There has been no digital revolution in higher education. Instead, technology has made learning and teaching more efficient and has supported incremental enhancement within a consistent and enduring pedagogy. However, technology retains the potential to be transformative and it is surprising that higher education has not been transformed by technology, as many other goods and services have been.

This book has shown that virtual learning environments exemplify Sustaining Innovation and Efficiency Innovation. It has also shown how Wikipedia is a successful disruptive innovation in higher education, and challenges claims that social media technologies are disruptive. The book has also examined the consequences of privatising and monetising higher education, recognising the complexity of changing the economics of higher education through an examination of Bring Your Own Device. In addition, the book has shown the importance of creating an effective narrative for technology-enhanced learning.

The digital world has not created utopia. It has not made life easier universally, and in some respects technology has amplified inequalities. iPhones are premier products, but the working conditions of the people who make the iPhone can be deplorable (Clarke & Boersma, 2017),
determined by the imperatives of reducing costs and increasing efficiencies (Pun & Chan, 2013; Srnicek, 2016).

As far as higher education goes, technologies are used to support and sustain existing pedagogy and practices. Embedded hierarchies remain untroubled in higher education. The digital world has created enhanced surveillance (Zuboff, 2019) as students’ digital interactions with their universities are monitored constantly, but technology has not revolutionised higher education in terms of how universities organise the curriculum and how students experience it. Digital technologies have failed to live up to their disruptive potential.

The solution to technology-enhanced learning’s inertia, offered by this chapter, is a standard prescription: switch it off, switch it on again. The chapter aims to reimagine technology-enhanced learning in higher education and, to that end, explores what disruptive universities might look like. A disruptive university is proposed in this chapter, shaped by existing and increasingly privatised education systems. An alternative disruptive university is also considered.

**Higher Education: The State of Play**

Higher education in countries such as the United Kingdom is hierarchical and stratified, but as higher education has moved from a state to a privatised system it has become more like a market, with paying customers pursuing value. There is an opportunity for disruptive providers who can analyse and define the job that students want higher education to do and offer provision to suit students’ needs. There is a mismatch in higher education between institutional provision, strategy and rhetoric on the one hand; and actual practice on the other. The contradiction between the two can lead to fundamental changes in learning and teaching in higher education. Rutter, Roper, and Lettice (2016) argue, of universities, ‘the language of the market frames and describes the sector’ (p. 3096), but this is inevitable in the context of the privatisation of higher education. As market practices are brought in, market terminology follows.

Established universities have many advantages. They are well-networked. Their qualifications are sanctioned by official bodies. They
have access to outstanding resources for learning and teaching. They have resources and they have brands. Universities are better placed than many industries to survive threats from disruptive entrants. However, they are not immune to change and they are not unassailable, and many powerful incumbents in other fields have been disrupted.

Traditional universities pursue traditional models because traditional models are successful. However, by limiting their development to Sustaining Innovation and Efficiency Innovation, universities are leaving themselves vulnerable to a disruptor. Universities have used technologies to do what they have always done a little better and little more efficiently than before, disregarding the potential of technology to transform. Technology has altered how we engage with education (accessing material online and at any time rather than via a library with closing hours), but technology has not radically altered the kind of qualifications we produce, nor has it radically affected how higher education is experienced. A clear majority of students still physically attend an institution.

Technologies need to be appropriate to their contexts and this may be one of the reasons why higher education institutions are geared towards Sustaining Innovation and Efficiency Innovation. Higher education providers look for technologies that enable them to do what they have been doing with greater efficiency, and with improvement along a performance trajectory with which they are familiar. Nair and Ahlstrom (2003) argue, ‘managers making technology investment decisions need to more completely understand the competing technologies, and the institutional and ecological dynamics surrounding the technologies’ (p. 360). Potential innovators, too, need to understand both the technologies they deploy and the contexts in which those technologies are deployed. If their understanding is better than the incumbents’ understanding, they can make inroads.

Established universities have a vested interest in not staking their reputations because their reputations serve them well. Universities are structurally and strategically positioned against Disruptive Innovation. However, there is scope for a disruptive innovator to gain a foothold. Disruptive Innovation argues incumbents often do not notice the new entrant as a serious competitor until the momentum is already with the disruptor (Christensen, 1997; Sood & Tellis, 2011). At the same time,
and through repeated sustaining innovations, the incumbent arrives at product overshoot (Christensen, 1997), providing goods and services its users do not need. Universities provide a plethora of non-curricular goods and services, from well-appointed cafes to opportunities to build soft skills through to careers departments and other small units within universities. A disruptive provider could argue these add-ons are not necessary and that pared-down and substantially cheaper provision can find a viable market.

It can be argued that we do not want to change long-standing and generally efficient practices in higher education and therefore we will not; a study in the UK showed 88% of students rating digital provision at their HEI as good or higher (Newman, Beetham, & Knight, 2018). However, doing nothing ignores the fact that wider contexts do change, recognised over eighty years ago in The Saber-Toothed Curriculum (Peddiwell, 1939). Curricula cannot remain entirely static because economies and societies do not remain static. Technology can change the content we produce and how we produce it, technology can be better aligned with our changing economies and societies and it has clear, disruptive potential.

Disruptive technologies tend to be cheap but disruption is not solely a matter of price competition. It is also centred on the convenience and ease of use of a technology and its ability to get jobs done, jobs that the buyer needs to get done. Students need affordable higher education of good quality. Technology can, in theory, provide it. The disruptive innovation of the higher education sector is therefore possible. However, it has not happened. It may be present at the periphery but it is not moving into the mainstream to an extent that threatens incumbent providers. Technologies can enable transformation in the production, distribution and consumption of higher education, but embedded pedagogies create expectation on students’ part and anything that deviates from the norm, that does not belong in the ecosystem, runs the risk of not being regarded as credible or proper higher education.

Private, commercial providers in a range of sectors can often be innovative to help ensure their survival: Holtham and Courtney (2005) note, ‘For much of the 1990s, eLearning development was focused in the for-profit training sector’ (p. 7). Established higher education providers will
not undergo fundamental change if they have no motive for doing so. As Rosenbloom and Christensen (1994) argue, ‘The incumbent’s disadvantage, hence, seems to be associated with an inability to change strategies, not technologies’ (p. 655). Universities will keep doing what they have always done while it is in their interests to do so. Esposito (2013) undertook research at an Italian university, arguing technology usage, ‘underlies a functional and efficiency-driven approach to digital tools and environments.’ It makes sense to use technologies to achieve efficiencies. It makes less sense to limit technologies in this way, especially if their usage can enable more people to access higher education and be supported through it. Markides and Sosa (2013) argue, ‘winning the market is not a matter of luck or good intentions. It is the by-product of an innovative business model’ (p. 327), yet many universities’ strategies seem inimical, in practice, to substantial innovation.

New providers need to establish reputation but this is challenging without replicating the methods of established providers, including having a campus as a social as well as learning hub. Were emerging providers to take this route they would lose a core feature of their price advantage and essentially replicate the incumbents, without the advantages of age and reputation. There is an impasse and incumbents are powerful: as Wessel and Christensen (2012) note, in a USA context, ‘Ivy league universities are still better positioned than online institutions to confer elite status on aspiring high school seniors.’ The elite has remained unchanged in higher education, a claim it would be difficult to sustain in many other areas of practice (Marginson, 2013). However, technology retains the potential to offer a high-quality and low-cost higher education.

### Designing Disruptive Innovation

Technologies are constantly evolving, which makes it difficult to design technology-enhanced learning. However, Hargadon and Douglas (2001) argue for the importance of design, ‘the emergent arrangement of concrete details that embodies a new idea’ (p. 476). From this perspective, design can facilitate Disruptive Innovation, encouraging innovation by creating new possibilities. Whereas Christensen (1997) sees innovation as
emerging from ground up practice, Hargadon and Douglas (2001) argue it can be created: design, ‘allows entrepreneurs to exploit the established institutions while simultaneously retaining the flexibility to displace them … entrepreneurs must locate their ideas within the set of existing understandings and actions that constitute the institutional environment yet set their innovations apart from what already exists’ (p. 476). Innovation should start from the known in order not to alienate or intimidate, but design can catalyse innovation. The new product, the innovation, needs to significantly resemble an existing product but it also needs the potential to move beyond the existing product’s capabilities. Similarly, a disruptor in higher education will need to start by offering goods and services resembling those already current and established in the sector, but offer something new, too. Hargadon and Douglas (2001) conclude, ‘prospective innovators must carefully choose designs that couch some features in the familiar, present others as new, and keep still others hidden from view’ (p. 480). The proposition confronts innovators with challenges, including the ability to imagine forms of usage that go beyond existing practices. However, the argument also implies innovation can be built-in. While this differs notably from Christensen (1997), it opens a framework for understanding why some goods and services prove to be disruptive and others do not. While Kahl and Grodal (2016) write about a narrative for new products that succeeds because it begins in the familiar, Hargadon and Douglas (2001) write about innovative design beginning with the familiar. Applying the argument to higher education, disruption does not need to be obviously disruptive initially. It can appear familiar but use technology to open up new practices and new possibilities.

The innovations with the greatest potential to disrupt can be seen as skeuomorphs, which retain features of earlier iterations of the same or similar goods and services. One example of a skeuomorph is the icon of the dustbin on computer screens (Hargadon & Douglas, 2001), which represented, figuratively, a use for a new application, and drew out a specific practice on the part of the user. Skeuomorphic design can enable and support technology adoption: Ellis and Marshall (2019) argue, ‘skeuomorphs allow users to leverage their existing knowledge of physical artifacts to interact with digital artifacts’. Skeuomorphs are conducive to
innovation because they enable interaction without training. They allow an encounter with a technology to feel intuitive, though the usage is directed by the design. They enable disruption by bridging present and future practice.

Technologies can have entry-level functions that appeal to users but that do not circumscribe the range of possible usage. Design, therefore, has to enable pliability and repurposing in order to be disruptive: ‘our understandings and patterns of use are changing, and those systems that retain the flexibility to change with us will persist. Ultimately, these will be the innovations we look back on as radical and discontinuous’ (Hargadon & Douglas, 2001, p. 49). The Honda motorcycle in the USA, especially Honda’s Supercub bike, with its walk-through design more reminiscent of a woman’s bicycle, and its marketing slogan (‘You meet the nicest people on a Honda’) nullified the less savoury, Hell’s Angels image of motorcycles, and created a new market around socialising (Christensen, 1997; Pascale, 1984). It is a prime example of a design that looks familiar but enables new and innovative practices.

A disruptor in higher education could offer the established product of undergraduate and postgraduate qualifications but could make them available to new markets. It need not have entry requirements. It need not have peripheral services. It need not have premises. It can decide upon its curricular offering and make it available at a pared-down cost without compromising on core questions of academic quality. It can aim for Ryanair’s proposition of 80–90% reduction in costs to the customer (Kumar, 2006). Skeuomorphic design can make the goods and services familiar yet at the same time enable new forms of practice by extending the higher education market, practising both low end and new market disruption.

Ferreira, Rosado, Lemgruber, and Carvalho (2020) seek new metaphors for higher education. They argue against perceived, often amorphous problems in higher education, problems for which commercial ed-tech providers offer solutions. However, the new metaphors for technology-enhanced learning in higher education are, as yet, unknown. Perhaps new metaphors can be produced, drawing, in this study, on the work of Hargadon and Douglas (2001) and Kahl and Grodal (2016). If new metaphors can be constructed, we can begin to imagine different,
even transformative forms of academic practice, using technology to make higher education more open and accessible. If new metaphors are absent, and in the context of increasingly privatised and monetised systems, technology-enhanced learning will continue to be suborned to discourses of efficiency while it continues to make false promises of transformation.

The Disruptive University

What would the Disruptive University look like? Would it have employer input from the outset? If employability was built-in to the curriculum in the design stage there would be no need for a separate careers service, a measure offering an immediate and substantial cost saving. The Disruptive University could argue that students can find gainful, graduate employment by themselves, using jobs websites. A relationship between a student and a university is high-risk because of how much depends on it, most notably the student’s future earnings. A curriculum that embraced employability would be working consciously to offset the risk. In a large-scale survey in the UK, 70% of higher education students said digital skills were important for their chosen career but only 42% said their course prepared them for the digital workplace (Langer-Crame, Newman, Beetham, Killen, & Knight, 2019). A disruptive provider, entirely online, could develop students’ IT skills, whether explicitly as part of the curriculum or implicitly through the practice of studying online. In acquiring these skills, students could make themselves more employable (Jones, 2014). The Disruptive University, as an online provider, would enhance employability by putting digital skills at its core.

