



Tomorrow's world

Electric vehicles and battery power

Electric cars present a disruptive force that threatens the very survival of traditional car manufacturers. Conversely, it presents a rich opportunity for disruptive entrepreneurs to seize a slice of the trillion-dollar global car industry. The biggest obstacle to mass adoption is price, with the large battery packs the main culprit. However, like other technologies, electric car technology is continually advancing and becoming cheaper. Following discussions with leading battery manufacturers including LG Chem and Samsung SDI, we believe costs will continue to decline far more rapidly than the market predicts, catalysed by scale increases, energy-density improvements, advances in materials composition and process enhancements.

Beyond 2020, we believe the cost structure of electric vehicles will surpass traditional vehicles. As well as substantial fuel savings, repair and maintenance costs will be cheaper because there are 90 per cent fewer mechanical moving parts, resulting in less wear and tear. This reduces the need for an extensive repair network. Additionally, the change towards internet-based consumer researching habits warrants a smaller

▶ **Those who correctly see which innovations will change the world can benefit from becoming early investors in these new solutions. Therefore *Pensions Age* asks the industry for its predictions as to which sectors will be the stars of the future**

sales footprint. This significantly lowers distribution costs for pure electric vehicle manufacturers, but will prove difficult for incumbent carmakers to adopt.

Standard Life Investments thematic strategist Frances Hudson

The move to electric vehicles (EVs) is beginning to be understood and recognised in the financial markets, but in our view the rapid development and deployment of energy storage technologies – while linked to the growth of electric vehicles – is even more significant.

Investors should take note – the battery era is upon us. This will have obvious positive implications for battery manufacturers and their suppliers, while electric utilities and automotive OEMs, worldwide, will need to adjust their business models to the new technology

and cost regime.

Demand for battery storage looks set to increase rapidly, as adoption is being led both by the automotive market (via mobile batteries) and the electric utility market (via stationary battery storage). There are several reasons for this. Bigger and better batteries are needed to address the electrical grid problems caused by renewable energy. In addition, within the automotive sector, the fallout from the Dieselpgate scandal and the advances made by Tesla Motors has forced other car manufacturers to launch their own EV models. This, combined with the rapid declines in battery costs (helped by huge improvements in cell chemistries and power density), have changed the economics of the industry.

KBI Global Investors senior portfolio manager Colm O'Connor



Healthcare

Med-tech, biotech, DNA-sequencing, gene editing, stem cells, phages and more contribute to a health care revolution where cost-effective treatments are tailored to individuals. Precise targeted approaches supersede broad-spectrum hit or miss solutions. Remote-controlled robots are utilised in delicate surgery and the barber-surgeons of history become the robot techs of the future. Autologous (self-sourced) treatments and transplants reduce risks of rejection. Examples include growing teeth or skin from stem cells, tissue engineering, 3-D printing of replacement joints and bones, targeting specific cancer cells/types to effect cures and limit side-effects, editing mosquitoes to fight the diseases that they now carry and meeting the ultimate goal of reversing ageing in cells.

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Cyber-security

Cyber-security may be an area long term pension funds could be interested in, with long-term trends underpinning the growth of the sector. High-profile data breaches have heightened corporate concerns and trends such as the internet of things increase vulnerabilities in the system. On top of this, there are growing regulatory burdens such as the EU's General Data Protection Regulation, which takes effect in May 2018.

The challenge with investing in long term themes is that the themes are often widely known in advance, raising questions as to how much value there really is in investing in them. Those

who do invest for the long-term need to be able to ride out any short-term underperformance relative to wider equity markets, and maintain confidence in the ideas they have selected.

Fidelity International portfolio manager, multi asset, Ayesha Akbar

Food

Data abundance and new approaches to lighting allow for vertical production of food. LED lighting can be colour-tilted to promote photosynthesis and discourage pests. Hydroponics and Aeroponics reduce the need for land and remove pesticides and herbicides from the cultivation of crops as well as being much more water-efficient than conventional farming. Urban solutions take lessons in lighting from 'rhubarb triangle' warehouses in Yorkshire and current small-scale cultivation in brownfield sites, such as unused underground tunnels in London. Vegetable production is viable for widespread localised provision and can be GM free. More complex crops, such as grains, are in scope but laboratory-grown meat faces further challenges.

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Suppliers

This summer it was 10 years ago that the first iPhone was launched. In just 10 years this device has changed from a mobile e-mail box and phone into a digital explosion of consumer services. Today 10 per cent of all our retail sales,

50 per cent of all our holidays and 33 per cent of all our relationships have started with a swipe on our smart phones. We believe that we are today at same point for the production side of the economy as we were 10 years for the consumption side.

The roll out of connectivity and digitalisation in our factories will lead to cheaper, more efficient and locally produced goods customised to the needs of every customer. In the next 10 years the roll-out of technologies like IoT, big data, artificial intelligence, robots and 3D printing will have given us cheap robot taxis and digital assistants. Just as with the consumer the digitisation of the producer will lead to lower barriers to entry. New companies will come with cheaper and better ways to democratise production.

On top of that, digitalisation will also kill the middle men in the production process. For instance, blockchains will simplify all financial administrations. A way to profit from these early but disruptive trends is to invest in suppliers rather than try to guess who is going to strike it lucky. It is for example hard to



determine who will launch the world's first self-driving car, but what investors do know is that these cars are full of sensors and powered by electricity so they can invest in manufacturers of sensors and batteries.

Robeco head of the trends investing equity team, Henk Grootveld

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