

Wearable Robotics - Opportunity for the Automotive Industry

By Sigune Suttner, Founder and CEO, StraightWalk.

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The global automotive industry is experiencing a wave of transformation processes with a shift towards zero emission solutions and new mobility concepts. This unprecedented industry openness creates an opportunity for the emerging wearable robotics market to become a game changer in the factory of the future, where human safety and health is key priority.

These days, vast majority of automotive workforce on the assembly lines suffer from musculoskeletal diseases. The major causes are overhead work for an eight hour shift, lifting heavy objects, and assembling parts in record time. Resulting muscle fatigues and injuries affect the overall productivity and motivation and increase the costs of healthcare. Every year, 8.5 out of 1000 workers have to stop working because of back pain problems, while 20 percent of automobile manufacturing workers suffer from the back pain during a period of 1 year.

Wearable robotics and, in particular, exoskeletons have become a solution to create an ergonomically safe and sustainable working environment. It is a fast-growing market valued at \$130 million in 2018 and is projected to rapidly grow at a CAGR of greater than 58 per cent to 5.2 billion by 2025. Key mega trends, such as increasing focus of the society towards health and quality of life, as well as demographic changes in the aging workforce, drives the demand for wearable robotics. A major push comes from the automotive industry. This year, the inflection point has been reached and companies like Ford, Toyota, and Volkswagen have been demonstrating how to design ergonomic workplaces where exoskeletons support workers during physically challenging tasks.

To fulfil the demand, many established companies as well as startups have entered the wearable robotics market. The majority of companies targeting industrial applications develop passive exoskeletons such as EXOS by Crimson Dynamics; a China-based start-up focused on wearable devices to assist the shoulder and arm, reducing fatigue and risk of muscle injuries during overhead tasks.

Another approach is active system. By using advanced technologies and gait data recognition, a French biomedical company, Japet, developed ‘Atlas’, a back exoskeleton that uses four micro motors for ambulatory vertebral traction, which provides immediate pain relief to workers that suffer from back pain. The solution also includes analysis of the gestures and postures to suggest safer movements and avoid future injuries. Such technologies will have a major impact on the quality of life and result in improved efficiency and production performance.

I believe that in the next 20 years, wearable robotics will become a standard of safety and ergonomic requirement in the industry, especially in automotive. However, these days attention from the investors to the industry of wearable robotics is still small. My vision is to build a global and sustainable future for human bionics mobility. This is the reason why my team and I founded StraightWalk: a global advisory and investment firm that is going to establish the first human robotics fund to invest in the leading robotics start-ups and to accelerate the global ecosystem and value chain for wearable robotics.