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AI and the innovator's dilemma

On New Year's Eve in 1879 in Menlo Park, a tiny village of only twelve houses twenty miles north of New York City, an intrigued crowd of businesspeople, newspaper reporters, friends and family gathered as Thomas Edison unveiled the modern incandescent electric lightbulb to the world. To everybody's amazement, from on top of a row of wooden lampposts, Edison's bulbs illuminated Christie Street outside his lab with the world's first "artificial light".

What Edison was really introducing however was something much bigger: a once in a generation 'general purpose technology'. In the decades that followed, electricity penetrated every sector of the US economy, driving previously unseen rates of productivity growth in manufacturing, enabling the scaling up of major industries such as automobiles and aviation, and the creation of brand-new industries such as the telephone, radio, television and the rise of Hollywood. Moreover, electricity eventually revolutionised home productivity through domestic appliances such as the washing machine, affecting lives immeasurably beyond the realms of work.

Economist Paul David calculates that productivity growth in US manufacturing accelerated from around 1.5% a year before electricity to nearly 3% a year during the decades rolling it out, as the economy broadened, strengthened, and became more innovative.

But from an investor's perspective, it was not all upside for companies. Electricity created some major winners such as General Electric (co-founded by Edison), General Motors and AT&T, but it was also hugely disruptive to many companies who failed to embrace it.

The US economy in 1900 was dominated by the infamous industrial trusts – powerful monopolistic behemoths formed through rampant M&A around the turn of the century. A seemingly sensible investment at the time, no doubt, but not innovative compared with the new disruptors and they were painfully slow as a group to adapt to electricity.

Indeed, by the early 1930s, 40% of the industrial trusts had failed, a disaster for these dinosaurs. Even the best among them lost market share dramatically, the largest 42 falling from a 70% to 45% market share on average in their respective industries. It is no coincidence that economist Joseph Schumpeter later coined the phrase "creative destruction" to describe this eventful era.

We believe just like electricity, artificial intelligence (AI) will impact every dollar of GDP, drive productivity substantially, drive better science and innovation and create new industries. It will also severely disrupt companies on the wrong side of all this.

In his masterpiece, The Innovator's Dilemma, the late great Harvard Business School professor Clayton Christensen argued in 1997 that the toughest challenge top companies face is low-end competition from upstarts producing simpler and cheaper competing products through a new approach.

Such upstarts' products are typically inferior to those of the top incumbents at the start, but they are good enough to get a foothold in the market and once they do, they improve quality rapidly through innovation and eventually take down the giants.

Think of Netflix chipping away at Blockbuster with its lower cost offering based on mail order DVDs, then expanding into streaming, leaving Blockbuster in the dust. Moreover, such disruptive innovation tends to attack companies in their blind spots. As economist Johsua Gans puts it "nobody saw Steve Jobs launch the iPhone and thought "Well, that's it for the taxi industry".

Crucially, we believe AI could be the most deflationary innovation ever, giving rise to a wave of Christensen type-disruption across the economy. The largest cost reduction we have seen for a commercial task is a 99.97% reduction in costs for a legal contract review. This is simply extraordinary.

We also believe AI will impact the economy much faster than the multi-decade roll out of electricity in the early 20th century. Adoption is already happening much faster. This is because the replacement cycle for steam-based factory power systems that electricity replaced was about 25 years, while for the infrastructure to be ripped out and replaced for AI, from data centre servers to PCs to smart phones, the cycle is historically two to four years and speeding up rapidly right now as companies scramble to not get left behind.

Over the next few weeks, in a series of articles, we will analyse some of the key innovators' dilemmas we currently see in the economy due to AI, from enterprise software to internet search to healthcare. Can Google maintain its position as the undisputed heavyweight champion of information? Can giants in the enterprise like Salesforce maintain their position and can big pharma truly embrace AI?

AI is here now and it is hand to hand combat in leading sectors for deployment such as enterprise software. The rest of the economy is next. It is an exciting time to be investing with more opportunities for growth than ever but more risk than ever too from being on the wrong side of change.

James Dowey, Co-Head of the Global Innovation Team

For a comprehensive list of common financial words and terms, see our glossary at:
https://www.liontrust.co.uk/benefits-of-investing/guide-financial-words-terms

Key Risks

Past performance does not predict future returns. You may get back less than you originally invested. We recommend any fund is held long term (minimum period of 5 years). We recommend that you hold funds as part of a diversified portfolio of investments.

The Funds managed by the Global Innovation Team:

May hold overseas investments that may carry a higher currency risk. They are valued by reference to their local currency which may move up or down when compared to the currency of a Fund.

May have a concentrated portfolio, i.e. hold a limited number of investments. If one of these investments falls in value this can have a greater impact on a Fund's value than if it held a larger number of investments.

May encounter liquidity constraints from time to time. The spread between the price you buy and sell shares will reflect the less liquid nature of the underlying holdings.

Outside of normal conditions, may hold higher levels of cash which may be deposited with several credit counterparties (e.g. international banks). A credit risk arises should one or more of these counterparties be unable to return the deposited cash.

May be exposed to Counterparty Risk: any derivative contract, including FX hedging, may be at risk if the counterparty fails.

Do not guarantee a level of income.

The issue of units/shares in Liontrust Funds may be subject to an initial charge, which will have an impact on the realisable value of the investment, particularly in the short term. Investments should always be considered as long term.

The risks detailed above are reflective of the full range of Funds managed by the Global Innovation Team and not all of the risks listed are applicable to each individual Fund. For the risks associated with an individual Fund, please refer to its Key Investor Information Document (KIID)/PRIIP KID.

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