# HEROZ

## JAPAN

Presentation Material for
FY04/2019 Q1 Financial Results

September 11, 2018

HEROZ, Inc. （4382）

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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 human
being champion

**IBM**

**Shogi AI**



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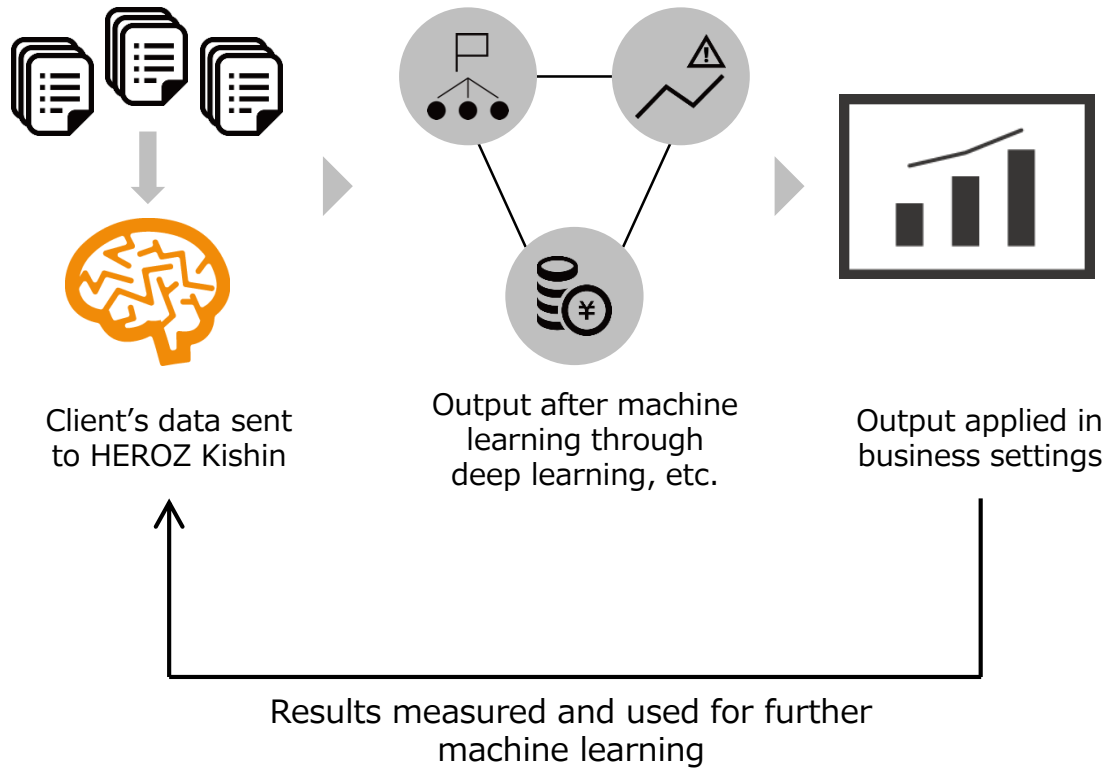professional shogi
(Japanese Chess)
player ('13)

