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## Disruptive Manufacturing in the 4th Industrial Era



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The 4<sup>th</sup> Industrial Revolution has recently been defined as the alignment of digital and communication technologies. The first was driven by steam, the 2<sup>nd</sup> by mass production and the 3<sup>rd</sup> by automation. This new industrial model can be characterised by: autonomous vehicles, 3D printing and cyber-physical systems that are all connected to the Internet.

We are now in the 4<sup>th</sup> industrial era where information technology methods are likely to be deeply embedded in the processes used.

Manufacturing in Scotland represents about 10% of the economy but produces more than 50% of Scotland's exports. It is an important contributor to the Scottish economy. The productivity of manufacturing in Scotland, in terms of average valued added per person, is similar to that in the rest of the UK and Germany but significantly lower than in, for example, Sweden and USA.

The manufacturing landscape is in constant change. Now, because machines do the work it easier to compete with countries that have low paid workers. Automation can cause an increase in the number of jobs but the skill set is very different from the past. Higher level skills are needed.

Key issues are leadership and innovation. Firms need to address a wide range of issues to stay competitive. They need to look to Industry 4.0. Disruption of conventional approaches is needed.

Disrupt or be disrupted!

Summary by I MacLeod

A paper on this subject by Gordon and Nick will be published in the 2016 IESIS Journal coming out soon.