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INSURANCE GROUP

# FY2017 MS&AD IR Day

September 12, 2017 (Tuesday)

MS&AD Insurance Group Holdings, Inc.

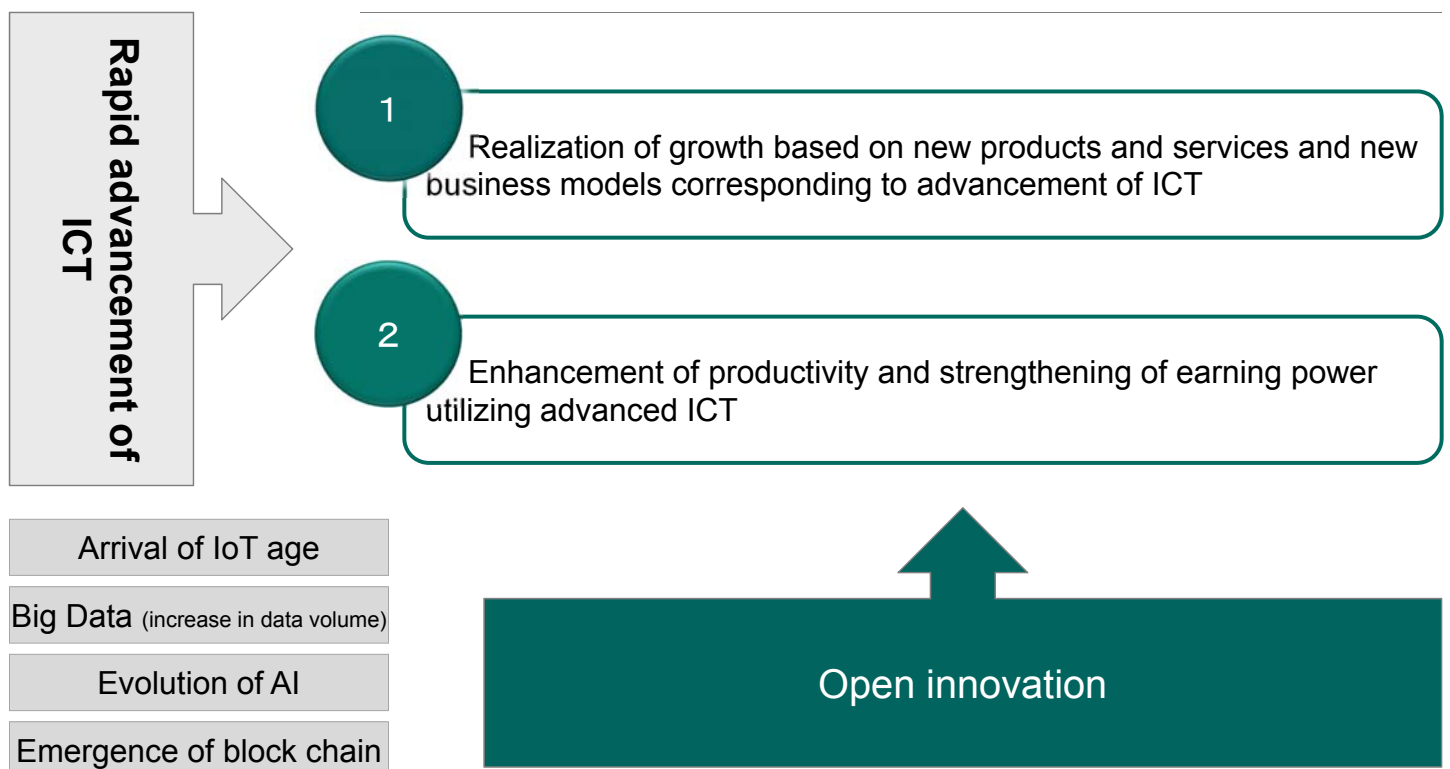
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## I . MSI's Digital Strategies

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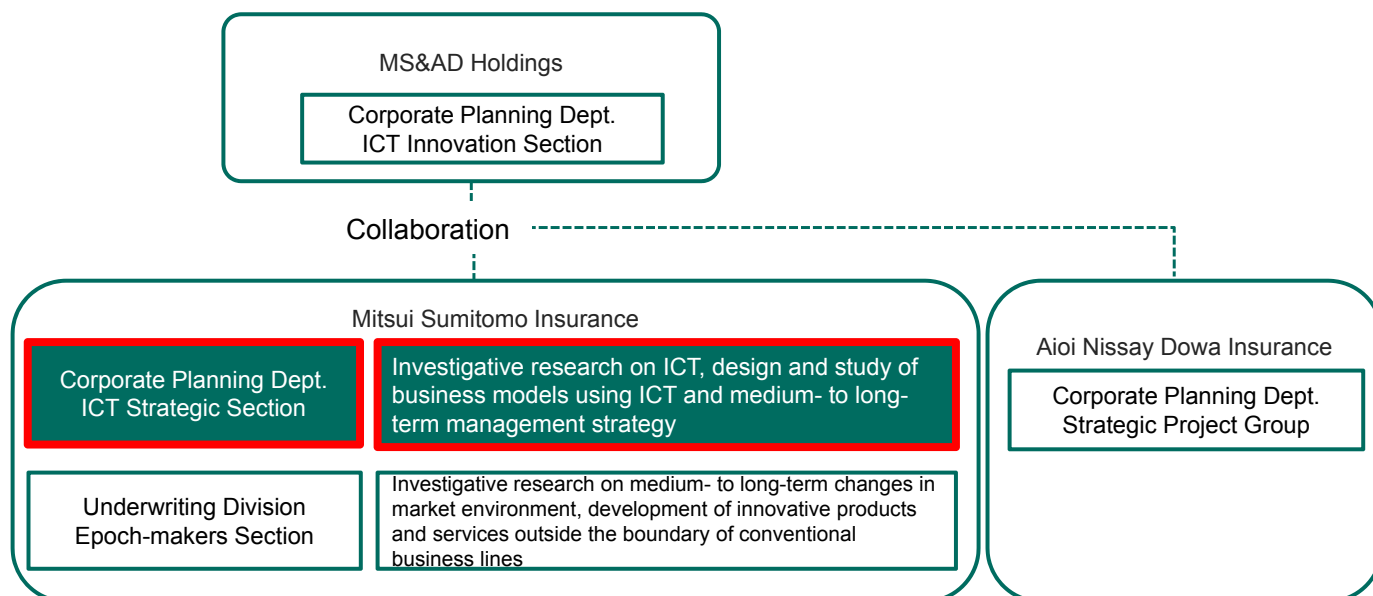
## Mitsui Sumitomo Insurance's ICT Strategy

### Our vision



# What is the ICT Strategic Section?

- In light of the advancement of ICT in society in general based on the use of IoT, Big Data and AI (artificial intelligence) as well as the appearance of FinTech, we have strengthened our stance on planning the strategic utilization of ICT (April 2016).
- The ICT Strategic Section collects information on leading-edge technologies such as IoT, Big Data and AI (artificial intelligence) and designs and studies business models utilizing ICT based on concepts and points of view that did not exist before as well as management strategies looking 5-10 years ahead.
- In the case of investigative research on the latest information overseas, it collaborates with the holding company, and studies the development of next-generation products and services while collaborating with the Underwriting Division and the Epoch-makers Section.



## Role of the ICT Strategic Section

1

### Investigative research

It broadly investigates and researches the latest ICT technology trends, government administration trends, cases of ICT use in the finance and other industries, overseas trends etc.

2

### Open innovation

It promotes investigation to balance speed with results, including alliances with and investment in other industries and business ventures as well as the proactive use of external knowledge, such as from research institutions.

3

### Design and study of medium- to long-term management strategies

It analyzes the impact of ICT progress, determines core competence in the non-life insurance business from a medium- to long-term perspective, and designs medium- to long-term business models and management strategies that utilize ICT. It develops prototypes of planned business models and investigates their feasibility by conducting field trials.

