

Digital Hearts Holdings (3676)

Two growth engines to tap

10 July 2024

Initiating coverage

- **Re-emerging growth trajectory** – Digital Hearts Holdings is a provider of QA testing for corporate customers, the second-largest in Japan by market cap. After a volatile FY3/24, the company expects to return to double-digit growth and margin expansion this year in preparation for the spin-off in 2025 of its enterprise-focused businesses (AGEST Group). Similar growth rates are expected over the medium term due to the expansion of services, the provision of a wide range of adaptable solutions, and the tailwind of an acceleration in AI-driven demand for data collection and tagging.

Returning to growth while maintaining profitability

- **After a rocky FY3/24, management expects a return to meaningful growth both this year and in the medium term** – The company expects revenue growth to accelerate from 6% in FY3/24 to 14% in FY3/25 as entertainment sales rebound and enterprise sales maintain mid-teens growth. Margins should improve on operating leverage.
- **Plans to spin off its enterprise segment in 2025** – The company is on track to spin off AGEST Group, the core subsidiary in its enterprise businesses in 2025. Internal restructuring, including a re-alignment of business lines and management appointments, is mostly complete, and external work (investment bank examinations and TSE approvals) is next on the agenda.
- **An April 2024 investment in Turing Inc. highlights AI heft** – Digital Hearts Holdings was one of eight companies in a funding round for AI-supported autonomous driving Turing Inc. We think there are indirect benefits as the investment highlights the company's prowess in data collection and tagging as industrywide AI-linked revenues accelerate.
- **ESG** – We score the company as 'Amber' under our Astris-Sustainability model scorecard.
- **Valuations** – Shares trade at a reasonable FY3/25 PER of 11.5x and EV/EBITDA of 6.8x for a company growing operating income at double-digit rates.

Year-end	3/23	3/24	3/25E
Sales (¥bn)	36.52	38.79	44.09
OP (¥bn)	3.00	2.04	3.15
NI (¥bn)	0.80	0.18	2.18
EPS (¥)	36.50	7.94	98.05
DPS (¥)	21.00	21.00	21.00
Sales growth YoY (%)	+25.2	+6.2	+13.7
OP growth YoY (%)	+11.3	-32.0	+54.4
NP growth YoY (%)	-55.0	-77.9	+1,134.2
EPS growth YoY (%)	-55.6	-78.2	+1,134.2
PER (x)	30.9	142.1	11.5
EV/EBITDA (x)	6.6	9.0	6.8
EV/Sales (x)	0.8	0.7	0.6
PBR (x)	3.1	3.2	3.2
ROE (%)	10.1	2.1	25.8
ROCE (%)	31.1	22.5	34.1
FCF yield (%)	6.7	3.5	8.3
Dividend yield (%)	1.9	1.9	1.9

Source: Company, Astris Advisory (estimates)

Share price: ¥1,129 Market cap: ¥27.0bn



Source: Bloomberg

Price Performance

	YTD	1M	3M	12M
Abs (%)	+11.7	+3.1	+20.4	-11.5
Rel (%)	-9.2	-1.4	+13.5	-31.7

Company sector

Computer Services
IT Services (GICS)

Stock data

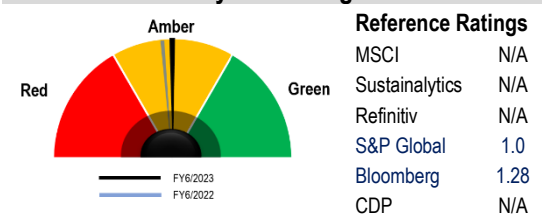
Price (¥)	1,129
Mkt cap (¥bn)	27.0
Mkt cap (\$m)	167.1
52-week range (¥)	818-1,474
Shares O/S (m)	23.9
Average daily value (\$m)	0.5
Free float (%)	48.2
Foreign shareholding (%)	18.0
Ticker	3676
Exchange	Tokyo Prime
Net Debt/Equity (x)	0.0
FFO leverage (x)	0.1
BBG BUY HOLD SELL	1 0 0

Source: Bloomberg

Business Overview

Digital Hearts Holdings provides games debugging services to entertainment companies and software testing and QA services to corporate customers.

Astris-Sustainability ESG rating



Next events

Q1 FY3/25 results August 2024

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This report has been commissioned and paid for by the company.

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Summary

**One of the larger
players in a
fragmented market**

Digital Hearts Holdings was founded in 2001 as a pioneer in the provision of game debugging services and has since built a second business around quality assurance (QA) and testing services for enterprise customers. It is one of the larger companies in a fragmented market and by market cap is the second-largest listed provider of QA testing.

Digital Hearts Holdings will list and spin off AGEST Group the core subsidiary of its Enterprise-focused businesses directly to shareholders as a structurally separate company in 2025 to maximize value and boost its ability to recruit engineering talent.

The company expects growth to accelerate this year and has set the following medium-term segment targets:

DH Group (Entertainment)

- Annual growth of 10%+ including contributions from M&A.
- Annual growth in “global services” of 20%+.
- Operating margins of 10%+.
- ROIC of 15%+.

AGEST Group (Enterprise)

- The company has not set new growth targets after restructuring the segments in advance of the spin-off listing for AGEST Group.

Astris Advisory expects Digital Hearts Holdings to maintain its medium-to-long-term growth rates through the following:

- In DH Group, the company should be able to accelerate global growth by augmenting stable growth in game software debugging services with M&A and business alliances as well as more solution businesses and further geographic expansion. A shift in the sales mix towards more profitable revenue streams should drive margin expansion.
- In AGEST Group, we expect corporate digitization (DX) tailwinds to support core business growth whilst an expansion into what the company calls “shift-left” and “shift-right” segments can increase its addressable market.

The shares currently trade at an estimated FY3/25 PER of 11.5x and EV/Sales of 0.6x, which represents a discount to peers with larger sales.



Company description

Overview

Digital Hearts Holdings has grown from a domestic games debugging company to a global provider of debugging and QA testing services

Digital Hearts Holdings provides debugging services to Entertainment companies and QA and testing services to non-entertainment companies.

The company was founded in 2001 as one of the first to provide game debugging services in Japan. It started to expand overseas in 2011 and the company reorganized into the holding company structure in 2013 to accelerate diversification.

That includes the launching of the enterprise businesses in 2017, supported by internal re-allocation of resources and M&A. As of FY3/24, Enterprise revenue represented 51% of sales up from 11% in FY3/18.

The company plans to list and spin off AGEST Group, the core subsidiary of its Enterprise business to shareholders as a structurally separate company in 2025.

Over 20 years in software debugging and quality assurance

Timeline summary

Key dates	Details
April 2001	Established Digital Hearts Co., Ltd.
October 2003	Became a limited liability company
September 2007	First Japanese company to receive AXTP from Microsoft for Xbox
February 2008	Listed on TSE Mothers
February 2011	Listed on TSE First Section
July -Dec 2011	Established companies in Korea, US, and Thailand
November 2012	Acquired Aetas Inc. and made it a subsidiary
October 2013	Established holding company structure (Hearts United Group)
April 2014	Acquired Premium Agency and made it a subsidiary
July 2016	Established Digital Hearts (Shanghai)
June 2017	Starting with a change of representative director, change of management system. Promoting business expansion in the enterprise business as a second founding phase
August 2019	Made Logigear Corp a subsidiary through acquisition of shares and third party allocation
March 2021	Acquired all shares of Metaps Entertainment and made it a subsidiary
April 2022	Following a group reorganization, enterprise business become AGEST Group, and entertainment business become Digital Hearts (DH) Group
	Transferred from the First Section to the Prime Market of the TSE following a review of the TSE's market classification
May 2023	Preparations began for a share-distribution-type spin-off and listing of AGEST, Inc., core subsidiary of the enterprise business.
January 2024	Group reorganization of operating companies in the enterprise business to become direct subsidiaries of AGEST, Inc.,
April 2024	Investment in Turing Inc.

