

## **Innovation Process at The Apollo Group**

### ***1. Executive Summary***

- The Apollo Group is the world's largest online education provider, with revenues over \$4 billion and profits over \$500 million in 2010. Apollo is the parent corporation for the U. of Phoenix, which enrolls more than 450,000 students each year across 30 countries.
- Apollo, like many companies in the for-profit educational sector, is under pressure to demonstrate fair business practice. In specific, Apollo is under the continued scrutiny of the U.S. Dept. of Education with regard to predatory marketing, hard sales tactics, and misrepresentation of future employment earnings to potential students.
- Apollo needs to improve its graduation rate. This rate is commonly used for comparison with non-profit educational institutions and is considered a measure of quality by the U.S. Department of Education. Higher graduation rates are also important to Apollo because they can lead to higher revenues and greater profits.
- The Product Strategy and Development Unit at Apollo is engaged in an ambitious data warehousing and analytics project to both better target potential students, and ensure higher graduation rates for current students. This project represents the largest and most expensive application of analytics in the online education sector to date.
- In terms of an Innovation Value Chain, Apollo operates entirely at the level of Diffusion, without a formalized Idea Generation or Selection process. Recommendations include implementing internal processes as well as opening up to external innovation.

- The innovation process at Apollo, although imperfect, opens the door for future applications of data warehousing and analytics within the education industry. Regardless of differences between for-profit vs. non-profit schools and online vs. traditional delivery systems, the practice of using data to improve school performance is expected to become mainstream in the next 5-10 years.

## *2. Research Question*

Apollo Group, Inc. is a for profit education corporation that runs **The University of Phoenix**, which is the largest online degree granting institution in the world. The general research question is how this large company will foster an innovation process to improve learning outcomes for its students. In this particular research paper, I investigate current efforts within Apollo's **Product Strategy and Development Unit** to use data warehousing and data mining techniques to improve acquisition and retention of students.

## *3. Problem Statement*

### *A. Graduation Rates*

Independent studies have found U. of Phoenix six-year graduation rates to be as low as 9% (*app.11*). The Apollo Group's own recent reports have the graduation rate at 23% (*app.13*). Even if the latter figure is accurate, there is a lot of room for improvement in comparison to the non-profit schools. For purposes of comparison, the six-year graduation rate at Berkeley is 91% (*app.17*), and the average for traditional non-profit institutions is closer to 60% (*app.14*). The US Department of Education and private advocacy groups cite these figures as a source of concern and justification for increased oversight and the potential reduction of government loans available to students in Apollo's programs. Since tuition rates at Apollo are similar

to those of traditional schools, a majority of students do require some level of financial assistance in order to attend, and thus Apollo recognizes that losing access to loan programs would be a significant obstacle to continually increasing enrollment.

**Table 1: Six-Year Graduation Rates in Four-Year Institutions**

	Public	Private Nonprofit	For-Profit
<b>Percentage of Total Applicants Admitted</b>			
100%	31%	36%	11%
75-99.99%	51%	57%	31%
50-74.99%	58%	60%	54%
0-49.99%	62%	78%	43%
<b>Percentage of Freshmen Receiving Pell Grants</b>			
67-100%	33%	27%	32%
34-66%	41%	45%	21%
0-33%	59%	70%	31%

Source: Education Trust analysis of College Results Online, 2008

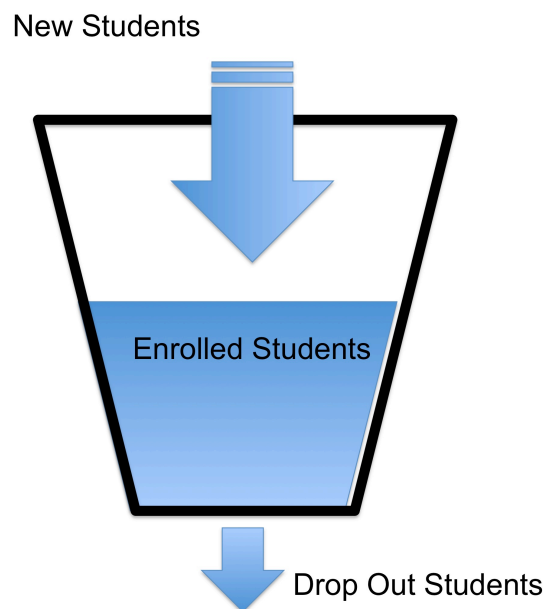
(app.15)

