IFR statistical department

World Robotics

Service Robots

2025

incl. Mobile and Medical Robots

Statistics, Market Analysis and Case Studies

World Robotics
Service Robots
2025
incl. Mobile and Medical Robots

one market

World Robotics 2025 – Service Robots

Produced by VDMA Services GmbH, Lyoner Str. 18, 60528 Frankfurt, Germany.

The service robot statistics is carried out by the IFR Statistical Department.

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The cover and the editorial are sponsored by PAL Robotics.

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We express our most sincere gratitude to all partners!

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Suggested citation: Müller, Christopher; Jurkat, Anne; Kraus, Werner, Graf, Birgit; Bregler, Kevin (Eds.): World Robotics 2025 – Service Robots, IFR Statistical Department, VDMA Services GmbH, Frankfurt am Main, Germany, 2025.

Short citation: World Robotics 2025 – Service Robots

ISBN 978-3-8163-0772-3

1 Introduction

Chapter 1 reviews definitions and classifications of service robots.

1 Introduction

This annual market report addresses the rapidly growing areas of service robotics and medical robotics in its entirety. It is the companion publication to World Robotics 2025 – Industrial Robots that covers the industrial robotics segment. World Robotics – Service Robots combines the insights of leading experts at the Fraunhofer Institute for Manufacturing Engineering and Automation (Fraunhofer IPA) and the statistics of the International Federation of Robotics (IFR).

In 2025, the IFR Statistical Department carried out a market survey of service robots for the 25th time. The statistical population of more than 900 companies worldwide was invited to participate and report data on their sales in 2023 and 2024. Participants were later invited to share their expectations for the timespan from 2025 to 2027. Additional data was gained from desktop research conducted from July to August 2025. **The results for each application group are presented at the beginning of the respective chapter**.

Chapter 2 provides detailed information on application areas of professional service robots, including a collection of typical products, prototypes, and suppliers. The brief examples of real-world applications provided in that chapter are complemented by more detailed case studies on the use of service robots that can be found on the IFR website at https://ifr.org/case-studies/service-robots.

Chapter 3 puts the focus on medical robots. This robot category used to be an application group in the professional service robot segment but is now treated as a separate category, following ISO 8373:2021.

Chapter 4 covers consumer service robots, which presumably represent the area with the most points of contact for the general public.

Chapter 5 provides an overview of the service and medical robot industry structure. This includes a list of all service and medical robot producers that are known to the IFR. If you represent a service robot producer that is missing in our list, please contact IFR Statistical Department (statistics@ifr.org) so that we can add your company.

About the IFR Service Robots Committee: Founded as the IFR Service Robot Group on October 9, 2002, this branch of the IFR was upgraded to a committee in 2024. It is open

to all companies producing service robots, components, or related services. Next to the excellent networking opportunity, it is the right place to discuss all antitrust-compliant, industry-relevant issues and topics. For further information, please contact the IFR Secretariat (secretariat@ifr.org).

How to get access

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1.1 DEFINITIONS: ROBOTICS, SERVICE ROBOTICS, INDUSTRIAL ROBOTICS, AND MEDICAL ROBOTICS

1.1.1 ISO 8373:2021 VOCABULARY DEFINITIONS

ISO 8373:2021 "*defines terms used in relation to robotics*" (§ 1). These vocabulary definitions relate to industrial robotics, service robotics, and medical robotics. This section describes the ISO definitions needed to understand IFR classification schemes and to distinguish IFR industrial robot statistics and IFR service robot statistics.

According to ISO 8373:2021, a **robot** is a "*programmed actuated mechanism with a degree of autonomy, to perform locomotion, manipulation or positioning*" (§ 3.1). Mechanisms that are using robot technology but do not satisfy the definition of robot, for instance teleoperated manipulators, are called **robotic device.** (§ 3.5). Robot technology includes perception, reasoning and planning algorithms (§ 3.3).

A **service robot** is a robot "*that performs useful tasks for humans or equipment*" (§ 3.7).