Source: Company

Business segments

Digital Hearts Holdings has two main segments:

Enterprise segment – This segment includes QA solutions and IT support for enterprises driven by trends toward corporate digitization. As demand for QA expands across the board due to the increasing complexity of software, Digital Hearts Holdings maintains its test automation tools and has engineers with strong automation skills. Furthermore, the company supports shift-left/shift-right, which is not supported by other third-party verification, while utilizing its strong relationships with software testing experts who are active globally.

Entertainment segment – This segment houses game debugging services for entertainment content, mostly online games (consoles and smartphones) although this could expand to include new areas like augmented reality (AR), metaverse, and non-fungible tokens (NFTs). The company also provides translation and localization for global titles and marketing support for title launches overseas.

Segmental details

Service Line	Description	Example product list/technologies
Entertainment business	- Domestic debugging services – Verifying and finding bugs for console/smartphone games in Japan	- Debugging services for console and mobile games
	- Global and others – Services for the deployment of games overseas	- Translation and linguistic quality assurance (LQA) of game software - Marketing support - Game development and 2D/3D graphic production - Operation of the general game information site 4Gamer.net - Related customer support
Enterprise business	- QA solution – quality assurance for enterprise customers including testing, security, and system development	- Verification of web systems, business systems, etc. - Test automation support - Security testing - Installation support for ERP software - System development
	- IT services/other	- Engineering dispatch (SES) - Maintenance and operational support - Security monitoring

Source: Company

The company plans to spin off its Enterprise segment (AGEST Group) to shareholders in 2025

The company decided in April 2022 that it would split its two operating segments into separate companies to maximize corporate value. As of FY3/24, the company has completed nearly all of the internal processes and remains on track for a share distribution spin-off and listing in 2025. After the spin-off, shareholders will own shares in two listed entities.

Other options were considered including a partial spin-off of the business with Digital Hearts Holdings keeping a stake and full or partial sales of the AGEST Group and DH Group segments. In the end, the company decided that a share-distribution-type spin-off and listing was the option that best met its goals.

Alongside the restructuring, the company has announced a new management structure as of 1 April 2024 with founder Eiichi Miyazawa as Representative Director and Chairman and Toshiya Tsukushi as Representative Director, President, and CEO of DIGITAL HEARTS HOLDINGS Co., Ltd.



New segment reporting based on the internal reorganization of assets

Digital Hearts Holdings has implemented various measures including building up head office functions through redeployment of human resources. Ahead of the AGEST Group spin-off and listing there is a new segment reporting from FY3/25. The net result is higher sales (c. ¥4.3bn) for the Entertainment segment (DH Group), which picks up the IT engineer platform service and outsourced software debugging (including some outsourced AGEST Group operations) revenue from the Enterprise segment. It also picks up the holding company expenses (¥1.6bn) that had previously been held separate from segment results.

Segment adjustments shift revenue and expense to DH Group

	FY3/24 previous segments		FY3/24 new segments	Change
Sales (¥bn)	38.8	Sales (¥bn)	38.8	
Entertainment	19.2	DH Group	23.5	+4.3
Enterprise	19.7	AGEST Group	16.0	-3.7
OP (¥bn)	2.0	OP (¥bn)	2.0	
Entertainment	3.3	DH Group	1.7	-1.6
Enterprise	0.4	AGEST Group	0.3	-0.1
Adjustments	-1.7	Adjustments	-	-

Source: Company

Astris thoughts on the spin-off

At first glance, a split into two separate companies seems like a surprising move for a ¥20bn market cap company but there are reasons it makes sense. Operationally, putting the QA testing/support assets into a separate company should help with engineer recruitment, not just for branding but for the eventual use of stock options. It could also help with valuation as QA testing companies, which tie into the corporate DX-driven sector growth theme, tend to be valued at higher multiples.

Investment in Turing Inc. and development of ELLA highlights AI heft

Digital Hearts Holdings participated in an April 2024 funding round for generative AI-based, autonomous driving company Turing Inc. DH Group already has experience in data collection and tagging for autonomous driving, and the demand for these services has increased rapidly in recent years, and the DH Group has planned to expand this business.

There are other examples of DH Group's AI expansion. Last September, the company signed a joint development agreement with AI machine translation company Rozetta Corp. for a multilingual translation engine called ELLA (Expressive Localization and Linguistic AI). Similarly to generative AI, ELLA uses contextual clues to make translation more natural and could significantly reduce the time to process 1 million characters compared to when done by humans.

AGEST Group is actively introducing AI technology in AI Debug for Enterprise and AI Technical Code Review.



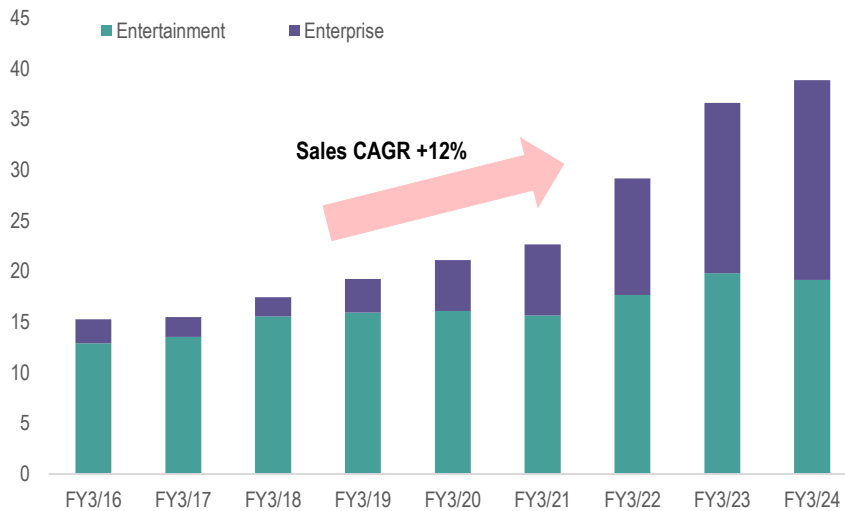
AI Debug for Enterprise also uses AI to detect problems in source code at an early stage, reducing development man-hours and enabling a reduction in man-hours for QA testing. Furthermore, AI Technical Code Review also uses AI for code review, enabling improved accuracy while reducing the time required.

Trends in sales

The company has seen sales growth of 12.6% CAGR (FY3/16-FY3/24) over the last 8 years, driven by an acceleration in growth for its Enterprise segment. Revenue in the core Entertainment segment was flat from FY3/18 to FY3/21 as management prioritized growth for the other segment.

Enterprise sales have supported top-line expansion

Annual sales trend (¥bn)

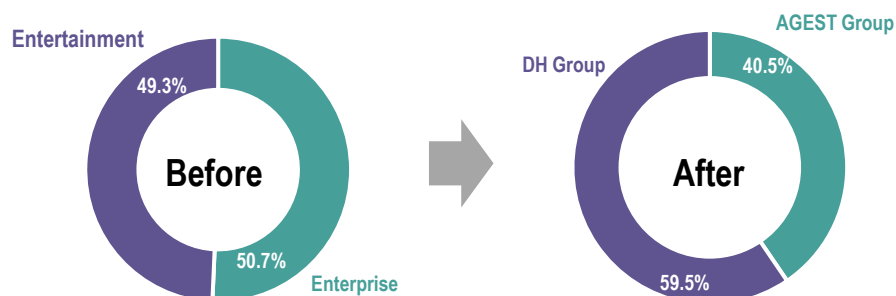


Source: Company

As of FY3/24, Digital Hearts Holdings generated 49% of sales from its core Entertainment segment and 51% from Enterprise sales. Pro forma the new segment presentation, DH Group (Entertainment) represents 60% of sales with the remaining 40% at AGEST Group (Enterprise).

