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Komatsu, NTT DOCOMO, Sony Semiconductor Solutions and Nomura Research Institute to Launch “EARTHRAIN”

Will enhance construction industry safety, productivity and eco performance

Vilvoorde May 2021 — On April 30, 2021 Komatsu Ltd., NTT DOCOMO, INC., Sony Semiconductor Solutions Corporation and Nomura Research Institute, Ltd. jointly announced today that they have agreed to launch a new company, named EARTHRAIN Ltd., that will support digital transformation in the construction industry for dramatically improved safety, productivity and environmental performance.

Workstyle reforms are in high demand due to factors including an aging population and shrinking workforce in the Japanese construction industry and the presence of COVID-19 in construction sites worldwide. EARTHRAIN will now tackle these challenges through digital transformation. The new company will evolve Komatsu’s “Smart Construction¹” solution and expand its services worldwide, including for all brands of construction equipment and vehicles operating at worksites. By combining the four companies’ expertise, know-how and technologies, EARTHRAIN will provide the next-generation of Smart Construction.

Next-generation Smart Construction will incorporate digital twins² at construction sites based on EARTHRAIN’s accelerated development and provision of visualization devices and applications for real-time remote monitoring, analyzing and optimizing of terrain, construction equipment, operators, materials, safety and environmental factors. Also, by connecting all construction processes digitally on an open platform and controlling them optimally, EARTHRAIN will improve safety and productivity and create smarter and cleaner workplaces.

¹ Smart Construction is a solution for implementing highly productive, clean and safety worksites by connecting various information at worksites via ICT.

² Data-based virtual replicas of physical objects or processes for performing simulations and then feeding the results back to the real world.

Roles of partners

Komatsu	<ul style="list-style-type: none">- Provide know-how gained through Komatsu Smart Construction solution to accelerate digital transformation of construction workplaces- Provide technical support for construction equipment- Support distribution channels
NTT DOCOMO	<ul style="list-style-type: none">- Provide advanced 5G and IoT networks, cloud infrastructure, image analysis and future-prediction technologies (AI, etc.) for Digital-Twin Computing³
Sony Semiconductor Solutions	<ul style="list-style-type: none">- Develop and provide sensing technology and data collection systems to compile information-visualization data
Nomura Research Institute	<ul style="list-style-type: none">- Develop and provide solutions, services and know-how based on business-model transformation and digitalization

³ Digital-Twin Computing (DTC) proposed by NTT is a new computing paradigm that expands on the conventional digital twin concept by freely combining and performing calculations on digital twins of objects and humans in diverse industries. DTC is able to accurately reproduce combinations that could not be comprehensively handled up to now, such as humans and automobiles in cities, and thereby make the future predictable.

Outline of EARTHRAIN

Company name	EARTHRAIN Ltd.
Launch	July 2021 (planned) after obtaining necessary approvals
Business	Development, provision and maintenance of digital solutions for the construction industry including visualization devices, platforms and applications
Location	Minato-ku, Tokyo Japan
Chairperson	Chikashi Shike
President	Akinori Onodera
Paid-in capital	JPY 15.37 billion (USD 138.83 million)*
Shareholders	Komatsu 54.5% NTT DOCOMO 35.5% Sony Semiconductor Solutions 5% Nomura Research Institute 5%

* USD = 110.71 yen as of March 31, 2021

About Komatsu Ltd.

Komatsu manufactures, sales, and provides service and solution of construction and mining equipment, utilities, forest machines and industrial machinery worldwide. Komatsu will continue to move forward with its stakeholders as it creates value through manufacturing and technology innovation to empower a sustainable future where people, businesses and our planet thrive together. For more information, please visit: <https://home.komatsu/en/>

About NTT DOCOMO

NTT DOCOMO, Japan's leading mobile operator with over 80 million subscriptions, is one of the world's foremost contributors to 3G, 4G and 5G mobile network technologies. Beyond core communications services, DOCOMO is challenging new frontiers in collaboration with a growing number of entities ("+d" partners), creating exciting and convenient value-added services that change the way people live and work. Under a medium-term plan toward 2020 and beyond, DOCOMO is pioneering a leading-edge 5G network to facilitate innovative services that will amaze and inspire customers beyond their expectations. www.nttdocomo.co.jp/english.

About Sony Semiconductor Solutions

Sony Semiconductor Solutions Corporation is the global leader in image sensors. We strive to provide advanced imaging technologies that bring greater convenience and joy to people's lives. In addition, we also work to develop and bring to market new kinds of sensing technologies with the aim of offering various solutions that will take the visual and recognition capabilities of both human and machines to greater heights. For more information, please visit: <https://www.sony-semicon.co.jp/e/>

About Nomura Research Institute

Founded in 1965, NRI is a leading global provider of system solutions and consulting services, including management consulting, system integration, and IT management and solutions for the financial, manufacturing, retail and service industries. Clients from all layers of these individual industries partner with NRI to tap NRI's research expertise and innovative solutions across the organization to expand businesses, design corporate structures and create new business strategies. For more information, visit <https://www.nri.com/en>

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