***B. Recruitment and Claims of Unfair Practice***

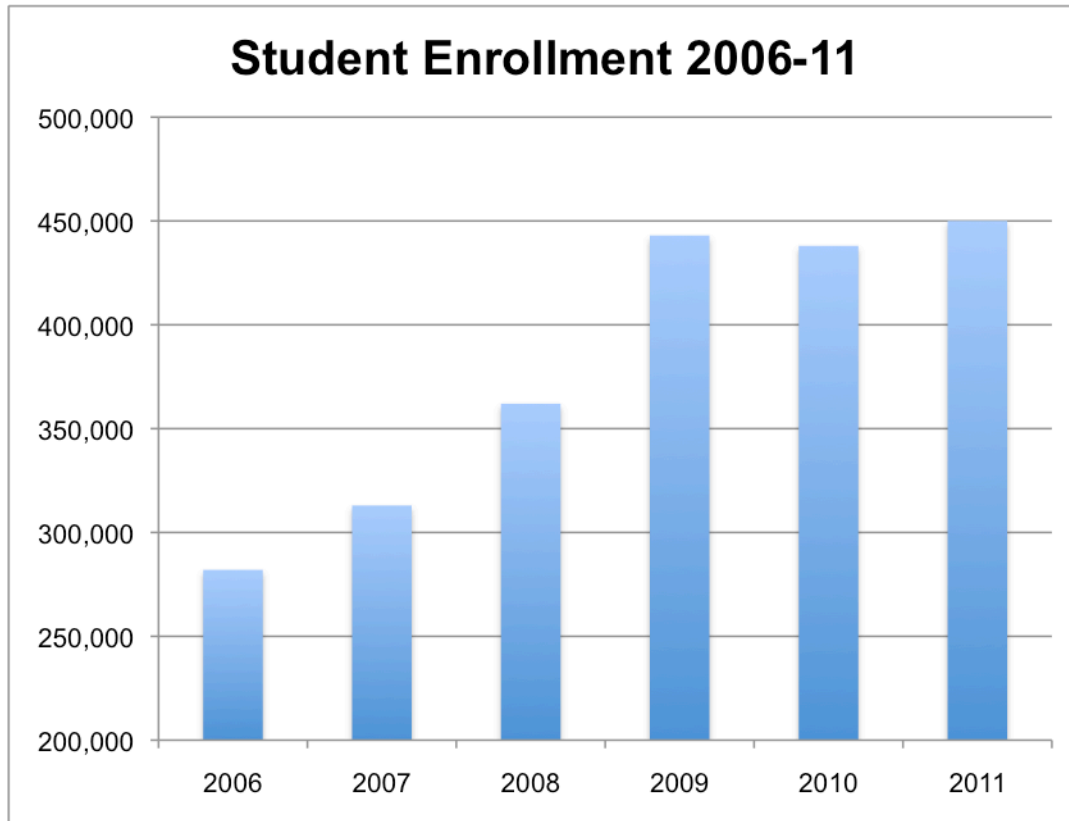
Considering the low graduation rates are one sort a red flag to regulators, then extremely high growth and admissions rates are another. Although it never admitted any guilt or specific wrongdoing, the Apollo Group did pay nearly \$10 million to settle a claim from the U.S. Department of Education regarding unfair sales practices, specifically the policy of compensating recruiters solely for enrolling

students (*app.4*). Both the for-profit and online education industries have been criticized for aggressively targeting potential students. Former Apollo CEO Todd Nelson openly acknowledged the aggressive growth agenda, and stated a growth goal close to 30% (*app.4*). The online education industry as a whole has grown tremendously over the past decade, at a rate of nearly 20% annually (*app.16*) in comparison to the 2% average growth for general higher education institutions (*app.12*). These high levels of growth are viewed by some skeptics as achievable only due to unscrupulous and deceptive practices, which are claims that Apollo must continually defend against.