A **medical robot** is a "*robot intended to be used as medical electrical equipment*" (§ 3.8).

An **industrial robot** is an "*automatically controlled, reprogrammable multipurpose manipulator, programmable in three or more axes, which can be either fixed in place or fixed to a mobile platform for use in automation applications in an industrial environment*" (§ 3.6). Chapter 1.7 of World Robotics Industrial Robots provides an in-depth elaboration of IFR's definition of industrial robots and industrial robot classification schemes.

A **mobile robot** is by § 4.15 a robot that can "*travel under its own control.*" By § 4.16, automated guided vehicles (AGV) are mobile platforms *"following a predetermined path indicated by markers or external guidance commands…*" An AGV is therefore not a robot but a robotic device as it lacks the autonomy to determine its own path or navigate without external guidance. Mobile robots can travel on wheels (§ 4.15.1), legs (§ 4.15.2 and § 4.15.3) or by crawling on caterpillar tracks (§ 4.15.4). Note that mobility per se does not assign a robot to a specific category (industrial, service, medical). Note further that § 4.15 does not mention swimming, diving, or flying as types of locomotion. But from the example of underwater inspection provided in § 6.17 (teleoperation), it follows that at least diving is a type of mobility that is not ruled out generally.

A wearable robot (§ 4.17) is a robot "*attached to and carried by a human during use*", providing "*assistive force*". In practice, this describes powered exoskeletons and powered protheses.

ISO 8373:2021 further distinguishes personal from professional service robots (§ 3.7) but does not provide any definition of these terms. There are just a few examples of tasks considered as personal use (note 1 to § 3.7) and tasks considered as professional use (note 2 to § 3.7). The examples in both notes intersect to a large extend. Tasks like "*handling of items*", "*providing guidance or information*", "*cooking and food handling*", and "*cleaning*" are named as examples for personal as well as for professional use.

1.1.2 DEVIATIONS OF IFR DEFINITIONS FROM ISO DEFINITIONS AND IFR REFINEMENTS OF ISO DEFINITIONS – SERVICE ROBOTS AND MEDICAL ROBOTS

IFR generally defines robots according to ISO 8373:2021. There are, however, some details that are by IFR's experience not helpful to unambiguously distinguish the different robot categories, or that might contrast with the primary goal of IFR statistics – which is to provide information on the robotics industry to inform the robotics industry. IFR service and medical robot statistics will therefore deviate from ISO definitions in specific details described in this section.

Delimitation of industrial robots, service robots and medical robots

The ISO definition of "industrial robot" creates some room for interpretation. First, it is not clearly defined what constitutes an industrial environment and what separates it from other types of environments, e.g. workshops or laboratories. Second, as the previous definition by application (see ISO 8373:2012) was abandoned only for industrial robots, but not for service robots and the newly created category of medical robots, there is some inconsistency in the definition. Previously, the definition of the term service robot included that it is not used in "*industrial automation applications*" (§ 2.10, ISO 8373:2012). Now, this part of the service robot definition is deleted. This means that service robots can be used in industrial automation, but they still do not qualify as industrial robots if they do not satisfy the additional requirements listed in § 3.6.

The definition of **service robots by application** has proven successful in the history of IFR statistics. It also does not require a definition of the environment the robot is used in. The IFR application classification schemes for service and medical robots (see chapter 1.4), developed by the IFR Robot Supplier Committee and IFR Service Robot Group, define various service and medical robot applications. Note: The Robot Supplier Committee decided to include all robots of typically industrial kinematics in the industrial robot statistics. Robots with industrial robot kinematics used in service applications are, therefore, counted in both statistics: Since 2024, the IFR industrial robot statistics count such cases in application classes 904 ("service applications") and 905 ("medical applications"). Up to 2023, such cases were included in application class 909 ("other applications"). All robots reported to these classes shall also be reported to IFR service robot statistics.

