HEROZ
JAPAN

Presentation Material for
FY04/2020 Q2 Financial Results

December 6, 2019

HEROZ, Inc.（4382）

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JAPAN

Company Overview

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

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

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

2016
Capital and business alliance with Bandai Namco Entertainment

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

2012
Launched mobile app, "Shogi Wars"

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

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

Representative Director and COO
Tomohiro Takahashi

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

Director and CFO, Business Planning Manager
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

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Creating the future through artificial intelligence (AI) revolutions

Global Leader in Mind Game AI

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

Shogi game records	Structural design data, financial data, etc.

HEROZ Kishin
Deep learning and other machine learning:
MLaaS (Machine Learning as a Service)

Shogi AI	Construction AI, Finance AI, etc.
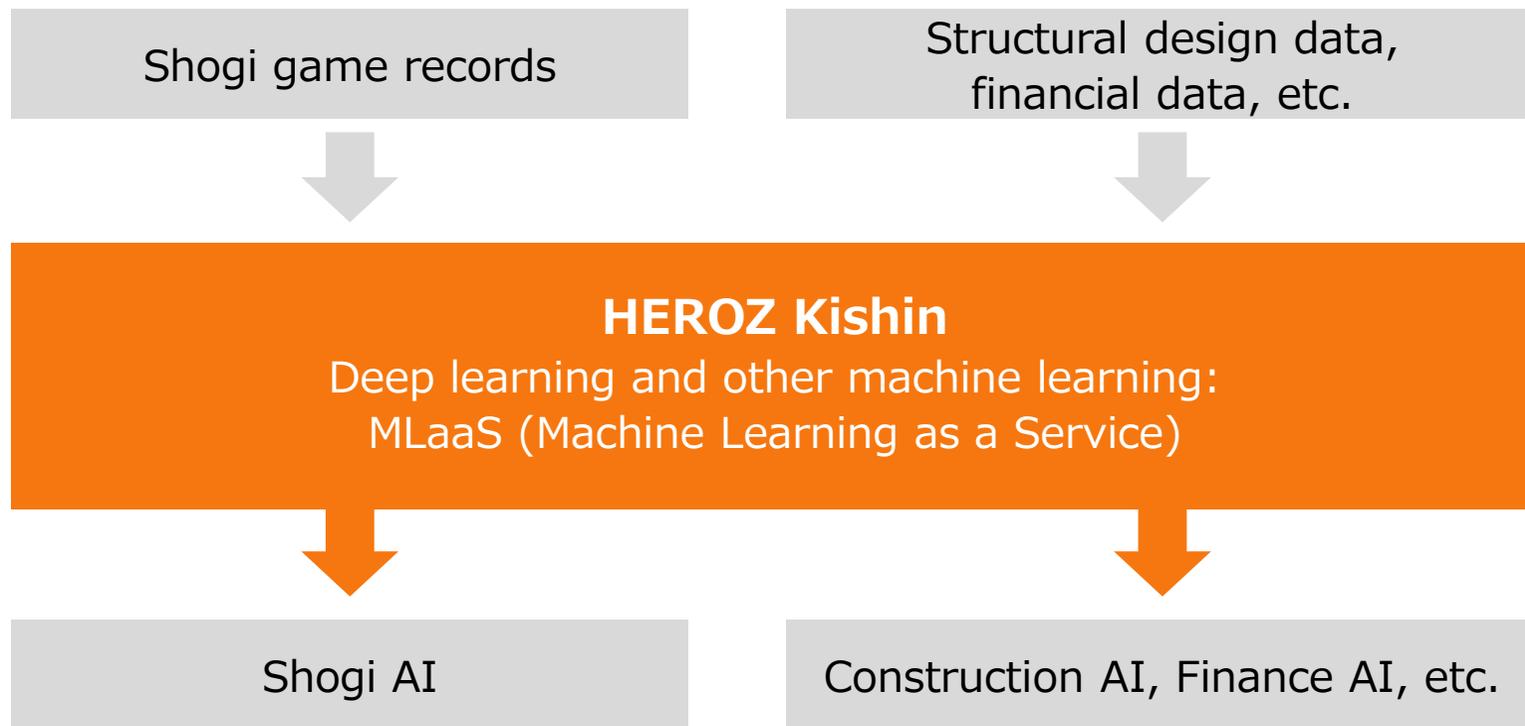
MLaaS : What is Machine Learning as a Service?
Business model which provides machine learning/deep learning as service, similar to
SaaS (Software as a Service) and IaaS (Infrastructure as a Service)

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

Client's data sent to HEROZ Kishin

Output after machine learning through deep learning, etc.

