

## Notice

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**HEROZ**  
JAPAN

Presentation Material for  
FY04/2020 Q1 Financial Results

September 10, 2019

HEROZ, Inc. (4382)

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**HEROZ**  
JAPAN

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# Company Overview

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<b>Name</b>	HEROZ, Inc.
<b>Location</b>	PMO Tamachi 2F, 5-31-17 Shiba, Minato-ku, Tokyo
<b>Established</b>	April 2009
<b>Representatives</b>	Takahiro Hayashi/Tomohiro Takahashi
<b>Business</b>	AI (B-to-B) services: HEROZ Kishin
<b>Description</b>	AI (B-to-C) services: "Shogi Wars", etc.
<b>Membership</b>	Japan Deep Learning Association, The Japanese Society for Artificial Intelligence

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**2018**  
Listed on Tokyo Stock Exchange (TSE) Mothers  
Capital and business alliance with Netmarble Games Corporation

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**2017**  
Capital and business alliances with Takenaka Corporation and Koei Tecmo Games

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**2016**  
Capital and business alliance with Bandai Namco Entertainment

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**2013**  
Shogi AI, developed by HEROZ engineers, defeated a shogi professional

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**2012**  
Launched mobile app, "Shogi Wars"

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Representative Director and CEO  
**Takahiro Hayashi**

Graduated from Waseda University  
Joined NEC as a technology engineer  
Experience at IT strategy division, business planning division  
Founded HEROZ



Representative Director and COO  
**Tomohiro Takahashi**

Graduated from Waseda University  
Joined NEC as a technology engineer  
Experience at Business Planning Division, BIGLOBE  
Founded HEROZ

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## Shogi Track Record

Amateur 6<sup>th</sup> dan (highest rank after becoming national amateur champion)  
7<sup>th</sup> dan, Shogi Wars  
Amateur Kisen Champion (7-time title defender as national champion)  
Played against Yoshiharu Habu (permanent 7 title holder)

Director and CFO, Business Planning Manager

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## Daisuke Asahara

Graduated from Kyoto University Graduate School  
MBA from Wharton School, University of Pennsylvania (delivered graduation speech as student body representative)  
Investment Banking Division, Goldman Sachs



# Creating the future through artificial intelligence (AI) revolutions

## Chess AI



Deep Blue ('97)  
defeated a  
professional Chess  
player

**IBM**

## Shogi AI



AI developed by our  
engineers defeated a  
professional Shogi  
(Japanese Chess)  
player ('13)

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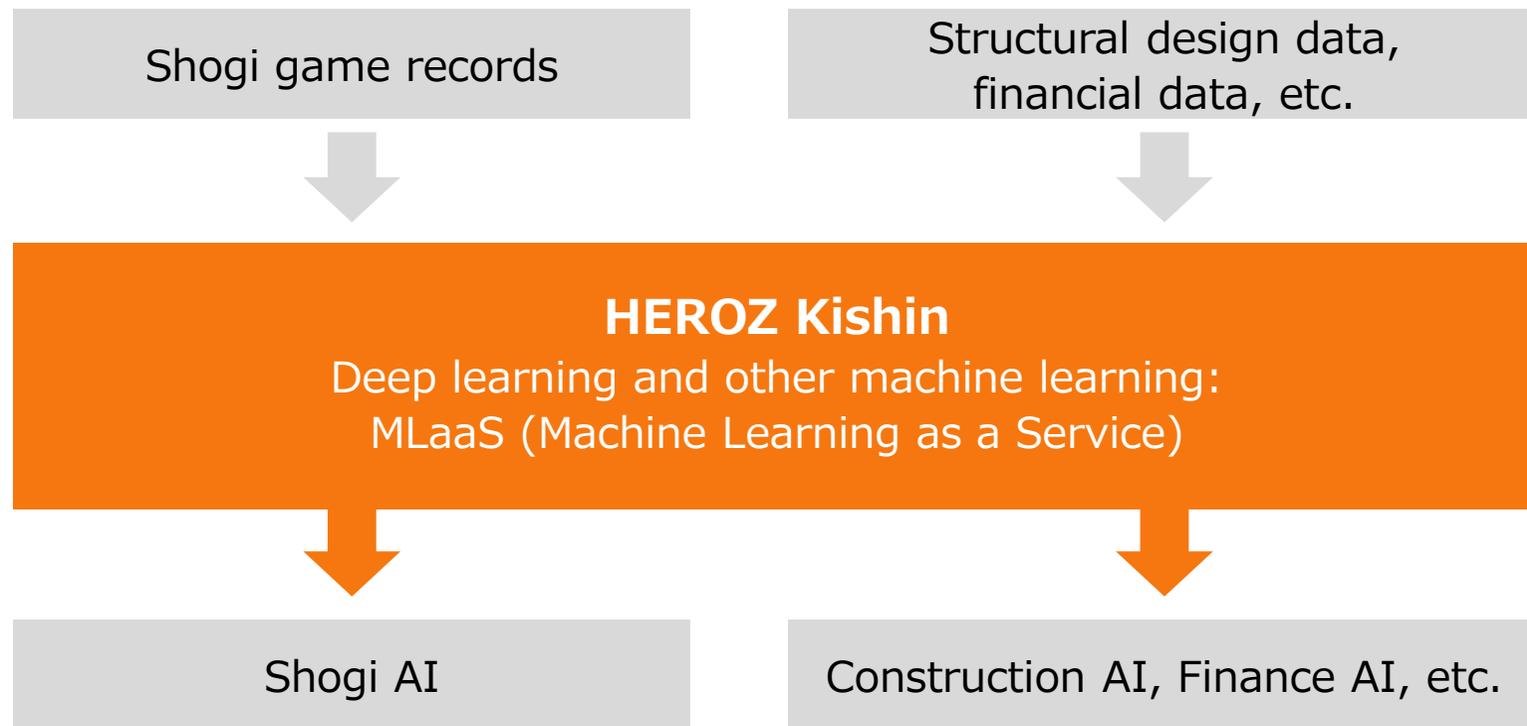
## Go AI



