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The Future of University or Universities of the Future: A Paradox for Uncertain Times

Allen Alexander, University of Exeter Business School

Constantine Manolchev, University of Exeter Business School,

c.manolchev@exeter.ac.uk (corresponding author)

Purpose: Using narratives from leading international academics and commentators, we chart four, possible, 'universities of the future' models, and discuss how current university management issues can enable, or hinder them.

Methodology: Deploying a Gioia-methodology analysis of 'University of the Future' narratives, we derive 12 categories of institutional properties and, ultimately, four distinct models.

Findings: We identify how current, classic and polytechnic institutions can adapt their operations and service delivery in order to transition into future-ready business models.

Originality: We interpret the opinions and predictions from world-leading experts in the higher education field in order to present the first, to our knowledge, typology of aspirational university models.

Keywords: university; higher education; enterprise, digitalisation, future-scenario

Business as Usual or Not?

European, North American and, latterly, Asia-Pacific economic policies have been undergoing a sea-change, moving away from research and scholarship for the purpose of enlightenment, and toward more research for social impact (Bridges, 2010; Scott, 2000). The value offered by Universities as part of knowledge-based, national systems of innovation (Etzkowitz & Leydesdorff, 2000), regional economic powerhouses (Hughes, 2010), and as creators of opportunities for MNEs, SMEs and society-groups

(Birch, Perry & Taylor, 2013) is well-documented. Considerable attention has also been paid to the need for universities to become more entrepreneurial in their outlook (Rothaermel, Agung & Jiang, 2007). Universities have to also meet the challenges of their home economies and capitalise on world-wide opportunities across a range of activities, previously outside of the remit of higher education (Miller, McAdam, & McAdam, R., 2014). Such international and national-level tensions have necessitated a move away from research, teaching and third-leg activities, and towards the delivery of research and teaching for impact (Jackson, Greaves, Strickland & Alexander, 2012). In turn, this has created a variety of pressures at the operational level, which are increasingly borne by academics, facing competing management instructions (Kallio, Kallio, Tienari & Hyvonen, 2016), and administrators, trying to support academic endeavours (Alexander, Martin, Manolchev & Miller, 2018).

But what are some of the pervasive academic pressures that can be identified from recent studies?

Understanding Operational Pressures

Firstly, the onset of austerity and further funding constraints appear to have turned the HEI sector into an arena of 'gladiatorial combat' for graduates (Morini, 2019), resulting in the prominent use of precarious contracts. In general, such arrangements have created a range of negative experiences for employees by taking-away worker control, access to progression opportunities, Trade Union representation (Manolchev, 2019; Manolchev, Saundry & Lewis, 2018), and by being detrimental to both their physical and mental health (Lewis, Dwyer, & Hodkinson, 2015). Precarious jobs are likely to be short-term 'gigs', subordinating the worker to the wider needs of the organisation, and shifting the burden of neoliberal 'responsibilisation' back on the individual (Schram, 2015). Although historically associated with entry-level jobs carried out by low-skill, often female and/or migrant workers (Standing, 2011), the risks, uncertainties and insecurities of precarious work are now frequently encountered in high-skilled, 'knowledge work' (Bergvall-Kåreborn & Howcroft, 2013). This is very much the case in academia which is accused of turning temporary and sessional staff into '*the galley slaves of higher education*' (Armano, Bove & Murgia, 2017 (eds.), pp. 82–97).

Secondly, alongside sessional staff, extant research has identified a new breed of academic– the entrepreneurial academic (Abreu & Grinevich, 2013). The