Change in segment revenue split

FY3/24 sales split by segment before (left) and after (right) change in segment assets



Source: Company

S



As of FY3/24, about 15% of revenue came from overseas sales, where translation, LQA, and marketing services are sold through overseas subsidiaries to both overseas clients and overseas support to domestic clients.

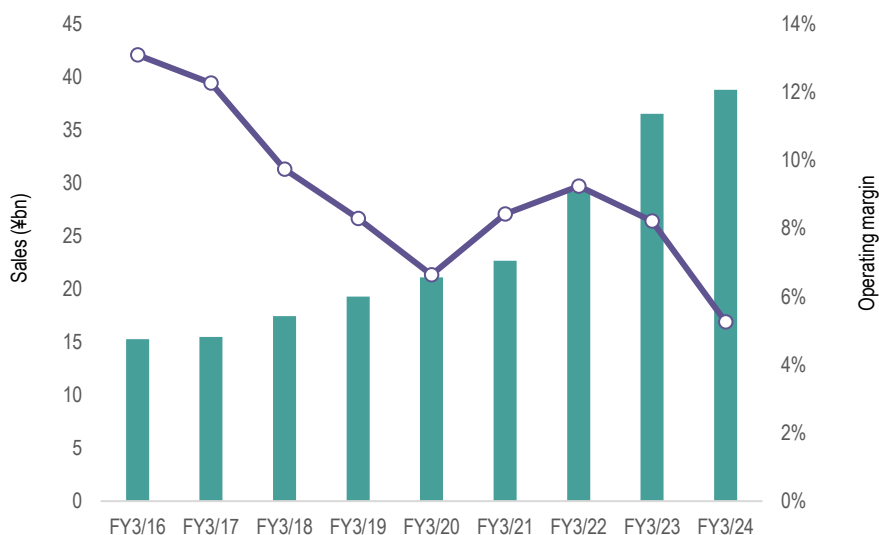
Trends in profitability

FY3/24 was a challenging year in terms of profitability due to one-time factors including tough comparables as FY3/23 results included exceptional growth in high-margin debugging revenue, while ¥370mn in spending for spin-off listing preparation also had a material impact.

Guidance for FY3/25 calls for a rebound in profitability with management guidance suggesting a 1.8pp improvement in operating margins to 7%.

Margin weakness as growth investment ramped up

Annual OPM trend (%) with sales



Source: Company



Management philosophy

Aims to SAVE the DIGITAL WORLD

The company's management philosophy is "SAVE the DIGITAL WORLD" reflecting its focus on helping its clients improve the quality of the software they develop, mainly debugging and testing services.

- In its Entertainment segment, the company aims to take Japanese quality to the world. It has leveraged its experience as a pioneer in third-party game debugging in Japan to launch operations in major overseas markets like the US, China, Korea, and Europe.
- In its Enterprise segment, the company would like to develop new standards in Japan using world-class technologies. Despite its small scale, AGEST Group is one of the few Japanese companies with QA specialists on hand.



Business model

Key concepts and unique selling points

The company operates on a direct sales model in both segments:

Entertainment

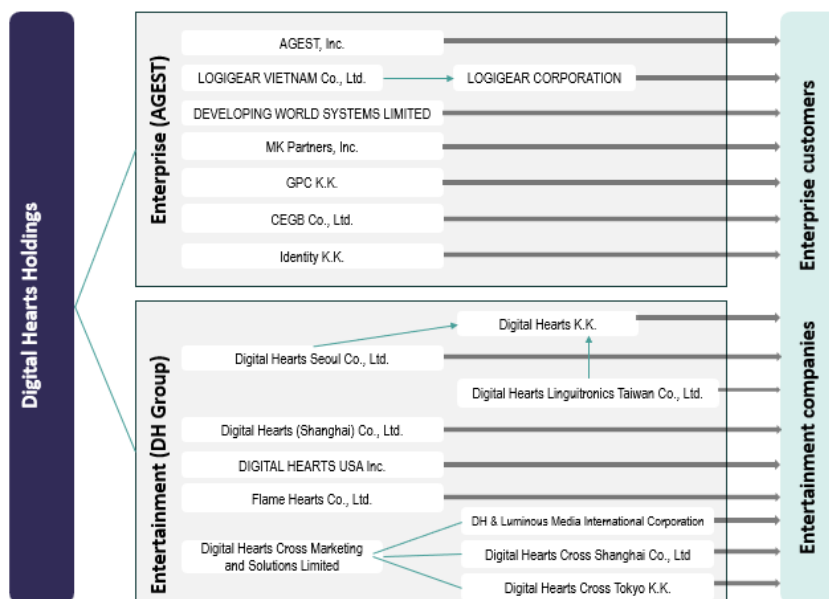
- The main business is providing debugging services to gaming companies. For console games, revenue growth depends on the number of titles, their relative complexity, and their scale. In comparison, mobile games have debugging service needs when updates are released.
- The company has expanded geographically (US, Europe, China, Taiwan, Korea, etc.) and into adjacent business lines like localization, translation, and marketing support.

Enterprise

- A shortage of engineering talent has opened the door for third parties to provide QA testing for corporate customers who cannot support this in-house.
- The company has expanded the services it offers beyond the manual testing offered by typical third-party testing companies to “shift-left” (involvement in the planning and design phase of software development) and “shift-right” (participation in software release and operations) areas, expanding its usefulness to enterprise customers and expanding its addressable market.
- By constantly incorporating technological improvements, the company can improve and expand its services, leading to customer satisfaction.

Workflow

High-level workflow overview



Source: Company. As of March 2024

Competitive advantages

Global expansion and technology investments boost opportunities and efficiencies

We believe the company has the following competitive advantages

Entertainment

- **In debugging, the customer base tends to be sticky** due to growing demand for third-party QA and creative global support. That includes test terminals (7,177 smart devices and 3,236 games consoles) and a pool of registered testers (c. 8,000). DH Group believes it held 67% of the console games market as of FY3/24.
- **Overseas expansion** is supported by the simultaneous global release of games becoming the norm, increasing demand for translation, LQA and marketing. The company can use the know-how it has developed in the games industry as a strength to expand overseas.
- **The company is building its AI prowess** which should help with top-line growth and better margins. Recent moves include an alliance with Rozetta Corp. on AI-driven machine learning translation (ELLA) and an investment in generative AI autonomous driving start-up Turing Inc.

Enterprise

- **Global best practices** – The Enterprise segment benefits from global exposure as it can leverage that to bring best practices from overseas to the domestic market.
- **AI resources drive efficiencies and provide a competitive advantage.** In addition to AI-supported test automation tools, the company has 400 engineers in Vietnam skilled in automation over manual testing and global relationships with testing experts it can leverage to support its expansion into new services and relationships with global test experts.

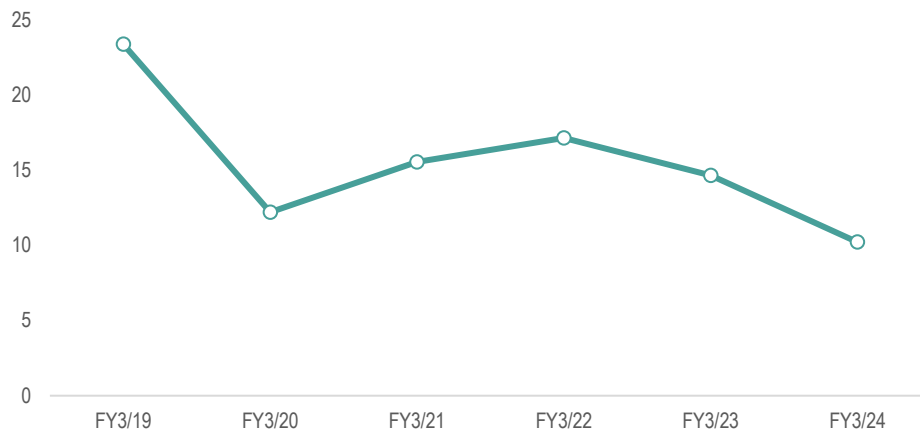


ROIC

We look at ROIC as a key measure of a company's ability to generate value and Digital Hearts Holdings scores relatively high on this metric with returns well ahead of its cost of capital, even in years where performance has slipped.