Google acquired Deep Mind  
( '14)  
AlphaGo, developed by  
Deep Mind, defeated a  
professional Go player  
( '16)

**Google**

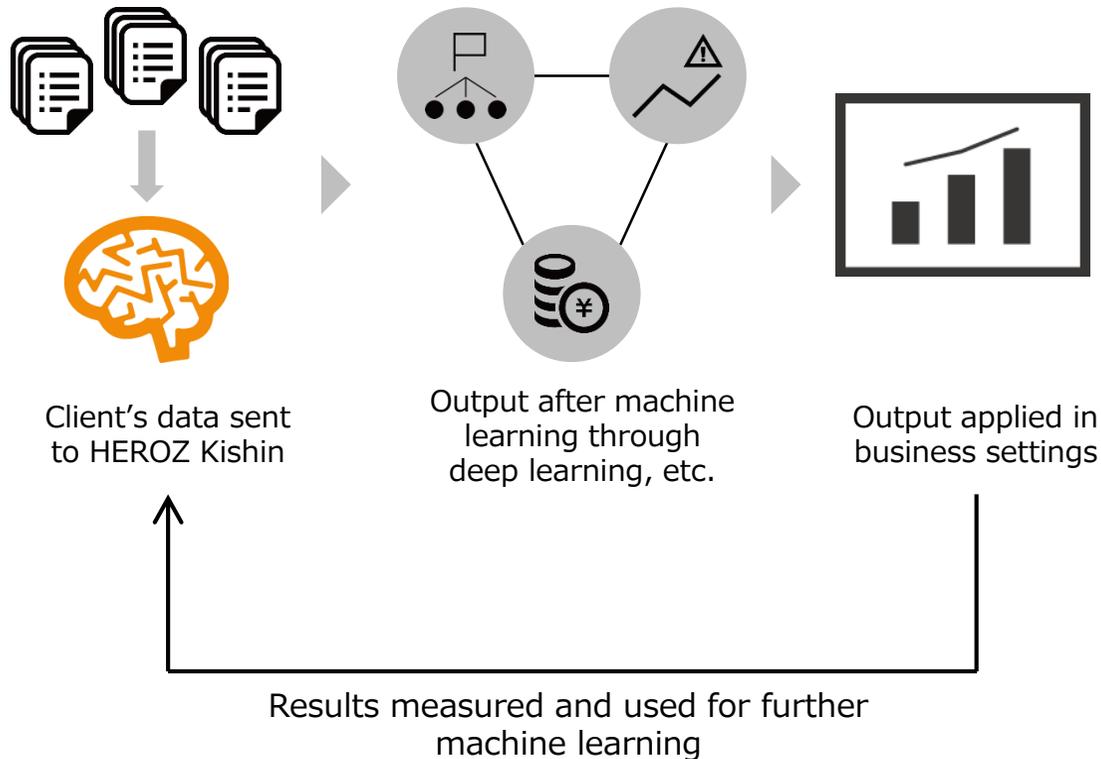
# B-to-B Services: Machine Learning by Replacing Shogi Game Records with Other Data



MLaaS : What is Machine Learning as a Service?