Medical robots used to be an application group in the professional service robot application scheme. Starting in World Robotics 2024, IFR statistics follow the new ISO definition and upgrade medical robots from an application group to a robot category. The classification in statistics, however, does not change and the old application group label AP6 is kept for medical robots in this edition of World Robotics.

The term **autonomous mobile robots** (AMR)[1] is marketing terminology and not defined in ISO 8373:2021. There seems to be a wide range of products running under this label. Usually, AMR is used as a synonym for “wheeled mobile robots” as defined by § 4.15.1 used in professional applications. Sometimes, these AMR are used in industrial environments but usually they neither have three axes nor do they have manipulation capabilities. Therefore, they do not satisfy the definition of an industrial robot. **IFR classifies AMR as service robots**. If the AMR is equipped with a robot arm (i.e. an articulated robot), **IFR statistics count the manipulator as an industrial robot and the platform as a service robot** (compliant with ISO 8373:2021, § 3.6, note 3).

Personal versus consumer versus professional service robots

As ISO 8373:2021 does not offer a definition of the terms personal service robot and professional service robot, IFR keeps its previously used terminology **consumer robots** (or consumer service robots) in contrast to **professional service robots**. Consumer robots are service robots for everyone. They do not require professional training -neither for setup nor for safe operation. They are intended for the layperson. Examples are domestic cleaning robots, automated wheelchairs, and social interaction robots. In contrast, professional service robots require a trained professional operator, where training can also refer to occupational safety training. Examples are cleaning robots for public places, delivery robots and fire-fighting robots.

1.1.3 SCOPE OF IFR SERVICE AND MEDICAL ROBOT STATISTICS

In contrast to IFR industrial robot statistics, which counts robots only, **IFR service and medical robot statistics include robotic devices in some application classes.** This is particularly the case if legal requirements prohibit autonomy or if the purpose of the application requires only limited autonomy.

In professional service robot statistics, this applies to AP7 (search and rescue, security).

In consumer robot statistics, the application group AC3 (care at home) includes robotic devices.

In medical robotics it applies to AP61 (diagnostics), AP62 (surgery), and AP63 (rehabilitation and non-invasive therapy).

Application classes that include robotic devices mention this in the description (see tables 1.2, 1.3, 1.4).

[1] Note that the words “autonomous” and “robot” are redundant, because a robot is autonomous by definition.

Excluded service robot applications

The IFR is the voice of robotics and represents the robotics industry. There are applications that use robot technology or technology that is often related to robotics but that is not represented by the IFR. The following applications are excluded and not represented by the IFR:

Military: The IFR promotes the peaceful use of robots. The use of robot technology for military purposes is neither covered in World Robotics and IFR statistics nor does the IFR represent this industry. **Dual use technologies are respected in their civil applications, only**.

Passenger transportation: The transportation of passengers in self-driving vehicles is an important future topic. Autonomous navigation technologies are used in robotics as well. Particularly in the segment of *outdoor delivery robots in environments with public traffic,* the challenges are like the ones faced in self-driving cars and buses. However, IFR considers passenger transportation as a part of the automotive industry. IFR does not represent the automotive industry and therefore World Robotics and **IFR statistics do not cover autonomous passenger transportation vehicles**.

Swimming, diving, or flying robots

§ 4.15 of ISO 8373:2021 provides several types of mobility that a robot can have. All these types are ground-based. Diving is mentioned indirectly in § 6.17, where the example of underwater inspection is provided. Swimming and aerial types of movement (e.g. flying) are not mentioned.

IFR service robot statistics include swimming and diving robots, but generally avoid aerial types of movement, i.e. drones. In special cases, especially if full autonomy is given, aerial robots are considered.

1.1.4 SUMMARY: IFR SERVICE AND MEDICAL ROBOT DEFINITION

- **A service robot** is a programmed actuated mechanism with a degree of autonomy to perform locomotion, manipulation or positioning to perform useful tasks for humans or equipment.
- In some applications, manually operated **robotic devices** with limited or even without autonomy are included.
- A **consumer service robot** is a service robot built for use by everyone. Neither safe operation nor setup require a professionally trained operator.
- A **professional service robot** is a service robot built for use by trained professional operators.
- **Autonomous mobile robot** (AMR) is a marketing term that is usually used as a synonym for wheeled mobile robots used in professional applications.
- **A medical robot** is intended to be used as medical electrical equipment.