Output applied in business settings

Results measured and used for further machine learning
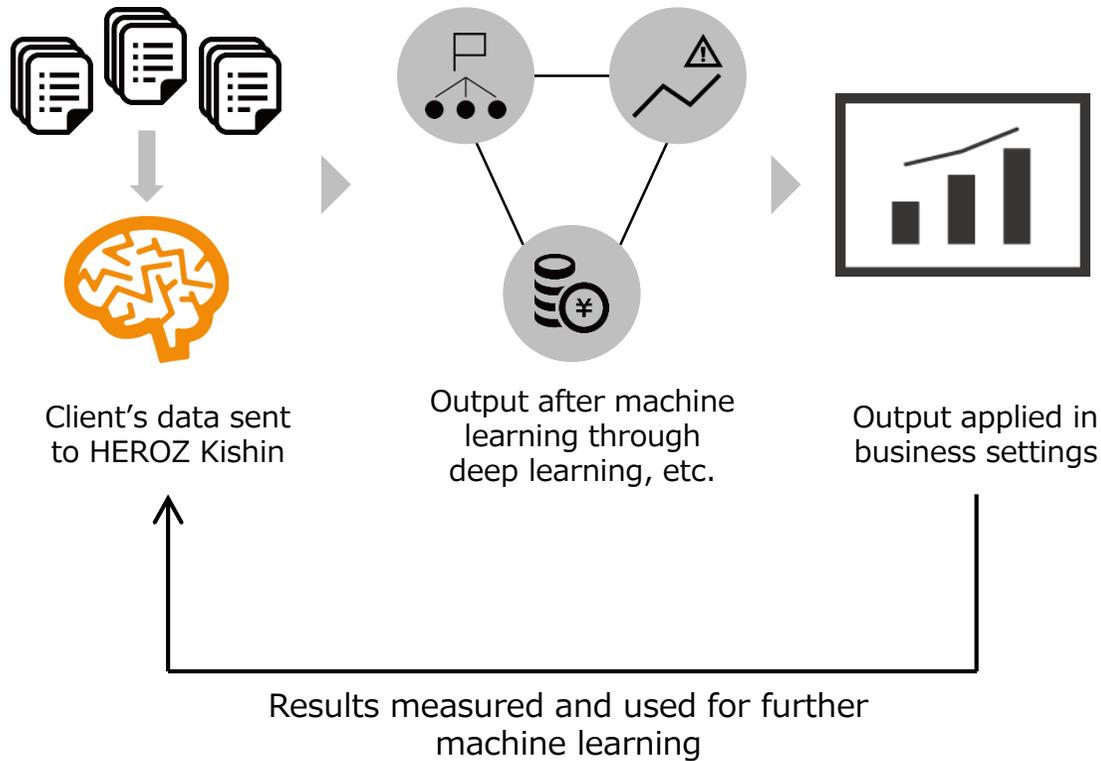
Output precision increases through repeated machine learning