Business model which provides machine learning/deep learning as service, similar to SaaS (Software as a Service) and IaaS (Infrastructure as a Service)

# B-to-B Services: Profit Model and High Switching Costs



**Output precision increases through repeated machine learning**

Research/develop Shogi AI

Standardize AI technology accumulated through shogi AI

Establish "HEROZ Kishin" = MLaaS (Machine Learning as a Service)

Establish an infrastructure which allows HEROZ to provide AI services efficiently to solve various challenges in various industries just by changing input data

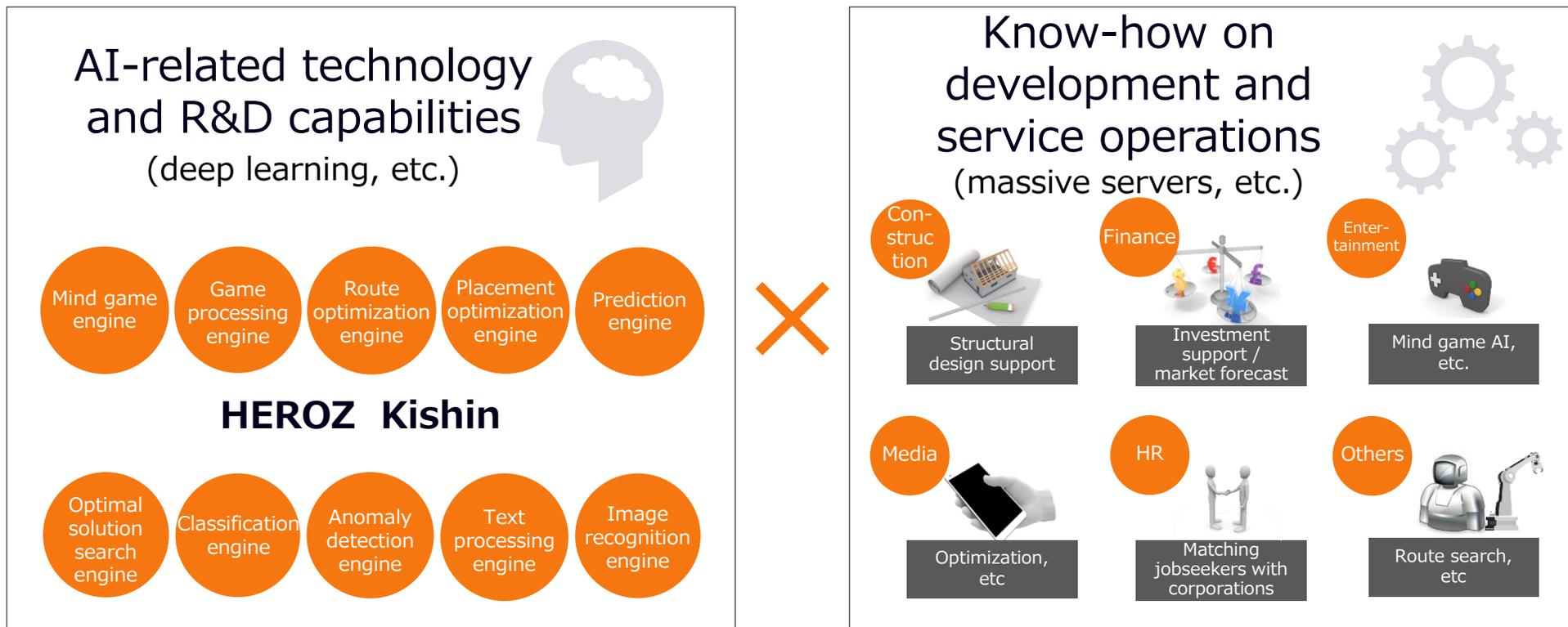
Provide comprehensive AI services with massive servers

Achieve stable, sustained earnings and high switching costs

**Earning structure: initial setup fee and ongoing fees**

# B-to-B Services: Engines included in HEROZ Kishin and Examples of Applications

- Create AI products by combining engines and achieve an efficient operating structure



We aim to create the industry standard for AI in each sector through collaboration with companies which own high-quality private data

# B-to-B Services: Areas of Focus and Examples of Services Provided

- Focusing on construction, finance, and entertainment for the foreseeable future
- Earning structure is initial setup fee and ongoing fees

\*Examples of clients served

## Construc- -tion



Structural design support, etc.

## Fi- -nance



Investment support,  
market forecasts, etc.

## Enter- -tainment



**netmarble**

Creation of high-quality NPCs,  
game balance adjustment, etc.  
(In B-to-B service, HEROZ is not a  
game operator/publisher but a  
background AI provider)

Depending on the types of projects,  
ongoing fees in the form of revenue sharing is also introduced

Charging fees for B-to-C content which user AI

- Leveraging AI-related technology to provide mind games such as shogi, chess, and backgammon worldwide
- Shogi Wars has remained cash cow backed by organic increase of paid users
- To shift our engineering capacity more towards B-to-B services, “Pokémon Duel” will be terminated at the end of October, 2019



Shogi Wars



Animal  
Shogi Wars



Igo Wars



CHESS HEROZ  
(English)



BackgammonAce  
(English)



Pokémon Duel  
to be terminated in  
Oct 2019

Earning structure: monthly membership fees,  
Kishin (AI) usage fees, etc.