1.2 COMPLIANCE AND PRIVACY

IFR Statistical Department ensures confidentiality of individual company data and compliance with antitrust regulations. Access to raw data is strictly limited to the IFR Statistical Department staff. The IFR Statistical Department will never provide company-level data to third parties neither outside nor inside the IFR. The IFR Statistical Department publishes only aggregated data. The IFR Statistical Department will not reveal data if a data point consists of less than four observations. This is to prevent mathematical retrieval of company-level data.

1.3 CLASSIFICATION OF SERVICE AND MEDICAL ROBOTS

The IFR is using two schemes to classify service and medical robots: the application and the type of movement. Both classification schemes consist of classes at the lowest level, which are aggregated into groups.

There are four major types of movement that serve as the groups of this scheme: Ground-based (A), water-based (B), aerial (C), and wearable (D). The fifth group, type E is a residual group that covers everything not covered by A to D. On the class-level, ground-based robots can either be rolling (A1), walking (A2), be fixed in place (A3), or have any other ground-based type of movement (A4). Water-based robots can either be swimming (B1) or diving (B2). Aerial robots are usually flying (C1) but there might also be hovering robots in the future (C2). Similarly, wearable robots are powered exoskeletons (D1) today, but there might be other types of wearable robots (D2) in the future. Robots that do not fit into any of these classes, e.g. robots for orbital space or hybrid robots that fit into more than one of the above classes, can be classified as type E1. The full classification scheme including descriptions of each class is presented in Table 1.1.

Table 1.1

Classification of service robots by type of movement

Type		Description
A	Ground-based	Robots that move or stand on the ground
A1	Rolling	Rolling on wheels or caterpillar tracks
A2	Walking	Walking on legs
A3	Fixed in place	Immobile, cannot change physical location by itself, standing on the gound, desk or other fixed place, also hanging
A4	Other ground-based	Gound-based but none of the above (A1-A3), e.g. crawling, snakeing, climbing
B	Water-based	Robots that swim or dive
B1	Swimming	Swim on the surface of the water, Note: If the robot can both swim and dive, it is counted as diving (B2)
B2	Diving	Dive under the surface of the water
C	Aerial	Robots that move through the air
C1	Fly	Flying in the air
C2	Hover	Hover above ground
D	Wearables	Robots that are worn by people
D1	Exoskeletons	Powered human exoskeletons
D2	Other wearables	Wearable robots other than D1
E	Others	Robots that are not A-D
E1	Other robots	Robots that do not fit into classes A-D, e.g. robots for orbital space Robots that fit into multiple classes, e.g. hybrid robots for water and ground or air

Source: IFR

The classification of service robots by application follows the concept outlined in chapter 1.2.4. This means, there are two distinct categories: consumer robots (AC – “applications, consumer”) and professional service robots (AP – “applications, professional”). Chapters 3 and 4 of this book provides comprehensive explanations and examples of robots for each application class.

In the segment of consumer robots, there are three major application groups: domestic tasks (AC1), social interaction and education (AC2), and care at home (AC3). Robots that are intended for consumer use but do not fit into AC1-AC3 can be classified in class AC99 in group AC9 (other consumer robots). Domestic tasks are floor cleaning (AC11), window cleaning (AC12), gardening (AC13), outdoor cleaning (AC14), and other domestic tasks (AC19). Robots intended to be companions or to provide social interaction are classified in AC21, whereas robots specifically designed for education purposes are in AC22. Application class AC22 includes education robots used at school or in similar environments as well as robots for learning at home. Care at home applications refer mainly to mobility (AC31) and manipulation assistance (AC32). Robots that offer other care functions are classified as AC39. Note that care robots grouped in AC3 can also be used in professional care centers. The decisive criterion for consideration as a consumer robot in AC3 is the suitability for use by laypersons. Laypersons can also be professional caregivers that are not specifically trained to use robots. Also note that all classes in group AC3 include robotic devices because limited autonomy might be required or desired in care applications. If the use of a care robot requires professional training or education, it should be classified as “other medical robot” (AP69). Table 1.2 offers a full overview of all consumer application groups and classes.

