

Japan Automotive Model-Based Engineering Center transferred to a general incorporated association

Expanding the reach of *Monozukuri* and contributing to further development of Japan's automotive industry

With five Japanese automobile manufacturers and five parts manufacturers as executive members, we announced today the Japan Automotive Model-Based Engineering center (JAMBE), whose mission is to promote Model-Based Development (MBD)^{*1} across Japan's automotive industry, transferred to a general incorporated association from this April.



The center was founded to fulfill the purpose of creating the most-advanced development community in the mobility sector, able to carry out optimal and high-grade *Monozukuri* efficiently and without rework. It was launched in July 2021 as a private-sector consortium succeeds an initiative led by Japan's Ministry of Economy, Trade and Industry called "Enrichment of *Suriawase 2.0*"^{*2} — an industry-academia-government and strategic future policy for MBD in the automobile industry — which had been compiled as a result of discussions conducted by the Study Group for Ideal Approaches to Model Utilization in the Automobile Industry^{*3}.

The center ultimately aims to enable academia and businesses to share digital models^{*4} across the board, linking academic research with development of parts, systems and vehicles. Therefore, allowing both sides to coordinate and make adjustments (*Suriawase* in Japanese) digitally from the initial stages of development.

Since the establishment of the center, we have promoted a wide range of activities, such as promotion of MBD dissemination through MBD human resource development, and promotion of model distribution between companies by developing guidelines related to

model creation. About a year and a half after its launch, the number of companies/organizations has rapidly increased from 43 to 139 (as of April 2023). Therefore, in order to strengthen the legal organizational foundation for further expansion of activities in the future, we have decided to transfer to a general incorporated association.

JAMBE's Guiding principle / Vision / Goal and Pros of participating members:

<Guiding principle>

- Contribute to making Japan's automotive industry more competitive internationally by spreading and deploying MBD technology and concretizing the *Suriawase 2.0* concept's high-grade virtual model development technology.

<Vision>

- Utilize MBD to promote carbon neutrality and innovation of vehicle technology to respond to needs such as CASE, thereby contributing to SDGs.
- Encourage organizations of all sizes to use virtual models, thereby promoting highly efficient research and development.

<Goal>

- Concretize *Suriawase 2.0*: MBR^{*5} (Academia) creates new models and MBD (Industry) enhances development efficiency by using the same models across parts and vehicle manufacturers in the engineering chain for their *Suriawase* engineering style, creating new value and achieving the most efficient development processes in the world, free from rework.

