



ELECTRICAL, CONTROL & INSTRUMENTATION (E, C&I) ENGINEERING

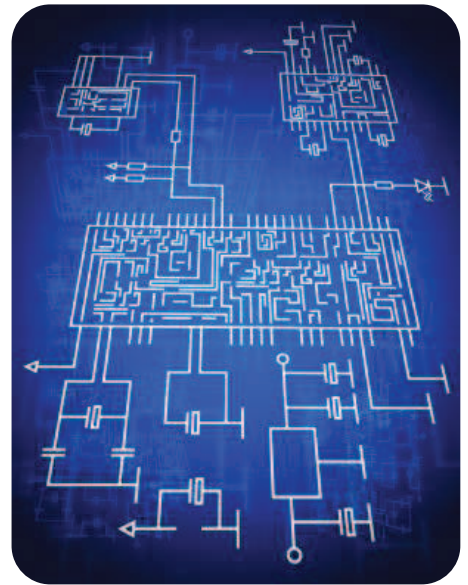
Using technology to simplify, standardise and optimise output.

SERVICES

- Automation Consulting
 - Automation audit and roadmap design ('Master Plan')
 - User requirements specification
- Project Management
- Design Review
- System Audits
- Procedure Development
- General Support
 - Managed services

BUSINESS CHALLENGE

With the rapid development and proliferation of microcomputers and software technologies, automation has become almost totally dependent on the capabilities of computers and software to automate, optimise, integrate, analyse and even automatically control the various components of manufacturing and production processes. Today, industrial automation has high computing capabilities, vastly improved visual systems and increasing operational degrees of freedom.



Forthcoming industrial automation will be multi-functional with many capabilities associated with human workers, such as the ability to make decisions and to work autonomously, and doing intelligent tasks such as self-diagnostic and scheduling predictive maintenance. Thanks to innovative industrial automation, the future will be more efficient in the utilisation of energy, raw materials and human resources, in a much more efficient and productive workspace.

Automation therefore plays an increasingly important role in the global economy and in the daily production of much needed products to feed the expanding global supply chain. Engineers strive to combine automated devices with mathematical and organisational tools to create effective systems and solutions for a rapidly expanding range of applications and human activities, at reduced risk and lower cost.

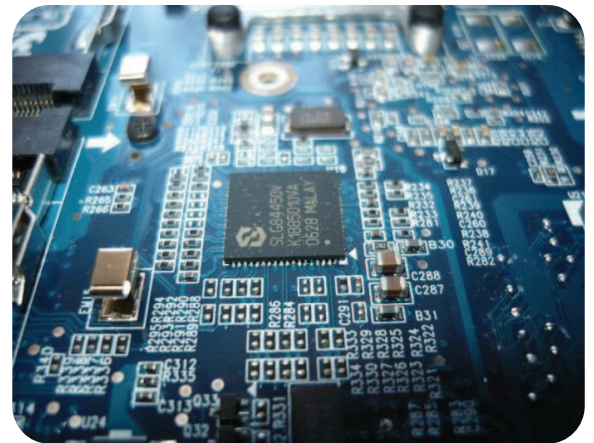
Similarly electrification is one of today's defining global trends, as worldwide demand for electricity is expected to increase by another two-thirds by 2035. Electricity is the basis for a sustainable energy supply for industries, buildings, and facilities. In addition, its generation is becoming increasingly decentralised.

In this current era of high population growth, increasing urbanisation, technological change and cost pressures, the sustainable management of limited resources is an important issue. Rising energy demands must be reconciled with increasing environmental awareness and a desire to reduce CO2 emissions. At the same time, requirements concerning reliability, personal safety and productivity are increasing.

SOLUTION

Automated factories and processes are too expensive to be rebuilt for every modification and design change, which have become highly configurable and flexible.

The promise of remote-controlled automation is finally making headway in manufacturing and production settings, and maintenance applications. Networked intelligence is now well developed and communications support of a very high order is widely available for automated processes with intelligent sensors, fast networks, quality diagnostic software and flexible interfaces. High levels of reliability and pervasive access to hierarchical diagnostics of large data and error-correction advisories through centralised operations is becoming the order of the day. Furthermore, safe, reliable and sustainable energy supply for low and medium voltage solutions, in accordance with client requirements, for every distribution level, every power range, and every application type is required.

