

## The Sources of Value Creation

Value creation at Kajima is a factor of both people and technology. As a technology-driven company, Kajima encourages an atmosphere of free and open discussion to spur development of pioneering technologies that meet the needs of its clients. Meanwhile, Kajima strives to secure talented people and strategically develop them to support its course to the future.

### Developing Technologies with an Enterprising Spirit

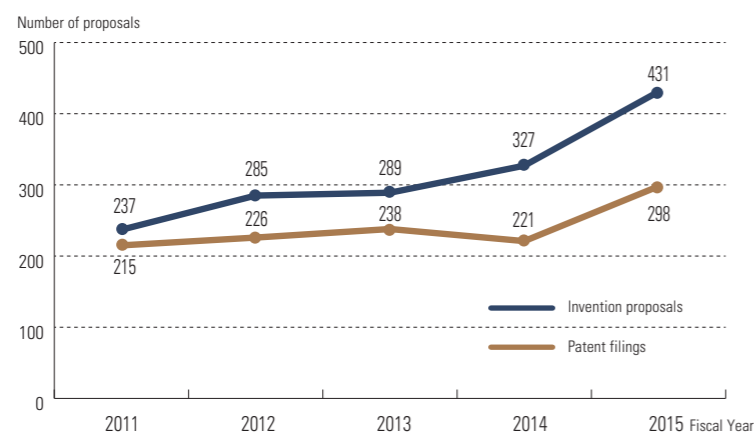
Kajima has a long history of involvement in pioneering projects, realized through research and technology development and driven by a constant enterprising spirit. Kajima is adapting to the times and meeting the needs of society by adjusting its future vision, accompanied by suitable research and technology development. Kajima is accordingly expanding the opportunities for technology development and placing a stronger emphasis on intellectual property.

#### ■ Intellectual Property Initiatives

In January 2015, Kajima launched a program that enables employees to submit invention and technical ideas for patent filing, thereby increasing the focus on technology development. Kajima also implements workshops on intellectual property at its branches, and in fiscal 2015 conducted 34 workshops. These workshops are designed to educate employees about intellectual property and make everyone aware of related risks while encouraging them to develop new technologies in their day-to-day work.

In fiscal 2015, employees submitted 431 invention and technical ideas under the program, and there was a sharp increase in submissions for technologies used at sites. Kajima will further advance its efforts to comprehensively secure intellectual property rights, to serve as future assets.

### Number of Invention Proposals and Patent Filings, Kajima Corporation



### Making the Most of Human Assets

Kajima views its employees as essential assets and key stakeholders. The Kajima Group strives to help each employee to reach his or her full potential, and respects diversity across gender, nationality, religion and disability, as well as recognizing variety in work styles based on parenting and caregiving obligations. The Kajima Group has group companies across the globe including in the Americas, Asia, Oceania, and Europe. Kajima hires people of diverse nationalities and works to earn the confidence and trust of local companies and business partners, doing business that is rooted in the local community.

#### ■ Work-Life Balance

Kajima believes that helping each employee to achieve work-life balance increases motivation at work and helps to improve overall productivity. Accordingly, Kajima endeavors to foster work-life balance so that all employees can perform to their full potential.

To this end, Kajima is enhancing its initiatives in areas such as supporting volunteer work, expanding provisions for parenting and caregiving, encouraging employees to take vacations, and recommending no overtime work on designated days. Kajima also supports work choices by enabling parents to work shorter hours or take advantage of flexible scheduling and enabling caregivers to take leave for up to one year.

Parenting is a job for both spouses, and male employees are increasingly taking advantage of parenting provisions for shorter hours and flexible scheduling, in order to shoulder household and parenting duties. Anyone can be impacted

by the need to care for parents and family, and Kajima continues to establish provisions that enable employees to keep working amid life changes.

In March 2016, Japan enacted new legislation to support women in the workplace. In response, Kajima Corporation and seven of its group companies have announced corporate action plans to support women in the workplace.

### Kajima Corporation First Action Plan Based on Japan's Act to Promote Women in the Workplace

#### ◇ Period of Action Plan

April 1, 2016 to March 31, 2020 (four years)

#### ◇ Challenges

1. Few women in managerial-track positions
2. Few women in managerial positions

#### ◇ Goals, Description of Initiatives, Period of Implementation

Kajima will aim to double the number of women in engineering and managerial positions within five years, starting from 2014, and to triple that number within 10 years. To achieve these goals, the First Action Plan sets forth the following targets.