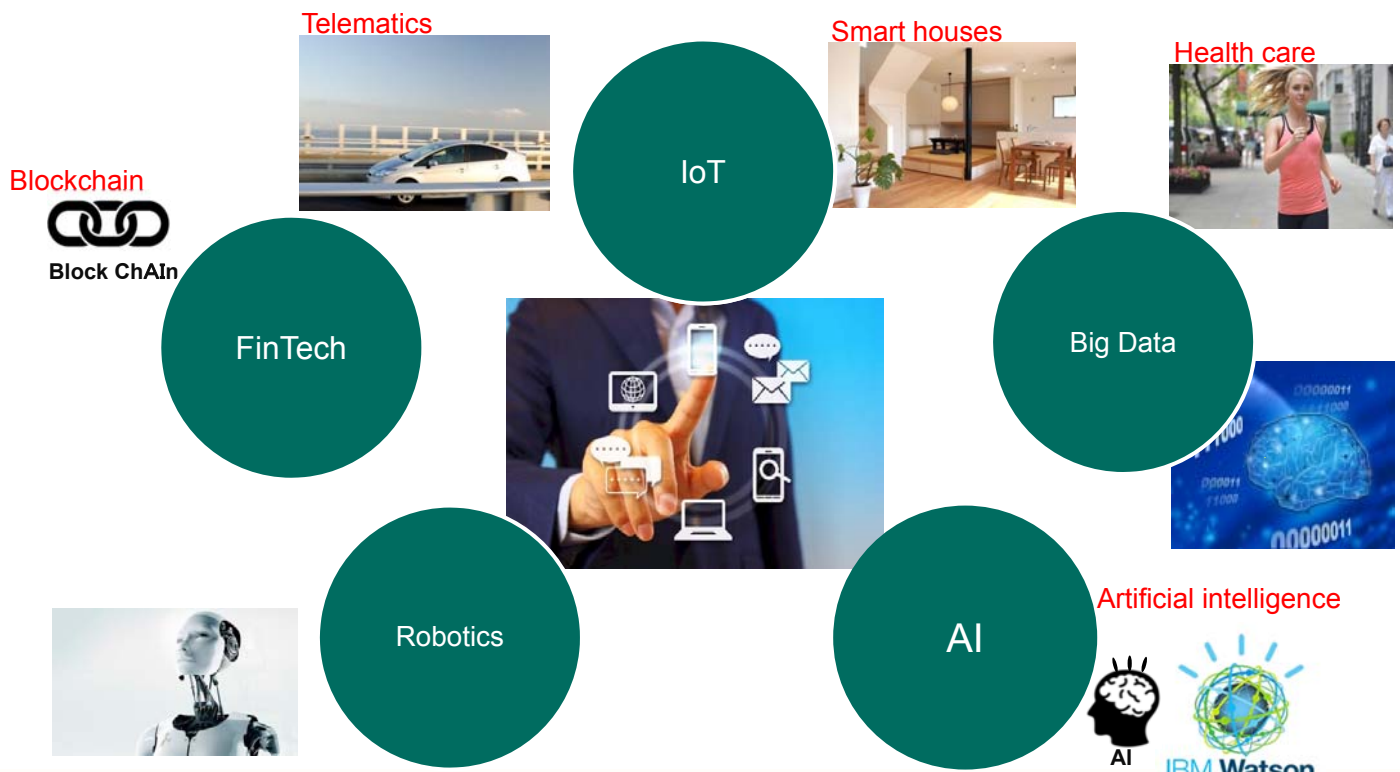
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### Human asset development

It enhances the ICT expertise of front-line employees and recruits and develops professional staff such as data scientists.

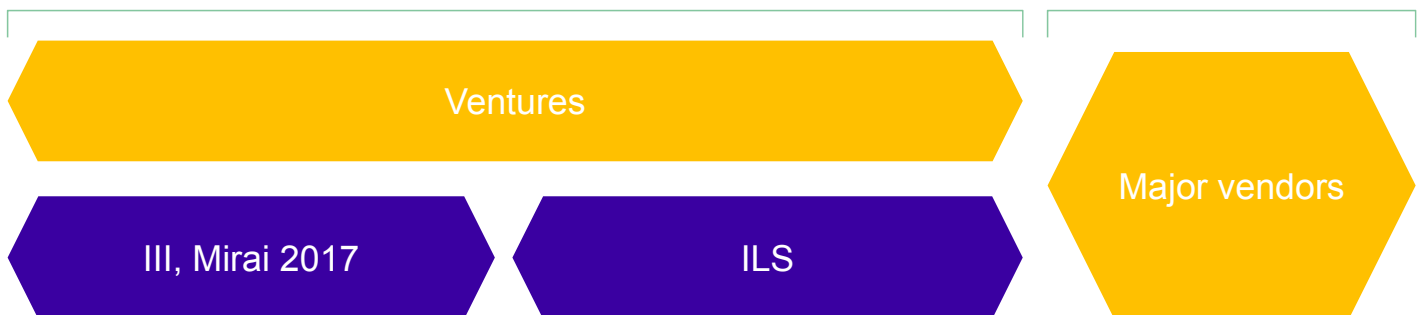
# Investigative Research Themes

The ICT Strategic Section carries out investigative research and conducts field trials with priority placed on themes that have a large impact on the non-life insurance business from a medium- to long-term perspective.



# Open Innovation Initiatives

**"Originality of technology" and "Speed"**      **"Reliability" and "Stability"**



- **Cross-industry consortium** to support commercialization of technologies and business ideas with great foresight, sponsored by Sumitomo Mitsui Banking Corporation (SMBC) and the Japan Research Institute



- Competition involving business pitches (business overview presentations) that **foster venture companies** and connect ventures with investors, sponsored by III



- **Business matching of** venture companies and large companies supported by the Ministry of Economy, Trade & Industry

# RPA (Robotic Process Automation) Initiatives

1

Initiatives started in 2007 and more than 400 types of robots are already in operation

We started to automate the operation of web systems by using Excel/VBA, called this a one-click tool, and have developed various robots; at present, more than 400 types are in operation, and they contribute to improved business efficiency and productivity

2

Implementing in-house development, accumulating robotic technologies within the company

Without relying on external vendors, we are nurturing personnel able to develop software robots in house, and have set up exclusive development teams in business departments, currently operated by 18 staff members.

3

Capturing business automation needs through establishment of internal SNS "suggestion box"

To capture needs for efficiency enhancement at the front line of sales and claim services, we have established a "suggestion box" where employees can make suggestions. Based on their "likes" and comments, we are developing robots beginning with operations where the effectiveness is high.

4

RPA discovery: analyzing operations where automation is possible based on PC operation logs

We are investigating the introduction of the latest RPA products, analyzing employees' PC operation logs, extracting operations where efficiency can be improved, and conducting field trials on replacement by robots that operate on RPA products.

# RPA (Robotic Process Automation) Initiatives

## Macro research

### [Research summary]

Collect/analyze PC operation logs with AIDT, assess potential for RPA

Target: 4 depts., 41 people

Automobile Underwriting Dept.	11
Accounting Dept.	10
Marketing & Sales Promotion Dept.	11
Non-Marine Claims Dept.	9

1 week  
(5 business days) 1,566 operation hours  
Log collection



### [Results]

When 314 operations where RPA can be applied were extracted and detailed analysis of 31 samples, equivalent to 10%, was conducted, there were 29 operations where RPA was considered possible and the total operation time was about 29 hours.

RPA can be applied: 314 cases

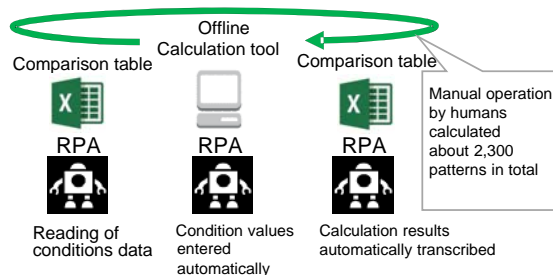
Sample: 31 cases  
10% analyzed in detail

RPA can be applied: 29 cases  
RPA applicable time: Approx. 29 hours

## Micro research

### [Research summary]

Applied RPA to creation of an auto insurance premium comparison table by means of offline software calculation, which was actually conducted in the Automobile Underwriting Dept., and measured the effects.



