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INDUSTRIAL AI · STRATEGY

# Own the outcome.

Why exoskeleton value is moving from the device to the data it generates, and how a new entrant can build the intelligence every suit eventually reports to.

> **“The service business is not the destination. It is the data-collection engine for the business that matters.”**



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IN ASSOCIATION WITH
AXION TECHNOLOGY FOUNDATION

EXECUTIVE SUMMARY

# The device is visible. The value is in the data.

Exoskeletons are often read as a hardware race: motors, batteries, carbon frames and a falling price per unit. For a new entrant, that reading is almost certainly wrong. The durable value sits in what the device knows about the work, the worker and the outcome.

**$2.0–2.35bn**

Global market forecast by 2030–31, up from roughly $0.56–0.85bn in 2025

**20–29%**

Forecast annual growth across leading analyst estimates

**~85%**

Share of demand from industrial and commercial users (ABI Research)

KEY TAKEAWAY

**In exoskeletons, whoever owns the outcome data owns the customer.**

01

### Enter as a service

Resell and deploy leading devices under outcome-based subscriptions. Capture consented data from day one.

02

### Scale as a platform

Build Exo OS, a vendor-neutral AI layer for fleet management, ergonomics and outcome reporting.

03

### Build hardware last

Design narrow devices only after month 30, for niches the fleet data has already exposed.



**FLEET VIEW** Every shift on a managed fleet produces data on use, fit, task risk and results. That record, not the suit, is the asset.

# The box is becoming a commodity.

Walk through a modern fulfilment centre and you may see workers wearing powered suits that take a meaningful share of the load off every lift. The market is small but accelerating. Research houses place 2025 revenue between roughly USD 0.56bn and 0.85bn, with forecasts converging on USD 2.0–2.35bn by the turn of the decade.

Segment definitions differ between providers, but the direction does not. Industrial and commercial deployments dominate, powered systems out-earn passive ones, and Asia-Pacific is the largest and fastest-growing region. Analysts now single out exoskeleton-as-a-service subscriptions and cloud outcome analytics as growth drivers in their own right.

### The winners sell outcomes

Look closely at the companies that are winning and the pattern is consistent. Verve Motion does not really sell a suit; it sells an annual subscription that bundles the SafeLift device, its VerveInsight analytics portal and ongoing support. Its partner HexArmor leads with injury-reduction and return-on-investment claims rather than specifications.

German Bionic prefers renting to selling and describes its control software as trained on motion data gathered from thousands of users. In both cases, the fleet data is the moat.

### Consumer scale needs capital

Hypershell has shown how quickly a Shanghai-built device can reach tens of thousands of users across dozens of countries, and how much capital and manufacturing speed that requires. The 2026 IFA Innovation Awards featured several exoskeletons, most from Chinese brands that need partners to reach markets outside China.

For a startup without a factory, that is an invitation to distribute, not to compete.

> **Hardware gets better and cheaper every year. Outcome data compounds.**



**CONSUMER** Personal mobility devices are scaling fast, led by well-funded manufacturers.




**DEVICE** Specifications converge. Differentiation moves to software and service.

— 02 · ENTRY

# Enter as a service, not a box.

The lowest-risk entry is to become a value-added reseller and deployment partner for the leading devices. Manufacturers already support this: Verve runs a formal partner programme that lets third parties sell, deploy and support its suits.

A sensible portfolio pairs one powered lift-assist system with one or two low-cost passive devices for industrial buyers, plus a consumer range distributed through online channels and experience centres.

What the customer buys, however, is a service. Leasing partners can carry the hardware, and workers' compensation insurers can co-fund it once claims data starts to move.

FIGURE 1

### The outcome-based deployment path

01

**Ergonomic risk assessment**

Study tasks, shifts and injury history on site. Identify where assistance makes a measurable difference.

2–3 WEEKS

02

**Paid pilot**

10–25 units on real shifts with pre-agreed injury and productivity KPIs.

8–12 WEEKS

03

**Fleet subscription**

Devices, fitting, training, maintenance and a quarterly ROI report in one fee.

12–36 MONTHS

Every deployment captures data under a consent model built for GDPR, the UAE's PDPL and Hong Kong's PDPO.

> **“The service business is not the destination. It is the data-collection engine for the business that matters.”**




**PILOT** A paid pilot turns a vendor claim into the customer's own evidence and starts the data record that renewals depend on.

