

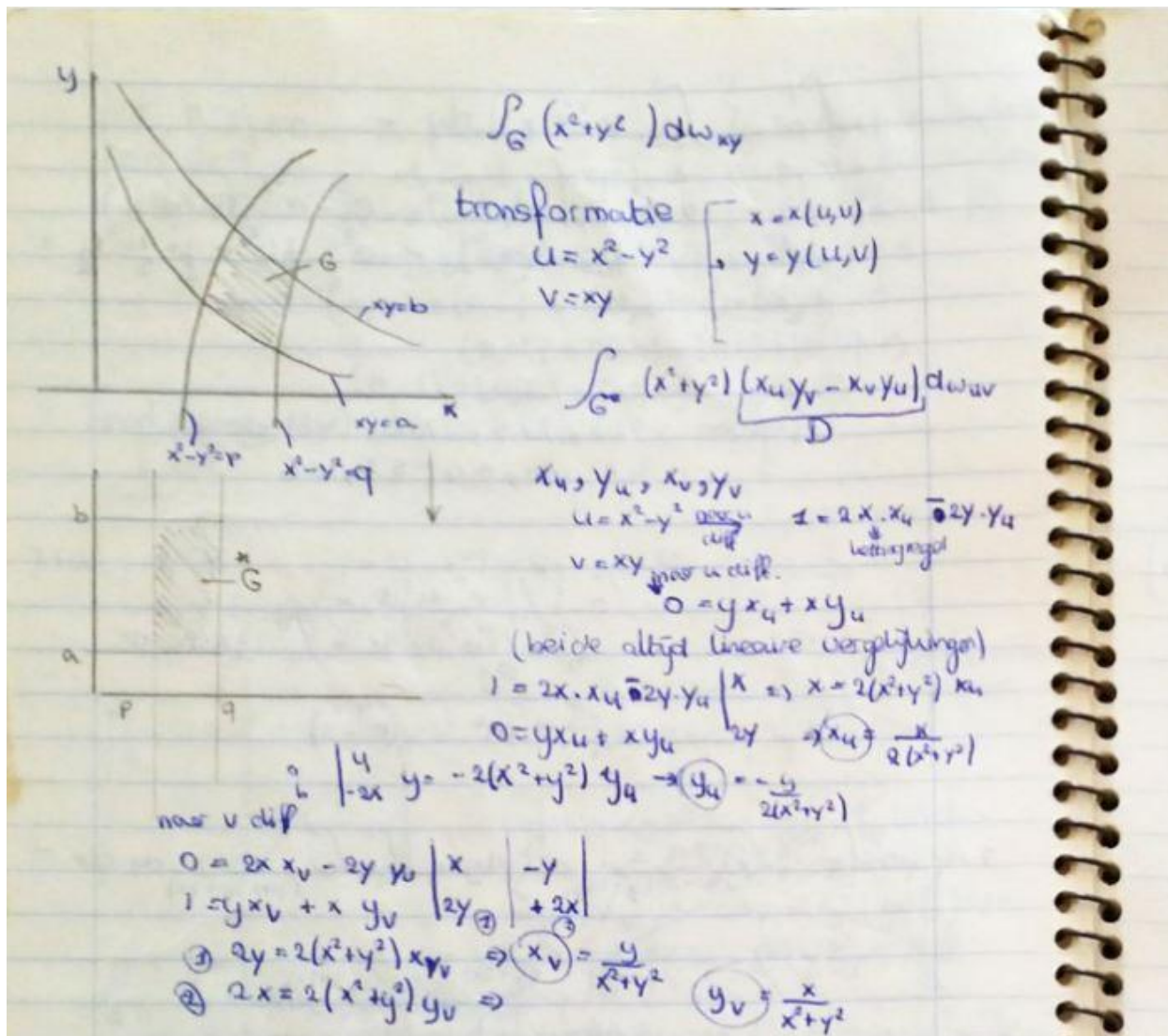
Digital Business: Three Core Concepts Exploded



By , INSEAD Senior Affiliate Professor of Strategy

The digital world has pushed old curves off the whiteboard as new trajectories arise.

Even tedious jobs like cleaning out archives can sometimes lead to great insights. Sifting through my old files recently, I was pleasantly surprised to find a treasure trove of old memories and forgotten facts. Amongst these papers were notebooks from my engineering studies; I realised that I no longer remembered the math formulas I had so diligently noted. The everyday pressures of business have blurred these lines.