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- We believe that EBITDA, as calculated below, is our key performance indicator

$$\text{EBITDA} = \text{Operating Profit} + \text{Depreciation/Amortization Expenses}$$

- In AI-related businesses, server investments, etc. are required to engage in advanced machine learning, leading to various depreciation/amortization expenses. We aim to continuously enhance enterprise value/equity value via EBITDA growth, without being concerned about fluctuations in one-time depreciation/amortization expenses.

# Performance Overview (May-July 2019)

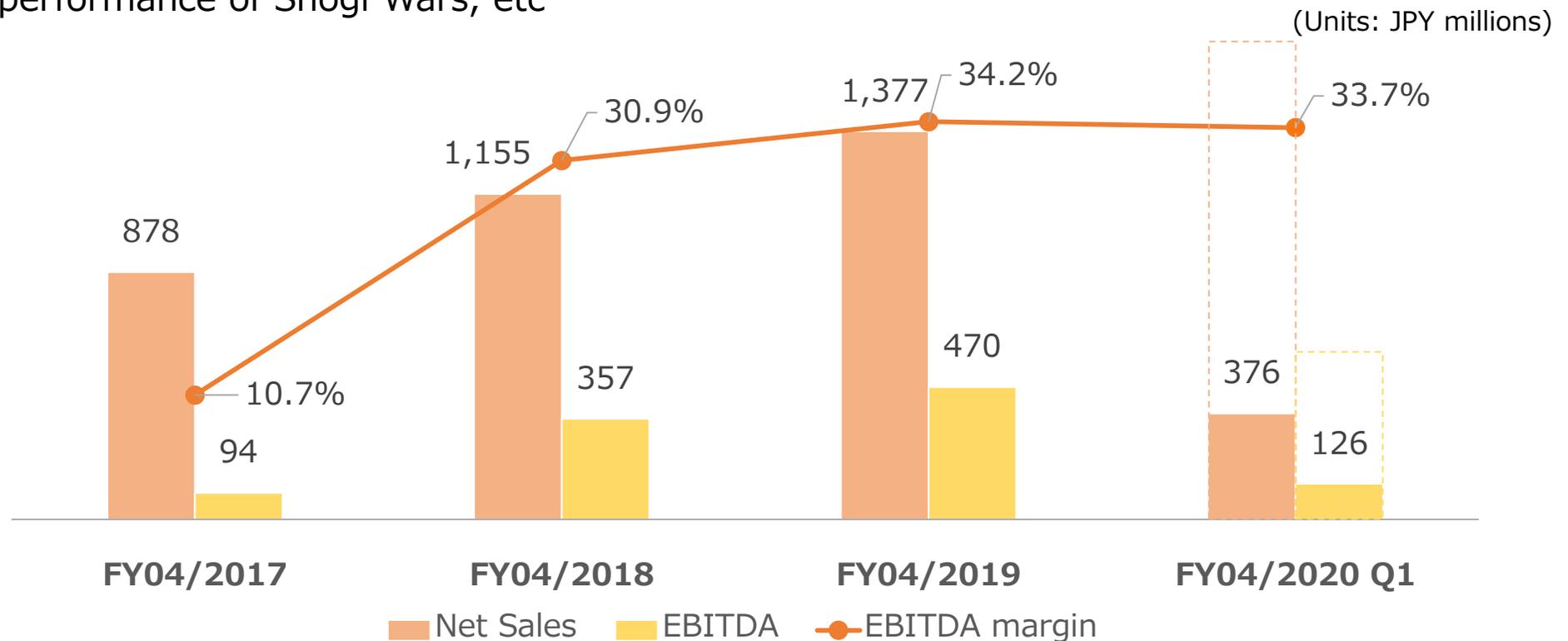
- We proceeded as planned to achieve fiscal year forecasts in the first quarter, driven by an increase in new and ongoing AI (B-to-B) projects and steady performance of Shogi Wars in AI (B-to-C) services
- We expect to complete more initial-setup projects for AI (B-to-B) services during the second half of this fiscal year

(Units: JPY millions)	FY04/2020 Q1	(Reference) FY04/2019 Q1	YoY	FY04/2020 Forecast	Progress
Net Sales	376	296	+26.8%	1,630	23.1%
EBITDA*	126	108	+17.2%	570	22.3%
<i>EBITDA Margin</i>	33.7%	36.5%	–	35.0%	–
Operating Profit	111	104	+6.7%	520	21.4%
<i>Operating Margin</i>	29.5%	35.1%	–	31.9%	–
Ordinary Profit	109	104	+5.0%	510	21.4%
Net Income	75	71	+4.6%	350	21.5%

