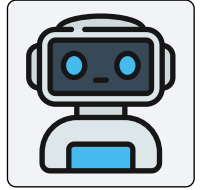


THE SHIFT

Humanoid robots pair a humanlike form with software that can interpret surroundings and act on them. They are one emerging expression of physical AI. Their potential advantage is practical: they may work in factories and warehouses already designed for people, with limited changes to the environment.



WHY THE SHIFT IS HAPPENING NOW



HARDWARE MATURITY

EV manufacturing has made motors, batteries and sensors easier to source and cheaper to produce.



AI AND PERCEPTION

Better cameras and AI help robots recognise objects, understand instructions and adjust their movements.

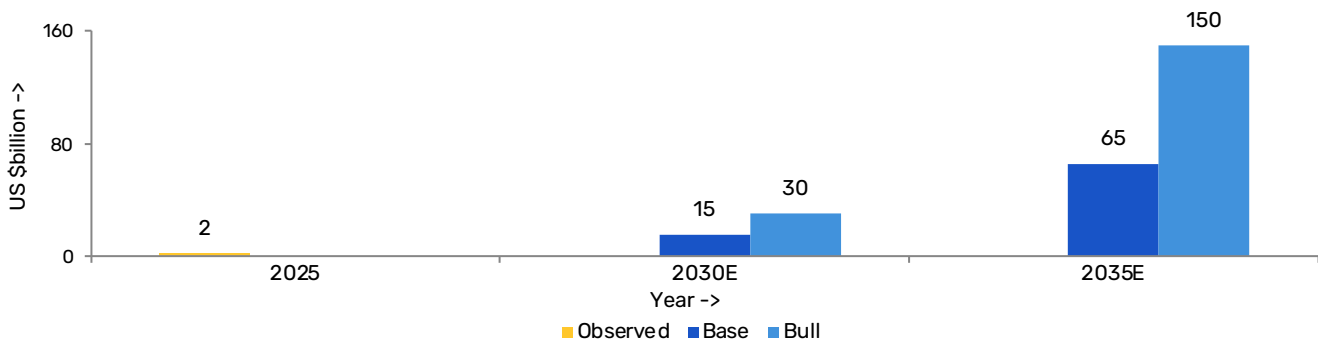


ECONOMICS TURNING VIABLE

The cost of making a humanoid is expected to fall below \$30,000 within five years. Commercial economics still depend on reliable use.

THE MARKET IN NUMBERS

Global humanoid market size (US\$ billion). 2030 and 2035 are research estimates.



First half of 2026 shipments exceeded 30,000 units, versus about 15,000 in all of 2025.

WHAT'S INSIDE A HUMANOID

Indicative share of component costs.

40-60%

ACTUATION

Motors and gears move joints.

10-20%

SENSORS AND COMPUTE

Cameras, sensors and processors.

10-15%

STRUCTURES

Frames and protective housings.

5-10%

POWER

Batteries and power circuits.

5-10%

WIRING AND CONTROLS

Cables and control systems.

5-10%

COOLING AND OTHERS

Parts that manage heat.

Share estimates vary by design and are not additive. Market forecasts depend on commercial adoption.

THE OPPORTUNITY AND THE TERMS

INDUSTRIES THAT COULD SEE DEMAND



Precision manufacturing



Auto and EV parts



Electrical and power



Industrial automation

WHERE INDIAN MANUFACTURERS MAY PARTICIPATE

China accounted for more than 95% of humanoid shipments in 2025. As manufacturers outside China develop supply chains, Indian auto and EV suppliers may be able to supply precision parts for robot bodies and joints. Components within reach of precision manufacturers represent an estimated 15–20% of a humanoid's total component cost globally.

>95% Chinese share of 2025 shipments

15–20% global precision parts opportunity

OUR STANCE- HUMANOIDS AS A FUTURE MEGATREND

We view physical AI and humanoid robotics as a potential future megatrend. We are already investing across relevant enabling industries like precision manufacturing, electrical equipment and automation through businesses with established capabilities and wider industrial applications.

This provides participation in the supporting ecosystem while the theme develops. The pace of adoption, commercial outcomes and eventual scale are still evolving.

BEHIND THE SCENES: QUICK GLOSSARY



BOM

Bill of materials: the list and cost of parts.



Actuator

A motor and related parts that move a joint.



Physical AI

AI that senses and acts in the real world.



Multimodal AI

AI working with images, text or other inputs.



VLA / VLAs

Vision, language and action model(s).



VLAMs

Shorthand for vision, language and action models.



Base / bull / bear

Central, optimistic and less favourable estimates.



Dexterity

Precise movement, especially of hands and fingers.

Please note that the reference to any industry/sector/stock is provided for illustrative purposes only. This should not be construed as a research report or a recommendation to buy or sell any security or sector.

Source: Avendus Spark Research, Internal Analysis. | Data as on 21 September 2026.