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
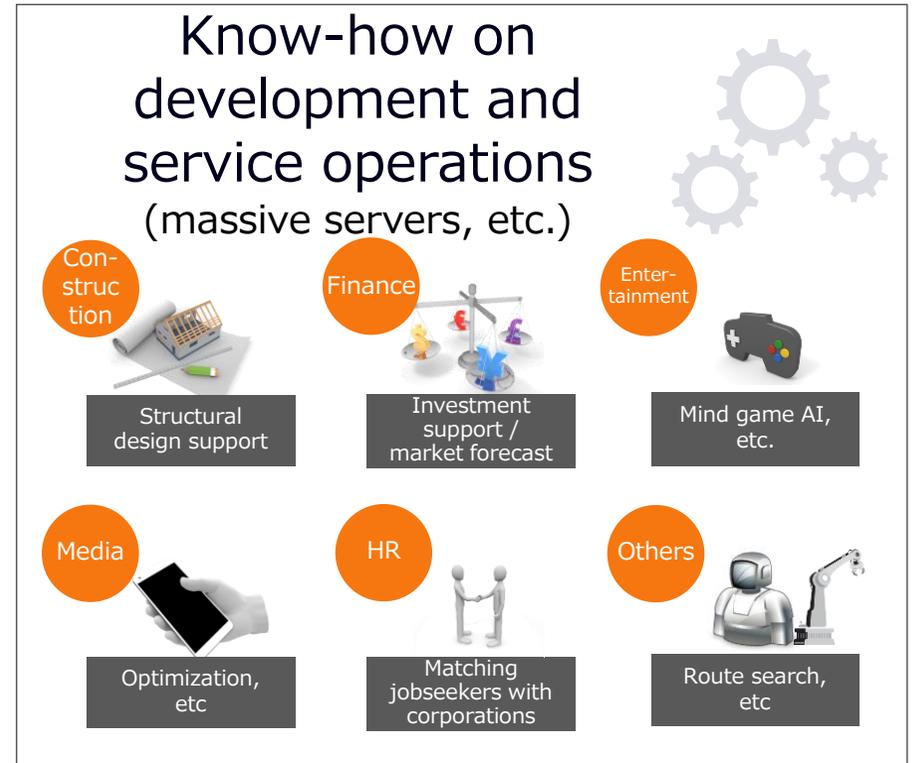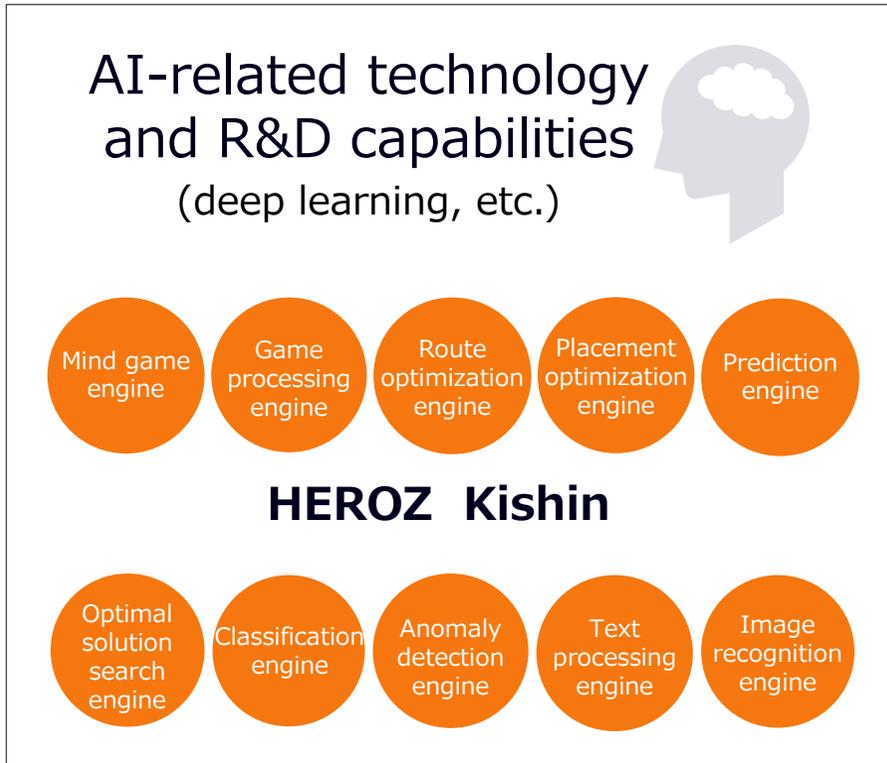
Provide comprehensive AI services with massive servers

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

AI-related technology and R&D capabilities
(deep learning, etc.)

- Mind game engine
- Game processing engine
- Route optimization engine
- Placement optimization engine
- Prediction engine

HEROZ Kishin

- Optimal solution search engine
- Classification engine
- Anomaly detection engine
- Text processing engine
- Image recognition engine

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Know-how on development and service operations
(massive servers, etc.)

Construction
Structural design support

Finance
Investment support / market forecast

Entertainment
Mind game AI, etc.

Media
Optimization, etc

HR
Matching jobseekers with corporations

Others
Route search, etc

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

- 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

想いをかたちに　未来へつなぐ
TAKENAKA

Structural design support, etc.