Target #1: At least 20% women in managerial-track positions

Target #2: Double the number of women in managerial positions

Fiscal Year	2011	2012	2013	2014	2015
<b>Employees</b>	7,925	7,737	7,657	7,546	7,527
Re-employed personnel	968	945	804	908	921
Employees with disabilities (%)	1.83	1.88	2.03	2.25	2.19
Turnover rate (%)	2.1	4.3	5.4	3.7	3.7
<b>Child birth/parenting</b>					
Employees taking extended parenting leave	33	35	35	28	34
Employees taking leave for spouse's childbirth	109	84	119	100	115
Employees taking leave for caregiving	72	79	76	96	86
Male employees taking shortened work hours	12	18	22	23	33
<b>Caregiving</b>					
Employees taking extended caregiving leave	2	1	1	1	0
Employees taking caregiving leave	32	33	25	24	22
<b>Employees using leave system for volunteering</b>	26	8	5	10	12
<b>Employees taking paid leave (%)</b>	37.6	32.4	35.8	42.5	39.6
<b>No. of new employees<sup>1</sup></b>	185	191	203	116	183
No. of female new employees <sup>1</sup>	20	27	24	9	18

1. As of April 1 of the fiscal year



The Sources of Value Creation

# Technology

In April 2015, Kajima appointed a new executive vice president responsible for research and technology development. The Company is implementing strategies that reflect a renewed commitment to being a technology-driven company. Kajima has expanded into new areas of business to meet contemporary needs, embracing an enterprising spirit and dedication to superior technology in pursuing innovative technology development that will take the Company to the next stage.

## Building a Flexible Organization, Where People Drive Technology Development

Executive Vice President, Research and Technology Development

### Kazuo Kojima

In fiscal 2015, the first year of my appointment, we reviewed our R&D framework and instituted changes to make R&D more systematic. This includes projects selected through a top-down approach and those that address cross-divisional issues, in addition to projects for each division, focusing on civil engineering and construction. My vision is to be sure Kajima continues to embrace a strong commitment to being a technology-driven company, an aspiration that is shared by our divisional general managers.

#### IT as a Platform for Research and Technology Development

Network and information technologies today pervade nearly every facet of daily life. IT is being used in many ways as a core technology in all industries. Yet, sometimes it seems as if the construction industry has been left behind, despite the great potential of IT in our industry. Until now, the construction industry has mainly relied on people, in a less-digital workflow. However, by integrating conventional equipment with IT, we can realize quality with greater certainty and address the major issues facing Japan's construction industry today—the shortage of labor and the need to improve productivity. For example, we can use health monitoring technologies in structural engineering. It is vital that we do more with the latest tools such as IT and the Internet of Things to improve our production sites.

In the civil engineering sector, the Japanese Ministry of Land, Infrastructure, Transport and Tourism has announced the launch of the i-Construction initiative to integrate construction and information and communication technology (ICT) and intentionally advance mechanized construction. Technology such as GPS-based measurement is suited for land preparation work. Integrating IT in ways like this will make it easier to leverage the merits of civil engineering in construction and vice versa. While it may seem as if it would be difficult to integrate IT with so much specialized work occurring simultaneously at construction sites, IT can help to orchestrate this work and thus yield major benefits.

#### Making Technology Development More Open

In fiscal 2015, we updated the corporate R&D framework and implemented linked strategies for human resources development and technology development. We identified specific themes and engaged in open discussions across divisional and job position boundaries. This enabled us to better identify what drives successful technology development and view it from multiple perspectives, which made it clear that we needed to take our technology development in new directions.

In April 2016, Takaharu Fukuda, who specializes in structural engineering and previously worked alongside me in the Architectural Design Division, was appointed to newly head the Kajima Technical Research Institute. This appointment was intended to encourage more open relations between the institute and construction sites as well as across the Group, and also to promote globalization. The themes addressed by the institute need to be better attuned to the market and social trends. There is also a pressing need to reduce the distance between organizations, so we can react faster to meet needs. We also need to implement more personnel exchanges, such as enabling construction site managers to work at the research institute to pursue research in a specialized field of their interest, and conversely seconding staff from the institute to construction sites and design departments.

