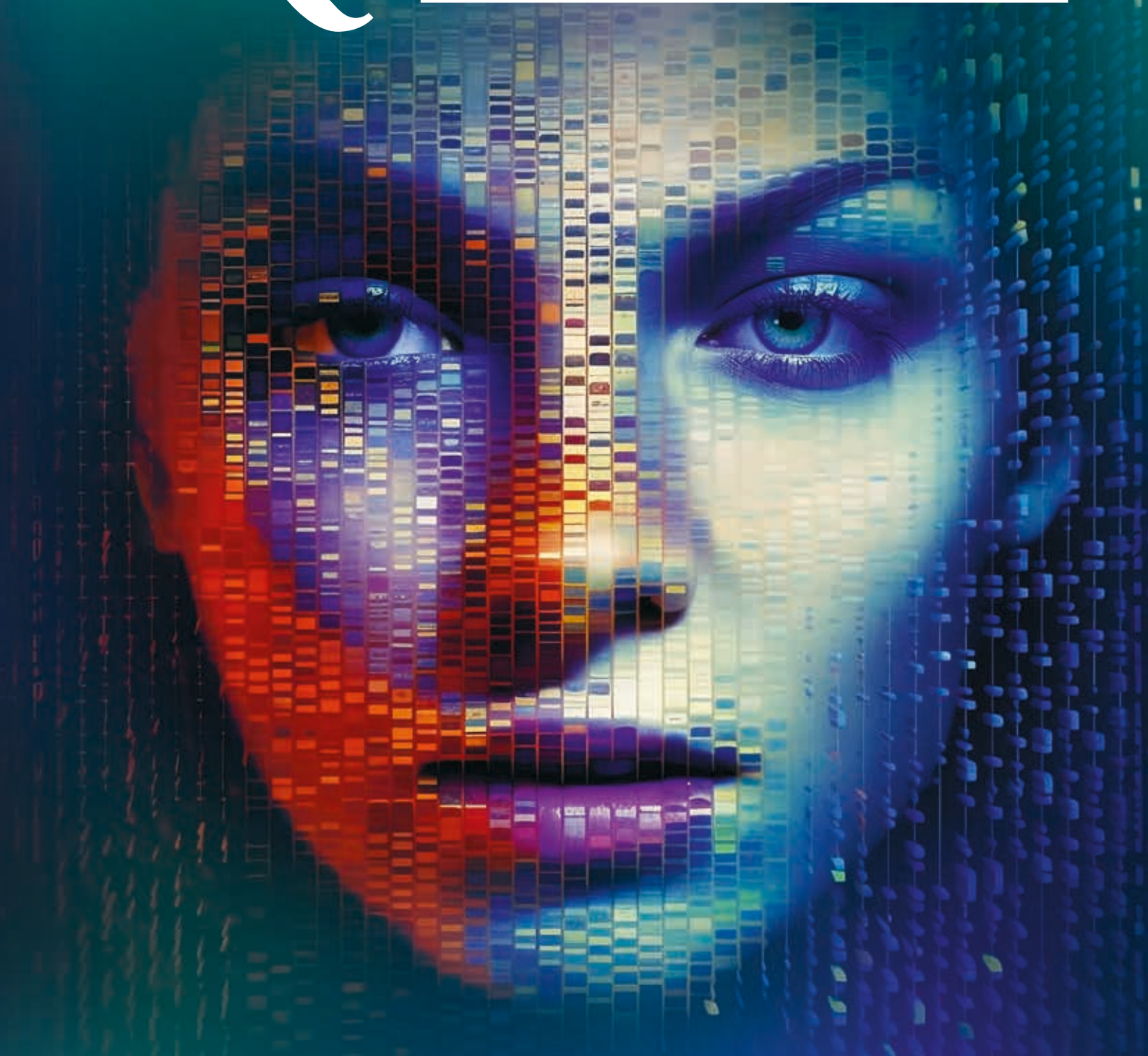
TQ

HUMAN MACHINE INTERFACES

FUTURE MARKETS MAGAZINE by EBV Elektronik



WITH SPEECH, GESTURES AND THOUGHTS? THE FUTURE OF MACHINE INTERACTION.

"The human machine interface market is forecast to grow rapidly with the integration of technology."