\* EBITDA = Operating Profit + Depreciation Expenses + Amortization of Lease Deposits

# Net sales and EBITDA Trends

- We forecast that revenues from AI (B-to-B) services, which is the core pillar of our growth strategy, will grow faster than the industrial average, CAGR 43% calculated in page 22, and exceed revenues of AI (B-to-C) services in FY04/2020
- We expect revenues from AI (B-to-C) services to decrease on a year-on-year basis by the termination of "Pokémon Duel" in October, 2019. However, we expect a steady performance of Shogi Wars, etc

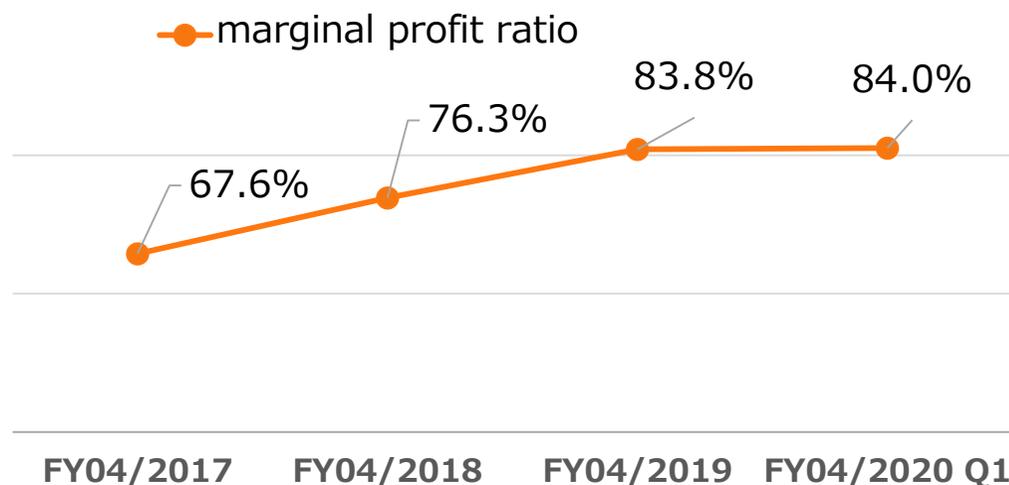


# Service Overview and Marginal Profit

- Characteristics of AI (B-to-B) and AI (B-to-C) services are summarized below

Service	AI (B-to-B) Services	AI (B-to-C) Services
Summary	B-to-B machine learning service HEROZ Kishin	Shogi Wars, etc.
Input Data	Structural Design data, financial data, etc.	Shogi game records
Earning Structure	Initial setup and ongoing fees	Monthly membership fees, Kishin (AI) usage fees, etc.
Major Costs of Goods/Services	(Fixed) labor cost, server related cost	(Fixed) labor cost, server related cost (Variable) app commission fees, royalties

- HEROZ's overall marginal profit ratio, defined as  $\frac{\text{net sales} - \text{app commission fees} - \text{royalties}}{\text{net sales}}$ , is as shown on the right.
- Note that marginal profit ratio improves as the composition of AI (B-to-B) services increases.



# Balance Sheet (as of July 31, 2019)

- We have continued to invest cash and deposits in efforts to achieve the medium-to-long-term growth strategy (computing servers, R&D, etc.)

Units: JPY millions	As of 7/31/2019	(Reference) As of 4/30/2019
Current Assets	1,729	1,659
Cash and deposits	1,550	1,494
Fixed Assets	480	498
Property, plant and equipment	136	150
Intangible assets	5	5
Investments and other assets	338	342
Total Assets	2,209	2,157
Current Liabilities	150	178
Fixed Liabilities	-	-
Net Assets	2,058	1,979