#### The Future of Technology Development and R&D

Kajima Corporation was recently awarded the Minister of Education, Culture, Sports, Science and Technology prize at the 45th Japan Industrial Technology Grand Prix, for the HiDAX-R seismic control oil damper system. We are proud of the technical advancements we have made in seismic control technology. Now, we have set our sights even higher, aiming to incorporate these technologies into systems that deliver the next level of performance in seismic control. We will collaborate with other industries to offer package solutions while pursuing

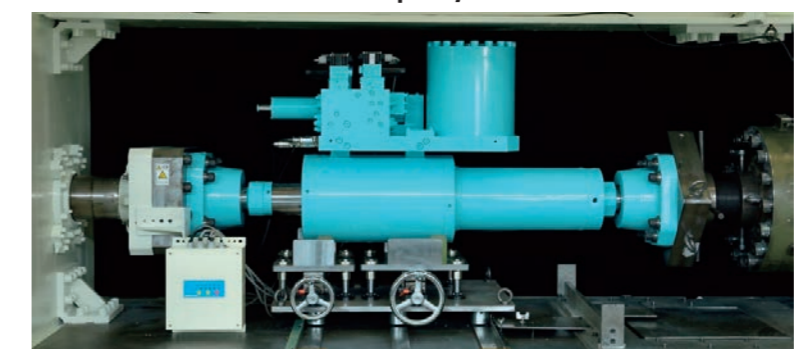
technical R&D for the system components.

Looking further ahead, we will identify ways to further popularize our proven construction techniques. We are currently accelerating efforts to develop an automatic welding robot for practical use, showing how machinery and robots can accomplish what humans cannot achieve, aiming to enhance safety at construction sites, increase quality and productivity, and address labor shortages.

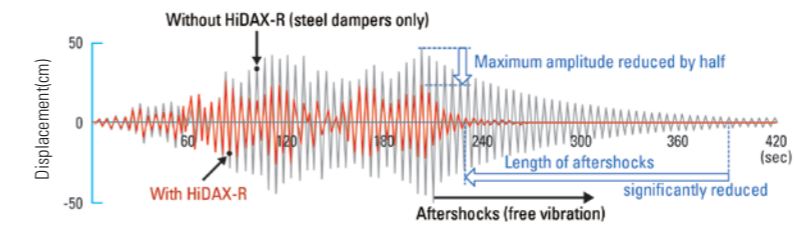
We opened a satellite office of the Kajima Technical Research Institute in Singapore over two years ago. The office went on to provide technical assistance on acoustics for the advanced studio facilities at the MediaCorp building recently completed by Kajima. This project illustrates how important it is for us to develop technologies tailored to local needs, while also transferring technology Kajima has developed in Japan.

We are determined to become a flexible organization where people with a broad range of specializations can nimbly address the needs of diversifying markets. This is the key making a quantum leap from today's construction business. We will link these efforts to technologies that have future applications as we move forward with technology development.

#### HiDAX-R Seismic Control Oil Damper System



The HiDAX-R system is based on the regular HiDAX system, with the addition of an auxiliary tank and magnetic control valves.



The earthquake response analysis simulated the displacement of a 180-meter tall skyscraper using the earthquake motion detected in Tokyo at the time of the Great East Japan Earthquake. The resulting data indicated that HiDAX-R significantly reduces displacement during long-period earthquake motion.



Minister of Education, Culture, Sports, Science and Technology prize from the 45th Japan Industrial Technology Grand Prix, for the HiDAX-R seismic control oil damper system.

## Human Resources

Kajima's hiring is organized in nine major classifications—for instance, civil engineering, construction, and administrative positions—due to the different specializations and education required for each. In every category, Kajima constantly works to improve the education and training it provides. The Kajima Group Medium Term Business Plan emphasizes developing human resources who are able to manage a diversely specialized, professional workforce. We asked three vice presidents—Naoki Atsumi (administration), Hiroyoshi Koizumi (construction), and Masayasu Kayano (civil engineering)—about Kajima's human resources development for the medium and long term.

**Naoki Atsumi:** The Kajima Group Medium Term Business Plan places the highest priority on revitalizing and reinforcing our construction operations as a core business, and outlines a management strategy toward 2020 and 2025. One of Kajima's current endeavors is to expand into new domains. We need to develop people with the right business sense to accomplish this.