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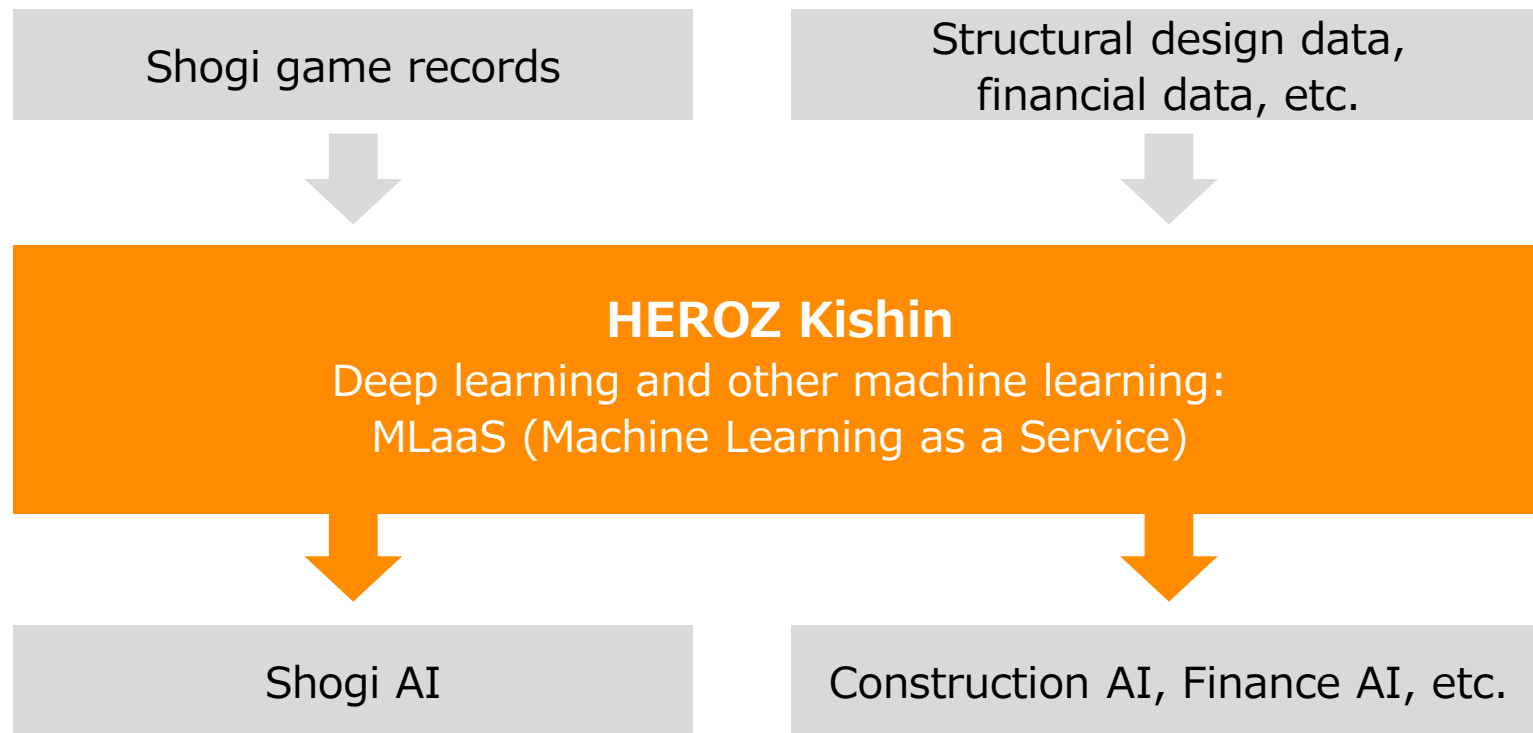
Establish an infrastructure which allows HEROZ to provide AI services efficiently to solve various challenges in various industries just by changing input data

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: Provide Services by Replacing Shogi Game Records with Corporate Data

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

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

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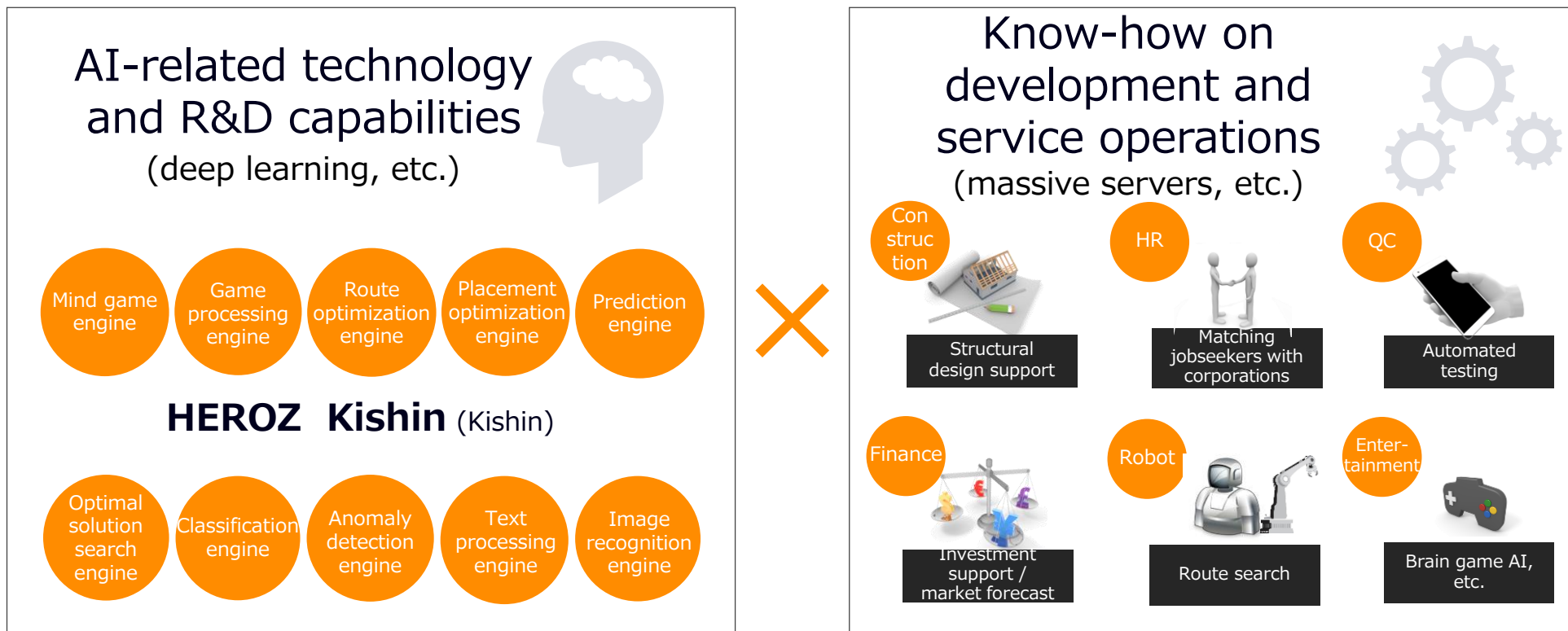| Shogi AI | Construction AI, Finance AI, etc. |
|---|---|