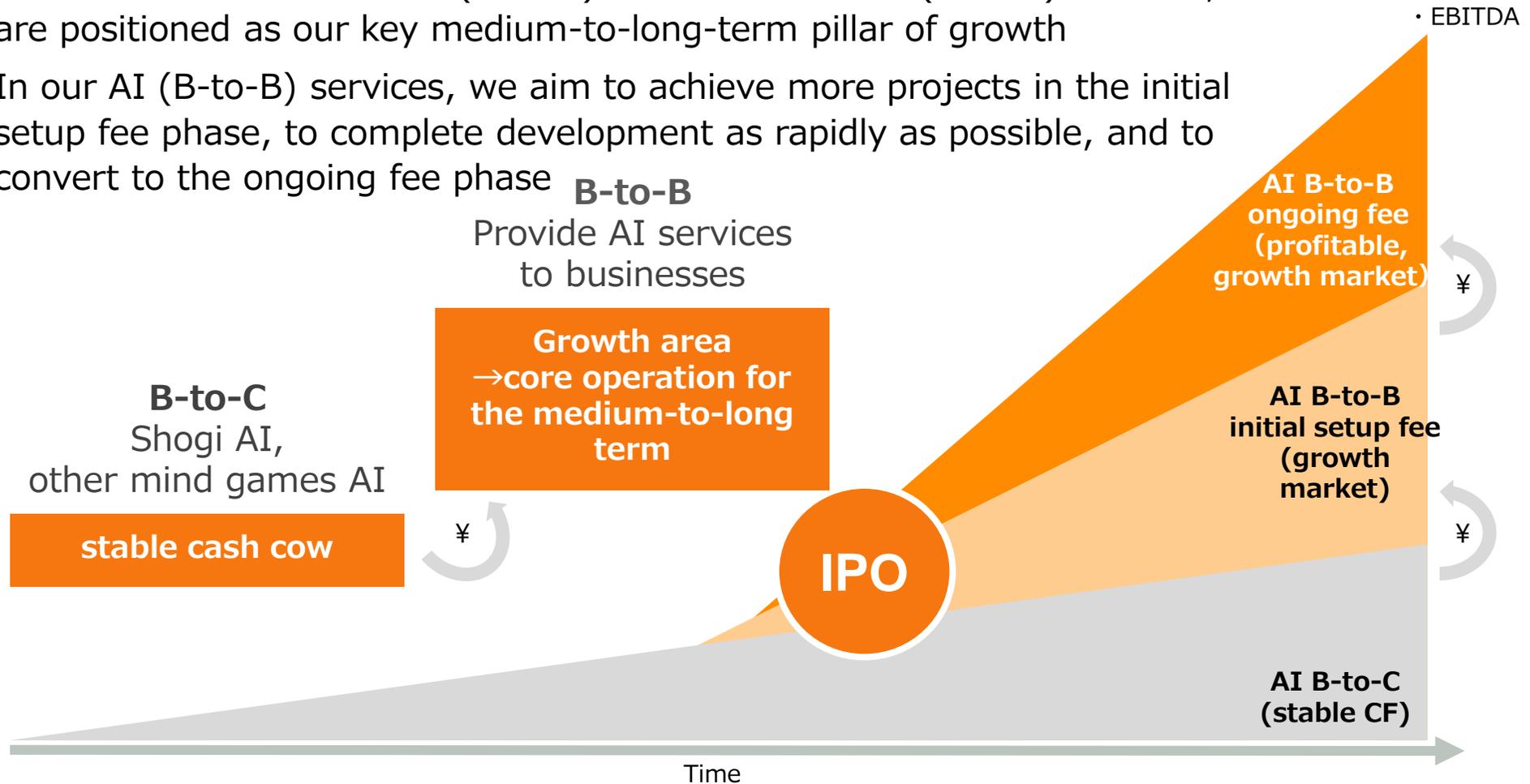
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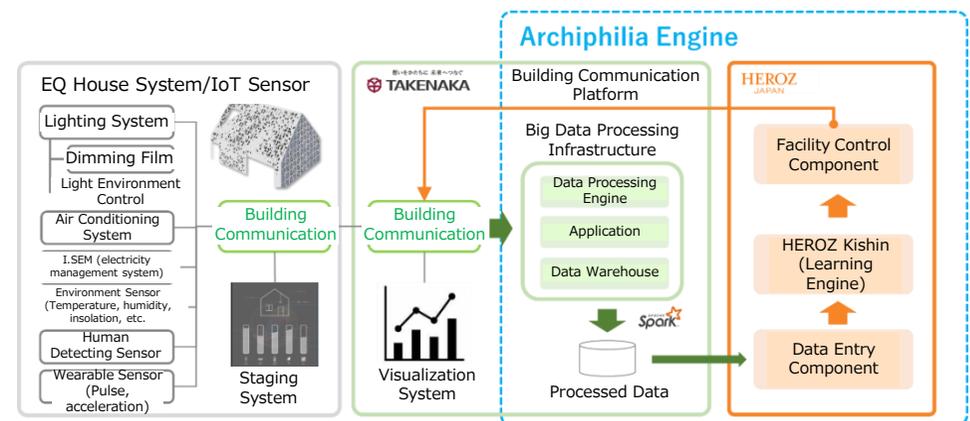
# Medium-to-long term Growth Strategy

- We aim to achieve EBITDA growth by investing our cash flows and leveraging our know-how from our AI (B-to-C) services to our AI (B-to-B) services, which are positioned as our key medium-to-long-term pillar of growth
- In our AI (B-to-B) services, we aim to achieve more projects in the initial setup fee phase, to complete development as rapidly as possible, and to convert to the ongoing fee phase