### [Results]

Rate of improvement in operation speed due to introduction of RPA

Calculation tool A : Approx. 3.0x

Calculation tool B : Approx. 4.8x

## Effect estimation (assumed)

### Automatable percentage

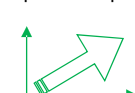
**Approx.18%**



Ratio of RPA applicable time to operation hours (assumed that the same trend as the effect derived from sampling 10% of 314 cases where RPA can be applied will be seen in the remaining 90% as well)

### Automation effect

Operation speed **Approx. 4.0x**



Rate of improvement in operation speed from introduction of RPA

Operation quality **Improvement**



Realized large-volume and complex work that we had abandoned when doing the work manually

# Mitsui Sumitomo Insurance's Vision

Field trials underway

New product development using life log data

Analysis of contract conclusion in insurance product explanations

Automatic calculation of estimated repair amount based on images of damaged vehicles

Product development

Solicitation

Administration and storage

Maintenance and management

Accident response

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Provide comfortable relief and enhance the customer experience through people by using ICT

Achieve accurate and speedy processing by using ICT (AI and robots)

Open innovation



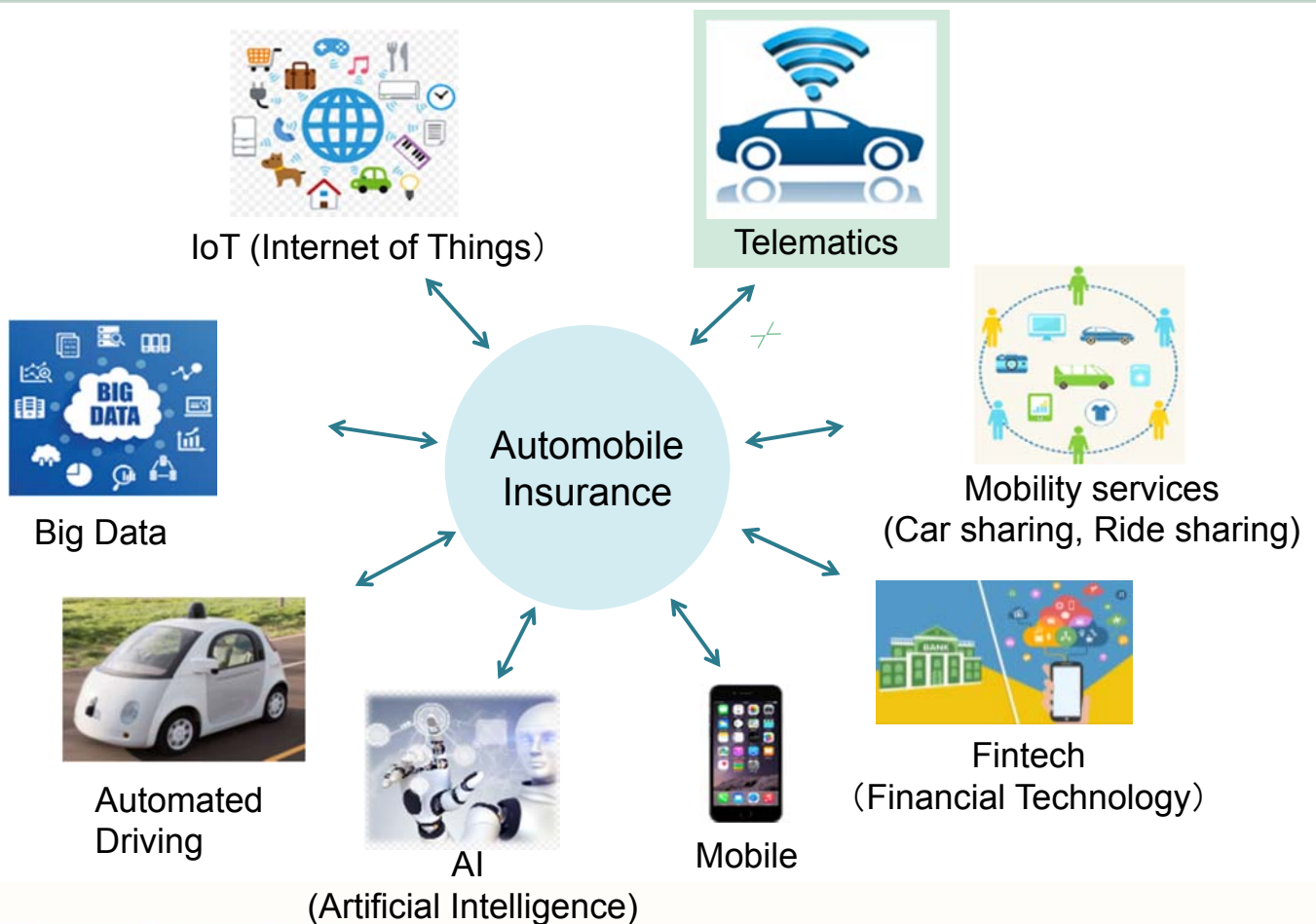
## Field Trials Utilizing ICT Examples of Initiatives

- ①  **Product development using wearable devices**
  - By distributing wearable devices to about 300 employees and acquiring data regarding their sleep and amount of activity over a 3-month period, we conduct analysis by comparing this data with existing health diagnosis result data
- ②  **Telematics insurance**
  - By fitting dedicated devices to policyholders' vehicles and understanding the driving dynamics (skill and driving conditions) of policyholders, we reflect the information obtained in insurance premiums (will cautiously consider commercialization)
- ③  **Insurance for smart houses**
  - By understanding the lifestyle activity of customers from sensors fitted to homes and furniture, we attempt to make use of this data in product development and underwriting, including the development of disaster prevention and disaster mitigation services and the setting of premiums, and support a comfortable lifestyle
- ④  **Big data analysis of false claims**
  - We collect and analyze past false claims data, reveal patterns of false claims, and investigate the creation of a scheme to enable detection of matching claims at the stage of assessment
- ⑤  **Enhancement of inquiry responses**
  - By using IBM Watson at a customer desk and products inquiry center, we establish a system to automatically display responses corresponding to inquiries from customers and the front line of sales
- ⑥  **Establishment of environment for AI development**
  - By contracting cloud servers with excellent processing capability that are also used at research institutions, we establish an in-house environment for AI development based on deep learning
- ⑦  **Calculation of repair estimates based on images of damaged vehicles**
  - Using AI, we begin a field trial whether estimation of repair costs based on images of damaged vehicles is possible, and aim to automate assessment up to a certain amount, enhance customer convenience and improve business efficiency
- ⑧  **Analysis of contract conclusion based on use of 360-degree camera**
  - Based on the installation of a 360-degree camera, AI extracts and classifies the facial expressions of insurance solicitors and customers at the time of insurance solicitation, analyzes trends in both contract conclusion and non-conclusion patterns, and develops know-how
- ⑨  **Analysis of organizational communication activity**
  - By distributing name tag-type sensors to employees, we track personal activities and the distance between employees, evaluate behavioral characteristics and organizational activity, and apply this to personnel measures such as the improvement of internal communication
- ⑩  **Field trial for blockchain introduction in ocean cargo areas**
  - We implement paperless issuance and transfer of certificates, insurance claim procedures and insurance claim payments in a blockchain environment; we also control fraud such as falsification and improve efficiency of transactions by using a distributed ledger
- ⑪  **Development of paperless management of loss adjusters**
  - By exchanging expert opinions in a blockchain environment between the loss adjusting office and our company, e-mail and fax exchanges can be eliminated and efficiency improved
- ⑫  **Development of paperless checking of incomplete information on application forms**
  - When applications are recorded and incomplete statements occur, sales representatives and agents share the status of incomplete information in an environment where security is ensured by blockchain technology
- ⑬  **New communication method**
  - Damaged parts of vehicles are confirmed through video chats by using a smartphone app, which improves adjustment efficiency and leads to appropriate authorization and prompt resolution
- ⑭  **RPA (Robotic Process Automation)**
  - By analyzing PC operation logs and diagnosing the suitability of work automation, work that employees conventionally performed manually during business hours is handled without error 24 hours a day and 365 days a year

## II. ADI's Business Strategies on Telematics Insurance

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### Factors That Affect Automobile Insurance



