# Is your University at Risk of Going Broke?



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### Tuition fee income is becoming more and more of a revenue risk.

On the 30th of May 2019, the Augar Review and Recommendations were finally published. The key recommendation that grabbed the headlines was the proposal to cut fees to  $\pounds7,500$ from  $\pounds9,250$ .

"A £7,500 fee "ensures that no student pays more than what could be considered the reasonable cost of their course and allows better targeting of taxpayer investment. It would also reduce overall student debt and lower one deterrent to participation." - Augar Review 2019

According to the report, £7,500 should be enough to cover the cost of providing lowest cost courses (humanities and social sciences) with the additional costs of providing STEM-based subjects (science, engineering, mathematics) being funded by the university via a teaching grant.

The report further proposes that the  $\pounds7,500$  cap should be fixed until 2022/23 and only increased in line with inflation thereafter.

Clearly, the potential impact of implementing the tuition fee cap will have a greater effect on some Higher Education Institutes (HEI) than others, specifically those where tuition fees form a greater composition of the revenue make up versus other income streams such as external funding and research grants. Not all Institutes (if any) will be able to make up the shortfall in tuition fees by increasing student numbers, which draws the question how many Institutes are at risk of this potential burning platform?

### Impact of the Augar Review

Using HESA financial data for 2017/18 Equantiis' analysis illustrates that of the 125 institutes reviewed, 43 will struggle the most with a tuition fee cap reduction given they are either significantly reliant on the income from tuition fees (>70%) or quite reliant (50% - 70%) on this income and are either at break even or showing a minor surplus. (1)

Deficit/Surplus calculation refers to the difference between Total Income and Total Expenditure. It does not include "other gains and losses" including actuarial gains and disposals.



Figure 1: Risk Profile of Universities if Augar review was implemented.

- Finance data obtained from HESA.
- Institutes showing extreme surplus' (>£60m) have been excluded from the analysis.
- Only Institutes with at least 5,000 students were considered.

### It's becoming harder for institutes to grow student numbers

Although the recommendations in the Augar report outlines may never be implemented, the landscape for higher education continues to evolve quickly with competition for students becoming more and more challenging. A review of student enrolment in 2017/18 observed an increase of 2.7% in student volumes from the prior year. The analysis shows that only 47 institutes grew in line with, or exceeded, the overall year on year growth compared to the 74 institutes that did not.

The data clearly illustrates that maintaining student numbers is a challenge for most institutes and will continue to be so, as education becomes more globalised and the persistent looming uncertainty around Brexit.

Consider a mid-sized university with an annual intake of 15,000 students experiencing a 3% drop in enrolment. The financial impact of that drop is almost £4m (assuming maximum fees) – based on the 2017/18 numbers. That is more than enough to force 72 universities into the red (posting less than £4m surplus) and thus presents a tight balancing act for many institutions.

Although this analysis can only be explored in broad terms, it highlights the revenue challenge that institutes face as education becomes a global market place and the platform of predictable tuition revenue burns.

## **Enrolment data and analysis**



Figure 2: HEI Enrolment Changes since 2016/17.

- 1. Analysis compares student enrolment numbers in 2017/18 versus 2016/17, data from HESA.
- 2. Institutes showing extreme surplus' (>£60m) have been excluded from the analysis.
- 3. Only Institutes with at least 5,000 students were considered.

### Staff cost can be an insurmountable burden if student numbers drop

With a threat of a reduction in the tuition fees looming, are some institutes in danger of experiencing an overcapacity in their workforce?

The HESA data shows that a subset of 18 institutes have a significant staff cost base relative to their tuition income. Staff costs are typically difficult to manage and adjust quickly if an institute experiences a significant drop in student numbers or structural change in tuition fee make up, even if implementation was phased.

Although the problem may not be as imminent, institutes with the 50% to 60% band in Figure 3 should consider how they can emulate the likes of East Anglia, Sheffield, Oxford and Cambridge with a staff cost of less than 50% of their tuition fee income. For such organisations, is it purely down to leveraging alternative resource models such as managed services or is a wider operational strategy in play? What strategies are these institutes applying to the cost base that makes them more agile to what will become a more volatile and fluctuating revenue stream?

### **Staff Cost Data and Analysis**



Figure 3: Staff Cost % of Tuition Fee Income.

- 1. Finance data obtained from HESA.
- 2. Institutes showing extreme surplus' (>£60m) have been excluded from the analysis.
- 3. Only Institutes with at least 5,000 students were considered.

## **Student to Staff Ratio**

Further analysis of the HESA data shows that student to staff ratio varies quite significantly between institutes. Even accounting for differences in workforce management strategies, the variance seems quite extreme and points to ineffective delivery of value adding activity that makes a tangible difference to the prospects of success for the university.



Figure 4: Student to Staff Ratio for Higher Education Institutes.

- 1. Student and Staff data obtained from HESA.
- 2. Institutes showing extreme surplus' (>£60m) have been excluded from the analysis.
- 3. Only Institutes with at least 5,000 students were considered.