There are, however, some basic concepts that have stood the test of time. Most are simple intuitive relationships such as extrapolated trend lines, the normal distribution curve and scale effects that taper as volume increases.

For most of us, these stick in our heads and have been useful in an analogue world where goods were scarce and the cost of transactions significant. As business becomes digital, however, other rules and relationships apply. If the old curves and concepts are rooted too deeply, we run the risk of taking the wrong decisions based on our default ideas.

What are the biggest pitfalls in relying on tried and formerly true curves?

Towards the tipping point

As a supervisory board member, I get very nervous when I see “hockey stick” graphs where the initial results are modest but then go off the chart a

few years out. Our brains are programmed to extend our known experience into the future, so naturally we feel more comfortable with business plans that project forward the growth of the past using smooth trendlines. This still applies in mature industries but if your industry is touched by the digital world, those assumptions about gradual market growth are no longer relevant.

It's rare for a digital innovation to start with a bang. Very often, there is a period of significant buzz but little traction. Then the dam suddenly bursts and acceptance of a new digital service takes off in a steep curve. One prominent example is the fast adoption of mobile internet after years of languishing in the digital wilderness.

The digital world is especially prone to tipping points for two reasons: adoption patterns and ecosystems. The **technology adoption life cycle**, as described by Everett Rogers and modified by Geoffrey Moore, details a small group of innovators/early adopters who are followed by the masses – crucially a tipping point from the early adopters to the early majority. In the digital world, the curve is even steeper since new innovations can spread faster.

As Ron Adner describes in his book ***The Wide Lens***, ecosystem barriers arise because either the various players in an industry need time to establish new rules about how to interact with each other or some players do not benefit from the innovation. In advertising, for example, professionals continued to buy traditional media space even though subscriber and reader rates were falling. Advertisers understood that the audience wasn't there but the value chain for digital advertising was yet to be established. Advertising agencies lacked the skills and the financial incentive to shift away from traditional media. It's only fairly recently that the tech giants have found ways to simplify the design, targeting, pricing and analytics of digital advertising, which has resulted in the digital marketing tipping point.

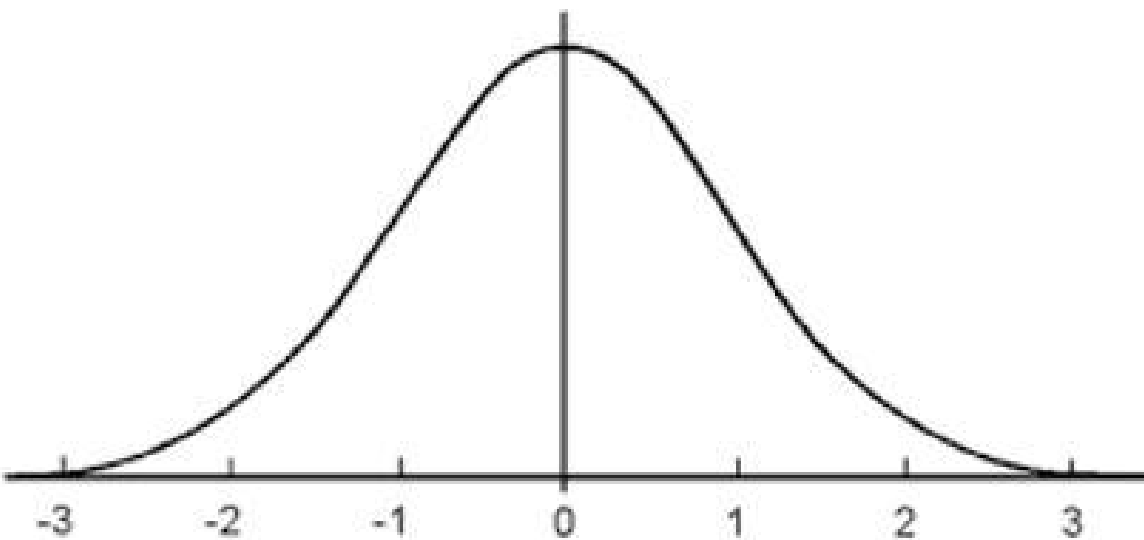
When industries move towards digital, boards and management must be alert to potential tipping points. Firms need to be aware of the ecosystem barriers, and the extent to which they are being chipped away.

Power curves prevail

We are used to the traditional model of scarce goods and high transaction costs. Parties incur transaction costs when searching for a product, selecting the best alternative, negotiating the price and ensuring fulfilment. Under

these circumstances, demand curves tend to take on the bell shape of a normal distribution ([Figure 1](#)).

