Should we fear the rise of the machines? Or 'That robot stole my job'!

At ESOMAR's, 70th anniversary, World Congress from 10-13 September in Amsterdam www.esomar.org/congress we will be presenting a paper on transformational change in the financial services industry, entitled …

Are you insured, Scarlett? *'I can't think about that right now… I'll think about that tomorrow'.* How MetLife imagined a new future for the insurance industry… and is delivering it today

In the run up to this presentation we will be exploring some of the themes touched on in the paper with a weekly blog post. We will also provide a link to the paper and presentation at the end of the Congress.

This second blog entitled … *Should we fear the rise of the machines? Or 'That robot stole my job'!* explores the future of work and artificial intelligence and the implications for employment and society

To some the balletic co-ordination of robots on an auto assembly line is a thing of grace and beauty, but it is no doubt less so to the men or women whose jobs it had previously been to fit that panel or attach that door. There are now upwards of 1000 robots in a car assembly plant. Here is another interesting statistic … between 1985 and 2015 hourly employment across the three largest Detroit manufacturers fell from 600,000 to 137,000 - and since 2000, 307,000 auto jobs have been 'lost' in the US. Correlation or causation?

A recent study by the London Centre for Economic Research ("Robots at Work") suggests there is not a direct causation between the number of robots in industry and the loss of jobs in aggregate (countries with greater penetration of robots weren't the ones that saw the greatest loss of manufacturing jobs over the period). Low-skilled and middle-skilled workers did suffer, but this was off-set by a rise in the employment and pay of skilled workers – so while robots don't seem to cause net job losses, they were causing a change in the profile of workers employed. The study also claims that the use of robots in manufacturing was responsible for about 10% of total GDP growth and 16% of labour productivity gains (across 14 industries and 17 markets) between 1993 and 2007.

Robots and Co-Bots have had a major impact on manufacturing, but have not caused the decline in manufacturing jobs (that is not to say there isn't a decline, it just wasn't the fault of the robots … so far). Fast forward 20 years and consider what will happen as robots take over more of the manufacturing ecosystem (not just higher technology

manufacturing) and ubiquitous software or 'AI' solutions really gain traction in the worlds of blue and white collar work.

In a 2015 article the Economist[1] outlined the advances made in robotic sewing and garment manufacture by textile-equipment makers in the United States. These new robotic sewing machines (it claimed) meant "the writing is on the wall for sweatshops" … and by extension the jobs of 100,000s of workers in the clothing industry. And while this may also lead to the 'reshoring' of manufacturing (i.e. moving out of low wage economies back into higher wage, more developed countries), ironically it is likely to result in no or very few seamstress or tailors jobs going with it. An International Labour Organisation study[2] concluded that approximately 56% of all employment in five ASEAN countries – Cambodia, Indonesia, the Philippines, Thailand and Vietnam "is at high risk of displacement due to technology over the next decade or two". Prominent occupations in certain countries face extreme risks of automation. In Cambodia, where garment production dominates the manufacturing sector, close to half a million sewing machine operators face a high automation risk. In Thailand, automation risk is particularly acute for approximately 1 million shop sales assistants. In Indonesia, about 1.7 million office clerks are highly vulnerable to automation.

As one comment in response to the Economist article wryly observes…
Joepen: *No more garment makers needed, no more truck drivers needed, no more ice-cream makers needed, no more bakers needed, no more farmers needed, no more cooks needed, no more shoemakers needed, no more pilots needed, no more soldiers needed. Very much needed are Consumers! But, with all those robots owned by 2% of the population, how can the rest afford all this?*

Beyond the world of manufacturing and blue collar work, the famed (and maybe on the way to extinct) Japanese 'salaryman' is not immune … insurance firm Fukoku Mutual Life Insurance is making 34 employees redundant and replacing them with IBM's Watson Explorer AI. The system, IBM says, possesses "cognitive technology that can think like a human", enabling it to "analyse and interpret all of your data, including unstructured text, images, audio and video". The technology will be able to read tens of thousands of medical certificates and factor in the length of

[1] https://www.economist.com/news/technology-quarterly/21651925-robotic-sewing-machine-could-throw-garment-workers-low-cost-countries-out

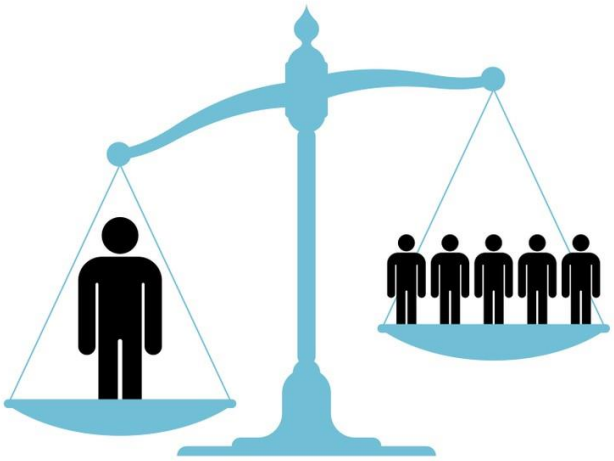
[2] http://www.ilo.org/public/english/dialogue/actemp/downloads/publications/2016/asean_in_transf_2016_r2_future.pdf - ASEAN in transformation – the future of jobs at risk of automation July 2016

hospital stays, medical histories and any surgical procedures before calculating payouts. Fukoku Mutual Life Insurance believes it will increase productivity by 30% and see a return on its investment in less than two years. And only 34 redundancies!