Management has mostly met internal targets of 15% ROIC

ROIC (%)



Source: Bloomberg



Peer group analysis

Digital Hearts Holdings operates in a fragmented market with many rivals but few that are large enough to justify a public listing. The companies that have grown into public valuations have usually reached that stage with a unique set of assets making pure-play comparables hard to come by.

- **Domestic companies** – Three companies operate in the same or adjacent segments to Digital Hearts Holdings’ core businesses. The largest is SHIFT, with whom Digital Hearts Holdings competes within the Enterprise segment. Pole To Win (PTW) Holdings is Digital Hearts Holdings’ main listed competitor in the Entertainment segment.
- **Overseas companies** – Keywords Studios Plc is Ireland-based and provides game debugging as well as related services such as game development support, translation, and LQA. The company has a global footprint including offices in Japan.

Domestic companies

Company	Description
SHIFT, Inc.	Japan’s largest supplier of QA and testing services for Enterprise customers
Pole To Win Holdings, Inc.	Provides game debugging, localization, and overseas expansion support
VALTES Holdings Co., Ltd.	Offers software testing and security services to corporate clients

Source: Companies, Bloomberg

Overseas companies

Company	Description
Keywords Studios Plc	Provides game debugging and services such as localization and support for overseas expansion for entertainment companies

Source: Companies, Bloomberg

Core findings

- **Profitability** – Industry-wide operating margins for the segments in which Digital Hearts Holdings operates are in the 10% range with scale benefits allowing larger companies to post better results. In recent years, Digital Hearts Holdings has come in below that as it invested to grow its Enterprise segment but overall profitability is expected to improve now that the business has reached scale.
- **Valuations** – On the aggregate, domestic peers trade at a modest premium to Digital Hearts Holdings at 1x EV/sales versus 0.5x but that may be skewed by size as larger peers like SHIFT (and Keywords Studios Plc overseas), trade at higher relative multiples (both are 2.0x+ EV/sales and 20x+ PER) whilst small caps trade at less than 1x sales and single-digit PER.
- **Sustainability of earnings (5-year track record)** – On average, the peer group has posted double-digit revenue, EBIT and EPS over the last five years with companies that that have a greater proportion of QA/enterprise sales performing better.
 - Revenue growth at DH Group has been slower when compared to pure-play QA companies as it generates material revenue from the more mature games debugging business.
 - Margins at AGESE Group have been lower than average as the company invests for growth but management believes sustainable improvement will



kick off this year. An impairment loss and costs related to the spin-off listing have also impacted profitability but the company is moving past this.

Double-digit revenue growth and margin improvement set the stage for multiple expansions.



Sector has experienced steady high profitability, with valuation premiums reflected on market leaders

Peer analysis of key profitability and valuation metrics

Ticker	Company	Mkt Cap US\$ (m)	Profitability				Valuation					
			OPM LTM (%)	OPM 10-yr average (%)	ROE LTM (%)	ROIC 10-yr average (%)	EV/EBITDA 12M Fwd (x)	EV/Sales 12M Fwd (x)	Div yield 12M Fwd (%)	FCF yield 12M Fwd (%)	PER 12M Fwd (x)	PBR (x)
3676 JP	DIGITAL HEARTS HOLDINGS Co., Ltd.	131	5.2	9.3	2.1	9.4	-	0.5	2.4	-	9.3	2.4
<i>Domestic companies</i>												
3697 JP	SHIFT, Inc.	1,875	11.2	8.8	23.5	13.2	15.5	2.1	0.0	-	26.5	10.1
3657 JP	Pole To Win Holdings, Inc..	102	0.8	10.4	-12.9	11.2	-	0.2	3.5	-	99.2	1.2
4442 JP	VALTES Holdings CO., LTD.	57	8.1	6.5	19.8	21.8	-	0.7	0.0	-	11.6	3.2
Average		678	6.7	8.6	10.1	15.4	15.5	1.0	1.2		45.7	4.8
<i>Overseas companies</i>												
KWS LN	Keywords Studios Plc	2,226	9.5	11.1	3.4	7.5	11.9	2.3	0.1	2.5	20.3	3.4
Average		2,226	9.5	11.1	3.4	7.5	11.9	2.3	0.1	2.5	20.3	3.4

Source: FactSet, Bloomberg, Astris Advisory

Note: LTM is the last 12 months



Strong demand has driven revenue growth
Peer analysis of track record – growth (5-year CAGR) and change (2018-2023)

Stock	Name	Growth 5-year CAGR (%)						Change over the last 5 years			
		Sales	EBIT	Net Income	EPS	BPS	Total assets growth	Chg. in GPM	Chg. in FCF margin	Chg. in ROE	Chg. in ROA
3676 JP	DIGITAL HEARTS HOLDINGS Co., Ltd.	15.04	4.89	-35.42	-35.67	11.45	16.49	-2.36	-1.30	-36.49	-16.24
Domestic											
3697 JP	SHIFT, Inc.	47.07	64.60	76.15	69.29	59.69	51.33	4.25	1.61	5.41	7.48
3657 JP	Pole To Win Holdings, Inc.	14.60	-	-	-	2.52	9.47	-8.60	-10.31	-29.56	-20.80
4442 JP	VALTES Holdings CO., LTD.	25.88	34.36	28.48	29.72	48.48	35.81	-1.60	-2.14	-23.57	-3.49
Average		29.18	49.48	52.32	49.51	36.90	32.21	-1.98	-3.61	-15.90	-5.60
Overseas											
KWS LN	Keywords Studios Plc	25.06	12.75	5.65	0.99	19.32	26.38	-3.10	0.63	-4.93	-3.47
Average		25.06	12.75	5.65	0.99	19.32	26.38	-3.10	0.63	-4.93	-3.47

Source: FactSet, Bloomberg



Balance sheet

With an asset-light business model, companies in the software debugging and testing sector carry little debt and have respectable liquidity ratios.

- **Liquidity** – The company’s liquidity is in line with global peers although Japanese peers appear to carry more cash with an average 1.7x current ratio.
- **Leverage** – Software debugging and testing companies are conservative with net debt to equity close to zero with the Japanese companies carrying net cash balances.

Like many of its peers, Digital Hearts Holdings has been mindful of leverage with little net debt. That comes despite an aggressive M&A strategy, which it largely pursues by limiting deal size to what can be accomplished with free cash flow.