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)

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■ 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** (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

**HR**
Matching jobseekers with corporations

**QC**
Automated testing

**Finance**
Investment support / market forecast

**Robot**
Route search

**Entertainment**
Brain game AI, etc.

■ In construction AI, which is one area of focus, we entered into a capital and business alliance with Takenaka Corporation in 2017 and became a member of i-Construction, aiming to create a new, productive and attractive construction site using AI

**i-Construction**

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

- Leveraging AI-related technology to provide brain games such as shogi, chess, and backgammon worldwide
- Also engaging in collaboration with IP characteristics

| Shogi Wars | Animal Shogi Wars | Igo Wars | CHESS HEROZ (English) | BackgammonAce (English) | Pokémon Comaster (Pokémon Duel) |

Profit structure:
AI fee income from users, etc.

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- 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.
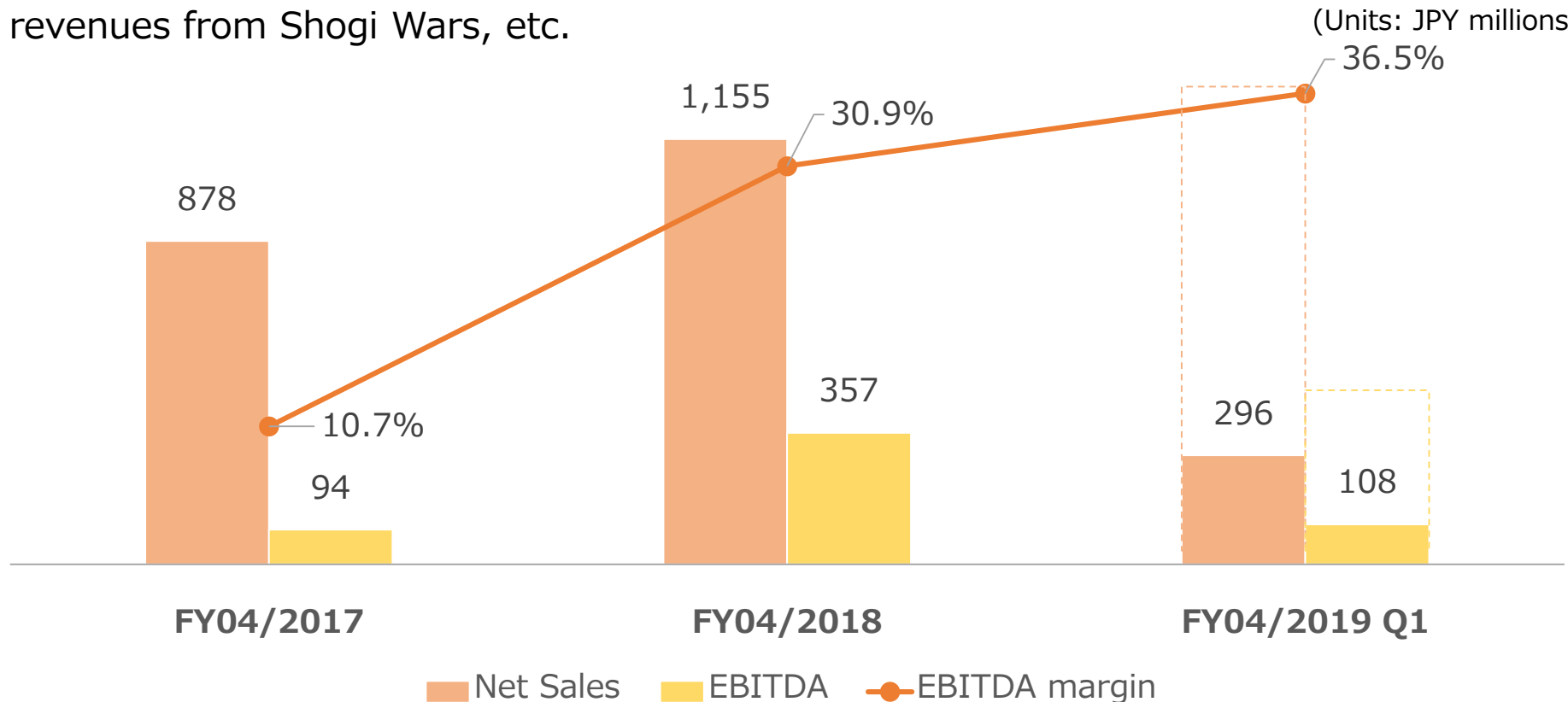
# Performance Overview (May-July 2018)

