

The Connected Business

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Survival in the era of automation

The coming industrial age could create a new world of human work, reports Adam Jezard

Roy Harold Scherer Jr worked as a truck driver on the long haul to the top of his chosen profession. He later found film stardom under the name of Rock Hudson. Michael Dell, founder of US company Dell Computers, washed plates and was a waiter in Chinese and Mexican restaurants before he landed on a career in technology.

Such humdrum tasks once allowed ambitious people to earn cash en route to the top. For others, they were full-time jobs. But such low and semi-skilled jobs are increasingly in danger of being wiped out by the coming robotics age. Dish washing has long been automated and truck driving may be consigned to the rear-view mirror when driverless vehicles hit the streets.

This month's Connected Business asks what workers will need to do to make their careers robot proof (see page 2). But it is open to debate what this technological revolution will mean, especially for employers and workers in sectors requiring what are seen as a lower order of skills.

Tourism, traditionally viewed as a provider of low-paid, part-time, customer-facing jobs, is one industry experimenting with robots in human roles, such as receptionists.

Stephen Page, a professor of tourism management at Bournemouth university in the UK, says wide adoption of



quality to passengers," she says. "It will also improve employee health."

She says a more negative outcome would be to get rid of the driver as well as the conductor.

That choice could come down to how much money companies can save by employing robots and how unions and workers respond to such changes.

But Ms Aldred says automation may even provide more work for people. "Jobs do change all the time, just because you have a technological change doesn't necessarily lead to a shrinkage in jobs, it is just different skills are required."

Prof Page is also optimistic: "There is a role for human creativity, to create more forms of human employment so you're constantly generating new areas in the job market."

Ms Aldred adds that the way some jobs are classified as low skilled and low waged may need to change. Roles in call centres, shops and care require complex skills, for instance. "We need to improve the quality of these jobs, particularly if we're going to have more of them."

States and education systems, meanwhile, may need to better prepare young people for the future. Infosys, a multinational technology company, last month published a study of youngsters aged 16-25 from nine developed and emerging economies (see graphic, page 2). This found that a third of millennials thought that artificial intelligence would be a big cause of change in their future careers.

As Carl Benedikt Frey, co-director of the Oxford Martin programme on technology and employment, told the FT in a recent interview: "Any loss of equality [through fewer jobs] would be a failure of policy, not technology."

robots will depend on how and where in the world they are used. A survey by TravelZoo, an online media company, found regional variations in human acceptance of robots. Chinese tourists were the most comfortable with the idea of their use in travel, French and Germans were the least at ease.

Prof Page says: "We already know planes are flown by computer, so to a

certain degree you can say a robot is flying it with human interaction to provide the safety element."

Transport is another sector where jobs are at risk. Rachel Aldred, senior lecturer in transport at Westminster university in London, says driverless buses could improve life for staff and passengers. Past welfare studies found bus driving was stressful and unhealthy

because drivers are sedentary. Being a bus conductor, however, was better for health and a less stressful occupation.

"Since then we've got rid of conductors but kept bus driver jobs," Ms Aldred says. "So if you're looking at employee health it is the wrong way round."

"Potentially, having driverless buses opens the opportunity to reinstate those conductor jobs, and to improve service

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Drones lift agriculture to a higher plane

Emerging economies
Bulgaria is turning to entrepreneurs as it tries to bring its traditional industries into the 21st century, says *Henry Foy*

Stefan Dimitrov, a farmer in Bulgaria's central Rose Valley, has some unusual guardians to protect his 1,500 hectares of land from criminals, wild animals and crop failure: they fly at 60 kilometres per hour and run on rechargeable batteries.

Mr Dimitrov's drones are revolutionising the way he and fellow farmers in Bulgaria are managing their business. The company behind them hopes the drones will become as essential to agriculture as tractors and ploughs.

"[The drones are] making the agriculture sector an exciting place to be," says Mr Dimitrov. He adds that by using data from them "we have been able to

improve our day-to-day activities through the amount of information we have to hand.

"One of the main benefits I have seen is the saving of money, time and resources, meaning that I can focus on scaling up the business."

The drones charge from the mains electricity supply. They take off, fly and land autonomously, and have enough power to stay up in the air for about 90 minutes. Three drones, making two flights a day each, can monitor a 10,000 hectare farm using digital images and live information.

"It can spot people stealing crops, animals that have entered the land, or it can monitor areas where crops are not growing properly or there are other problems," says Tihomir Nedev, co-founder of Flyver, the company behind the technology.

The Sofia-based company, which was founded in 2013, is one of many eastern European technology start-ups aiming to tackle local demands and so create business opportunities across the region. Like many countries in the region, Bulgaria is increasingly turning

to entrepreneurs and innovators to drive future growth as it tries to leave behind its low-cost manufacturing economic model.

"One of the reasons the central eastern European market is so exciting is that it does not have the existing IT legacy that can sometimes restrict growth," says Don Grantham, president of central and eastern Europe for Microsoft, which provides Flyver with infrastructure and technology support under its BizSpark program.

He says that combining technology with "a traditional sector" is not always straightforward.

However, the increasing application of the "internet of things" – connecting objects it was previously impossible to link together – is affecting agriculture as it is many other industries, Mr Grantham says.

