

## Innovative machine operation Executive Summary



# Moving on to more productive and sustainable machines with modern operating concepts

## Build it in.



**Modern society is no longer imaginable without smartphones. Accessing information and data at any time, controlling apps and devices with touch technology and communicating constantly has long been the norm in everyday private life. However, smart devices are becoming more and more prevalent in working life and not just in management and sales. Production managers and service employees alike are also benefiting from being able to access detailed machine status, data sheets and service plans via web access. The result of having this data at hand is reduced machine downtime and increased productivity.**

The current 2016 mechanical engineering market study, shows that the importance of control units continue to rise and the market is demonstrating strong growth. When compared to previous surveys, it is apparent that trends show a clear move towards touch screens and mobile control devices.



*Powering Business Worldwide*



In his white paper “Correctly Integrating New Operating and Visualisation Concepts”, Tobias Ischen presents basic operating and visualisation concepts. He also examines ways in which mechanical engineers can already design their solutions to meet the requirements of industry 4.0 / IoT, as well as the needs of future operators - digital natives. Standardisation and security also plays a key role and the paper goes on to address why the human machine interface (HMI) should be part of overall system architecture.

With all the excitement around what the digital world can offer, machine manufacturers and original equipment manufacturers (OEMs) should not lose sight of both the suitability and usability of modern digital designs in industry. In Europe, industry must comply in particular with the Machinery and Low Voltage Directives (2006/42/EC and 2014/35/EU), the EMC Directive (2014/30/EU) and the RoHS Directive (2011/65 / EU) plus all their derivative regulations. These directives and regulations set out the exact parameters in which engineers can operate.

In addition to the clear requirements set out in the European standards, export-focused OEMs and mechanical engineers must observe local regulations in target markets. Even minimal deviations from local standards can have far-reaching consequences, which can lead to complex redesigns and delayed market launches. The financial losses resulting from this can be significant.

In general, human-machine interface is not to be viewed in isolation, but more as an integral part of the complete concept. As a complement to traditional modular and compact controllers, HMI/PLC machine manufacturers also offer a range of capabilities for implementing a variety of concepts with different architectures and components. These cannot only be tailor-made to specific customer requirements, but also offer synergy for entire machine lines due to their modularity and scalability. A separate configuration for the operating concept and the machine control can be useful if the control system has to be modified, due perhaps to the previously mentioned country-specific guidelines.

Finally, the white paper takes a look at the evolution of control elements, from the classic push-button to intuitive multi-touch operation. The author explains why simple command and signalling devices still have a *raison d'être*, and how machine manufacturers can optimise processes by outsourcing individual work steps to component suppliers.

HMI operating and visualisation concepts are still in their infancy. With 3D, force, skin and hologram touch, the technologies of the future are already in development.

**Download the white paper here to find out how you can make your machines fit for the future with modern operating concepts:**

[Eaton.com/en/HMI](http://Eaton.com/en/HMI)

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