



# SPV Business Presentation

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November 30, 2022

Thank you for coming to today's Smart Power Vehicle Business Presentation. My name is Otani Itaru and I'm the Chief General Manager for Yamaha Motor's Land Mobility Business Operations. Before we get into the business side of things, I'd like to speak about the Land Mobility Business Operations' long-term vision, as well as the general positioning and direction of the SPV business.



**Land Mobility Business Operations: Long-Term Vision for 2030**

**Bringing Joy into Mobility and Fun into Holidays Together with Our Stakeholders**

- Create unforgettable moments and experiences
- Support our colleagues to foster firm and lasting partnerships
- Coexist with Mother Nature and preserve it for future generations
- Create mobility and services that usher in a new tomorrow

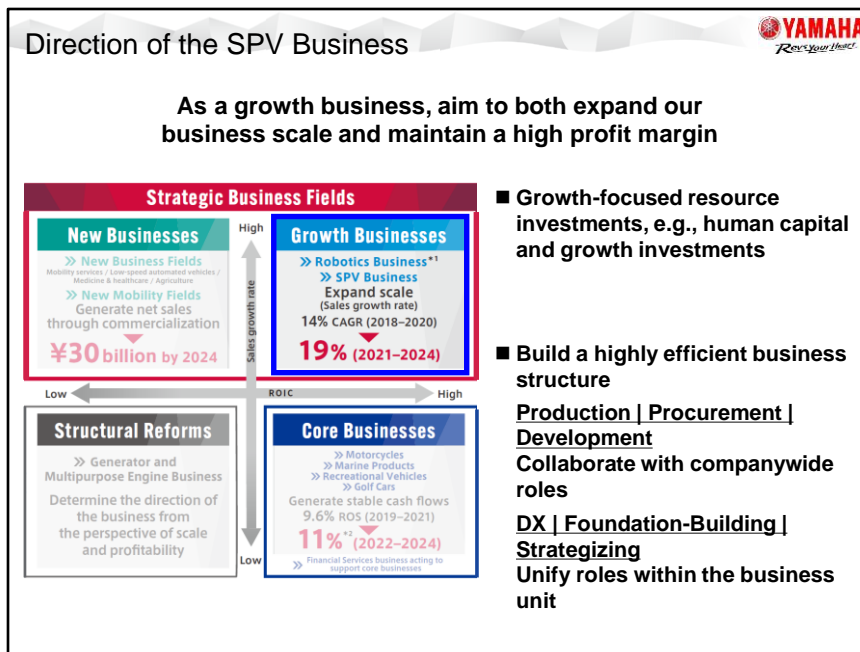
First of all, I'll go over the Land Mobility Business Operations' long-term vision for 2030.

Between now and 2030, we aim to achieve stable business operations and sustainable growth under the slogan of "Bringing Joy into Mobility and Fun into Holidays Together with Our Stakeholders."

During this time, we expect to see major changes in social awareness, laws, and regulations concerning carbon neutrality, the shift to EVs, and more.

Under the theme of fostering synergy among the motorcycle, recreational vehicle, and SPV businesses, we plan to create new value in personal mobility by combining and leveraging the experience and knowledge of every department.

Armed with our Spirit of Challenge and never-give-up attitude that have been passed down as part of our DNA, and our signature Yamaha Monozukuri craftsmanship that allows us to create truly exciting products, we will aim to create mobility and services that usher in a new tomorrow.



Next, I want to talk about the overall direction of the SPV business.

In the new Medium-Term Management Plan, the SPV business is positioned as one of Yamaha’s growth businesses. As such, the aim is to not only expand our business scale but also to maintain a high profit margin.

To date, the SPV business has largely grown independently, but going forward, we will leverage existing corporate functions and a streamlined, highly efficient, and cross-functional organization to better buttress the business’ rapid growth. First, we will make growth-focused resource investments by increasing personnel and investing in their development.

We’ll also promote companywide collaboration in production, procurement, and development, while with digital transformation initiatives, foundation-building, and strategizing, we’ll unify the respective roles within the business unit in order to efficiently drive scale expansion.

From here, Takahashi-san, who serves as the Executive General Manager of the SPV Business Unit, will give a more in-depth explanation. We have prepared material that primarily covers the market environment, our strategy, and similar topics as these often come up with investor-related questions, so I hope today’s presentation will be a good opportunity to gain a deeper understanding of Yamaha Motor in this field.



