Technology Strategy

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CTO Message

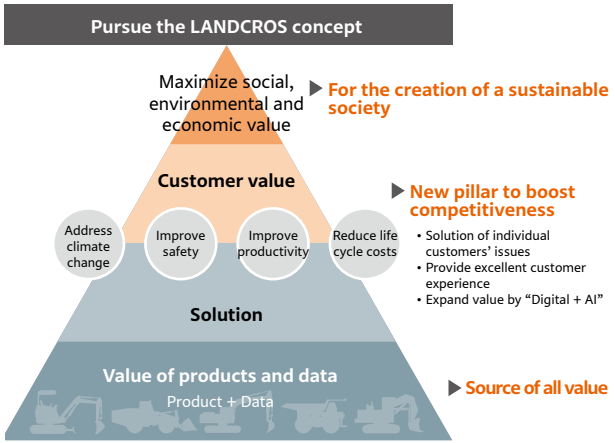
We will further enhance our products and solutions and combine them with digital technologies to contribute to the solution of problems faced by customers and to the sustainability of our society, thereby embodying LANCDROS.

Becoming an Organization with the Industry's Top-Level R&D Capabilities to Deliver Solutions Using Leading-Edge Technologies

I am Itaru Nishizawa. I became Chief Technology Officer (CTO) of the Hitachi Construction Machinery Group in April 2025. By upholding LANDCROS as its new concept, the Group is working to enhance its capability to develop digital solutions that make maximum use of data, with an eye to transforming itself into a true solutions provider. I think I was appointed to be one of the members of the Group's new executive team, being expected to play the role of accelerating that transformation based on the expertise that I have gained by overseeing R&D projects on digital technologies, including those for data management and AI at Hitachi, Ltd. After joining Hitachi, Ltd. in 1996, my career involved many roles as a member of its Research & Development Group. In 2015, I took charge of co-creating new businesses with customers at the Digital Technology Innovation Center. Subsequently, I became General Manager of the Center for Digital Services in 2022 and CTO of the company in 2023. I have thus been engaged in the creation and implementation of innovation strategies throughout most of my business life. Now, as CTO of Hitachi Construction Machinery, I deem it my mission to deliver solutions using leading-edge technologies to customers, for which I am committed to leading the company to become an organization with the industry's top-level R&D capabilities.

In line with our R&D policy shown below, we will add solutions using digital and AI technologies to our product lineup (machinery) and their data, which give us a source of all value, thereby building a pillar to boost our competitiveness and offering more value to our customers while maximizing our own social, environmental and economic value. Doing this will help us realize the LANDCROS concept.

Hitachi Construction Machinery's R&D Policy



Looking back on the technology history of Hitachi Construction Machinery, the company developed the UH03 as the first 100% Japanese technology hydraulic excavator 60 years ago. It is true that our strength lies in powerful machines equipped with hydraulic systems and control technologies, but now we also have strength in ConSite and other digital services. ConSite is a 24-hours-a-day,

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365-days-a-year machine status monitoring system, which makes effective use of the data obtained from the targeted machines to analyze and diagnose their status to detect signs of failures at a higher rate for their stable operation and reduction of their life cycle costs. We also focus on digitalizing the entire construction process to improve the safety and productivity of construction sites. Our customers need to increase overall safety and productivity at their construction sites from the pre-construction to post-construction processes, in addition to improving the safety and productivity of their construction machines. In response, we will combine the optimal machines and solutions for individual customers to provide them with a one-stop service.

