

INTRODUCING M-TECHX EU SRL

DIVERSE LINES OF BUSINESS BASED ON

- Japan's Most Advanced Technology - The World's First Nanofiber Mass Production System -

MAY 2023



M-TECHX INC.

■ OUR VISION

A NEW INDUSTRIAL REVOLUTION BASED ON WORLD-CLASS NANOTECHNOLOGY

**Promoting a New Industrial Revolution with our
Innovative “Nanofiber” Technology**

The new industrial revolution we advocate will enrich people's lives around the globe through the establishment of innovative local businesses throughout the world!

01 COMPANY PROFILE

About M-TEchX

M-TECHX ASIA PTE. LTD. (Singapore Head Office)

Address	20 Collyer Quay #23-00 049319 Singapore
Founded	February 3, 2017
Business Areas	<ol style="list-style-type: none">1. R&D, manufacture and sales of nano chemical fiber products, and their related production equipment, machines and tools2. Import and export of Nanofiber products3. Sales of Nanofiber products
Director	CEO Hiroyoshi Sota

M-TECHX EU SRL (UE)

Address	GH DOJA ST 165B, ORADEA, RO
Founded	August 18, 2023
Business Areas	<ol style="list-style-type: none">1. Import and export of Nanofiber products2. Sales of Nanofiber products
Director	CEO Florin Balint T/WApp +40 724270161 e-mail: contact@mtechx.eu



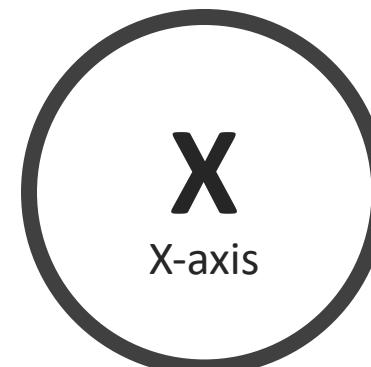
Providing the miracle of human creativity to the world



Bold development of unique technologies



Rising to the challenge in all circumstances



The X-axis symbolizes the spread of progress world-wide

01 COMPANY PROFILE

■ PATENT OWNER



Hiroyoshi Sota

■ Work history

1992-2011 Hitachi Cable Ltd., Monitoring Systems Development Division
2012 ~ Present M-TEchX CEO

■ Publications

- * Underground Transmission Line Human Passageway Internal Monitoring System Using Radio - 2001
- * Practical Application of an Optical Passive Sinus Monitoring System
 - presented at the 2001 IEEJ National Conference
- * Development of an Abrasion Detection System for Shinkansen and Alarm Trolley Lines
 - presented at the 2003 IEEJ National Conference

■ Main Achievements

1) Electric Power Field

- Development of optical passive surveillance system for underground transmission lines and sidestream facilities
 - Electric Security Association Best Technology Awards Prize
 - Tohoku Electric System President's Award

2) Railway Field

- Development of trolley line detection system for Tokaido Shinkansen
 - OHM Technology Award
 - Hitachi Cable Inc. President's Award

3) Broadcasting Field

- Development of terrestrial digital relay station monitoring system
 - Holds about 80% of the total industry share
 - NHK: monopoly. Commercial broadcast: Near monopoly (all except Tomei-Osaka area)
 - Tokyo Sky Tree Digital broadcasting antenna system
 - Hitachi Group Business Award, Special Award

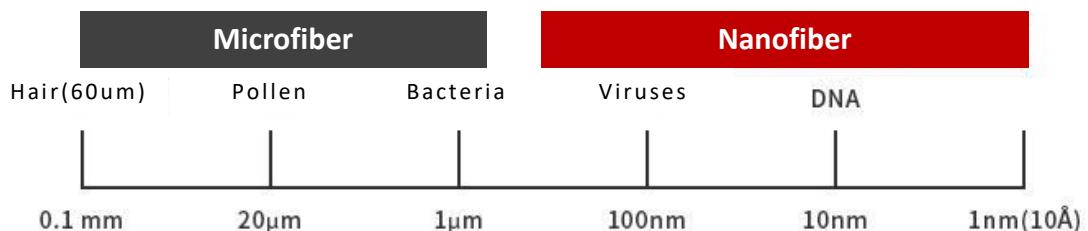
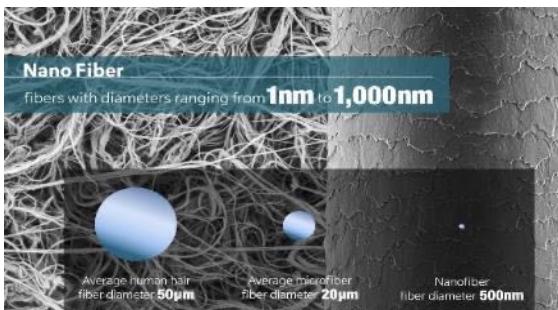
02 NANOFIBER MASS PRODUCTION TECHNOLOGY OVERVIEW

■ Nanofibers, the Super Material of the Future

Nanofibers have been called the “super material of the future” for more than 30 years, due to the special performance and effects they can provide for a variety of products.

What are Nanofibers?

Nanofibers are ultra-fine fibers that are less than 1/100 the thickness of a hair.



Typical Nanofiber Effects

Superfine fibers/nanosize effects

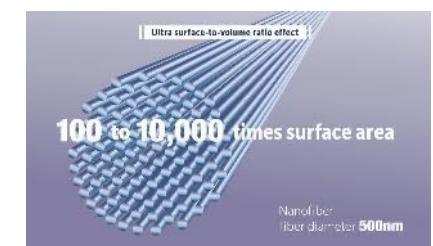
- **Low pressure loss:**
High performance filters can be produced
- **Very transparent materials**
High transparency without irregular reflections

Super specific area effect

- **High Adsorption Performance/Strong Adhesion**
Increase bonded area per unit of mass
- **High molecular recognition**
Molecules can be selectively adsorbed by adding molecular adsorption groups.