Markides and Sosa (2013) identify a problem in markets, namely that, ‘most entrants imitate the incumbents’ (p. 327), but what would happen if a higher education provider came along with a radically different model, centring on the Ryanair proposition (Kumar, 2006)? Hopp et al. (2018) argue, ‘rarely is the technology inherently disruptive, but rather the business model (enabled by the new technologies) has a disruptive impact on incumbents’ value creation and market position’ (p. 446), and Hagel, Eckenrode, and Srinivas (2016) argue, ‘technology is often a significant
enabler of disruption, but unless it is coupled with a powerful business value proposition, it is unlikely to have a disruptive impact’ (p. 3). The Disruptive University would only need a small market share to survive and to build. Powerful incumbents would ignore it, giving the new provider more opportunities for market growth. The Disruptive University would not need high enrolments at first, just enough to claim a foothold, a modicum of brand recognition and effective validation through evidence of enhanced employability, and it could build from its foothold along Sustaining Innovation lines.

Zeide and Nissenbaum (2018) argue, ‘Despite rhetoric extolling education as a means to promote democracy, equality, and self-actualization, most online education providers offer educational experiences focused on the economic value of acquiring marketable skills and credentials’ (p. 296), so perhaps the Disruptive University would risk being a sustaining innovation, offering an employability-focused add-on to existing provision. However, the Disruptive University could offer socioeconomic as well as economic value by using Efficiency Innovation savings to drive down fees, encouraging wider participation. The Disruptive University would not have to be an educational ghetto for the economically disadvantaged. Instead, it could provide increased access to higher education and provide clearly enhanced employability, too. If the Disruptive University dedicated its marketing budget as much to employers as to prospective students, it could make both sides of the employment contract aware of its value proposition and gain a foothold from which it could progress incrementally.

Disruptors need credibility and reputation, which are best purchased within the existing higher education ecosystem. The Disruptive University’s core products should continue to be certificates, diplomas and degrees. The Disruptive University would also need to establish reputation outside the immediate ecosystem of the higher education sector by having credibility with employers. This might lead to a narrow curriculum focused solely on employability but the Disruptive University would stand a fair chance of success if it was priced significantly below the mainstream sector. Moreover, the Disruptive University could argue there is no necessary antagonism between education for employability and a satisfying educational experience. It would just be a question of the
Disruptive University building a good narrative, of getting the message right, foregrounding quality as well as relevance.

The Disruptive University could pose a challenge to existing scholarship practices. Lecturers expect research time to be built into their contracts. Lecturers at the Disruptive University will be expected to conduct research in their own time and at their own expense. Byrne and Clarke (2020) note, ‘The massive and economically important strength of the UK’s research … is concentrated in about a third of our universities. If no research were to take place in the other two thirds, the overall damage would be quite limited’ (p. 17), the authors being a Russell Group university principal and a former Secretary of State for Education in the UK. According to Salter (2005), the financial community has a, ‘You eat what you kill’ system of reward (p. 19), and Metcalf and Moss (2019) argue, ‘In Silicon Valley, a common motto is “fail fast, fail often.” The industry rewards breaking rules and ignoring guardrails’ (p. 468). The Disruptive University can function similarly in the higher education community, rewarding its lecturers recruited on gig economy principles by student outcomes and student satisfaction, ratified in the former case by exam boards; in the latter by marketing departments. Acs and Audretsch (1988) argue innovation is negatively correlated with unionisation, so the Disruptive University need not recognise trade unions. The positive aspects of gig economy lecturers’ contracts can be emphasised because some academics may appreciate the flexibility. Already, some lecturers undertake sessional work in more than one institution (Richardson, Wardale, & Lord, 2019), and around a third of UK academic employees are on fixed-term contracts (Loveday, 2018). The Disruptive University will build upon existing developments, being more of a Sustaining Innovation than a Disruptive Innovation it its approach to labour relations, but will differ by passing on the cost savings to students. Some employers have online, just-in-time training, enabling employees to retain currency in their practice. Why can’t the Disruptive University do the same with its academics, support and develop them as teachers but let them manage their own careers as researchers? By these means, academic practice can be re-engineered to produce surplus value and therefore profit (Hall & Bowles, 2016, p. 34).
The Disruptive University will have low or no barriers to student entry. The harvesting of data will enable students to be constantly aware of their progress and will tailor, through curriculum design, learning materials to student need, perhaps by foregrounding a particular e-book, or article, or video resource. E-books not already owned by the university can be sold to students, with a link directly from the Disruptive University’s pages to the seller’s pages, with the Disruptive University taking a small percentage of the transaction. The Disruptive University’s library can be excluded from the process, producing further cost savings.

Technology is very useful for gaining knowledge of customers. Amazon began as an online bookshop in 1994 but by 2001 was allocating a third of its budget to technological developments (Kimble & Bourdon, 2013). An early online bookseller, Book Stacks Unlimited, had opened in 1992 but was overpowered by Amazon (Vidal & Mitchell, 2013), which used data to tailor what the customer saw each time, offering future purchases based on past behaviour. Amazon sought out innovation and changed the retail sector in the process. As Kimble and Bourdon (2013) argue, ‘If a company is able to pioneer some form of innovation that is so deep-seated that it disrupts the way an existing market operates, it creates a completely new set of rules that only it understands and can follow’ (p. 58). Amazon did not invent retail trade but changed how it was experienced. It bridged the gap between existing and future practice, offering customers convenience and a simple to use interface while also offering lower prices and, initially, free delivery on all purchases. Kimble and Bourdon (2013) argue, of Amazon, and its founder, Jeff Bezos, ‘The key to Bezos’s business model was to concentrate on attracting and retaining customers … while leaving the responsibility for the logistics of distribution … to the publishers and wholesalers’ (p. 60). The Disruptive University, focused on attracting and retaining students, could leave both content and its provision to subject experts hired for their knowledge in a gig economy model. It could also offer students Continuing Professional Development courses beyond its degrees, to prolong its relationship with its customers indefinitely, using data to anticipate its customers’ needs.

Universities already have associate lecturers and teaching fellows, many of whom have no job security and are hired per academic year depending on student numbers. This business model leaves no time for supported
research, which is undertaken autonomously by academics as self-employment. To think of a business model in relation to higher education need not be problematic, partly because it is a predictable outcome of a monetised system and also because the term business model has been extended to cover a range of organisations, the business model comprising the customer value proposition, the infrastructure and the financial components (Kalman, 2014). Traditional universities invest heavily in infrastructure; a university mediated primarily or entirely through technology would not be so burdened. If careers support for academics is no longer their employer’s responsibility, a notable cost saving ensues. Moreover, given that academics often change employers more than once in the course of the careers, employers can argue their own interests are not served by enabling their employees to move on because the investment achieves no return.

Gig economy employers are unlikely to have to face unfair dismissal litigation (Friedman, 2014). Furthermore, using gig economy contracts in universities is not revolutionary: Friedman (2014) notes, ‘Gig economy workers are employed in coffee shops and university lecture halls, farms, factories, and as janitors, cleaning offices at night’ and can be relaxed about their contracts; ‘Young people especially are said to want to break free of the confining restraints of traditional jobs’ (Friedman, 2014, pp. 172–173). However, in the event of gig economy employment being resisted, employers are well armed: ‘fear of unions and labor unrest no longer drives employers to establish internal labor markets; they have developed an arsenal of other tools—legal and other—to defeat labor militancy … their [gig economy workers] precarious employment situation makes them reluctant to bring complaints to their supervisors and employers’ (pp. 181 and 184). The Disruptive University can grow through the kind of employment contracts it provides and the likelihood of a substantial pool of willing, or at least acquiescent, labour to draw upon.

Why does a university need a physical library when an incalculable number of scholarly resources are available online? Self-service terminals for checking-out and returning books already enable university libraries to make savings, comprising an efficiency innovation, but if every university is doing the same, no one gains an advantage. For that to happen, a
more radical rethink is required. A university can buy nearly all its new titles in electronic form and phase out old, unused books, recycling paper in the process, highlighting the Disruptive University’s environmental credentials. Moreover, and again from an environmental perspective, being an online provider the Disruptive University will not require students to travel to a campus. Mohan, Ramesh, Cao, and Sarkar (2012) argue innovation, in the sense understood by Christensen, could create benefits for the environment through both efficiencies and imaginative solutions to problems of resources and infrastructure: the Disruptive University will exemplify this argument with an environmental impact strategy.

Fewer library staff will be needed at the Disruptive University. The library can produce short videos on using academic databases and as a result the library will need fewer information specialists. Furthermore, as Leitch (2014) argues, ‘the ability of university libraries to subscribe to online journals instead of procuring hard copies has freed sorely needed shelf space’ (p. 3). As a result of all these changes the library will need less space, and the space vacated can be repurposed, rented, or sold. Digital libraries enable and support independent research, a skill undergraduate students should have, and thus the Disruptive University aids students’ academic development and employability skills. As long as the Disruptive University has online resources to support the acquisition and development of the skills, perhaps by following the Community of Practice model (Lave & Wenger, 1991; Wenger, 1998) for how the resources are prepared and presented, enabling novices to develop competence and confidence, bridging the gap between established and innovative practice, students and the university both benefit.

Why do universities need accommodation departments when students and their families can find accommodation online? Why should a university subsidise sports clubs and make costly sports facilities available? The Disruptive University, not compromising on academic quality, can dispense of peripheral services, passing-on the cost savings to students. Hagel, Eckenrode, et al. (2016) argue, ‘Infrastructure services involve scale-intensive, high-volume, routine processing activities’ (p. 16). If a university strips back its infrastructure it generates considerable savings on administration as well as buildings. Moreover, by removing inessential
posts right across its provision, the Disruptive University will save substantial costs. Temple (2009) argues, ‘almost all writing about the university as a physical entity examines it as a site of teaching and learning, and/or of research. The majority of people working regularly in a university, though, are support staff of various kinds, not directly engaged in any of these tasks, though their contributions are essential to them happening at all’ (p. 211). The Disruptive University could make drastic savings across its provision, passing the savings on to students.

Are in-house student counsellors necessary or can the service be outsourced? Can digital resources be provided to support mental health? The Disruptive University needs to think about what digital support looks like and this may be one space in which technology is at a permanent disadvantage compared to face-to-face provision. Laurillard and Kennedy (2017) argue, ‘Education is no more a mass delivery industry than is parenthood. Whatever techniques we use to reduce the personal tutor support in order to keep costs down, there is the likelihood that we reduce quality, and therefore equity’ (p. 25). Perhaps, therefore, the Disruptive University needs a kernel of full-time lecturers who have personal tutor duties as part of their contracts, facilitated by video at a distance where necessary. Academics’ research time can be redefined as student support time and research can be an extra-curricular activity, with the Disruptive University providing nominal support in the form of access to a full range of scholarly materials. Nominal training can be provided to support the personal tutor function, and a nominal additional payment to recognise the additional commitment.

Do universities need extensive premises if they are supporting programmes not necessitating laboratory work, or other programmes demanding designated space? Degrees in Literature or History, for example, could be supported without classrooms to attend. How much capital will universities free-up with fewer buildings and the attendant costs benefits of fewer staff and lower utilities bills? The Disruptive University will not need a large campus and possibly might not need a campus at all, and its online core means its reach can be practically global. Christensen and Tedlow (2000) argue, ‘the internet negates the importance of location’ (p. 44), and Kumar (2014) writes of, ‘Mobile-centric use of the Internet’ (p. 1122) and, ‘the rapid penetration of affordable mobile technology in
remote regions of the global south’ (p. 1124). Zuboff (2015) states, ‘three of the world’s seven billion people are now computer-mediated in a wide range of their daily activities’ (p. 77). With digital infrastructure in place, and more extensive higher education provision highly desirable, there is exceptional market potential for the global expansion of higher education. Piketty (2017) shows how 70–80% of the production of goods and services, worldwide, used to be concentrated in Europe and America, but this figure had fallen to 50% by 2010 (p. 59). Europe attained its peak economic weight just before the outbreak of World War One whereas America peaked in the 1950s, but both Europe and America are characterised by a, ‘hyperdeveloped core and a less developed periphery’ (Piketty, 2017, pp. 61–62). Piketty (2017) further argues, ‘the poor catch up with the rich to the extent that they achieve the same level of technological know-how, skill, and education’ (p. 71). The foundational conditions are in place for a worldwide higher education revolution. Accelerating economic activity in previously underdeveloped regions of the world stimulates the demand for more higher education. Through skilful curriculum design, the Disruptive University can help to ensure that the new markets for higher education foreground the acquisition of skills most in demand by the globalised economy. Piketty (2017) argues, ‘Capital is never quiet: it is always risk-oriented and entrepreneurial’ (p. 115), and the global higher education market can keep capital occupied and profitable. The Disruptive University, designing its learning materials with a mobile-first strategy, can access hitherto underserved markets.

In addition, if the Disruptive University has little or no physical location in the form of a campus, how can it be compelled to make a notable contribution to a nation’s taxation revenue? It can register itself in a business-friendly country with little or no corporation tax. Tang and Bussink (2017) argue, ‘the current international tax rules only create a taxing right for a jurisdiction when the business has a physical presence in that jurisdiction … it is urgent to close the gap in the tax rules in order to ensure the fair and efficient taxation of corporate income in a digitized economy’ (p. 7). That said, for as long as existing rules are in place the Disruptive University has a vested interest in seeking a home within a business-friendly taxation system, in order to drive down costs for its customers. Jones (2014) argues, ‘Multi-national corporations, often
engaged directly or indirectly in higher education, can move their profits from one national system to another … thus avoiding taxation’ (p. 175). The Disruptive University can do this, too, citing defence of its customers’ interests and deepening an alliance with its customers by defending low prices. If costs are kept drastically low, students are arguably as least as likely to side with the Disruptive University as they are with a tax regime.