■ We made steady progress towards achievement of 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

| (Units: JPY millions) | FY04/2019 Q1 | FY04/2019 Forecast | % Progress | (Reference) FY04/2018 Results |
|---|---|---|---|---|
| Net Sales | 296 | 1,300 | 22.8% | 1,155 |
| EBITDA* | 108 | 450 | 24.0% | 357 |
| *EBITDA Margin* | *36.5%* | *34.6%* | | *30.9%* |
| Operating Profit | 104 | 400 | 26.0% | 354 |
| *Operating Margin* | *35.1%* | *30.8%* | | *30.6%* |
| Ordinary Profit | 104 | 400 | 26.0% | 338 |
| Net Income | 71 | 280 | 25.4% | 247 |

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

# Performance Trends

- We forecast that revenues from AI (B-to-B) services, which is the core pillar of our growth strategy, will more than double on a year-on-year basis in FY04/2019

- On the other hand, we expect revenues from AI (B-to-C) services to decrease on a year-on-year basis as full year revenue contributions will not be recorded from several unprofitable services terminated during the last fiscal year. We expect a slight increase in revenues from Shogi Wars, etc.

(Units: JPY millions)



| | FY04/2017 | FY04/2018 | FY04/2019 Q1 |
|---|---|---|---|
| Net Sales | 878 | 1,155 | 296 |
| EBITDA | 94 | 357 | 108 |
| EBITDA margin | 10.7% | 30.9% | 36.5% |