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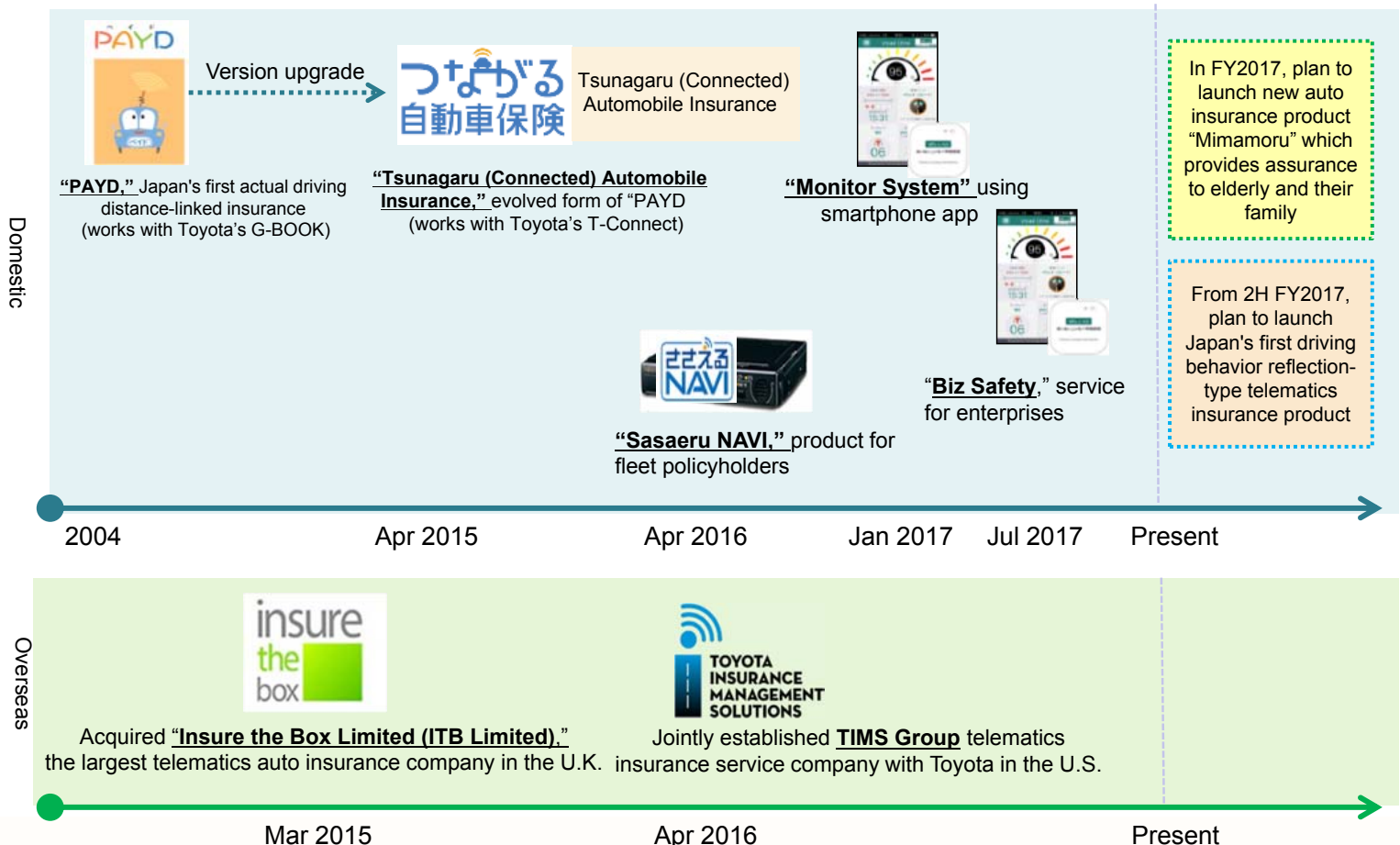
## Response to Telematics Devices

Device	Blackbox (in-car equipment)	OBD dongle	Manufacturer genuine car-mounted device (DCM)	Video-based driving recorder	Smartphone (cell phone)
Image					
Function	Has GPS, accelerometer and SIM card in device and acquires and transmits driving data	Has only a SIM card, extracts information from CAN and transmits data when inserted into OBD for on-board diagnosis	Acquires driving data by connecting with CAN and transmits data via DCM or smartphone	Has GPS, accelerometer and SIM card in device and acquires and transmits driving data including images recorded with camera	Uses in-built GPS and sensor and acquires and transmits driving data when dedicated app is installed
Merits/ Demerits	<ul style="list-style-type: none"> <li>○ Can be installed in any vehicle</li> <li>○ Acquired data is accurate</li> <li>× Device cost is high</li> <li>× Installation costs arise</li> </ul>	<ul style="list-style-type: none"> <li>○ Device cost is low</li> <li>○ Can be installed in most vehicles</li> <li>× Risk that automakers will reject it or data will be encrypted</li> <li>× Risk that installation will damage vehicle</li> </ul>	<ul style="list-style-type: none"> <li>○ Acquired data is most accurate and reliable</li> <li>× Suitable vehicle models are limited</li> <li>× Device cost is high</li> </ul>	<ul style="list-style-type: none"> <li>○ Can be installed in any vehicle</li> <li>× Cost is high</li> </ul>	<ul style="list-style-type: none"> <li>○ Low cost, simple to introduce (production of dedicated apps only)</li> <li>○ Can be used with any vehicle</li> <li>× Data acquisition is unreliable</li> <li>× Turning app on/off is an inconvenience (* this demerit can be eliminated to a certain extent by linkage with tag)</li> </ul>
Our response policy	○	×	○	○	○
Our achievements	BIG (ITB)	—	<ul style="list-style-type: none"> <li>• PAYD</li> <li>• Tsunagaru (Connected) Automobile Insurance</li> </ul>	Sasaeru NAVI	<ul style="list-style-type: none"> <li>• Monitor system</li> <li>• Biz Safety</li> </ul>

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## Overall Image of ADI's Telematics Business



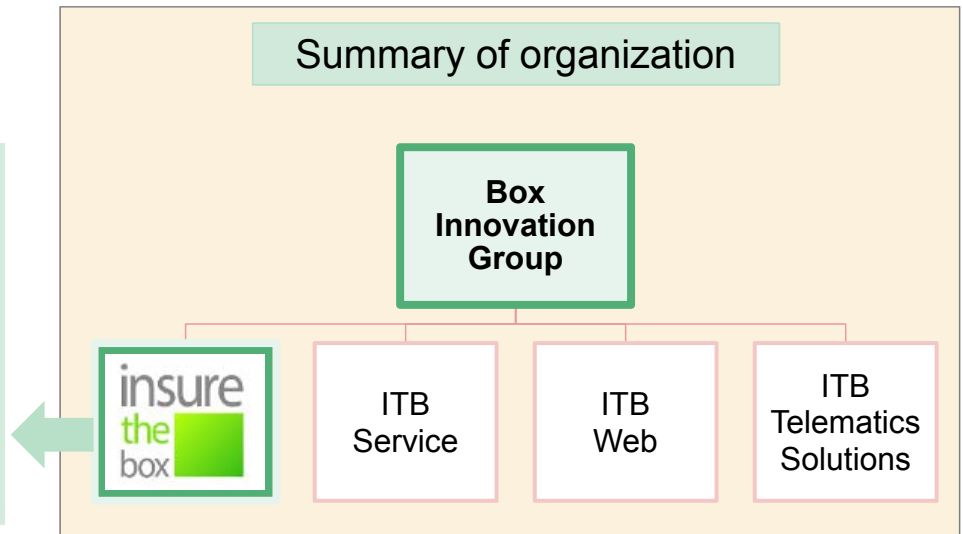
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## U.K. - Merger of ITB Limited

- Full-scale entry into UK telematics automobile insurance market by merger of the Box Innovation Group (BIG) on March 31, 2015.
- Further expansion of business base for European retail business
- Use of telematics insurance technology and know-how of Insure The Box Limited (ITB Limited) inside and outside the country

- Acquires driving data from on-board device called Black Box fitted to policyholders' vehicles
- Innovative product design that scores driving behavior data with proprietary algorithm and awards drivable distance (bonus miles) to safe drivers



ITB Limited is a company with the world's most advanced technology and know-how in the telematics insurance field

## U.K. - Merger of ITB Limited

### Features of ITB Limited's products and services



- Founded based on CEO Mike Brockman's aspiration to "save young lives" and "eliminate accidents"
- Provides a completely new insurance product service that uses telematics technology
  - ✓ Insurance that **enables even young people to buy a car** = low-cost insurance with telematics technology
  - ✓ Insurance that **makes it fun to drive** a car = safety driving and low-cost merit
  - ✓ Contributes to **secure and safe** society = proactive response to accidents

#### Low-cost premiums based on telematics technology



- "Connected cars" equipped with proprietary on-board device
- Developed original product and service using GPS data and 3-axis accelerometer
- Low-cost insurance that even young people can buy

