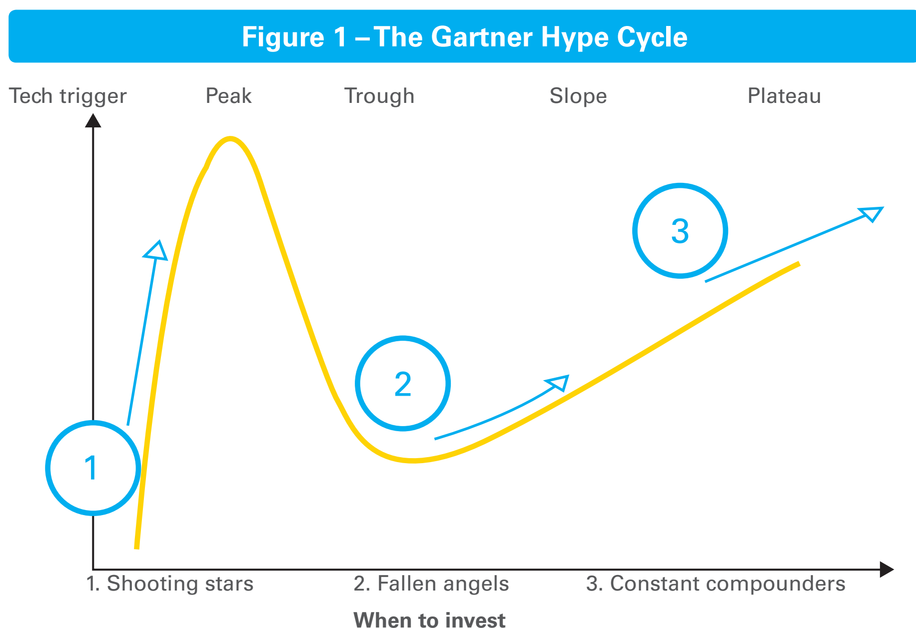
FUNDAMENTALS

Investing in change

The enthusiasm and excitement of a new technology has on many occasions captured the imagination of the supposedly hard-nosed investment community, and encouraged them to overstate its profit potential.

The 'hype cycle' introduced by Gartner, the technology research firm, is a framework for thinking about technology change which also provides an apposite framework for investors. In essence, it maps a curve that describes the way in which new technologies are adopted, isolating the difference between expectations and reality. As illustrated below, there are five phases to the cycle:

Figure 1 – The Gartner Hype Cycle



Source: Gartner, LGIM

- **Technology trigger** - Breakthough, product launch. This is pure thought leadership territory. Trademark proprietary technology and products that are new to the market
- **Peak** - Overhyped by the market, leading to unrealistic expectations and an exuberance of optimism
- **Trough** - Technology quickly becomes unfashionable after disappointing the market. This reaction can be hasty and over-stated. However, for good companies this can provide a compelling entry point
- **Slope** - Benefits and practical application of technology gradually realised. Start to see adoption of innovation
- **Plateau** - Benefit of technology now widely demonstrated and has seen mass adoption (both corporate and consumer level). Attention has been well-earned, now we see the reward

We find this to be a helpful framework for thinking about investing in technology change, and tend to focus on three potential entry points to generate positive returns, as illustrated on the chart above.

1. SHOOTING STARS

Identifying the 'new, new thing'

These are companies capitalising on breakthrough technologies with enormous, but often unproven potential. The trick is to identify them early, ahead of the wave of optimism around the new technology that can lift valuations towards the peak. Typically, this approach is best suited to the small cap equity fund manager, or to private market investors, and often it requires a very forward-looking approach to valuation: these breakthrough technologies rarely come with an established revenue stream, let alone profits and cashflows.

Legal & General INVESTMENT MANAGEMENT

The software and biotech sectors are particularly fertile hunting ground for these kinds of investments, and a recent example is **WANdisco**. As an infrastructure software company, WANdisco offered investors exposure to growth in one of the noisiest IT themes – big data – through the use of Hadoop, a tech enabler for managing large-scale data and Open Source, a community-driven software development process.

In 2013, the company was one of Europe's top performing stocks, as the share price rocketed on the back of developments in the big data industry. WANdisco writes computer software that helps companies search though vast amounts of data quickly and easily. In a short space of time, the company found its services increasingly in demand as the first clients signed up for its unique and patented Non-Stop NameNode technology. Agreements were also inked with both Cloudera and Hortonworks, the largest Hadoop distributors (a low-cost, scaleable architecture that is well suited to dealing with unstructured data). Such developments kick-started a leading big data market position for WANdisco in a mere few months, as strategic alliances helped to widen the ecosystem.