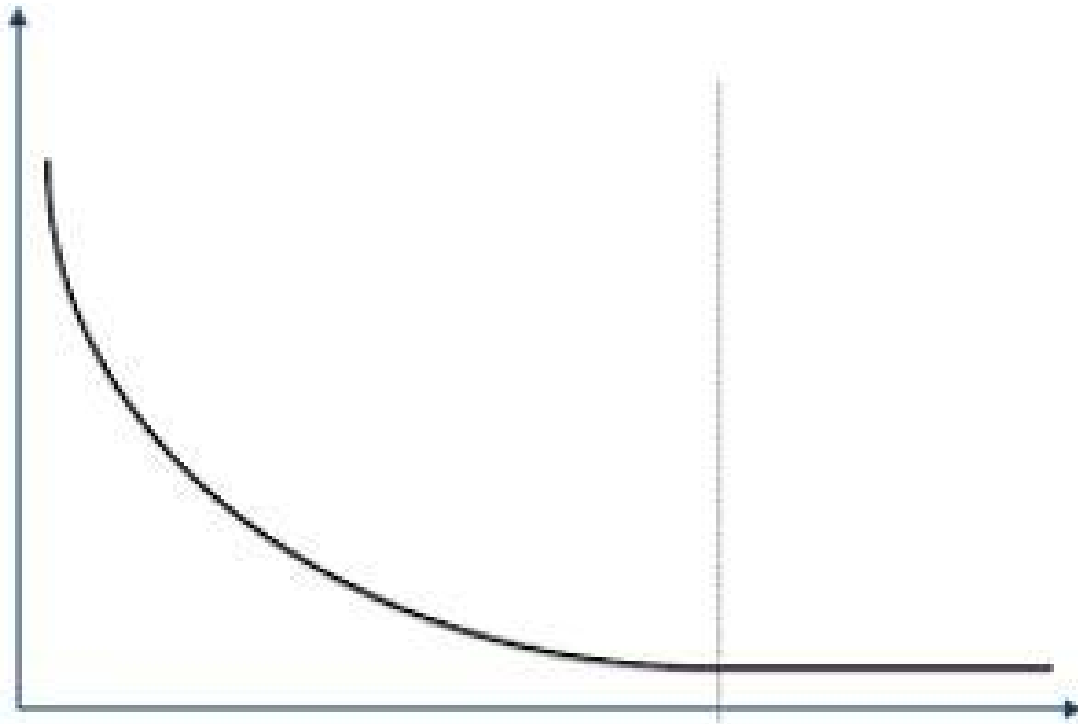
Absolute performance: Normal distribution



If we need to book a flight, for example, and the one we want is sold out at the most popular time, we look for the best alternative – a more expensive ticket at the right time or a cheaper one at a less convenient time.

In their book [The Second Machine Age](#), Erik Brynjolfsson and Andrew McAfee show that these simple rules regarding scarcity and transaction costs are not valid in the digital world. Goods are not scarce anymore and they don't deteriorate; they can be copied easily and distributed around the world at almost no cost. Whenever a digital good or service is slightly better than its analogue competitor, consumers flock to it. Because scarcity is no longer part of the equation, the normal curve is no more. Instead, the power law distribution applies: The best performer gets the lion's share of revenue ([Figure 2](#)).