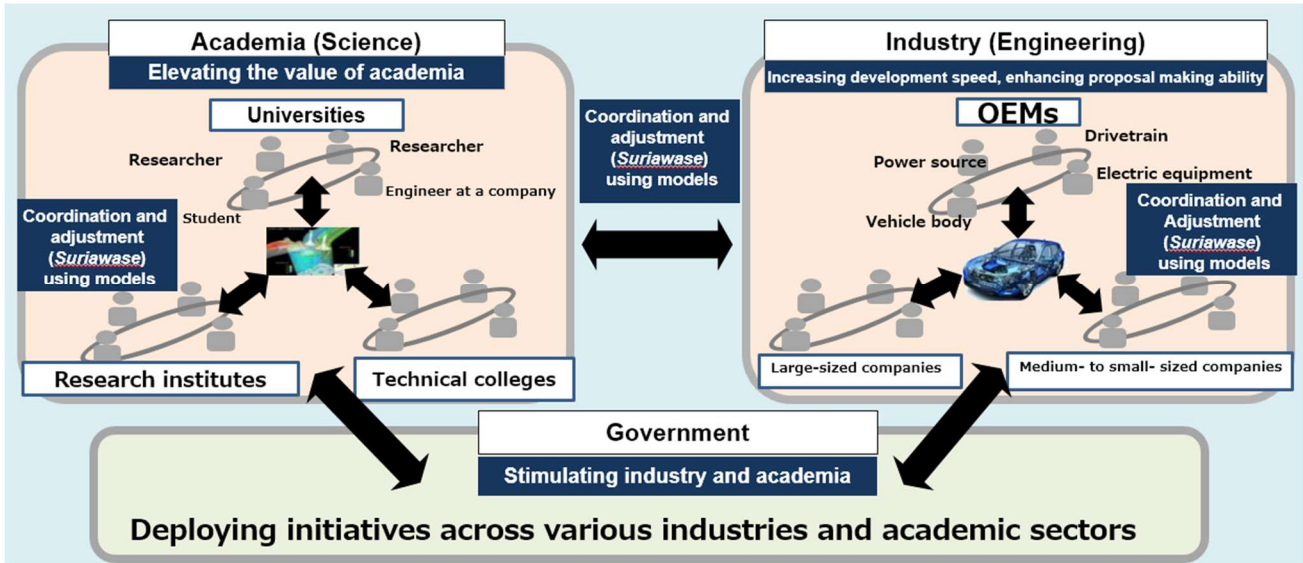
<Pros of participating members>

- Members can expect profit expansion and future growth through enhancement and streamlining of their capabilities for research and development.
- Even comparatively small-sized company members can expect business expansion through a reduction in spending using manufacturing CAE (computer-aided engineering) or strengthened capabilities to make new business propositions.

Comment by Mitsuo Hitomi, chief director of JAMBE:

"With five Japanese automobile manufacturers, five parts manufacturers, we have established JAMBE and transferred to a general incorporated association to disseminate model-based development across the automotive industry in Japan," said Mitsuo Hitomi, to commemorate the transfer of the center, "Through JAMBE's initiatives, we will endeavor to make Japan's automobile industry more competitive globally, while also developing human resources who will take on future digital manufacturing. I hope many concerned parties, including universities, research institutions, tool vendors and engineering service providers, will relate to and take part in JAMBE, so we can all contribute to the further development of Japan's manufacturing."

Illustration of cooperation across industry, academia and government



Overview of the general incorporated association, Japan Automotive Model-Based Engineering center

- Name: Japan Automotive Model-Based Engineering center (JAMBE)
- Business outline: In order to achieve the above-mentioned basic philosophy, vision, and aim, we will carry out the following projects.
- (1) Business related to the formulation of guidelines for connection and distribution between MBD simulation models
 - (2) Business related to promotion of MBD dissemination and promotion of simulation model distribution
 - (3) Business related to human resource development related to MBD
 - (4) Projects related to collaboration with related organizations, companies and research institutes in Japan and overseas
 - (5) Business incidental or related to the above business

Representative Director:
Mitsuo Hitomi (Senior Fellow Innovation, Mazda Motor Corporation)

Operation cost: Approximately 100 million yen per year

Established: March 8, 2023

Address: 〒101-0045 3-4 Kanda Kajicho, Chiyoda-ku, Tokyo oak Kanda Kajicho 7F

URL: <https://www.jambe.jp/>

Participating companies (as of April 1, 2023)

Executive members:

AISIN CORPORATION, JATCO Ltd, SUBARU CORPORATION, DENSO CORPORATION, TOYOTA MOTOR CORPORATION, Nissan Motor Co., Ltd., Panasonic Automotive Systems Co., Ltd., Honda Motor Co., Ltd., Mazda Motor Corporation, Mitsubishi Electric Corporation (10 members)

Lead members

AZAPA Co., Ltd., NTT DATA ENGINEERING SYSTEMS Corporation, AutoForm Japan K.K., Continental Automotive Corporation, SUZUKI MOTOR CORPORATION, DAIHATSU MOTOR CO., LTD., TOSHIBA DIGITAL SOLUTIONS CORPORATION, transcosmos inc., Microsoft Japan Co., Ltd., NEXTY ELECTRONICS CORPORATION, PwC Consulting LLC, Hitachi Astemo, Ltd., HUAWEI TECHNOLOGIES JAPAN K.K., MITSUBISHI MOTORS CORPORATION, YAZAKI Corporation
(15 members)

