Best Ideas Portfolios

Q4 2018: Industry 4.0

The EQ Best Ideas portolios invest in the ideas shaping our world with a single goal: maximising long term financial returns for our investors. Beyond this they are 'unconstrained' – we do not screen out certain investments or target a specific investment return. Our research focuses on the long term, structural trends that drive growth and we invest to take maximum advantage of them. In this update we will explore the 'Fourth Industrial Revolution'...

The first industrial revolution began in Great Britain and was powered by steam. The second was global and powered by electricity. The third was triggered by the rise of digital technology. Now we are moving into the fourth as robots and artificial intelligence offer new ways to make industry far more efficient.

The potential of this period hinges on the seamless communication between connected devices. These new 'cyber-physical' systems are creating new ways of doing things and disrupting old business models. We can easily recognise this disruption with platform businesses that have popped up in transport (Uber), shopping (Amazon), chores (Task Rabbit) and travel (AirBnB). Below we explore examples of companies at the heart of manufacturing and production.

EXAMPLE HOLDING

Topcon

Topcon Corporation is a Japanese manufacturer operating in several industries including construction and precision agriculture. Their products include a variety of sensors, controllers, connectivity, data management and specialised software.

1 PRECISION AGRICULTURE

In 1960, thanks to increased mechanisation each farmer could feed around 26 people. Today, with advances in biotechnology a farmer can feed around 155 people. The UN estimates the world population will reach 10 billion by 2050. That means each farmer will need to feed 265 people – a 70% increase in productive capacity. This will require innovations beyond just technology: we need to improve access to markets, financial credit and new ways of marketing produce. But on the technology front, thankfully there have been huge strides forward in delivering solutions that can increase farm productivity.

Sensors in the ground can measure soil moisture while sensor arrays on board tractors measure plant reflectance to determine chlorophyll content and nitrogen concentration. A variety of devices combine centimetre accurate GPS data with automated control of vehicle steering and flow rates to precisely plant seed and optimally deliver fertiliser. Devices alert farmers to specific preventative action that may be required. Data from historic harvest yields can be analysed, and the gradient of fields altered to optimise irrigation and drainage. Livestock sensors can alert farmers to animal behaviour and health.

FUND IN FOCUS

Topcon Corporation is a holding in the Baillie Gifford Japanese fund. The fund is an actively managed portfolio focused on investing in high growth companies located in Japan.

2 FACTORY & WAREHOUSE AUTOMATION

As the cost of electronics continues to fall, we are seeing an ever broadening scope of devices that can mechanically perform both specialised and generalised functions. Increasingly they are being equipped with fast communications equipment and connected to sophisticated process control software. This is all part of the answer from industry to the challenge of global competition, increased cost pressures, heightened quality standards, shorter lead times, higher product customisation and changing consumer habits.

The production lines for a wide variety of products are now mostly automated. Robotic arms weld, paint and carry heavy parts along automobile production lines. They can also be found in food production facilities like industrial bakeries. More recently, machine vision systems are being widely applied to optical inspections for quality control. Meanwhile, autonomous mobile robots revolutionised Amazon's warehouses and the Ocado Smart Platform locates and packs a typical 50 item order in just 5 minutes (see the links for some amazing online videos of these facilities in operation).

Controlling and coordinating all this activity requires the complex combination of a huge variety of sensors, controllers, input/output interfaces, power management systems, electric motors and industrial scale communications networks.

EXAMPLE HOLDING:
Advantech

Advantech builds and designs industrial systems that integrate both hardware and software. Their customers are involved in producing the 'internet of things' – physical devices that communicate and connect with each other via computer networks. These range from home devices to industrial equipment in factories, warehouses, hospitals and the 'smart cities' of the future. Their mission is to be an enabling partner for an intelligent planet.

FUND IN FOCUS

HERMES INVESTMENT MANAGEMENT

Advantech is an investment held by the Hermes Global Emerging Markets fund which runs a highly active stock picking process seeking companies with attractive growth prospects.

3 ENGINEERING & DESIGN SOFTWARE

Whether we are talking about raw materials, labour or time, modern industrial value chains are under tremendous pressure to improve resource efficiency.

