

A University Administrator Considers Graduate Retention and Completion: What is the ROI for SaaS vs. An On-Premise Build?

Graduate / Postgraduate education is changing around the world to meet the demands of older, working, part time student populations at a distance from their universities. That change brings about new considerations as to how to best socialize the graduate student to an academic mindset. This article considers the choices and decisions available to a university administrator as s/he considers how to increase the reach of his/her programs.¹ Using the Forrester analysis he/she already understand that, in general, SaaS prove to offer financial efficiencies over both the short and long term as compared against to on-premise builds². For sake of this example, the university is public, state supported, and has moved to include online offerings for some, if not all, of their graduate level courses.

This is the second part in a three part series. The first article considered the cost of doing nothing to increase graduate retention and completion. This article outlines return on investment for the university to implement self built solutions vs. subscribing to a technology driven set of options. The final article looks at graduate retention and completion research to consider which technology solutions make the most sense.

These figures are for 1000 students and a university who wants to build three new tools (the explanation of each follows this first set of figures):

A Comparison of Equations

Case #1: A Self Build of Three Components

$$\text{ROI} = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

Year One: $\text{ROI} = \frac{(0 - \$120,000)}{\$120,000}$ = negative 1 or a complete loss during development

Year Two: $\text{ROI} = \frac{(\$80,000 - \$35,000^3)}{\$155,000}$ = .29 with a carryover loss of \$75,000 (initial development which has not been recouped + personnel for #1)

Year Three: $\text{ROI} = \frac{(\$120,000^4 - \$35,000)}{\$105,000}$ = .80 with a carryover loss of \$20,000 (carry-over loss + personnel for #1)

¹ Socialization has been shown to encompass many of the variables which correlate to retention and completion at the graduate level (CITES)

² (Herbert et al., 2009)

³ Personnel cost for the push notifications

⁴ NOTE: For this example the solutions continue to retain 10 students a year, half of whom graduate. Therefore, figures in these examples are based on 10 newly retained students + 5 from the previous year.

Year Four: (new technology will be needed)

Case #2: Bringing in a SaaS Solution for the Same Three Components ⁵

Note that in this example ABC University has 1000 students. Our example SaaS company, DoctoralNet Ltd, offers a white label website to universities with that number at a per subscription cost of \$75 per student per year. As a turnkey solution, there are no additional costs and the website⁶ can be serving students within one month of signing contracts.

$$\text{ROI} = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

Year One: $\text{ROI} = \frac{(80,000 - \$75,000)}{\$75,000} = .06$ ROI with a \$5,000 positive return

Year Two: $\text{ROI} = \frac{(120,000 - \$75,000)}{\$75,000} = .6$ with a \$45,000 positive return

Year Three: $\text{ROI} = \frac{(150,000^7 - \$75,000)}{\$75,000} = 1$ with a \$75,000 positive return

Of course the more students retained, the greater the positive return over time.

The Importance on Return on Investment for Universities

University balance sheets demonstrate an ever increasing budget for technology. Innovation in this area needs to address increased competition and focus on financial sustainability. **Fifty-five percent of university presidents in the United States reported being concerned about the financial viability of their organizations in the next decade.**⁸ Yet universities remain notorious for wanting to develop or self build everything “in house” in order to maintain brand identity for their students. These concerns create a tension that needs to be reconciled.

Return on investment (ROI) is a measure of efficiency – thus university administrators have to ask themselves: what is efficient as they work to improve services for the new “non traditional” postgraduate student? ROI is determined by figuring what is gained from an investment, less the cost of it and then dividing that figure by to the cost of the investment over time. This article lays out a mythical case where one Graduate Administrator did the sums in order to determine the best course of action in developing a small set of new technological practices to better support their graduate students.

A Mythical Case

Consider graduate education: ABC University has 1000 PhD candidates enrolled across their graduate programs and departments. These range from younger, fully on campus and supported by grants to older, working full time and attending classes online. ABC’s completion rate used to be 50% in five years, but they have seen that drop with the advent of more online students. In addition their Board of Regents has raised the question of rates of retention and completion. Each student pays on average \$4,000 per semester tuition and fees.