Such progress led to expectations that WANdisco would see a rapid acceleration of Hadoop adoption, and that their next-generation approach to managing data would drive significant growth opportunities.

There are a number of companies coming out of Silicon Valley, with market capitalisations of several billion dollars, that are currently in this part of the cycle, including Snapchat, Uber, Palantir, AirBnb and WeWork.

2. FALLEN ANGELS

Picking up yesterdays news at a deep discount. There are countless examples of new technologies that are much hyped, where expectations and valuations get well ahead of reality and subsequently disappoint. The Tech Bubble of the late 90s serves as a classic case in point. Once optimism turns to impatience, and the time frames supporting heady valuations shorten towards the more sanguine anchor of near-term earnings, the reset in company valuations can be brutal. However, after the collapse, there is sometimes an opportunity for bargain hunting. Value-focused and special situations equity fund managers, and private equity and private debt investors, often turn to fallen angels as an opportunity to make multiples of their investment.

A recent example comes from the area of 3D printing, also known as additive manufacturing. What was originally considered a small evolutionary step, from spraying toner on paper to compiling layers of plastic resin until the layers add up to an object, quickly became the basis for a manufacturing revolution. US listed **3D Systems** was a company primed to benefit: its share price went from $3.70 at the start of 2010 to $9.60 by end of 2011, $35 by end 2012, and then peaked at $93 at the close of 2013.

The bubble of optimism surrounding the capabilities of 3D printing technology, and the potential for cross-industry adoption, promptly burst and the shares closed 2015 back at $9. All the while, the technology continues to advance. Adoption globally has improved in recent years, driven by improvements in machine capabilities, new products and reduced material and supply costs.

UK small-cap stock **Xaar** suffered a similar fate in 2014. Its printhead solutions techology was a core enabler of the transition from analogue to digital modes of printing, with its solutions targeting large industrial end-markets with scope for digital print conversion. However, a deterioration in demand from China's ceramics industry and market share erosion hit the company hard. Coupled with weak construction activity and a lack of aftermarket sales, the incentive for Xaar's customers to convert their lines to digital technology were severely reduced. Management responded by protecting its installed base and developing its ecosystem through progressive innovation. Successful development and commercialisation of a Thin Film printhead capability has substantially expanded Xaar's addressable market opportunity. Its exposure to 3D printing now presents opportunities across multiple industries from sports and leisure to aerospace.

3. CONSTANT COMPOUNDERS

Strong franchise durability and consistent returns. These are the companies that are emerging successfully into the other side of the hype cycle, typically having survived a period of industry consolidation with greater market share and a strong competitive advantage. However, it often takes a while for investor memory to adjust to a new normal of sustained and solid earnings growth. Fixed income managers and large cap equity investors are often invested in constant compounders, as they are attracted to the stable and growing cashflows.

One recent example is digital advertising. A host of advertising technology companies listed through 2011-13 as advertising spend shifted to digital, and adverts got bought and placed via programmatic advertising. Following a rapid peak-to-trough for the ad-tech sector, which included consolidations, bankruptcies and fraud, **Criteo** is an ad-tech company that has emerged unscathed. It is a credible and scale survivor that is now one of the largest buyers of digital display advertising in the world. The company buys advertising space in real time for their clients based on algorithms that predict the likelihood of the consumer clicking through the advert and making a purchase.

Despite enormous share price volatility since it listed, the company has consistently grown revenues and earnings at over 30% a year. This looks to be a company that is now graduating from the trough and is starting to be viewed and valued as a constant compounder, with a more stable and expanding valuation multiple as a result.

Some of the platform businesses in the UK are further advanced along this journey: the digital upstarts of a decade ago such as Rightmove and Autotrader have consolidated market share leadership in their distinct verticals of property listings and second hand cars respectively. Both share the common traits of very high customer penetration - estate agents for Rightmove and car dealerships for Autotrader - creating high barriers to entry, high margins and very high returns on capital. The question for investors now is whether, and how, these disrupters could be disrupted themselves, because in the absence of another significant shift in consumer behaviour they have all the hallmarks of constant compounders.

BOTTOM LINE

Accelerated change, but the basics remain the same. The hype cycle reminds us that timing and sentiment are crucial, with the impact of technology change often overestimated in the near term and underestimated in the long term. The best returns for investors often come before the hype, or around the trough in sentiment—a truism that extends beyond technology change to investing in general. There's never room for complacency, as today's technology could quite easily be displaced by tomorrow's innovation, a subject we will turn to in a future publication.

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