The Robot & AI Revolution

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Robot research is one of Japan's areas of specialty. With 310,000 units, Japan lead's the world for the number of industrial robots in operation (2013). The level of research and development of robots at universities and research institutes is also high. People point to influences such as the popular Japanese anime *Astroboy*, with its robot protagonist, as the backdrop to this.

Based on these circumstances, the Abe administration has positioned the robot industry as one of the growth strategies in its economic strategy 'Abenomics.' In light of Japan's declining birth rate and aging population, there are high hopes in particular for the foray of robots in the field of nursing care.

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On the other hand, however, common problems from other fields of Japanese industry can also be seen in the field of robotics. Our processes for turning the seeds of new technology into a commercial product are feeble. We are strong at fundamental research, but weak at practical realization. For example, take the case of the vacuum-cleaning robot Roomba, which was productized by a US corporation. It's said that, although a Japanese electronics company also had a plan of the same type, it never reached practical realization because they considered the risk of accidents to be too great. After the Fukushima Daiichi nuclear disaster too, the first rescue robot to be sent in was not Japanese, but American made. It is said that, while the capabilities of the Japanese rescue robot were high, it had poor operability, and controlling it at the scene was difficult. In the US, there are strong demands from the military field, and makers come under intense pressure to ensure that even advanced technology can

be used easily, by anyone on the battlefield. But in Japan there is no feedback of that kind, and in the future too it seems likely that there will be strong resistance—both social and cultural—towards collaboration with the military sector.

How can Japan relax these kinds of constraints, and turn that into a detonator for an industrial explosion? How will the Japanese robot industry and robotics research deal with these problems? The following articles consider that outlook.

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