Fi-nance

SMBC日興証券

MONEX

Investment support, market forecasts, etc.

Enter-tainment

BANDAI NAMCO Entertainment

BANDAI

KT

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

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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" was terminated at the end of October, 2019

Shogi Wars	Animal Shogi Wars	Igo Wars	CHESS HEROZ (English)	BackgammonAce (English)

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

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

EBITDA = Operating Profit + 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.
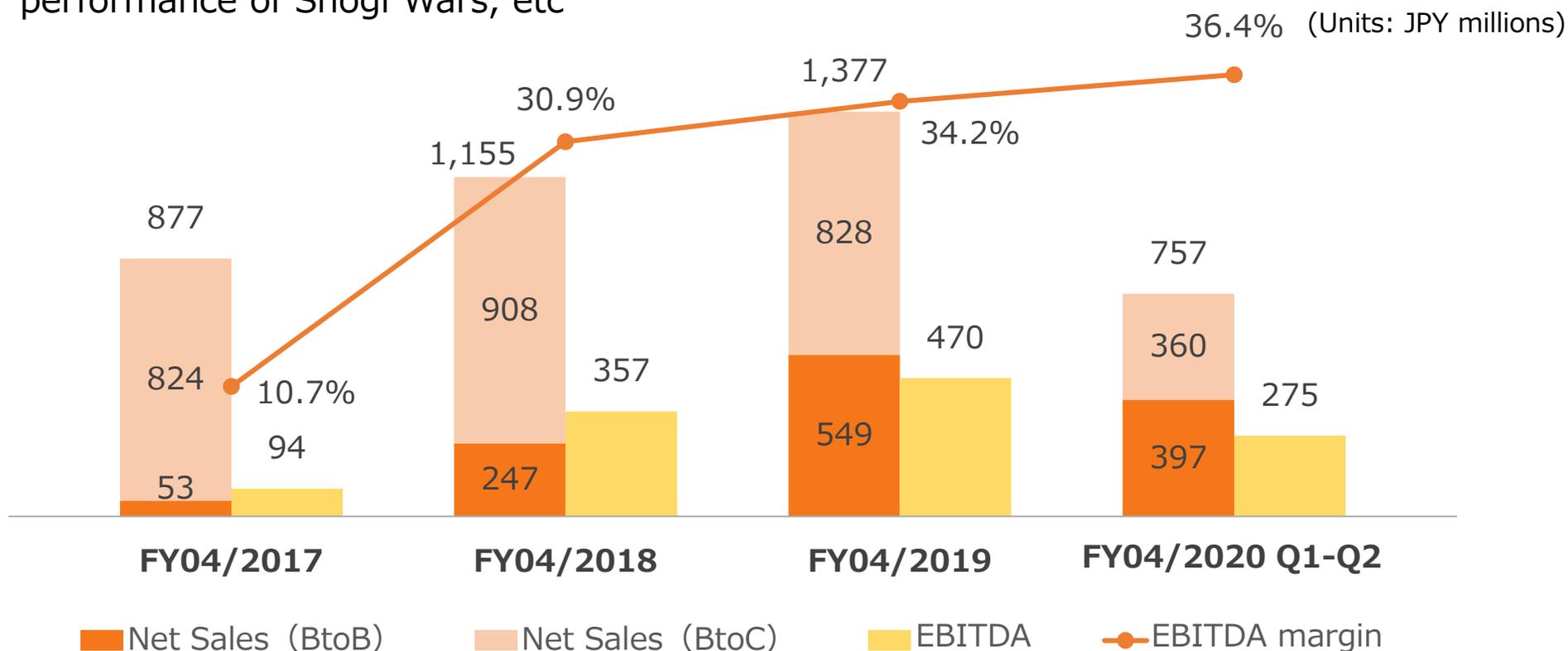
Performance Overview (May-October 2019)

- We proceeded as planned to achieve fiscal year forecasts in the second 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

- As shown in the next page, net sales of AI (B-to-B) services exceeded those of AI (B-to-C) services at the end of Q2