Super molecular configuration effects

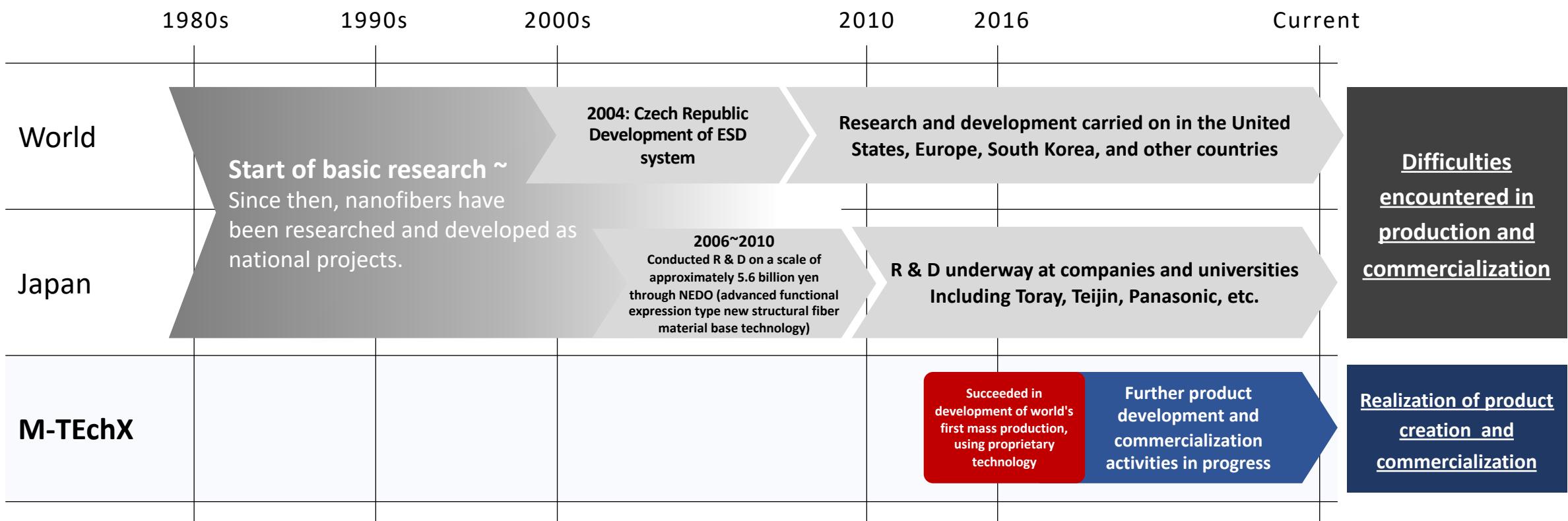
- **High strength and electrical conductivity**
Can replace metal materials
Uses include car bodies, aircraft, spacecraft etc.
- Can also be applied to electric wires, wearables, etc.



02 OVERVIEW OF NANOFIBER MASS PRODUCTION TECHNOLOGY

■ Technical Background - Nanofiber Technology Trends

While various countries around the world are conducting research and development into nanofibers on a national project level, M-TEchX has already succeeded in **mass-producing the world's first nanofibers, using its unique technology.**



02 OVERVIEW OF NANOFIBER MASS PRODUCTION TECHNOLOGY

■ M-TEchX Mass Production Technology

Using our original technology, we have developed a system that enables the mass production of nano-scale fibers. The Nanofiber brand “**MAGIC FIBER**” was born.

Features of MAGIC FIBER

1. Mass production possible

Production volume: 30kg/h

⇒Creation of fibers with unique effects

*When our melting system equipment is used

2. Technology allows replacement of diverse plastic materials into those made from nanofibers

*Plastic materials, etc.

3. Technology makes realization of fiber-layered (3D) structures possible

Comparison with other manufacturing methods

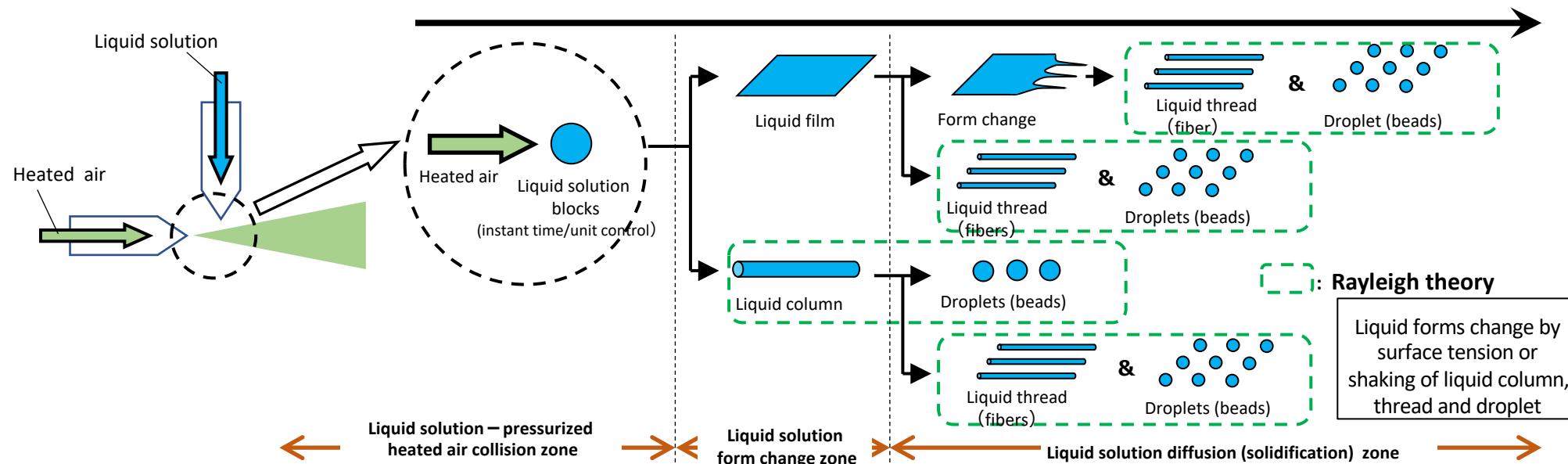
Items	FIBERIO (USA)	ELMARCO (CZE)	M-TEchX (JPN)
Method	ESD (Electrostatic discharge)	ESD (Electrostatic discharge)	Meltblow
Production volume	1 kg/h	1 kg/h	30 kg/h
Standard price of equipment	Approx. 1 million USD	Approx. 1 million USD	Approx. 1.5 million USD
Safety	Use of high-voltage electricity Risk of explosion and discharge of hazardous materials	Use of high-voltage electricity Risk of explosion and discharge of hazardous materials	No use of high-voltage electricity No risk of explosion and discharge of hazardous materials
Scale	Lab Level Development of large-scale equipment and facilities required for mass production.		Plant and product level space-saving mass production possible now

02 OVERVIEW OF NANOFIBER MASS PRODUCTION TECHNOLOGY

■ MAGIC FIBER's "Meltblow" Manufacturing System

A manufacturing method based on the control of heated air to melt the material.

