

The Digitalization of Industries

The Sixth day, a 17-year-old action movie about human cloning starring Arnold Schwarzenegger, depicted a technological future sometimes awfully close to what is possible today. Good old Arnold is remote-controlling a helicopter with a joystick, a common practice in today's drone packed modern warfare. A refrigerator reminds the Terminator to buy milk for when he's back. This as well is reality as Samsung makes connected fridges and Amazon is selling Alexa, an intelligent personal assistant that can control home devices and order directly from Amazon your milk for delivery the next morning. Technology and what it can do for consumers and warfare have long been a major inspiration for the movie industry. But how technology is changing the industrial landscape, is much less talked about and is the focus of this article.

There are many terms that have been widely used in the recent past that encompass or depict more or less the same phenomenon, i.e. Industry 4.0, the (Industrial) Internet of Things, smart factories, or our favourite expression, **the Fourth Industrial Revolution**. Ever since the First Industrial Revolution, technology has been welcomed with much dismay as the most obvious consequence is a reduction in human labour. From steam machines and good-old Windows 95 computers to the latest state-of-the-art Robotics, they all replaced to some extent humans. We see technological breakthroughs on a daily basis but surprisingly, ever since the late eighties these enhancements have rarely led to an increase in productivity, the so called Solow Paradox. The IMF recently published a paper pointing to a lack of capital as the root cause. Robots might not be that numerous at all and technological advancements might not be implemented sufficiently. This might

rapidly change. Most industries have been very slow to adapt to new technologies but many current business leaders have witnessed the demise of too many industries and companies at the hand of technology. Almost every single company we meet these days recognizes the potential business opportunities of connected devices, big data, analytics and artificial intelligence. Digital manufacturing has become a CEO-level priority. Every single industrial company now has **an internet-of-things platform to offer to clients**.

The general framework we utilize as active managers is **to analyse any trend or theme** from a top-down perspective. This in order to be able to identify where we want to position ourselves in the **value chain bottom-up**. For example, the evolution towards electrical vehicles, which we believe will happen sooner than later, we prefer to play Infineon, a semiconductor company, instead of any auto OEM. This because vis-à-vis a traditional car, a similar full electrical vehicle easily carries five times more chips. If we look at the digitization of industries, five steps can be identified: Collect, Store, Analyse, Predict and Activate. More and more data is being collected, stored and analysed but few companies are at the predictive and activate stages. **The level of digitization differs from industry to industry**. The predict and activate stage are often talked about as companies that collect and analyse data can offer predictive maintenance, i.e. fixing of replacing parts in much more timely matter, preferably before they even break down. Kone, the elevator company only just rolled out a new 24/7 digital concept a few months ago and will connect over one million units in the coming years. This will enable them to check certain things remotely while others may still require physical

inspection. But companies can offer **new value-added services** such as identification of wear and tear early, optimizing utilization and reducing downtime, making the customer more satisfied. The examples across industries are endless.

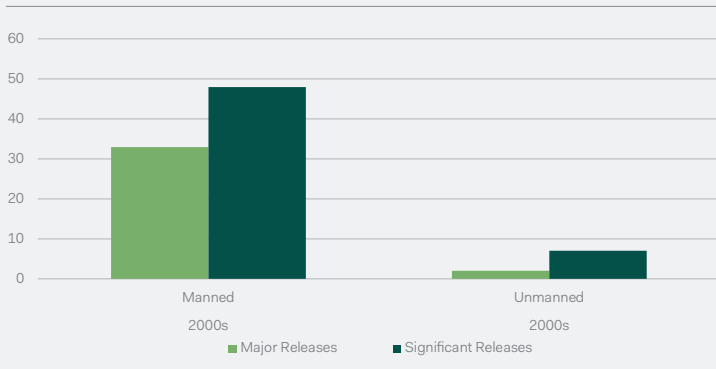
Despite the potential loss of jobs, we do believe the digitization of industries is an **interesting investment theme for our active sustainable franchises**. Among other things, the impact of technology on the environment and the increased safety for employees is underestimated. Let us look at a few examples. First, the oil & gas industry has already been digitalizing oil fields in the past years. However, most oil fields remain legacy oil fields and only limited value is being extracted from many digital oilfields today. A 2015 McKinsey study found that a typical offshore oil rig had 30,000 sensors but only 1% were actually used. That being said, there are two important incidents in the oil space: hydrocarbon releases (oil or gas spills) and physical injuries. As seen in the graph below, fully digitalized oilfields with remote controlling lead to less major and significant releases of hydrocarbon into the air or in the sea. Remote controlled digital oilfields require less or no workforce at all in place, reducing the number of injuries as well. One could dare to say that the Deepwater Horizon explosion at the Macondo oilfield might have been avoided given proper predictive maintenance. Secondly, several studies found that water pipes lose between 2 and 2.5 trillion gallons of water each year in the U.S. or roughly 14% of public supply. The problem originates from an ageing pipe infrastructure, in some areas almost 100

leak detection solutions can help municipalities identify and fix these problems. Remote patient monitoring is another example in the healthcare industry with lifesaving benefits.

Given all these trends, the question remains **how to best play this trend from an investor perspective**. Although nobody knows exactly, the number of connected devices, from cars to machines to people, are estimated to pass the 1 trillion mark by 2035, growing 25% yearly. All these devices will contain semiconductor chips and need to be connected in some way, either via Bluetooth, Wifi, wireless (4G or 5G) or any other method. We are cautious on the collect and store part of the process as we believe this is the commoditized part of the chain. We believe some software players, such as Dassault Systemes (DS) and SAP carry the real added value when moving into the last 3 stages of digitization and automation. As legacy players in the Computer-Aided-Design and ERP software respectively, their revenues from pure IoT applications are relatively limited as we speak. However, we believe their offerings strengthen the stickiness and added value of the core business. With respect to the example of water networks we play Xylem, in our opinion the best way to capitalize on the accelerating investment in water infrastructure. Xylem is also a global leader in smart meters, network technologies and advanced data analytics solutions for the water industry.

From smart factories and smart grids to entire smart cities, technology will undoubtedly continue to change our society. Some areas will go fast and others will move slowly. Those who don't adapt will fall behind and innovation and creativity will more than ever be key to success going forward. Our mission is **to invest sustainably and successfully in this changing landscape**.

Fully digitalized oilfields (unmanned) lead to less hydrocarbon releases



Source: Redburn

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