entrepreneurial academic (EA) '*adopts an entrepreneurial outlook through seeking opportunities to support their research and teaching objectives by engaging with commercial partners in a range of collaborative and less formal modes of engagement'* (Miller, Alexander, Cunningham & Albats, 2017:5). EAs are often latecomers to academia, having started their careers as professionals in other industries and sectors. EAs do not generally follow a standard academic career pathway and, whilst having achieved a postgraduate research degree, are often motivated by industrial or societal need (rather than curiosity or other typical academic motivators) (D'Este & Perkmann, 2011). In their systematic review of the literature, Miller *et al*., (2017) identified that the pressures to diversify the academic offering, led by the science disciplines in the late 1980s (in the US propagated by the Bayh-Dole Act, 1980 & in the UK by the Lambert Review, 2003), only encouraged a relatively small number of academics to register patents and enter into licensing agreements or to use their IP-related knowledge to lead spin-outs or joint-ventures. Resultant empirical work also identified that academics found it hard to vest their hard-won research knowledge into an independent legal entity – with studies showing a distinct inability to 'let go' (Lockett & Wright, 2005). Once the initial flurry of interest in becoming an Academic Entrepreneur began to stabilise, only a relatively small number of academics followed this pathway (Philpott, Dooley, O'Reilly & Lupton, 2011) but what this shift in institutional culture toward academic entrepreneurialism did however, was to open the landscape up, for the more entrepreneurially-minded scholars to realise that there are more than one way to fund a research career, and impactful research can be monetised by working with industrial partners in collaboration (Miller *et al*., 2017). Since that time studies of these EAs have noted that they are often popular educators, as well as organised and motivated researchers, however the reward and promotion criterial for this type of academic do not necessarily align with the traditional measures of academic excellence, particularly in the more established, research-led institutions (Alexander, Miller & Fielding, 2015). This raises further challenges for these academics' intrinsic legitimacy, where they are now required to create meaningful narratives of their

own ‘selves’, outside of their often frustrated work contexts (Giddens, 1991; Sennett, 1998) which reinforce traditional academic pathways.

The third and final tension we identify, is the move away from academic autonomy, and toward a culture of managerialism and performativity (Ball, 2003). Accordingly, increased accountability within funding schemes and a drive toward research efficiency contributes to a culture of measurement and performance (Chubb & Watermeyer, 2017), implemented in a top-down and ‘command-and-control’ manner. This trend is well-rehearsed in the critical management literature, which warns of practices ensuring not only ‘efficient worker operation’ but also ‘identity regulation’ (Alvesson & Willmott, 2002). These developments may place some academics in a position of forced compliance (Leathwood & Read, 2013), while others may choose to embrace it, with the hope of achieving upward mobility in their current organisation (Alvesson & Spicer, 2016). Resistance may be possible and does occur but, as Anderson (2008) contends, it is mostly in principle rather than practiced. Although managerial performativity directly conflicts with academic autonomy and undermines collegiality (Sutton, 2017), it reflects manager attempts to make sense of an increasing heterogeneous academic population. This has not been without contention, whereby concerns have been raised about the erosion of Universities’ ‘collegiality ethos’ (Burnes, Wend & By, 2014), and the resultant fragility of professional status (Knights & Clarke, 2014) in ‘for profit’ higher education business models. However, to what detriment and what does this practically mean for 21st century academic institutions and their staff?

One potential way to explore this question and the others raised above is to turn to academics mapping the possible futures of universities.

The Future of Universities ‘Thought-book’!

In 2018, the University Industry Innovation Network working with various partner institutions and funded by the European Commission, prepared a ‘thought-book’ with the bold ambition of envisioning the future direction of universities. The book features perspectives from a gambit of stakeholders - academics, entrepreneurs, ‘game-changers’ and ‘thought-leaders’ (Davey, Meerman, Orazbayeva, Riedel, Galan-Muros, Plewa & Eckert, 2018:5), illustrating a number of scenarios and possible outcomes for universities. By sketching these, the thought-book tries to reconcile the ‘commercialisation challenges’ and ‘agility pressures’ faced by higher education institutions, and balance them with aspirations for continued social impact and relevance

in a 'digitalized' world (Dolderer, 2018:35 in Davey *et al*., 2018). The thought-book editors justify this search for balance in light of the *"apparent mismatch between the classic role of Universities as paradigm-shifting knowledge creators, and the 'unadventurous' and 'uninspired' ways in which this knowledge has been integrated back into their own governance and operational ecosystems*" (Davey *et al*., 2018 p.6). The thought-book curates 40 individual articles into six hypothetical scenarios which, although non-prescriptive and non-exhaustive, seek to capture the lay of the land of time to come, creating a vision for the 'academic institution of 2040'.

Mining the thought book – our methodology

By adopting a Gioia-style methodology (Gioia, Corley & Hamilton, 2012), we have taken each of the scenarios and their theoretical dimension, and decanted them into four, hypothetical models of 'the University of the Future' (see Table 1, Annex 1).