# SPV Business Presentation

TAKAHASHI, Nobuharu  
Executive General Manager of  
Smart Power Vehicle Business Unit  
Land Mobility Business Operations

Hello everyone. My name is Takahashi Nobuharu and I am the Executive General Manager of the SPV Business Unit.

Thank you so much for taking the time to attend today's presentation.

My role today is to explain the various details of the SPV business.

## Presentation Agenda



- 1. SPV Business Overview**
- 2. The Market**
- 3. Our Strategy**
- 4. Medium-Term Strategy**

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I'd like to cover the four items here: an overview of the SPV business, the market itself, our strategy, and our medium-term strategy.

- 1. SPV Business Overview**
2. The Market
3. Our Strategy
4. Medium-Term Strategy

I'll begin with a general overview of the business.

## Mission of the SPV Business



**Expand the possibilities in people's lives with technologies that put human perceptions first and transform mobility to solve the environmental issues society faces.**

The SPV Business is tasked with leading the way with the "Transforming Mobility" in our Long-Term Vision.



Registered in FY2022 as the world's first commercialized electrically power-assisted bicycle in the National Museum of Nature and Science's Essential Historical Materials for Science and Technology (#00334)

Electrically power-assisted bicycle: Launched in 1993 as a world-first and pioneered the category


Electric wheelchair: Launched in 1995 as a health and welfare product

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The mission of the SPV business is to “Expand the possibilities in people’s lives with technologies that put human perceptions first and transform mobility to solve the environmental issues society faces.”


The SPV Business is tasked with leading the way in carrying out the “Transforming Mobility” and “Rethinking Solution” focus areas of our Long-Term Vision. In 1993, Yamaha Motor launched the world’s first electrically power-assisted bicycle, or eBike, which we followed up in 1995 by releasing our first electric wheelchair. Since then, our eBikes have won a strong reputation among the customer base and we will celebrate our 30th anniversary next year in 2023.

Also, in fiscal 2022, our first eBike was registered in the National Museum of Nature and Science’s prestigious database of Essential Historical Materials for Science and Technology, meaning it will stand as a legacy of our pioneering spirit and technology for future generations.

**Brand Slogan and Value Offered** 

**“Being with You”** The users are center stage and we are their **stagehands**

**eBike and electric wheelchair market demands**




the more indistinguishable it is from a conventional bicycle or wheelchair, the better

The smaller and lighter the power-assist system is, the better


**Inconspicuous looks and quiet performance**

**Yamaha's reputation**



*Jin-Ki Kanno*

Intuitive operation and natural feel and comfort





**Natural assistive feel and reliability**

**All-important drive units**

**Yamaha-brand CBU models**

The unique points of SPV among Yamaha products

Human power + Electric power assist







**e-Kits for OEMs**      **e-Kits for OEMs**

**Yamaha-brand e-Kits**

**Examples of product applications**

**Expands your possibilities**

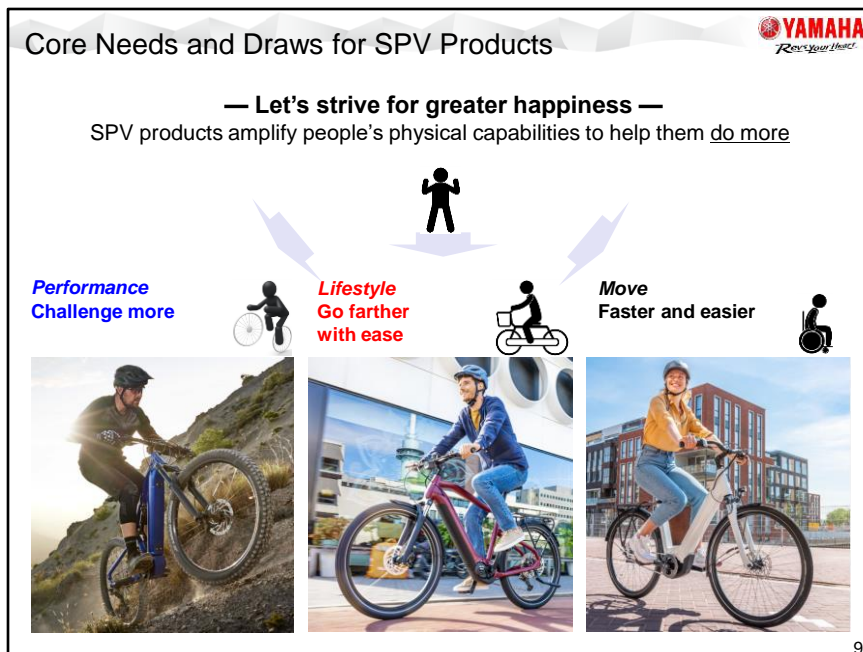
<b>Performance</b> Challenge more	<b>Lifestyle</b> Go farther with ease	<b>Move</b> Faster and easier
		