Our company's original Fiber Formation Mechanism: An Image of the "Meltblow" Manufacturing System



【Advantages of our method】

It is possible to control the fiber state and production volume by air pressure and liquid solution blocks (supply volume)

View of fiber formation



02 OVERVIEW OF NANOFIBER MASS PRODUCTION TECHNOLOGY

■ Patent Information

Registered patents and related applications as of March 2021

Name of Invention / Method	Date	Application Number	Remarks
Nanofiber manufacturing equipment and nanofiber manufacturing method	Mar. 26, 2015	2015-065171	Registered on December 2, 2017 Patent 6047786 / Disclosure 2016-183435 Disclosure 2016-183435 (P2016-183435A)
Nanofiber accumulating and molding equipment and nanofiber accumulating and molding method	Oct. 4, 2017	2017-194709	Registered on April 26, 2019 Patent 6517900

Pending patents and patent applications made as of March 2021

Type	Type Name	Patent / Application Number
Patent application in process	Nanofiber manufacturing equipment and nanofiber manufacturing method	• Divisional application ②: 2017-247523 • PCT application: PCT/JP2016/59462 • Taiwan application: 105109425
	Divided nozzle for nanofiber manufacturing equipment and nanofiber manufacturing equipment with divided nozzle	• Domestic application: 2017-121050 • PCT application: PCT/JP2018/23457 • Taiwan application: 107121131
	Nanofiber collecting device and nanofiber collecting method	• Domestic application: 2017-170641 • PCT application: PCT/JP2018/32786 • Taiwan application: application number is unknown
	Nanofiber accumulation for oils and fats absorbing, as well as nanofiber accumulation for oils and fats absorbing ratio estimation method and method of estimation of after-absorption accumulation	• USA application: 62/527,761 • PCT application: PCT/JP2018/24743 • Taiwan application: 107122802
	Sound insulation fiber accumulation, sound absorbing and insulating materials, sound absorbing and insulating materials for automobiles	• USA application: 62/527,761(*) • PCT application: PCT/JP2018/24744 • Taiwan application: 107122803
	Nanofiber accumulation for polishing and its manufacturing method	• USA application: 62/527,761(*) • PCT application: PCT/JP2017/42926

※ Additional patent applications are pending in many other regions and countries.

03 MAGIC FIBER APPLICATIONS

MAGIC FIBER Applications and Market Size

Business Area	Status	Product Examples	Global market size
Oil Absorption		Commercialized	For business use: Magic Fiber Oil Adsorbent For household use: Versailles Cotton Approximately USD 1 billion or more <small>*In-house research and estimation</small>
Insulation (Building Materials)		In Development	Building materials (for houses, buildings, etc.) Approximately USD 50 billion or more <small>*Based on in-house research and interviews with housing materials manufacturers</small>
Sound Absorption Materials (for Automobiles)		In Development	Sound absorbers for automobiles <small>*excluding airplanes and transport vehicles</small> Approximately USD 3 billion or more <small>*Markets and Markets</small>
Filtration		In Development	Air filters Water filters Approximately USD 63 billion or more <small>*Statistics from Market Research Consultants</small>
Apparel		In Development	Clothing (everyday clothing, sports wear, etc.) Shoes, bedding, and masks Approximately USD 1.8 trillion or more (Approximately USD 92 billion in Japan) <small>* Roland Berger</small>
Agriculture and Greening		In Development	Landslide prevention, storage Insect repellent Approximately USD 4.6 trillion or more <small>*Estimates based on data from FAOSTAT (Food and Agriculture Organization Corporate Statistical Database).</small>
Medical		In Development	Regenerative medicine Approximately USD 12 trillion or more <small>*Data for 2010 calculated by The Cabinet Office of Japan, based on WHO data.</small>
Defense & Law Enforcement		In Development	Bulletproof vests & helmets, protective clothing, infrared absorption Approximately USD 10 billion or more (Defense market only estimated at more than USD1.9 trillion) <small>* Stockholm International Peace Research Institute(SIPRI),</small>

Oil Absorbents / Features and Market Scale

Utilizing nanofibers and special structures, this is a unique oil adsorbent with overwhelmingly better performance and innovative new functions.

MAGIC FIBER oil absorbents (ready for production)

Ultra-high performance

**SUPER ABSORBENCY:
50 TIMES ITS OWN WEIGHT**

(10X that of competitors' products)

World's top class oil absorbency



New Features

ULTRA STRONG HOLDING POWER

(Competitors' products leak)

Absorbed oil doesn't leak out, but is strongly retained



■ Absorbs a large amount of oil
1 sheet (20g) - 1ℓ MAX

■ No secondary cleaning:
Work time and effort reduced by 1/2

New Features

WATER REPELLENCY

(Competitors' products absorb water)

Absorbs only oil, repels water



■ Effectively removes oil from the water surface.
**Number of used sheets reduced
Work time shortened**

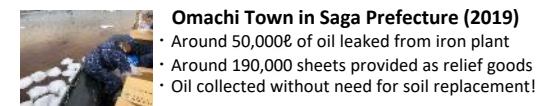
Market scale

Over **USD 1 billion**

*Estimations made by M-TEchX Inc.
*Sheets used in production plants, oil plants, oil-water separator tanks.
*Not including measures to remove the spilled oil.



Applied in disaster areas!



Omachi Town in Saga Prefecture (2019)

- Around 50,000ℓ of oil leaked from iron plant
- Around 190,000 sheets provided as relief goods
- Oil collected without need for soil replacement!



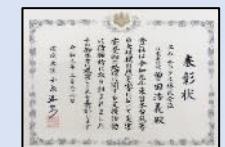
Mauritius (2020)

- 1000 tons of oil spilled from tanker
- Mangroves contaminated in area of 100,000m²
- Currently, M-TEchX is collaborating with local NGO in cleaning up the area

Award from Japan's Ministry of the Environment 2020



Received the Environment Minister's Award for relief measures in places where large scale natural disasters **occurred!**



The Environment Minister's Award is granted to organizations for humanitarian or material support activities related to environmental preservation measures in areas where large scale natural disasters have occurred.