The Disruptive University can have a democratising influence on higher education. Tapper and Filippakou (2009) argue, ‘access to institutional status, income and power is greatly enhanced by academic success at the right universities. There is nothing conspiratorial about this: … they are establishing potentially very fruitful social networks, and over the years their universities have formed excellent working relationships with all the prestigious segments of the occupational structure … Symbiotic relationships are at work: the universities, the institutions that make up the commanding heights of public and private life, and talented students are all part of a mutually reinforcing web’ (p. 61). If the traditional university reinforces social stratification, the Disruptive University can be the great democratiser in higher education. Fosnacht, McCormick, and Lerma (2018) argue, ‘students who work full-time will typically be attracted to institutions that prioritize flexibility in scheduling’ (p. 965). The Disruptive University will have flexibility informing all aspects of its provision, will make higher education more widely available and will deliver wider social benefit. By increasing, globally, the number of students in higher education it will swell the talent pool, creating, worldwide, the kind of education only available historically to the elite.

Most students in the UK accept a fully or partly privatised system. Neves and Hillman (2019), in a survey of over 14,000 students in the UK, found only 22% of respondents stated the government should pay all the cost of teaching undergraduates. The Disruptive University will not be a total culture shock. It will just be much cheaper.
The Disruptive University as Platform

What would the Disruptive University look like in practice? One possibility is that it could be a platform. Zhu and Furr (2016) define a platform as, ‘intermediaries that connect two or more distinct groups of users and enable their direct interaction’ (p. 74); Zysman and Kenney (2016) define platforms as, ‘multisided digital frameworks that shape or intermediate the terms on which participants … interact with one another’ (p. 6); and Thelen (2018) argues, ‘Whereas traditional business models are premised on firms organizing the production and distribution of goods and services to consumers, platform business models create value by linking service providers directly with clients’ (pp. 941–942). If we think of one group of users as the provider of the curriculum, and the other group of users as students, lecturers for the Disruptive University can be hired under the same principle as other participants in the gig economy and the platform can be a profitable means of distributing higher education.

A number of successful disruptive innovations are platforms, including Uber, AirBnB, Facebook and Instagram. In each case, the technology only has value if users are actively engaging (Hopp, Antons, Kaminski, & Salge, 2018). The platform model attracts both consumers and producers, encouraging engagement and increasing value (Gawer & Cusumano, 2014). Gillespie (2010), analysing the term ‘platform’ in a digital context, argues, ‘the material “platform” for physical industry becomes a metaphysical one for opportunity, action and insight’ (p. 350), and, ‘A term like “platform” does not drop from the sky, or emerge in some organic, unfettered way from the public discussion. It is drawn from the available cultural vocabulary by stakeholders with specific aims’ (p. 359). The term, the metaphor, supports usage; skeuomorphic design makes the technology intelligible. It implies an equal meeting place but, in practice, the space is commercialised, either directly through fees charged or indirectly through data gathering. Rahman and Thelen (2019) read further significance into the platform as a means of describing this kind of digital interaction: ‘the very idea of the “platform” reflects an aspiration to be the foundational infrastructure of a sector—whether it is Uber’s attempt to dominate transportation services … or Amazon’s dominance of the online
retail sector as a whole’ (p. 180). As Manokha (2018) points out, Facebook does not produce content and Uber does not own a car. The platform is essential, the foundational base on which everything else is superstructure. Platform implies indispensability and strengthens the provider. The metaphor makes the innovation seem an architectural necessity.

A platform model could work in higher education. Buyers and sellers of educational goods and services could meet in an online marketplace. Part of the attractiveness of this proposition is that it could potentially offer open-entry to students. Furthermore, peer-to-peer transactions could be conducted swiftly and at low cost. A key problem facing peer-to-peer transactions in education, however, is quality assurance. The platform could counter this problem by either partnering with an established higher education brand or investing sufficiently to create its own brand, producing and purchasing trust in the goods and services.

If not originally a platform, the Disruptive University, once operational as a higher education provider, could create a platform as a sustaining innovation on its original disruptive proposition, and could rent space to third-party providers, increasing choice and revenue. An architecture to develop the Disruptive University as platform is already available: Eaton, Elaluf-Calderwood, Sørensen, and Yoo (2011) argue, ‘A digital system includes a platform that serves as a core on which others can build modules that are designed to extend the service possibilities of the platform’ (p. 2, emphasis in original). Furthermore, Denning (2016) argues for, ‘taking something that was previously a standalone product and creating a platform with shared infrastructure and base level of functionality, then inviting investors to create extensions and adaptations on top of that platform’ (p. 5). The innovators would create the value, for the benefit (at a price) of customers. There is a possibility of a global higher education platform on which individual offerings can be made available, connecting sellers and buyers, while the platform owners issue certification when a set number of academic credits have been accrued, or depute the accreditation process to the providers on the platform. The platform model for the Disruptive University may even be one means of providing an individualised curriculum (potential quality assurance problems notwithstanding), with students accessing a shopping list of modules via the platform like a supermarket, all under the banner of consumer choice.
Hagel, Eckenrode, et al. (2016) argues, ‘the disruptors define and deliver a foundation of core functionality upon which third parties can build to tailor products and services to meet the needs of smaller segments of customers or individual customers’ (p. 12). The Disruptive University as platform offers a full market solution.

Platforms offer convenience and ease of access, and platform products and services are popular: Culpepper and Thelen (2020) ask, ‘Who wants to be the politician who shuts down my access to cheap consumer goods … or the information gateway that connects me to the world through Facebook?’ (p. 293). Therefore, because of their success, platforms are powerful: ‘The power these companies wield operates not through politician’s fear of the pain these firms can visit upon the economy so much as the anticipated political fallout to which overeager regulators would expose themselves by messing with the infrastructure of people’s lives’ (p. 293), leading to the conclusion, “What would we do without Amazon?” may not excite the revolutionary fervor of class warriors, but it is an effective statement of a distinctive source of the power that Amazon enjoys in today’s politics’ (p. 311). Culpepper and Thelen (2020) further argue, ‘the power of these companies … is clearly exercised not against the public but in a close and symbiotic alliance with a public that has come to depend on them … platform firms have succeeded in getting what they want because the public wants it too’ (p. 295, emphasis in original). People interact with platforms socially and commercially. There is no in-principle reason why they cannot interact with them educationally, too. Platforms are easy to use and convenient, and there is no cost for accessing the platform itself, only for goods and services supplied through the platform. As a digital marketplace, platforms are a secure and recognisable base, supporting users in engaging with them by means which feel intuitive. Higher education via a platform need not feel intimidating, as a traditional university might to a new entrant from a minority community with no previous experience of university study.

Zysman and Kenney (2016) argue, ‘Advice often given in Silicon Valley is: “Don’t ask permission, ask forgiveness”’ (p. 19). The economic and political power of high profile digital corporations operating via platforms is exceptional. Based on the experience of other industries, it would
be for higher education regulatory regimes to respond, not dictate. If the Disruptive University as a platform offered low cost and convenience in an easy to access form, it would be hard to counteract once it had proven popular with its customers, namely students. Moreover, once established, the Disruptive University could increase its fees incrementally to maximise profit: as Hagel, Eckenrode, et al. (2016) argue, ‘owners can often become greedy, charging higher fees for transactions’ (p. 14). It would be a question of finding optimum market price tolerance, monitoring student registrations through data gathering as prices increase. Srnicek (2017) argues, ‘Essential to all of these platform businesses … is the centrality of data … by providing the infrastructure and intermediation between different groups, platforms place themselves in a position in which they can monitor and extract all the interactions between these groups. This positioning is the source of their economic and political power’ (pp. 254–55). Consequently, ‘there is an intrinsic drive for these companies to be pushing up against the limits of what we presently consider the private realm’ (p. 255). Furthermore, platforms are often an attractive long term investment because of the profit opportunities they offer: ‘Funding from Silicon Valley (and elsewhere) flows into these companies, enabling them to continue operating at a loss for years at a time’ (p. 257). Moreover, Rahman and Thelen (2019) argue, ‘the business strategies of platform firms … depend heavily on a particular type of investor, one willing to underwrite massive losses in the short and medium term in pursuit of winner-take-all gains’ (p. 193). The platform model is efficient and potentially very profitable, and it could be a means of providing higher education irrespective of national borders and socio-economic boundaries. The potential profits are substantial enough to attract providers with the resources to dig in for the long term.

The power of platforms is not to be underestimated, as evidenced by the success of some of the most well-known digital corporations. Rahman and Thelen (2019) argue Amazon, ‘has a vast share of the retail marketplace: but even more important, it occupies a structural position that enables it to control market flows in both directions’ (p. 179). Moreover, the platform can serve the perceived interests of both providers and users, especially if the platform asserts itself as a dominant provider in the digital realm: ‘Once achieved, this “winner takes all” market dominance
offers many avenues for generating returns through rents while also multiplying the number of stakeholders whose dependence on the platform makes them potential allies in efforts to defend it against unwelcome regulation’ (p. 180). Platforms are attractive to entrepreneurs, drawing investment from a range of sources: ‘venture capital, private equity firms, and even international sovereign wealth funds … Moreover, as platform firms become more dominant, they became stable, reliable investments for other sources of capital such as pension funds’ (p. 184). Hence, ‘the combination of investor and consumer interests around a business model that seeks market dominance and cuts labor out of the modern social contract is politically and rhetorically powerful. It allows platform firms to portray themselves as defending consumers against “stifling” regulation in the interest of efficiency, innovation, and consumer choice’ (p. 187). Platforms are established and popular. They accumulate influence through the data they collect as a matter of course. They have the economic backing to support them through lengthy development phases.

The platform is not simply an inert technology for commercial purposes. It also changes practice and can start with a product before bridging to the platform. Brackin, Jackson, Leyshon, and Morley (2019) argue the smartphone, ‘provides a full cycle model, from original technology through to the development of a platform and the subsequent development of technologies using that platform in the explosion of Apps we see today.’ More precisely, ‘Early smartphones were limited to basic web browsing and navigation, but after series of iterations of the platform and business models, more complex apps such as AirBnB and Uber developed.’ The disruptive innovation of the smartphone was enhanced by the sustaining innovation of apps to enable commerce and socialising, and the possibilities of apps are far from exhausted. The creative practice of hackathons results in new apps being developed at speed, in this case without market testing or commercial strategy. When these succeed, as Downes and Nunes (2013) note, ‘The innovators are not even trying to disrupt your business. You’re just collateral damage’ (p. 48). Apps are cheap to produce and hence there is a low barrier to market entry. Muller (2019) argues, ‘we download a lot and use a little … the few apps that we do keep and use, such as online banking or satellite navigation systems such as Google Maps, have considerably changed our behaviour.’ A
technological innovation does not have to begin as a platform but can evolve into one along Sustaining Innovation lines once it has an established core. The Disruptive University could design its own programmes until it built sufficient reputation, then open up the market to other providers, charging for a presence on the platform. Apple entered the mobile industry in 2007; Google introduced its Android operating system in 2008 and powerful incumbents in the industry were disrupted. Motorola sold its mobile division to Google in 2011 and Nokia sold its core handset business to Microsoft in 2013 (Kushida, 2015). Montoya and Kita (2017) argue the iPhone ‘helped define a dominant design for smartphones in 2007. This dominant design established multi-touch as the default interface of smartphones.’ Reinhardt and Gurtner (2018) argue, ‘Blackberry did not invest in touchscreens and smartphones … consumers later switched to this new technology and Apple and other competitors displaced BlackBerry’ (p. 137). Having established a dominant design, Apple was able to dominate the market. Its platform model attracts more participants and generates more profit.

The platform’s agility and market sensitivity (the latter underpinned by constant data gathering) can give it competitive advantage. Hagel, Seely Brown, Wooll, and de Maar (2016) argue, ‘the incumbent’s standardized product may not be able to compete with the more innovative and more targeted products being rapidly created by the platform’s network of producers’ (p. 6). Furthermore, platform-based higher education can comprise both low end and new market disruption: ‘because new variants may span the quality and price spectrum, less expensive variants may unlock pent-up demand from the low end of the customer pool’ (p. 6). The platform model in higher education could comprise a classic disruptive innovation, catering to the low end of existing markets, opening up new markets, using technology to challenge the incumbents.

On a higher education platform, the razor/razor blade profit model could be effective (Benner, 2007), in which the core hardware is not sold at a big profit but the necessary add-ons are. The platform itself would be free to access, and so would some content, but there would be additional costs for access to extensive materials, and more significant costs for undertaking assessment leading to accreditation. Additional costs can be levied for specialist learning materials, or one-to-one video support,
possibly charged by a meter, with the lecturer getting a percentage of the revenue produced, like an academic taxi driver.