Table 1.2

Classification of service robots by application

-consumer applications-

Application		Description
AC	**Consumer robots**	**Robots intended for use by everyone. No professional training required.**
AC1	Robots for domestic tasks	Robots for housekeeping and similar tasks around the house
AC11	Domestic floor cleaning (indoor)	Wet and dry cleaning of floors, e.g. vacuuming and wiping of floors
AC12	Domestic window cleaning	Cleaning of windows
AC13	Gardening	Gardening tasks, e.g. lawn mowing
AC14	Domestic cleaning (outdoor)	Outdoor cleaning tasks around the home, e.g. pool cleaning, yard cleaning
AC19	Other domestic tasks	Domestic tasks other than AC11 to AC14
AC2	Social interaction, education	Robots with social interaction functions, robots for children and student education
AC21	Social interaction, companions	Main purpose of the robot is to interact with and entertain users at home
AC22	Education	Robots desigend specifically to educate children or students
AC3	Care at home	Robots that support people in need of care (e.g. seniors or handicapped people) in their homes or home-like environments (e.g. retirement homes)
AC31	Mobility assistants	Robotic wheelchairs, robotic rollators/walkers, exoskeletons for walking disabilities. Includes robotic devices.
AC32	Manipulation aids	Robots that support seniors or disabled people in the manipulation of their environment (e.g. meal assistance robot, manipulators mounted to wheelchairs). Includes robotic devices.
AC39	Other care robots	Robots for care at home that do not fit into AC31 or AC32. Includes robotics devices.
AC9	Other consumer robots	Consumer robots that do not fit into any of above classes
AC99	Other consumer robots	Consumer robots that do not fit into any of above classes

Source: IFR

The category of professional service robot applications uses seven different application groups plus the residual group AP9 with class AP99 “other professional service robots”

which is the appropriate class for all service robots that do not fit into any of the following groups and classes.

Agricultural applications of all kinds are grouped in AP1, which consists of four classes. AP11 includes all activities related to the cultivation of plants, from plowing the field to harvesting in greenhouses or outdoors. Robots for milking are in AP12, whereas other robots for livestock farming are in AP13. Agricultural robots that do not fit into any of the above can be classified as AP19.

Professional cleaning robots are – in analogy to domestic cleaning robots – divided into floor cleaning (AP21), and window and wall cleaning (AP22). Professional cleaning robots are also used for tank, tube, and pipe cleaning (AP23), hull cleaning (AP24), and disinfection (AP25). Professional cleaning applications that do not fit into any of the above can be classified as AP29.

Robots for professional inspection and maintenance are classified by the object that they are designed for. Robots designed for inspection of damage in buildings and civil construction of all kinds are classified as AP31. Inspection of tanks, tubes, pipes, and sewers is application class AP32. Note that robotic devices are not included in this group. There are numerous robotic devices available that provide inspection and maintenance services with manual remote control. It is beyond the scope of this publication and the representation of the IFR to cover all these machines. At least some basic autonomous functions like navigation are required to qualify a machine as a robot (see chapter 1.2.3).

Application group AP4 covers construction (AP41) and demolition (AP42) robots.

