Industrial Information Technology is Coming of Age

Over the last decade Information Technology (IT) has had a profound impact on the evolution of industrial enterprises toward fully integrated entities. Nowadays we witness a major effort led by some of the largest multinationals to harness IT to achieve integration of I/O control, device configuration, and data collection across multiple networks and plant units; seamless integration between automation and business logistic levels to exchange jobs and production data; transparent data interfaces for all stages of the plant life cycle; the Internet- and web-enabled remote diagnostics and maintenance, as well as electronic orders and transactions. Some of the IT solutions and technologies used in the office and enterprise operation have been adopted and/or transformed to suit and advance industrial controls and automation, as well as industrial enterprise integration: OPC (OLE for Process Control), Real-Time Corba, Real-Time Linux, Windows CE, real-time specification for Java (Real-Time Specification for Java, RTSJ, developed by Real-Time for Java Expert Group, under the leadership of Sun Microsystems; Real-Time Core Extensions, RTCE, created by JConsortium's Real-Time Java Working Group), and Real-Time UML are good examples, to mention some. The Internet technologies extended the boundaries of the operation of industrial enterprises to their customers, suppliers, as well as the management and technical staff through electronic commerce, B2B, remote data access, and monitoring and control. The industrial IT field spans a number of technological areas such as sensors and actuators, embedded systems, automation networks including wireless, web and networking technologies, integration technologies including middleware, programming languages and development platforms and environments. Those technologies, when used in an integrative way, offer a potential and are used for horizontal and vertical integration of functional layers of industrial units and enterprises, thus transforming traditional islands of automation into more integrated enterprises better adjusted to cope with the demands of competitive markets.

The Industrial Electronics Society (IES) has been one of the leading IEEE Societies activities, initiatives, and publications of which have always reflected the changing landscape of the industrial automation. IES activities in the area of robotics, and particularly industrial applications of robots, gave rise to the establishment of IEEE Robotics & Automation Society, with the management core emerging from IES. IES was the driving force behind setting up ASME/IEEE Transactions on Mechatronics in 1994. In 1997, in response to a demand for a publication venue to cover the broad area of industrial automation, IES proposed IEEE Transactions on Factory Automation. The culmination of the IES efforts to lead the industrial automation area was the establishment of IEEE Transactions on Industrial Informatics in 2005. All that was possible thanks to the vision of a few individuals who saw the industrial automation as the investment area, and their relentless pursuit of this vision. Two individuals have always been at the forefront of this pursuit: James C. Hung and J. David Irwin – both Past Presidents of the IE Society. Both visionaries.

IEEE Transactions on Industrial Informatics has undergone a remarkable transformation over the past two years; matured to be one of the most sought after publication venues for material on advances in industrial automation, with submissions streaming from academia and industry alike. This transformation and attainment of the current status

were wisely engineered by Prof. Okyay Kaynak, Past Editor in Chief, who, all to his credit, made a substantial effort to secure and publish quality material and increase visibility of the journal. I would like to take this opportunity to thank Prof. Kaynak, as well as the Associate Editors and Reviewers, for their outstanding work.

I am honored, and indebted to the Industrial Electronics Society for entrusting me this journal as the Editor in Chief. I shall continue to strive to improve quality of the published material, and seek to publish material reflecting broad interests of the journal's readers, with topics ranging from embedded and field devices to automation networks, to web and networking technologies, to integration technologies, to programming languages, as well as software platforms and environments used in industrial automation.

Richard Zurawski