Many central and eastern European countries still rely on farming to provide a large chunk of their economic output and, typically, employ a disproportionately larger share of the total workforce compared with service and manufacturing industries.

Overview:
the Rose Valley as seen from the air — Mrogozperki

Countries such as Bulgaria and Poland, where about 20 per cent of the working population are employed in agriculture, are keen to use technology to improve the industry's efficiency, which is often held back by outdated practices and business models.

Mr Grantham says the drone technology is an example of how innovation is transforming the industry. He adds that it represents "huge opportunities for the way we will grow and cultivate our food".

But entrusting their land management to a drone and software hosted on cloud servers is a big leap for farmers who have been taught to plan for tomorrow's weather by the colour of the evening clouds.

One of the main stumbling blocks in marketing the drone system, which costs around \$10,000 a year for an average farm, is convincing farmers used to traditional methods and centuries-old techniques to take a punt on technology that only a few years ago was mainly limited to expensive military and security surveillance applications.

"One of the problems is that they fear

we come from a software and a technology background and have no idea about farming," says Mr Nedev.

To counter this he has demonstrated the product at agricultural shows and sought to join forces with established farming brands. "It takes some time for people to get familiar with new ideas, new systems."

Flyver grew out of discussions with farmers who were keen to find a smarter way to manage their crops. Mr Nedev now hopes the costs will fall as the technology becomes more widespread.

The company plans to prove its business model and hone the technology in Bulgaria before expanding across central and eastern Europe.

Long-term proposals include a push into the US and western Europe as autonomous aircraft regulations permit.

"These innovations are important to the industry as a whole," says Mr Dimitrov. "Aside from the immediate working benefits, becoming a technology-driven sector will help attract more young people into the field and promote further innovations."



Tihomir Nedev: Drones can monitor areas where crops are not growing properly or there are problems

Simple precautions can help keep CEO fraudsters at bay

One to watch Security

Pete Roythorne looks at how executives can best protect themselves against criminals

Fraudulent – or phishing – emails sent by criminals have become more sophisticated, as the recent spate of attempts to defraud companies with well-crafted, believable messages apparently sent by travelling or absent chief executives has shown.

Etienne Greeff, head of UK-based cyber security firm SecureData Europe, says chief executive scams – known as "whale phishing" – became a problem in 2015. They were unsophisticated to start with, but as the year progressed they drastically improved. The FBI reported a 270 per cent rise in global losses from such frauds between January and August last year and says there were more than 12,000 victims. The average loss was around \$120,000, while some companies lost up to \$90m.

"Something from the chief saying it needs your immediate response is going to be a priority," says David Emm, senior security researcher at Kaspersky Lab, an online security company.

The fact that we share so much information online helps cyber criminals to operate. Not only are staff email addresses available on websites, their movements and business plans can be gleaned from blogs, news stories and social media. This helps fraudsters to create believable email scenarios in which a senior executive asks for large sums to be sent to them.

Here are some suggestions on to avoid becoming a victim of fraud.

● **Ensure you have email filters in place**

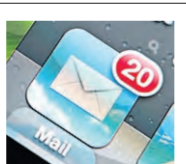
Having a system that filters incoming emails and automatically blocks obvious spam and phishing messages is essential, says Mike Hracs, a security intelligence consultant at Deloitte Canada. "There are two different types of system: on-premises and cloud-based. Cloud-based email filtration systems are easiest to implement and are very effective."

Filtration will stop a lot of the basic phishing and some cloud-based systems can even track messages and rewrite harmful links in them. This can prevent staff unintentionally downloading malware that will give criminals access to your systems.

● **Put better internal processes in place**

"In a lot of companies there is no clear demarcation between legitimate practice and what phishers are [doing]," says Kaspersky's Mr Emm.

By viewing the source information you will see more detail that may enable you to spot a fraudulent email



"Companies make use of emails from executives with attachments and expect people to click on them. If we expect people to respond to genuine emails in that way, then why would we be surprised when they respond this way to spoof emails?"

Ian Trump, security lead at Logicnow, a software provider, says fraudulent emails are unlikely to be successful if senior executives discuss

their future plans regularly. He also points out the need for better internal systems. Having several people sign off on sums that have to be sent abroad makes it harder for crooks to succeed.

● **Awareness training**

"You need to develop presentations that can demonstrate basic phishing constructs and how to identify them," says Deloitte's Mr Hracs.

The more educated staff are, the more prepared they will be. But the ever-changing nature of these attacks means training will not be a one-off. Company IT teams should regularly run internal phishing campaigns to really help raise awareness. They should train employees so that if something in an email seems out of the ordinary, they should ask if such behaviour is in keeping for the executive concerned and be wary of clicking on any suspect links.

● **Check the email header**

While it may initially appear as though an email has come from your chief executive, viewing the email source information shows more detail that may enable you to spot a fraudulent email. Staff should look at email headers on suspect messages, which typically include the name and email domain used by the sender.

Checking them is a straightforward process in most email packages and IT teams can provide staff with guidance on what to look out for. For example, in Google mail, click on the drop down arrow in the top right of an email and select "show original".

Finally, if in doubt, call the chief and ask if she or he needs the money. They are not going to mind if you stop the company from losing a fortune.

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