**Uber U**

Successful disruptive innovations in the digital age have already used the platform model. Muller (2019) notes, ‘Uber entered New York City in mid-2011, and within seven years … overtook the existing taxi service in terms of rides per day.’ Offering a taxi service has low barriers to entry, unlike higher education provision, but the principle of a digital platform as a mode of disruption is established. Christensen, Raynor, and McDonald (2015) argue Uber is not a disruptive innovation because it did not begin as a low end or new market disruption. However, some disruptions, such as cell phones, began at the high end of the market. Moreover, Brackin et al. (2019) argue Uber is disruptive: as a technology, its approach is to be cheap, simple and convenient. Laurell and Sandström (2016) analysed over 6500 social media posts and found Uber was perceived as both an institutional disruption and a disruptive technology. Rahman and Thelen (2019) argue, ‘Perhaps more than any other company, Uber has come to stand in for the excesses and promise of twenty-first-century capitalism. Under drivers are the paragon of the new “gig economy,” in which work is increasingly precarious, insecure, and yet highly optimised for both firms and end users’ (p. 178). Uber shows how the platform works and also shows how disruptive innovations change practice.

Platforms create a bond between provider and consumer, with the labourer in between them having to adjust to suit the demands of the other elements in the system. Innovative firms and their customers work conspiratorially to sidestep rules and set new parameters for acceptable practice. Muller (2019) argues, ‘Uber and Airbnb can be thought of as modern-day pirates, as they have sustained a continued struggle, often illegal at first, against inefficient regulators while gradually succeeding in changing the industries and regulations in which they operate.’ Thelen (2018) argues, ‘fast-moving technology allows firms like Uber to exploit gaps in existing regulatory frameworks … flat-footed government
regulators often find themselves a step behind these agile companies … so that by the time lawmakers begin to consider new legislation, they face intense political pressure to devise rules that retroactively render these practices legal’ (p. 940). Moreover, innovations can work on different sides of a political divide. Thelen (2018), in the context of the USA, argues, ‘At the national level, prominent Republicans heralded Uber as a champion of free markets, while Democrats (with an eye toward their millennial base) embraced it as urban, progressive, and innovative’ (p. 945). However, in Germany, ‘national associations representing local taxi operators mounted a quick, coordinated response. Cementing a national-level alliance with transportation authorities and leaders from both sides of the aisle, they mounted a spirited defence of the existing regulatory framework’ (p. 947). It has been possible to resist the disruption posed by Uber but higher education is stratified in many countries which makes it more difficult to counter a disruption by creating a united front. If a low end disruptor was drawing students away from universities in the bottom section of league tables, elite universities may not be especially motivated to join the resistance. They would be unlikely to mobilise until and unless their own student base and business model was threatened.

Uber employs no drivers. Any driver with a car can potentially work for it. Instead, drivers are independent contractors, bearing the responsibility to maintain and repair their vehicles. The Disruptive University could follow the same model. Uber drivers have cars: would-be lecturers have PhDs and can manage their own assets (their research and publications). The Disruptive University would be creating opportunity. Whereas incumbents in the taxi industry have to invest in vehicles, staff and overheads, passing these expenses onto customers in the fares charged, Uber can cut out layers of mediation and pass the savings on. The Disruptive University could similarly target layers of mediation and offer a drastic reduction in student fees. The fact that the Uber app is a bidirectional rating system and ensures accountability means the service is conducive to quality control, exposing bad drivers. Uber’s practice of drivers and customers rating each other also ensures surveillance is built into the business model. At the Disruptive University, lecturers with bad ratings could be similarly flushed out by poor student ratings. Uber can claim
environmental responsibility by offering a service which means fewer people need to own cars, reducing air pollution and traffic jams, and moreover, in Norway, ordering UberEL provides the customer with an electric car (Thelen, 2018). An entirely online Disruptive University could make a comparable claim by not having a campus. If the Disruptive University identified and expunged all its layers of mediation between educational content and students, passing its cost savings on in terms of massively reduced fees, it could appeal to a sizeable number of students.

The neo-Liberal era, which we can roughly define as having been inaugurated in the USA and the UK in the early-1980s, is characterised by deregulation. Uber practises, ‘disrupted regulation’ (Collier, Dubal, & Carter, 2018, p. 920). Uber successfully disregards regulations, describing itself as a technology company rather than a taxi company and thus not being subject to the regulations normally applying to taxis, leading to duel regulatory regimes applying in the same industry, characterised by weaker regulations for the disruptor. Uber offers low prices and high driver supply. The service is reliable and popular with consumers; Uber, ‘forces local or state governments to respond reactively to a fait accompli, after Uber has established a base of customers and drivers’ (Collier et al., 2018, p. 923). Regulation can inhibit innovation because it protects some terms and conditions of employees: ‘work laws, such as the minimum wage, social security, right to unionize, and overtime pay’ (p. 921). Deregulation seemingly creates a free trade area but in reality power is weighted towards those offering employment in conditions where there is a surplus of available labour.

Uber has a low fixed cost model (Isaac, 2014). By classifying itself as a technology company it sidesteps regulations pertaining to transport companies. By classing its drivers as independent contractors it evades workers’ protection and benefits (Qiu, Gregg, and Crawford (2014) pose the question, ‘This is the best of times for capital. Is it the worst of times for labour?’ (p. 568)). By shifting its costs it increases its profitability. From a customer’s point of view, Uber has made transport cheaper and more convenient. Uber can argue that it has, ‘stepped into the vacuum of the taxi service industry that, guarded by entry controls and sheltered from competition, has been unresponsive to consumer demands and unwilling to innovate’ (Isaac, 2014, p. 10). Universities have been similarly
sheltered by their reputations established over time but they are not unassailable. A disruptor with a low fixed cost business model could be attractive.

Uber is backed by global investors including Google Ventures (Elbanna & Newman, 2016). Hang and Garnsey (2011) argue, ‘Venture capital is well known for enlarging the scope of enterprise’ (p. 21). The Disruptive University, backed by international capital, could become globally significant in higher education, undeterred by national boundaries. It could act first and apologise later. It could build participation to the extent that regulators are compelled to accommodate it. The Disruptive University could become the World’s first truly global university. The Economist (2015) argues, ‘Both Netflix and Uber have prospered by dealing with the “pain points” of core customers: in Netflix’s case, Blockbuster’s limited range and punishing late-return fees; and in Uber’s case, the manifold inefficiencies of the established taxi industry.’ Efficiency Innovation and Disruptive Innovation can work hand-in-hand to transform a range of practices, including higher education.

Apple Corps

A major hurdle facing the Disruptive University is credibility and recognition. It would benefit from a strong brand to bestow trust. The Disruptive University could combat its credibility and recognition drawback by connecting with a globally recognised brand such as Apple. Hagel, Eckenrode, et al. (2016) note Apple, ‘started in the PC business but then focused on scaling an edge in the digital music player business, then the mobile phone business, and then the tablet computer business. Each time, Apple was able to scale a promising edge to build an entirely new business, leveraging its core expertise in product design’ (p. 18). Apple has already shown its capacity to diversify, and Qiu et al. (2014) argue, ‘Apple can be seen as an emblem of contemporary capitalist world order’ (p. 572). It is a dominant and globally recognised brand, attractive to customers.

Apple has a track record of innovation and taking risks. Paap and Katz (2004) state, ‘When Apple launched the iMAC it was met with surprise
(and in some cases anger) by many users because it did not come with a 3½ inch floppy drive. Apple had predicted … that the 3½ inch floppy technology used for file transfer would soon be irrelevant with the emergence of newer technologies …. Apple knew more about its customers’ needs than most of its customers did’ (p. 20). One of Apple’s innovations was a chain of its own shops offering both products and support (Brackin et al., 2019). Is there any reason, therefore, why established brands such as Apple should not lend their brand to higher education, when the potential rewards, worldwide, are enormous? The mission statements of higher education institutions can already align with those of major corporations, as shown in a UK context by Flavin, Zhou Chen, and Quintero (2019). There is no in-principle reason why Apple could not enter the higher education market given its design strengths, track record in innovation, its presence and global brand. Moreover, Apple has shown it can build on others’ initial forays into markets with new technologies: Napster was the first to offer a music file sharing service but encountered legal problems regarding copyright. Conversely, Apple cooperated by negotiating with record labels, and offered its own service from its iTunes platform modelled on closely on Napster (Söderberg, 2017; Vidal & Mitchell, 2013).

Apple’s brand is global and well received. Ashill, Semaan, and Williams (2019) interviewed consumers in the United Arab Emirates, who said, ‘Apple always has a story to tell …. I feel inspired by those stories’ (p. 12). Consumers also stated, ‘Apple has a vision for the future and is innovative, which by default makes it unique and ambitious and risky’ (p. 13). However, Knox (2019) argues, ‘the digital requires bodies … efficiency in one context is dependent on manual labour in another … there is a social cost to the availability of digital technologies,… they do not exclusively derive from clever “disruptions” or “innovations” in Silicon Valley’ (p. 366). Emejulu and McGregor (2019) argue, ‘Constructing technology as innocent or neutral misunderstands the social relations of technology and its very real material consequences in our social world’ (p. 133), and the treatment of workers who make Apple’s products has been criticised. Many of Apple’s products are manufactured in China, where independent trade unions are forbidden and labour strikes illegal (Clarke & Boersma, 2017). There were, moreover, a spate of suicides at Foxconn.
factories in China (Apple’s contract manufacturers in China) in 2010 (Chan, 2013; Emejulu & McGregor, 2019; Litzinger, 2013; Pun & Chan, 2013), and workers are prone to hand injuries, working long hours with heavy machinery (Qiu et al., 2014). Sandoval (2013) argues, ‘The conditions under which these products are produced … resembles the early days of industrial capitalism … Apple’s marketing slogans present its products as technological marvels without history. They divert attention away from the fact that underpaid Chinese workers are producing these products during 10–12 hour shifts at least 6 days a week’ (pp. 338–339). Moreover, the minerals necessary for Apple products are excavated in mining, with a labour force that has included children (Sandoval, 2013). However, concerns over production methods have not damaged the Apple brand, which has used the imagery of cultural icons and progressive activists, from Miles Davis, to John Lennon and Yoko Ono, to Gandhi (Clarke & Boersma, 2017, p. 112). A Foxconn recruitment slogan treads, ‘There’s no choosing your birth, but here, you will reach your destiny. Here you need only dream, and you will soar!’ (Chan, 2013, p. 91). The skilful creation of a narrative, either by producers or brands, can encourage innovation, foregrounding some aspects of a product’s features and concealing others, creating an image which is well received if inauthentic. Litzinger (2013) argues Steve Jobs, ‘silently outsourced much if not all of Apple’s production to China, Apple honed an image of itself as a pedagogical innovator’ (p. 173). Apple has experienced success as both an innovator and a communicator, and concerns over its mode of production have not obviously damaged sales and reputation. Moreover, its mode of production may well be typical of technology companies as a whole, and the shift of the computer supply chain to Asia can be seen as an efficiency innovation (Chan, Pun, & Selden, 2013; Montoya & Kita, 2017). Hang and Garnsey (2011) argue Chinese companies serve as, ‘manufacturing contractors for foreign companies exporting Chinese-made products back to developed countries’ (p. 15), and a brand can be robust if its core narrative is impactful and reiterated. The Apple brand is intact and continues to be popular with customers.

Disruptive innovations can be supported in their pursuit of profit by nations whose labour costs are low and where protest is suppressed: ‘A neoliberal state collaborates with private entrepreneurial elites by
providing infrastructural support and ensuring law and order, thereby facilitating capital accumulation and economic growth’ (Chan et al., 2013, p. 102). Moreover, Apple’s practices are not without precedent in technology: in the 1960s, IBM shifted production to Europe and Asia to cut costs, but Apple’s profitability relies on a mainly Asian production base (Chan et al., 2013, pp. 103–104). Perhaps the production processes of modern technologies are typical of a global system of production, distribution and consumption. Apple and other brands use their innovative track records to optimise customer satisfaction and firms’ profits, creating narratives that diminish aspects of the production process and promote association with politically and culturally prominent figures, continually nurturing the brand.

Apple launched its app store in July 2008. In the Apple App Store in the USA, Education was the category with the second-highest number of apps in 2015, Games being the highest (Brockmann, Stieglitz, & Cvetkovic, 2015). The statistics indicate an interest in accessing education through apps. Google and Microsoft also have their own app markets, extending provision. Brockmann et al. (2015) argue there are three means by which to generate revenue in app stores: direct purchase; in-app purchase; and advertisements (p. 1212). The Disruptive University can take advantage of all of these. A global brand creates interest; a platform creates a user-friendly marketplace; apps enable swift and convenient consumer choice; specialists provide academic content of due quality and the means to assess student performance.

