year, we began holding liaison committees between each business headquarters and the director-general to discuss product development scenarios then work together to make them reality.
Our headquarters is one which manifests "Building Excellent Products," however up until a few years ago, although we would look at the product development scenarios of each business, we were not sufficiently constructing scenarios on the whole and, in some ways, we were taking a passive stance in relation to the business headquarters. Through the aforementioned liaison committee, our headquarters and each business headquarters have shared information, which I think has produced the positive outcome of not overlooking themes for consideration and eliminating any need to backtrack at the mass production stage.



* J-PAS is a registered trademark of JTEKT Corporation.

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Future environmental changes requiring attention

Moderator What are your views on the environmental changes JTEKT should be on top of in the future and what are the challenges you feel our company on the whole face in order to realize JTEKT Group Vision?

Miyazaki Considering the external environment predicted for 2030, JTEKT needs to be on top of changes in population demographics. Populations continue to rise around the globe however, in Japan, our population will drop due to a declined birth rate. This will have a major impact on JTEKT's monozukuri framework and domestic businesses.
Furthermore, as has been said for some time, we will enter an era in which even greater energy efficiency will be sought in response to energy issues. I think a major challenge will be the way in which JTEKT can contribute towards preservation of our planet's environment.
Another change that I believe requires attention is the accelerated rate of technological innovation. In terms of the automobile industry specifically, it is predicted that a once-in-a-century mobility revolution will occur, best represented by "CASE" (Connected/Autonomous Driving/Sharing/Electrification). Even when we look at the manufacturing industry on the whole, remarkable technological innovations are occurring in the form of IoT, AI and so forth. I want to see JTEKT proactively incorporate these as business opportunities.

Takahashi Automotive-wise, CASE is a major trend however I also think it contains threatening elements in terms of the future. For example, if car-sharing was to become popular, business growth, like that we saw in the past during the wave of motorization, could not be predicted. In this sense, moving forward, I think we need to thoroughly identify society's needs with a broad perspective, not only focusing on automobiles, but also issues in fields such as energy and agriculture.
However, I do not feel that JTEKT is currently succeeding at mustering the knowledge of our approximate 50,000 employees groupwide. Irrespective of the area, the needs of each country differ and we need to strengthen our ability to gather information on such needs.

Future policy and ambitions for the realization of JTEKT Group Vision

Moderator Four company-wide issues that JTEKT must address are response to population/labor problems, response to environmental problems, response to technological innovation and response to broad social/customer needs. What kind of initiatives do you plan on promoting in each headquarters to address these companywide issues?

① Response to population/labor problems

Takeoka Already there is a problem of labor shortages in production shops due to a decline in the working population, therefore I feel we need to reorganize our monozukuri framework immediately. Particular in our domestic bases, we urgently need to establish operator-reduced, fully automated lines.
Even in regards to production preparation processes, we lack sufficient domestic resources to cover JTEKT's global operations, therefore a crucial point is the extent to which we can utilize production engineering capabilities on a global level. To this end, the Production Engineering Headquarters implements a PDCA cycle as a KPI for the localization percentage of production preparation. There is a need to standardize production preparation processes globally and optimize resources as one unified JTEKT.

② Response to environmental problems

Takeoka In terms of the environment, I feel issues will grow increasingly difficult moving forward. For example, in regards to CO2 emissions, we are not required to merely suppress the emissions per base unit, but also make reductions based on overall volume. In our Environment Challenge, we declared our general targets of reducing CO2 emissions to one half by 2020 and one-third by 2030 (both of which being emissions per base unit) however there is a need to respond on the completely different dimension of overall volume reduction and the Production Engineering Headquarters considers this a major challenge.

③ Response to technological innovation

Hayashida As for response to technological innovation, we believe it is important to follow trends with agility, therefore began engaging in strategic open innovation from last year in an effort to promote "agile" development.
We are strengthening our collaboration with government, universities and public research institutions and will more broadly and proactively promote activities relating to ventures and different industries in the future.
To achieve this, we will need to implement internal changes so that we can immediately respond to external environmental changes. Currently, under the “Brilliant R&D Concept”, the Research & Development Headquarters is pushing ahead with various measures including reform of research (workplace) culture. We will need to continue being creative and bold in order to make new progress in the area of "Building Value."

Segawa Another major challenge is human resource management within our company and this relates to the population problem.
To date, each base has allocated resources with emphasis on their originality, however this was not being sufficiently controlled as JTEKT overall. Moving forward, we need to think about how we can most efficiently utilize a limited workforce as one unified JTEKT.

④ Response to broad social/customer needs

Segawa From the perspective of gathering information on needs, I do feel we aren't sufficiently achieving this for emerging countries. Even in the Engineering Headquarters, we were only considering trends and needs in each country from our point of view and creating roadmaps based on these, but in terms of the adequateness of this process, we should have exerted more effort to gather opinions and verify content from various angles.
As such, this year, we began creating an image of JTEKT's future. This captures the trends and needs of each country, the areas where JTEKT wants to contribute and necessary items and technologies. As we compile it, I want to depict a future for JTEKT in which we can dream by having various discussions and revelations which can in turn develop into new technologies, products and services that will facilitate our contributions to society.

Future issues	Activities
① Response to population/labor problems	• Establishment of operator-reduced, fully automated lines in domestic bases • Glocalization of production preparation
② Response to environmental problems	• Response to regulations on total allowable volume
③ Response to technological innovation	• Establishment of an agile development framework utilizing strategic open innovation • Reform of research (workplace) culture • Organization of human resource management
④ Response to broad social/customer needs	• Image of JTEKT's future as a company with aspirations contributing to society

In closing,

Moderator I'd like to ask Senior Executive Director Miyazaki to wrap up today's discussion.

Miyazaki As we stated at the outset, JTEKT is both simultaneously a parts manufacturer and an equipment manufacturer. In other words, we have contributed to the advancement of our company and society by interpreting "Building Excellent Products" and "Building Value" as two parts of a whole. More than ever before, we will create a future vision with speed and have all divisions unite to promote activities which incorporate "back-casting" into our issues and innovation activities through collaboration with external parties. As the Engineering Division we will add "Kotozukuri" (the story behind making things) to our key pillars of "Building Excellent Products" and "Building Value".