#### Safety driving scores and bonus benefits



- Calculates safe driving score with proprietary algorithm and provides feedback to customers
- "Safety driving promotion insurance" that awards bonus miles for safe driving

#### Life saving based on proactive response



- Realizes emergency response service using on-board device data
- Life saving based on proactive response

Original product and service has been highly appraised, with total sales of 600,000 policies and about 5 billion kms (about 130,000 circumferences of the earth) of driving data accumulated

Going forward, will consider using driving data to develop new services

## U.S. - Establishment of TIMS

- Established Toyota Insurance Management Solutions USA, LLC (TIMS), a joint-venture between our company, Toyota Financial Services Corporation (TFS) and Toyota Motor Corporation (TMC), on April 1, 2016

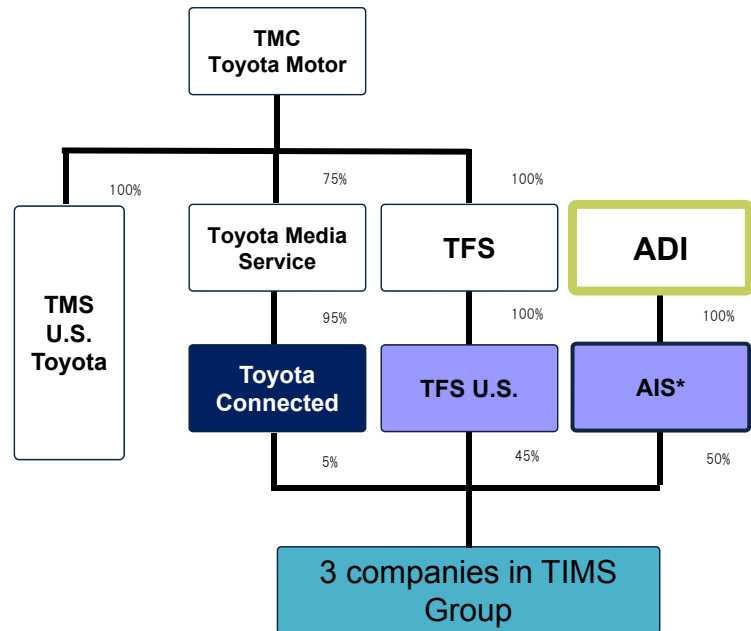
### Overview of TIMS

Company name	Toyota Insurance Management Solutions USA, LLC and 2 other companies
Location	California, U.S. (main base of business operations), Plano, Texas
Business activities	Telematics insurance services (algorithm development, sales promotion etc.)
Investment ratio	Toyota Financial Services Americas Corporation (TFS) 45% Toyota Connected, Inc. 5% Aioi Nissay Dowa Insurance Services USA Corporation (AIS) 50%

### Overview of Toyota Connected

Company name	Toyota Connected, Inc.
Location	Plano, Texas, U.S.
Business activities	Data center management, Big Data business R&D in connected field
Investment ratio	Toyota Media Service 95% Microsoft 5%

### Capital relationships in TIMS



\*AIS: Aioi Nissay Dowa Insurance Services USA Corporation

## U.S. - Establishment of TIMS

### Business of Toyota Insurance Management Solutions (insurance aggregator business)

- Provides optimal telematics insurance services to customers by combining know-how of Toyota's data (Toyota Connected), finance (Toyota Finance) and insurance (our company)
- A business model where fee income is obtained by processing Toyota users' vehicle driving data with an original algorithm so that it is reflected in services and premium rates for users, and providing such data to partner insurance companies

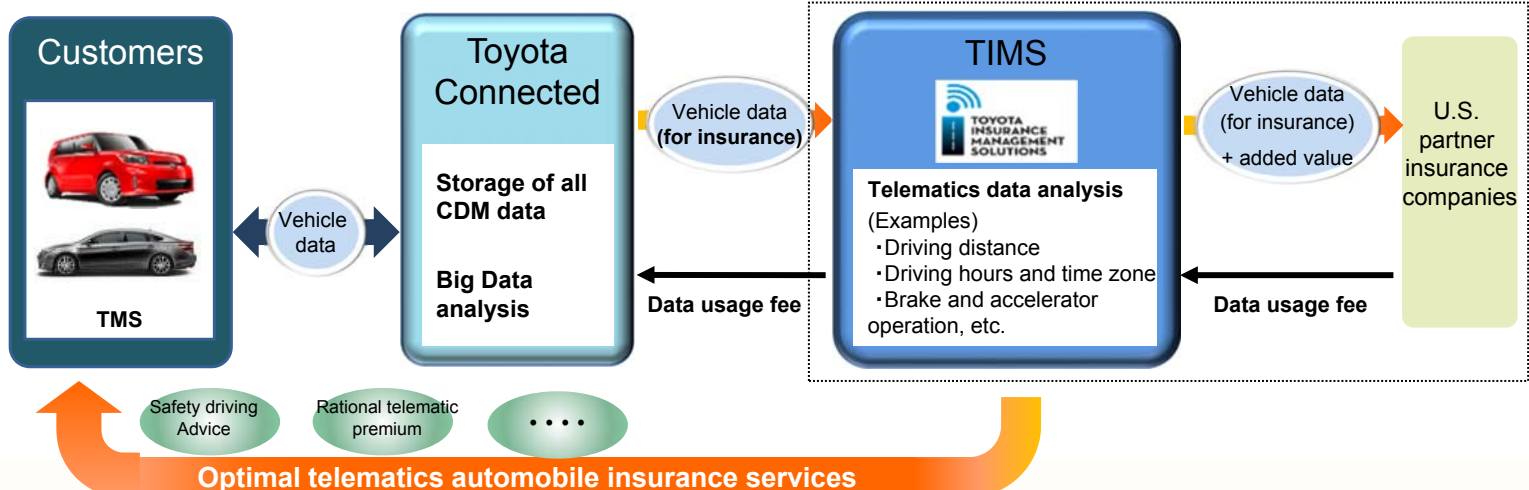
\*Insurance algorithm: A program that performs driving scoring (determination of degree of safety driving) from driving data and reflects it in premium rates and services

Support TMC connected strategy

Prevent external outflow of vehicle data

Recover capital cost of vehicle data collection

Return know-how to domestic connected strategy



## Domestic - Telematics app “Visual Drive”

- In March 2016, we formed an alliance with CMT (Cambridge Mobile Telematics, Inc.) in the U.S. and developed “Visual Drive”, a dedicated telematics app, and tag

“Visual Drive” app



Tag



- Functions: Acceleration sensor  
Recording medium (can store 40 hours of driving data)  
Bluetooth power saving chip  
Microchip  
Lithium battery (4 years)
- Double-sided tape is applied on the back, enabling anyone to easily install it

Field trials with  
company cars  
(from Aug 2016)

Monitor system  
(from Jan 2017)

“Biz Safety” service for  
enterprises  
(from Jul 2017)

## Visual Drive Application Screen



Can check driving score, ranking order, safe driving hints, etc. on main screen

⇒ One's own degree of safety driving can be seen at a glance

Driver can verify details of own driving record with app

⇒ Understands own strengths and weaknesses by evaluating each visualized item of driving

Can confirm when and where sudden braking and over-acceleration occurred while traveling and if smartphone was used while driving