The sector’s balance sheet averages point to financial stability

Liquidity, leverage, and capital efficiency

Company	Liquidity		Leverage					Efficiency			
	Current ratio (x)	Quick ratio (x)	Net debt to equity (x)	Net debt to EBITDA (x)	Interest cover (x)	Total debt to capital (%)	Equity ratio (%)	Asset turnover (x)	Inventory turnover (x)	Inventory days	Cash cycle (days)
DIGITAL HEARTS HOLDINGS Co., Ltd.	1.1	1.1	0.0	0.1	156.5	45.7	39.9	1.9	1012.3	0.4	-
<i>Domestic</i>											
SHIFT, Inc.	1.4	1.4	-0.2	-0.4	476.5	29.6	51.4	1.9	75.8	4.8	34.5
Pole To Win Holdings, Inc.	1.7	1.6	-0.2	-1.8	121.1	27.5	55.0	1.8	54.6	6.7	-
VALTES Holdings CO., LTD.	2.0	-	-0.3	-0.7	154.6	26.1	52.4	2.2	-	-	-
Average	1.7	1.5	-0.2	-1.0	250.8	27.7	52.9	2.0	65.2	5.7	34.5
<i>Overseas companies</i>											
Keywords Studios Plc	1.1	1.1	0.2	0.8	17.3	22.5	60.1	0.9	-	-	-
Average	1.1	1.1	0.2	0.8	17.3	22.5	60.1	0.9			

Source: Refinitiv, FactSet



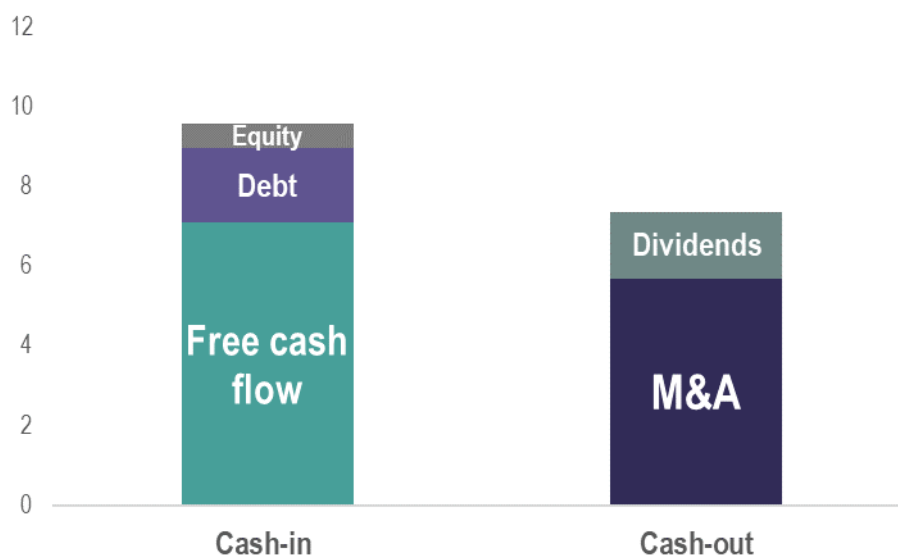
Capital allocation

Over the last five years, Digital Hearts Holdings has generated positive free cash flow on an annual and aggregate basis.

- **Consistent operating free cash flow** - The company has generated positive operating free cash flow every year, supported by annual sales growth despite volatility in operating margins.
- **Acquisitions as a capex proxy** – A majority of the incoming cash has been allocated to M&A activity, which it has used to drive top line growth, which is a standard industry practice. To provide context, annual cash allocations for acquisitions have generally been larger than capital investment. Over the last year, the company has slowed down the pace of acquisitions on the Enterprise side as it prepares for the spin-off of AGEST Group.

Growth investments in M&A have been a priority

5-year cumulative capital generation and allocation (¥bn, FY3/19 – FY3/23)



Source: Company

Outlook for free cash flow generation and capital allocation

We do not expect any changes to company policy on capital allocation, which depends on acquisitions to expand the addressable market and contribute to revenue growth.



Recent results

FY3/24 results

FY3/24 fell modestly short of the revised guidance issued in Q2

Key financials

(¥bn)	FY3/23	FY3/24	YoY (%)	FY3/23 guidance	YoY (%)
Sales	36.52	38.79	6.2	40.00	9.5
Gross profit/(loss)	10.63	10.09	-5.1		
Gross margins (%)	29.12	26.01			
SG&A costs	7.63	8.05	5.5		
Operating profit/(loss)	3.00	2.04	-32.0	2.50	-16.7
Operating margins (%)	8.2	5.35			
Recurring profit	3.15	2.06	-1.09	2.56	-18.8
Net income attributable to the parent	0.80	0.18	-77.9	0.55	-31.2

Source: Company

Segment performance

Per business segment (pre-elimination)

(¥bn)	FY3/23	FY3/24	YoY (%)
Sales	36.52	38.79	+6.2
Entertainment	19.8	19.2	-3.2
Domestic debugging	13.4	12.7	-5.4
Global and others	6.4	6.5	+1.3
Enterprise	16.8	19.7	+17.1
QA solution	10.5	13.4	+27.5
IT services and other	6.4	6.4	-0.1
Other	-0.1	-0.1	-24.4
Segment profit (loss)	3.0	2.0	-32.0
Entertainment	4.2	3.3	-21.1
Enterprise	0.6	0.4	-33.8
Adjustments	-1.9	-1.7	-7.8
Segment profit margin (%)	8.2	5.3	
Entertainment	21.3	17.3	
Enterprise	3.8	2.1	
Adjustments	-5.1	-4.4	

Source: Company

Key highlights

FY3/24 results came to light on lower entertainment revenue even as operational costs expanded and the company booked a one-time impairment charge for weak operations at a US subsidiary.

Although revenue missed management's initial expectations, it still expanded 6% YoY and kept the company's track record for constant growth intact.

Margins were impacted by the sales mix as the company lapped especially strong debugging revenue a year ago, whilst investments in AI-related projects and expenses related to the spin-off listing added further pressure. The company also took a one-time ¥1bn impairment charge in Q2 for weakness in a US subsidiary.

- Results in the Enterprise segment (AGEST Group) provided some support for the overall business as revenue grew 17% driven by a 28% increase in sales from the QA solution subsegment. The latter was driven by 18% organic growth on demand generated from corporate DX and the addition of shift-left services. Segment income fell on a headline basis but would have been slightly higher YoY without ¥300mn in costs related to the AGEST Group spin-off.
- Entertainment segment (DH Group) sales fell 3% in FY3/24 on a 5% reduction in domestic debugging revenue offset by a 1% higher global contribution. Segment income fell 21% on the impact of lower sales in high-margin domestic debugging, and a lower gross margin due to investments in global business expansion.

FY3/25 guidance

Management has issued encouraging guidance for FY3/25 including a return to double-digit revenue growth and material margin expansion.

FY3/25 should look much better

Key financials

Year-end	FY3/24 pro forma results	FY3/25 guidance	YoY (%)
Sales (¥bn)	38.79	44.10	13.7
DH Group	23.49	25.72	9.5
AGEST Group	15.98	18.38	15.0
OP (¥bn)	2.04	3.10	52.0
DH Group	1.73	2.04	17.6
AGEST Group	0.31	1.06	247.0
Net income to parent (¥bn)	0.18	2.10	1,086.9

Source: Company



Medium-term targets

Financial targets

There is not a formal medium-term plan as the company has reorganized its segments into DH Group and AGESE Group. We expect the company is aiming for double-digit sales growth and profit margin expansion on a consolidated basis over the medium term.

This is a milestone year as the company believes it finished preparations for value creation in FY3/24 as the spin-off and listing of AGESE Group approaches. With that done, the company is aiming to maximize the corporate value of both DH Group and AGESE Group as two independent listed companies.

DH Group (Entertainment)

- Annual growth of 10%+ including contributions from M&A
- Annual growth in “global services” of 20%+
- Operating margins of 10%+
- ROIC of 15%+
- The company’s qualitative goal is to be a global quality partner to the Entertainment Industry as it shifts to a growth trajectory.

AGESE Group (Enterprise)

- The company has not set new growth targets after restructuring the segments in advance of the spin-off listing for AGESE Group.
- The company aims to be the leading QA solution provider in the global market with leading-edge technology.