⁵ Note that an SaaS solution would need to be much broader than three components. As an example those from DoctoralNet include five other research based socialization components.

⁶ The DoctoralNet solution brings with it eight established technologies including also: interactive maps, library of tutorial webinars, peer reviewed content from Sage published authors, etc.

⁷ Conservative cumulative effect of numbers based on retained students

⁸ University Presidents Survey 2015 as conducted by Gallup

https://www.insidehighered.com/system/files/media/2015%20IHE_PresidentsSurvey.pdf

Graduate programs are responsible for a budget approximating \$8 million (readers can adjust according to their budgets) which is allocated primarily to the Departments or Colleges offering the degrees and covers faculty, program offices, full campus facilities, etc. A small percentage is allocated to collaborative support of the Graduate Studies Office, and that direct budget is small, mostly covering personnel. Any new programs will likely have to be collaboratively funded, yet the Dean of Graduate Studies is convinced more support is needed.

What case should this administrator make to his/her colleagues in the other departments to increase the online tools made available to their students? What will be the likely ROI from investments in house, as opposed to the ROI of a Software as a Service (SaaS) solution? For the purpose of this discussion, this Dean decided on three supports from a suite of tools offered by an SaaS company. These were chosen because of their track record for student engagement while also being very different than what is currently offered anywhere on campus.

Gain from Investment

The gains desired will be increased retention and completion, but what does that mean to ABC's bottom line? As one administrator told this author, "No one benefits from lack of retention, not the student, the community, the university or the government who support us." True, and as the administrator in our case considers it, each student now retained, who would have dropped out, equates to increased revenue they might consider spending on programs that support everyone. (The research and discussion about which of those programs are best and what research tells us will be considered in article 3 in this series).

For our example, let us assume that that a modest number of ten students are retained because of the decrease in confusion and increase in speed to completion through a mixture of three⁹ new socialization efforts: 1) push notifications, 2) special online events, and 3) automations©. Each retained student attends two semesters a year equating to tuition of \$80,000.

Cost of the Investment

Investment is typically both technological infrastructure and personnel. For these three technologies:

1) 365 push notifications arrive in phone and desktop emails for a boost of academically oriented motivation, intrigue or knowledge enhancement. The technology that delivers the notifications is simple and likely available anywhere, but the research, organization and graphic design which have built the system to enjoy an almost 50% open rate takes up 1FTE with personnel who have graduate backgrounds. Cost equivalency \$35,000 yr as a continuing cost.

2) Special events are proving to be popular with graduate students and the 30 Day Writing Challenge has demonstrated continued success. Costs for the technology which delivers the emails with videos is negligible; however the videos were created by full professors whose video design and recording time took about two weeks FTE. A significant cost was the video production, facilities and crew for another months' full time work. Cost equivalency \$35,000 (reusable, does not need to be rebuilt for a number of years).

3) Automations© are interactive "conversations" done through survey technology with a student about their research design. Each automation© concludes with a series of criteria which the student uses to determine the efficacy of their current ideas. This sets the student up for success with their supervisor as it helps to hone their research ideas prior to discussing them. Unlike the earlier examples, the cost in automations© is in the technology. Design time includes focus groups with professors about the conversations they typically hold with students, the design team and production. Finally the code for the components has to be configured to work within the CMS system employed by the university. Cost equivalency for a suite of five basic tutorials \$50,000 (reusable, not likely to need renewal until the CMS system changes requiring adjustments in this system as well).

In order to implement these ideas the following strategic steps must be in place (personnel cost for this is not in the equations):

⁹ Since the effects of technology enhanced learning options are cumulative, three would be a minimum number to consider in order to ensure enough student engagement to make a positive difference.

1. Heads of Colleges must be willing to allocate a portion of funds to meet the cost equivalencies up front, usually in at least one budget prior to seeing any of the proposed retention which would balance the budget.
2. Negotiations on the specifics of the designs, criteria, and academic integrity of each component must be undertaken by faculty or at least signed off on by Heads of College.
3. IT considerations need to be hashed out and the options need to be agreed upon by that Department.