Partner members

IDAJ Co., LTD., IPG Automotive K.K., AdvanceSoft Corporation, ARGO GRAPHICS Inc., ALPS ALPINE CO., LTD., ANSYS Japan K.K., ITOCHU Techno-Solutions Corporation, Integration Technology Co., Ltd., AVL JAPAN K.K., A&D Company, Limited, eXmotion Co., Ltd., SCSK Corporation, NSW Inc., FEV Japan Co., Ltd., MCOR Co.,Ltd., OTSL Inc., Ono Sokki Co., Ltd., GAIO TECHNOLOGY Co., Ltd., Cybernet Systems Co., Ltd., Siemens K.K., JSOL Corporation, ZUKEN Inc., ZUKEN Modelinx Inc., Secondmind K.K., Tata Elxsi Limited, CHUOZUKEN Co., Ltd., TIC Co.,Ltd, dSPACE Japan K.K., TechnoStar Co., Ltd., Digital Arts Inc., Digital Solutions Inc., DIGITAL PROCESS LTD, Information Services International-Dentsu, Ltd., toshiba information systems japan, Toshiba Electronic Devices & Storage Corporation, Toray Engineering D Solutions Co.,Ltd., Toyota Technical Development Corporation, National Instruments Japan Corporation, Cadence Design Systems, Japan, NewtonWorks Corporation, Neorium Technology Co., LTD., PERSOL EXCEL HR PARTNERS Co., Ltd., PERSOL CROSS TECHNOLOGY CO.,LTD., HAGIWARA ELECTRONICS CO., LTD., PTC Inc., Hitachi Industry & Control Solutions, Ltd., Fujitsu Limited, Progress Technologies, Inc., MAC SYSTEMS CORPORATION, Mazda Engineering & Technology Co., LTD., RYOMO SYSTEMS CO., LTD., and 2 extra companies.
(53 members)

Regular members

AISAN INDUSTRY CO., LTD., Crystal CO.,LTD., KYB Corporation, SAGINOMIYA SEISAKUSHO, INC., Sumitomo Rubber Industries, Ltd., Sumitomo Wiring Systems, Ltd., TOKAI RIKA Co.,Ltd., TOYOTA INDUSTRIES CORPORATION, TOYODA GOSEI Co., Ltd., Partner Co.,Ltd., Hitachi Solutions, Ltd., Hino Motors, Ltd., HIROTEC Corporation, FUKOKU CO., LTD., MEIDEN
(15 members)

Associate members

accenture, enable, iASYS Technology Solutions K.K., ETHERMO Co.,Ltd., ISUZU MOTORS LIMITED, EXEDY Corporation, HKS CO., LTD., NOK CORPORATION, NTN Corporation, Canon IT Solutions Inc., KOZO KEIKAKU ENGINEERING Inc., Satyam Venture Engineering Services Private Limited, Joyson Safety Systems Japan K.K., Dassault Systèmes, K.K., DI SQUARE Corp., T.RAD Co., Ltd, TOKYO R&D Co., Ltd., TOKYO ROKI CO.,LTD., Niterra Co., Ltd., NHK SPRING CO., LTD., Federal-Mogul Japan K.K., MIKUNI CORPORATION, YUTAKA GIKEN CO.,LTD, UNIPRES CORPORATION, plus 10 extra companies.
(34 members)

Academia members

Japan Aerospace Exploration Agency, Hiroshima Institute of Technology, plus 5 extra organizations.
(7 members)

Model Exchange Promotion Organization

Transmission Research Association for Mobility Innovation, the Research Association of Automotive Internal Combustion Engines
(2 members)

MBD Promotion Collaboration Organization

The Oita Prefecture Automobile Industry Association, Hamamatsu Agency for Innovation, Next-generation vehicle Center Hamamatsu, Hiroshima Industrial Promotion Organization.

(3 members)

Total 139 members

Overseas partner organizations

We are working with ProSTEPivip, a German international standardization preparation promotion group (180 companies and organizations participate), and System-X, a French national initiative to promote digitalization (70 companies and organizations participate), to develop common global rules for model distribution.

Contact details

JAMBE Secretariat : contact@jambe.or.jp

^{*1} Model-Based Development (MBD): A development style that uses virtual models on a computer, not using actual prototype parts throughout design and development activities to realize efficient development activities by saving considerable time and effort that would usually be spent elaborating performance concepts, designing, making prototype parts, and testing.

^{*2} Suriawase 2.0: A concept that uses MBD to heighten the degree of coordination of cross-disciplinary development (*Suriawase* engineering style) between companies and between industry and academia throughout the engineering chain.

^{*3} Established in November 2015 by the Ministry of Economy, Trade and Industry. Please visit the website below for further details.
https://www.meti.go.jp/english/press/2018/0404_001.html

^{*4} A "model" is a simulated object that is made to behave like a real object using computer simulation. Depending on the needs, models of various scales are used, including models of individual parts (e.g., pistons of an engine), models of systems/units (e.g., an engine), and models of entire vehicles. Models can also refer to mathematical models of phenomena such as fuel combustion, hydraulic oil flow, etc.

^{*5} Model-Based Research (MBR): MBR means activities of basic research and numerous experiments of physical phenomena to create models with higher accuracy that are required for successful MBD.