Our commentary on the medium-term plan

Astris Advisory expects Digital Hearts Holdings to meet its targets by doing the following:

- In Entertainment (DH Group), the company can augment sector growth with both business (game debugging) and geographic (Europe, US, India) expansion, supported by a mixture of M&A and business alliances. A shift in the sales mix towards more profitable revenue streams should drive margin expansion. There is also less need for sales and marketing expenses as the company has already built up its customer base of domestic games companies.
- In Enterprise (AGESE Group), we expect corporate digitization (DX) tailwinds to support core growth whilst an expansion into the shift-left and shift-right services can increase its addressable market.
- In terms of profitability, the Enterprise segment (AGESE Group) has moved beyond the initial investing-for-growth stage where upfront costs for recruitment, education, and sales promotion costs were higher. These costs don’t go away but they do become more manageable.



Shareholder returns

Digital Hearts Holdings has forecast a dividend of ¥21/share for FY3/25, in line with its policy of a minimum payout of 20%. The company generally looks to increase dividends steadily without reductions.

Going forward, there are unlikely to be any changes to the policy on shareholder returns until the spin-off listing of AGEST Group in 2025. At that point, the company will have decisions to make on two companies and returns may differ as the cash generation and business lifecycle stages are not alike.

M&A

Digital Hearts Holdings has been a prolific user of M&A to build its business and we expect it will continue to do so as the industry remains fragmented. Data from the IT Promotion Agency indicates that listed companies, which are the largest in the industry, have only captured 1% of the software testing market.

In recent years, Digital Hearts Holdings has used M&A to acquire engineering talent (ANET Corporation, TPP SOFTWARE COMPANY LIMITED, identity Inc.) and technological capabilities (GPC K.K., DEVELOPING WORLD SYSTEMS LIMITED, CEGB Co., Ltd., MK Partners, Inc.) for the Enterprise business, and boost localization prowess (DIGITAL HEARTS CROSS Marketing and Solutions Limited) and expand overseas (Korea, Taiwan, China) for the Entertainment business.



Astris earnings estimates and key assumptions

Our forecasts assume a return to double-digit growth, supported by corporate DX tailwinds and the end of the investment phase at AGESt Group, and renewed growth for the entertainment segment. We expect a corresponding improvement in margins on operating leverage.

Our key earnings forecasts are as follow:

We forecast a return to double digit growth and margin expansion

Astris Advisory earnings estimates

FY3/24 results are stated pro forma the introduction of new segments

Year-end	FY3/24 pro forma results	FY3/25 guidance	FY3/25E
Sales (¥bn)	38.8	44.1	44.1
Growth YoY (%)	6.2	13.7	13.7
DH Group	23.5	25.7	25.7
Growth YoY (%)		9.5	9.5
AGESt Group	16.0	18.4	18.4
Growth YoY (%)		15.0	15.0
OP (¥bn)	2.0	3.1	3.1
Growth YoY (%)		52.0	52.8
DH Group	1.7	2.0	2.1
Growth YoY (%)		17.6	18.7
AGESt Group	0.3	1.1	1.1
Growth YoY (%)		247.0	261.4
EBITDA (¥bn)	3.1		4.1
Growth YoY (%)	-26.3		31.6
Net income (¥bn)	0.2	2.1	2.2
Growth YoY (%)	-77.9	1,087	1,134
FCF (¥bn)	1.0	-	2.3
FCF Margin	2.5%	-	5.2%
FCF Yield	-	-	9.2%

Source: company

The core assumptions for our estimates are as follows:

- **Revenue growth accelerates** – We forecast a continuation of mid-teens growth at AGESt Group augmented by a return to high single-digit growth for the DH Group. This should drive double-digit, consolidated top-line growth through FY3/26.
- **Profitability** – We expect margin improvement driven by operating leverage at the DH Group as high-margin debugging revenue expands whilst AGESt Group margins should rise as it moves past spending for the spin-off next year.
- **Free cash flow generation** – Higher profitability and low capex point to higher free cash flow generation going forward.

Company information

Management (9 members, 22% female ratio, 55% outside members)

Representative Director and CEO/President	Toshiya Tsukushi
Number of shares held	13,605
Career history	
April 1989	Joined Showa Shell Sekiyu Co., Ltd. (now Idemitsu Kosan Co., Ltd.)
September 1995	Joined Pricewaterhouse Consultants Co., Ltd. (now IBM Japan Co., Ltd.)
July 1999	Joined General Electric Capital Consumer Finance Co. Ltd. (now Shinsei Financial Co., Ltd.)
December 2005	Executive officer
September 2006	Nissen Holdings Co., Ltd. Executive officer, Business Development Group Head
March 2008	Director, Executive officer, Head of Financial Planning Office
June 2009	Director, Executive officer, CFO
June 2017	Digital Hearts Co., Ltd. Executive officer and CFO
October 2017	Director, Management HQ, Digital Hearts Co., Ltd.
June 2018	Director and CEO of Digital Hearts Holdings Co., Ltd.
March 2020	Flame Hearts Co., Ltd. Representative Director, and President (current)
March 2021	Metaps Entertainment Ltd., Director (now Digital Hearts Cross Marketing and Solutions)
April 2021	Director, Global Head of Digital Hearts Co., Ltd.
June 2021	Director, Vice President, and CFO
April 2022	Digital Hearts Co., Ltd., Representative Director, and President (current)
April 2022	Director of AGEST, Inc.
April 2023	Director, Vice President and COO
April 2024	Representative Director, President and CEO

Representative Director and Chairman	Eiichi Miyazawa
Number of shares held	9,423,655
Career history	
April 2001	Established Digital Hearts Co., Ltd. as Representative Director, and President
May 2006	Representative Director, President, and CEO of Digital Hearts Co., Ltd
October 2013	Representative Director, President, and CEO of Digital Hearts Holdings Co., Ltd.
June 2017	Chairman of the Board (current)
April 2024	Representative Director and Chairman of the Board

Director / Independent	Takashi Yanagiya
Number of shares held	10,000
Career history	
October 2001	Managing Director, Nomura Securities Co., Ltd.
April 2002	Representative Director and Senior Managing Director
June 2003	Representative Executive Officer and Senior Managing Executive Officer
April 2006	Representative Executive Office and Vice President
April 2008	Executive Vice Chairman
October 2008	Vice Chairman
April 2012	Standing advisor
August 2012	Company advisor
March 2013	Retired from that company
June 2013	Outside Director of Alpha Systems Co., Ltd. (current)
June 2014	Outside Director of the company (current)
June 2015	Outside Director of Showa Sangyou Co., Ltd.
May 2016	Meiji University Educational Corp Chairman (current)
May 2016	Nakano Gakuen Educational Corp Chairman (Current)

Director / Independent	Emiko Murei
Number of shares held	-
Career history	
April 1992	Joined Chuo Shinko Audit Corporation
March 1995	Certified Public Accountant Registration (until May 2005)
February 2006	Re-registered as a certified public accountant (to date)
	Director of Murei Certified Public Accountant Office (current position)
April 2007	Specially Appointed Associate Professor, Graduate School of Accounting, University of Hyogo
April 2009	Associate Professor, Graduate School of Accounting, same university
April 2012	Associate Professor, Aoyama Gakuin University Graduate School of Professional Accounting
June 2015	Outside Director (Audit and Supervisory Committee Member) of Kansai Supermarket Co., Ltd. (now Kansai Food Market Co., Ltd.)
June 2022	Outside Director of the company (current)
April 2023	Professor, Aoyama Gakuin University Graduate School of Professional Accounting (current)

Director	Ryo Chikasawa
Number of shares held	-
Career history	
September 2008	Registered as a lawyer (Daini Tokyo Bar Association)
	Joined Mori Hamada & Matsumoto Law Office
January 2019	Partner (current)
June 2022	Outside Director of the company (current)

Audit	Masahide Date
Number of shares held	24,000
Career history	
September 1996	Joined Kaibundo Publishing Co., Ltd.
April 2002	Joined Digital Hearts Co., Ltd.
April 2003	Manager of Accounting Department, Administration Department
July 2005	Full-time Audit and Supervisory Board Member
October 2013	Full-time Audit and Supervisory Board Member of the holding company (current)

