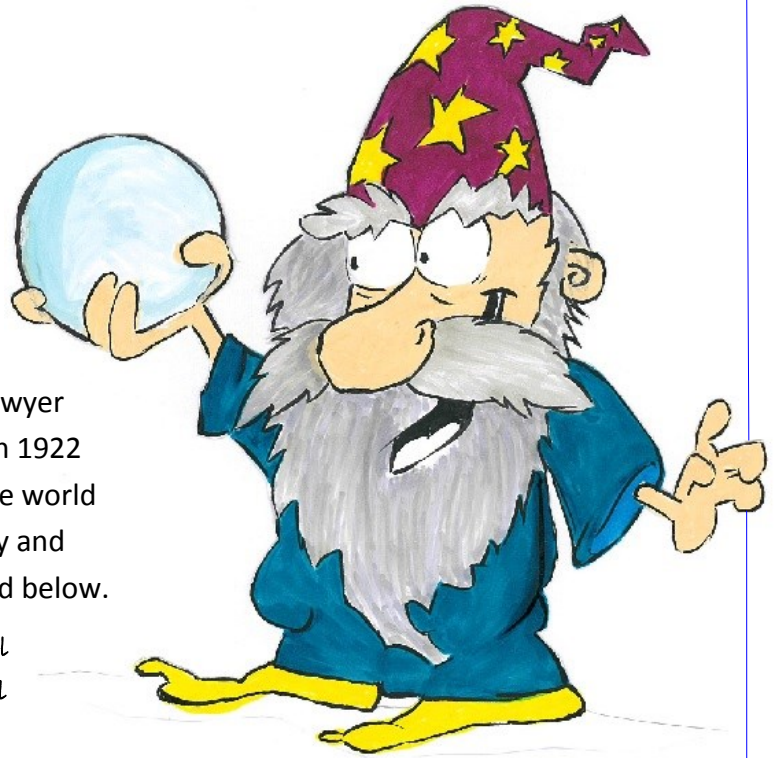




Former British Cabinet Minister and leading Lawyer FE Smith, a close friend of Winston Churchill, in 1922 wrote a book containing predictions of how the world would look in 100 year' time. He covered many and varied subjects. Some of which are reproduced below.

*Whatever you can envisage the future to be, it will only be what you believe will happen not what will happen!*



## Artificial intelligence

### (Work and leisure)



“Mechanisation would mean a "gradual contraction" of hours worked, Smith believed. By 2030 it was likely the "average week of the factory hand will consist of 16 or perhaps 24 hours", which no worker could possibly "grudge". But, with factories largely automated, work would provide little scope for self-fulfillment, becoming "supremely easy and supremely dull", consisting largely of supervising machines. It didn't occur to Smith, in an age before widespread use of computers, that the machines might become self-monitoring”.

Known to-day as Artificial intelligence, is intelligence exhibited by machines. In computer science, an ideal "intelligent" machine is a flexible rational agent that perceives its environment and takes actions that maximize its chance of success at some goal. Computers become exponentially better in understanding the world. This year, a computer beat the best Go player in the world, 10 years earlier than expected. In the US, young lawyers already don't get jobs. Because of IBM Watson, you can get legal advice (so far for more or less basic stuff) within seconds, with 90% accuracy compared with 70% accuracy when done by humans. So if you study law, stop immediately. There will be 90% less lawyers in the future, only specialists will remain. Watson already helps nurses diagnosing cancer, 4 times more accurate than human nurses. Facebook now has a pattern recognition software that can recognize faces better than humans.

In 2030, computers will become more intelligent than humans. Robots will have taken over most jobs within 30 years leaving humanity facing its 'biggest challenge ever' to find meaning in life when work is no longer necessary, according to experts. Professor Moshe Vardi, of Rice University, in the US, claims that many middle-class professionals will be outsourced to machines within the next few decades leaving workers with more leisure time than they have ever experienced. Speaking at the annual meeting of the American Association for the Advancement of Science annual meeting in Washington, Prof Moshe said the rise of robots could lead to unemployment rates greater than 50 per cent. "We are approaching a time when machines will be able to outperform humans at almost any task," said Vardi, a professor in computational engineering.

Smith believed that, despite the shortening of hours, everyone would earn enough by 2030 to afford to play football, cricket or tennis in their spare time.