■ Other Business / Characteristics and Market Size of Other MAGIC FIBER Applications

MAGIC FIBER is a material with outstanding performance and superior characteristics.

INSULATION MATERIALS



Comparison of Thermal Conductivity W/(m K) n

Glass wool	MAGIC FIBER (Prototype)
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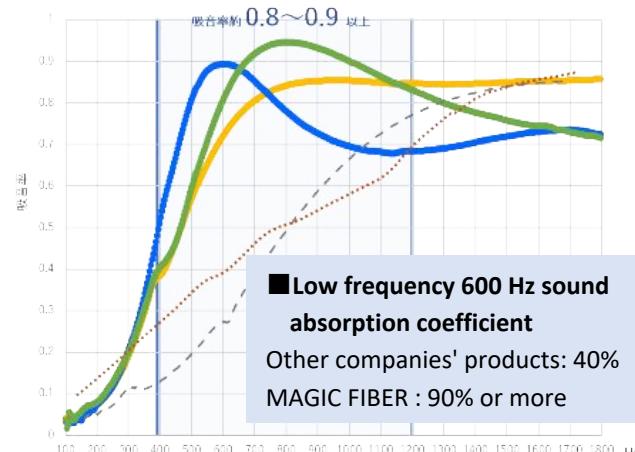
0.036

0.0136

Can boast more than twice the insulation capacity of existing insulation materials such as glass wool.

Insulation market size
About \$50 billion or more

SOUND ABSORBING MATERIALS



Magic fiber's sound absorbency in low sound ranges outperforms competitive products. It is especially effective at absorbing vehicle vibration and noise. High-range sounds are also absorbed. A new generation of sound absorbent materials.

Sound absorption market size
About \$6 billion or more

FILTERs



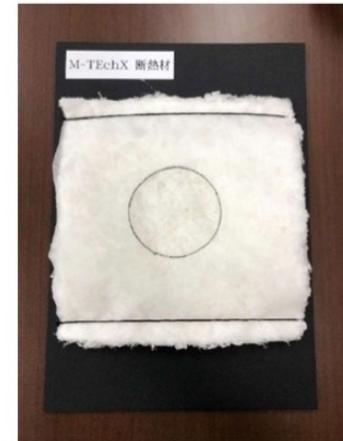
Achieves HEPA level performance with one substrate
(For ready-made products, multiple sheets are used)

- ① High collection efficiency with low pressure drops
- ② High performance possible with single filters
- ③ Mass production and highly profitability possible

Filter market size
About \$60 billion or more

04 COLLABORATIVE BUSINESS AND PRODUCT DEVELOPMENT PROPOSAL - REFERENCES

mean fiber diameter (nm)	Bulk density (g/cm ³)	thermal conductivity (W/(m · K))
500～18,500nm	0.0048	0.0136



The combination of thin and thick fibers creates numerous spaces and gaps.

Succeeded in providing ultra-high-performance insulation performance (thermal conductivity).

[Performance Comparison by Insulation Material] in-house investigation

Category	Type	Performance						
		thermal conductivity	adiabatic property	sound absorption property	flame retardance	moisture permeability	environmental	price
Inorganic fiber system	glass wool	0.036	○	○	○	△	○	○
	rock wool	0.038	○	○	○	△	○	○
Woody fibre system	cellulose fiber	0.034	○	○	○	△	○	△
Wool system	wool insulation	0.040	○	○	○	△	○	○
Synthetic fiber system	Polyester heat insulating material	0.045	△	○	○	△	○	○
New textile materials	Sample (nanofiber)	0.014	○	○	○*	○	○	○
Extruded polystyrene foam (one species)		0.040	○	△	△	○	△	△
Polyethylene foam		0.028	○	△	△	○	△	△
Rigid urethane foam (one species)		0.029	○	△	△	○	△	△

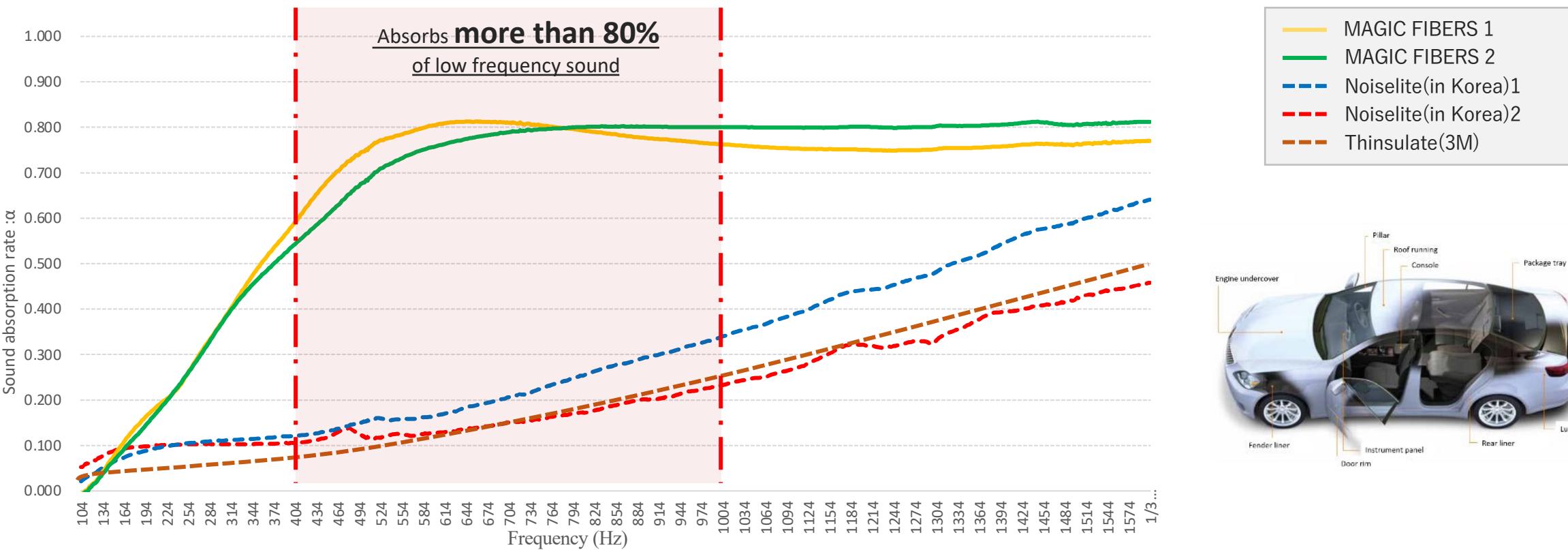
* Incombustibility can be realized by mixing with incombustible materials.