<b>Reliability</b>		

**Marketing Communication**

Based on the mission I mentioned earlier, the SPV business' brand slogan is “Being with You.” It represents our desire to be there as the supportive stagehands of our users, who are always center stage. We will offer compact, inconspicuous, and quiet products that aid and assist users with a natural feel in tune with their senses and with dependable Yamaha reliability. The feedback we've received from the market has affirmed that our products are praised for their reliability and natural feel.

Drive units lie at the heart of the products we've developed, such as complete Yamaha-brand eBikes and electric wheelchairs, and are central to contributing to the company's goal of expanding human possibilities.





How exactly do our electric and electrically power-assisted products help expand human possibilities?

Humans have amazing capabilities, but the level of said capabilities differs for everyone. They vary based on differences in physique, strength, stamina, what people are innately good at and not so good at. Yamaha seeks to provide each person with a helpful assist catered to their particular situation, and thereby amplify their physical capabilities to help them do more, to challenge themselves to reach a higher level, to go farther than they did before, and to move faster and easier than they could before.

## Presentation Agenda



1. SPV Business Overview
- 2. The Market**
3. Our Strategy
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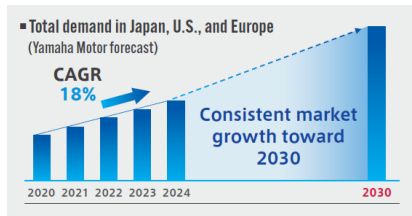
Next, I'd like to speak about the market environment for our business.

## The Market



### Market Scale and Growth Potential by Region/Category

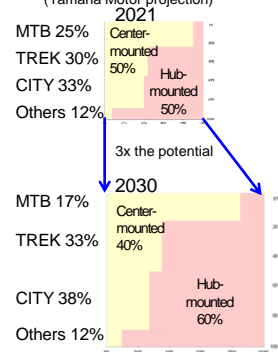
Electrically power-assisted bicycle market demand has materialized and growth continues to be steady in Europe, the U.S., and Japan. Demand is expected to be further encouraged by rising day-to-day eBike use, hobbyists, alternatives to cars in urban/suburban areas, the development of infrastructure (bicycle paths) driven by policies such as restrictions on cars from entering urban centers as part of the European Green Deal.



From Medium-Term Management Plan announced Feb. 2022

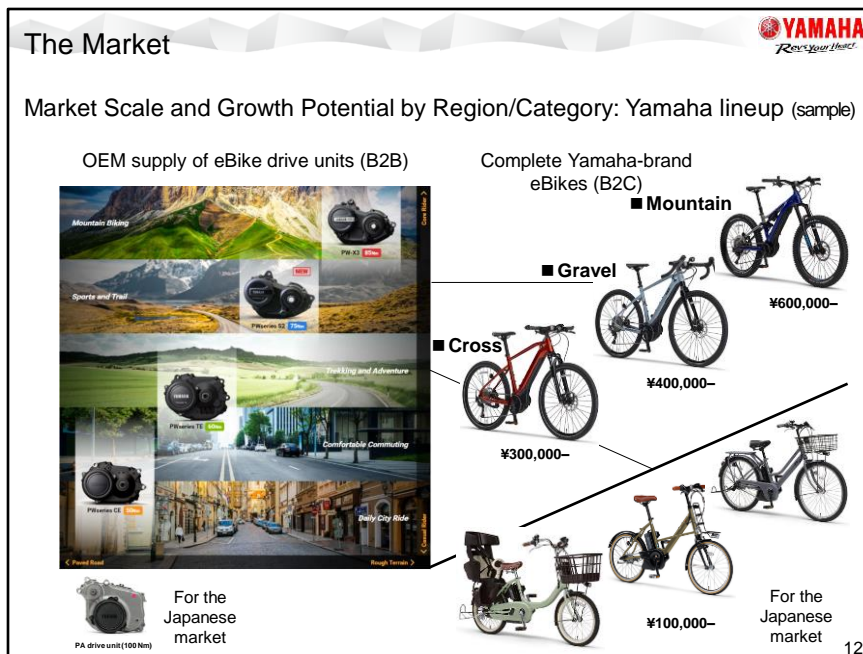
Sources: In-house study and research

Changes in European market composition (Yamaha Motor projection)