Net Sales  EBITDA  EBITDA margin

# Balance Sheet (as of July 31, 2018)
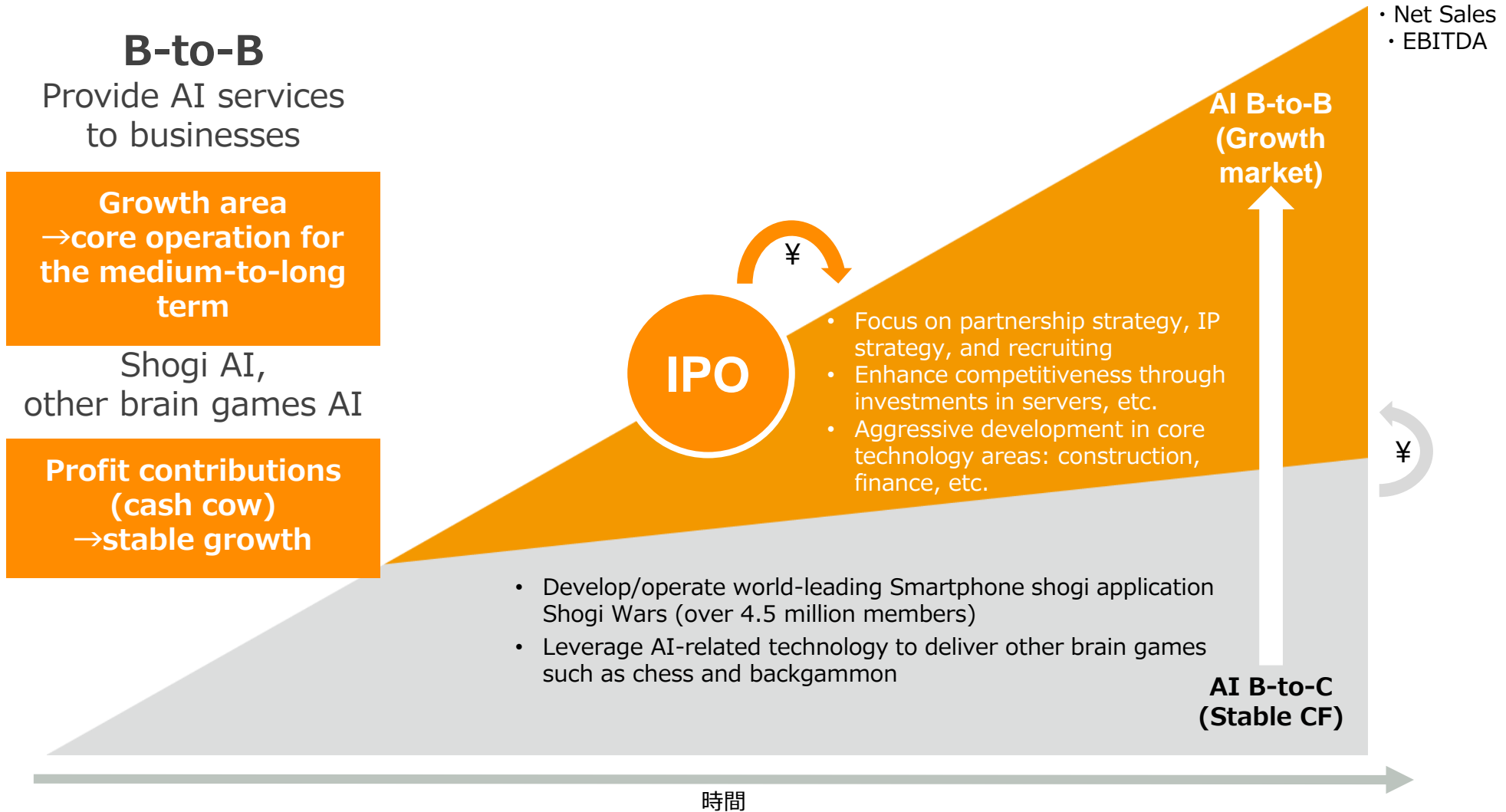
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- We expect to continue to invest cash and deposits in efforts to achieve the medium-to-long-term growth strategy (computing servers, R&D, etc.)
- Tangible fixed assets increased in the first quarter due to the purchase of computing servers for about 50 million yen (of which 25 million yen was recorded under construction in progress as of the end of the previous fiscal year)

| Units: JPY millions | As of 7/31/2018 | As of 4/30/2018 |
|---|---:|---:|
| Current Assets | 1,705 | 1,684 |
|     Cash and deposits | 1,552 | 1,555 |
| Fixed Assets | 92 | 63 |
|     Property, plant and equipment | 51 | 30 |
|     Intangible assets | 0 | 0 |
|     Investments and other assets | 40 | 32 |
| Total Assets | 1,797 | 1,748 |
| Current Liabilities | 113 | 243 |
| Fixed Liabilities | - | - |
| Net Assets | 1,684 | 1,504 |

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# Medium-to-long-term Growth Strategy

**B-to-B**

Provide AI services to businesses

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

Shogi AI, other brain games AI

**Profit contributions (cash cow) →stable growth**

· Net Sales
· EBITDA

**AI B-to-B (Growth market)**

¥

**IPO**

- Focus on partnership strategy, IP strategy, and recruiting
- Enhance competitiveness through investments in servers, etc.
- Aggressive development in core technology areas: construction, finance, etc.