Understanding where along the value chain a company should focus investment can be a daunting task. Business managers increasingly turn to a variety of management information systems to help them visualise each step in their business model and how they interact. By digitising their industrial processes, managers can understand the risks associated with them more easily. They can also monitor performance in real time. This allows them to optimise the use of resources and maximise business output by, for example, repairing or replacing elements pre-emptively.

Products themselves are often digitally designed before being manufactured – whether it's an engine component for an electric car or the molecular design of a new drug. The digital version can go through extensive simulations, testing chemical reactivity or physical performance before being actually produced. This practice is so widespread that sophisticated software is already being used to design, test and implement industrial solutions for aerospace & defence, engineering & construction, energy management, industrial process control, transportation and life sciences.

EXAMPLE HOLDING:
Dassault Systems

Dassault Systemes is a French application software developer, providing enterprise level collaborative environments across a range of 3D product design and lifecycle management.

Their mission is to provide their '3D experience' to industry to imagine sustainable innovations.

FUND IN FOCUS

JUPITER

Dassault Systemes is a significant holding in the Jupiter European fund which runs a concentrated portfolio in companies offering high growth potential in the European region.

eq investors

Next steps

You can view factsheets and invest online via the EQ website. For other questions and enquiries please contact your EQ adviser or visit:

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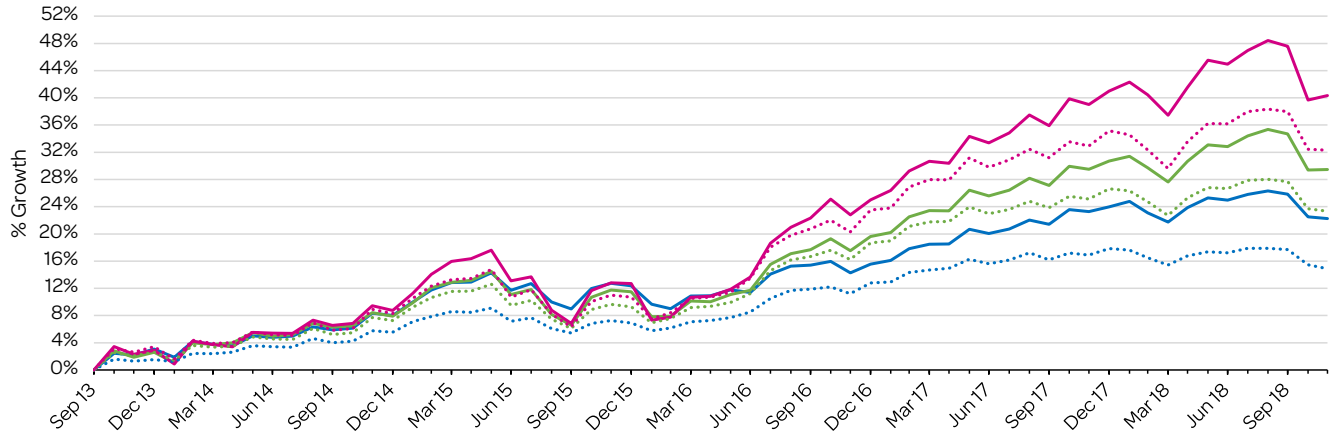
Cumulative performance since inception 30/09/2013 to 30/11/2018



Annual performance	Dec 17 - Nov 18	Dec 16 - Nov 17	Dec 15 - Nov 16	Dec 14 - Nov 15
Best Ideas Cautious	-0.81%	7.88%	1.36%	4.05%
ARC Cautious *	-1.74%	5.11%	3.69%	1.42%
Best Ideas Balanced	-0.02%	10.18%	5.16%	3.07%
ARC Balanced *	-1.42%	7.67%	5.99%	1.82%
Best Ideas Adventurous	0.97%	13.21%	8.85%	3.06%
ARC Steady Growth *	-0.45%	10.50%	8.38%	1.91%

Risk warning

Past performance is not a guide to future performance. The value of investments and the income derived from them may go down as well as up and investors may get back less than they originally invested. The Best Ideas Portfolios are available in **seven** different risk profiles, of which **three** are shown here. Inception dates may vary: please see factsheets for full details.

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Data sources: EQ, Morningstar.

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