

**Feature****Global CTO Message: Bringing ENLITEN to the Next Stage with Technology Innovation and R&D and Manufacturing Transformation**

Bridgestone E8 Commitment

Energy

Ecology

Efficiency

Extension

Emotion

Bridgestone's Technology Innovation

Bridgestone is taking on the challenge of continuously creating new value by fusing digital power with strong real capability such as extensive experience & knowledge, know-how, data of tires that we have gained from staying close to customers on-site over 90 years of our history. Especially in our premium tire business as core business, Bridgestone is promoting technology innovation based on three axes of "master"—"mastering rubber", "mastering road contact", and "mastering manufacturing"—with the evolution of ENLITEN technology at its core. While leveraging new technology from internal and external co-creation, we amplify the generated value and expand its value to solutions business as growth business or exploratory business. By doing so, we aim to become a company that keeps providing social value and customer value as a sustainable solutions company, which is our vision.

In Pursuit of "Thinner, Lighter, and Rounder"—"Ultimate Customization"

By creating tires "thinner, lighter, and rounder", we can expand the performance spider chart. Creating them "thinner and lighter" enhances environmental performance including resource productivity and higher rolling resistance, while creating tires "rounder" improves driving performance such as handling stability and ride comfort. ENLITEN, which Bridgestone positions as a new premium, not only responds to diverse needs and wants of diverse markets and customers, but also provides new value and improves the performance spider chart by pursuing "thinner, lighter, and rounder". In other words, this is a base technology for product design that sharpens edge in performances that further inspires them. However, if we simply create tires thinner and lighter, tires generally become weak, fragile, and easily distorted, which leads to reducing their performance. ENLITEN technology pursues "ultimate customization" that can be tailored to each market and customer, by assembling more robust and flexible materials accurately, which will resolve contraventions and expand the performance spider chart. We will continue to evolve ENLITEN technology to the next stage by further advancing our three technological foundations—mastering rubber, mastering road contact, and mastering manufacturing—while keeping in mind of



Bridgestone's DNA of "Genbutsu-Genba (respect for being on-site)" and "being attentive and supportive of customer problems."

Mastering Rubber

Bridgestone's strengths in seeing, analyzing, and managing rubber lead to the development of innovative materials to realize thinner and lighter. First of all, we are evolving our "seeing" technology so that the structure of rubber and molecular can be observed more clearly, by utilizing collaborations with external partners. Furthermore, we will enhance our "analyzing" technology and rapidly identify molecular structure of polymer complexes by accumulated extensive knowledge about tires and rubber over our history, enhancement of introduction of state-of-the-art digital technology in material informatics, which we have been leveraging for a long time, and material analysis combined with unique simulation technology, thereby linking it to "managing" technology. Evolution of these seeing, analyzing, and managing technologies leads to more agile development of higher-performance rubber.

In the 21MBP, we not only evolved raw materials such as polymers, fillers, resins, and chemicals, but we also developed robust, high strength network rubbers by making full use of compounding technologies and processing techniques to maximize the potential of each raw material mentioned above, thus achieving significant improvement in wear performance for products such as TURANZA EV. Furthermore, we are making efforts to develop a double network rubber that combines two different rubber networks, one for robustness and another for flexibility, in a single rubber structure by evolving our "managing" technology. We will complete development of this double network during the 24MBP, and plan to implement it into new products in the 27MBP.

Mastering Road Contact

Leveraging Bridgestone's unrivaled knowledge of the world's roads, we have further evolved Bridgestone's unique tire development technology "ULTIMATE EYE", born from our experience in F1®, enabling to visualize ground contact conditions on a variety of road surfaces. Furthermore, by combining our original tire simulation with vehicle simulations, we have optimized the tension distribution of ply cords, which serve as the framework material for tires, to achieve uniform ground contact with thinner and lighter tires. This technology is incorporated in the REGNO GR-X III launched in Japan in February 2024. We will keep evolving our simulation technology toward mastering road contact by fusing of strong real and digital.

Mastering Manufacturing

The tire production process consists of two parts: a front-end process of mixing rubber, then preparing and processing it into components of the desired dimensions, and a back-end process of assembling the processed components into the shape of a tire, vulcanizing it, and inspecting the finished product. To create tires thinner, lighter, and rounder, high-precision preparation, processing, and assembly are required at each process. As such, the evolution of our manufacturing technology is essential.

By utilizing the sensing technology and big data that were developed through our AI-implemented tire building system, "EXAMATION" which has been in practical use since 2016, and linking the data from the front-end and back-end processes, all components of a single tire can be precisely assembled. This autonomous control technology in these processes enables us to create tires that are thinner, lighter, and rounder, leading to improved product uniformity. This autonomous control technology has already been introduced at our plants. We also plan to introduce it at 20 factories globally during the 24MBP period to drive the shift to Smart.

BCMA Supports "Ultimate Customization" by ENLITEN

The starting point for value creation in BCMA is on-site R&D and manufacturing. We evolve R&D and manufacturing to the next stage by approaching the essential issues of R&D and manufacturing at Genbutsu-Genba (being on-site), improving productivity, and further promoting the shift to Green &

Smart. By fusing ENLITEN, a base technology for product design and BCMA, a base technology for manufacturing and R&D, we aim to achieve both ultimate customization and business cost reduction. This will create social value and customer value, leading to reinforce earning power and create corporate value.

From Circuit to Street Mobile Laboratory—Refining ENLITEN Technology Using Sustainable Global Motorsports

For Bridgestone, motorsports are our origin as a tire manufacturer as well as a "mobile laboratory". Through the development of motorsports tires that face extreme conditions, we have refined diverse technologies becoming a foundation of our technology innovations of today. Moving forward, we will leverage sustainable global motorsports to promptly demonstrate the next stage of ENLITEN technology and to reflect it to the development of tires for the markets. Most recently, we are driving technology development to supply motorsports tires equipped with next-generation ENLITEN technology for the 2025 Bridgestone World Solar Challenge (BWSC).

Leading to Drive Sustainability / Accelerating Technology Innovation

We are also taking on the challenge of leading to drive sustainability across the entire value chain of motorsports tires as a "mobile laboratory." By applying our technologies of "seeing," "analyzing," and "managing" rubber, which support development of the innovative materials as mentioned above, Bridgestone is promoting diversification of resources and development of sustainable materials utilizing recycled and renewable materials. For example, in the NTT INDYCAR® SERIES in 2022-2023, we introduced tires made with natural rubber derived from guayule to some races. In the 2023 BWSC, we supplied tires that achieved recycled & renewable material ratio to be 63%. Looking ahead to the future, Bridgestone will accelerate the development of sustainable tire technology, while leading to build a carbon-neutral production structure from motorsports tires through co-creation with partners. Furthermore, we will take on the challenge of evolving Bridgestone's technology innovation at an even faster pace, from R&D and manufacturing for motorsports tires as a starting point.