¥

- Develop/operate world-leading Smartphone shogi application Shogi Wars (over 4.5 million members)
- Leverage AI-related technology to deliver other brain games such as chess and backgammon

**AI B-to-C (Stable CF)**
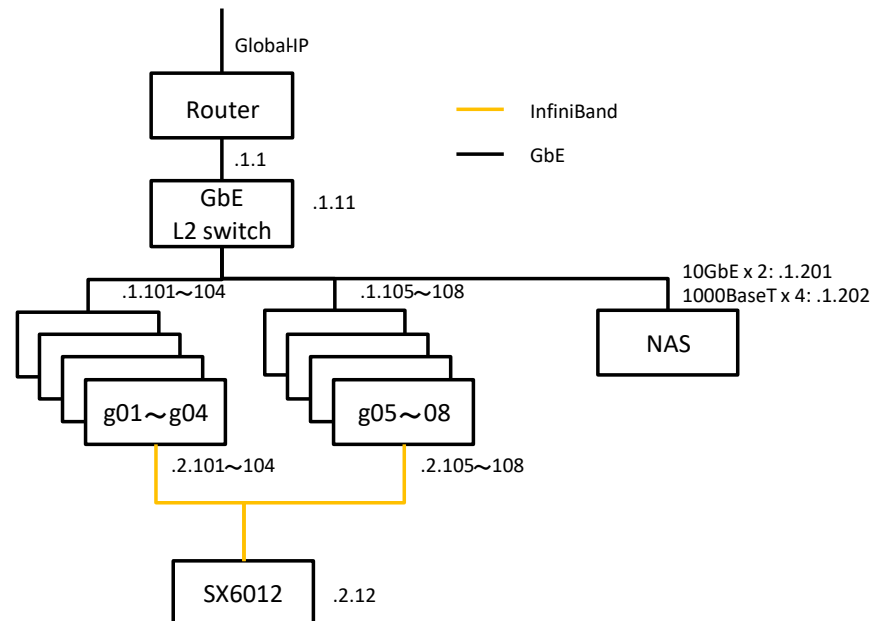
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- Member of the Japan Deep Learning Association (JDLA) since July 19, 2018
  - Contributing to JDLA's activities (advice to governmental organizations and corporations, human resource development, international coordination, dialogues with society, etc.) based on its deep learning and other machine learning know-how accumulated through shogi AI, etc.
  - Contributing to the promotion of business applications for deep learnings as a full JDLA member

- AI (B-to-B) services
  - Forecasting that set sales will more than double in the current fiscal year through a focus on the following 3 areas
  - Construction
    - Establish structural design model through reinforced learning to support designers, etc.
  - Finance
    - Create financial market forecast models
    - Create FX trading model and provide investor trading simulation and evaluation services
  - Entertainment
    - Create high-quality NPCs (non-player characters), adjust game balance, etc.

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- Completed investment of about 50 million yen in proprietary computing server for machine learning in the first quarter (planning total investment of about 200 million yen during the fiscal year)
    - Allows for R&D efforts using larger, more complicated data (e.g. CAD data)
    - Can shorten time required for initial setup in the AI (B-to-B) services
    - Server depreciation costs, etc. will increase but the focus will be placed on continued EBITDA growth

GlobaHP

Router

—— InfiniBand

.1.1

—— GbE

GbE
L2 switch    .1.11

.1.101~104    .1.105~108    10GbE x 2: .1.201
1000BaseT x 4: .1.202

NAS

g01~g04    g05~08

.2.101~104    .2.105~108

SX6012    .2.12

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# Company Overview

**HEROZ JAPAN**

| | |
|---|---|
| **Name** | HEROZ, Inc. |
| **Location** | PMO Tamachi 2F, 5-31-17 Shiba, Minato-ku, Tokyo |
| **Established** | April 2009 |
| **Paid-in Capital** | 259 million yen (as of 7/31/2018) |
| **Representatives** | Takahiro Hayashi/Tomohiro Takahashi |
| **Business Description** | AI (B-to-B) services: HEROZ Kishin<br>AI (B-to-C) services: Shogi Wars, etc. |

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

**2017**
Capital and business alliances with Takenaka Corporation, Hearts United Group, and Koei Tecmo Games

**2016**
Awarded the JVA2016 Small and Medium Enterprise Agency Commissioner Award
Capital and business alliance with Bandai Namco Entertainment

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

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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