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The main market for eBikes today is Europe, followed by Japan and the United States. With the ratification of stricter environmental regulations and greater awareness for reducing CO2 levels around the world, the market for eBikes continues to grow as an alternative means of mobility to automobiles, particularly in urban areas for day-to-day transportation and as a hobby. With the more recent demand for single-user transportation to avoid crowded settings, the increase in short-distance travel accompanying the rise of remote work styles, the restrictions on automobiles from entering city centers as part of the European Green Deal, and other developments are expected to push eBike demand even higher. The projected annual growth rate for the Japanese, U.S., and European markets over the next several years is a high 18%, and the main market in Europe is estimated to potentially triple in scale by 2030. There are two main types of drive units for eBikes. One is the center-mounted type where the drive unit is mounted on the pedal crankshaft. The other is the hub-mounted type in which the unit is fitted to the front or rear wheel. Yamaha Motor primarily offers complete bicycles and system kits using center-mounted drive units.



This slide shows a small look at our lineup.

The SPV business' B2B side offers the five base drive units shown on the left packaged with displays and batteries as e-Kits for OEM supply to eBike manufacturers around the world. On the right is the B2C side, where we sell complete Yamaha-brand eBikes that use our drive units.

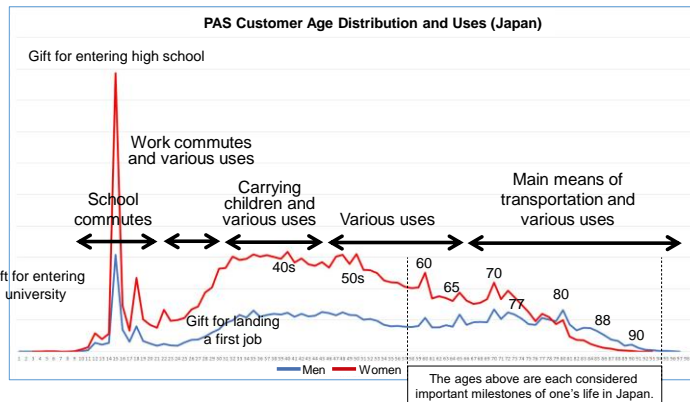
In Japan, we market eBikes designed for carrying children; smaller, lightweight models; types aimed at urban commuting; and other standard models under the well-established "PAS" name. Alongside this is the "YPJ" label, which focuses on eBikes in the more recreational and hobbyist mountain, gravel, and cross-country segments. These are sold mainly in Japan and the United States.

## The Market



### Customer Age Demographic 📍 Students to Seniors

SPV products are the gateway to experiencing a wide variety of other Yamaha products or before trying another SPV product, making seamless proposals possible.




Sources: In-house study and research

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Moving on, this chart shows the customer age distribution for the PAS Series, which was first sold in Japan in 1993. The PAS Series enjoys a wide-ranging user base, from young people commuting to school or work and couples with small children, to people who enjoy recreational cycling and similar hobbies, and seniors that depend on them for getting around each day. Spikes in demand are typically seen around the ages when people enter high school, university, or when celebrating milestone birthdays, like when turning 40, 50, 60, and the like.

Additionally, bicycles are an SPV product that are innately familiar to customers and can be what sparks an interest in Yamaha's many other offerings, such as our motorcycles or marine products. In that sense, Yamaha eBikes have an additional role and unique position as a gateway to experiencing a variety of other Yamaha products.


The Market 

Market Scale and Growth Potential by Region/Category: Yamaha lineup (sample)


Electric wheelchair drive units (B2B)      Electric wheelchairs (B2C/B2B)