Audit	Keiya Kazama
Number of shares held	-
Career history	
October 2001	Joined Audit Corp Tohmatsu (currently Tohmatsu Limited Liability Audit Corp)
June 2005	Registered as a certified public accountant (current position)
July 2007	Joined Koyano Certified Public Accountant Office
April 2010	Registered as a tax accountant (current position)
	Joined Digital Hearts Co., Ltd.
November 2010	Deputy General Manager of the Company's Administration Headquarters
April 2011	General Manager of the Company's Management Headquarters
April 2012	Executive Officer, Head of Finance and Accounting Division
June 2013	Director, Head of Finance and Accounting Division and Human Resources
	In charge of general affairs headquarters
October 2013	Director of Digital Hearts Holdings Co., Ltd.
July 2014	Director and CFO
June 2017	Director
June 2018	Audit & Supervisory Board Member (current)

Audit / Independent	Toshifumi Nikawa
Number of shares held	-
Career history	
April 1966	Joined Mitsubishi Bank, Ltd. (currently Mitsubishi UFJ Bank, Ltd.)
December 1999	Joined Nippon Trust and Banking Corp (currently Mitsubishi UFJ Trust and Banking Corp)
April 2003	Joined Mitsubishi UFJ Trust Business Co., Ltd
June 2008	Digital Hearts Co., Ltd. Audit & Supervisory Board Member
October 2013	Audit & Supervisory Board Member of the Company (current)

Audit / Independent	Yoko Okano
Number of shares held	-
Career history	
October 2002	Registered as a lawyer (Daini Tokyo Bar Association) Joined Tokyo Aoyama & Aoki Law Office (currently Baker & McKenzie Law Office)
May 2006	Joined Gokita & Miura Law Office (current position)
June 2021	Audit & Supervisory Board Member of the Company (current)

Source: Company

Contact details

Address
Tokyo Opera City Bldg. 41F 3-20-2 Nishi-Shinjuku, Shinjuku-ku, Tokyo
IR Department:
Tel: +81-(0)3-3373-0081

Source: Company

Shareholder details (as of March 31, 2024)

Major shareholders	Stake (%)
Eiichi Miyazawa	42.30
Northern Trust Co. (AVFC) RE Fidelity Funds	8.54
A-1 LLC	5.95
The Master Trust of Japan	5.77
Custody Bank of Japan	2.99
State Street Bank and Trust	1.03
J.P. Morgan Bank Luxembourg SA 381593	0.98
Northern Trust Co. (AVFC) RE Non-treaty clients account	0.85
Interactive Brokers LLC	0.85
Taichi Yabu	0.81

Source: Company



Astris Quant Sheet

Share price chart and factor analysis (from May 2014)



Source: FactSet

Factors	2 Year	5 Year	10 year
Momentum: 12 Month - 1 Month Performance	-0.03	0.03	0.12
Quality: Free Cash Flow Yield	0.06	0.32	0.19
Growth: Operating Profit Growth	0.27	-0.04	0.01
Value: Book to Market	0.07	-0.10	-0.01

Source: FactSet

Digital Hearts Holdings' share price has demonstrated some correlation with free cash flow yields over longer time frames but recent performance has correlated more closely with trends in operating profit growth.

Calculation method and definition of factors in the time series

Universe

TOPIX500

Factor return calculation

Quartile Range Analysis: Calculate the element return by subtracting the average performance of the lower quartile from the average performance of the upper quartile for each element forecasted for one month. This analysis is repeated monthly without considering transaction costs.

Factor

Momentum

1-month return

12-month return

Subtracting the most recent 1 month

Quality

FCF yield (estimate)

Growth

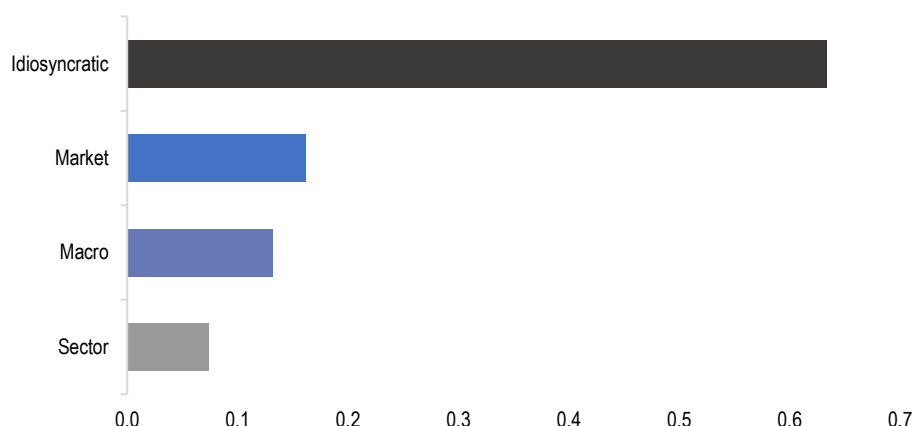
Operating profit growth (estimate)

Value

Book-to-Market ratio (actual)

Source: FactSet

Drivers of stock price performance and multiple regression analysis (since March 2018)



Source: FactSet

Digital Hearts Holdings' share price is mostly driven by company-specific idiosyncratic factors. The market and sector account for only 1/4 of price movements. Macro factors account for 14%, primarily driven by foreign exchange rates.

Calculation method for multiple regression analysis

Multiple regression analysis

Perform regression analysis including all drivers, and conduct individual regression analysis by excluding one driver at a time. To quantify the specific impact of each driver, calculate the partial coefficient of determination (partial R-squared value) using the formula: (Residual Sum of Squares from regression analysis including all drivers - Residual Sum of Squares from regression analysis excluding one driver) / Residual Sum of Squares from regression analysis excluding one driver.

Source: FactSet

Multiple regression analysis results

Factors	2 year	5 year	10 year
Topix 1st Section	0.32	0.46	0.45
Topix Information and Communication Index	0.44	0.43	0.41
Topix Small Cap Index	0.35	0.43	0.44
MSCI Japan	0.32	0.47	0.45
MSCI Japan Information Technology	0.30	0.48	0.42
MSCI Japan Software & Services	0.46	0.51	0.44
Macro			
10Y JGB	-0.06	-0.19	-0.01
CPI Nationwide	0.29	0.02	-0.05
JPYUSD	0.23	0.03	-0.04
Industrial Production	-0.01	0.14	0.03
Eco Watchers Outlook	-0.14	0.20	0.17

Source: FactSet



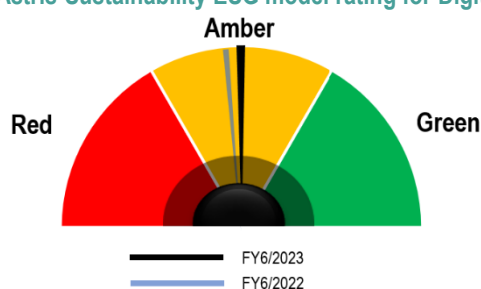
Astris-Sustainability ESG assessment

Ratings and scorecard

Our in-house Astris-Sustainability ESG model rates Digital Hearts Holdings with a combined score of 58.7%, placing it in the ‘Amber’ rating of our assessment in FY3/24.

Our in-house methodology* takes what we have selected as core measurable ESG factors, ranking its performance versus its domestic GICS Software & Services sector with a market capitalization between ¥20bn to ¥50bn (a total of 58 companies).