SOUND ABSORPTION FEATURES

The main feature of MAGIC FIBER absorber is that it can absorb low frequency sound (400 Hz~1500 Hz), which cannot be achieved with conventional products. It can absorb low frequency sound (400 Hz~1500 Hz), which conventional products cannot.



■ The sound absorption rate in the low and middle range is by far the highest

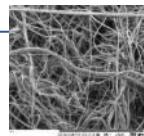


I . NANOFIBER BUSINESS / OTHER APPLICATIONS

High-performance Air Filters

Nanosized fibers absorb particles at the level of dust and viruses. Magic Fiber can achieve HEPA standard performance with one filter.

Composed of fibers of 100 nanometers or less



Effective space structure



① High collection rate and low pressure loss

⇒ Collection rate of 99.99% or more, with good breathability.

② A single filter delivers all the performance users need

⇒ High-performance filters at a low cost without multiple uses
(Commercialization advantages. Advantages over competitive products)

③ Mass production potential

⇒ Our company's unique nanofiber mass production technology enables stable large-scale manufacturing.

HEPA standards and comparison with other companies' products

Item	HEPA filter criteria	Products from other companies	MAGIC FIBER
Collection rate (The higher the better)	99.97% or more	99.97%	99.99% or more
Pressure drop (the lower the better)	245 Pa or less	200 Pa or less	189 Pa or less
Number of sheets used (lamination)	Lamination needed (Use of multiple sheets) Often consists of multiple layers to implement the HEPA standard	Lamination needed (Use of multiple sheets) Often consists of multiple layers to implement the HEPA standard	1 filter sheet sufficient A single filter layer can achieve higher performance than HEPA filter standards
Cost	—	High	Low

MEDICAL Products/ Features and Market Scale

By combining the latest medical technology (regenerative medicine, etc.) with nanotechnology, we will develop products that advance medical care world-wide and help eliminate medical disparities.

Application	Description	Merits	Status
Regenerative Medicine	 <p>Promotes regeneration by helping the substances necessary for the process to permeate the patient's body</p>	Superior in bio absorbency and cell adhesion, a safe scaffold material	Development expected
Blood Absorption	 <p>Absorbs a large amount of blood leaked during the operation. Easy to use due to the holding power</p>	Absorbs and processes the blood which can't be easily removed with gauze	Basic development finished In the process of commercial development
Wound Dressing Materials	 <p>Plasters, medical gauze, surgical adhesive sheets, anti-adhesive materials</p>	<ul style="list-style-type: none"> • Thorough adhesion to large and porous surface area of the skin • Breathable, allows oxygen to pass through to the skin 	Development expected

04 COLLABORATIVE BUSINESS AND PRODUCT DEVELOPMENT PROPOSAL

Blood Adsorbents



A 5g sample absorbs nearly all the blood in the tray: absorbent volume is nearly 20~30 times its own weight
(absorbency around 4 times more than conventional types)

Wound Materials

Medical films



Dressings



[MAGIC FIBER features when used as dressings]

- High bioabsorbable strength and cells adhesivity
- Porous medium
- High mechanical strength
- Oxygen permeability
- Absorbency capacity allows the retention of a large amount of medicine
- Moisture permeable and waterproof, allows air pass through

Regenerative Medicine: ~Applications of MAGIC FIBER in Advanced Medical Technologies ~

MAGIC FIBER is gaining recognition as an essential material for regenerative medicine. It can adapt to cells and turn itself into a part of the defective tissue.

3 important points in regenerative medicine

- ① Cells
- ② Cell growth inhibitors
- ③ **Scaffolding materials**

Features of MAGIC FIBER Scaffolding Materials

- Can be produced in an environment closely mimicing biological tissue, allowing it to become the missing part of the body itself
- Can be shaped to fit the shape of the defect
- Improved adhesion to cells
- Allows the formation of large cartilage tissues that cannot be produced by conventional methods

*Under joint research with Tokyo Medical and Dental University, an institution at the forefront of regenerative medicine in Japan

Application example: Cartilage regeneration treatment

[Medical problem]

Osteoarthritis of the knee (articular cartilage damage, causing pain in the knees)

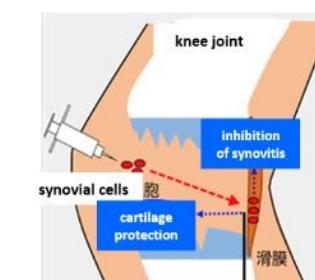
[Standard regenerative medicine treatment]

Meniscus preservation with synovial cells (Synovial cells intra-articular injection)

[Treatment utilizing MAGIC FIBER]

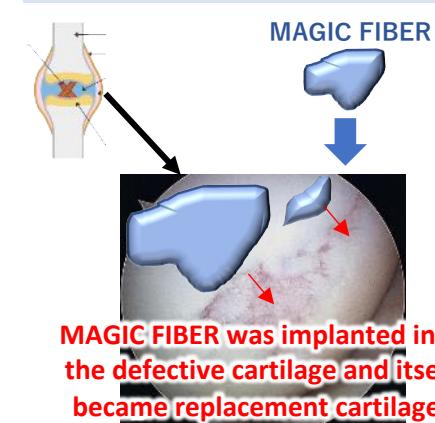
Special membrane stem cells used to regenerate cartilage can be included in the MAGIC FIBER scaffolding material and retained in place, allowing the MAGIC FIBER itself to become cartilage which replaces the damaged areas.