■ Electric types (joystick): Mainly used domestically

JW: Joy Wheel




¥300,000-




¥400,000-

■ Electrically power-assisted types: Mainly used internationally



¥300,000-



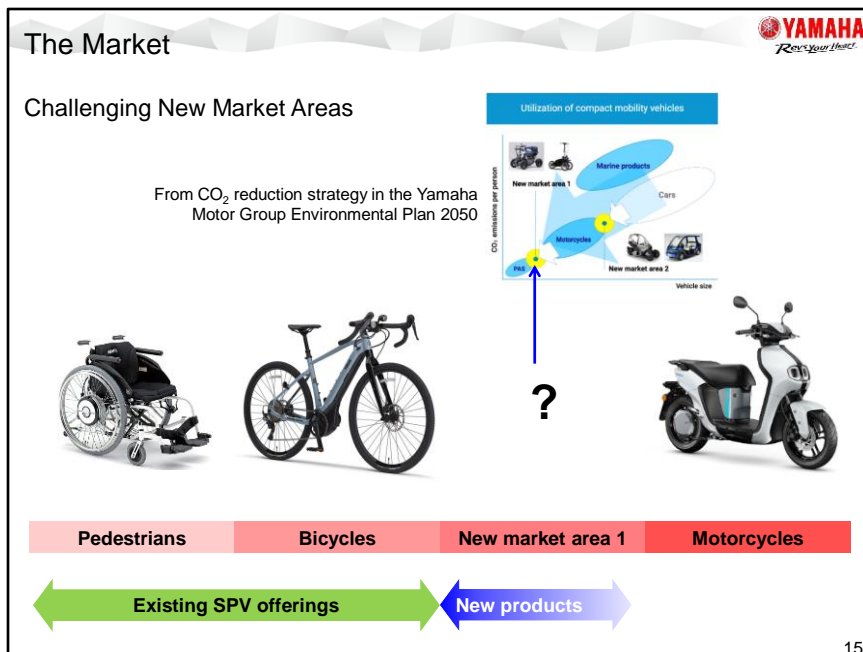
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Let me move now to our electric wheelchair business.

Almost all our electric wheelchair models have “JW” in their names, which is short for “Joy Wheel.” Like our eBikes, we do B2B and B2C types of business with our electric wheelchairs. For the former, we supply our proprietary drive units to wheelchair manufacturers, and for the latter, we sell complete Yamaha-brand electric wheelchairs.

Further, the lineup consists of two types of wheelchairs: fully electric ones that are moved and controlled via a joystick, and drive wheels that provide an electric assist when the wheels are spun manually.

The main market for the business is Japan, where we’ve maintained a steady share of the market. But in recent years, we have seen healthy growth in Europe, especially in Sweden and the Netherlands, as well as in the U.S., and in fiscal 2021, the number of overseas exports actually grew to exceed domestic sales.



Currently, the SPV business' product portfolio includes our JW electric wheelchairs for pedestrians and our PAS and YPJ lineups for bicycles. Amid the rising pace of decarbonization efforts around the world, we will, in addition to these, take on the challenge of developing new products for a new market area bridging the gap between motorcycles and bicycles, as outlined in the Net-Zero CO<sub>2</sub> Emissions Strategy of the Yamaha Motor Group Environmental Plan 2050.

## Presentation Agenda



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Next, I'll explain our strategies.



## Our Strategy



### Product Strategy: Natural Progression

👁️ Calling on our 30-year track record of quality and reliability

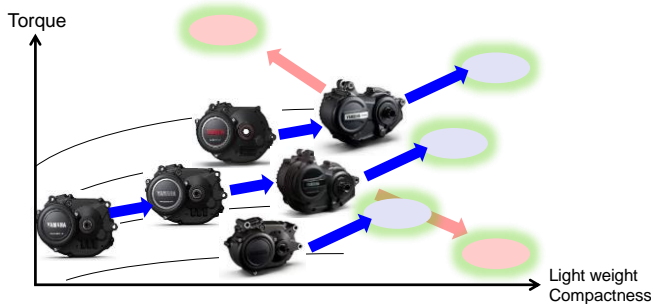
Yamaha's electrically power-assisted products are praised for and superior in performance to competing offerings in these respects:

- Intuitive operation and natural feel and comfort
- High reliability

Based on these, we pursue the demand trends for inconspicuous looks and quiet performance and bring advances in terms of:

- Lightness
- Compactness
- Power

Further, we will differentiate our products in each segment as required by offering options for customization.