Group AP5 includes logistics and transportation robots. Note that logistics is a very generic term that covers a wide range of different robot applications. Some logistics applications like packaging, pick and place, and palletizing are considered as industrial robotics and thus covered by the companion publication World Robotics Industrial Robots. Service robotics for logistics and transportation in the classes AP51-AP54 are classified along a two-dimensional matrix. The first dimension refers to the intended use indoors (AP51, AP52) or outdoors (AP53, AP54). The second dimension is the robot's ability to safely cope with public traffic. In a non-public environment, only people that are trained for safe use and coexistence with the service robot may cross its path (AP51, AP53). Of course, the robot must still have safety features, but the supplier can expect that every person in the robot's working area knows about the dos and don'ts. This is different for robots that are applied in public traffic (AP52, AP54). In indoor environments, public traffic refers to visitors or any other general public that is not trained for safe cooperation or coexistence with the robot. The robot must be able to react safely and anticipate unsafe behavior of people in its proximity, e.g. by stopping or slowing down its motion. In outdoor environments, public traffic may even require the ability to autonomously participate in street traffic. Logistics also includes inventory management, e.g. counting and refilling of stock (AP55). Any other type of service robot for logistics or transportation that is not covered by AP51-AP55 can be classified as AP59. Note that passenger transportation is generally excluded by this scheme. In earlier ages of

robotics, some companies suggested mobile platforms that could be used to transport people. The IFR concluded that such vehicles should generally be considered as cars or buses and are therefore beyond the scope of World Robotics or the representation by the IFR.

Table 1.3

Classification of service robots by application

-professional applications-

Application		Description
AP	**Professional service robots**	**Robots intended for use by trained professionals.**
AP1	Agriculture	Robots for agricultural and farming applications
AP11	Cultivation	Plowing, seeding, harvesting, weeding, fertilizing, pesticide spraying of/for crop plants and fuit indoors (greenhouse) and outdoors (field, vineyard)
AP12	Milking	Milking
AP13	Other livestock farming	Livestock farming, except milking, e.g. feeding, barn cleaning
AP19	Other agriculture	Agriculture, but none of the above
AP2	Professional cleaning	Robots for professional cleaning applications
AP21	Floor cleaning	Cleaning of horizontal areas, e.g. floors in offices, hotels, public buildings, streets and sidewalks. Note: Robots for barn cleaning are included in class AP13
AP22	Window and wall cleaning	Cleaning of windows, walls and other vertical areas
AP23	Tank, tube and pipe cleaning	Inside cleaning of tanks, tubes or pipes
AP24	Hull cleaning	Outside cleaning of hulls (aircraft, train, other vehicles, tank, container)
AP25	Disinfection	UV, spray, wiping or other disinfection methods
AP29	Other professional cleaning	Professional cleaning other than above
AP3	Inspection and maintenance	Robots for inspection and maintenance
AP31	Buildings and other construction	Outside detection of damage in buildings, plants, bridges, tunnels and other civil construction
AP32	Tank, tubes, pipes, sewers	Inside detection of leakage in tanks, pipes, or sewers
AP39	Other inspection and maintenance	Inspection and maintenance, but none of the above
AP4	Construction and demolition	Robots for construction and demolition
AP41	Construction	Installation of buildings and other constructions, earthwork
AP42	Demolition	Tear-off of buildings and other constructions
AP5	Transportation and logistics	Mobile robots for transportation of goods or cargo and other logistics functions
AP51	Indoor environments without public traffic	Cargo/goods transportation in indoor environments without public traffic only, e.g. warehouses, factories, non-public areas of hospitals, airports, etc.
AP52	Indoor environments with public traffic	Cargo/goods transportation in indoor environments with public traffic, e.g. hospitals, hotels, restaurants
AP53	Outdoor environments without public traffic	Cargo/goods transport in outdoor environments without public traffic only, e.g. harbors, airports
AP54	Outdoor environments with public traffic	Cargo/goods transport in outdoor environments with public traffic, e.g. home delivery, parcel delivery in the streets
AP55	Inventory	Counting and refilling of stock and inventory
AP59	Other transportation and logistics	Mobile robots for transportation and logistics applications not mentioned above. No passenger transportation.
AP7	Search and rescue, security	Robots for emergency situations
AP71	Firefighting	Robots for Firefighting. Includes robotic devices.
AP72	Disaster relief	Robots for detection or rescue of survivors. Includes robotic devices.
AP73	Security services	Robots for security functions, e.g. surveillance, bomb squad support. Includes robotic devices.
AP8	Hospitality	Robots for interaction with guests or visitors
AP81	Food and drink preparation	Robots for food or drink preparation
AP82	Mobile guidance, information, telepresence	Robotic information desks or guides, e.g. in museums, shops, hotel receptions. Robots for virtual participation in real-world events. Note: Telepresence robots specifically designed for the medical field are covered in AP69
AP9	Other professional service robots	Robots that do not fit into any of the above classes
AP99	Other professional service robots	Robots that do not fit into any of the above classes