Conventional method



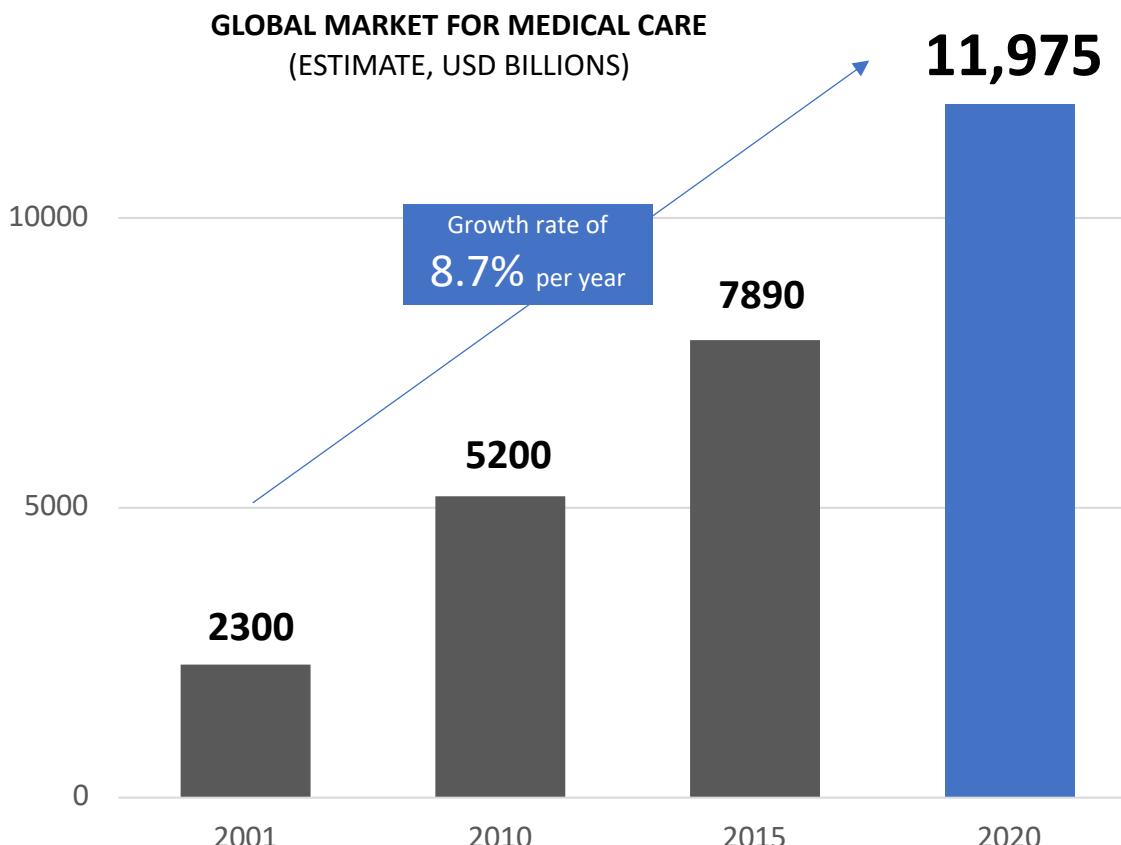
The solution does not stay in the needed location when it is only injected.

Using MAGIC FIBER



MEDICAL Products / Features and Market Scale

Market size of the entire healthcare sector world-wide about **USD 12 trillion**

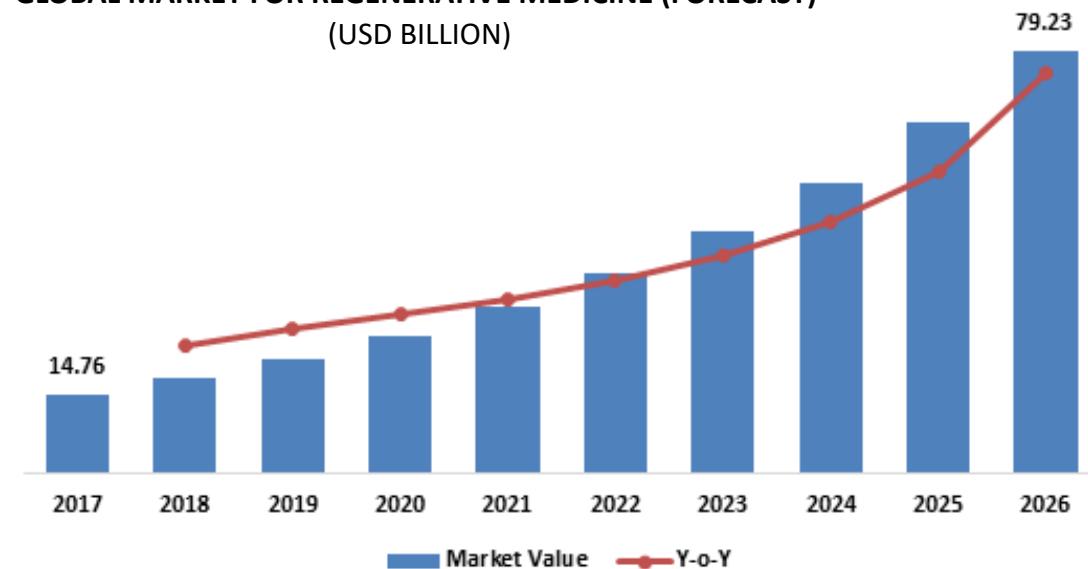


Data calculated by the Cabinet Office of Japan for 2010, based on WHO statistics. From this, we estimated the market size in 2020 based on an annual growth rate of 8.7% (based on past estimated data).

Global market size of regenerative medicine about **USD14 billion**

The global regenerative medicine market was valued at USD 14.76 billion in 2017 and is anticipated to grow at a CAGR of 20.5% during the forecast period. The market is primarily driven by the rising world-wide prevalence of chronic diseases such as cancer and diabetes.

-GLOBAL MARKET FOR REGENERATIVE MEDICINE (FORECAST)-
(USD BILLION)



POLARIS MARKET RESEARCH

Agricultural Business/ Features and Market Scale

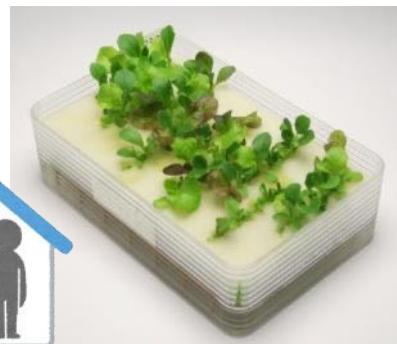
MAGIC FIBER makes possible the development of dramatic new agricultural products that can help end hunger, increase food production and meet the UN's SDGs.



1



Fruit and vegetables can be easily cultivated anywhere



Cultivation possible even at home

2



Plant growth can be accelerated. Plant size and the sugar content of fruit can be increased.

