

**TBM selected to work in collaboration in the  
Acceleration Program under the JR East Startup Program**

~Conducting a test marketing for umbrella sharing service based in train stations with recyclable material, LIMEX~

TBM Co., Ltd. (TBM), a company that develops, manufactures and sells paper and plastic alternative products made from a limestone-based material known as 'LIMEX', has been selected for the Acceleration Program under Japan Railways (JR) East Startup Program 2018.

This program was designed to invite excellent proposals from venture companies and individuals for business and services that make use of the management resources and information assets of our stations, railways and group businesses, and to brush up such proposals to help them materialize. TBM will conduct a test marketing for umbrella sharing service based in train stations with prototypes made of LIMEX. In response to the current trend to going plastic-free, the sharing service of LIMEX umbrellas will contribute to eliminating the current cycle of mass production and mass wasted plastic umbrellas, starting with train stations of JR East.



## ■ Background

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Companies today are expected to take actions against environmental issues to achieve the Sustainable Development Goals (SDGs). With the issue of marine plastic pollution being the catalyst, the European Commission has enforced regulations against plastic in recent months such as aiming to eliminate all plastic waste by 2030 and proposing the fundamental principles for plastic waste.

Japan too has started to take actions against the issue, such as charging fees for plastic bags, and a proposal of a rough strategic plan on eliminating 25% of plastic waste by 2030.

There have been 130 million plastic umbrellas being purchased annually in Japan, and 53% of umbrellas owned by Japanese people are plastic. There is a tendency for plastic umbrellas to have a short usage span and therefore results in a mass discard. There is a large number of plastic umbrellas left behind in trains and train stations, hence the cost and environmental impact in discarding them are seen as an issue.

## ■ Outline

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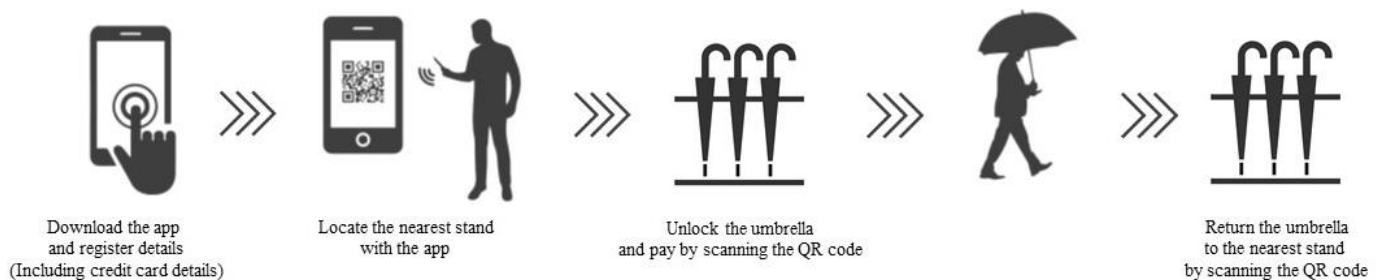
TBM perceives the selection for the Acceleration Program as an opportunity to contribute to the issue of plastic and mass-disposed umbrellas. Hence, TBM will manufacture LIMEX prototype umbrellas, and test market the umbrella sharing service among JR East train stations.

As LIMEX umbrellas are made from a highly recycle efficient limestone-based material, resource recycling is possible in the case of the fabric breakage. Remanufacturing the collected LIMEX umbrellas into a new one will contribute to the plastic problem.

The scheme of the sharing service is imagined that the user installs an app. Users are able to rent a LIMEX umbrella from the nearest stand by scanning a QR code, and have the umbrella returned back into the nearest stand. The umbrella sharing service will contribute to avoiding consuming and discarding more umbrellas.

- Implementation Period: 2019 January onwards
- Implementation Location: Omiya Station and other (Planned)

### < Look of the sharing service >



## ■ The Plan

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TBM will consider the concrete development plan towards the full-scale implementation of the service upon examining the results of the test marketing. The umbrella sharing service is aimed to contribute towards aspects such as; lowering the waste management cost of discarded umbrellas, reducing the manufacturing of petroleum-derived materials and illegal dumping.

The future plan is to expand the application of LIMEX into paper alternatives (printed materials) in railway systems and upcycle them into umbrellas and other products. TBM aims to suggest and establish a circular resource (circular economy) model within railway systems.

## ■ Introduction of the new material 'LIMEX'

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[What is LIMEX?]

LIMEX is made mainly from limestone. It is an environmentally and economically viable new material that can substitute paper and plastic.

- 2013

TBM was chosen by the Ministry of Economy, Trade and Industry as one of the Innovation Base Promotion Businesses to be aided by "Subsidy for Advanced Technology Demonstration and Evaluation Facility Development."

- 2014

Patent Approval for the new material technology in Japan.

International patent applications have been approved or await approval in 43 countries.

- 2015

Construction of Shiroishi Plant was completed. (Shiroishi city, Miyagi)

The capacity of Shiroishi Plant is 6,000 tons annually.

- 2016

TBM received The Social Impact Award by Plug and Play Tech Center.

- 2017

TBM was selected as one of the five top companies to participate in the Innovation Showcase of Japan US Innovation Awards program.

[ Paper alternative (LIMEX sheet)]

LIMEX uses almost no water and no trees while 1 ton of paper is made from around 20 trees and 100 tons of water. One ton of LIMEX Sheet is made from 0.6~0.8 tons of limestone and 0.2~0.4 tons of polyolefin resin.

※Japanese Paper manufacturers plant trees overseas for sustainability.

※If used LIMEX sheet is to be disposed in Japan, it is generally categorized as combustible waste, and cannot be recycled with paper.

[ Plastic alternative (LIMEX pellet)]

• While conventional plastic is made from petroleum-derived resin, LIMEX pellet is made mainly from limestone. LIMEX pellet can reduce the amount of petroleum-derived resin used.

- Limestone costs lower than petroleum-derived resin.
- LIMEX sheet can be up-cycled to LIMEX pellet.

[ Deposits of limestone]

- Limestone is self-sufficient in Japan.
- Limestone is abundant around the world.

## ■ TBM Co., Ltd

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CEO	Yamasaki Nobuyoshi
Head Office	2-7-17-6F, Ginza, Chuo-ku, Tokyo, Japan
Founded	2011
Capital	8,844 million yen (Including legal capital surplus)
Business description	Development, manufacturing and sale of LIMEX and LIMEX products
URL	<a href="https://tb-m.com/en/">https://tb-m.com/en/</a>

\*The name of the company, goods and services appeared in this news release are registered trademark or trademark.

\*The contents of this news release are as of the released day. The contents are subject to change without notice.

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