### Student to Staff Ratio

Positive Student to Staff Ratios (<5)	2018 Overall Ranking	Staff Cost as a % of income
The University of Cambridge	1	43%
The University of Edinburgh	23	53%
Imperial College of Science, Technology and Medicine	5	48%
King's College London	21	56%
The University of Lancaster	9	53%
London School of Economics and Political Science	4	52%
The University of Oxford	2	44%
Queen Mary University of London	34	56%
University College London	7	50%

Figure 5: Low Student to Staff Ratio and Relative Rankings

Notes on data analysis;

- Ranking data from "Complete University Guide"
- Student/Staff Ratio obtained from HESA

The data shows that Institutes take a mixed approach to resourcing, but many do not seem to have hit the 'sweet spot' that 'right sizes' staff numbers. Giving the Institute the ability to manage fluctuations in student numbers (both increases and decreases) whilst maintaining line of sight to delivering an effective student experience.

The data illustrates that in general, a positive student to staff ratio pays dividends for an institute's standing as evidenced in their ranking scores, but equally, shows that their staff cost relative to their income is favourable, typically signposting the strength in obtaining alternative sources of income.

How do other institutes compete with this elite set?

Outside of this set, institutes will be wary of any type of investment that improves the student to staff ratio, without the comfort of a dependable, consistent alternative income that would soften the blow of a less than anticipated drop in student numbers. So how can institutes do 'more' for 'less' and what should an institute invest in, to attract applicants and stand out from the crowd?

# How much does your Institute know about your students and what their needs are?

The student as a customer concept is nothing new, although many within the sector may be reluctant to entertain this point of view, applying the 'student is a customer' principle whilst leveraging AI technology has the benefit of focusing staff on the 'value' adding activities that improves the student experience and increases an Institute's understanding of the students.

In the global education landscape, students expect interactions with the University to be as seamless as interactions with other entities, be it retail or banking and they expect entities to 'know them' and use the data they willingly share to make their experiences better.



#### Students as Customers – The Parallels

Of course, the relationship between student and education provider is not as simple as indicated. Unlike the distinction between customer and service provider, the responsibility for a successful outcome requires the student to be an active and willing participant.

Nonetheless, the 'service' by the provider should tick all the 'boxes' in a way that maximises the chance of success in achieving the desired outcome and measured outcomes in terms of 'student satisfaction' or 'employability' are key differentiators for Institutes to stand out.

# What business understands about their customers' expectations and how it translates to the student experience.

	Customer Expectations	Student Expectations	Key Challenges that prevent an institute from meeting this expectation
1	Customers expect businesses to have omni channel capability so that communications can be in the channel of their choice.	Students expect the ability to self- serve, employ the use of chatbots to understand requests, as well as the traditional phone and face to face methods.	<ul> <li>Cohesive technology strategy.</li> <li>Lack of enquiries management strategy.</li> </ul>
2	Customers expect consistent quality in business response and turnaround - especially for transactional enquiries.	Students expect Universities to be able to apply standardised responses that are consistent, irrespective of channel. They also expect response time to be consistent irrespective of the time of year.	<ul> <li>Work assigned to administrators with competing priorities.</li> <li>Enquiry demands fluctuate with the education calendar.</li> <li>Variance in enquiry approach between central and faculty services.</li> </ul>
3	Customers expect services to be efficient, timely and seamless.	Students expect to deal with a single point of contact for 'services' such as Examinations.	<ul> <li>Services provided by many different departments.</li> <li>No central owner responsible for end to end service.</li> </ul>
4	Customers expect that straightforward transactional requests can be made at any time	Students expect transactional requests to be completed at any time, 24/7.	• Enquiries limited to work hours.
5	Customers expect the entities they interact with to 'know them' and have a full history of interactions.	Students expect hyper- personalisation of services such that their University can support them to achieve their goals. This means the education provider intervening and providing additional support when engagement drops.	<ul> <li>Disparate data systems.</li> <li>Lack of data analysis capability.</li> <li>Lack of appetite to improve services which may not fall under the remit of one owner.</li> </ul>



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# The Automation Opportunity



# Using Chatbots to provide the 24-hour service that your students expect

A chatbot is software that conducts a conversation via auditory or textual methods. Chatbots can be deployed to provide an automated support to the student. It is generally used to provide information to the student but can also conduct simple tasks such as setting appointments, all with 24-hour availability.

Specifically, within HE, some Institutes have already begun to use this technology to deliver operational efficiencies and better student experience. These are explored below;

#### Case Study – Leeds Beckett University

'Becky the Chatbot' has been in operation since 2017 and has been utilised to interact with prospective students. The chatbot has the capability to offer prospective students a place at the university and answer student queries ranging from course specifics and accommodation information to available support services.

Working with Amazon Alexa, prospective students can ask the virtual assistant about courses for the clearing intake, as well as receiving university offers via Alexa's voice technology.