⇒ Reconfirms driving behavior

Can confirm ranking among drivers who belong to same group

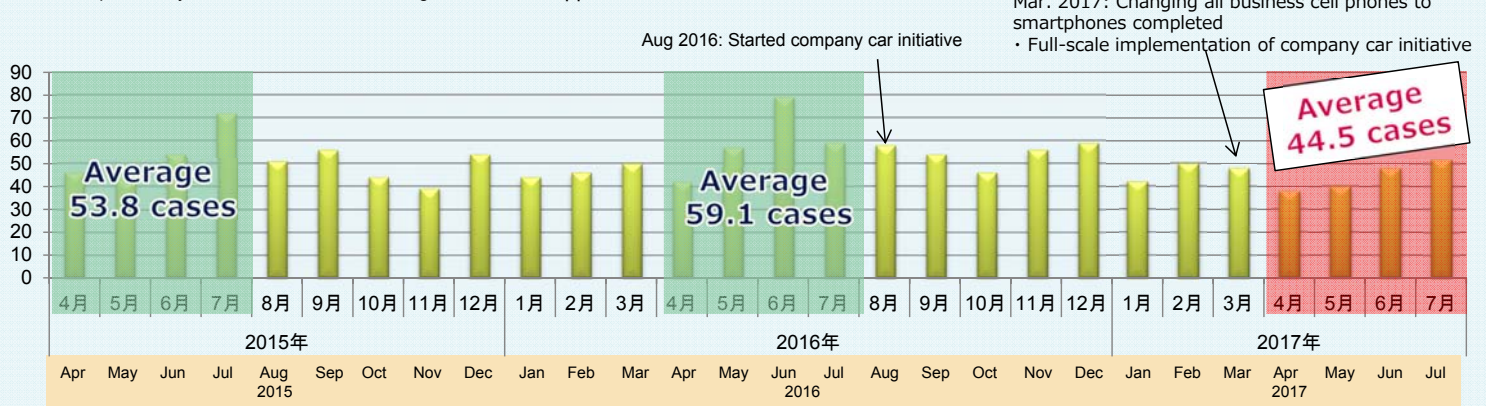
⇒ Strictly enforce safety driving while enjoying it



# Example of Effect of Introduction of Visual Drive

## Number of accidents since full-scale introduction of company car initiative has decreased compared to the same period of past years

On a preliminary basis, the effect of introducing telematics has appeared in numbers!

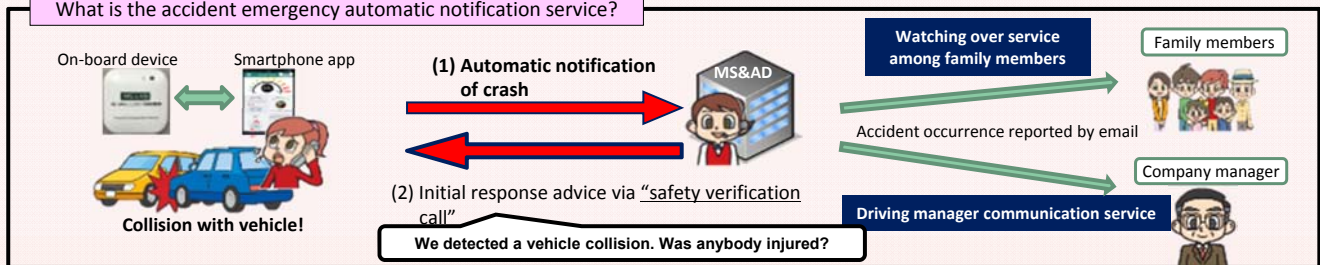


## Emergency Call

Several employees have experienced automatic emergency calls at times of accidents ⇒ They said they were **impressed by a greater than imagined "sense of relief"** when receiving a call from the dedicated operator



What is the accident emergency automatic notification service?

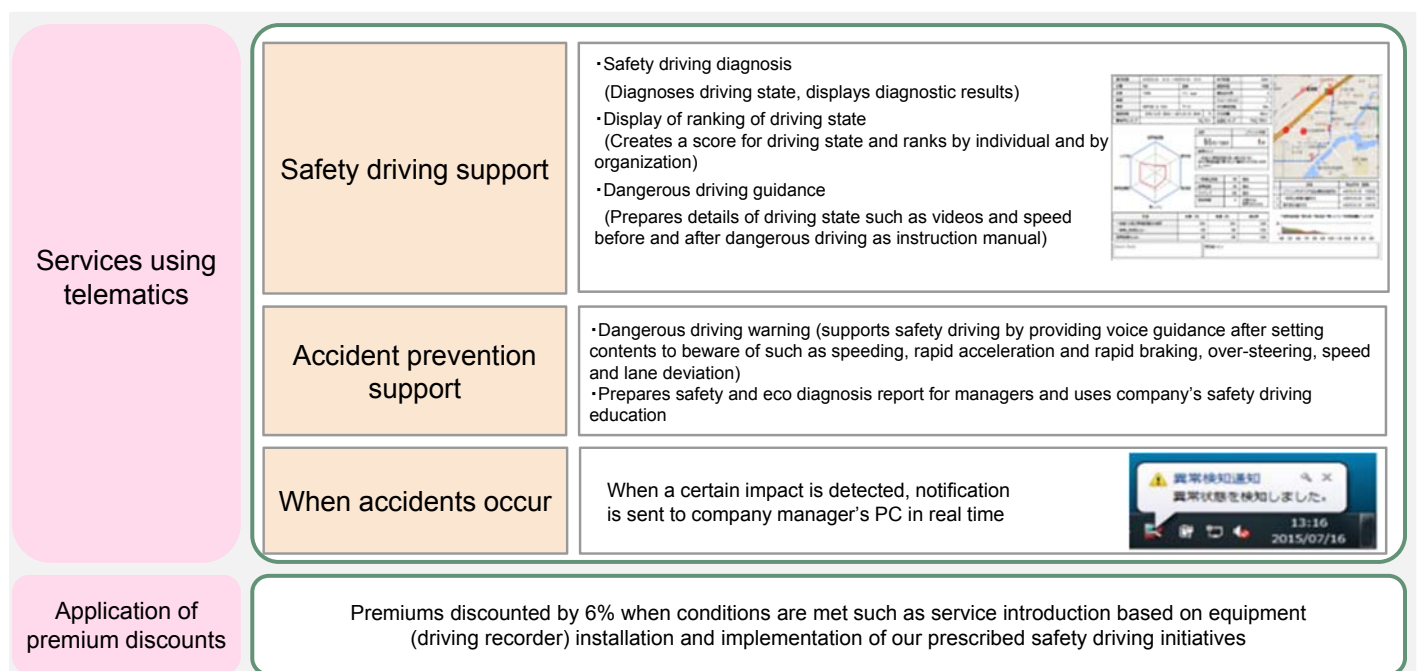


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# "Sasaeru NAVI" Services for Fleets

- In April 2016, we launched "Sasaeru NAVI" for corporate fleets
- This product combines the "safety driving support service" utilizing driving recorders with communication functions made by Fujitsu Corp. and the "safety driving consulting support service" that we provide based on dangerous operation data
- From August 2016, we added Toyota's Tranlog to on-board devices supported by Sasaeru NAVI



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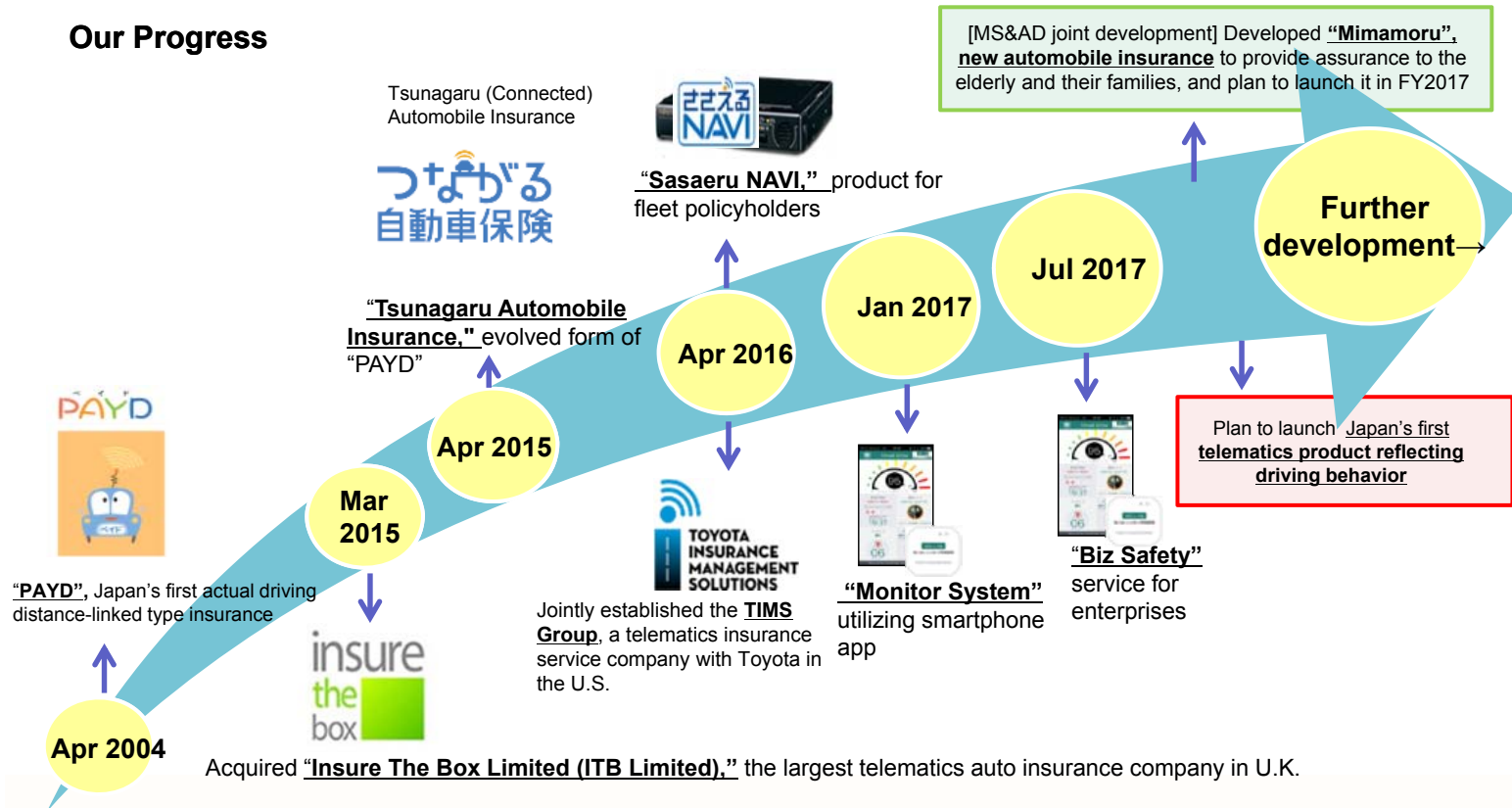
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## Overall Image of ADI's Telematics Business