The application of this methodological approach, which seeks to structure the promise of rich and deep original narratives, through a systematic process (Corley & Gioia, 2011; 2004), is particularly useful for our study. Developed as a means of achieving the thematic development in Grounded Theory (Glaser & Strauss, 1967), Gioia's method requires the gradual movement from 'first order' codes, through 'second order' themes and, finally, overarching, aggregate dimensions. The 'cyclical' movement between original narratives, themes and literature (Gioia et al., 2012) enabled our 'Universities of the future' models to emerge as new concepts, which were nevertheless not abstractions but analytically grounded in our data. Thus, 'raw data' quotes were extracted to create 'first order' codes, as shown in Table 1– LH Column (see Annex 1). We then derived 'second order' categories and aggregated them into four models: Platform, Entrepreneurial, Interactive and Classic, the latter comprising former technical or polytechnic institutions, as well as the older, more research-intensive institutions (see Table 2).

2nd Order Categories	University of the Future
Wicked-problem focused	Platform
Cross-disciplinary, systems-thinking	
Embracing technology and virtual business models	
Enterprise/Employability –focused	Entrepreneurial
Real-life skills for 'studentpreneurs'	
Community impact	
Technology and AI focused	Interactive
Knowledge co-created by students, employers, technology	
Fields and subjects change with rise of AI	
Knowledge-creation focused	Classic (Poly and RI)
Connecting research and education	
Knowledge originates in academia and disseminated outside	

Table 2: Second-order codes identifying university characteristics and emergence of university models

As the final step in our qualitative analysis we re-mapped the models across two axial dimensions (See Figure 1), which represent the need for HEI institutions to 'face global demands' whilst engendering sufficient 'structural flexibility to adapt' and meet the operational changes required.

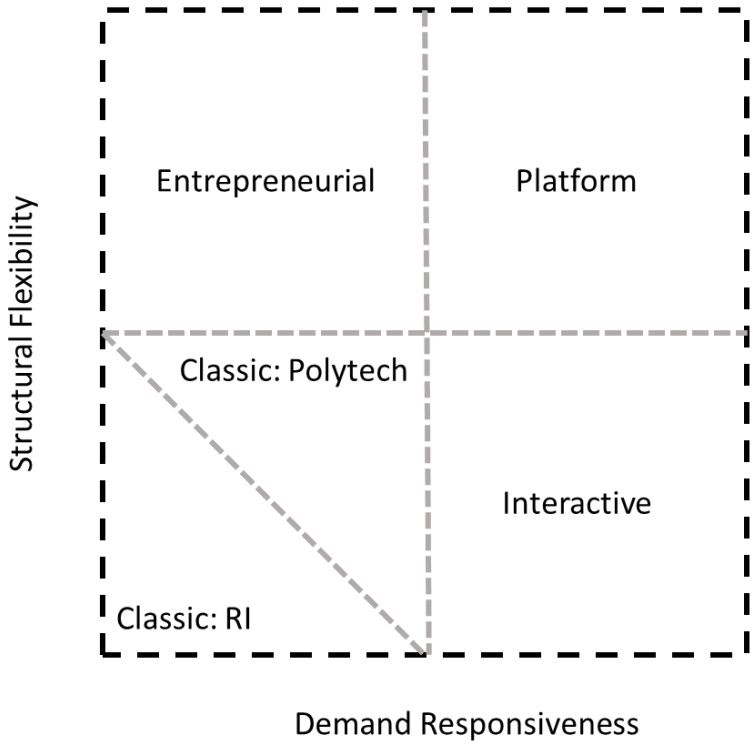

Figure 1: The 'University of the Future' Framework

Universities of the Future

We place the *Classic*, Humboldtian model (Anderson, 2004) of the world's research intensive or research-led universities (Classic: RI in Figure 1) close to the origin point, as the most structurally-constrained and the least responsive to demand pressures (Alexander *et al*., 2018). Although still scoring low on structural flexibility, we place former technical or polytechnic institutions (in the UK named the 'new' or '92 group of universities') slightly more advanced along the structural flexibility and demand responsiveness axes, accordingly. This is due to the commercial, competitive and efficiency pressures that they have faced in the past 15 years (Cranfield & Taylor, 2008), brought about by their wider range of programmes (such as foundation degrees or professional-body recognised qualifications) and greater onus on employment-readiness and the transition into work (Polytechnics Canada, accessed 12/02/2019).