- Developed the space regulation system Archiphilia Engine jointly with Takenaka Corporation (“Takenaka”) using HEROZ Kishin AI in the EQ House Project, in which Takenaka engaged in design and construction
  - Achieved conservation of energy and manpower  
Using reinforced learning, we are utilizing big data, obtained from IoT sensors, to optimize operating conditions of building and equipment systems automatically
  - Optimized indoor environment  
Continuous learning of feedback data on occupant preferences and comfort to automatically provide an indoor environment customized to each occupant
  - In addition to the Structural Design Support and EQ House Projects, Takenaka and HEROZ aim to provide various services using cutting edge AI technology going forward

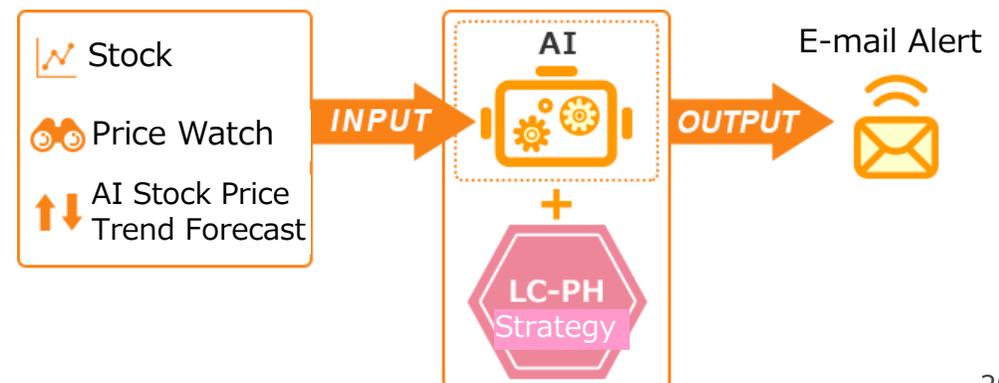
(Conceptual Diagram)



Archiphilia Engine System Architecture

- Launched “AI Stock Price Watch Service”, developed jointly with SMBC Nikko Securities Inc., to serve individual customers
  - AI provides stock trend forecasts  
Machine learning methodologies utilizing data on stock prices and market conditions are used to make 1-week forecast trends of domestic equity market securities
  - Support on the timing for selling stock  
AI monitors stock price fluctuations and automatically manages profit taking and loss-cutting prices and notifies the timing for selling stock once selling conditions are fulfilled, allowing users to select precise selling points for each stock and reducing the need to confirm stock prices on a daily basis
- SMBC Nikko Securities Inc. and HEROZ aim to provide various services using cutting edge AI technology going forward too

(Conceptual Diagram)



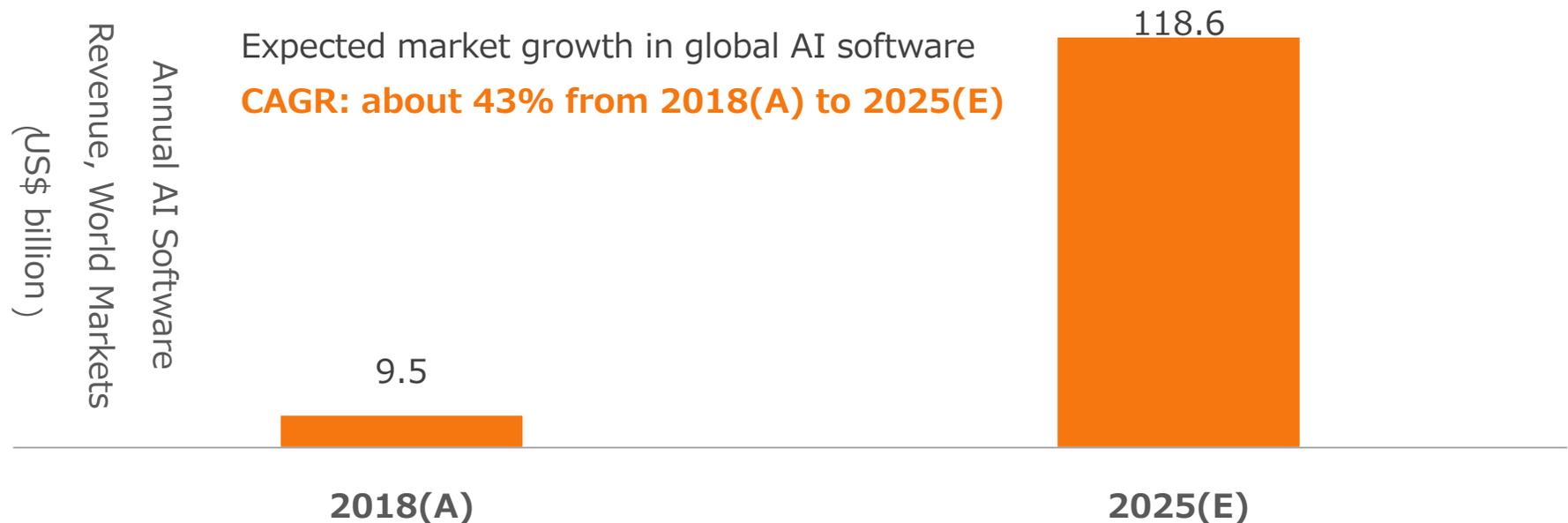
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# Global Market Forecasts: AI Software (B-to-B)