As for ICT construction based on the use of digital technologies, such as the 3D machine guidance system, many of our customers are still unaccustomed to it, so we are still only halfway through the popularization of this construction method. We are now supporting our customers in introducing ICT construction systems as a partner that works with them for the solution of their problems, attributing importance to the operability, functionality and display performance of the systems. Specifically, we developed an easy-to-see and easy-to-use 3D machine guidance monitor, an app that centrally manages related equipment and on-site information, and other innovative solutions. In order to respond promptly to the diversification of the challenges faced by our customers, we are conducting R&D on ICT construction technologies with agility. As for remote solutions, we added RBT Core Connect hydraulic excavators to the lineup of RBT series in August 2024. The Core Connect excavators can be connected to our customers' existing systems for smooth remote control and autonomous driving. To this end we have visualized the information about the excavators in an intelligible manner and also enhanced the machine & area control functions to cover the shortage of information incidental to remote operation, thereby helping our customers improve the working environment and safety at their construction sites. On the other hand, we have also been developing a new cockpit control system, which is a mainstream remote-control method, and exhibited the developed system at CSPI-EXPO 2025 held in June 2025.

Moreover, at bauma 2025 held in Munich in April 2025, the world's largest international trade fair of construction and mining machines, we exhibited LANDCROS Connect as a system to centrally manage the machines in operation at construction sites, including machines made by other manufacturers. By introducing digital technologies and the power of data to construction sites, we will create new customer value and offer even more advanced services to our customers, which I think is the direction that Hitachi Construction Machinery should pursue toward the future.

Having a Bird's-Eye View of the Future Construction Machinery Business to Accelerate Hitachi Construction Machinery's Innovations

Our Business Units (BUs) sincerely listen to the voices of customers in line with the LANDCROS concept and work to provide them with solutions that will meet their on-site needs. On the other hand, based on the concept, the Research & Development Group is striving to create the technologies that will contribute to future construction sites from a medium-to long-term viewpoints, thereby leading the creation of value by the entire Hitachi Construction Machinery Group. The BUs and the Research & Development Group are collaborating in each business phase while playing their respective roles toward the maximization of the value that they can deliver to customers. They are thus working as one team based on the technology strategy roadmap articulated to keep consistency between (1) the customer needs identified by the BUs, including the future requirements to be met at the customers' construction sites and the technologies that Hitachi Construction Machinery should develop to meet the needs and (2) the seeds of technologies possessed by the Research & Development Group. Also, the BUs and the Research & Development Group will share the firmwide goals set in the roadmap. We update the technology strategy roadmap every year, and in the updating process we check whether or not the development themes of the Research & Development Group and those of each BU are strategically aligned. For the maximization of the entire company's technology development capabilities, I will work for optimal personnel assignment and flexible job rotation and lead measures to help the BUs and the Research & Development Group deepen their mutual understanding and collaboration.

In order to clearly indicate our long-term technology vision in the roadmap, I started to build a portfolio of base technologies. It is of course important to foster on-site R&D in a bottom-up manner, but it would be difficult to enhance a specific technological field in a strategic and selective manner only by doing so. We need to set our R&D themes also from a top-down method by backcasting from a desirable future for us, thereby ensuring consistency between our technological strategies and actual development activities. In particular for hydraulic systems, which help ensure the high reliability and operability of our construction machines and represent our core technology, we are required to enhance the systems on a continual basis. Also, we need to proactively adopt digital technologies, especially in the sensing, AI, control and remote communication fields, which have been

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rapidly advancing recently and which we regard as priority fields for us. Meanwhile, technologies are advancing with more diversity and speed, making it unrealistic for a single company to do everything on its own. Accordingly, in order to achieve quite challenging technological targets, I think it is necessary for us to actively collaborate in an open manner with startups and academic organizations that have leading-edge technologies that we lack, thereby fostering open innovation to gain the necessary technologies.

Identifying the Needs of Diverse Users in Depth for Five Advanced R&D Themes

Hitachi Construction Machinery is presently promoting R&D on the following five advanced themes: improve safety, improve productivity, reduce life cycle costs, address climate change, and foster globalization. All these five themes are important, and in order to take the next step for each of them, we need to make more specific R&D action plans based on the precondition that products and solutions be provided in an integrated manner. In order to meet this requirement, we are continuously collecting opinions from customers after providing them with solutions that help solve their problems and utilizing their feedback for the improvement of our technologies, products and solutions. We are also focusing on identifying new customer needs and potential customer value beyond making improvements through the activity. Moreover, for the future development of products and solutions from a wider perspective, it is essential for us to also collect opinions from users of our competitors' products and understand their needs in addition to listening to the voices of our existing customers. We are therefore making effective use of various opportunities, such as trade fairs, to collect opinions more widely from the industry and local users.