**Masayasu Kayano:** It is critical that we develop people prepared to be leaders. Markets and our customers' preferences are both rapidly changing. The key to Kajima's future is ensuring that we have managers who can flexibly adapt to these changes with strong skills in planning, decision-making, and taking action. We must facilitate the development of these skills by providing a variety of career experiences to promising human resources. We must intentionally help them to shape their careers so that they gain broad experience at the construction site, branches, and head office departments, as well as at affiliates and outside Japan. Of course, employees face difficulties at each step in their careers, but we need to make sure they see that tackling these challenges will foster their future career.

**Hiroyoshi Koizumi:** In construction operations, our challenge is to prepare each worker to handle multiple specialized tasks. This enables us to reduce the absolute number of people needed, improve their working conditions, and increase productivity. The same applies to all of Kajima's employees. We need to start training employees beyond their existing skillset, for example, training a construction employee to do the tasks that a facilities employee does, and vice-versa.

### Building Careers via a Broad Range of Work Experiences

**Atsumi:** It is important for our administrative employees to experience work at construction sites, early in their careers. So we are seeking to expand their perspective by transferring them to several different operations early on. We are providing broad-ranging opportunities, including at the head office and branches, for them to work in sales, general affairs, finance, international business, and development, while also providing training and skill development opportunities through practical experience.

**Kayano:** The pattern in civil engineering used to be for employees to rise through the ranks, first by producing good results at the construction site, then being promoted to construction project manager, division general manager, and eventually, branch manager. While we need career paths like these, we must also give our employees broad knowledge and experience rooted in Kajima craftsmanship. Meanwhile, we have to develop their business sense so that they can use this knowledge and experience to capitalize on diverse business opportunities

in both construction and contracting. This will make all the difference in Kajima's success.

**Koizumi:** Approximately 80% of our employees in building construction who are in their 50s hold a 1st-class *Kenchikushi* (architect/building engineer) license. The percentage is at 50% for all employees in construction. Although there is some variation between the age groups, our younger employees are not getting licensed. I want our employees to get licensed at an early age so they develop a core identity, from which they can gain diverse experience. To be more specific, I want to build a system which increases the mobility of our personnel and gives them diverse experiences with different environments and construction projects of various sizes, including transfers to other operations and group companies in and outside Japan.

**Atsumi:** Exactly. We want to create a platform for employees to be transferred to group companies in and outside Japan early in their career, to acquire management experience and skills, which they can then apply upon returning to Kajima. The smaller size of our group companies can give a transferred employee an overall grasp of what a company should be like, which is a skill that is extremely important to Kajima today. We want to provide our young employees with opportunities to tackle problems, so that they can come back with their own successful experiences and then move on to the next stage.



**Koizumi:** When I worked at a group company outside Japan, I had to find and select a business partner using just a phone book and a bit of information from the local chamber of commerce. There were no facilities personnel



at our construction sites, and the administrative employees handled everything from company establishment to financing, taxes, and general affairs. It is difficult to get that sort of experience in Japan, where information is readily available. Outside Japan, sometimes you have to really start from the basics to get things done. There's nothing quite like it in Japan. I highly recommend it for employees looking for a challenge.

**Kayano:** The approach to business is completely different. Bringing that experience back to Japan is a major asset for Kajima. The most important job of department or branch managers is to develop their people, so they are the ones who get things done, not the managers themselves. Our managers need to look at the big picture and constantly think about where to deploy their staff for best results. This only reminds me how vital it is for us to ensure that future management candidates are aware that this is their key challenge.



**Strategically Developing Human Resources**

**Atsumi:** Work processes today are more complicated and sophisticated than before. To address this, we need more exchanges between personnel, both vertically and horizontally across the organization, without overly focusing on occupational categories. This crossover interaction will drive major synergies, generating new ideas and creating new businesses.

