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World Robotics

Service Robots

2022

Statistics, Market Analysis and Case Studies

one market

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World Robotics 2022 – 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 Fourier Intelligence, Co. Ltd.

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We express our most sincere gratitude to all partners!

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Suggested citation: Müller, Christopher; Graf, Birgit; Pfeiffer, Kai (Eds.): World Robotics 2022 – Service Robots, IFR Statistical Department, VDMA Services GmbH, Frankfurt am Main, Germany, 2022.

Short citation: World Robotics 2022 – Service Robots

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ISBN 978-3-8163-0753-2

Executive Summary World Robotics 2022 - Service Robots

The service robot industry is more diverse and less tangible than the industrial robot industry. The IFR SD is currently aware of 1,010 service robot producers worldwide. This excludes prototyping services and system integrators. Many companies are still in the funding or prototyping stage and intend to offer a marketable product in the future.

In 2021, worldwide sales of professional service robots grew by 37%. More than 121,000 of the units sold were reported to the IFR SD. The size of the RaaS fleet more than doubled to about 5,200 units (+125%).

Mobile robot solutions are already established in **transportation and logistics** (AP5) with 45% more units sold in 2021. More than one out of every three professional service robots sold in 2021 was built for the transportation of goods or cargo. Traditional sales remain the main channel of monetarization, but RaaS business models enjoy growing popularity: The RaaS fleet grew by 86% in 2021. **Hospitality** robots (AP8) enjoy growing popularity. Sales were up 85% in 2021 and the RaaS fleet size is growing rapidly. Sales of **medical** robots (AP6) were up 23%, including surgery robots, robots for rehabilitation and non-invasive therapy, and robots for diagnostics. Demand for **professional cleaning** robots (AP2) grew by 31%. There are some RaaS offerings, but the number of robots in the fleet shows that traditional sales are by far more common as a business model. Robotics is an important part of digitalization in **agriculture** (AP1). Demand grew by 6% in 2021. There is a lot of research and development into the use of robots for the cultivation (AP11) of plants and crops, which encompasses a variety of tasks. Due to the technological complexity, the practical use and economic benefit of these robots is often still limited, and it requires some pioneering spirit (and funding) for farmers to use a robot in the field. There are several robotic devices for **inspection and maintenance** (AP3) available, but the portfolio of robots that conduct inspection and maintenance tasks autonomously (see chapter 1.4 for the difference between robots and robotic devices) is still limited but growing. Sales were up 21% in 2021. Robots for **construction or demolition** (AP4) tasks constitute a small but growing niche market. Another growing market is the application group of **search and rescue and security** robots (AP7).

Chapter 2 of World Robotics 2021 Service Robots provides a detailed analysis of IFR's annual survey among service robot suppliers. Chapter 3 provides detailed descriptions of the tasks that service robots can do, the state-of-the-art in applied research, cost-benefit considerations, and marketing challenges for each application class (see application class scheme in chapter 1), prepared by the robotics experts at Fraunhofer IPA.

The service robot industry is developing at a high pace. Lots of start-up companies appear every year, developing innovative service robot applications and improving existing concepts. But it is also true that many of these young companies disappear as soon as they emerge. Some of them are acquired by incumbents, others are acquired by companies from other industries that want to expand into service robotics. Then again, there are those that just go out of business because they fail to develop a marketable

product or there is insufficient demand for the specific product. All of this describes a young and growing industry with a rapidly developing technology. Chapter 4 of World Robotics 2021 Service Robots offers an industry structure analysis more than 1,000 service robot suppliers currently known to the IFR. This includes a full list of all companies and the applications they provide. **Customers of World Robotics Premium are now able to download this list in Excel format**.

Although the service robotics industry is a young and growing industry, 87% of the suppliers are considered incumbents. This includes mature service robot suppliers as well as companies from other industries that added service robots to their portfolio. The IFR's market observation suggests two reasons for the decreasing share: Some market segments have already achieved a level of maturity that sees companies growing, for instance AMRs for warehouse logistics. Sales of AMRs have been growing strongly for many years now and companies grew and became incumbents. Further, founding activities shifted away from the development of robot hardware. Many service applications are based on collaborative industrial robots, purchased from an industrial robot producer. The service robot supplier is therefore not considered a robot producer as the robot is purchased from a third party. These companies act like a system integrator, combining different components and developing software to create a solution.

828 companies (82%) are classified as producers of professional service robots. Most of these companies, 400 (48%), are in Europe, followed by (North) America (211 companies; 25%), and Asia (206 companies; 25%). 240 companies (24%) are classified as consumer service robot producers. 38% are in Asia (91 companies), 36% of them are in Europe (86 companies), and 26% are in (North) America (62 companies).