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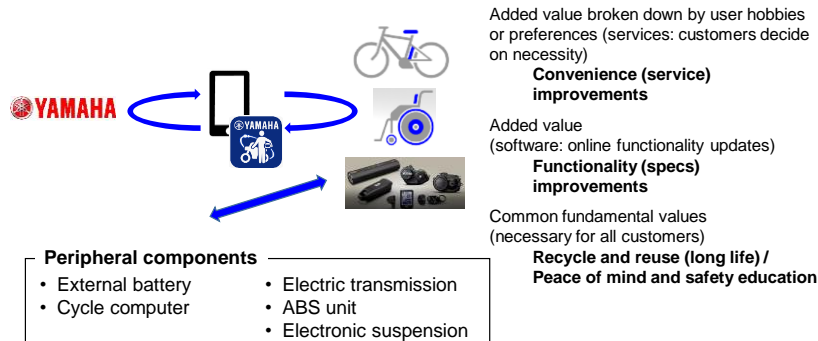
First of all, our drive units are the cornerstone of our products and feature performance, functionality, quality, and reliability we have honed through 30 years of development and our track record on the market. They will serve as the base for making further advancements. Our efforts will focus on further refining the intuitive operation, natural feel and comfort, and high reliability our drive units are known for while at the same time pursuing the demand trends for more inconspicuous looks and quieter performance, culminating in Yamaha drive units that are even lighter, more compact, and more powerful. In addition, we want to differentiate our products in each segment by offering customization options that meet demands from each eBike manufacturer and bicycle category.

## Our Strategy



### Product Strategy: Connectivity

We will update the functionality and value of both our electrically power-assisted bicycles and electric wheelchairs by evolving products themselves (hardware/software) and services offered. The software in particular can be updated through post-purchase downloads. For services as well, we can offer other value through connectivity, ranging from the fundamental values of peace of mind and safety to ones for more segmented, hobby-focused needs. We will start by carefully identifying the fundamental values customers will want to “connect” to via PoC.



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The connectivity part of our strategy is how we’re bringing more added value to our diverse range of products, but for both eBikes and electric wheelchairs, advances with software now have a major effect on a product’s marketability. With that in mind, we’re working to bring connectivity features to our products, such as more convenience-based improvements like post-purchase feature updates and maintenance notices, or providing timely information for user safety and peace of mind, or for recycling or reuse of the product in the future. Furthermore, the emergence in recent years of peripheral devices like ABS and electric transmissions has introduced factors that lie outside the standard product competitiveness deciders of drive unit performance and compactness. In response, we are transitioning to next-generation systems that can connect these peripheral components with the drive unit for integrated control.

## Our Strategy



Cross-Functionality: Constant improvements yielding B2B and B2C synergy

- ☞ Use our e-Kits (OEM brands) and CBU's (Yamaha-brand) to bring mutual benefits

We will improve the current state of our 3S (Sales, Service, Spare parts) functions and our *Monozukuri* by melding and overlapping them with the knowledge we have gained in each of our B2B and B2C markets.



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In the eBike and electric wheelchair spaces, the fact that we have both a B2B operation supplying e-Kits with our drive units to bicycle and wheelchair manufacturers, and a B2C operation offering completely built-up units under our own brand name puts Yamaha Motor in a unique position.

As we respond to the needs and requirements of our bicycle and wheelchair manufacturer clients, we will leverage our own experience offering Yamaha-brand products and services, with the resulting overlap bringing mutual benefits. This synergy between our B2B and B2C operations will help fast-track the creation of ever-better products.

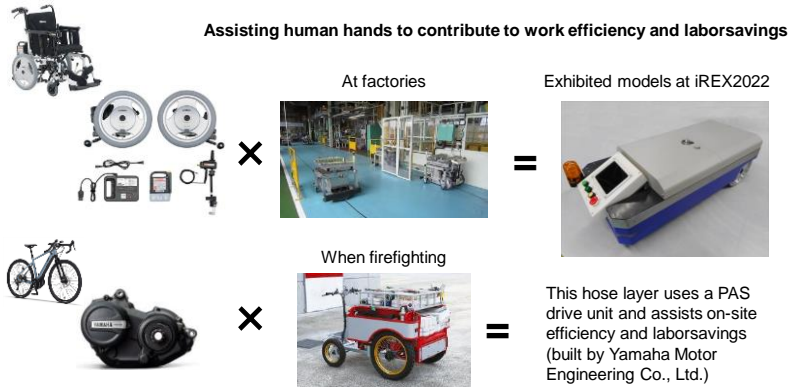
## Our Strategy



### Cross-Functionality: Create New Applications

☞ Contribute to work efficiency and laborsavings

As we aim for the natural progression of our electrically power-assisted bicycles and electric wheelchairs, develop new applications, i.e., ones outside of the original framework of the SPV business and its products, that leverage **the unique versatility advantages of small-scale e-mobility**.