Astris-Sustainability ESG model rating for Digital Hearts Holdings



Source: Astris Advisory (*Note – for details of our in-house rating system please contact Astris Corporate Advisory)

ESG scorecards

	FY3/23	FY3/24
Environmental (3 factors from a selected peer group)		
Astris Environmental score	79.31	79.31
Social (7 factors from a selected peer group)		
Astris Social score	82.27	82.27
Governance (37 factors from a selected peer group)		
Astris Governance score	49.18	52.35
TOTAL SCORE (Out of a total of 47 factors)	56.2	58.7

Source: Company, FactSet, Astris Corporate Advisory

Our methodology has highlighted the following key topics:

Environmental

The company scored higher than peers on environmental policies helped by support for policies on climate change and scoring relatively high on renewable energy usage.

Social

The company scored higher than peers on social measures supported by a high ratio of women in the workforce and management as well as policies on equal opportunity.

Governance

Corporate governance is organized as follows:

- **Board of Directors** – The company has 5 board members led by CEO Toshiya Tsukushi and includes three outside directors.
- **Audit and Supervisory Board** – The company has four audit and supervisory board members including two outside members.

- **Nomination and Remuneration Committee** – Three of the five committee members are outside directors including the chairman.

Controversies

We note we have been unable to find major controversies that may have significant financial or reputational repercussions for the company and its shareholders.



Areas of discussion

Highlighting key topics for investors

We believe the following will be key areas for discussion:

1. The impact of AI on DH Group's business
 - a. Could the emergence of AI pose a threat to the company's business model?
 - b. Domestic debugging is difficult to automate, what is the impact of generative AI?
 - c. For translation, is there a possibility that less accurate machine learning models will be replaced by more accurate AI models?
 - d. On the Enterprise side, do advances in AI test automation present opportunities for AGEST Group's "shift-left".
2. What opportunities will arise from the evolution of entertainment content?
3. The outlook for human resources – there are two challenges here as inflation drives wage increases in Japan whilst an industrywide shortage of engineers makes recruitment more difficult.
4. How the AGEST Group's "shift-left/shift-right" service can drive sales



JGAAP Financial Summary

Income statement (¥bn)	FY 3/23	FY 3/24	FY 3/25E
Sales	36.52	38.79	44.09
COGS	25.89	28.70	32.19
Gross profit	10.63	10.09	11.90
Gross profit margin (%)	29.1	26.0	27.0
Operating profit	3.00	2.04	3.15
OP margin (%)	8.2	5.3	7.1
Non-operating income	0.22	0.07	0.14
Non-operating expenses	(0.07)	(0.05)	(0.06)
Recurring profit	3.15	2.06	3.24
Extraordinary gains	0.08	-	-
Extraordinary losses	(1.23)	(1.20)	-
Pre-tax profit	2.00	0.85	3.24
Tax	(1.11)	(0.66)	(1.04)
Effective tax rate (%)	35.2	32.2	32.0
Net income	0.89	0.19	2.20
Non-controlling NI	0.09	0.01	0.02
Parent attributable NI	0.80	0.18	2.18
Sales growth YoY (%)	+25.2	+6.2	+13.7
OP growth YoY (%)	+11.1	-32.0	+54.4
Pre-tax profit YoY (%)	-27.4	-57.2	+278.5
NI growth YoY (%)	-55.1	-77.9	+1,134

Balance sheet (¥bn)	FY 3/23	FY 3/24	FY 3/25E
Cash & equivalents	6.46	6.86	6.80
Inventory	0.03	0.03	0.03
Accounts receivables	5.29	5.92	6.72
Other	0.76	0.72	0.82
Current assets	12.53	13.53	14.37
Tangible assets	1.17	1.49	1.75
Goodwill	3.47	2.31	2.07
Intangible assets	0.72	0.59	0.86
Investment	0.49	1.79	1.79
Other	1.20	1.38	1.38
Fixed assets	7.05	7.58	7.85
Total assets	19.58	21.10	22.23
Short term borrowing	5.11	7.10	7.10
Trade payables	1.17	1.28	1.47
Other	3.65	3.65	4.43
Current liabilities	9.93	12.03	13.00
Long term borrowing	-	-	-
Other LT liabilities	0.18	0.22	0.22
Long term liabilities	0.18	0.22	0.22
Shareholder's equity	8.81	8.42	8.51
Share acquisitions rights	0.01	-	-
Non-controlling interests	0.66	0.44	0.50
Total net assets	9.47	8.85	9.00
Total liabilities & net assets	19.58	21.10	22.23

Source: Company, Astris Advisory (estimates)

Cash flow statement (¥bn)	FY 3/23	FY 3/24	FY 3/25E
Profit before tax	2.00	0.85	3.24
Depreciation/amortization	1.18	1.04	0.90
Other non-cash items	(0.44)	(0.17)	0.06
Changes in working capital	1.03	1.05	-
Tax paid	(0.91)	(1.01)	(1.04)
Cash from Operating Activities	2.85	1.76	3.16
Capex	(1.03)	(0.81)	(0.88)
Acquisitions/increase stakes	(0.40)	(0.16)	(0.50)
Other investing cash flow	(0.47)	(1.40)	(0.93)
Cash from Investing Activities	(1.90)	(2.37)	(2.31)
Total cash dividends paid	(0.39)	(0.47)	(0.47)
Debt issuance/(retirement)	(0.48)	1.99	-
Equity financing/(buybacks)	1.12	(0.01)	-
Other	(0.10)	(0.58)	(0.58)
Cash from Financing Activities	0.14	0.93	(1.05)
FX impact	0.19	0.08	0.14
Net cash flow	1.28	0.40	(0.06)
Free cash flow	1.82	0.95	2.28
EBITDA	4.18	3.08	4.05
EBITDA margins (%)	11.4	7.9	9.2
Free cash flow margin (%)	5.0	2.5	5.2
Free cash flow conversion (%)	91.0	111.4	70.5
Capex/sales (%)	2.8	2.1	2.0
Capex/depreciation (%)	87.9	78.2	98.0
CFO margin (%)	7.8	4.5	7.2
Key metrics	FY 3/23	FY 3/24	FY 3/25E
Profitability			
Gross margin (%)	29.1	26.0	27.0
Operating margin (%)	8.2	5.3	7.1
Net margin (%)	2.2	0.5	5.0
ROA (%)	4.3	0.9	10.1
ROE (%)	10.1	2.1	25.8
ROCE (%)	31.1	22.5	34.1
ROIC (%)	14.7	9.4	13.8
Liquidity			
Current ratio (x)	1.3	1.1	1.1
Quick ratio (x)	1.3	1.1	1.1
Leverage			
Debt/Equity ratio (x)	0.6	0.8	0.8
Net Debt/Equity ratio (x)	net cash	0.0	0.0
Equity ratio (x)	0.4	0.4	0.4
Interest cover (x)	309.5	104.4	111.0
Net Debt/EBITDA (x)	N/A	0.1	0.1
Valuation			
EPS reported (¥)	36.5	7.9	98.1
PER (x)	30.9	142.1	11.5
Diluted PER (x)	31.1	142.7	11.6
DPS (¥)	21.0	21.0	21.0
Dividend payout ratio (%)	57.5	264.3	21.4
Dividend yield (%)	1.9	1.9	1.9
Free cash flow yield (%)	6.7	3.5	8.3
Diluted free cash flow yield (%)	6.7	3.5	8.3
PBR (x)	3.1	3.2	3.2
EV/sales (x)	0.8	0.7	0.6
EV/EBITDA (x)	6.6	9.0	6.8
EV/EBIT (x)	9.2	13.6	8.8
EV/FCF (x)	15.2	29.2	12.3



Disclaimers

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The analyst hereby certifies that (i) the views expressed in this report accurately reflect the research analyst's personal views about the company and the securities that are the subject of this report, and (ii) no part of the research analyst's compensation was, is, or will be, directly or indirectly, related to views expressed by that research analyst in this report.

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Conflict of interest

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