BEST IN CLASS MANUFACTURING - THE FACTORY OF THE FUTURE
Technology is perhaps the greatest agent of change in the modern world. Whilst never without risk, technological breakthroughs promise innovative solutions to the most pressing global challenges of our time. From zero-emission cars fueled by hydrogen, to computer chips modelled on the human brain, emerging technologies offer a vivid glimpse of the power of innovation to improve lives, transform industries and safeguard our planet.

Manufacturing facilities have evolved significantly since the first Industrial Revolution in 1784, where the first mechanical loom was powered by water or steam. We have been in the third Industrial Revolution since 1969, enacted through the use of electronic and IT systems that further automate production. With each Industrial Revolution, complexity of manufacturing facilities continues to grow. Expectations continue to increase in regards to facilities becoming safer, more efficient and flexible, less costly, quicker to deliver, cheaper to maintain and yet still able to attract the top talent in the industry.

In the automotive sector today, consumers are demanding more connectivity and gadgets in their vehicles; at the same time, ownership is becoming more affordable, resulting in a combination of pressures for automotive organisations. These challenges are intensified by the overall global environment of pressure to reduce costs, increase speed to market and create flexible yet sustainable facilities. The fourth Industrial Revolution, otherwise known as Industry 4.0, or the Robot Revolution, is expected to dramatically transform the global economy in the next 20 years. This means manufacturing facilities need to align all activity to their business strategy and adapt now in order to be flexible enough to transform for the production of tomorrows vehicles and deliver competitive advantage.

Now vs. the future

In the current industry environment, providing a high-end quality service or product with the least cost is the key to success. Facilities strive to achieve maximum performance in order to increase profit. As such, various data sources are available to provide information about different aspects of the facility to understand current operating conditions and detect faults and failures.

In contrast, an Industry 4.0 facility, in addition to condition monitoring and fault diagnosis, would have components and systems with the ability to gain self-awareness and self-predictiveness, which will provide management with more insight on the status of the facility. Furthermore, the fusion of health information from various components of the facility will provide a precise prediction in system levels and trigger required maintenance at the optimum time to reach just-in-time maintenance and gain near zero downtime.

DID YOU KNOW

You can increase productivity by 12% through providing facilities which meet higher health, safety and wellbeing standards
How can you deliver a factory of the future?

Development of manufacturing / industrial assets needs to be undertaken as an integrated approach, with the engineering process at the centre of design and delivery. Programme integration from the outset, from strategy, planning, delivery, operational readiness and production, must be seamless.

1. Deliver through an organisational model that supports all aspects of the business
   - Full visibility of all requirements from the outset
   - Signal integrated schedule of tasks.

2. Benchmark manufacturing facilities from an efficiency, productivity and utilisation perspective
   - Effective masterplanning of facilities is critical in reducing overall operating costs
   - Ensure lean approaches are adopted throughout the creation of all aspects of a facility, from engineering process to the creation of the built asset
   - Create assets which respond to business need / change with minimal capital investment required.

3. Create facilities which are sustainable working environments of distinction
   - Establish operational strategies from early stages to allow clear cost models from a totex perspective
   - This will result in:
     - 18% increase in employee performance and productivity
     - 20% decrease in employee turnover
     - 35% increase in employee efficiency which supports overall improvements of outcomes delivered for both the business and its customers.

**DID YOU KNOW**

Through becoming the employer of choice you can increase customer satisfaction by 18%

**Embracing Industry 4.0**

- **Interoperability** - the ability of machines, devices, sensors and people to connect and communicate with each other via the ‘Internet of Things’ or the ‘Internet of People’
- **Information transparency** - the ability of information systems to create a virtual copy of the physical world by enriching digital plant models with sensor data. This requires the aggregation of raw sensor data to higher-value context information
- **Technical assistance** - the ability of assistance systems to support humans by aggregating and visualising information comprehensibly for making informed decisions and solving urgent problems on short notice. In addition, the ability of cyber-physical systems to physically support humans by conducting a range of tasks that are unpleasant, too exhausting, or unsafe for their human co-workers
- **Decentralised decisions** - the ability of cyber-physical systems to make decisions on their own and to perform their tasks as autonomous as possible. Only in the case of exceptions, interferences, or conflicting goals, tasks are delegated to a higher level.
To discuss further, or for more information, please get in contact:

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