Source: IFR

The group of search and rescue and security robots includes robotic devices. These are used for firefighting (AP71), disaster relief (AP72), or security (AP73). Note that this includes only non-military applications (see chapter 1.2.3).

Hospitality robots are used for food or drink preparation (AP81) and for mobile guidance, information, or telepresence (AP82). Note that robots designed for various kinds of food delivery are grouped in AP5, and those for telepresence in the medical field (i.e. robots that feature sensors for tele-medicine) are classified as AP69.

The category of medical robotics has only one application group of the same name. The currently used code AP6 is a legacy of previous editions of World Robotics, when medical robotics was an application group of professional service robotics. Medical robotics has several classes that also include robotic devices, i.e. robotic technology that lacks sufficient autonomy to qualify as a robot. These classes are AP61 (robotic diagnostics), AP62 (robot-assisted surgery), and AP63 (robotics for non-invasive therapy and rehabilitation). In contrast, robots that handle and process samples in medical laboratories (AP64) and other medical robots (AP69) must be sufficiently autonomous.

Table 1.4
Classification of medical robots by applications

Application		Description
Medical robots		**Robots intended to be used as medical electrical equipment**
AP6	Medical robotics	Robots in medical applications
AP61	Diagnostics	Robotic diagnostic systems. Includes robotic devices.
AP62	Surgery	Robots for invasive therapy (surgery). Includes robotic devices.
AP63	Rehabilitation and non-invasive therapy	Robots for therapy (except surgery) and rehabilitation of patients after surgery or accidents. Includes robotic devices.
AP64	Medical laboratory analysis	Handling or processing of samples in medical laboratories
AP69	Other medical robots	Other robots for medical applications. Note: Robots for transportation in hospitals are included in class AP52

Source: IFR

1.4 SAMPLE DESCRIPTION

The International Federation of Robotics Statistical Department (IFR SD) conducts an annual survey among service robot suppliers worldwide. Data was either sent to the IFR SD directly or through national robotics associations.[2] Additional data was acquired by comprehensive desktop research using sources such as annual reports and other publicly available information.

The service robot industry is more diverse and less tangible than the industrial robot industry. The IFR SD is currently aware of 944 service robot producers worldwide. This excludes prototyping services (i.e. companies that develop service robot prototypes upon request but do not intend to go into serial or mass production) and system integrators (i.e. companies that buy a third-party robot to create a service robot application). Many companies are still in the product development stage and do not have marketable products yet. The fact that 51 companies in our sample do not have any sales yet emphasizes this. These companies are still at the funding or prototyping stage and intend to offer a marketable product in the future. IFR Statistical Department is continuously seeking new service robot producers, so please contact statistics@ifr.org if you represent such a company and would like to participate in the annual survey.

The data reported here is sample data. It is not projected to the whole industry. It thus underestimates the actual sales figures and should rather be interpreted as a **minimum level of sales**. As the survey participation and the desktop research generate different sample compositions in each survey wave, the **statistics should be interpreted as cross-sectional. The IFR SD strongly discourages the creation of time-series data, compiling data from different issues of this publication**.