Relative performance: Power law distribution

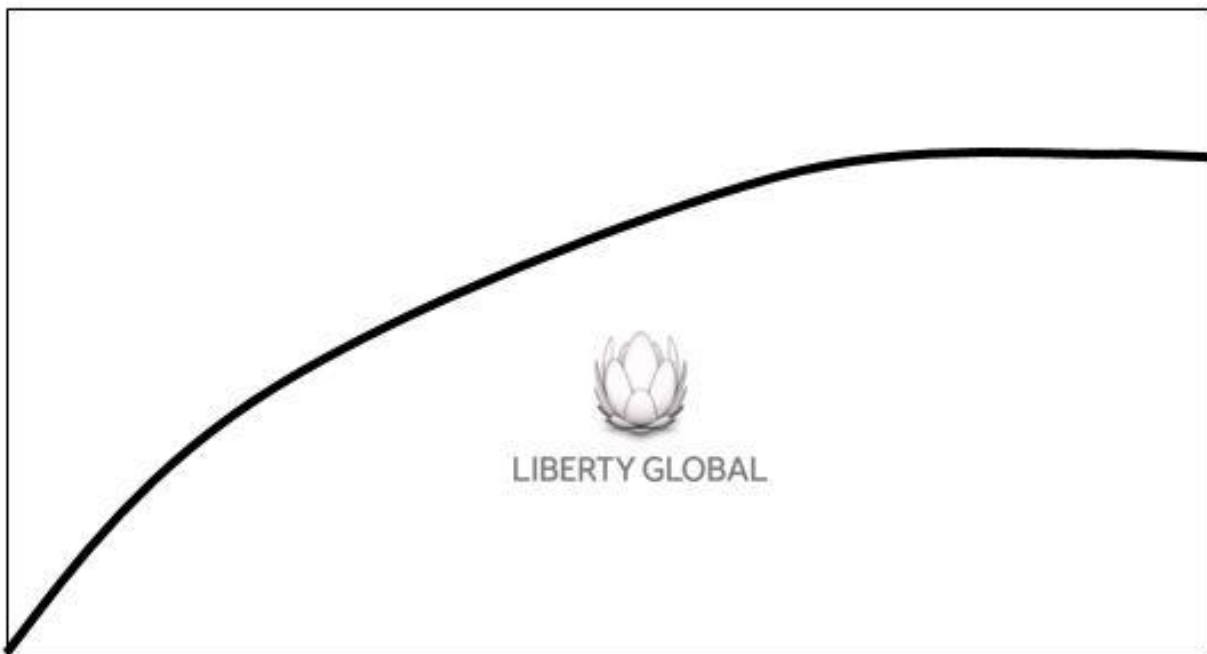


Harvard's Anita Elberse has shown that digital power curves are even steeper than analogue ones, based on the search behaviour of consumers. Consider music revenue. In the analogue world, 20 percent of music titles generate 80 percent of the value, but in the digital world, the ratio is closer to 10:90.

Boards and executives must thus relentlessly focus on the superior quality of digital offerings. Beautiful slide decks of business plans are not enough; the nuts and bolts of the digital offering must be the priority, with continuous product testing and improvements. An in-depth understanding of individual customers, their journey and their needs is crucial.

A new shape for network effects

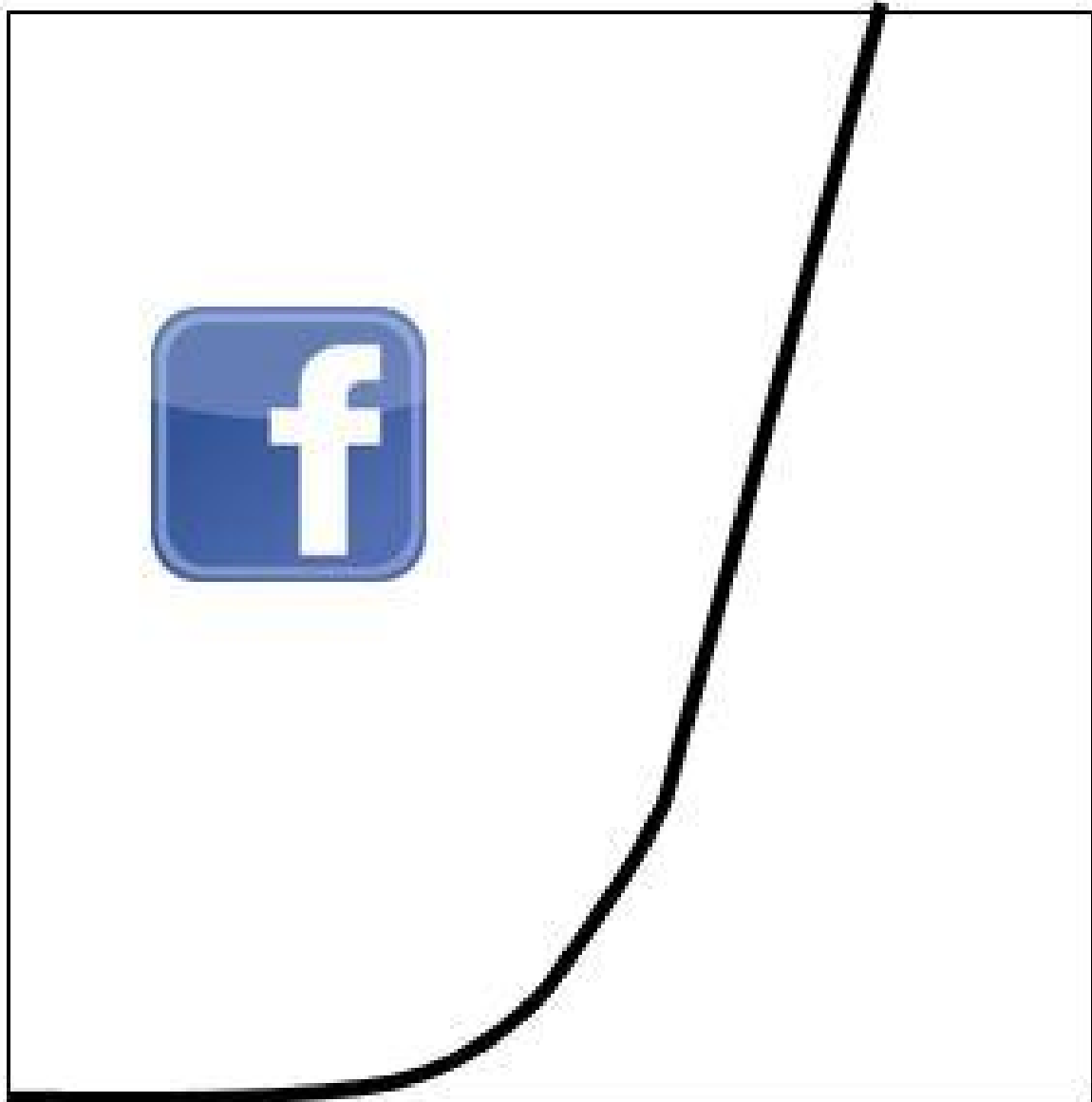
In the digital world – especially on digital platforms – scale effects play a part, but external network effects are far more important. Scale effects ([Figure 3](#)) occur as a company expands: The average costs go down because the fixed costs are distributed over a larger volume. When a company is still small, scale effects rapidly increase as it grows. However, the bigger a company gets, the smaller the increase in scale effects, effectively leading to a “concave” curve that tapers off with size.