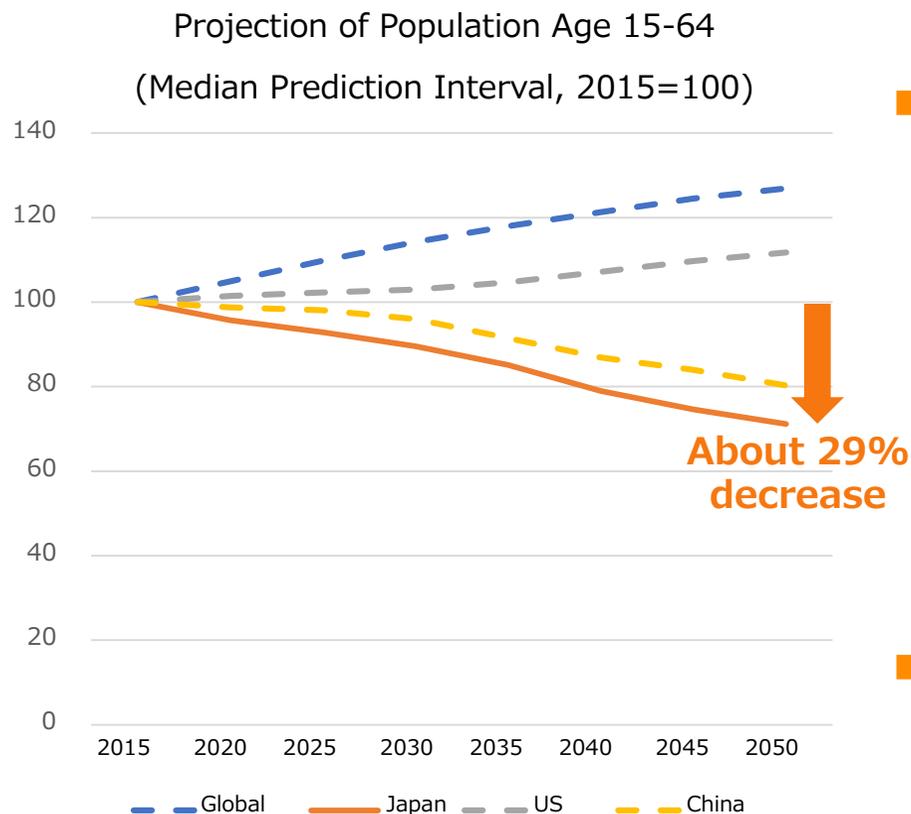
- AI demand is accelerating globally in each industry, leading us to believe that our AI (B-to-B) service carries strong growth potential
- AI software market in Japan is also required to grow so rapidly due to the decrease of the domestic working population that AI will support to increase labor productivity.
- Our AI (B-to-B) service is growing up faster than the overall market. In FY04/2020, revenues from our AI (B-to-B) service are forecasted to grow up by more than 43%, the expected market growth



Source: Tractica, Artificial Intelligence Market Forecasts (1Q 2019)

# Japan: Potential AI Demand is Among the Largest Worldwide

- Potential AI demand in Japan can be expected to be among the largest worldwide, as the working population is expected to decrease significantly going forward



- When defining the working population as those aged 15-64, the world average is forecasted to increase by about 14% from 2015 to 2030 and by about 27% from 2015 to 2050. On the other hand, the working population is expected to decrease by about 10% and about 29% during the same periods, respectively
- Based on such forecasts, the Japanese working population will show the largest decrease among leading GDP nations

Source: Prepared by HEROZ based on United Nations, World Population Prospects, The 2017 revision

# Potential AI Demand in Our Areas of Focus

- We believe there is also significant potential demand for enhancing operational efficiency through AI in the construction industry, which is one of our areas of focus



- We entered into a capital and business alliance with Takenaka Corporation in 2017 and became a member of i-Construction. We aim to create the industry standard AI for the construction industry, enhancing productivity and creating a new, attractive construction site

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The forward-looking statements set out in this material including performance outlooks are based on information currently available to HEROZ, Inc. and on certain assumptions deemed rational, and may therefore differ materially from actual results due to uncertainties in judgements or assumptions, or for other reasons.

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