# Exo OS: the vendor-neutral intelligence layer.

Every large customer eventually runs a mixed fleet, and every vendor dashboard sees only its own devices. That gap is the opening for a single, vendor-neutral AI layer, working name Exo OS, that manages allocation, charging, utilisation, maintenance and fit profiles across brands.

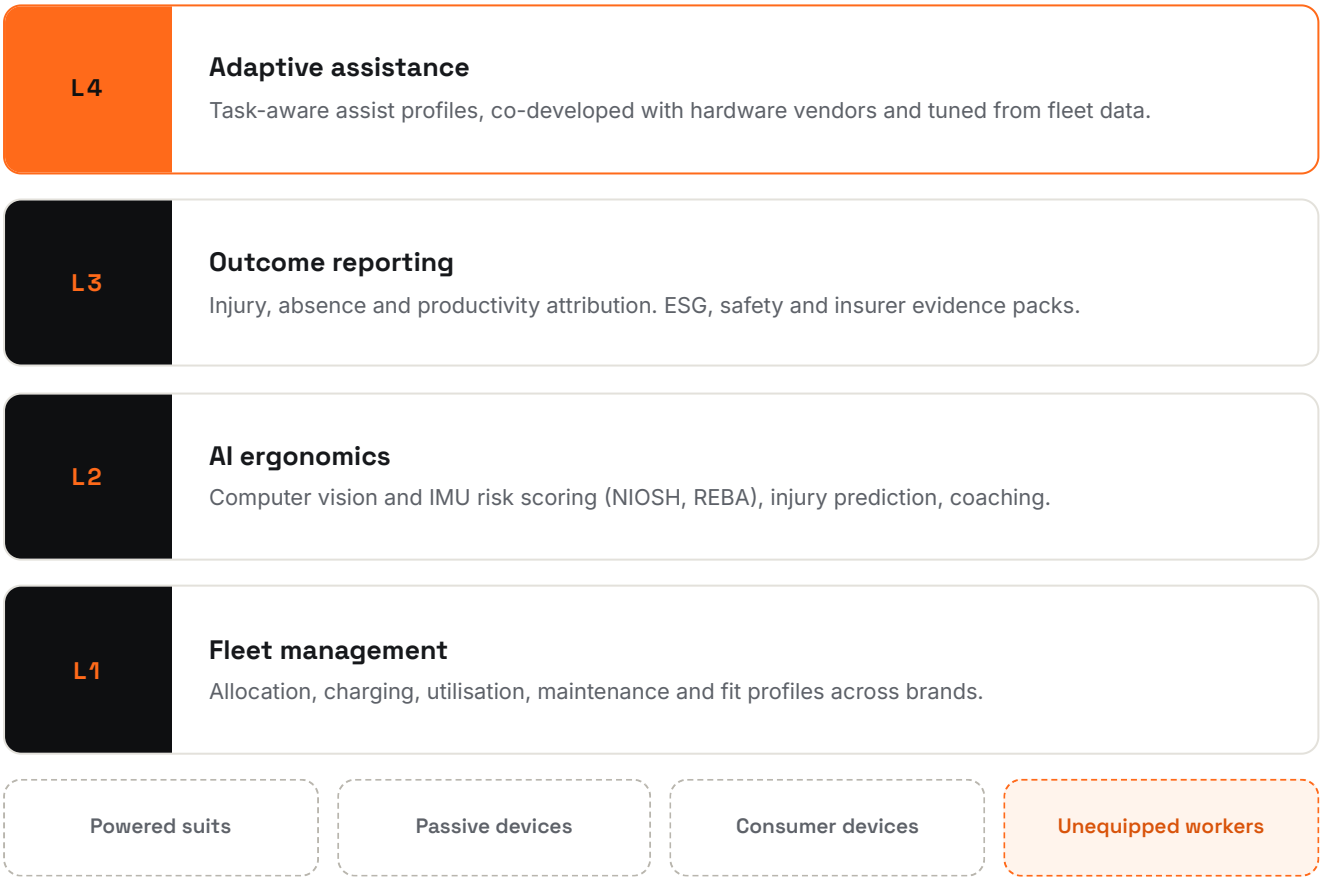
Above fleet management sits the real intelligence: computer-vision and IMU-based risk scoring in the NIOSH and REBA tradition, injury prediction and personalised coaching. Crucially, this layer also works for workers who wear no suit at all. That turns a niche device market into the far larger market for workplace ergonomics.

At the top, outcome reporting attributes injury, absence and productivity changes, and produces the ESG, safety and insurer evidence packs that buyers need to justify renewal.