But one of the big winners in this more leisure-rich world would be fox-hunting, one of his own hobbies. "As wealth increases, we shall all be able to ride to hounds," he said.

## Autonomous cars



Smith, who had grown up before cars were invented, predicted they would be largely obsolete for all but the shortest journeys by 2030, with aeroplane ownership common. The creation of engines weighing only one ounce (28g) per unit of horsepower would allow lightweight, vertical take-off craft, capable of speeds of up to 400mph.

"Thus the man of 2030 will set off for the weekend, after his work, in a small, swift aeroplane, as reliable and cheap as the motor-car on which we depend today," he wrote. The idea of a weekend would be different in a world where people only worked two hours a day or two full-time days, and transport would enable more adventurous time off. "Ski-ing parties in Greenland will be made up in London clubs on Saturday mornings," wrote Smith, "and translated into action before the same evening."

An autonomous car (driverless car, self-driving car, robotic car) is a vehicle that is capable of sensing its environment and navigating without human input.

An electric car is an automobile that is propelled by one or more electric motors, using electrical energy stored in rechargeable batteries or another energy storage device. Electric motors give electric cars instant torque, creating strong and smooth acceleration. They are also around three times as efficient as cars with an internal combustion engine.

Around 2018 the first self driving cars will appear for the public. By 2020, the complete industry will start to be disrupted. You will not want to own a car anymore. You'll simply call a car with your phone, it will show up at your location and drive you to your destination. You'll not need to park it, and only pay for the driven distance and can be productive while driving. Our children will never get a driver's license and will never own a car. It will change the cities, because we will need 90-95% fewer cars. Transforming former car parking stations into green parks. 1,2 million people die each year in car accidents worldwide. With autonomous driving the accident rate is expected to drop to one accident in 10 million km travelled. That would save a million lives each year.

Most car companies might become bankrupt. Traditional car companies try the evolutionary approach and will just build a better car, while tech companies (Tesla, Apple, Google) are doing the revolutionary approach and building a computer on wheels. I'd suggest that the engineers at the main stream car companies; are completely terrified of Tesla.



## Agriculture



Synthetic food, produced in laboratories, would overtake conventional agriculture "in civilised lands" to feed the expanding population with ease, Smith said. "From one 'parent' steak of choice tenderness, it will be possible to grow as large and juicy a steak as can be desired." The prediction has echoes of the work currently being done on synthetic meat.

But farming the land would survive as a "rich man's hobby". Someone born in the 21st Century may, "in his wealthy rejuvenation, boast that the bread he eats is made from wheat which grows in his own fields".

Scientific creation of food would make cities no longer a "parasite" on the country but a "self-supporting unit". Smith predicted that town and country would become blurred in to one continuous, manicured landscape, where weeds had been eradicated.

Chemists would have devised new "physiologically pleasant substances" to go with tobacco, alcohol and caffeine. "Should chemistry in the next hundred years be able to discover new substances as pleasant and harmless as tobacco," he wrote, "yet each possessing a different effect on the consumer, it will have earned the thanks of every hard-worked man and woman in the world."

## Agriculture & Energy



**Agriculture** The agricultural sector is going to face enormous challenges in order to feed the 9.6 billion people that the FAO predicts are going to inhabit the planet by 2050: food production must increase at least 70% by 2050, and this has to be achieved in spite of the limited availability of arable lands, the increasing need for fresh water (agriculture consumes 70 per cent of the world's fresh water supply) and other less predictable factors, such as the impact of climate change, which, according a recent reports by the UN could lead, among other things, to changes to seasonal events in the life cycle of plant and animals.

Smith predicted the increased use of cheap, clean energy from utilising the Earth's water supply. He seemed to base his ideas on an interpretation of Einsteinian physics, which said there was an equivalence between mass and energy. He outlined an eccentric use by scientists who managed to turn atoms in water into a viable source. "By utilising some 50,000 tons of water, the amount displaced by a large liner, it would be possible to remove Ireland to the deeper portion of the Atlantic Ocean," Smith said.

The heat obtainable from same quantity of water could be used to keep polar regions "at the temperature of the Sahara for a thousand years", he added, something most scientists would not want to happen today.

But Smith was more ambivalent about what we now call renewable sources of energy. Wind was useful and universal, but tidal power more unevenly distributed. There was another concern. "By utilising tidal energy to any large extent, we should diminish the speed of the earth's rotation," said Smith. If tidal energy was overused, a "48-hour day is a possibility in the far future", he added.

