

Where the money is: keeping robots running

Elevator makers sell the machine near break-even and earn their profit maintaining it for decades. Surgical robot makers take 84% of revenue after the sale. Industrial arm makers keep the predictive-maintenance data to themselves. This note sets out what those industries say about the service economics of robots, and what a service robot fleet in Southeast Asia can and cannot copy.

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Every robot maker's pitch is about the machine. Every mature machine business makes its money after the sale. This note is about that gap. It reads the annual reports of the companies that already live off service, the regulators and analysts who have studied third-party maintenance, and the warranty pages of the robot makers themselves, and it asks one question: when service robots are as common in Southeast Asia as elevators, who gets the service money?

We have a stake in the answer, because keeping other people's robots running is our business. So the note is built to argue against us as hard as for us. Where a fact comes from a filing or a regulator it is marked ● **VERIFIED**; where it comes from a trade source or a vendor page, ● **REPORTED**; our arithmetic is marked ● **ESTIMATE**.

01 Four industries that already live off service

INDUSTRY AND COMPANY	WHERE THE PROFIT SITS	WHO KEEPS IT	EVIDENCE
Elevators, Otis	Service was 65% of 2025 sales and 91% of segment operating profit, at a 25.1% margin; new equipment earned 4.8%. About US\$3,800 of service revenue per maintained unit a year, on a portfolio of about 2.5 million units.	Independents hold about half of the world's service units "but account for a smaller percentage of the service business when measured by value".	Otis 2025 Form 10-K ¹ ● VERIFIED, per-unit figure ● ESTIMATE
Surgical robots, Intuitive Surgical	Recurring revenue (instruments, accessories, service, leases) was 84% of 2025 revenue; service alone US\$1.57 billion, about US\$141,500 per installed da Vinci a year, roughly 6 to 8% of the system's price.	The maker. Service contracts bundle installation, repair, 24/7 support and proactive health monitoring.	Intuitive 2025 Form 10-K ² ● VERIFIED, per-system figure ● ESTIMATE
Industrial arms, Fanuc	A lifetime annuity on more than a million robots. The Zero Down Time service connects more than 40,000 robots and has prevented more than 4,000 downtime cases; it detects reducer wear from motor current "several weeks before actual failure".	The maker, through its own cloud. A third party with a laptop never sees the stream.	Fanuc ZDT brochure and press releases ^{3 4} ● VERIFIED
Data-centre hardware, third-party maintenance	Independents charge 50 to 70% less than the maker after warranty; the combined Park Place and Service Express, merged in January 2026 with Temasek as a significant minority holder, carries about US\$2.8 billion of debt at about seven times earnings.	Independents, on post-warranty equipment, but at under 2% of total maintenance spend in 2019, against maker hostility: firmware entitlements, recertification fees and audits.	Gartner market guide; Park Place; Octus ^{7 8 9} ● VERIFIED
Medical imaging, independent service organisations	Third parties took 36% of US imaging service spend in 2019 and 50% in 2022, on a US\$4.3 billion market; 64% of hospitals hold at least one third-party contract.	Shared. The FDA said in 2018 that third-party servicing is "critical" to the health system and declined to regulate it.	IMV via AuntMinnie; FDA report ^{10 11} ● VERIFIED

Share of sales



Share of segment operating profit



Otis Worldwide, fiscal 2025. New equipment margin 4.8%. The service portfolio includes other makers' elevators. Independent service firms hold about half of all maintained units worldwide and a smaller share of the value.

FIG 1 The elevator business in two bars. The machine is sold to win the maintenance contract.
• **VERIFIED** from the 10-K.

The pattern across the four is consistent. Service margins are two to five times equipment margins. Makers keep the high-value units and the diagnostic keys. Independents win on price and on the units the makers do not chase, and it takes them decades to reach a third or a half of the spend. In the one case where a regulator looked, the FDA backed the independents.

02 What is different about robots

Three things, and they cut both ways.

Robots break more often than arms and elevators. A Fanuc arm is quoted at more than 80,000 hours between failures;⁵ • **REPORTED** an illustrative humanoid component stack works out near 4,500 hours, about 17 times worse. • **ESTIMATE** Figure's first BMW fleet ran about 1,250 hours over 11 months of scheduled 50-hour weeks, and its top hardware failure point was the forearm, where tight packaging, a three-axis wrist and moving cables met heat; Figure 03 removed the board and the cables.⁶ • **VERIFIED** More failures per year means more service revenue per unit, and a larger share of a fleet's cost going to whoever can fix it fast.

Service robots are cheap and short-lived. A restaurant robot costs about US\$15,000 and is replaced within three to five years as the model line turns over. That is the opposite profile from a US\$1 million imaging machine or an elevator with a 25-year life. At 5 to 10% of hardware price a year, a service contract on such a robot is worth US\$750 to US\$1,500, and a million dollars of annual service revenue needs 700 to 1,300 robots under contract. • **ESTIMATE**, our model, not a sourced market figure. No credible published estimate of a robot maintenance market exists.

The makers already hold the keys. Pudu's warranty is void for "unauthorized modification, disassembly, shell opening, and maintenance under unofficial guidance"; in warranty the distributor

does the repair with free parts from Pudu, and after warranty the distributor pays for parts.¹²

● **VERIFIED** Head office support runs Monday to Friday, 09:30 to 21:00 China time. In the United States, Pudu sells its own care plan with a two-hour response and four preventive visits a year; its price is not published.¹³ In China, JD.com has built a multi-brand repair network with on-site fixes, eight regional hubs and specialist overhaul, growing to more than a hundred technicians in 2026; before it, a defective Unitree had to be shipped whole to Hangzhou.¹⁴ ● **VERIFIED** as reported by the press.