(When used together with materials which support plant growth)



Agricultural products can be harvested multiple times in a season

3



Plant cultivation becomes possible even in barren areas

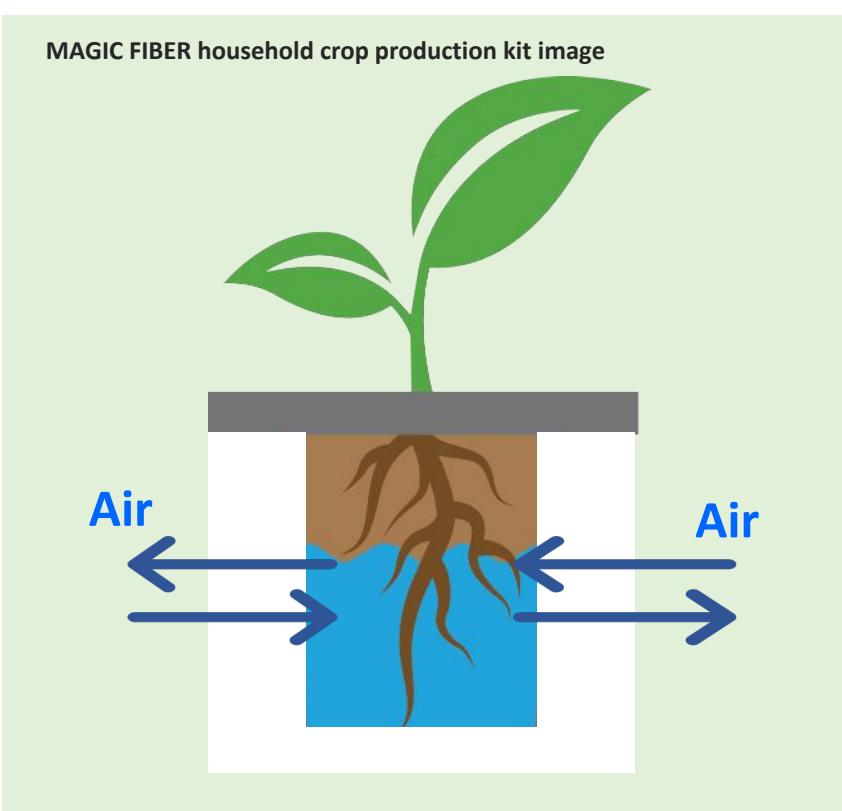


Cultivation possible even in areas with severe water shortages. Large tracts of land not necessary

04 COLLABORATIVE BUSINESS AND PRODUCT DEVELOPMENT PROPOSAL

Simple Nanofiber Cultivation Kit for Agricultural Products – Suitable for Home Use

Since the MAGIC FIBER household crop production kit does not need to have water flowing through it, but only air, it is more effective and easier to use than conventional hydroponic cultivation kits.



Point.

- 1) Soil is wrapped with MAGIC FIBERS
- 2) Water is retained
- 3) Air is allowed to flow through the unit

Conventional cultivation kits: Delivery of oxygen and nutrients to roots is difficult, water gets muddy, root rot occurs easily.



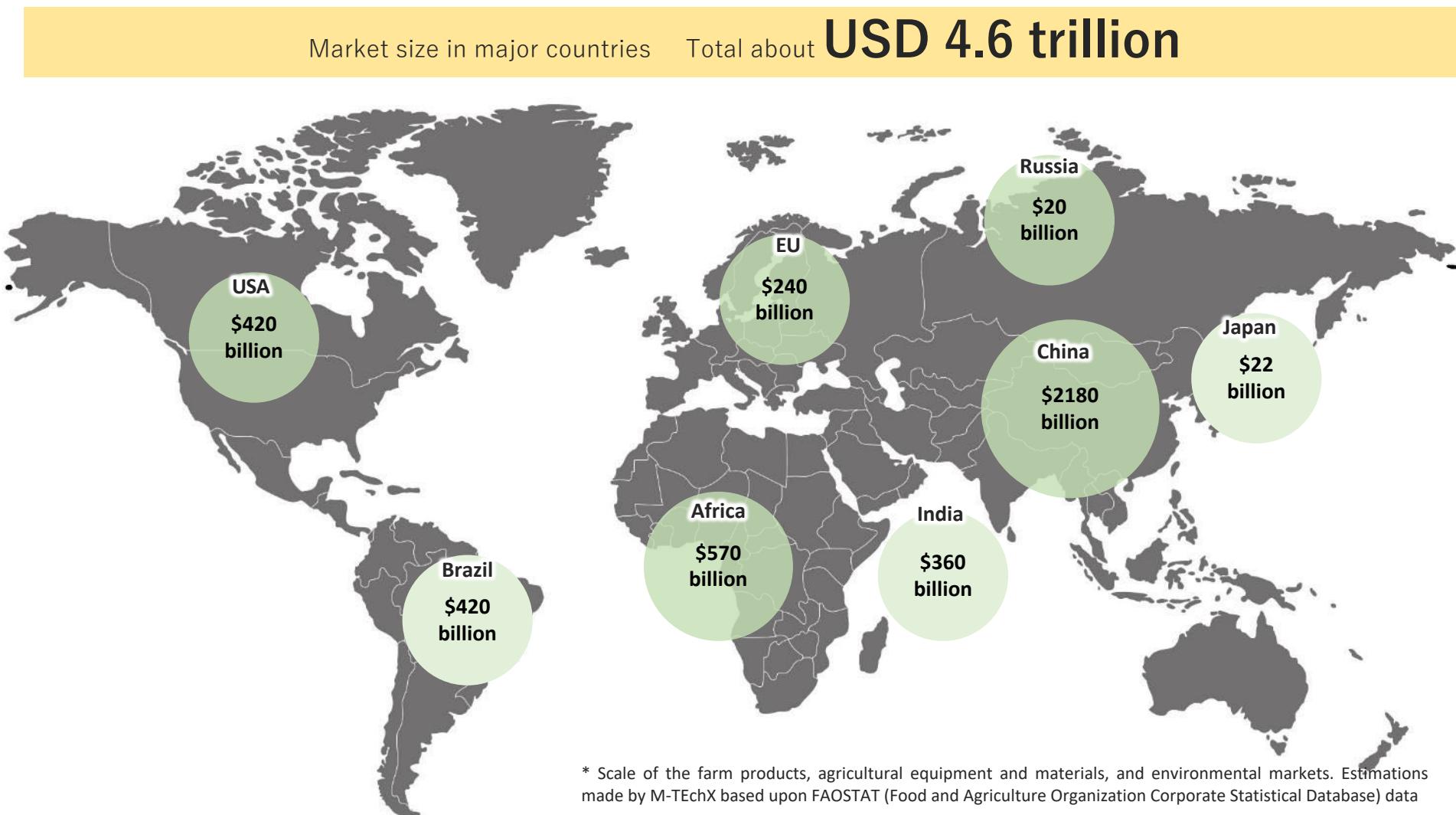
MAGIC FIBER: Retains water but prevents root rot by allowing air to flow through the system → Crops can be grown more easily and efficiently.