## Health



Smith, a former Lord Chancellor who became the Earl of Birkenhead in 1922, was writing in a period when tuberculosis was a major killer in the UK and around the world. He was optimistic enough to suggest the eradication of this and other epidemic diseases was "fairly certain" by 2030, as was "the discovery of cures for such scourges as cancer".

Death from old age could also be delayed, Smith thought. Scientists would create injections containing an unspecified substance bringing "rejuvenations", which would be used to prolong the average lifespan to as much as 150 years.

Unimaginable by Smith because television was not even thought of during his life-time, was the adaptation of a television shows technology to real life.

The Tricoder price will be announced this year. There will be companies who will build a medical device (called the "Tricoder" from Star Trek) that works with your phone, which takes your retina scan, your blood sample and you breath into it. It then analyses 54 biomarkers that will identify nearly any disease. It will be cheap, so in a few years everyone on this planet will have access to world class medicine, nearly for free. Doctors will similarly to Lawyers be a thing of the past.

Smith acknowledged that extending the age of individuals could present "grave problems" from an "immense increase in the population". He also foresaw extreme inter-generational inequality, wondering "how will youths of 20 be able to compete in the professions or business against vigorous men still in their prime at 120, with a century of experience on which to draw"? You'd have to assume that not all the population were out hunting foxes and watching cricket or even flying off to Ski-ing parties in Greenland, because a few would still have to serve the drinks and take the lunch orders.

- Insurance companies** will have massive trouble because without motor vehicle accidents, the insurance industry will need to adjust their rates, which could mean that all insurance will become 100x cheaper. Their car insurance business model will disappear, because of overall health improvements, life insurance will be restricted to purely accidental injuries while out Fox hunting..
- Real estate** will change. Because if you can work while you commute in the driverless car, plus you'll only work a two day week, people will move further away from the city to live in a more beautiful neighbourhood, or even simply move to Greenland for one long ski-ing holiday.
- 3D Printing**
- The price of the cheapest 3D printer has already come down from \$18,000 to \$400 within 10 years. You can now even pick up your own 3D printer from Office works. In the same time, it has become 100 times faster.
- All major shoe companies started 3D printing shoes. Spare airplane parts are being produced by 3D printers in remote airports around the world.
- The space station has had a printer that eliminated the need for the large number of spare parts they needed to carry in the past.
- By this time next year, expect smartphones to have 3D scanning possibilities. You'll then be able to 3D scan your feet and print your perfect shoe at home. In China, they have already 3D printed a complete 6-storey office building. By 2027, 10% of everything that's being produced will be 3D printed, including some foods.
- Business opportunities:**
- If you think of a niche you want to go in, ask yourself: "in the future, do you think we will have that?" and if the answer is yes, how can you make that happen sooner? If it doesn't work with your phone, forget the idea. And any idea designed for success in the 20th century is doomed to failure in the 21st century.
- Work:**
- As we have already seen 70-80% of jobs will disappear in the next 20 years. There could be a lot of new jobs in industries that have as yet not been invented, but it is not clear if there will be enough new jobs in such a small time because industry as we know it will become more specialised, with more of the manual jobs carried out by robotic workers. Cottage industries could spring up to fill our unwanted need for more fig jams or we may find that the work force reverts to a more simple time of creating one off master pieces of furniture or artwork that can not be mass produced.
- War**
- So on to the subject that does lead the way for future innovations and one that Smith's generation had excelled at, war. The tank had only been around since WW1 and Smith was full of excitement about possibilities for development. They could become "entirely unmanned" within a century, he said.
- "The commanders of tank forces will be carried in the air above their commands," he said, "and thus will be able to watch the course of operations and control their progress by wireless telephony." Or this could happen in a "distant control room", possibly underground. Smith said this would make war "more humane". I think we all agree that wars should become more humane.
- Already we have unmanned area preclusion weapons, ready to blow any intruder who can't read the "no entry signs", to pieces. Russia has just announced the Taifun-M, an unmanned ground vehicle for defending missile sites. And despite the focus being on aerial vehicles such as drones controlled by teenagers safely tucked up in bunkers thousands of kms away from the explosion, there are now plenty of other plans for "land drones", that will be capable of not only vast destruction, but will be able to do it humanly.
- I'll bet you anything that FE Smith didn't foretell that one.