(Units: JPY millions)	FY04/2020 Q1-Q2 Actual	(Reference) FY04/2019 Q1-Q2 Actual	YoY	FY04/2020 Forecast	Progress
Net Sales	757	646	+17.2%	1,630	46.5%
EBITDA*	275	239	+15.2%	570	48.4%
EBITDA Margin	*36.4%*	*37.1%*	*–*	*35.0%*	*–*
Operating Profit	244	229	+6.4%	520	47.0%
Operating Margin	*32.3%*	*35.5%*	*–*	*31.9%*	*–*
Ordinary Profit	238	229	+4.0%	510	46.8%
Net Income	164	158	+3.5%	350	47.0%

* 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

(Units: JPY millions)

	FY04/2017	FY04/2018	FY04/2019	FY04/2020 Q1-Q2
Total	877	1,155	1,377	757
Net Sales (BtoC)	824	908	828	360
Net Sales (BtoB)	53	247	549	397
EBITDA	94	357	470	275
EBITDA margin	10.7%	30.9%	34.2%	36.4%

Net Sales（BtoB）   **Net Sales（BtoC）**   **EBITDA**   **EBITDA margin**

COGS and SG&A Trends

■ Labor cost and depreciation cost tend to increase over the corresponding period of the last fiscal year because of recruiting activity and continuous investment in proprietary computing server

(Units: JPY millions)

	FY04/2017	FY04/2018	FY04/2019	FY04/2020 Q1-Q2
Total	788	800	956	512
others(COGS/SG&A)	339	338	372	173
advertisement expenses	9	8	37	12
app commission fees	187	215	191	99
depreciation cost	4	2	49	31
labor cost	248	235	305	196

■ labor cost ■ depreciation cost ■ app commission fees
■ advertisement expenses ■ others(COGS/SG&A)

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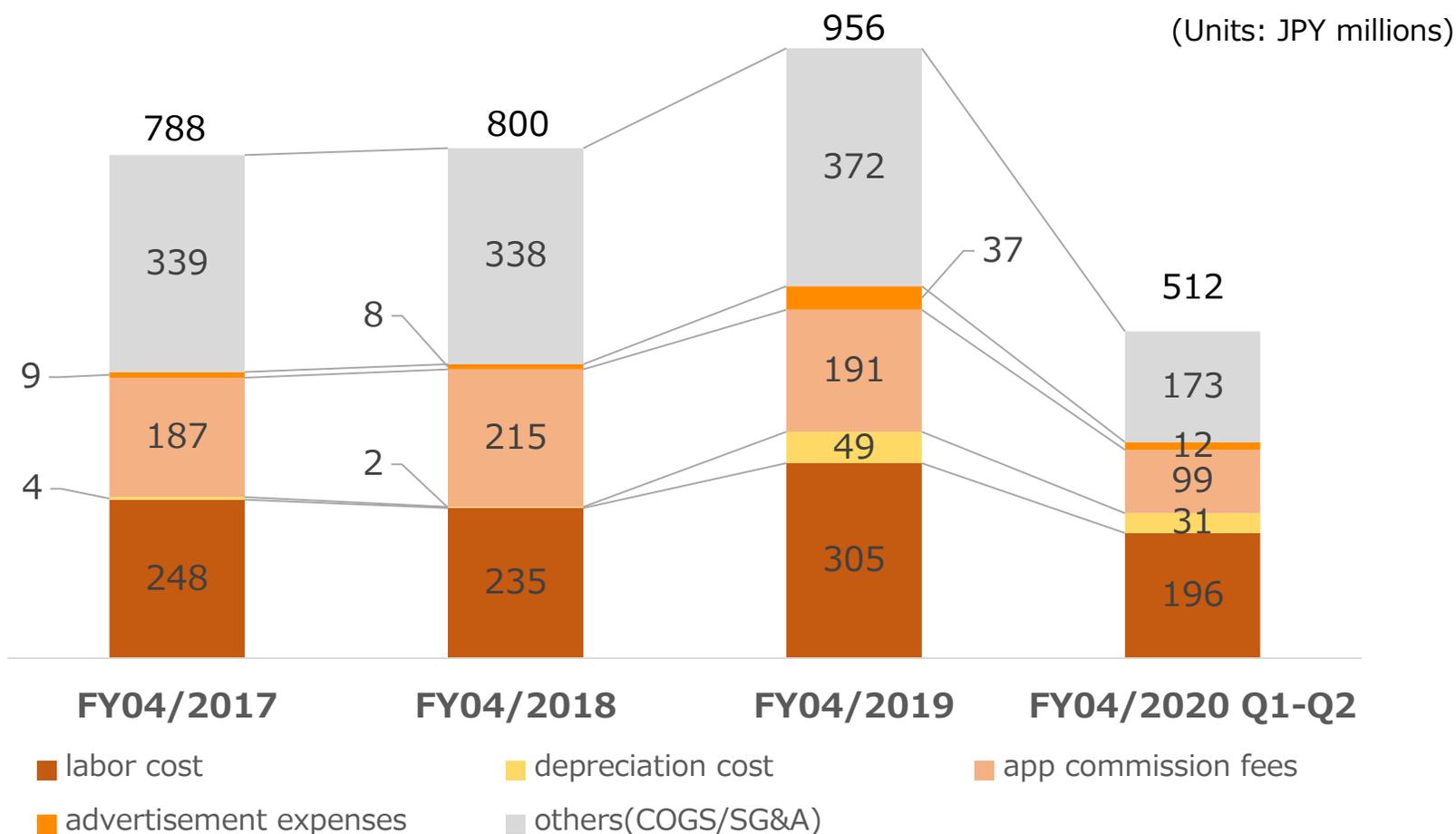
Balance Sheet (as of October 31, 2019)