#### Case Study – University of Manchester

The University of Manchester uses a chatbot to handle timetabling queries. Unlike other universities, UoM has avoided the route of creating a separately downloadable app, instead deploying the chatbot across multiple platforms including Facebook Messenger, Telegram and KIK. This allows students to interact on the platform of their choice.

#### Case Study – Lancaster University.



Lancaster University's chatbot is built on Amazon Web Services and can answer questions about timetable, tutors and grades, and provide information about clubs and societies that may be relevant to the student's interests.

#### Case Study - Staffordshire University



Staffordshire university is the first university in the UK to deploy an AI coach which uses intelligent Chatbot technology to provide round the clock help to its students called Beacon. The digital coach app provides personalised and responsive information on a variety of topics such as timetable, answers to the most common FAQ related to facilities, support services and other day to day services but also enables contact with personal tutors.

# Leveraging Robotic Process Automation to deliver value to both internal and external stakeholders.

RPA is a form of business process automation which allows anyone to configure software to emulate and integrate the actions of a human interacting with IT systems to execute business processes.

Institutes looking to improve student experience, often choose RPA as the first step in the digital transformation of operations as it is a low cost and low risk option that can quickly produce tangible returns on investment.

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#### How RPA improves the student experience

Successful implementation of RPA minimises response time between request and delivery; eradicates errors; and can operate 24/7 thus reducing the demand on staff. In addition, the technology can be assigned and re-tasked on different activities to meet fluctuating demands and can be used as a low-cost way to integrate between systems. The benefit of a more integrated system is the deeper understanding of students, that can drive new insights and action.

# How RPA improves operational efficiency within an organisation

Staff across any business are often encumbered with non-value-add activities that are required to conduct business as usual. They are usually the result of a combination of historically poor processes, unwieldy systems, capacity and competency constraints.

Although using technology such as RPA will not address all the root causes outlined, it is a piece of technology that can accelerate 'lean thinking' and support an Institute in developing a mindset that focuses on 'value' first.

Consider five processes commonly undertaken in all Institutes, all of which correlate with student numbers and could take up to 5 minutes of administrative time to complete. Automating these non-value adding tasks could save well in excess of a staff year (assuming 35 hours over 48 weeks).

If this is then scaled further to the wider Institute, assuming on average 800 processes of which 20% may have automation value. The total staff hour saving could amount to almost 43 FTEs, at a standard salary of  $\pounds$ 30,000 the staff saving alone could amount to over a  $\pounds$ 1.25m per year, all the while improving the student experience.

Process	Brief Description	Average Completion Time (min)		Typical Volume of requests per annum	Time Saving per request	Staff hours saved	Improves the student experience
		Human	Bot		(min)		
Confirmation Letters	Student requests a letter to give to, for example a bank, confirming their status and key details from student database	4	0.8	15,000 (dependent on enrolment volumes – assume mid-size HEI)	3.2	800	Yes
Council Tax Certificates	Student requests a letter to confirm their eligibility and key details from student database	4	0.8	15,000 (dependent on enrolment volumes – assume mid-size HEI)	3.2	800	Yes
Billing Records	Creating or amending finance records for students on finance database	1	0.2	20,000 – estimated	0.8	267	No
Disability Disclosure	Handle the form submission, categorise, and enter the appropriate data into the appropriate systems and scheduling	5	1	3,000 (assume 20% of enrolment)	4	200	Yes
Loan Status	Provide an update on payment of a student loan using data from the student record	3	0.6	5,000 (typical)	2.4	200	Yes
					Total	2,267 (1.3 FTE eqv)	

# Utilising machine learning to maximise positive outcomes for the student



learning Machine (ML) is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve algorithms from accrued experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it to learn for themselves.

Machine learning can be used to improve student outcomes in the following ways:

#### Adaptative Learning:

Using machine learning, educators may have the capability to monitor how students are performing. Adaptive learning analyses student performance in real time and adjusts teaching methods to suit the learning preference of the student.

#### **Personalised Learning:**

Machine learning, in the form of personalised learning, could be used to give each student an individualised educational experience. Personalised learning focuses on empowering the student to learn at their own pace, thus improving engagement and outcomes.

# Correct uses of Artificial Intelligence technology for Higher Education

The case for AI technology is clear. Applying the technology offers a competitive edge that no Institute can afford to ignore, especially when the competition for students is increasingly fierce. Leveraging RPA, Chatbots and Machine Learning, may support institutes to continually redefine the value proposition that makes them an attractive prospect for students.



#### Correct use of AI technology improves the student experience through:

- Extending the availability of services beyond normal work hours.
- The provision of a consistent and speedy response to simple transactions.
- Integration between systems such that data that improves an Institutes ability to draw insight quickly and accurately.
- Providing more capacity for staff to interact with students.
- Maximising positive outcomes for the student through improved learning experiences.
- Flexing in line with peaks and troughs of the academic calendar avoiding backlogs.



Correct use of AI technology improves operational efficiency by:

- Automating non-value adding repetitive tasks quickly and without errors.
- Promoting a "lean thinking" environment within staff.
- Flexing in line with peaks and troughs of the academic calendar avoiding backlogs.

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