Independent of claims about unfair practices in recruitment, Apollo continues to aggressively target students for its online programs. Given the very low rates of retention and graduation outlined in the previous section, we can see how high admissions rates might be used as a counter-measure against this trend. In other words, if Apollo can bring in new students at a faster rate than it loses existing students, then it can still be profitable in this model. If we were to imagine a cup with a hole in the bottom, we can visualize the analogy of Apollo working to pour more and more water into the cup at rate faster than it drains out the bottom. In this case the amount of water is analogous to the number of students.



Even despite tremendous growth in the past decade, enrollments have begun to level off in recent years. The following chart illustrates the current enrollment problem for Apollo.



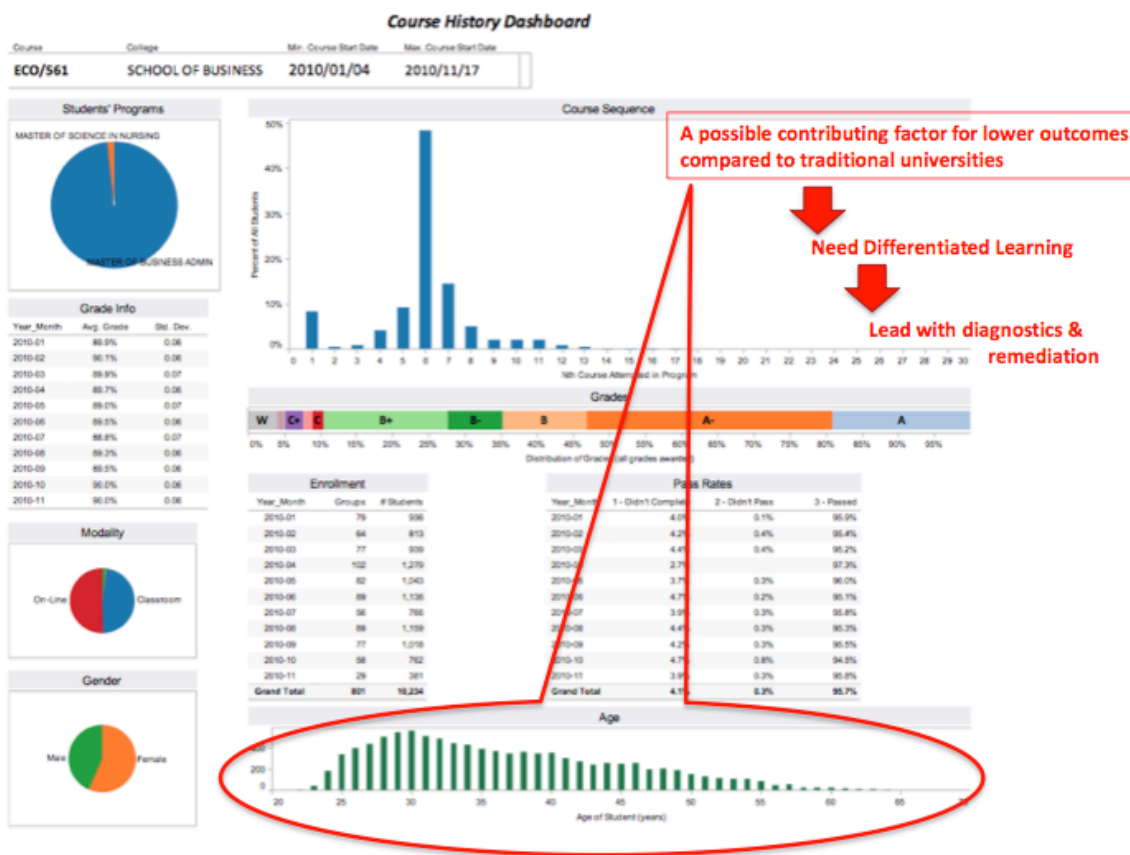
*(Data collected from Apollo Annual Reports – app.1)*

### *C. Technical Solutions Proposed*

Apollo Group proposes technological methods for improving the graduation rates of its students. The company has hired on new senior executives and nearly doubled its staff in the Data Analysis Department to address the challenge. The technology group itself may be broken into the components of systems administration, data warehousing, business intelligence, data analytics, which are separate from the corporate IT department of Apollo. The approach Apollo takes is to buy rather than to build, which is to say that they prefer to adopt existing products that are proven in other data intensive industries such as finance, insurance, petroleum, and pharmaceuticals. Furthermore, Apollo maintains that it