- 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 10/31/2019	(Reference) As of 4/30/2019
Current Assets	1,880	1,659
Cash and deposits	1,639	1,494
Fixed Assets	458	498
Property, plant and equipment	122	150
Intangible assets	6	5
Investments and other assets	330	342
Total Assets	2,339	2,157
Current Liabilities	184	178
Fixed Liabilities	-	-
Net Assets	2,155	1,979

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

B-to-B
Provide AI services
to businesses

**Growth area
→core operation for
the medium-to-long
term**

B-to-C
Shogi AI,
other mind games AI

stable cash cow

IPO

· EBITDA

**AI B-to-B
ongoing fee
(profitable,
growth market)**

**AI B-to-B
initial setup fee
(growth
market)**

**AI B-to-C
(stable CF)**

¥

¥

¥

Time

18
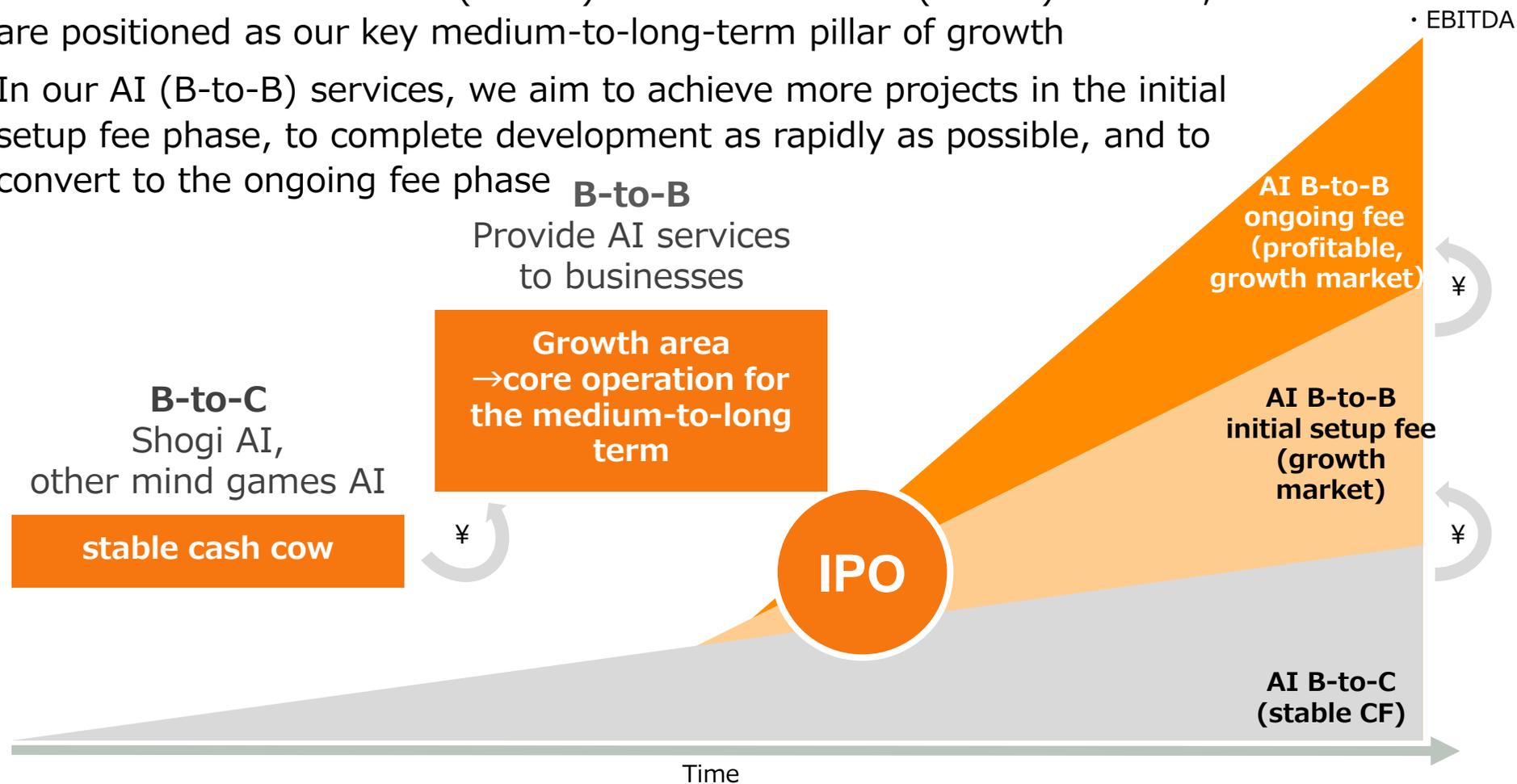
Initiatives Aimed at Achieving the Growth Strategy (1)