03 The service gap in Southeast Asia

In Singapore, Malaysia and Indonesia we found no multi-brand repair firm for commercial service robots. What exists is single-brand and authorised: Weston Robot services Unitree in Singapore and Malaysia, distributors bundle maintenance into rental, and consumer vacuum repair shops take anything small. ● **UNVERIFIED** as an absence, from our searches in September 2026. Spare parts lead times are published by nobody. The one regional warranty figure in print is a Malaysian dealer's "1-year free warranty".¹⁵ Singapore distributors publish neither prices nor service hours.

The buyers who feel this are the ones outside the rental bundle: a venue that bought robots outright and is out of warranty, a brand with no local distributor, a fleet mixing three makers, and any site where the distributor's technician is a plane ride away. That is the independent's territory in every precedent above, and it is small until the installed base is large. Our tracker counts 78 sourced deployments across five countries; the rental distributors in each country are listed on the same page. The installed base is in the low thousands of units for the whole region, by our reading, which is why we price service into deployment rather than selling it alone. ● **ESTIMATE**

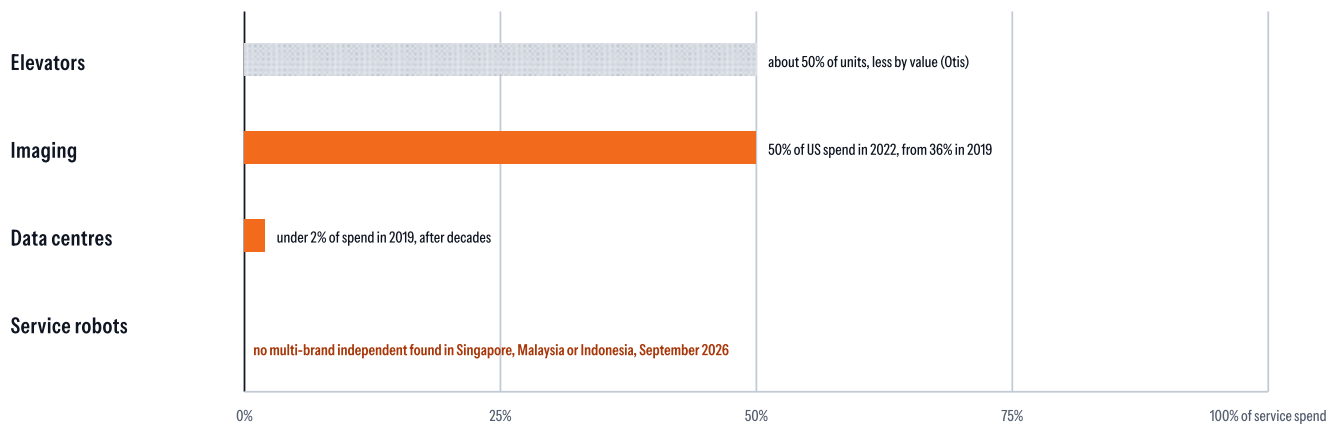


FIG 2 How far independents got in each precedent. Imaging got to half because the machines are expensive, long-lived and the regulator sided with independents. Data-centre hardware stayed small because the makers fought with firmware. Service robots are at zero in this region. ● **VERIFIED** shares, ● **UNVERIFIED** absence.

04 The model we work from

UNIT VALUE

5 to 10% of hardware price a year in service revenue. Intuitive earns 6 to 8% of system price a year in service; Otis about US\$3,800 per elevator. On a US\$15,000 service robot that is US\$750 to US\$1,500 a year, on a US\$80,000 humanoid US\$4,000 to US\$8,000. ● **ESTIMATE**

SCALE NEEDED

700 to 1,300 cheap robots, or 125 to 250 humanoids, under contract for US\$1 million of annual service revenue. Arithmetic from the line above. The region's sourced installed base is in the low thousands across all makers, so service alone cannot be the first business. ● **ESTIMATE**

WHERE MARGIN LIVES

Spares and response time, not labour. Otis earns 25% on service; third-party IT maintainers undercut the maker by half and still earn about seven times earnings in debt capacity. The costs that kill margin are parts flown from Shenzhen and a technician on a plane. Spares in country and a 48-hour swap are the whole product.

WHERE THE KEYS ARE

Diagnostics, fault codes and firmware stay with the maker unless the contract says otherwise. Fanuc routes them through its cloud; Pudu voids the warranty for shell opening; data-centre makers used firmware entitlements and audits. The contract terms we ask for are on our [import brief](#): fault-code tables, service manuals, authorised third-party repair that keeps the warranty, spares price lists.

WHO WINS WHAT

Makers keep the high-value, in-warranty, single-brand fleets. Independents win the mixed, out-of-warranty, far-from-the-distributor fleets. Every precedent says the same. The question is only how large the second group becomes and how fast.

FAILURE DATA

Nobody pays for it yet. Fanuc uses its own; Figure fixed the forearm from its own fleet. The value of a third party's failure log is to the party pricing failure risk, an insurer or a lessor, not to the maker. We log every fault anyway, because it is the only way to price a 95% uptime promise.

THE HONEST VERSION

Service is where the money is in every machine business that has matured, and robots will be no exception. It is also a business that makers defend with the diagnostic keys, that independents grow into over decades, and that needs an installed base Southeast Asia does not yet have. So we sell deployment with service inside it, hold spares in country, and keep the failure logs. When the installed base is ten times today's, the service book is the business. Until then it is the reason customers keep the robots on.

SOURCES

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