At CSPI-EXPO 2025 held in June 2025, we displayed the Solution Linkage Series as our ICT and IoT solutions to improve the safety and productivity and reduce the life cycle costs of construction machines; a hydraulic excavator equipped with our P-Line attachment changing system; and a battery-powered hydraulic excavator designed for zero emissions at construction sites and portable charging equipment. These exhibits attracted much attention from visitors. In the mining field, we developed the LANDCROS Connect Insight solution by analyzing the operational data of mining machinery, which we had collected in almost real-time by remote monitoring of the machines. This solution has started to be utilized at mining sites of our customers across the world to increase on-site operational efficiency, including in Australia, Zambia, Chile and the United States.

For the theme of addressing climate change, we are speeding up measures for zero emissions at construction sites in cooperation with our customers and business partners. To this end, we started to sell three battery-powered excavator models: ZX55U-6EB (5-ton class), ZE85 (8-ton class) and ZE135 (13-ton class) along with portable charging equipment in Japan. We also showcased these three models at bauma 2025 and have received a very positive response from customers in the European market. What is important for the achievement of zero emissions is to deliver to construction sites both Hitachi Construction Machinery's products and the solutions developed by combining storage batteries and other related products with the products. For this, I think it is essential to collaborate with a greater number of partners in our development activities.

For the theme of fostering globalization, we are increasing the speed of releasing products at KTEG GmbH, which we established jointly with Kiesel Technology GmbH of Germany, for customers in the European market where there is demand for advanced machines, including electrified and ICT system-equipped machines. Also, in January 2025, we established Hitachi Construction Machinery Development Center India Private Limited as a consolidated subsidiary to engage in the design and development of construction machines tailored to meet the needs of emerging economies. In India, we will employ/develop about 200 developers and designers who are well versed in the fields of machine engineering and IT by FY2027, thereby speeding up our local development activities in the country.

Providing All Customers with Open Solutions beyond Market Boundaries

The world's construction machinery market will continue to grow with the advancement of technologies, but cost competition will become more intense in the market, where some product technologies have already reached the stage of maturity. In order to steadily achieve growth in such a business environment, we must develop innovative products in the growth sectors of the global market and also expand our business to include new domains. To this end, it is important for the management team to articulate a growth story for the future of the company and align its R&D policy with that story. Based on this recognition, we will further enhance the products and solutions that we have developed so far and combine AI and other digital technologies with them to help customers solve their issues and to contribute to the sustainability of our society. We will do this based on our LANDCROS concept. Providing customers with open solutions beyond market boundaries will surely add strength to Hitachi Construction Machinery.

To build the portfolio of base technologies that is necessary for us, we should consider expanding the scope of collaboration with external partners, including conducting joint research activities with academic organizations and participating in national projects, in addition to fostering open innovation initiatives through the Hitachi Construction Machinery Innovation Summit, Hitachi Construction Machinery Challenge 2024, ZERO EMISSION EV-LAB and the Kasumigaura Value Creation Hub. I regard it as one of my most important roles as CTO to build a technology ecosystem centering around Hitachi Construction Machinery and further raise the level of its technological development capabilities for greater corporate value. I will make all possible efforts to meet the expectations of our stakeholders in this regard.