- HEROZ entered into a business alliance agreement with SMBC Nikko Securities Inc. on December 6, 2019
    - HEROZ has developed services and engaged in discussions to support the SMBC Group's digitalization, beginning with Sumitomo Mitsui Financial Group's co-creation program SMBC BREWERY and working with SMBC Nikko Securities to co-develop AI investment information services AI Stock Portfolio Diagnosis and AI Stock Price Watch Service. This business alliance agreement was formed as a new continuous effort to jointly explore new applications of AI technology

    - HEROZ's deep learning and other machine learning technology will be applied to develop new financial services and to enhance operational efficiency at SMBC Nikko Securities, promoting its digital transformation strategy and accelerating its customer-focused operational efforts
        - (1) Develop new financial services using AI
        - (2) Enhance productivity in various operations using AI

■ Netmarble Monster "Magic: ManaStrike"

  ■ We work together with Netmarble Monster in an extensive range of game development processes, including game balance adjustments, using our most advanced AI technologies

  ■ Magic: ManaStrike is a real time strategy mobile game that Netmarble developed, using the IP of Magic: The Gathering. The atmosphere and setting of the original card game were recreated in the game through high-quality 3D graphics. Users can play in various game modes, which allow them to compete with a great number of users around the world. A soft launch (a preview release of a service in limited areas prior to the general public) for Canada started on October 30, 2019

■ Koei Tecmo Games "Sangokushi Heros"

  ■ Sangokushi Heros is equipped with strategy game AI that we developed with several quality AI engineers who developed Ponanza, which defeated a Shogi professional player for the first time in history in the Denosen and later defeated a Shogi master, too, and Apery, which won the first prize in World Computer Shogi Championship

  ■ Sangokushi Heros is a series of turn-based battle board game, which recreates the scenes where heroes in the three kingdoms period use their strategies in battlefields, using simple rules. The game is also as simple as table games, such as Shogi and Go, where the wisdom and strategies of players directly link to their victory. The game will be released this fiscal year

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■ HEROZ joined "MONET Consortium （＊）" on August 16, 2019

（＊）The MONET Consortium established by MONET Technologies Inc., a joint venture between SoftBank Corp. and Toyota Motor Corporation, aims to promote next-generation mobility services, resolve social mobility issues and create new value by having companies (service operators) from a diverse range of industry sectors participate in MaaS business development and other areas, with a view to services that use autonomous vehicles.