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Our drive units can be found not just in products specialized for them, but also more recently in the automated transport robots plying our factory floors from our Manufacturing Technology Center.

Another example is how group company Yamaha Motor Engineering used a PAS drive unit for a cart for transporting the heavy water hoses needed for firefighting. Through these and other new applications, we want to go beyond the original framework of our business and its products and expand into other areas that assist human hands in order to contribute to greater work efficiency and laborsavings.

## Our Strategy



### Cross-Functionality: Create New Value

- ☞ Create originality that goes beyond industry boundaries

As we aim for the natural progression of our electrically power-assisted bicycles and electric wheelchairs, we will also engage in new value creation by **crossbreeding uniquely Yamaha Motor assets**.

#### Natural progress of the SPV Business



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#### Know-how from our core businesses



Functions, technology development, procurement/manufacturing, marketing, services, business style, etc.

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The SPV business is aiming for the natural progression of our eBikes, electric wheelchairs, and the drive units for both, but at the same time, we're also working to create new value through the synergistic effect of crossbreeding uniquely Yamaha Motor assets.

For example, this could entail applying the design language; product features; various manufacturing and material technologies; manufacturing, sales, and service schemes and assets; and safety and quality standards and indicators found in our motorcycle business.

Similarly, learning more about B2B operations from our marine products business will allow us to develop products, services, and business styles that will set us apart from the traditional bicycle industry.

## Presentation Agenda



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Lastly, I'll explain the medium-term strategy for the SPV business.

## Medium-Term Strategy

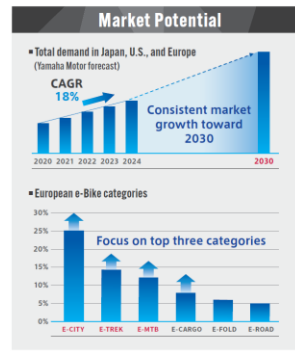


We will supply both complete Yamaha-brand electrically power-assisted bicycles and electric wheelchairs as well as products for OEMs (drive units, etc.). We will strive to answer the needs of the Yamaha brand as well as those of our OEM clients.

### Strategic Business Fields: SPV (Growth Businesses)



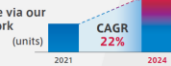
Expanding market + Customized e-Kits and new Yamaha-brand models → Expand scale and double net sales



#### Scale Expansion Exceeding Market Growth

Acquisition of new overseas e-Kit<sup>1)</sup> customers

- » e-Kit customization and co-development
- » Drive unit production in the largest market (Europe)
- » Direct service via our dealer network (Europe)



#### Doubling Net Sales

Double sales by introducing high-value-added e-Kits + mid- and high-range models

- » New compact, lightweight, and quiet units
- » Expansion of Yamaha-brand model lineup



<sup>1)</sup> e-Bike Systems (Yamaha Motor e-bike drive units and peripheral components)  
 Note: European e-Bike categories based on Shimano's State of the Nation Report 2021

I'll briefly introduce in greater detail our strategies for 2022 through 2024 that were outlined in the new Medium-Term Management Plan.

As I explained earlier, consistent market growth is expected in Japan, the U.S., and Europe, and Yamaha Motor will focus on the top three eBike categories projected to see particularly strong growth during that development: city, trek, and mountain bikes. We'll aim to achieve a scale expansion exceeding market growth as well as double our net sales.

In terms of specific efforts to that end, we will begin customizing drive units as well as corresponding e-Kits to meet customer requirements; locally producing drive units in Europe, the largest market in the world; rolling out dealer direct services in Europe utilizing our existing service network; developing new compact and lightweight drive units; and expanding the lineup of complete Yamaha-brand bicycles and their destination markets.

## Medium-Term Strategy



### ▶▶ e-Kit Customization and Co-Development

#### ☞ Emboldening OEM clients to pursue their uniqueness

In addition to offering ready-made models, we strive to give OEM brands the best options and will take on requests for customization\* of drive units (exclusive or joint development) to provide even more fine-tuned performance that delivers smooth starts at the pedal and powerful assistive force.

\*Creating the output motor characteristics OEM desire with precise electronic control

### ▶▶ Dealer Direct Service

#### ☞ Yamaha eBike Systems Service (YeSS)

In Europe, the largest market for electrically power-assisted bicycles, we have long been receiving requests from our OEM clients to provide dealer direct services, in which Yamaha responds directly to service inquiries from client sales channels and handle processing. We will roll this out starting with clients and regions that have made firm requests. We are currently aligning our respective IT infrastructures in preparation.