Table 1.5 presents more details on the sample and the relation to the statistical population. The statistical population consists of 944 companies. Thereof 413 companies are from Europe (44% of the total population), 305 companies are from the Asia-Pacific region (31% of the total population), 223 companies are from the Americas (24% of the total population, almost exclusively from North America) and 3 companies are from Africa. The IFR SD is currently not aware of any service robot producer in other regions of the world. Most companies (684; 72% of the population) offer professional service robots and 212 companies (22% of the population) offer consumer service robots. Medical robots are in the portfolio of 134 companies, thereof 40% (54 companies) from Europe, 31% (41 companies) from Asia, and 27% (36 companies) from the Americas (in fact: from the United States or Canada). There are 5 companies active in all three segments (consumer, professional, medical) and 54 companies are active in consumer and professional service robotics simultaneously.

The sample includes data from 294 service robot suppliers. Thereof 51 companies reported (or desktop research suggested) that there are no sales yet. These zero reports do not contribute to the minimum number of observations required to satisfy the IFR's

[2] IFR SD gratefully appreciates the support of AER, CRIA, DIRA, JARA, and KAR.

antitrust compliance rules (see chapter 1.3). The sample includes 121 suppliers from Europe, thereof 27 zero reports, 107 suppliers from the Asia-Pacific region, thereof 5 zero reports, and 66 North American companies, thereof 19 zero reports (see table 1.5). The sample composition is well balanced with respect to the geographical distribution of the population. Across all categories and regions, the relative distribution of companies in the population and the relative distribution of companies in the sample usually deviate by 4 percentage points at most. Exception: In the category of medical robots, the Americas are slightly overrepresented (27% population, 36% sample), while Europe is slightly underrepresented (40% population, 33% sample; see table 1.6).

Table 1.5

Service robot suppliers by region of origin: population versus sample

		Total	Consumer (AC)	Professional (AP1-5,7-9)	Medical (AP6)
		companies	companies	companies	companies
Europe	population	413	68	316	54
	sample	121 (27)	17 (3)	101 (22)	14 (2)
The Americas	population	223	59	141	36
	sample	66 (19)	15 (6)	37 (8)	15 (5)
Asia + Pacific	population	305	85	225	42
	sample	107 (5)	22	77 (5)	13
Africa	population	3	0	2	2
	sample	0	0	0	0
Total	population	944	212	684	134
	sample	294 (51)	54 (9)	215 (35)	42 (7)

Source: World Robotics 2025
The sum of categories AC, AP, and AP6 exceeds the total because a company can be assigned to more than one category.
Population of service robot manufacturers, excluding companies that only do prototyping.
Sample including 51 companies that do not have sales yet (in parentheses).

Table 1.6

Representativity of the sample

		Total	Consumer (AC)	Professional (AP1-5,7-9)	Medical (AP6)
		percent	percent	percent	percent
Europe	Share of population	44%	32%	46%	40%
	Share of Sample	41%	31%	47%	33%
The Americas	Share of population	24%	28%	21%	27%
	Share of Sample	22%	28%	17%	36%
Asia + Pacific	Share of population	32%	40%	33%	31%
	Share of Sample	36%	41%	36%	31%
Africa	Share of population	0%	0%	0%	1%
	Share of Sample	0%	0%	0%	0%
Total	Share of population	100%	100%	100%	100%
	Share of Sample	100%	100%	100%	100%

Source: World Robotics 2025
The sum of categories AC, AP, and AP6 exceeds the total because a company can be assigned to more than one category.
Population of service robot manufacturers, excluding companies that only do prototyping.
Sample including 51 companies that do not have sales yet (in parentheses).

Statistics use the number of robots (“units”) as a measure (see chapter 1.4).

“Robots-as-a-Service” (RaaS) business models are accounted for by the number of robots constituting the “RaaS fleet”, i.e. robots that are available for service. IFR SD defines all business models as RaaS that have the property of the robot hardware remaining with the robot supplier. This includes leasing, hiring, and others and should be seen in contrast to traditional sales, which transfer the property of the robot hardware to the customer.

In June and July 2025, the IFR conducted a separate survey for the forecast. The current forecast is based on these results and on the IFR’s assessment of the service robotics market.