Adaptive assistance, tuning how a device supports an individual worker, is the long-term prize, but it depends on vendor access. Most manufacturers publish no public SDK today, so it is best pursued as co-development with the suppliers the startup already resells. Pricing follows SaaS logic: a per-worker monthly fee plus a per-site module for vision ergonomics.

FIGURE 2

### Exo OS reference architecture




The highlighted tile is the strategic unlock: ergonomics intelligence that serves unequipped workers widens the addressable market well beyond device owners.

# The shift in mix is the investment case.

A reseller is valued on its margins. A vendor-neutral platform with proprietary outcome data is valued on its recurring revenue and its moat. Software revenue starts small but carries much higher margins, so its weight grows faster than its share of revenue.

FIGURE 3

**Illustrative five-year milestones**

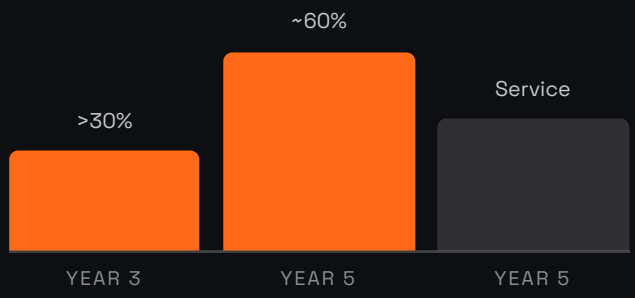
| MONTH 18 | MONTH 36 | YEAR 3 | YEAR 5 |
|---|---|---|---|
| ~500 | 2,000+ | >30% | ~$30m |
| devices under subscription | devices under subscription | of gross profit from Exo OS | revenue, with Exo OS near 60% of gross profit |

**Global market, USD bn (range of forecasts)**




Scale 0–2.5bn. Low and high ends reflect differing published estimates.

**Exo OS share of gross profit**




Illustrative model, not a forecast of any specific company. Assumes a blended USD 4,000–4,500 per device per year across powered and passive units, ~30% service gross margin and ~75% software gross margin.

## Seed

Pilots and the service business

## Series A

Exo OS software platform

## Strategic

Logistics groups, insurers or industrial funds for hardware

# Hardware last, and narrow. Governance first.

Only after month 30 does it make sense to design hardware, and then only for two or three niches that the large brands neglect and that the fleet data has already exposed. Candidates include shoulder and arm assist for heat-stressed outdoor work in the Gulf, patient-handling support in care homes, airport baggage handling, and soft exosuit modules for older adults.

The first devices should be co-designed with a Shenzhen ODM, running the startup's own control software and models. Occupational and wellness products should stay clearly separate from medical claims, which bring EU MDR and FDA obligations and belong in a later, clinically partnered phase.



**NICHE** Soft assist for older adults is one gap the data may expose.

GCC

### Gulf states

Logistics hubs, airports, construction and extreme-heat outdoor work.

WB · CEE

### Western Balkans & CEE

Manufacturing and logistics corridors underserved by brand distribution.

HK · SEA

### Hong Kong & SE Asia

Ports, baggage handling and fast-ageing elderly-care sectors.

## Governance before technology

An AI layer that watches how people move at work raises questions hardware never did. This is where most technology-led ventures stumble, and where the ANDRA™ method (AI-Native Dual-Running Architecture) helps: new AI-driven processes run alongside existing safety and HR systems until the evidence justifies the switch.

- **Informed consent.** Workers understand and agree to what is collected.
- **Auditable evidence.** Insurers and regulators can verify outcome claims.
- **No surveillance.** Safety analytics are never repurposed for performance policing.
- **Worker acceptance.** Proper fitting, device choice and voluntary programmes address comfort, heat and stigma.




**ADOPTION** Comfort and freedom of movement decide whether workers keep wearing a device, and whether the data keeps flowing.

— TAKEAWAY

# In exoskeletons, whoever owns the outcome data owns the customer.

Start as a multi-brand service partner, turn every deployment into training data for a vendor-neutral AI layer, and let that data, not ambition, decide when and what hardware to build. The opportunity is not to out-build Hypershell or Verve, but to become the intelligence every suit, and every worker, eventually reports to.



— ABOUT THE AUTHOR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AXION TECHNOLOGY FOUNDATION

A shared initiative of Hyperchain and Agile Dynamics, headquartered in Hong Kong, AXION helps regulated institutions deploy advanced AI and blockchain safely, combining sovereign-grade technology with the ANDRA™ methodology. axiontechnology.foundation

Trusted AI | Blockchain & Tokenization | Privacy & Security | Sovereign & Public Systems

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