Disruption in higher education, therefore, could come via a well-known name. There might be a new higher education provider involved but their name would not be the public-facing brand. The Economist (2015) argues, of Christensen’s Disruptive Innovation theory, ‘Christensen struck fear into executives by warning them that they could be put out of their jobs by companies they had never heard of. Today the biggest threats may come from people they talk about every day.’
Opposing the Disruptive University

The core strategy for contending with disruption is for an incumbent to set up a separate business to identify and develop innovations of its own (Christensen, 1997; Christensen & Raynor, 2003). Setting up a separate business can encourage constructive competition between the two, to the benefit of both. The offshoot is free of the ossifying effects of the organisation’s culture and is free to innovate. Gobble (2018) argues that, in instances where a parent company sets up a separate unit, ‘At some point, if it’s to become something more than a novelty, the carefully nurtured innovation will have to leave the protection of the incubator and cross over to the operational side of the company, which will have to figure out how to assimilate it without gutting it’ (p. 54). Relationships between parent companies and offshoots can be fraught but if commercial momentum is with the disruptor it may be best placed to succeed. It may need to take priority over the incumbent.

Existing universities may need to demonstrate ‘organizational ambidexterity’ (O’Reilly & Tushman, 2011), maintaining their current operations while also exploring innovative possibilities within higher education. Moreover, an offshoot from a parent company is a commitment which may require protracted, financial support. O’Reilly and Binns (2019) argue new ventures need, ‘to add customers, capacity, and capability fast enough to maximize the market opportunity’ (p. 10). Consequently, ‘Unless the new venture has active senior-level sponsorship, the internal dynamics of the core business are likely to slow down or smother the new business’ (p. 13). The strategy is a risk because the parent company has to commit substantial resources to give the new organisation a chance of success and, moreover, success might compromise the profitability of the parent. Markides and Charitou (2004) argue, ‘Perhaps the biggest cost of keeping the two businesses separate is a failure to exploit synergies between the two’ (p. 24) and therefore ‘firms that assigned an insider to be the CEO of the new unit were more effective in their response than firms that used outsiders’ (p. 26). One outcome of this approach is that the new business has lower profit margins but this is acceptable, especially if the new unit can build capacity. Instead of retreating from the
lower, less profitable end of the market, the incumbent caters for it through its offshoot. At the same time, it dilutes the threat of Disruptive Innovation. In this way, incumbents counter Disruptive Innovation by creating and incubating it. A university could set up its own offshoot to cater to new markets. A number of universities in the USA and UK set up overseas campuses but these can have high overheads, lessening their potential profitability. Online offshoots tailored for specific markets would not have this problem and do have the potential to build new markets, using the parent company as a brand if the brand is well known and reputable.

An offshoot from a parent company is not the only strategy for responding to Disruptive Innovation. King and Baatartogtokh (2015) argue, ‘managers … should find ways to leverage existing capabilities. And … where practicable, they should work collaboratively with other companies’ (p. 87). Higher education is a large and expanding market but static universities may not be best placed to capitalise on global markets unless they have the brand and reputation to attract sizeable numbers of students, particularly high fee paying international students. Incumbents can identify the disruptors who have acquired momentum and look at ways of working with them, including mergers and acquisition, consolidating their own position. There are advantages to having, ‘a “fast second strategy”, letting smaller firms take the risk and then quickly imitate and catch up’ (Leitner, 2017, p. 203).

Wessel and Christensen (2012) recommend the following course of action to incumbents in the face of disruptive innovations: ‘Identify the strengths of your disrupter’s business model; Identify your own relative advantages; Evaluate the conditions that would help or hinder the disrupter from co-opting your current advantages in the future.’ The incumbent can counter Disruptive Innovation by watchfulness and by strategy. Yoffle and Kwak (2002) argue, ‘If you want to avoid future combat, give potential competitors a stake in your success through partnerships, joint ventures or equity deals … keep in mind that the true goal of this tactic isn’t to make all sides better off; it’s to defend and strengthen your competitive position’ (p. 11). They further argue, ‘Sell your services to opponents in order to stop them from developing competing capabilities on their own’ (p. 15). An innovator in higher education, partnering with an
incumbent, could use the incumbent’s brand and quality assurance processes to ensure and enhance reputation. Following the recommendation for incumbents to establish separate businesses to identify and develop innovation, and to limit the impact of competitors doing it, innovation can be used to bolster incumbency, not unseat it. Incumbents can also buy disruptors: Walt Disney bought Pixar in 2006 instead of trying to compete with it (Currah, 2007; King & Baatartogtokh, 2015).

Disruptive innovations pose a threat but incumbents have resources at their disposal. However, ‘incumbent leaders must find ways to create a sense of urgency within their leadership groups’ (Hagel, Eckenrode, et al., 2016, p. 16), which can pose a cultural challenge to many existing and arguably inertia-prone universities as, ‘a profit-maximizing firm lacks incentives to invent technologies for people who cannot afford its products’ (Anadon et al., 2016, p. 9687). Garrison (2009), in a survey of seventy-three executives, found larger companies had an inferior response capability, being able to perceive potential technology threats but being organisationally geared in ways that made it difficult to respond to emerging technologies. Moreover, Currah (2007) spoke to Hollywood executives, whose jobs and resultant lifestyle privileges were precarious, leading to conservative practices relating to new technologies, because the risks were perceived as too high.

Incumbents in higher education can also create a narrative to combat Disruptive Innovation, as happened in the razor industry in a case study of Bic and Gillette: ‘After seeing a quarter of the market being won over by Bic (in less than ten years), Gillette set about to change people’s perceptions on what to expect from their razor … By successfully raising the bar in this market, Gillette managed to convince consumers that they should expect more from their razor and that Bic was not really “good enough” for them’ (Markides & Sosa, 2013, p. 331). Incumbents in higher education have a strong narrative of quality and continuity which they can use to argue that a new provider will always be second best. The two industries are very different but universities are preoccupied with narratives, as shown in their strategies, mission statements and websites. Narrative can be used to counter disruption, or in an attempt to nullify it, trying to prevent it gaining a foothold in the first place.
Defeating Disruption: The Swiss Watchmaking Industry

Markides and Charitou (2004) present a case study for showing how an incumbent can respond to disruption by creating an effective narrative. The Swiss watchmaking industry enjoyed global dominance but this was threatened in the 1970s when quartz technology enabling watches to have additional features was taken up by manufacturers such as Seiko in Japan and Times in the USA: ‘The Swiss share of global world production declined from 48 per cent in 1965 to 15 per cent by 1980’ (p. 29) and the industry lost two thirds of its workforce between 1970 and 1980 (Garel, 2015, pp. 35–36). In response, the Swiss introduced the Swatch in 1983: ‘what the Swiss did was to produce something that delivered low cost and differentiation at the same time—managing two conflicting strategies simultaneously’ (p. 29). Low cost is commonly associated with lower standards but effective marketing enabled the Swatch to claim differentiation. The incumbent redefined itself in the face of the disruptor, launching an additional, affordable product that still benefited from the well-established brand. The Swatch was launched in the Swiss market in 1983, but it is important to note that the Swatch did not start from a vision but from necessity within an industry under threat. A threat from the disruptor forced the incumbent to innovate and offer new, affordable products.

Swiss watches had dominated the industry worldwide since the early-twentieth century, with the watch itself having been a largely static technology since the seventeenth century (Glasmeier, 1991). A state system, Statut de l’Horlogerie, introduced in the 1930s, ensured, ‘Swiss manufacturers could only buy from Swiss producers, and component producers could sell only to Swiss firms’ (Glasmeier, 1991, p. 472). The system of export permits ensured supply remained below demand, ensuring profit levels, and, ‘High profits earned in this period allowed firms to develop a mechanical watch manufacturing system unparalleled in efficiency’ (Glasmeier, 1991, p. 472). However, rivalry to Swiss domination from the Japanese industry was supported by low labour costs in Japan and a protected home market. American firms were also able to enter the
worldwide watch market through off-shore watch assembly by poorly paid workers (Glasmeier, 1991). In addition, Timex watches were sold in drug stores with a low margin, rather than in jewellers with a high margin (Abernathy & Clark, 1985; Linton, 2009), making the disruptive technology more affordable.

A key design feature of the Swatch was that it was welded and therefore could not be repaired, only replaced. Moreover, the Swatch was simplified, comprising 51 parts rather than the 150 required to make a traditional watch (Garel, 2015, p. 38) and was assembled at automated factories (Norman & Verganti, 2014, p. 88). Given the Swatch’s cheapness and simplicity, it comprised a disruptive innovation responding to the preceding disruptive innovation of quartz technology. However, it was clearly still, recognisably, a watch. Therefore, and building on the work on design by Hargadon and Douglas (2001), and the work on strategy by Kahl and Grodal (2016), the Swatch offered familiarity while still achieving innovation. In marketing terms, through the variety of its designs, the Swatch became a fashion accessory and people could own more than one Swatch in the same way that they might own more than one pair of earrings.

Raffaelli (2019) argues a legacy technology can re-emerge, and the traditional Swiss watchmaking industry made a comeback. In order for a comeback to happen, the meanings and values of the legacy technology needed to be redefined. Relating the experience of the Swiss watchmaking industry back to higher education, a university could assert its intention to have face-to-face provision in preference to learning and teaching mediated through technology, in the interests of traditional academic quality. It could stress its longevity; its history; its notable alumni. In Raffaelli’s (2019) case study, Swiss watchmakers stressed the values of craftsmanship, luxury and precision. The technology was disrupted and risked being displaced by quartz watches, but because of the industry’s capacity to redefine itself Swiss watches experienced market growth by 2000, superseding quartz watch sales by 2008. The industry achieved revitalisation by redefining itself, foregrounding its values, including status. Moreover, it was able to communicate its values effectively, in part through the recruitment of brand historians. While watchmaking and higher education are very different areas of practice, universities stress
their quality, status and longevity in their mission statements and strategy documents, and have symbolic capital to draw upon in the face of a disruptor.

Ultimately, effective leadership is the best bulwark against disruptive Innovation. University leaders should identify areas, both geographical and socio-economic, of under-provision, and use their assets, both economic and symbolic, to meet the opportunity and extend higher education.

Tellis (2006) argues, ‘some firms last for decades and even a century. Other highly successful and established incumbents self-destruct or decline into oblivion. Long-term market leaders focus intently on future emerging mass markets. They innovate relentlessly to cater to that emerging market … they are willing to cannibalize their current assets to realize that future potential’ (p. 37). The Swiss watchmaking industry faced a disruptor, one that came with an excellent technology. Watchmaking fought back with its age and quality, features available to some universities, too. The industry also fought back with a new product of its own, offering quality and affordability at the same time. Perhaps an EduSwatch has a future, providing a lean product but within a brand that generates customer confidence.

The Other Disruptive University

There is the possibility of another type of Disruptive University, one that could use technology to disrupt higher education.

This university might have premises, such as units on high streets helping urban renewal. Unlike most university premises, identity cards are not necessary to gain entrance. Visitors can use terminals or their own devices to find out more about the programmes on offer and to access content. They can talk to a student support officer who is not a salesperson and has no targets to achieve in terms of students enrolled.

However, it is also possible that the Other Disruptive University does not have premises and is entirely online. It still has student support officers but they visit community centres, job centres, parent and baby clubs, and prisons, making people aware of the courses on offer.
The Other Disruptive University is owned by the state and exists to provide goods and services for community benefit. It is not a profit-making business, any surplus produced being reinvested with the aim of expanding participation. Moreover, students are encouraged to develop and share their own digital practices at the Other Disruptive University, co-constructing digital literacies.

Content is freely available at the Other Disruptive University. Once registered, students are not limited in terms of the course materials they can view. One registration enables total access. Hence, though they may be registered on a Physics programme they can access the materials from the History of Art programme. Content is accessible from a range of devices, and design takes account of a range of screen sizes.

Interactivity and peer-to-peer support is enabled by forums supplied through a virtual learning environment but also through social media accounts run by the Other Disruptive University. The core consideration in the design of all material is ease of use, simplicity and convenience, in line with Disruptive Innovation principles (Christensen, 1997). Courses can be taken to enhance employability, or for personal enjoyment. The Other Disruptive University does not make judgements about what the content is for; it simply makes it available. Courses can be taken for academic credits and qualifications but at a pared-down cost which contributes to the wages of the employees, and hires premises if applicable. Union recognition protects the terms and conditions of employees and promotes constructive dialogue with the Other Disruptive University’s leaders. Academics are encouraged to research and publish, both to maintain their currency and to promote the academic strengths of the Other Disruptive University. They are encouraged to host webinars for the benefit of all students. Many if not all of these are publicly available, too. The Other Disruptive University maintains meaningful relationships with employers’ organisations and reminds them of the generic and transferable skills students are acquiring at the Other Disruptive University, including communication skills and self-management. The Other Disruptive University is similarly engaged with local councils and the third sector.