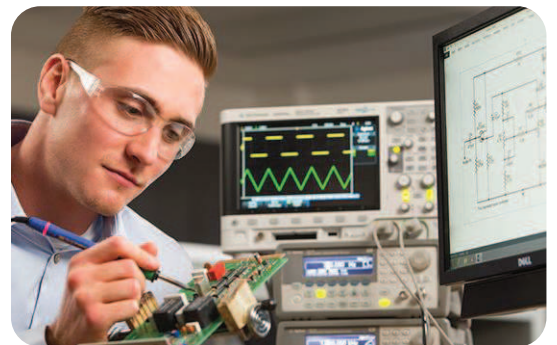


Bureau Veritas delivers best-of-breed value-adding technology solutions that empower its clients with optimal automation and information management solutions through the utilisation of its engineering team.

KEY BENEFITS

Some of the key benefits include:

- Risk gap analysis for industrial automation to define improvement potential of process- and manufacturing operations performance;
- Definition of new production requirements enabling the development of value adding solutions for overall operational improvement;
- Definition of equipment efficiency optimisation and asset performance management enabling alignment with global best practices for industrial asset efficiency;
- Process control and plant control instrumentation solutions:
 - enable safe production plant control with reduced risk of injury and increased profitability,
 - measure, monitor and control manufacturing processes and activities in real-time,
 - identify and correct any abnormalities or variations from specified set-points, either manually or automatically,
 - ensure consistent production with the optimal use of available resources,
 - monitor production operation of each part of the process, identify unwanted changes and initiate any necessary corrective actions to operators;
- Properly integrated automation and operational systems constantly provide accurate real-time aggregated parameters to enable business and analytical systems for effective data analysis that provide accurate reports that enable informed business decisions; and
- Well-constructed service level agreements (SLA) provide major benefits to production facilities, including:
 - indirect access to a team of well-experienced engineers,
 - pre-scheduled managed monthly maintenance,
 - better utilisation of plant engineering resources for constructive engineering tasks.



Other advantages of industrial automation include: improved productivity and consistent quality, reduced downtime, risk, waste and costs, increased efficiency and safety, reduced handling and lead times, simplified production and improved work flow and performance, and accurate production reporting.

RELATED SERVICES

Documentation

Technical support and user operating manuals are developed from the documentation that was signed off by the client during the testing and commissioning phases.

Post go-live support

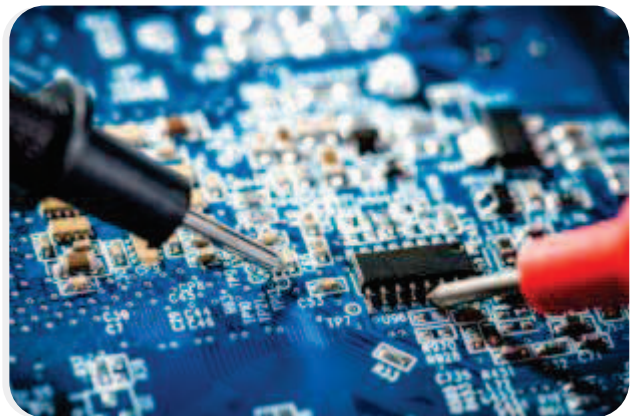
For a pre-determined period after start-up, engineers can be provided on site to assist plant operators and technical staff with operating the plant, and with first line maintenance. This is a dedicated function to ensure that the plant operates under normal operating conditions in accordance with the defined user specifications.

TOOLS AND TRAINING

Training is provided as part of the implementation of a solution. It is critical to ensure that the client is self-sufficient in the support and maintenance of the system, after project completion. Therefore, the focus of training is on trainers or section supervisors, referred to as "super users", to ensure that employees can be trained by the client's personnel.

Training is conducted using a two-pronged approach:

- **Technical staff training:**
Client technical resources are invited to partake in the different project stages to ensure effective knowledge transfer. In addition, technical staff is trained on the specific application implemented, to be able to provide first line technical and operational support.
- **Operational staff training:**
On-site training is provided to the client's production and operational staff. The purpose of this training is to familiarise the operational staff and plant operators with the developed documentation and how to use it for day-to-day-operations and basic fault finding.



INDUSTRIES

- Mining, Metals & Minerals
- Coal
- Ferrous Metals
- Precious Metals
- Minerals
- Food & Beverage
- Manufacturing
- Chemical
- Utilities

CONTACT

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