Placed higher on the structural flexibility axis than the Classic model but not significantly higher on the demand axis, the need for employment-readiness is even greater for *Entrepreneurial* universities. This category effectively represents an extension of the current model of Further Education Colleges which, in certain instances

are able to deliver university-level teaching. Also included in this category are non-full service institutions (such as some of specialist Management Colleges/Academies in the UK and US), or others who lack Research-degree Awarding Powers (RDAP). Thus, we envisage Entrepreneurial universities to be working directly with employers, perhaps delivering apprenticeships, T-Level qualifications[1] and aligned with the skills policy in the UK which seeks to expand the labour pool through employment-ready graduates (Gallagher and Reeve (eds.), 2018).

At the opposite end of the spectrum and combining high-levels of responsiveness (e.g. a digitally-enabled model) but lower levels of structural flexibility, is the *Interactive* university. We imagine this model to be built around speaker/knowledge-replicators and applied knowledge disseminators, relying on knowledge creating (Classic) institutions to sense demand signals from the market and to create new knowledge to fill these demands. This reliance on 'classic' sources of knowledge-creation renders platform universities relatively structurally-tied, as diffusers of knowledge and 'observatories', rather than research houses. Consequently, their offering is built around accessible, MOOC style modules, taster courses and perhaps with a dose of edutainment through TED-style talks. Despite the ability to meet commercial demand, we consider this model to still emulate an internal governance structure akin to that of the Classic model, indeed in some examples as an extension of the Classic model, but with a more accessible and configurable student and commercial pathways – perhaps in collaboration with an international publication house or similar access or dissemination entity.

Combining both structural flexibility and demand-responsiveness in a systems-thinking approach (Alexander, 2018) is our final, *Platform* university model. It seeks to blur the boundaries between industry and education, use a wide range of knowledge, both human and artificial, delivering solutions to wicked problems and creating social impact. This, we suggest is an aspirational model of the University of the Future, which many appear keen to embrace. This is the University able to connect stakeholders in the process of life-long learning, mediating and participating in the co-creation of multi-disciplinary

[1] The T-Level scheme is planned for launch in September 2020 and will be the equivalent of three A-levels with combined 'on-the-job' experience of three months (Gov.uk, accessed 12/02/2019)

knowledge, as well as adapting to, and catalysing change. However, this carries its own challenges since the contextual embeddedness and flexibility required for attaining this model might mean that Platform universities may not be physical places, but rather 'knowledge spaces' in a continuous state of evolution and becoming – the antithesis of the Humboldtian standard.

Discussion

Firstly, whilst considering our various models of universities, we note that demand will likely retain the Classic universities models (both research-intensive and technical/polytechnic) in the HEI marketplace. Similarly, we were be able to identify the Entrepreneurial university as both existing and also likely to endure.

Emerging slowly and within early stage of development are offerings that begin to reflect the characteristics of Interactive – where some Classic universities have partnered up, or created joint ventures with publishers to create extensive online and digital content (Pearson Education, for example). However, without reference in the policy or grey literature, and based solely on the narrative in the thought-book, we believe there are early steps toward this model, which is therefore still largely aspirational. By applying the same logic, our model of the Platform university would appear to be entirely aspirational. If this is the case how will the current issues in university management enable or hinder the progression between and across these models?

We believe that an Interactive model will offer little opportunity to mitigate against the precarity of academic staff (Armano *et al*., (eds.), 2017). The need for responsiveness to wider economic and societal demand would make student-as-customer satisfaction and not staff security, career progression and development, the driving forces behind an institution's people strategy. On a more positive note, there may be an opportunity to create a meaningful narrative of the academic Self (Sennett, 1998), away from performativity and organisational control (Sutton, 2017). This model is likely to attract 'entrepreneurial academics', who can conduct high quality, but more applied and impactful research to create meaningful and useful sources of knowledge. This model can also accord university staff an opportunity to create an academic identity, not just as a disseminator of knowledge operating in conditions of uncertainty, but as widely respected influencer. However, it would be the Platform university model that can fully reward the strengths of the entrepreneurial academic who can contribute, achieve and demonstrate impact outside formal institutional structures and tenure tracks.