Time from idea to implementation equals a year at minimum.

Comparisons for Larger Universities

XYZ University has a student population of 5,000. Because they are a large and influential university they have a long history of building resources in hours. They also are dedicated to having only the best and will develop of a full range of services @ average of \$40K over 8 modules or \$320,000 cost. 50 students are retained, with half of them graduating. Tuition remains \$4,000 semester. The full range of services equates to three FTE and a part time manager @ 150,000 in salary expense required to run the technologies.

Case #1: A Self Build of Eight Components

$$ROI = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

Year One: $ROI = \frac{(0 - \$320,000)}{\$320,000} = \text{negative 1}$ or a complete loss during development

Year Two: $ROI = \frac{(400,000 - \$150,000^{10})}{\$320,000} = .78$ with a carryover loss of \$70,000 (initial development which has not been recouped + personnel)

Year Three: $ROI = \frac{(\$600,000^{11} - \$150,000)}{\$175,000} = 1.42$ with a positive gain in finances of \$75,000 (carry-over loss + personnel)

Year Four: (new technology will be needed) to conform with their new internal systems.

Case #2: Bringing in a SaaS Solution for the Same Eight Components ¹²

Note that in this example XYZ University has 5000 students. Our example SaaS company, DoctoralNet Ltd, offers a white label website to universities with that number at a per subscription cost of \$75 per student per year. As a turnkey solution, there are no additional costs and the website¹³ can be serving students within one month of signing contracts.

$$ROI = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

Year One: $ROI = \frac{(400,000 - \$375,000)}{\$375,000} = .06$ ROI with a \$5,000 positive return (subscription costs)

Year Two: $ROI = \frac{(600,000 - \$375,000)}{\$375,000} = .6$ with a \$225,000 positive return

¹⁰ Personnel cost for the push notifications

¹¹ NOTE: For this example the solutions continue to retain 10 students a year, half of whom graduate. Therefore figures in these examples are based on 10 newly retained students + 5 from the previous year.

¹² Note that a SaaS solution would need to be much broader than three components. As an example, those from DoctoralNet include five other research based socialization components.

¹³ The DoctoralNet solution brings with it eight established technologies including also: interactive maps, library of tutorial webinars, peer reviewed content from Sage published authors, etc.

Year Three: $ROI = \frac{(800,000^{14} - \$375,000)}{\$375,000} = 1$ with a \$425,000 positive return

Year Four (in fact in all years) new technologies have been added to the collection at no additional cost.

Of course the more students, the more retained and the greater the positive return over time.

Conclusion

The costs and profits will vary and each university will need to do the sums based on their own tuition and needs. The \$75 per year cost per student in this example is a technology only solution that does not include "extras" such as per university training of staff and students or individual coaching sessions that catch up slower students and set them back on the track towards completion.

The University administrator who hopes to:

- 1) offer their graduate students full benefit of the best of interactive technologies and, at the same time,**
- 2) propose these changes to any University whose Board of Directors or Regents is concerned about return on investment**

Will do well to investigate what is offered through SaaS solutions.

[DoctoralNet Ltd](#) is a young Irish firm whose technology enhanced learning solutions were proven to aid completion to 85% in their pilot study (n=42). The students involved were older, online, and working full time.

DoctoralNet's PhD solution now serves a population of over 1,500 individual students and five universities hold subscriptions (as of Jan 2015). Its proven solutions for Doctoral processes include technologies aimed to support research design, academic writing, and final dissertation or thesis defense.

ResearchMastersNet is now in development and the company is looking for its initial partnering universities there.

References

Herbert, L., Erickson, J., Herbert, L., Erickson, J., Ross, F., Parker, A., & Karcher, P. (2009). The ROI Of Software-As-A-Service The ROI Of Software-As-A-Service. *Forrester Report*.

¹⁴ Conservative cumulative effect of numbers based on retained students