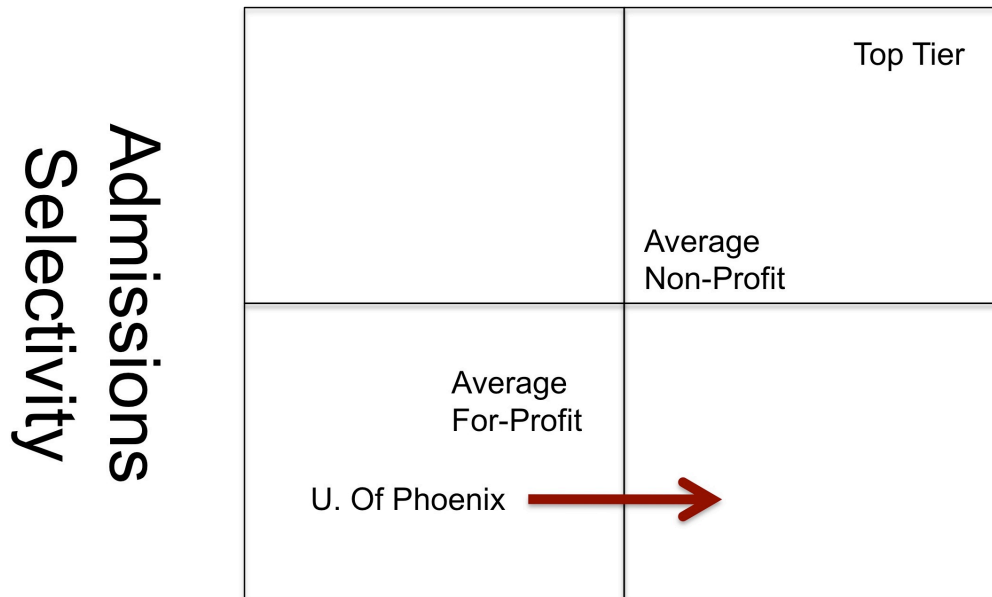
does not need to reinvent the wheel in order to apply these tools to the educational context, and address the graduation rate issue that is most urgent for their company.

One of the most prominent examples of the application of these sorts of technologies is the information dashboard, which has become commonplace in the finance, banking, and credit industries. Apollo has described its own dashboard interface as a way for management to see what’s happening at a macro level while it enables counselors to monitor activity at a micro or individual student level. The information provided for either one of these personas or use cases is a product of the data warehousing and mining activities happening on an enterprise level. As described by one interviewee, these technologies are not inexpensive, but represent a significant investment by Apollo into the millions of dollars. Below is one screenshot of a sample dashboard.



(app.18)

Conceptually, we can also visualize the efforts of Apollo to increase graduation rates without increasing the selectivity of its admissions process. The chart below depicts the position of the U. of Phoenix in comparison to other universities, with an arrow indicating the direction that they hope move in with the use of new technologies.



## Retention & Graduation

(data from app.1, app.14, app.17)

### 4. Analysis of Innovation

#### A. Mechanistic Business Process

Although Apollo has some of the characteristics of an organic business, on the whole they tend to be a more mechanistic organization. Responses in interviews suggested that there was some culture of iteration and refinement as well as some loosely coupled tasks assigned to various groups and individuals. However, these organic elements were subordinate to the overall business culture at Apollo that is focused on quarterly or short-term milestones and interviewees expressed a sense





approach would ostensibly be a way to improve the actual content and delivery mechanism in the online learning system. However, the timeframe to implement these changes is longer-term and somewhat contrary to the dominant tactical and results oriented culture in the company.

### *B. Diffusion the Focus of Current Efforts*

Comments from the VP of Product Development suggest that the innovation process at Apollo is geared for diffusion (*app.7*). After being brought in by top management to implement existing practices in consumer web advertising, this employee sees the process as one of taking already accepted models and practices and applying them to a new context. Perhaps as a way of selling the project internally, the effort to innovate with data warehousing, data mining, and analytics is described as “not reinventing the wheel, but taking advantage of the information that we have available” (*app.7*) At some level this is a gross oversimplification of both the technological and business processes involved, but it serves as useful reminder of how the project is sold to other units and employees within the Apollo. It appears that the project has been framed in a way to make it approachable and desirable within a mechanistic business culture.