Examples of cultivation kits



The problem of food shortages can be solved by simply growing and producing more of it in a shorter period of time.

■ Agricultural Business / Features and Market Scale

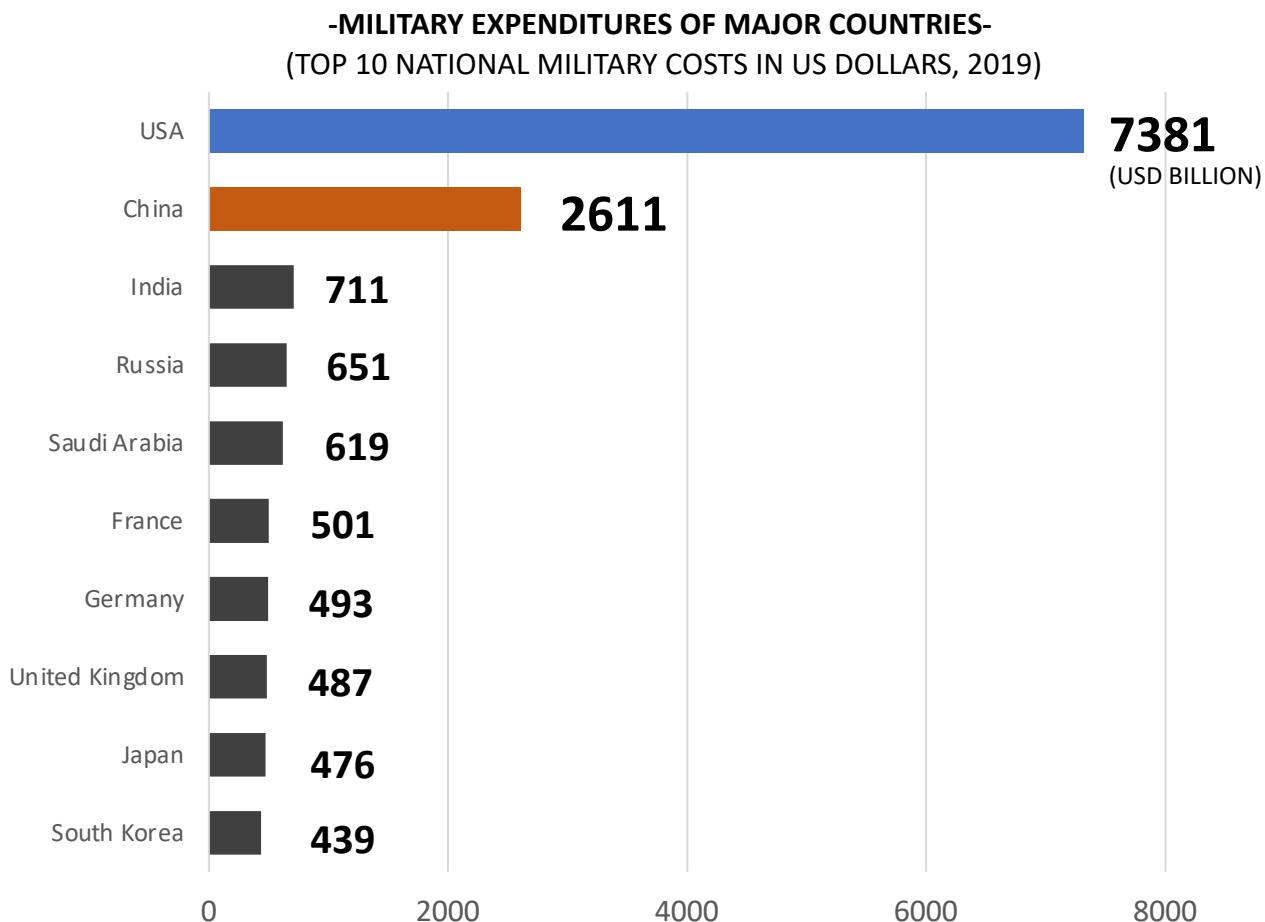


DEFENSE Business / Features and Market Scale

Application	Details	Merits
BULLETPROOF AND PROTECTIVE MATERIALS	<p>The strongest bulletproof vests Stronger and lighter than Kepler</p> 	<ul style="list-style-type: none"> Development of the world's most powerful bulletproof material that combines the "high strength" and "light weight" of nanofibers Stronger and lighter than Kepler fiber products Body armor featuring both elasticity and heat resistance - considered difficult - is also possible.
	<p>Heat-insulating/Flame-resistant clothing Featuring both high heat-resistance and comfort</p> 	<ul style="list-style-type: none"> Realization of unprecedented fireproof clothing offering greatly improved heat resistance, weight reduction, durability and comfort (Achieves multiple conflicting performance targets)
SPECIALIZED MILITARY WEAR	<p>Infrared and radio wave blocking clothing Infrared / radio wave absorbing material</p> 	<ul style="list-style-type: none"> Innovative and highly versatile nanofiber clothing that baffles infrared thermography, etc. can be realized. (Nanofibers absorb infrared radiation.)

DEFENSE Business / Features and Market Scale

WORLD'S TOP 10 MILITARY SPENDING ABOUT USD 1.9 trillion



Market size in the protection sector of about USD 10 billion

ITEM	Application Examples	Global market size
Bulletproof composites market	<ul style="list-style-type: none"> • Body armor - bulletproof vests - shields - bulletproof underwear • Vehicle armor • Helmets & Face Protection • Other 	US \$ 1.8 billion
Protective clothing market	<ul style="list-style-type: none"> • Fire fighting • Petroleum gas • Construction and Manufacturing • Pharmaceuticals/Healthcare • Other 	US \$ 8.7 billion