The Other Disruptive University requires state support to launch, operate and develop. This, in turn, requires a political understanding of
higher education as a social good and presupposes a government which has made its case to the electorate and has secured a democratic mandate. A number of European countries already offer higher education free or at a very low cost, including Germany, France and Norway. That said, other countries including the UK accept the existence of higher education fees (Neves & Hillman, 2019). The Other Disruptive University will need to make its case for education as a public good, to be underpinned by public funding. In its strategy, it can aim for a measure of financial self-sufficiency within a given period of time.

The Other Disruptive University partners symbiotically with public libraries, enhancing the materials available to library members while the library makes its members aware of the Other Disruptive University’s provision. The Other Disruptive University also partners with community organisations, so students can gain experience of field work and the organisations can benefit from students’ input. Maybe, in its early stages, the Other Disruptive University partners with an existing university, comprising an offshoot. The existing university gets additional state support in exchange for incubating the new provider.

The Other Disruptive University is simple and convenient to access. It has state support and is affordable, as its courses are subsidised, at least initially. It is innovative in practice by positively encouraging mass participation in higher education, beyond traditional higher education demographics. Its graduates are confident communicators. They are digitally competent and confident. Cohorts are not restricted by national borders and thus students can gain intercultural competence, too, through peer-to-peer interaction. Programmes allow and encourage interdisciplinarity by making introductory modules available across a range of subjects and publishing extensive content. The modules are credit bearing and do not slow down a student’s progress.

Students are not removed from the Other Disruptive University’s register at the end of their programmes and can continue to access material for self and professional development at a nominal fee, effectively attaining permanent membership of the learning community. The Other Disruptive university is a lifelong, life-enhancing, social resource. Innovation is built into its provision and into its narrative, which is carried proactively into the public domain and into markets where higher
education participation is traditionally low. The Other Disruptive University aims for the low end of the existing market and aims to create new higher education markets from which it can build incrementally. Its scope is global. Selwyn (2013) argues, ‘a genuine grassroots interest needs to be developed in the co-creation of alternative educational technologies’ (p. 3). A genuine grassroots interest can start with practice, with users creating new technologies and repurposing existing technologies. A genuine grassroots interest means not being fettered by conservative strategies or other forms of management edict. It means being open to the possibility of disruption. It means disruption being defined socially more than commercially. The Other Disruptive University could encourage students to share technologies and practices and to use them in assessments. The strategy for technology-enhanced learning could be compiled from the ground up, leading to an authentic approach in which rhetoric is aligned with practice, achieving a notable innovation in higher education.

**Conclusion**

New technologies arise; continuously so. Wider contexts also change as economies demand different skills. In higher education, fee-paying students demand high quality and relevant programmes. Yet, despite these changes, higher education remains fundamentally unchanged. Technology has not disrupted higher education.

That said, the biggest risk of all is for higher education institutions to do nothing with or about Disruptive Innovation and to rely on the perpetuity of the status quo. Byrne and Clarke (2020) argue, ‘the number of tertiary level students around the world is expanding rapidly and all the projections are for this number to continue increasing’ (p. 229). Can existing universities allow the challenge of global higher education provision to be unmet? The universities that will thrive in a rapidly-changing world will be flexible and responsive and will use technologies to attract and retain students. By not changing their existing practices to meet the growing market, established universities will cede ground to a disruptor.
One way to approach the potential of technologies to disrupt higher education is to identify those market segments to whom higher education is not readily available. Clearly, there is scope for a disruptive entrant. However, the disruptor’s value proposition will need to be both strong in terms of academic quality and lucid in terms of narrative. Furthermore, the goods and services provided will need to be seen to be robust in areas where higher education qualifications are evaluated, most notably the jobs market.

Disruptive Innovation arises initially within small constituencies, often at the low end of markets. These are spaces that higher education cannot afford to ignore. Higher education cannot afford to ignore them socially because education should be available to anyone who wants to take advantage of it. Higher education cannot afford to ignore the low end of the market commercially either, because of the opportunity it affords to a disruptor. However, large organisations are prone to inertia. Established practices become entrenched practices. A disruptor in higher education would have an opportunity to build market share because incumbents would be slow to respond and would be unlikely to fundamentally change their marketing strategies to attack a provider targeting the low end of the market, or catering for a market segment previously ignored by higher education. Shang, Miao, and Abdul (2019) undertook a survey of research on Disruptive Innovation during the period 1997–2016 and found its strongest geographical concentration was in the USA, which published 44.27% of research papers concerning Disruptive Innovation. The UK and Germany were second and third, with China fourth. It may be the case, therefore, that Disruptive Innovation is more likely to happen in advanced and advancing industrial and post-industrial nations where the practice has been experienced, recorded and researched most frequently. However, Rahman and Thelen (2019) argue diminished regulations and the weakness of trades unions create the permissive contexts that aid disruption, and venture capitalists and other investors are attracted to disruptive business models. Leitner (2017) argues, ‘Traditionally, industrialized countries are said to innovate and sell their products globally, whereas catching up economies mainly imitate and only slowly develop the capacities to innovate. While the USA, Europe and Japan are considered to be leading innovation nations, many other
countries have caught up in recent years .... If the innovation pace on a
global level increases and countries such as India and China catch up and
develop high innovation capacities, innovation competition will become
even more fierce, and firms, particularly in western countries, may more
often pursue imitation strategies' (p. 208). Hellström (2004) argues, ‘eco-
nomic structure in some way is the foundation of society, since it is only
after people have taken care of their sustenance that they can innovate
and create. Hence, in the big picture of innovation and technological
change, “economics” will always come first, not in a linear manner but as
a continuously present basic condition for ideation and innovation’
(p. 641). Linton (2009) argues, ‘In many cases social innovations must
arise so that the full value of a technological advance can be obtained’
(p. 729). Innovation presupposes the conditions in which it can happen.
Higher education offers a growing, global market (Moccia, 2016), but
high fees in some countries comprise a barrier. An affordable, convenient
and reputable alternative to current provision will be attractive. Anadon
et al. (2016) argue, ‘impoverished, marginalized, and unborn popula-
tions too often lack the economic and political power to shape innova-
tion systems to meet their needs’ (p. 9682). At present, therefore, the
potential to innovate is inequitably weighted towards those with wealth
and power already, but Disruptive Innovation is a ground up practice. If
it is detached from existing business structures it can gain a foothold,
which does not prevent the innovation being adopted by a major stake-
holder later on, or being developed commercially, but it does imbue the
innovation with authenticity.

One risk of low end disruption in countries like the UK is that it could
initially lead to further stratification in higher education. The formation
of the Russell Group in 1994 was instrumental in creating and consoli-
dating a stratified sector. A low end disruptor would be at the bottom of
the market. However, if the qualifications provided by the disruptor had
sell-on value in the jobs market, students might be willing to trade the
qualification for the status, especially if they were priced-out of the main-
stream sector. A disruptive innovator offering drastic reductions in fees
could gain a foothold from which it could progress, raising fees moder-
ately as its credibility increases.
Higher education is not solely about the product. It is also about the service and the social opportunities. But, for some students, the product may be all-important. A higher education product mediated by technology could gain substantial interest, especially if content was available any time and not fixed by a timetable. Entirely online universities could trade at a vastly reduced price given their relatively low overheads. Selwyn (2014) positions technology as, ‘an extension of the politics of higher education’ (p. ix), but what are the politics of higher education? On the one hand, students are potentially empowered because of the significant revenue they bring to the sector and are thus in a position to effect their education as a whole and the use of technologies in particular. However, digital technology practice in universities does not reflect the day-to-day practice of students (or lecturers, for that matter). Slater, Mohr, and Sengupta (2014) argue, ‘product innovation is the lifeblood of firms competing in dynamic environments’ (p. 552) but universities are often conservative environments, delivering the same product by the same means. Maybe this is not important. The degree continues to be a well-regarded qualification and technology practices within higher education need not be a continuum of the practice outside it, so perhaps the politics of higher education are largely untroubled: Marginson (2013) argues, ‘Graduates are not rewarded in labour markets for knowledge but for private goods: vocationally specific skills and the brand of the degree certificate’ (p. 362). As long as universities continue to issue the branded certificates they can do a job satisfactorily for their stakeholders.

Universities prepare students for employability and also enhance their skills. Employers state they want students who can think for themselves but if that were to happen across the board in western societies they would get warehouse workers for online retailers who might start to think about why their toilet breaks get monitored.

Powerful, incumbent universities will withstand disruption because of their reputation and resources. High-end universities will continue to serve premium, niche markets, as expensive sports cars do. Less established universities are vulnerable to the first waves of disruption. Moreover, their current assets, large buildings in urban centres, could turn out to be future liabilities: Byrne and Clarke (2020) argue, ‘as online learning becomes more prevalent, there will probably be a reducing correlation
between success and size’ (p. 227), a process which could be accelerated if health pandemics or other unforeseen crises curtail student mobility. The 2020 Corona virus pandemic highlights how seemingly entrenched and secure practices and business models are inherently vulnerable. A contextual lurch can force change. Face-to-face university tuition may have to be scaled down. Online provision may become the norm, not an add-on. The challenge is to reimagine technology-enhanced learning to reflect the dominance of the online medium in a sector prone to inertia. If the pedagogy does not change, fault lines in traditional provision may be opened as technology gets used to prop up an entrenched mode of higher education learning and teaching, a mode which predates technology-enhanced learning. The soporific experience of sitting in front of a screen for an hour long lecture will not inspire students’ enthusiasm and engagement. Traditional higher education pedagogy thwarts innovation but practice with technologies can cause innovation, and if more technology-enhanced learning is happening the opportunities for innovation increase. A crisis is also an opportunity and invitation to change and innovate, catalysing and incubating new practices and new technologies.

If a disruptor did not attempt to immediately attack powerful incumbents but established itself at the lower end of higher education provision, it could grow to such an extent that it would come to the attention of the well-established universities. If, by that stage, the momentum lay with the disruptor, the incumbents would have a problem. Universities often see themselves in competition with providers in the same sector of the higher education market and are unlikely to be alert to the emergence of a low-cost, disruptive competitor. Kumar (2006) argues this is an error because low-cost rivals can force incumbents to vacate entire market segments. This is the classic dilemma of disruptive innovation (Christensen, 1997). The presence of disruption steers incumbents to the most profitable areas of its business at the high end, but in so doing the incumbent cedes further ground and the disruptor grows. A disruptive provider could cater to people who would not ordinarily access higher education at all. It would not have to aim for international students paying the highest fees. Established universities might simply ignore such a provider and meanwhile the disruptor would grow.
Many universities adopt a supermarket model, offering exhaustive selection and high volume. If market competition intensified because of a disruptive entrant it would not be possible for universities to subsidise loss-making programmes, which would lead to more specialisation in the higher education market. In this way, a disruptor could change the entire higher education market over time, achieving Disruptive Innovation. A consequence of Disruptive Innovation in higher education is that, ‘concepts like merger and acquisition … will be part of our ordinary lives’ (Moccia, 2016, p. 29), as established providers respond and attempt to consolidate their strength. Mergers and acquisitions enable incumbents to buy innovation. However, if established providers retreat upmarket they will vacate other sections of the market, creating more opportunity for disruptions. Moccia (2016) further argues, ‘the next battles will be fought with financial officers in the frontline’ (p. 30), the unavoidable outcome of privatised, monetised systems. Moccia (2016) predicts the future for higher education: ‘The next battle will be with new players, the majority of them previously unknown. New companies/universities are coming out every day, thanks to the fact they do not need facilities’ (p. 34). In response, incumbents will have the option of collaboration or of acquisition, but in so doing they will simply be reflecting the fact that the Disruptive University has changed higher education.

From a more sceptical perspective, Ferreira et al. (2020) write of, ‘an inevitable “innovative” future that will only reproduce the past, albeit in a different guise’ (p. 56). The label of innovation can be applied to any number of goods and services but actual innovation is a question of practice. Goods and services can market themselves as innovative in order to solve perceived (not necessarily authentic) problems in higher education but calling something innovative does not make it so. Innovation, specifically Disruptive Innovation, is measurable in ground-up practice and in wider market consequences.

Established universities are a barrier to innovation because they have long-established values and practices. Significant Disruptive Innovation in higher education is more likely to take place in a less-established or new higher education provider where it can be hardwired into organisational culture. Tapper and Filippakou (2009) argue powerful incumbents in higher education, ‘have to offer an appealing product … a carefully
landscaped campus, elegant buildings with upmarket facilities, support for an extensive range of cultural and sporting activities, well-paid faculty … and all kept going by a well-functioning, and inevitably expensive, administrative apparatus’ (p. 61). Disruptive innovations in higher education will need to think differently about how higher education can be experienced, turning opponents’ assets into cost liabilities: Byrne and Clarke (2020) note the existence of, ‘university facilities that are wasted and empty for half the year’ (p. 59). An innovator without facilities to build and maintain could achieve an immediate and substantial cost saving. Vriens and Søilen (2014) argue, ‘a business may be disrupted if its existing products or services are expensive, difficult to access and/or may not be convenient … a first indicator is the degree to which a business provides expensive and inaccessible products/services’ (p. 72). Perhaps, in order to be attractive to fee-paying students, universities are already starting to practise product overshoot, making themselves vulnerable to a disruptor in the low end of the market.