Furthermore, the experimental quality of the project is expressed somewhat tenuously through caveats from the principal. He states, “we can decide to listen or not to listen to the results the machine gives us... we are not forced to do what it tells us” (*app.7*) This statement indicates that there is some recognition of the experimental aspect of the probabilistic recommendation engines and artificial intelligence applications, while the onus is put on people within the company to use sound judgment when making decisions informed by these tools, which in this case might be a dashboard, spreadsheet, chart, or a report.

Still, at no point in discussions with the lead manager did any point of internal idea generation or selection unique to a particular problem within Apollo rise to the surface. Perhaps this is due to the fact that the entire project is less than 18 months old and has been only recently implemented. In any case, it does not seem that managers or technologists within Apollo view themselves as inventors or

creators of these technologies, but rather they see themselves as implementers of existing proven technologies, which in this case are borrowed from Apache Hadoop, Cloudera, and other open source projects. As it were, this group within Apollo has made the effort to pick the best from what's already been proven in other industries and apply it to their organization.

The data warehouse person interviewed supported the general focus on execution and implementation. Rather than having a theoretical or conceptual hypothesis for investigation, the pursuit is very much about improving short-term performance and meeting quarterly goals (*app.6*). From the data warehouse perspective, this involves creating systems to aggregate data from multiple databases that were previously isolated within the company. This new unified data warehouse provides the foundation for the analytics team and the resulting dashboards and reports that are available to managers in the company. This employee described the biggest challenge in his role as being operational, and connected to the processes of maintaining and ensuring consistency and reliability of data for the other units in the company. Going a step further, it was suggested that there was some siloed innovation happening within certain units of Apollo in the past, but the current project is taking the effort to a much greater scale and scope. Furthermore, there is some hope within the group that the existent of a persistent universal data store will foster more collaboration and cooperation across business units at Apollo. In sum, the perception is that the activities, while very important, are not themselves innovative, but rather supportive to innovations by other individuals or groups in the company (*app.6*). However, should the data warehousing unit begin to realize potential for innovation, and actually come up with new ways to store useful data, it would seem that this would accelerate and improve downstream analysis.

Moving on to web analytics, the sense is that priorities are well communicated and direction is given strongly from the top management down to the groups. The sense of authority and hierarchy was very clear. And, in this situation the move towards new technologies is directed from the highest levels of the company on down. The web analytics employee stated that gaining the

confidence of other groups and “non-analytical types” was a nontrivial issue within Apollo (*app.8*). In fact, she asserted that the unit was just starting to feel as though it had crossed the threshold of acceptance around the company, to the point that people would trust the data and information they provide. As mentioned earlier, the overarching framework for the implementation of these new technologies within the company has been to diminish the novelty and simplify the processes so that they would be more palatable to the general population.

### *C. Idea Generation and Selection Process Needed*

During none of the three interviews with members of Apollo did it become apparent that there was an established idea generation or selection process within the company. In fact, some of the comments made might suggest that employees are aware that this may be a weakness, or an area for improvement, within the company. The web analytics person suggested that they currently do usability lab testing on current products, but the findings are not systematically organized in a way that can lead to new products. Rather, the usability lab tests are only used to refine existing products. Furthermore, the data warehouse person stated that the activities being pursued are operational, and that they don’t involve hypothesis testing or experimentation. Although we might reasonably expect a risk averse and conservative perspective in this department due to the nature of its work, there still should be some room for people to identify new issues and propose new solutions to problems. Instead of asking these types of questions, the data-warehousing group focuses on a very narrow scope of supporting the existing framework of analysis. This is problematic over the long term, since they are collecting and maintaining certain types of information, and they will not be able to go back later to expand the data types or perform a broader longitudinal analysis should that be necessary in the future.

