

Insight Letter

Innovation gains traction

Miroslav Durana, PhD, Wayne Cawood, [insight\(at\)durawealth.com](mailto:insight(at)durawealth.com)

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1. Innovation gains traction

Investing in innovation allows to stay calmer in today's volatile markets, as it implies identification of new secular growth areas with a sustainable growth potential over several years. In today's digitized society, tech devices and related progress are transforming every aspect of our lives. The spending on production of the essential transformative technologies is set to be high over numerous years. Research shows that the global GDP is set to be at up to 14% higher in 2030, adding an extra USD 15.7 trillion thanks to the industry-wide implementation of smart systems using artificial intelligence (AI) processes. This fast shifting economy belongs to the biggest business opportunity that gets accelerated by the current pandemic¹⁻³. The future of transportation will rely on electric / autonomous cars and will gradually replace internal combustion engines. The future's industries will rely on automation / smart factories to enhance productivity gains while meeting new unmet market needs. The future's life science will rely on targeted, gene-based therapies to cure incurable disease like cancer. For all these new areas, the hardware i.e. intelligent, programmable and deep learning chipsets will be at the core of this societal transformation.

2. The digital, automation and AI related industries are the bright spot in the next years

In 2020, the TSMC starts to mass-produce semiconductor chips with a 5 nm* process (* see acronym below) and in 1-2 years likely with a 3 nm* process (see the roadmap in Fig. 1) by using Extreme Ultraviolet lithography (EUV) systems. Compared with the 5 nm process, the transistor density should increase by 15%, the compute power by 10-15% and the energy efficiency by 20-25%. Few firms contributed with their own transformative technologies to produce these chips, each one with over 10 bn transistors.



Fig. 1: Technology roadmap for semiconductor process technologies

* Acronym: 1 nm denotes 1 nanometer or billionth of one meter;

Fig. 2: A smart robot
(Source: industry data, Samsung)



Fig. 3a: From internal combustion engines to electric & autonomous cars

Fig. 3b: A smart car cockpit

The Asia's and US tech ecosystems have increased pace to harvest the future market gains in the high-tech and artificial intelligence i.e. AI space. Roadmaps above show the fast evolving chip industry that enable the shift in various industries in the next decades, such as the shift

- from non- or semi-automated factories to robots and smart factories (see Fig. 2),
- from internal combustion engine to electric cars (see Fig. 3a, b) and
- from traditional health care to new precision diagnosis and medicines, and gene-based therapies.

Since a decade the chip process (nodes) went down from 40 nm to 5 nm that led to the fabrication of chips with greater computing power, transistors' density and energy & material efficiency. This allows to produce chips with new features such as artificial intelligence or deep learning applications. The above named chipset contains a neural processing unit to enhance data processing via AI-related processes. Future tech devices like autonomous cars, robots, tools for machine vision, smart factories or those for life science / genomics will use intelligent chipsets to execute their dedicated tasks while allowing higher productivity gains, lower labour intensive tasks or cure many incurable diseases. These new industries are linked to secular growth fields that are set to accelerate beyond 2020 ³.

3. Double-digit growth prospects for secular growth areas with chipsets

Artificial intelligence is an umbrella term that includes multiple technologies, such as machine learning, deep learning, computer vision, natural language processing, to name a few. AI can be defined as an information system which is inspired by a biological system designed to give computers the human-like abilities of hearing, seeing, reasoning and learning. Chipsets with AI can be segmented into various categories: central processing units, graphics processing units, field-programmable gate arrays, application-specific integrated circuits and system-on-a-chip allowing to accelerate AI-related tasks.

AI has applications in almost every industry and is considered as the next big technological shift, similar to past shifts like the electricity in the 20th century, the computer age since the 1960's or the smartphone revolution since the 2000's.

Given the numerous applications, research shows that the intelligent chipsets are projected to grow in excess of 25-50% annually and exceed 70 Bn by 2025, as shown in Figure 4.

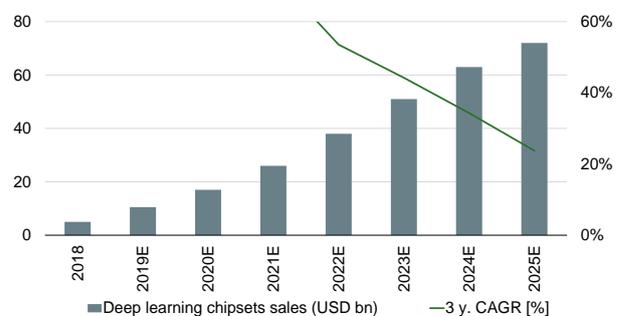


Fig. 4: The chipset market is set to grow 25-50% p.a. to exceed 70 bn by 2025E (Source: industry data, Tractica)

4. Key takeaways

Intelligent chipsets and allied technologies are the backbone for automation, smart factories, cities, farming and new healthcare, self-driving cars and many industrial areas for the next years.

DuraWealth's core competence englobes a rigorous research process allowing to define secular growth areas, to analyse the related technologies and the most innovative companies, and to manage distinct systematic equity portfolio strategies. Secular growth areas as such are likely to flatten swings of traditional economic cycles. A longer view allows to optimally benefit from the related market dynamics.

For more information or sharing your views, get in touch with us and follow us at the [LinkedIn](#)  or via our Website durawealth.com

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