■ HEROZ announces that, on December 6, 2019, its Board of Directors resolved to issue new shares

■ Stock Split
  ■ Split Ratio: Two-for-one
  ■ Reference Date: January 31, 2020
  ■ Effective Date: February 1, 2020

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

Revenue, World Markets (US$ billion) — Annual AI Software

Expected market growth in global AI software
CAGR: about 43% from 2018(A) to 2025(E)

Sales growth rate of our B-to-B business
CAGR: about 220% from FY04/2017 to FY04/2019

118.6

9.5

2018(A)

2025(E)

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

■ 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

Projection of Population Age 15-64

(Median Prediction Interval, 2015=100)

About 29% decrease

Legend: Global, Japan, US, China
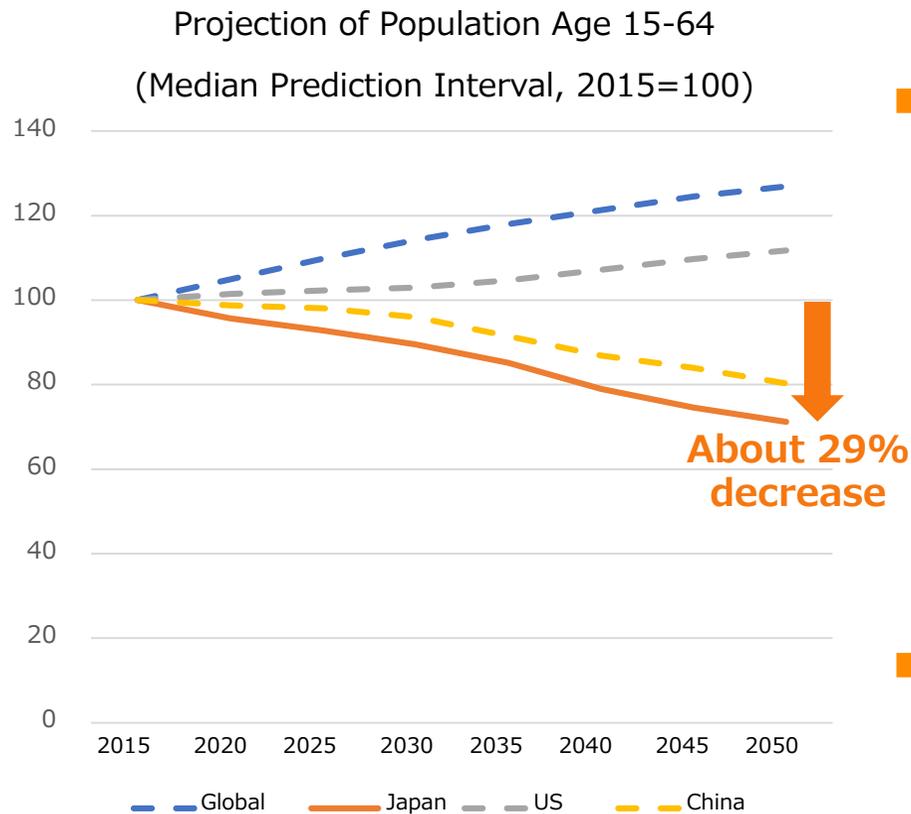
■ When defining the working population as those aged 15-64, the world average is forecasted to increase by about 14% from 2015 to 2030 and by about 27% from 2015 to 2050. On the other hand, the working population is expected to decrease by about 10% and about 29% during the same periods, respectively

■ 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

| Challenges faced by the Construction Industry | Chronic Shortage of Man-power | There will be a shortage of 110,000 construction technicians by 2025 (source: Human Touch Research Institute, "status quo" scenario in the Proprietary Analysis Monthly Report, December 2017) Over 1/3 of first-class registered architects are over 60 (average: 56.2 years old) (source: Report on Construction-related Administration Aimed at Securing Safety of Architecture, Social Infrastructure Council, August 2006) The number of construction and mining industry workers is expected to decrease from 5.05 million in 2014 to 4.16–4.24 million in 2030, with some variability depending on future economic growth and labor market participation trends (source: JILPT, 2015 Estimated Labor Supply/Demand) |
| | Soaring Materials Prices | The national construction materials price index has increased by 17% since 2010 (source: Economic Research Association) |

- 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

i-Construction

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