Automation on the upswing

GAMBICA's deputy director and convener of the organisation's Variable Speed Drives group, Steve Brambley, explains why the invention of the wheel provides valuable insight for succeeding in today's growing automation market.

The wheel is considered one of humanity's major breakthroughs. However, without a decent network of roads, the invention is of little use, which is why litters were still used as transportation in Britain until the 18th century. One reason was the poor quality of roads, which made vehicles with wheels impractical, slow and sometimes unreliable.

Like the wheel in ancient times, many inventions and innovations today aren't very valuable unless they are part of a bigger infrastructure; a larger, more complex system. Just like many other technologies, industrial automation realises the most benefit when it is integrated in a systematic way. In order to be successful, businesses and governments need a coordinated, long-term strategy.

Automation can often make an attractive business case, because ROI (Return on Investment) in this sector is quantifiable. Automation products such as Programmable Logic Controllers (PLCs) and Variable Speed Drives (VSDs) respond to an organisation's need for adaptability and energy efficiency.

By using intelligent control methods and taking input from sensors, other machines and other systems, real-time decisions can be taken automatically, to optimise the process. For instance, adapting the motor speed to meet the real-time power requirements using a VSD can often save 30% or more of the amount of energy used by industrial electric motors. This reduces costs and maximises ROI.

In order to keep the momentum and encourage manufacturing companies to invest in growth, the main requirement is political and economic stability. Building on this, automated manufacturing players from around the world have been experimenting with leading-edge initiatives and business practices.

Industry 4.0

Industry 4.0 is a new concept which was unveiled to the world at the 2011 Hanover

Fair in Germany. It refers to a highly inter-connected stage in industry, a shift towards decentralised self-organising factories and a higher level of communication between machines. Some of these technologies already exist today; the shift would simply mean using them on a larger scale and integrating them in the industrial process.

Industry 4.0 would allow industrial machines to communicate with each other and the products they manufacture. It would also grant more autonomy and decision making capabilities to individual machines and would encourage higher degrees of customisation. Alongside the German Government, Siemens has played a key role in promoting the concept and including it in future strategies of industry leaders. Industry 4.0 smart factories will represent a highly competitive advantage for manufacturers.

Investing in innovation

Growth is impossible without investment. Some countries are currently more active than others in allocating funding to industrial automation. Historically, Germany is a key international manufacturing and automation player. This explains why the country currently invests ten times more than the UK in this sector.

The German federal government has made approximately €200 million available to help industry associations, research institutes and companies develop implementation strategies for Industry 4.0. Coordinated efforts and research projects such as the RES-COM project or the Intelligent Technical Systems OstWestfalenLippe (it's OWL) cluster, have already been launched.

Other areas of the globe are also following this investment trend. The Asia-Pacific region accounts for more capital expenditure on industrial automation products than anywhere else in the world, with 46 per cent of global investments in 2012, equivalent to $76.6 billion.

Strategic investment, particularly in research and development is essential for any organisation that wants to be at the cutting edge of industry. However, few can afford to make these efforts single handed. The best way to invest in innovation is to become a part of a knowledge and business community dedicated to the common goals.

Research clusters

Research clusters are collaborations between public and private sector entities, researchers and universities. The purpose of these clusters is to develop innovative products and services, and create a strategy for implementing them in the business sector.

Germany's it's OWL cluster unites intelligence from 173 companies, universities and research institutes. They are all working together to develop products and technologies to make businesses more competitive. The project explores technologies like intelligent sensors, drivetrains, automation solutions through machines and networked production plants. These technologies are then made available