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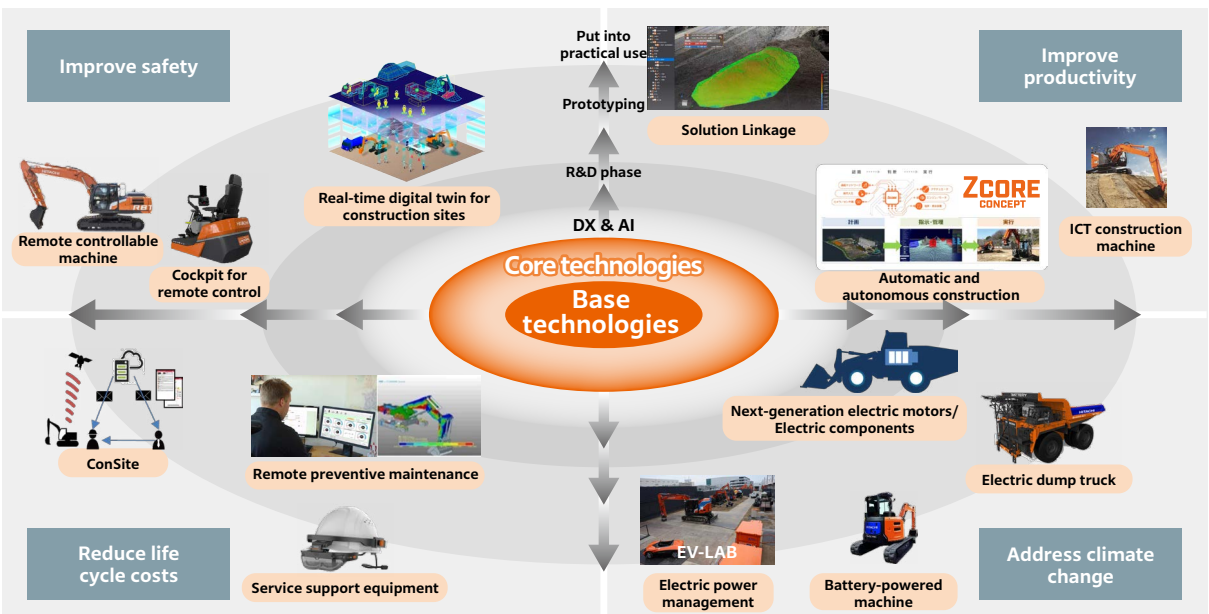
Core Technologies and Base Technologies

Hitachi Construction Machinery has been working on more than 250 R&D themes toward the achievement of the vision set for 2035. I will build a system to develop important technologies to support the R&D activities conducted on the themes and to provide customers with more value, regarding these technologies as our core technologies and base technologies. As shown in the figure, we will also conduct examinations on the aforementioned five advanced R&D themes, combining the core technologies and base technologies for the themes with DX and AI for their practical use.

We will also divide the core technologies and base technologies into technologies for which we will set closed strategies to foster in-house R&D and those for which we will set open strategies for development in collaboration with external partners. By combining the core technologies thus developed, we will deliver new value to customers and society at large and create the industry's top-level products and solutions.

Promoting the Development of Technologies by Combining Base Technologies and Core Technologies with DX and AI



Intellectual Property Strategy

The Hitachi Construction Machinery Group sets basic policies on the protection of intellectual property and respect for the intellectual property of other parties as part of the Hitachi Construction Machinery Group Code of Conduct and has been conducting intellectual property activities based on these policies. As for the protection of our own intellectual property, we file patent applications in and outside Japan for the technologies that we have researched and developed independently to obtain patent rights for the functions and technologies that give unique features to our products and for the solutions that contribute to increasing customer value, thereby promoting our business activities and gaining advantages over competitors.

On the other hand, in recent years, we have been finding more opportunities to form technological partnerships and foster open innovation with other companies. For the achievements made through R&D activities conducted with these partners, we also promptly make patent applications to gain patent rights and competitive advantages as our basic attitude. However, we also need to respect the intellectual property of our open innovation partners, such as startups and to establish a flexible system for each party to license their own intellectual property freely as a precondition to build win-win relationships with each other. We will implement such a system with our partners to ensure that we can conduct R&D activities with latitude and speed.

We are currently using the number of patents obtained as a KPI for our intellectual property, but in the future, the importance of conducting qualitative evaluation of our patents, for example evaluating them by using the number of times cited as an indicator, will increase. Going forward, based on our intellectual property portfolio and roadmap, we will foster strategic intellectual property activities in alignment with our companywide business policies, thereby building a global top-level intellectual property capacity.