The Platform model could provide access to a wide range of subjects, problems and areas of work, enable academic niche-skill development against a wider, academic 'project of the self' (Giddens, 1991). Since interaction is likely to follow a peer-to-peer format, this model can reduce the structural constraints of temporary contracts and precarious work, not by removing but rather normalising them, especially in a gig-economy context. The Platform university would also be in a continuous state of production, so the significance of networks, contacts, flexible working and digital connectivity will remain paramount. In turn, this will require interventions which can mitigate against the negative impact of constant availability, loss of work-life balance and excessive work-related stress. This may necessitate a wider, more autonomous regulatory framework which protects and safeguards the rights of academics. The model must also breed collegiality and not stifle it.

So what of the two existing university models – the Classical and the Entrepreneurial? One possible outcome might be the migration of precarious (contract, adjunct etc.) workers, away from Classic institutions and towards Interactive and Platform models which might create conditions to develop a sense of professional worth and academic identity. This might especially be the case if the environment in a Classic institution is struggling to accommodate entrepreneurial, or late-to-career academics with high targets of performativity, but with no due consideration of modern quality indicators. For the Entrepreneurial university the conditions are less clear. The engaged nature of the teaching content and the proximity to start-up and business development as a key aspect of learning means that the environmental conditions for entrepreneurial academics, late to career staff as well as overly-managed traditional academics may offer a lifestyle that is more attractive. However there is very much an issue with the stability of the funding mechanisms within, for instance, Entrepreneurial and Classic-Polytechnic universities, particularly amplified by potential political shifts in student-fee structures and the increased mobility of the international higher-level students. Sadly these stochastic trends in funding models in the Entrepreneurial and Classic: Polytechnic institutions will only compound issues of precarious contracts and will also fail to attract late-to-career staff, who value security over earnings potential (Perkmann, Tartari, McKelvey, Autio, Broström, D'Este, Fini, Geuna, Grimaldi, Hughes, Krabel, Kitson, Llerena, Lissoni, Salter, Sobrero, 2013).

As our final discussion point, and further embracing the future strategy perspective, how should existing Classic universities change? Should they entrench, or

should they migrate toward models with greater structural flexibility and/or greater focus on demand-led responsiveness? In entrenching, our Classic university risks further alienating their already varied staff profiles and losing these important sources of industrially-led research income, teaching and industrial-relationship building. If they wish to become more Entrepreneurial, Interactive or Platform, they would appear to have the furthest distance to travel and must act the fastest if they are to continue to dominate the higher education landscape. To enable these transitions, they require loyal, long-term, motivated and collegiate staff but they currently run the risk of not being able to attract, retain or mobilise the type of staff able to deliver these style of offerings against a performativity culture and precarious working conditions. In contradiction, whilst potentially rewarding places for non-traditional staff to migrate toward, Classic: Polytech and Entrepreneurial institutions lack the financial security to offer a realistic alternative – but a merger and/or federation approach could enable them to develop financially secure and sustainable business models accordingly and thus attract the staff to be able to create the digital or the interactive style required to succeed as an Interactive or a Platform institution.

Conclusions

We believe we have explored the future landscape of universities. In doing this we have interpreted the opinions and predictions from world-leading experts in the higher education field (from the thought-book) and have presented and analysed extant policy and research literature, comparing and contrasting this with current and aspirational university models. From this we believe we can substantiate a number of conclusions.

Whilst the Classic – Research Intensive university model is perhaps the most financially secure in the short term, it also faces the biggest challenges in terms of becoming more structurally agile and being able to face changing environmental and market demands. Coupled with this challenge, it is also appearing to alienate its academic population, creating a pressured and autocratic environment where collegiality and autonomy are evermore scarce. Without the ability to attract and, more importantly, retain new breeds of academics (entrepreneurial academics, late-to-career and research staff who are practice-oriented) the shift toward agility and market-facing capability will be much harder. Employing precarious workers will not aid in this transition.

The future for the ex-polytechnics is also fraught with short and long term challenges. Short-term funding cycles and trends in market demand, set against market and economic flux, might mean the existence of their programmes may be at risk. Their most likely solace, therefore, is to begin the shift toward the new models, by first aligning and perhaps federating with Entrepreneurial institutions, and building on their own, stronger structural flexibility. Utilising the capabilities of a diverse range of staff such as late-to-career academics, those with an entrepreneurial mind-set and those who are prepared to thrive in a contractually insecure environment, could make the transitions to future models both faster, and less complex when compared to their research-intensive counterparts. Entrepreneurial institutions also have much to gain by teaming up or federating with the ex-polytechnics, to create greater stability and security through their knowledge-creating and diffusion capabilities.