**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
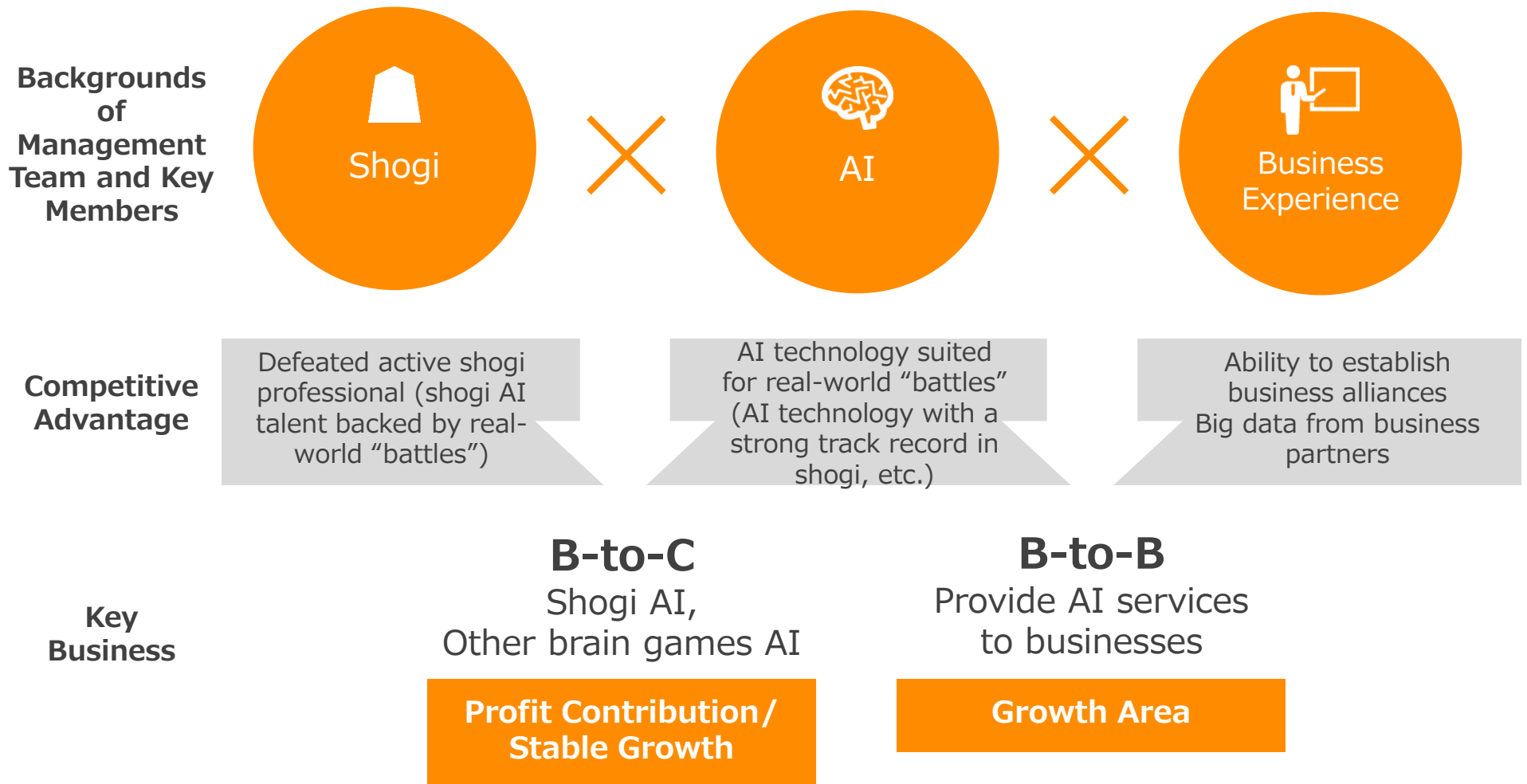Founded HEROZ

Director and CFO, Business Planning Manager
## Daisuke Asahara

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

# HEROZ's Competitive Advantages

**Backgrounds of Management Team and Key Members**

Shogi ✕ AI ✕ Business Experience

**Competitive Advantage**

Defeated active shogi professional (shogi AI talent backed by real-world "battles")

AI technology suited for real-world "battles" (AI technology with a strong track record in shogi, etc.)

Ability to establish business alliances Big data from business partners

**Key Business**

**B-to-C**
Shogi AI,
Other brain games AI

**Profit Contribution/ Stable Growth**

**B-to-B**
Provide AI services
to businesses

**Growth Area**

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