



## Technology and ESG

### *A shaky relationship*

Burn the machines! Ever since the First Industrial Revolution, technology has been a controversial and dividing force, often between the losers and winners of the technological advancements. The introduction of weaving machinery gave rise to **The luddites**, a group of English weavers in the 19th century who destroyed weaving machinery as a form of protest. They feared the time spent learning the skills of their craft would go to waste as machines replaced their role in the industry. "Luddite" is now a blanket term used to describe people who dislike or oppose new technology<sup>1</sup>.

These days we are confronted with a similar technological advancement, i.e. **Robotics**. From automated conveyer belts producing cars with robotic arms and little human intervention, to human-like robots making your pizza in the pizzeria around the corner. Meanwhile, the number of global industrial robots in the past 10 years is up 72%, whereas US manufacturing jobs are down 16%<sup>2</sup>. Moreover, ever since the late eighties, technological enhancements have rarely led to an increase in productivity, the so called Solow Paradox. Also, two economists recently concluded that both jobs and wages fall in parts of the U.S. where more robots are installed.<sup>3</sup> Who can blame the Luddites?

Another disturbing development is the **increasing number of large scale cyber-attacks**. It is now well-known that the election of the most powerful man on this planet, the President of the United States, was at least influenced, if not decided by a hacking scandal. The virus WannaCry, that globally infected over 200.000 computers, encrypting personal data and demanding a

ransom fee, left numerous people wanting to cry. Moreover, the increasingly connected world also gives **rise to many issues around data privacy**. From the largest companies in the world shunning away from Youtube as their ads were placed next to inappropriate content, to Facebook allowing advertisers to exclude "ethnic affinities" like African-Americans or Hispanics from viewing their ads (Facebook does not ask users about their race, but it does collect data based on posts they like or comment on).<sup>4</sup> One can only wonder what Facebook, Google and the government really know about us.

Without demeaning the importance of the above mentioned issues, one could argue that the benefits of technology far outweigh the negatives. In what follows we will provide some specific examples of **how technology is contributing to a more sustainable world**, for the environment as well as for humanity. We will focus on the environment and the social aspect.

Firstly, we have all seen striking images of icebergs collapsing but the latest image distributed by National Geographic, demonstrating increasing growth rates of seasonal moss effectively turning Antarctica green, was a new one for us. There are many ways **technology is contributing to a cleaner environment**, some obvious and others less obvious. Take Moore's law, the observation that the number of transistors on a chip doubles every two years. In essence, this enables our smartphones to become thinner and smaller over time. Put differently, you can do twice as much with the same chip size or you can do the same things twice more energy efficiently. Almost

any device in the world, from electronic devices to industrial machines contain semiconductor chips. Making these chips more power efficient is undoubtedly contributing significantly to a better environment. For instance, power semiconductors convert power from battery to engine. In driving efficiency and mileage one tends to focus on the batteries, but the latest power semiconductors alone will also be responsible for the newest Tesla to drive dozens of miles longer.

Related to this, almost a fifth of carbon emissions worldwide come from the residential sector. According to Schneider Electric, Heating Ventilation and Air Conditioning can represent over 40% of energy consumption in many buildings and facilities. These appliances consume 30% less energy when using inverter technology, that controls the voltage. A simple analogy would be driving 100 miles at a constant speed or the same distance at the same average speed but alternating between giving maximum gas and no gas at all. The latter is how many old fridges still work and especially emerging markets have low exposure to inverter technology.

Secondly, the digitization of industries, or the Industrial Internet of Things is about connecting devices, machines, vehicles and other things to collect and/or exchange data. We believe this is a massive change in how the world works, and will be a step-change in improving efficiencies across sectors. Taking a look at the aged water infrastructure in the US demonstrates the potential. Today, up to 15% of public water supply gets lost somewhere along the distribution pipes. Using connected pipes and monitoring software, it would be easy to find the culprits of this scandalous loss of drinkable water. If one takes into account that water demand will exceed water supply by 2030, and 3.9bn people will live under severe water stress by 2050, one can understand the severeness of this issue and the importance technology can play. Moving to the oil & gas industry, which 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<sup>5</sup> 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. 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 say that the Deepwater Horizon explosion at the Macondo oilfield might have been avoided given proper predictive maintenance.

The last example is just one of many of **how technology can benefit the social and human aspect as well**. One important benefit we like to highlight is **the improvement of work and life quality**. Technology enables employees to work from home, hospitalized children can be virtually present with their classmates with remote schooling and the elderly can stay longer at home via patient monitoring.

Many people, yours truly included, have a tendency to assume there is little they can do individually when it concerns global food scarcity, global warming or many other challenges the earth faces today. However, as active managers in the DPAM sustainable franchise, it is **our mission** to take an active, and leading role in contributing to a more sustainable world. We are not luddites, we are supporters and backers of companies that help us fulfill this mission.



*Quirien Lemey, CFA*  
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1 History.com

2 BofAML's TransformingWorld Atlas.

3 Acemoglu and Restrepo, "Robots and Jobs: Evidence from U.S. Labor Markets", National Bureau of Economic Research, Working Paper No. 23285, March, 2017

4 businessinsider.com

5 McKinsey global institute, "The internet of Things: mapping the value beyond hype", June, 2015.

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