**Kayano:** In civil engineering operations, we need mechanisms for generating revenues so that we can realize stable growth. In markets outside Japan, we are being presented with opportunities to participate in infrastructure service projects as a business operator and to acquire local construction companies. In Japan, a market is developing

for infrastructure upgrades and operations, where private-sector companies are involved from upstream to downstream. Facing these growing business opportunities, we must expand our approach beyond the narrow confines of the construction sector, per se, in order to stay competitive. We must leverage our knowledge in real estate development to generate private finance initiative (PFI)-based civil engineering projects. We also need to take a fresh approach to developing our civil engineering operations internationally, utilizing the networks that group companies outside Japan have built during their construction and real estate development projects.

**Koizumi:** Looking deeper, we find problems with university education in Japan. At American universities, civil engineering and construction are not split into separate faculties or departments. Students study both and also study management itself. By contrast, in Japan there is a stark vertical separation between civil engineering and construction that starts at university. Although there may be some positives about this, eventually we may need to advocate a different approach at the university level.

**Atsumi:** Although Kajima hires personnel according to occupational specialties, they are all Kajima employees, so we need to develop them fully as Kajima assets. To sustain Kajima's success, we need to strategically and systematically develop our employees, and we need to diversify our revenue sources by expanding into new business domains. We have to reaffirm these vital tasks, make the necessary changes, and then send a strong message to everyone.



**Issues Facing the Construction Industry**

There are serious issues facing the construction industry in Japan, including the aging of skilled workers and a critical labor shortage due to the mass retirement of the baby boom generation. The industry needs to secure more young people, including young women, to ensure that advanced construction skills are handed down and perpetuated. In order to attract young people, Kajima is increasing wage

levels and improving working conditions by ensuring that all workers are enrolled in social insurance programs and improving the stratified subcontracting structure that exists in the industry. Since fiscal 2014, Kajima has been working with an association of Kajima's business partners, to help strengthen their efforts to secure workers and implement training and support.

**Kajima Business Partners' Association Helps with Work Placement**

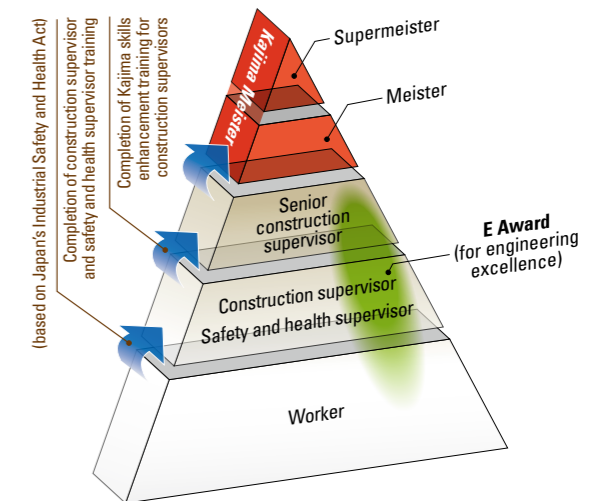
The association of Kajima business partners supports the efforts of its member companies to hire engineers and skilled workers by operating a free work placement service with the approval of Japan's Ministry of Health, Labour and Welfare. In July 2016, the association launched a job information website for young people, designed especially for mobile users. It has also created brochures and DVDs for different occupations in order to generate interest in the construction industry and inform potential workers.



The association created brochures for eight different occupations to provide information about jobs.

**Changes to Kajima Meister System**

The Kajima Meister System was launched in fiscal 2015, in an effort to improve conditions for engineers and skilled workers by providing financial incentives to construction supervisors with advanced skills at key partners. These *meisters*, who are highly skilled in a trade as well as in team management, are paid a direct financial incentive based on the number of days they work at Kajima construction sites. Kajima is expanding the program in fiscal 2016 by increasing the financial incentive and expanding the eligibility to receive incentives.



**Award-Winning Women in Construction**

Kajima launched an initiative in fiscal 2015 to bring women's perspectives to the construction site. It is driven by female engineers at Kajima and its construction partners. The initiative strives to improve working conditions by enhancing facilities, for instance improving washroom facilities and rest areas at construction sites for women. Today, several teams are implementing unique improvements at construction sites across Japan.



Kajima Women in Construction logo

industry. Two teams from Kajima were cited for their outstanding achievements: one at the construction site of Kyoto Women's University for implementing improvements that allowed more women to work at the site and using IT to reduce workload, and the other, in civil engineering at the head office, for organizing seminars to train male managers on how to develop their female staff.



Preparing planters at a construction site for Kyoto Women's University