Not so fast! 34 redundancies is potentially just the very thin end of a very big wedge. According to a 2015 report by the Nomura Research Institute, nearly half of all jobs in Japan could be performed by robots [or AI] by 2035[3].

Speaking at The American Enterprise Institute, in March 2014, Bill Gates observed *"Software substitution, whether it's for drivers or waiters or nurses … it's progressing. ... Technology over time will reduce demand for jobs, particularly at the lower end of skill set. ... 20 years from now, labor demand for lots of skill sets will be substantially lower. I don't think people have that in their mental model*."

PwC's latest UK Economic Outlook report (March 2017) suggested that around 30% of existing UK jobs are susceptible to automation from robotics and AI in the next 15 years - this is lower than the US at 38% and Germany at 35%, but higher than Japan at 21%. Frey and Osborne's 2013 paper The Future of Employment: How Susceptible are Jobs to Computerisation?, estimates that 47% of US jobs are "at risk" of being automated in the next 20 years. But as with the history of robotics in manufacturing … in many cases the nature of jobs will change rather than disappear and again it is likely to be the lower skilled jobs that do disappear, with education being the key differentiating factor for individual workers (i.e. whether you lose your job to AI or not). Economic, legal and regulatory constraints may restrict the pace and extent of increases in automation in practice but the likelihood of automation appears highest in sectors such as transport, manufacturing, wholesale and retail, and lower in education, health and social work. The report also suggests automation will boost productivity (although other data shows a significant lag between automation and productivity gains) and wealth, leading to offsetting additional job gains elsewhere in the economy - but income inequality may rise.



[3] https://www.nri.com/~/media/PDF/global/opinion/lakyara/2016/lkr2016234.pdf

In an interesting commencement address at Harvard University (which many people are reading a lot into), Mark Zuckerberg also makes this point that over the next few years society will likely see *"tens of millions of jobs replaced by automation like self-driving cars and trucks". He goes onto to say that "When our parents graduated, purpose reliably came from your job, your church, your community. But today, technology and automation are eliminating many jobs. Membership in communities is declining. Many people feel disconnected and depressed, and are trying to fill a void".* In response his 'solution' was for people to work on large public works projects to make new roles and new jobs, what he called *"defining works"* - and also for a universal basic income to allow them to take more risks and try out new things, while knowing that they would still be able to afford the basic things they need to live.[4]

Universal Basic Income – is an income unconditionally granted to all on an individual basis, without means test or work requirement. It has been proposed at various times by thinkers as diverse as John Stuart Mill, Joseph Stiglitz and Thomas Piketty. The Finnish government and the Canadian state of Ontario are piloting UBI Schemes; the Swiss have considered the issue in a referendum; a number of Dutch cities want to trial the concept and the European parliament is considering it as a response to the threat of mass automation. Nesta.org.uk

The irony is that a room full of Harvard graduates are unlikely to feel 'the white heat of the technical revolution' in a way that really threatens their jobs or their living standards, but trying to find a "meaningful role in life" maybe just be a pipe-dream to many low skilled truck drivers, seamstresses, auto workers etc. who would be happy if they could reach the level of 'just getting-by', as opportunities to retrain for a meaningful role in this 'brave new world' may not be available to them.

Accenture's recent report 'Harnessing the Revolution'[5] tries to paint a less bleak picture, arguing instead (to its audience of CEOs and senior leaders) that "contrary to grim narratives, the digital future of work is anything but dystopian". It accepts that "there will be disruption" but that machine augmentation "will liberate human potential", and that in the era of major technological change "being human is more valuable than ever". The report cites research that suggests "workers of all generations and skill levels appear ready to embrace the new reality", and "instead of resenting technology, 84% report being excited about the changes it will bring". The report bemoans the fact that "this sunny outlook has been overlooked by many leaders (and media outlets)". But evidence suggests that the lower skilled workers are those who are likely to lose out, and will have the furthest to travel if they are to 'retrain' with the skills needed to play a meaningful role in the new digital future. To put this into perspective, 15% of adults of working age in England and Wales left school with no qualifications, ~15% have only 1-4 GCSEs or equivalent, ~17% have 5+ GCSEs but nothing further. About 75% of the UK population would be in social classes C1, C2, D or E[6] – those in clerical & junior managerial, administrative, skilled manual occupations or semi-skilled & unskilled manual roles – those most

[4] https://www.washingtonpost.com/news/the-switch/wp/2017/05/25/mark-zuckerberg-tells-harvard-grads-that-automation-will-take-jobs-and-its-up-to-millennials-to-create-more/?utm_term=.18140beedf25
[5] https://www.accenture.com/gb-en/insight-future-workforce-today
[6] Source: Office of National Statistics, 2011 Census Data

likely to lose out to automation. While not wanting to paint a picture of a dystopian future or indeed look on the bleak side – that's a lot of people to retrain.

So if this does come to pass (and we seem to be heading swiftly in that direction) we will see income inequality, further displacement and more persistent levels of low skilled (blue and white collar) unemployment – indeed the definition of high skill and low skill may change. Upskilling a workforce (to quote UK Prime Minister Harold Wilson in the 1960s … "replace the cloth cap [with] the white laboratory coat") to the level required to ensure full employment in a future envisaged by Gates and Zuckerberg has never been done before – nor may it be possible.