The organisational design of the traditional university includes physical spaces, timetabled classes and academic staff whose expertise is evident in qualifications and research output. A remote provider with no premises could supply higher education at a fraction of the cost. Because classes would not be timetabled, with all necessary learning materials available on demand, the offer may well be attractive to individuals who can match neither their lifestyles nor their prior educational attainments (nor their finances, for that matter) to the demands of the existing higher education system. Allen and Farber (2018) argue success in higher education is related to time spent on campus, but technology means a student does not have to be on campus to learn. Academic success does not have to depend on physical space.

Higher education providers can conceive of the disruptive use of technology as a threat or an opportunity. For established universities in expensive premises, the prospect of a competitor undercutting their business model through technology is threatening. However, the use of technologies in education is a fact that needs to be recognised, and it further needs to be recognised that technology usage has become all-pervasive. Students and lecturers mediate aspects of their experience through technologies, be that through finding resources, accessing class materials, or
submitting assignments. Many students also rely on technologies to mediate their social lives. Ultimately, for universities’ business models, Disruptive Innovation should not be feared, not least because most disruptions create economic growth, starting new markets and attracting new customers (Gilbert & Bower, 2002). Higher education is a long-standing ecosystem characterised by providers of established reputation and esteem. In order for a disruptive innovator to succeed in higher education it may need to cooperate with the status quo at least as much as it disrupts it, achieving a market share rather than posing an existential threat. Universities’ entrenched perceptions will shape their responses to Disruptive Innovation but if they recognise opportunity as much as threat they will be better placed to engage constructively with technologies and use them to enhance their provision, be that in disruptive or sustaining terms.

The presence of a successful disruptive provider in the higher education market could compel universities to raise their game through the reformulation of threat as an opportunity to improve performance, building on their incumbent assets including substantial premises and services beyond the qualification. Kim and Min (2015) argue, ‘incumbent assets provide potential for better performance, but translating it into improved performance also requires a certain opportunity to realize that potential, which managerial choices provide’ (p. 52, emphasis in original). For an established university to raise its game without increasing costs, however, would be challenging, especially if a disruptor was offering significantly cheaper provision. Zhao, Fisher, Lounsbury, and Miller (2017) argue, ‘institutional legacies can provide resources for incumbents that compensate for their technical inefficiency or lack of adaptability, enabling them to survive threats from new entrants’ (p. 103). The Swiss watchmaking industry was able to use the symbolic capital of its history and reputation to counter quartz watches. Older universities have strong institutional legacies which strengthen their market position, but not to the point of unassailability.

A truly technology enhanced curriculum can position students as producers, using technologies to construct their own arguments and artefacts, based on their own findings and rooted in existing scholarship. However, transformation on this scale requires a technology-informed
rethink of assessment, which means rethinking teaching practices, too. This will be difficult, not least because of misalignment between different members of academic communities. Governing councils and other sovereign bodies at institutions want universities to produce a surplus and climb league tables. It can, therefore, be difficult to persuade senior management at universities to invest in innovation because an innovation that goes wrong is a threat to both revenue and reputation. However, students do use non-institutional, disruptive technologies to get jobs done. They use Google and Wikipedia in preference to costly institutional resources such as academic databases. Furthermore, students are increasingly time-poor; more and more students are having to work as well as study in order to buy their higher education in privatised systems and they will use technologies that save time. It may be going too far to suggest, as Hayes (2015) does, ‘Universities are now non-places that simply act like transit points’ (p. 276), but time-poor students in part-time or full-time employment cannot take full advantage of the social facilities on campus. Lecturers are also under time pressures and have to support large numbers of students. Innovation happens but at senior levels it may be ignored, or subsumed under impressive-sounding strategies which, themselves, creak under examination, their internal contradictions exposed. The gap between official proclamation and day-to-day practice deepens the fracture between different strata within academic communities. Google and Wikipedia are established technologies in higher education, if not always officially sanctioned, but new technologies are constantly arising, and practice with them creates the ongoing potential for innovation, notwithstanding the seeming indomitability of the existing, hierarchical higher education sector.

If we want relevant twenty-first century curricula we have to accept the centrality of technologies in learning and teaching, including the widespread use of Google and Wikipedia and the widespread use of Bring Your Own Device, the latter a complex practice illustrating both self-determination on the part of students and the transfer of costs to the individual in an increasingly privatised system. Google and Wikipedia both work as technologies in higher education because of their ease of use, convenience, simplicity, and because they are free to use. Similar technologies will meet with similar success.
As well as the question of how Disruptive Innovation in higher education takes place, there is a related question: who are the change makers? Patterns of Disruptive Innovation indicate the innovators are a small cohort at first, whose practices spread as they are shown to be useful to a wider constituency. Disruptive Innovation starts small but ends up transforming practices and sweeping away incumbents who fail to see and act upon changing conditions.

Technology has not disrupted higher education. Not yet. Switch it off. Switch it on again.

References

Abernathy, W. J., & Clark, K. B. (1985). Innovation: Mapping the winds of creative destruction. *Research Policy, 14*(1), 3–22.

Acs, Z. J., & Audretsch, D. B. (1988). Innovation in large and small firms: An empirical analysis. *The American Economic Review, 78*(4), 678–690.

Allen, J., & Farber, S. (2018). How time-use and transportation barriers limit on-campus participation of university students. *Travel Behaviour and Society, 13*, 174–182.

Anadon, L. D., Chan, G., Harley, A. G., Matus, K., Moon, S., Murthy, S. L., & Clark, W. C. (2016). Making technological innovation work for sustainable development. *Proceedings of the National Academy of Sciences, 113*(35), 9682–9690.

Ashill, N., Semaan, R. W., & Williams, P. (2019). Measuring brand charisma: An exploratory study of luxury brand consumers. In *2018 Annual Meeting of the Decision Sciences Institute Proceedings*, March, 1074–1093. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3349642

Benner, M. J. (2007). The incumbent discount: Stock market categories and response to radical technological change. *Academy of Management Review, 32*(3), 703–720.

Brackin, R. C., Jackson, M. J., Leyshon, A., & Morley, J. G. (2019). Taming disruption? Pervasive data analytics, uncertainty and policy intervention in disruptive technology and its geographic spread. *ISPRS International Journal of Geo-Information, 8*(1), 34. Retrieved from https://www.mdpi.com/2220-9964/8/1/34.
Brockmann, T., Stieglitz, S., & Cvetkovic, A. (2015). Prevalent business models for the apple app store. In 12th International Conference on Wirtschaftsinformatik, 4–6 March, 1206–1221, Osnabrück, Germany. Retrieved from https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1080&context=wi2015

Byrne, E., & Clarke, C. (2020). The university challenge: Changing universities in a changing world. Harlow: Pearson.

Chan, J. (2013). A suicide survivor: The life of a Chinese worker. New Technology, Work and Employment, 28(2), 84–99.

Chan, J., Pun, N., & Selden, M. (2013). The politics of global production: Apple, Foxconn and China's new working class. New Technology, Work and Employment, 28(2), 100–115.

Christensen, C. M. (1997). The innovator’s dilemma: When new technologies cause great firms to fail. Harvard: Harvard Business School Press.

Christensen, C. M., & Raynor, M. E. (2003). The innovator's solution: Creating and sustaining successful growth. Boston: Harvard Business School Press.

Christensen, C. M., Raynor, M., & McDonald, R. (2015). What is disruptive innovation? Harvard Business Review, 93(12), 44–53.

Clarke, T., & Boersma, M. (2017). The governance of global value chains: Unresolved human rights, environmental and ethical dilemmas in the apple supply chain. Journal of Business Ethics, 143(1), 111–131.

Collier, R. B., Dubal, V. B., & Carter, C. L. (2018). Disrupting regulation, regulating disruption: The politics of Uber in the United States. Perspectives on Politics, 16(4), 919–937.

Culpepper, P. D., & Thelen, K. (2020). Are we all Amazon primed? Consumers and the politics of platform power. Comparative Political Studies, 53(2), 288–318.

Currah, A. (2007). Hollywood, the Internet and the world: A geography of disruptive innovation. Industry and Innovation, 14(4), 359–384.

Denning, S. (2016). Can new disruption research suggest defenses against threats and opportunities for innovators? Strategy and Leadership, 44(3), 3–8.

Downes, L., & Nunes, P. (2013, March). Big-Bang Disruption. Harvard Business Review, pp. 44–56.

Eaton, B., Elaluf-Calderwood, S., Sørensen, C., & Yoo, Y. (2011). Dynamic structures of control and generativity in digital ecosystem service innovation: The
cases of the Apple and Google mobile app stores (Vol. 44, pp. 1–25). London: London School of Economics and Political Science.

Elbanna, A., & Newman, M. (2016). Disrupt the disruptor: Rethinking ‘disruption’ in digital innovation. In MCIS 2016 Proceedings, 58. Retrieved from http://aisel.aisnet.org/mcis2016/58

Ellis, A., & Marshall, M. T. (2019). Can skeuomorphic design provide a better online banking user experience for older adults? Multimodal Technologies and Interaction, 3(3), 63. Retrieved from https://www.mdpi.com/2414-4088/3/3/63/htm.

Emejulu, A., & McGregor, C. (2019). Towards a radical digital citizenship in digital education. Critical Studies in Education, 60(1), 131–147.

Esposito, A. (2013). Neither digital or open. Just researchers: Views on digital/open scholarship practices in an Italian university. First Monday, 18(1) Retrieved from https://journals.uic.edu/ojs/index.php/fm/article/view/3881/3404.

Ferreira, G. M. D. S., Rosado, L. A. D. S., Lemgruber, M. S., & Carvalho, J. D. S. (2020). Metaphors we’re colonised by? The case of data-driven educational technologies in Brazil. Learning, Media and Technology, 45(1), 46–60.

Flavin, M., Zhou Chen, T., & Quintero, V. (2019). Size matters: An analysis of UK higher education institution mission statements. Journal of Higher Education Policy and Management, 42, 1–15. Retrieved from https://www.tandfonline.com/doi/full/10.1080/1360080X.2019.1658839.

Fosnacht, K., McCormick, A. C., & Lerma, R. (2018). First-year students’ time use in college: A latent profile analysis. Research in Higher Education, 59(7), 958–978.

Friedman, G. (2014). Workers without employers: Shadow corporations and the rise of the gig economy. Review of Keynesian Economics, 2(2), 171–188.

Garel, G. (2015). Lessons in creativity from the innovative design of the swatch. Technology Innovation Management Review, 5(7), 34–40.

Garrison, G. (2009). An assessment of organizational size and sense and response capability on the early adoption of disruptive technology. Computers in Human Behavior, 25(2), 444–449.

Gawer, A., & Cusumano, M. A. (2014). Industry platforms and ecosystem innovation. Journal of Product Innovation Management, 31(3), 417–433.

Gilbert, C., & Bower, J. L. (2002). Disruptive change: When trying harder is part of the problem. Harvard Business Review, 80(5), 94–101.

Gillespie, T. (2010). The politics of ‘platforms’. New Media & Society, 12(3), 347–364.
Glasmeier, A. (1991). Technological discontinuities and flexible production networks: The case of Switzerland and the world watch industry. *Research Policy, 20*(5), 469–485.

Gobble, M. M. (2018). The importance of management innovation. *Research Technology Management, 61*(6), 54–58.

Hagel, J., Eckenrode, J., & Srinivas, V. (2016). *Patterns of disruption: Impact on wholesale banking*. Deloitte University Press. Retrieved from https://www2.deloitte.com/content/dam/insights/us/articles/3520_Patterns-of-disruption_Wholesale-banking/DUP_Patterns-of-disruption_Wholesale-banking.pdf.

Hagel, J., Seely Brown, J., Wooll, M., & de Maar, A. (2016). *Turn products into product platforms; providing a foundation for others to build upon*. Deloitte University Press. Retrieved from https://www2.deloitte.com/us/en/insights/focus/disruptive-strategy-patterns-case-studies/disruptive-strategy-product-platforms.html.

Hall, R., & Bowles, K. (2016). Re-engineering higher education: The subsumption of academic labour and the exploitation of anxiety. *Workplace: A Journal for Academic Labor, 28*, 30–47.

Hang, C. C., & Garnsey, E. W. (2011, March). *Opportunities and resources for disruptive technological innovation* (Working Paper). Centre for Technology Management. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1923036

Hargadon, A. B., & Douglas, Y. (2001). When innovations meet institutions: Edison and the design of the electric light. *Administrative Science Quarterly, 46*(3), 476–501.

Hayes, S. (2015). A sphere of resonance for networked learning in the ‘non-places’ of our universities. *E-Learning and Digital Media, 12*(3–4), 265–278.

Hellström, T. (2004). Innovation as social action. *Organization, 11*(5), 631–649.