The VP of Product has positioned the work that the unit does within Apollo as an implementation and diffusion of existing technologies. At the same time, he suggests that there may be some growth and progress in the underlying technologies that may change how they operate. Thinking strategically, this

becomes a problem for Apollo as the technologies and human resources in this area become less and less expensive, to the point that competitors can easily copy or adopt the same methods. In other words, Apollo can get along without idea generation and selection so long as the technologies remain very expensive, and out of reach of their smaller competitors. However, the time frame for the transition to mainstream adoption is estimated to be 5-10 years (*app.2*), so Apollo would be wise to begin internal processes now in anticipation of gaining proprietary technologies by the time the existing open technologies become commoditized.

#### *D. Collaboration to Support Innovation*

The data warehousing group and the web analytics departments both indicated the presence of collaboration and desire to support greater levels of collaboration. The data warehousing groups acts more at the back of the house in terms of operations, overseeing the platform for data collection and organization, while the analytics group is more at the front in terms of relating to internal business units and translating data into a meaningful and useful form for people. It would seem in both cases that the Marketing group is a primary driver of information flows and more generally collaboration within Apollo. Furthermore, it is worth noting that the Product Strategy and Development Group is separate from Corporate IT and yet very dependent upon that department and its policies. Clearly those policies affect the servers and storage that the product group uses, and if they want to make a change or update, they depend upon corporate IT systems administrators or programmers to complete the task. As it is structured, there is a strong incentive, if not necessity, for the Product group to comply with IT policies and be on good terms with the corporate IT staff. Presumably, this sets some standard for their approach to other business units, as they are already in somewhat of a conciliatory mindset when working with established policies and procedures, and this can be a factor leading to the overall success of their projects. However, one downside of this setup is that the Product group cannot move as fast as they might otherwise be able to as an independent and self sufficient unit.

In the particular case of web analytics, the interviewee stated that the group aims to serve other internal business units as clients. In this process, the group has to coordinate with corporate IT (web developers and programmers) as well as managers within the respective business units. So, web analytics operates like an internal consulting agency within Apollo. And, they are more likely to focus on current needs of managers around the company than to work together on an experimental project. In terms of research and development, this employee felt that those units were not well connected or influential within the company, and she mentioned that the time demands create significant obstacles to initiating exploratory projects from the bottom up. So, although there is an established collaboration framework between business units, it does not look like there is autonomy or support for internal partnerships within the Product unit.

## ***5. Recommendations***

### ***A. Implement an Idea Generation Process***

There are ideas within Apollo that are not reaching management awareness, and thus not gaining traction or being actively pursued within the company. Apollo, unlike Google, does not have an expectation that employees work on self-directed projects for a portion of their day. To the contrary, employees feel themselves to be directed by over-arching goals and near-term milestones against which their performance is measured.

In this situation we can see how the exploitative nature of the business may preclude exploration and pursuit of new ideas. So, it is recommended that management institute some formal and regular meetings to bring out new ideas within the business units. Multiple interview responses suggest there are several ideas waiting within the Product Strategy and Development group, and one interviewee suggested that there might even be some cross-pollination across units between Product and Marketing, or Product and Retention. The following table outlines three aspects of Idea Generation for Apollo to work on.

## The Innovation Value Chain: Improving the Innovation Process

	IDEA GENERATION			CONVERSION		DIFFUSION
	IN-HOUSE	CROSS-POLLINATION	EXTERNAL	SELECTION	DEVELOPMENT	SPREAD
	Creation within a unit	Collaboration across units	Collaboration with parties outside the firm	Screening and initial funding	Movement from idea to first result	Dissemination across the organization
KEY QUESTIONS	Do people in our unit create good ideas on their own?	Do we create good ideas by working across the company?	Do we source enough good ideas from outside the firm?	Are we good at screening and funding new ideas?	Are we good at turning ideas into viable products, businesses, and best practices?	Are we good at diffusing developed ideas across the company?
KEY PERFORMANCE INDICATORS	Number of high-quality ideas generated within a unit.	Number of high-quality ideas generated across units.	Number of high-quality ideas generated from outside the firm.	Percentage of all ideas generated that end up being selected and funded.	Percentage of funded ideas that lead to revenues; number of months to first sale.	Percentage of penetration in desired markets, channels, customer groups; number of months to full diffusion.