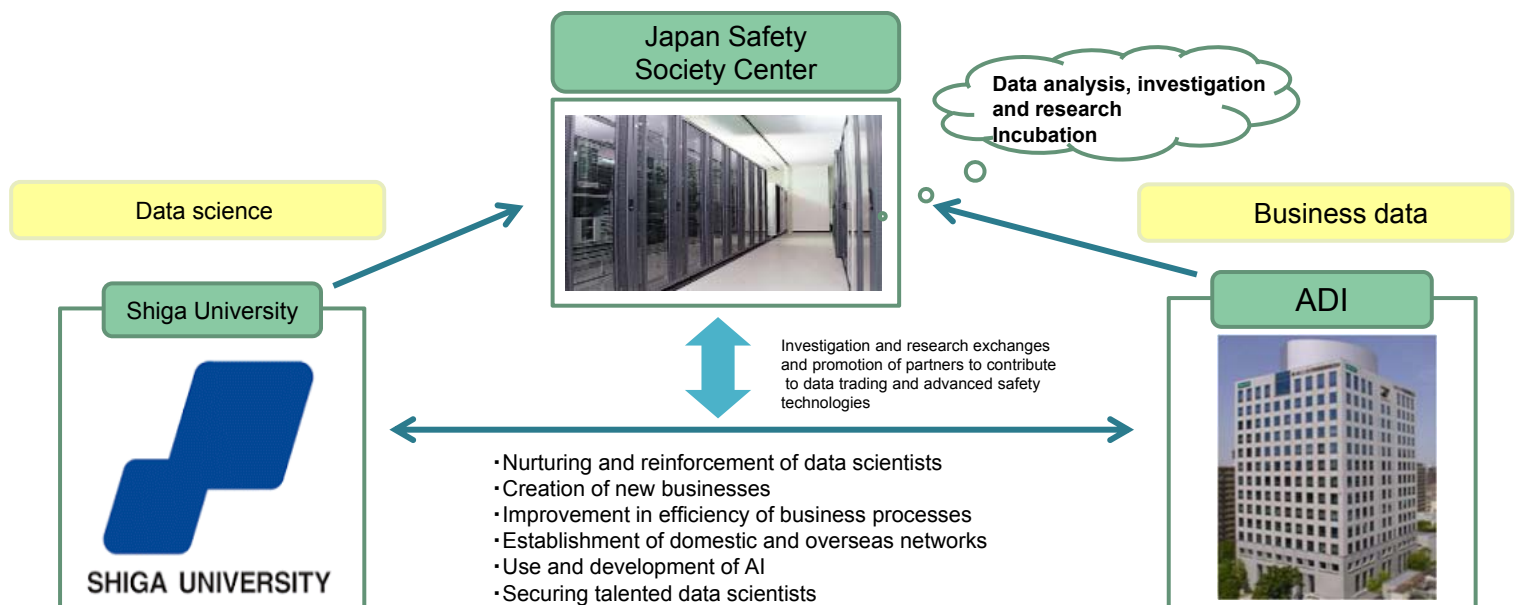
- We see telematics ("Tsunagaru") as the pillar of our strategy and corporate image, and will continue to develop and provide new products and services as a pioneer in the telematics business area

### Our Progress



## Partnership with Shiga University


- Concluded academic-industrial cooperation agreement with Shiga University in March 2017 and established "Japan Safety Society Center"
- ⇒ Aiming for "nurturing of scientists," "analysis of telematics data," "joint research regarding effective use of other non-life insurance data," and "supply of data scientists from Shiga University"



Will participate as a partner institution in the "Data-Related Human Resource Development Consortium in Kansai Area" (representative institution: Osaka University), which was adopted in the "Data-related Human Resource Development Program," a FY2017 Science and Technology Human Resource Development Support Project of the Ministry of Education, Culture, Sports, Science and Technology Japan, and realize further cooperation between academia and industry

## Next-Generation Mobility - Investment in MaaS Global Oy

- In June 2017, ADI and Toyota Financial Services made a strategic capital contribution to MaaS Global Oy, which is developing multimodal services in Finland (Helsinki), to accelerate initiatives aimed at next-generation mobility business

Company overview	MaaS Global Oy (established April 2016; headquartered in Helsinki (Finland))
Founders	Mr. <u>Sampo Hietanen</u> (CEO) and Mr. <u>Kaj Pyyhtia</u> (CXO*) * CXO: Chief Customer Experience Officer
Business activities	<ul style="list-style-type: none"> <li>• Developing multimodal service via in-house developed smartphone app (Whim) (providing efficient travel in an integrated and comprehensive way, including reservation and payment functions, by combining vehicles such as taxis and rental cars, public transport such as trains and buses and various other means of travel)</li> <li>• As the frontrunner in this sector, plans to expand into major cities of the world, starting with Europe</li> </ul> 

## Automated Driving Initiatives - Partnership with Gunma University

- In December 2016, we concluded an industry-academia cooperation agreement with Gunma University concerning research on the social implementation of next-generation mobility

⇒ In the process of the diffusion of self-driving cars, new forms of risks and accidents may emerge, and through technology development and field trials of self-driving cars, we will (1) develop exclusive insurance for self-driving cars and (2) promote joint research aimed at the establishment of a claims handling method relating to self-driving car accidents, etc. while contributing to the “realization of secure and safe car society”