Network effects are the mutual reinforcement of increasing supply (more car drivers, apartments for rent or products for sale) and demand (people ordering lifts, people renting a room or buying a home). They tend to start at a slow pace and then accelerate once a critical mass is reached. This leads to a “convex” curve where the slope gets steeper instead of shallower. In due time, of course, network externalities also taper off – when a market is saturated, for example.

The managerial implications of these different curves affect timing first and foremost. Whilst scale effects have their largest impact in the short-term, network effects only come to light later on. Also, it is important to realise that scale effects work for all companies that increase in size, whilst network effects very often apply only to the marketplace winner.

Like the power curve, the winner of network effects is likely to take all (**Figure 4**). The tech giants are the best illustration of the combined effect of the power curve and external network effects. The implication is that network effects is an all-or-nothing game. Both management and the board must be willing to take risks and accept the possible consequences of failure.



Retrain your brain

Looking back at the established curves, well worn in the analogue world and in our brains, we see how curves in the digital world are fundamentally

different. Boards and management should be aware that using the wrong curve could lead to fundamentally wrong decisions.

Each new digital curve has its own challenge and requires a clear shift in focus from the top. Companies need more long-term strategies as in the “convex” digital world, short-term effects are smaller and long-term ones larger.

A deep understanding of individual customers’ needs and the importance of analytics and measurement are make-or-break because digital power curves are unforgiving for runners-up. Second place doesn’t rate in the digital world.

For a firm to pursue the winning spot, management and boards must have enough risk appetite. In the face of adversity, the choice *not* to take risks leads to certain demise.

These new curves are more exciting and challenging than the old ones, so it might be time to put your old ideas into storage, dust off your math formulas and retrain your brain for the digital world.

A version of this article first appeared in The Stern Stewart Institute Periodical.

Annet Aris is a Senior Affiliate Professor of Strategy at INSEAD. She is also a board member of Rabobank Group in Utrecht, ASML N.V. in Veldhoven, Randstad N.V. in Diemen, ASR Nederland N.V. in Utrecht and Jungheinrich AG in Hamburg.

Found this article useful? [Subscribe](#) to our weekly newsletter.

Aris was named one of the 50 most inspirational women in the European technology sector for 2016 by [Inspiring Fifty](#) and recently published the book [Wegwijzer in het digitale doolhof](#).

Follow INSEAD Knowledge on [Twitter](#) and [Facebook](#).

Find article at

<https://knowledge.insead.edu/strategy/digital-business-three-core-concepts-exploded>

Download the free Knowledge App