Finally, viewed from an academic perspective, it would appear that the world of Platform and Interactive universities offers a vibrant and bountiful landscape for entrepreneurial academics, late-to-career and practitioner researchers. It would also point to the continued significance of the academic, not as a precarious resource at risk of replacement and automation, but as a key enabler for the Classic institutions to progress, and an opportunity creator for ex-polytechnics and emerging entrepreneurial institutions. This is even more so in the instance of entrepreneurial academics who can provide diverse sources of research and other income, as well as offer high-quality teaching and scholarship, as long as their working contexts support, rather than stifle them.

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Annex 1

Table 1: Analysis of raw data to create first-order codes of future-facing scenarios

Chapters	Raw Data	1st Order Codes
Teaching and Learning	Entrepreneurial leaders building a thriving culture in a precarious future	Adaptability to precarity
	Discipline knowledge with collaborative, creative and flexible students	Cross-disciplinary, life-long and challenge-based learning
	Change makers through technology-enabled pedagogy	Input by students, employers, technology
	The New Learning' in line with supply and demand	Employability-readiness
	Higher-order cognitive skills to reduce graduate-skills vs employer requirement gaps	
	New teaching and training models	
	'Studentpreneurs' as forward thinkers	
	Lifelong learning for students, professors and lecturers	
Collision of Technology and Humanity	Making entrepreneurial education more realistic through technology	Embracing technology and virtual business models
	Virtualising the HE business model	Connecting research and education
	The deskilling dangers of virtual HE business models and need for entrepreneurial education	Collaboration and real-life skills
	Integrating European educational systems into research and education areas	Person-2-person learning
	Adapt and connect curricula fields in line with AI rise	
	Need for collaboration and life-long learning as real-life skills	
	Teacher-student exchange through avatars	
Future of Science and Academic Life	Public science and universities delivering social value	Publication vs public value tension
	Separation between elite universities, receiving research funding, and 'global universities', competing for students.	Technology-mediated collaboration
	Tension between the need to provide industry and societal impact and the requirement for academics to publish.	Cross-disciplinary science to solve challenges
	Need for cross-disciplinary science to address society's grand challenges	University-industry collaboration to solve social issues
	Need for more fluid relations and permeable boundaries between university and industry	
	Academics and business leaders solve societal issues collaboratively together with an AI device	

Socially Engaged Universities	Civic' university, externally engaged at all levels	Focus on social issues
	University providing solutions to the most pressing societal challenges.	Cross-disciplinary collaboration towards UN goals
	Cross-sector university collaboration to address UN sustainable development goals	Academic and industry entrepreneurship to help communities
	Integrating academic and non-academic entrepreneurship when cooperating with the communities	Disseminate knowledge outside academia
	Community-connected pedagogies to build knowledge not only within, but also, outside academia.	System-thinking and wide stakeholder engagement
	Systematic engagement of all relevant stakeholders that will make value-co-creation possible and contribute to communities and society at large	
University-Business Co-operation	Enhanced engagement of universities with all levels of society	Focus on social issues
	The future of Asian universities	Need for a non-Western view
	Bridging education and economy	Problem-oriented collaboration between university and industry
	Significant shift in education pedagogy	Lifelong learning through technology
	Practice and theory as part of a co-designed single learning experience	Theory and practice in a single learning experience
	Place-based innovation ecosystems in enabling university, industry and the local economies	
	Business and academics and students work together in co-working communities	
	Lifelong-learning role of the university of the future driven by the creation of exponential education ecosystems based on technology	
Institutional Change	Policies need to adapt and change to accommodate collaborative thinking and creativity	Collaborative thinking
	University policies need to evolve and be flexible due to the ever-changing nature of technology.	Lifelong learning
	Universities need to foster lifelong learning among faculty and alumni	Interdisciplinary operation
	Fake news detection service	Adopting an entrepreneurial model
	Universities need to learn to change and adapt by being interdisciplinary	
	Changing teaching from a central to an entrepreneurial model	
	Entrepreneurial thinking will shift how we learn, work and teach	
	4th generation universities with changed and consistent competency	