MIIC Fall 2011 Course Slide- Source: The Innovation Value Chain. By Morten Hansen and Julian Birkinshaw. Harvard Business Review, July 2007.

### *B. Implement a Selection Process*

In addition to the Idea Generation process, Apollo needs to organize a selection committee and a process for screening these new ideas. Part of the screening should include some assessment of the potential short and long term impact on the company, as well as on the overall online learning landscape. From a competitive perspective, it may be useful to pursue not only innovations that support the U. of Phoenix and the 2 or 4-year degree model, but also innovations in certificates and professional licensing as well as other forms of packaged skills. Furthermore, innovations that dampen the technical or business advantages of competitors ( DeVry, Corinthian, Art Institute) may prove to be just as beneficial to Apollo as those directed at improving their own products and services. As a reflective measure, Apollo will want to collect and organize the selection process

over time so that they can objectively evaluate key measures such as percentage of new ideas funded by business unit, and percentage of funded ideas that go on to become successful products leading to revenue.

### *C. Open Up to External Innovation*

Representatives at Apollo have stated that the innovative technologies being used have been previously applied to the advertising, banking, credit, petroleum, and insurance industries. It would seem that executives within the company should also be aware of strategies used in those environments to promote external innovation. The example of Chevron Corporation's use of investment funds to support novel technologies could be incubated. This sort of approach might be used by Apollo to support an engineer with a proposal that could greatly impact the business, and provide the support and funding necessary to explore the idea in more detail. Another area to consider is the creation of a web portal similar to that created by Proctor and Gamble. This strategy is particularly appropriate for the online learning industry, as it leverages the power of the Internet and a global community of knowledge workers. It may be the best way to discover not only new innovative ideas but also the people (potential partners or employees) behind those ideas. In a similar vein, Apollo could create an innovation competition open to anyone on the web in pursuit of solving a generalization of a current problem that they are facing. An example of this activity can be found within the online education industry, in the form of Grockit, and online test preparation company, that has created similar competitions this year. It seems likely that Apollo will be able to accelerate the pace and reduce the cost of innovation by pursuing these measures.

### *D. Develop Ambidexterity in Leadership*

One of the ways to balance the overall exploitation mindset within Apollo would be to create a management-training program that fosters ambidextrous skill sets. Although the faster solution might be to just hire people from the outside with the desired skills, this company is insular in ways that would prevent outsiders from integrating and influencing the overall culture. So, it may be a more effective

strategy to work with existing managers who show potential to inhabit this dual role. Considering that the innovation efforts at Apollo are directed from the top level, manager skill sets are especially important. In this context, it is apparent that there needs to be greater tolerance of mistakes by management as well as more support for risk-taking amongst junior managers. These goals might be partially supported by new financial incentives, but it will be necessary for top executives to model the behavior in order to transform the Apollo business culture.

## 6. Closing Remarks

Apollo is an early adopter of technologies that are expected to become mainstream in education over next 5-10 years. The NMC Horizon Report asserts that public universities have already engaged in these activities as early as 2007, and the trend is accelerating (*app.2*). A number of new software tools are being created specifically to fit the needs of the higher education context. To some degree, high schools are also entering into the field as they work to meet the demands of standardized testing and performance measures connected to school funding. However, as might be expected, many of the efforts in the non-profit institutions differ from Apollo in so far as they are focused on refining curriculum and improving test scores rather than on improving admissions and student retention. Nonetheless, what is common in both contexts is that these technology applications require greater levels of communication and collaboration between IT departments, management, and administration.

In conclusion, there are a number of aspects of engaging in this type of innovation with technology and education. First, an organization must have both the financial resources and technical skills in its workforce to organize and implement the technologies. Apollo is especially well positioned to innovate in these areas given its size and resources. Second, the organization must have strong communication between the IT, management, and administrative units in order to facilitate meaningful applications of technologies. In this regard, Apollo has some



basis to support innovation, but can improve by engaging people at the lower and middle levels of the company. Third, innovation is not only about diffusing existing technologies to a new environment, but also connected idea generation and selection processes. Considering this last aspect, there is ample room for Apollo and the Product Development and Strategy Group to improve its methods and outcomes.

## Appendix

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