■ Technical Support ■ Warranty ■ Spare Parts ■ Training

Calling on 30 years of experience in the eBike business and almost 60 years in the mobility business in Europe alone, we will roll out fast and effective support for the four key services above in each region and country.

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Here, I'll go into some of the specifics behind our plan to capture the European market.

The first is e-Kit customization.

We're presently developing and supplying drive units tailored to each product segment and are approaching bicycle manufacturers with these units in hand. We will aim to attract new clients by customizing drive unit output characteristics to meet the defining traits and unique character of each bicycle manufacturer. Not limiting ourselves to that alone, we'll also make the displays and batteries packaged with them in our e-Kits more flexible to better meet client requirements.

Next is the roll out of dealer direct services.

In response to longstanding requests from bicycle manufacturers, we will launch dealer direct services in Europe so that we can respond directly to service inquiries from our client sales channels and thereby attract new bicycle manufacturers.

We'll call on our assets of nearly 60 years of skills and experience with motorcycle after-sales service and our extensive network to enhance the services available to customers, thereby raising the value of not only the Yamaha brand but also the bicycle brands we supply to forge a strong relationship of trust. We feel that having a sales and service network for our motorcycles and marine products offers us a distinct advantage that will only grow in importance in each region and country as the market around the world grows from here.



## Medium-Term Strategy



### ▶▶ Drive Unit Production in Europe

- ☞ Accelerate our carbon-neutral efforts

Europe is the largest market for electrically power-assisted bicycles and the demands for carbon neutrality are set to rise even further, so we are aiming to contribute by transferring the SCM process to the prime region of consumption. This is to leverage the company's existing assets with the growing momentum behind the transition to e-mobility.



### ▶▶ Production of Hub-Mounted Drive Units in India

- ☞ Increasing the overall strength of the business in anticipation of global market growth

Hero Cycles is the largest bicycle manufacturer in India, part of the HMC Group, and hungry for global expansion. We have partnered with them and are constructing a factory for hub-motor manufacturing at Hero E-Cycle Valley located in northwestern India. In addition to center-mounted drive units, we are working to expand the lineup of drive units to meet a wide range of demand.

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Moving on to our drive unit manufacturing strategy.

All our drive units are currently manufactured in Japan or Taiwan.

During the period of our current Medium-Term Management Plan, a project is underway to start complete knockdown assembly of drive units at our factory in France.

The reasoning for this move is to bolster our production capacity to keep pace with the expanding scale of the market, but amid greater calls for carbon neutrality around the world, this is also aimed at getting an early start on readying our business for the EU's carbon border adjustment mechanism, recycling laws, and other stricter regulations under consideration.

We have enjoyed a great deal of interest from European eBike manufacturers, so we will continue to examine optimal manufacturing strategies from a global perspective while keeping a close eye on regulatory trends.

One of our new pursuits in this regard is to begin producing hub-mounted drive units in India.

As I mentioned before, eBikes have two main types of drive units, and of the two, hub-mounted units are often used in lower-priced products. This gives them high potential for growth with more affordable mobility options as eBikes gain popularity going forward in the emerging economies of India, Latin America, and Southeast Asia. In anticipation of this global market growth, we are preparing to begin manufacturing Yamaha-original hub-mounted drive units as part of a joint venture in India launched at the beginning of this year with Hero Cycles.

## Medium-Term Strategy



### ▶▶ Overseas Development of CBU Models

#### ☞ YAMAHA SWITCH ON (Europe)

Europe is showing the biggest momentum in terms of shifting to e-mobility and it is the biggest market for eBikes, so we plan to introduce complete Yamaha-brand offerings there.

Going forward, if there are areas exhibiting demand, we will endeavor to answer customer expectations as well as the needs of society, whether it is with our OEM e-Kit business, our own branded products, or both.



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Finally, I will briefly introduce a recent overseas deployment of Yamaha-brand eBikes.

As I have said, Europe is the largest market for eBikes, and we plan to launch our YPJ Series of complete Yamaha-brand bicycles in 2023.

At the end of September, we officially announced that we would be releasing three new eBike models, as well as a yet-unannounced new model in the works exclusively for Europe.

Plans are underway to release products for other regions in stages as well, bringing Yamaha's eBikes to even more customers around the world.



That concludes today's presentation on the SPV business. Thank you all very much for your attention.