Kanhaiya Kathoke
Research Analyst, ICT and Media at Allied Market Research

10.8

billion US dollars
Global market volume for
Human Machine Interfaces in 2031

Source: Allied Market Research

FROM LIGHT SWITCHES TO GESTURE CONTROL

Technology has become an indispensable part of our day-to-day lives. Controlling it requires humans to interact with the device, machine or technical system in one way or another – which is where Human Machine Interfaces (HMIs) come in.

HMIs come in many different forms; you could even consider the humble light switch to be an interface between humans and machines (in this case a bulb). However, as new technologies come onto the market and our world becomes increasingly digitalised, HMIs have also become much more complex and challenging. The products released by Apple, for example, demonstrate very clearly how a product's appearance and a user-centric, intuitive operating concept can play a pivotal role in setting a brand apart and in providing a consistent user experience. As a result, the latest Human Machine Interfaces are made up of an entire system of hardware and software components. Motion sensors, various different peripheral devices, voice control and other solutions are all used to convey a person's instructions to the machine and send corresponding feedback. New ways in which humans can interact with technology are continually emerging, with a variety of HMI solutions now ranging from multi-touch screens and remote touch systems (where machines are controlled using a smartphone) all the way through to voice and gesture control.

These modern interfaces not only make it easier to use machines and devices error free, they also lower the operating costs (as fewer display panels and cables are needed) and allow for tailored designs to suit different users and applications. As a result, market analyses are forecasting stable growth in the Human Machine Interface segment. For example, Allied Market Research estimates that the global market for Human Machine Interfaces will grow from 4 billion US dollars in 2021 to some 10.8 billion US dollars by 2031.

Modern HMIs are based on MCUs, processors, sensors and, of course, software. They even use artificial intelligence, meaning they need high-performance microcontrollers and chips. Unfortunately, there are currently no available up-to-date figures on the potential market for semiconductor solutions in the HMI segment. However, if we look at various market analyses for micro-electronic components, it is plain to see that the HMI segment offers huge potential for the semiconductor industry. For instance, according to Reports Insights, the market for capacitive sensors is set to grow by an average of 5.3 percent annually until 2030, driven by trends such as the increasing demand for capacitive sensors for use as touchscreen input devices on smartphones, tablets and wearables. The growth forecast for contactless gesture recognition systems (which require a range of different semiconductor solutions) is even more impressive: according to Allied Market Research, this segment is set to grow by an average of 21.5 percent annually until 2031. The world of HMIs is diverse and complex, so this issue of "The Quintessence" aims to provide an overview of the different technologies and the latest trends. Our experienced experts would also be pleased to assist you if you have any questions regarding HMIs or the necessary semiconductor components.

I hope you enjoy reading "TQ of Human Machine Interfaces" and discovering more about this fascinating world.

William Caruso
President of EBV Elektronik

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"I think the risk is more likely to be another human having access to someone's thoughts."

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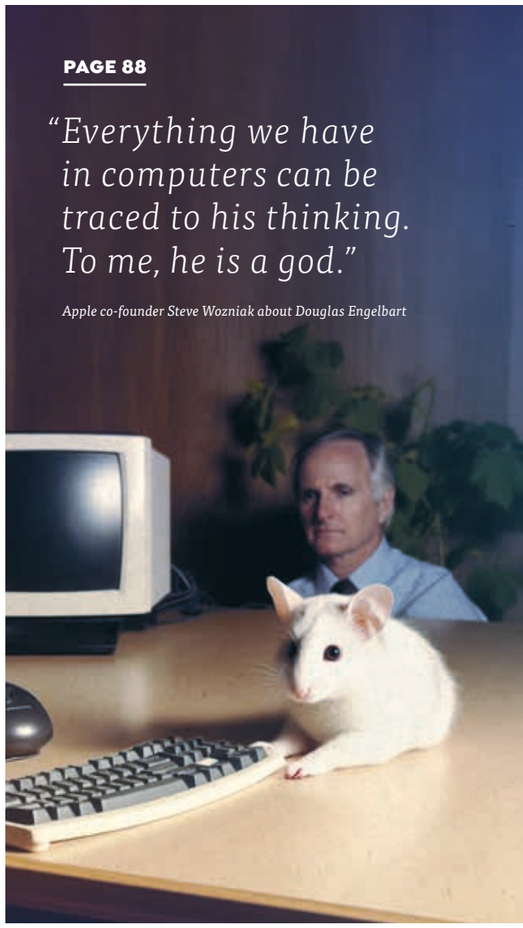

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