Field trial images

### Overview of academic-industrial cooperation agreement

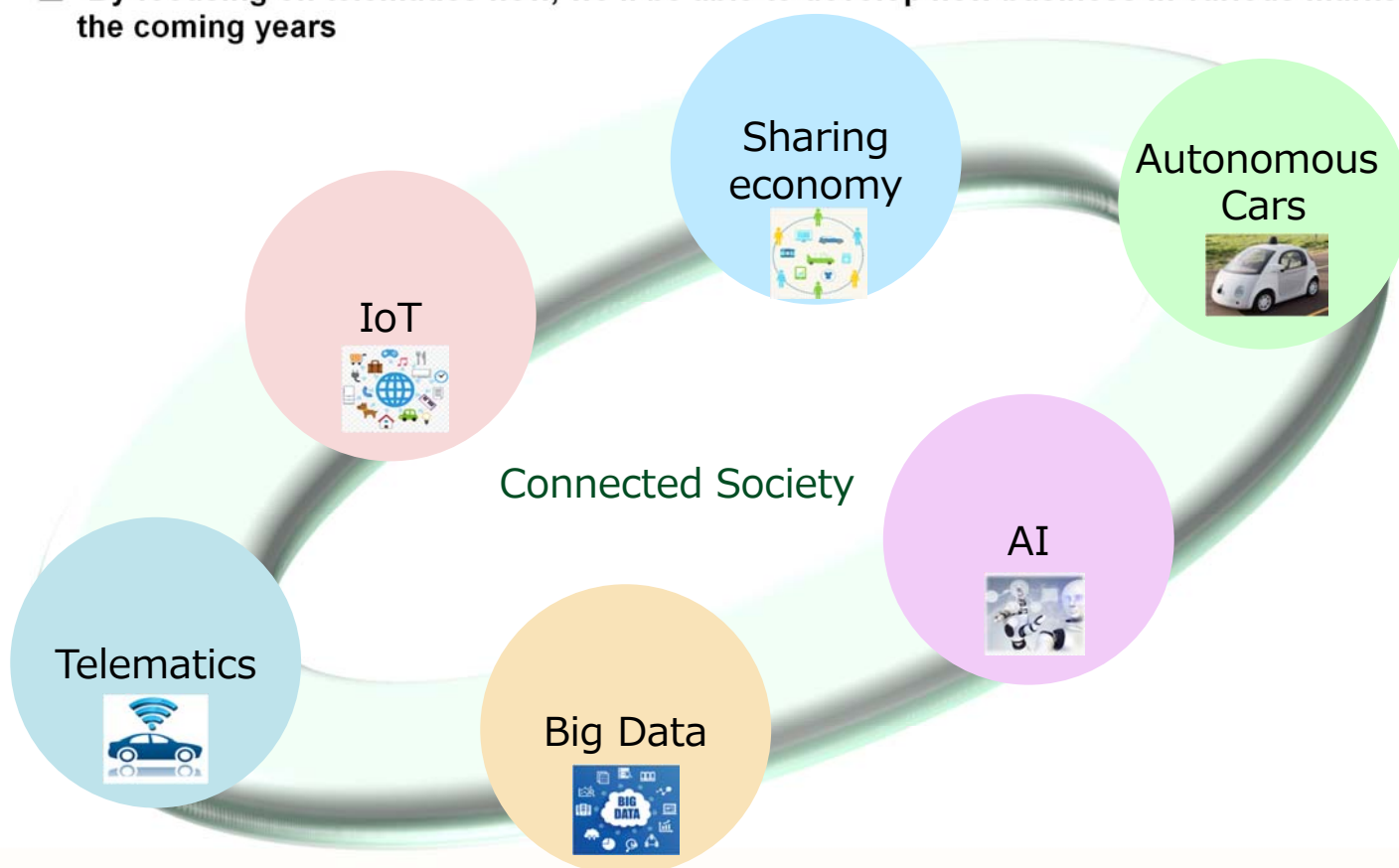
- (1) Matters related to R&D for next-generation mobility systems (matters related to R&D for products, services and claims handling)
- (2) Matters related to social implementation of next-generation mobility systems
- (3) Matters related to human resource development relating to next-generation mobility systems

⇒ Both parties will cooperate in promoting the above matters related to the social implementation and commercialization of next-generation mobility that will enable completely autonomous-type automatic driving.

In April 2017, we established the “Next-Generation Mobility Social Implementation Research Center” as a joint research organization with Gunma University

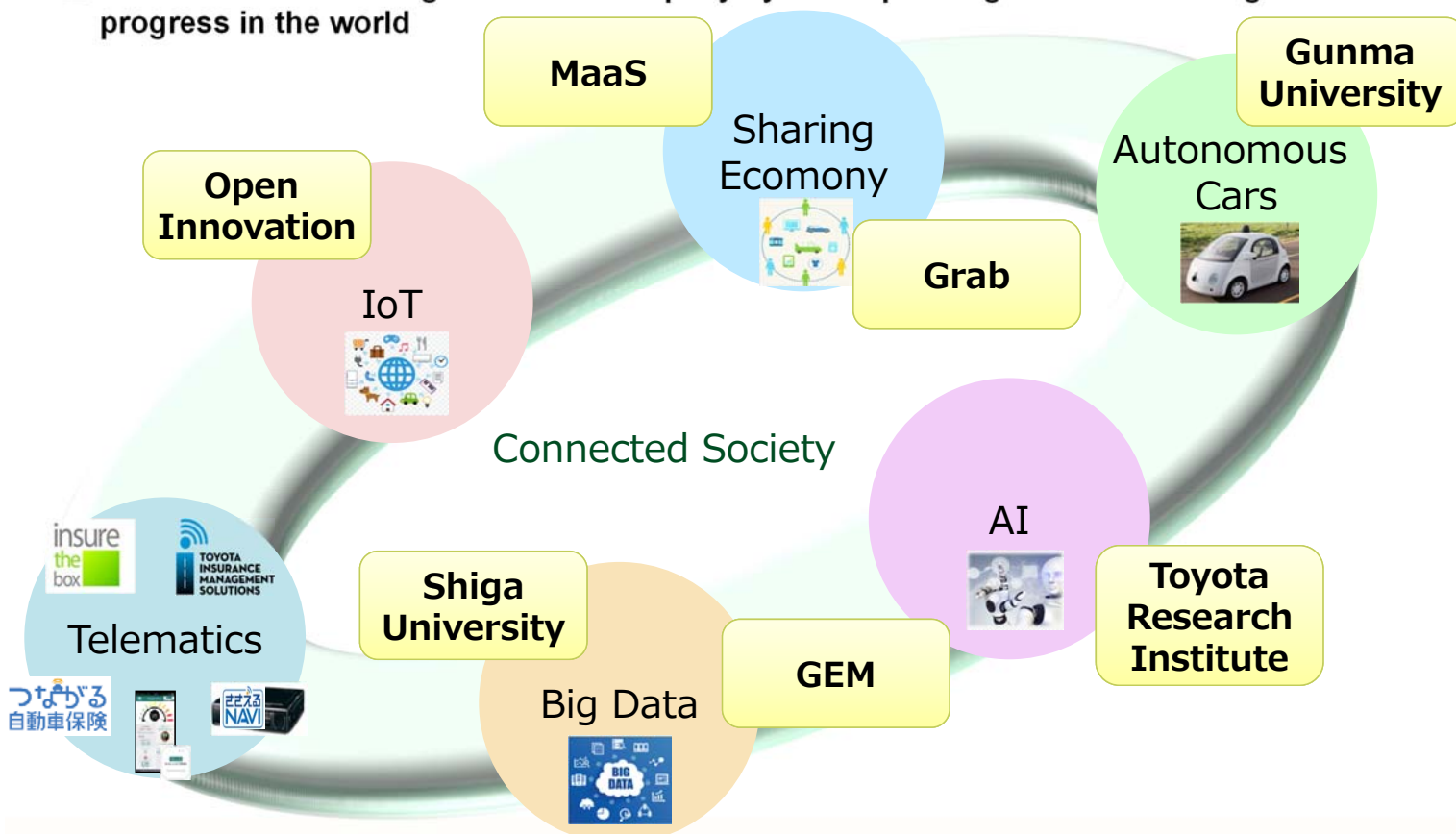
## Expansion from Telematics

- By focusing on telematics now, we'll be able to develop new business in various markets in the coming years



## Expansion from Telematics

- To become a surviving insurance company by corresponding to new technologies and progress in the world



### Ⅲ. Digital Strategy Aimed at Sustainable Growth

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#### Digital Strategy Aimed at Sustainable Growth

We will resolve our response to the digital society by combining initiatives at each operating company with open innovation.

##### **(1) Response to the digital society**

Responding to new needs such as the sharing economy, automated driving, virtual currencies, and cyber security, and new technologies such as blockchains and smart contracts

##### **(2) Digitization of insurance products and services**

- Provision of “Tsunagaru (Connected) Auto Insurance” (Japan)
- Provision of Telematics Auto Insurance • (overseas)
- Safety driving support services using telematics technology
- Health promotion services and insurance products that utilize data collected by wearable devices and smartphones

##### **(3) Quality enhancement and improvement of business efficiency**

- Determination of liability, acknowledgement of amount of damage and automatic inspection of insurance claims forms by means of AI
- Use of IBM Watson at customer centers
- Active use of robotic process automation (RPA)

Research and implementation (domestic and overseas) at each operating company and each office that has contact with customers

Collabo-  
ration

##### **Open innovation (across the Group)**

Collection and use of venture information in Silicon Valley, where solutions to diverse needs exist