

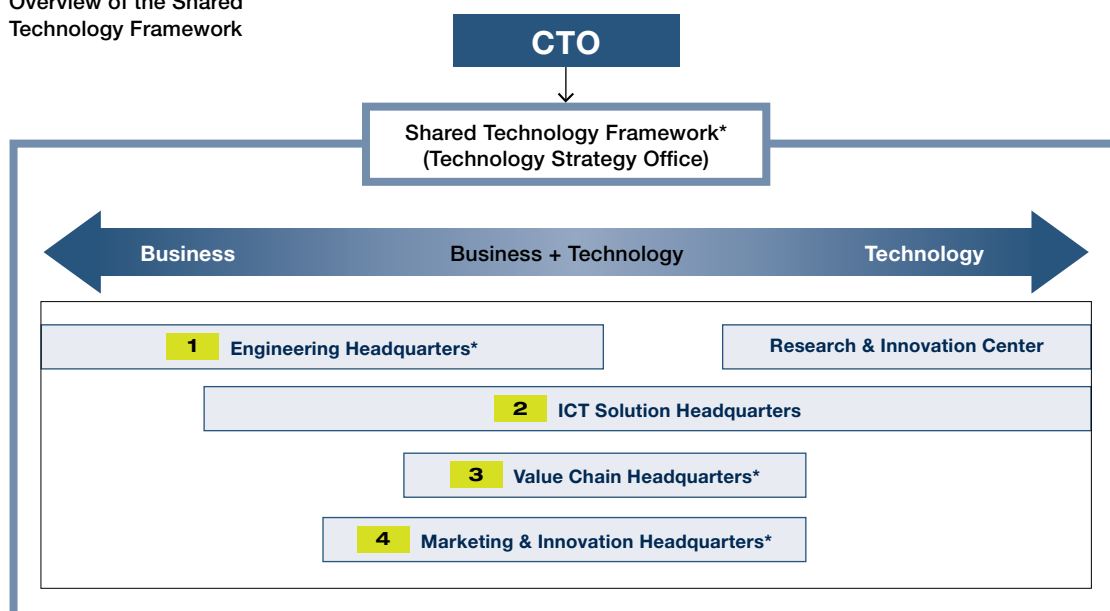
# TECHNOLOGICAL BASE

## Leveraging Comprehensive Strengths by Building a Companywide Horizontally Based Organization

In April 2016, MHI launched a new shared technology framework consolidating the Company's technologies as well as marketing, procurement, and other functions. The new framework, overseen by the chief technology officer (CTO), encompasses three new entities—the Engineering Headquarters, the Marketing & Innovation Headquarters, and the Value Chain Headquarters—and the existing ICT Solution Headquarters and Research & Innovation Center. At the same time, we have

established the Technology Strategy Office to promote the integrated management of this framework and conduct technology management to realize the “conglomerate premium” (strength that derives from involvement in diverse businesses), a centripetal force for the MHI Group. By creating this framework, headed by the CTO, we aim to maximize the MHI Group's comprehensive technological strength to bolster competitiveness over the medium-to-long term.

### Overview of the Shared Technology Framework



\* Established in April 2016

### 1 Engineering Headquarters

This entity brings together a broad array of business areas, including chemical plants, transportation systems, and cruise ships, consolidating the Group's expertise in engineering, procurement, and construction (EPC) execution, standardizing and promoting the use of information technology in business processes. As a result, we intend to increase the number of areas employing the Group's engineering expertise and engage in initiatives to supply know-how and provide support throughout the Company.

### 3 Value Chain Headquarters

Across the value chain, spanning design, manufacturing, quality assurance, procurement, and after-sales services, the Value Chain Headquarters works to promote high-value-added technologies, enhance global competitiveness, and transform and strengthen supply chain management.

### 2 ICT Solution Headquarters

The ICT Solution Headquarters drafts, prepares, and puts into action strategies related to IT infrastructure. By leveraging human and technological resources in information processing; telecommunications; and electricity, instrumentation, and controls, the headquarters also develops and implements advanced practices involving IoT and AI systems and enhances operating processes by introducing best practices from within and outside the Company. In this manner, the headquarters strives to strengthen the Group's products, technologies, and businesses.

### 4 Marketing & Innovation Headquarters

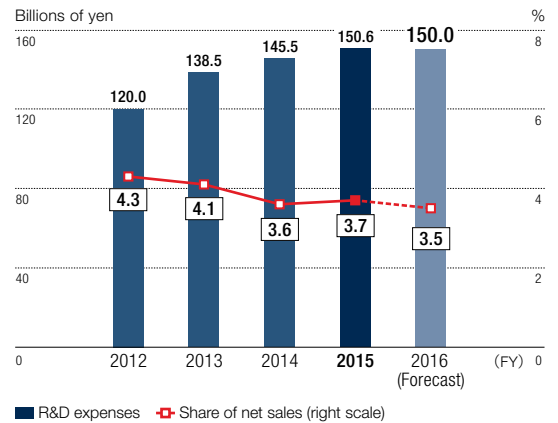
Activities of the Marketing & Innovation Headquarters include preparing business models, business and technology strategies, and product and service plans. The headquarters creates cross-product and medium-to-long-term relationships to determine needs and verify the hypotheses it creates.

## Research and Development

The MHI Group maintains close ties between its shared technology framework and its business domains. This focus enables us to enhance competitiveness in various products as well as intensify R&D with a view to future business expansion. In line with our transition from a works-based structure to a system of business domains, in 2015 we established a comprehensive Research & Development Center, consolidating five domestic R&D centers and transitioning to cross-organizational management in our R&D structure. Through this approach, we anticipate new technological synergies, enhanced human resource development, and greater efficiency in work performance and facility utilization.

We are globalizing our R&D structure, and as part of these efforts we are dispatching specialist engineers from research centers in Japan to our bases in the United Kingdom, Singapore, the United States, and China. We are making efforts to secure leading global technologies, information, and human resources, while conducting research and providing technological support that is closely aligned with market needs.

### R&D Expenses and Share of Net Sales



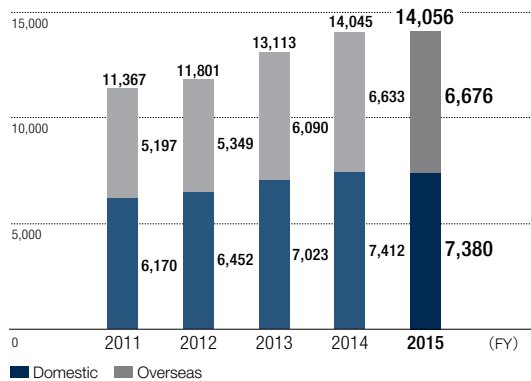
\* The figures above for R&D expenditures include expenses related to R&D under contract.

## Intellectual Property

The MHI Group maintains close relations between its shared technology framework and individual business domains, developing intellectual property strategies that combine the Group's business and technology strategies. By having the intellectual property division coordinate the intellectual property strategies of each domain, we work to realize intellectual property strategies for the Group as a whole and further enhance corporate value.

Specifically, we position the use of intellectual property as the main thrust of our intellectual property activities, pursuing strategic use of intellectual properties tailored to our business portfolio. We are also increasing our number of overseas patent applications as our business grows more global, and we will drive the centralization of intellectual property rights to play a key role in augmenting business earnings.

### Number of Domestic and Overseas Patents



### Number of Patents Held by Region