Holtham, C., & Courtney, N. (2005). *Virtual learning environments: Practitioner perspectives on good practice*. London: The Observatory on Borderless Higher Education. Retrieved from http://www.obhe.ac.uk/documents/view_details?id=48.

Hopp, C., Antons, D., Kaminski, J., & Oliver Salge, T. (2018). Disruptive innovation: Conceptual foundations, empirical evidence, and research opportunities in the digital age. *Journal of Product Innovation Management, 35*(3), 446–457.

Isaac, E. (2014). *Disruptive innovation: Risk-shifting and precarity in the age of Uber*. Berkeley Roundtable on the International Economy (Working Paper No. 2014–7). Retrieved from https://brie.berkeley.edu/sites/default/files/disruptive-innovation.pdf
Jones, C. R. (2014). The politics of networked learning in an age of austerity. In Proceedings of the 9th international conference on networked learning. Retrieved from http://ljmu-test.eprints-hosting.org/id/eprint/150/

Kahl, S. J., & Grodal, S. (2016). Discursive strategies and radical technological change: Multilevel discourse analysis of the early computer (1947–1958). Strategic Management Journal, 37, 149–166.

Kalman, Y. M. (2014). A race to the bottom: MOOCs and higher education business models. Open Learning: The Journal of Open, Distance and e-Learning, 29(1), 5–14.

Kim, S. K., & Min, S. (2015). Business model innovation performance: When does adding a new business model benefit an incumbent. Strategic Entrepreneurship Journal, 9(1), 34–57.

Kimble, C., & Bourdon, I. (2013). The link among information technology, business models, and strategic breakthroughs: Examples from Amazon, Dell, and eBay. Global Business and Organizational Excellence, 33(1), 58–68.

King, A. A., & Baatartogtokh, B. (2015). How useful is the theory of disruptive innovation? MIT Sloan Management Review, 57(1), 77–90.

Knox, J. (2019). What does the ‘postdigital’ mean for education? Three critical perspectives on the digital, with implications for educational research and practice. Postdigital Science and Education, 1(2), 357–370.

Kumar, N. (2006). Strategies to fight low-cost rivals. Harvard Business Review, 84(12), 104–112.

Kumar, N. (2014). Facebook for self-empowerment? A study of Facebook adoption in urban India. New Media & Society, 16(7), 1122–1137.

Kushida, K. E. (2015). The politics of commoditization in global ICT industries: A political economy explanation of the rise of Apple, Google, and industry disruptors. Journal of Industry, Competition and Trade, 15(1), 49–67.

Langer-Crame, M., Newman, T., Beetham, H., Killen, C., & Knight, S. (2019). Digital experience insights survey 2019: Findings from students in UK further and higher education. Bristol: JISC.

Laurell, C., & Sandström, C. (2016). Analysing Uber in social media—Disruptive technology or institutional disruption? International Journal of Innovation Management, 20(5), 1640013. Retrieved from https://www.worldscientific.com/doi/abs/10.1142/S1363919616400132.

Laurillard, D., & Kennedy, E. (2017). The potential of MOOCs for learning at scale in the global south. London: Centre for Global Higher Education. Retrieved from https://www.researchcghe.org/perch/resources/publications/wp31.pdf.
Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation. Cambridge: Cambridge University Press.

Leitch, T. (2014). Knowledge, authority and liberal education in the digital age. Baltimore: Johns Hopkins University Press.

Leitner, K. H. (2017). ‘No’ and ‘slow’ innovation strategies as a response to increased innovation speed. In B. Godin & D. Vinck (Eds.), Critical studies of innovation: Alternative approaches to the pro-innovation Bias (pp. 201–217). Cheltenham: Edward Elgar.

Linton, J. D. (2009). De-babelizing the language of innovation. Technovation, 29(11), 729–737.

Litzinger, R. (2013). Labor in China: A new politics of struggle. Special Issue of South Atlantic Quarterly, 112, 172–212.

Loveday, V. (2018). The neurotic academic: Anxiety, casualisation, and governance in the neoliberalising university. Journal of Cultural Economy, 11(2), 154–166.

Manokha, I. (2018). Surveillance: The DNA of platform capital—The case of Cambridge analytica put into perspective. Theory & Event, 21(4), 891–913.

Marginson, S. (2013). The impossibility of capitalist markets in higher education. Journal of Education Policy, 28(3), 353–370.

Markides, C., & Charitou, C. D. (2004). Competing with dual business models: A contingency approach. Academy of Management Executive, 18(3), 22–36.

Markides, C., & Sosa, L. (2013). Pioneering and first mover advantages: The importance of business models. Long Range Planning, 46, 325–334.

Metcalf, J., & Moss, E. (2019). Owning ethics: Corporate logics, silicon valley, and the institutionalization of ethics. Social Research: An International Quarterly, 86(2), 449–476.

Moccia, S. (2016). Managing educational reforms during times of transition: The role of leadership. Higher Education for the Future, 3(1), 26–37.

Mohan, K., Ramesh, B., Cao, L., & Sarkar, S. (2012). Managing disruptive and sustaining innovations in green IT. IT Professional, 14(6), 22–29.

Montoya, J. S., & Kita, T. (2017). Towards an improved theory of disruptive innovation: Evidence from the personal and mobile computing industries. In The Asian Conference on the Social Sciences 2017: Official Conference Proceedings, 125–144. Retrieved from https://pdfs.semanticscholar.org/abc4/223404cb3c27efee6e3e5e670bb3c5a4d81d.pdf

Muller, E. (2019). Delimiting disruption: Why Uber is disruptive, but Airbnb is not. International Journal of Research in Marketing, 37(1), 43–55. https://doi.org/10.1016/j.ijresmar.2019.10.004.
Nair, A., & Ahlstrom, D. (2003). Delayed creative destruction and the coexistence of technologies. *Journal of Engineering and Technology Management, 20*, 345–365.

Neves, J., & Hillman, N. (2019). *Student academic experience survey 2019, advance HE and higher education policy Institute*. New York and Oxford. Retrieved from https://www.hepi.ac.uk/wp-content/uploads/2019/06/Student-Academic-Experience-Survey-2019.pdf

Newman, T., Beetham, H., & Knight, S. (2018). *Digital experience insights survey 2018: Findings from students in UK further and higher education*. Bristol: JISC.

Norman, D. A., & Verganti, R. (2014). Incremental and radical innovation: Design research vs. technology and meaning change. *Design Issues, 30*(1), 78–96.

O’Reilly, C., & Binns, A. J. M. (2019). The three stages of disruptive innovation: Idea generation, incubation, and scaling. *California Management Review, 61*(3), 49–71. https://doi.org/10.1177/0008125619841878.

O’Reilly, C., & Tushman, M. L. (2011). Organizational ambidexterity in action: How managers explore and exploit. *California Management Review, 53*(4), 5–22.

Paap, J., & Katz, R. (2004). Anticipating disruptive innovation. *Research-Technology Management, 47*(5), 13–22.

Pascale, R. T. (1984). Perspectives on strategy: The real story behind Honda’s success. *California Management Review, 26*(3), 47–72.

Peddiweli, J. A. (2004 [1939]). *The Saber-tooth curriculum*. New York: McGraw Hill.

Piketty, T. (2017). *Capital in the twenty-first century* (A. Goldhammer, Trans.). Cambridge, MA: Harvard University Press.

Pun, N., & Chan, J. (2013). The spatial politics of labor in China: Life, labor, and a new generation of migrant workers. *South Atlantic Quarterly, 112*(1), 179–190.

Qiu, J. L., Gregg, M., & Crawford, K. (2014). Circuits of labour: A labour theory of the iPhone era. *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society, 12*(2), 564–581.

Raffaelli, R. (2019). Technology reemergence: Creating new value for old technologies in Swiss mechanical watchmaking, 1970–2008. *Administrative Science Quarterly, 64*(3), 576–618.
Rahman, K. S., & Thelen, K. (2019). The rise of the platform business model and the transformation of twenty-first-century capitalism. *Politics and Society, 47*(2), 177–204.

Reinhardt, R., & Gurtner, S. (2018). The overlooked role of embeddedness in disruptive innovation theory. *Technological Forecasting and Social Change, 132*, 268–283.

Richardson, J., Wardale, D., & Lord, L. (2019). The ‘double-edged sword’ of a sessional academic career. *Higher Education Research and Development, 38*(3), 623–637.

Rosenbloom, R. S., & Christensen, C. M. (1994). Technological discontinuities, organizational capabilities, and strategic commitments. *Industrial and Corporate Change, 3*(3), 655–685.

Rutter, R., Roper, S., & Lettice, F. (2016). Social media interaction, the university brand and recruitment performance. *Journal of Business Research, 69*, 3096–3104.

Salter, M. S. (2005). Innovation corrupted: The rise and fall of Enron (A). Harvard Business School case 905–048, December 2004 (revised October 2005). Retrieved from https://www.hbs.edu/faculty/Pages/item.aspx?num=31813

Sandoval, M. (2013). Foxconned labour as the dark side of the information age: Working conditions at Apple’s contract manufacturers in China. *TripleC: Communication, Capitalism & Critique, 11*(2), 318–347.

Selwyn, N. (2013). Digital technologies in universities: Problems posing as solutions? *Learning, Media and Technology, 38*(1), 1–3.

Selwyn, N. (2014). *Digital technology and the contemporary university*. Abingdon: Routledge.

Shang, T., Miao, X., & Abdul, W. (2019). A historical review and bibliometric analysis of disruptive innovation. *International Journal of Innovation Science, 11*(2), 208–226.

Slater, S. F., Mohr, J. J., & Sengupta, S. (2014). Radical product innovation capability: Literature review, synthesis, and illustrative research propositions. *Journal of Product Innovation Management, 31*(3), 552–566.

Söderberg, J. (2017). Comparing two cases of outlaw innovation: File sharing and legal highs. In B. Godin & D. Vinck (Eds.), *Critical studies of innovation: Alternative approaches to the pro-innovation bias* (pp. 115–132). Cheltenham: Edward Elgar.
Sood, A., & Tellis, G. J. (2011). Demystifying disruption: A new model for understanding and predicting disruptive technologies. *Marketing Science, 30*(2), 339–354.

Srnicek, N. (2016). *Platform capitalism*. Cambridge: Polity.

Srnicek, N. (2017). The challenges of platform capitalism: Understanding the logic of a new business model. *Juncture, 23*(4), 254–257.

Tang, P., & Bussink, H. (2017). *EU tax revenue loss from Google and Facebook*. PvdA, S&D. Retrieved from https://paultang.nl/wp-content/uploads/2018/03/EU-Tax-Revenue-Loss-from-Google-and-Facebook-2.pdf

Tapper, T., & Filippakou, O. (2009). The world-class league tables and the sustaining of international reputations in higher education. *Journal of Higher Education Policy and Management, 31*(1), 55–66.

Tellis, G. J. (2006). Disruptive technology or visionary leadership? *The Journal of Product Innovation Management, 23*, 34–38.

Temple, P. (2009). From space to place: University performance and its built environment. *Higher Education Policy, 22*(2), 209–223.

*The Economist*. (2015, November 26). Disrupting Mr disrupter. Retrieved from https://www-economist-com.libproxy.kcl.ac.uk/business/2015/11/26/disrupting-mr-disrupter

Thelen, K. (2018). Regulating Uber: The politics of the platform economy in Europe and the United States. *Perspectives on Politics, 16*(4), 938–953.

Vidal, E., & Mitchell, W. (2013). When do first entrants become first survivors? *Long Range Planning, 46*, 335–347.

Vriens, D., & Søilen, K. S. (2014). Disruptive intelligence: How to gather information to deal with disruptive innovations. *Journal of Intelligence Studies in Business, 4*(3), 63–78.

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge: Cambridge University Press.

Wessel, M., & Christensen, C. M. (2012, December). Surviving disruption. *Harvard Business Review*. Retrieved from https://hbr.org/2012/12/surviving-disruption

Yoffle, D. B., & Kwak, M. (2002). Mastering balance: How to meet and beat a stronger opponent. *California Management Review, 44*(2), 8–24.

Zeide, E., & Nissenbaum, H. (2018). Learner privacy in MOOCs and virtual education. *Theory and Research in Education, 16*(3), 280–307.

Zhao, E. Y., Fisher, G., Lounsbury, M., & Miller, D. (2017). Optimal distinctiveness: Broadening the interface between institutional theory and strategic management. *Strategic Management Journal, 38*, 93–113.
Zhu, F., & Furr, N. (2016, April). Products to Platforms: Making the Leap. *Harvard Business Review*, pp. 72–78.
Zuboff, S. (2015). Big other: surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology, 30*(1), 75–89.
Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. New York: PublicAffairs.
Zysman, J., & Kenney, M. (2016). The next phase in the digital revolution: Platforms, abundant computing, growth and employment. The Research Institute of the Finnish Economy. Retrieved from https://brie.berkeley.edu/sites/default/files/brie-working-paper-2016-35.pdf