Future of the Campus in a Digital World

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In the evolutionary process of digital transformation now underway, the metaphorical walls and gates that have defined higher education are falling down. The literal walls and gates, the physical campus will need to be rethought to avoid a similar fate. They may be beautiful, historic and evocative, but these attributes will not be sufficient. Those places that do not add educational value, even though beautiful will become the American equivalent of the grand country estates of England, museums of a faded golden age.

For those who view the traditional shared experience of campus as essential to authentic higher education, this is a critical time. Maintaining business as usual and not adjusting facilities trajectories soon enough will put institutions at risk.

Changing Assumptions

Until recently the need for a physical campus was based on several assumptions:

- Physical class time was required.
- Meaningful exchanges occurred face to face.
- The value of an institution was tied to a specific geography.
- Books were on paper.
- An undergraduate degree required eight semesters.
- Research required specialized locations; and
- Interactions among students and faculty were synchronous.

These assumptions are now either obsolete or optional. As a result, physical changes are beginning to be made. Classrooms and libraries are being retooled. Student housing and campuses are evolving in response to social media and the changing use patterns of the campus community. From classrooms to libraries to residence halls, digital transformation is changing the physical presence and requirements for institutions that choose to remain competitive.

Some seasoned observers of the current challenges to higher education believe that there is nothing new. Colleges and universities have gone through multiple periods of change and transformation since their emergence almost 1000 years ago. Each time, institutions have adapted and survived.

Competition and Conversation - Changes in competition and the public conversation make this time different. In the United States not only are institutions faced with declining public financial support, but also with questions of legitimacy and cost-effectiveness. They have survived such situations in the past, but the only competition then was less education, not more, not differently delivered.

It would be simplistic to see competition only in the form of for-profit universities. Competitors are everywhere and they take many forms: edX, Minerva, Western Governors University, the 'nationalization' of Southern New Hampshire University and Arizona State University, digital course/service aggregators, emerging alliances, online courses developed and promoted by textbook publishers and any number of start-ups promising the next big thing. In addition, traditional institutions are mobilizing to enrich their own on-line offerings for their on-campus students and to preempt 'cherry-picking' from the competition.

Even though many competitors may eventually fail, they should not be seen as fads. We should see them as merely the latest forms of a process of digital transformation that has been underway for less then two decades. The imperfections of current forms can be seen as areas for certain improvement. From verification of student identity to modularization of course structure, from mentoring and meaningful interaction, improvements and refinements are being made with entrepreneurial speed.

Until recently, conversation and speculation about the digital transformation of higher education was about pedagogical and technological innovation, in the rapidly evolving hybridization of classroom and online experience. Such issues were largely confined to traditional forums like the Chronicle of Higher Education and its ilk. Only rarely was the rising level of experimentation and adaptation seen outside academic circles. The conversation has moved to the political arena and the editorial page, no longer be confined to the faculty lounge.

While appropriate to acknowledge the historical resilience of traditional institutions, it is not wise to expect colleges and universities to survive in their current form. We have just begun to see the merger of institutions and rising economic pressures leading to business model transformations. As we go forward it will become clear that the legacy costs of bricks and mortar campuses will either contribute to the value of an institution or to its decline.

Implications for the Physical Campus

Once upon a time, college campuses were built around chapels. Today's universities were built for books, lectures and private offices. A library was assumed to be a repository for paper books with rooms for reading. Academic buildings were the pedagogy-of-lecture cast in concrete. Scholarly isolation was crystalized in private offices.

Digital transformation is forcing institutions to rethink the most basic assumptions about books and lectures. Some are even challenging assumptions about private offices. Within the academic career of current graduate students, long-standing assumptions about higher education have been overturned. Iterative cycles of research, innovation and investment have inexorably raised the performance of non-traditional educational approaches. Time in class need not be face-to-face. Students in a course need not experience it synchronously. Textbooks need not be printed. Contact hour and credit hour are losing literal meaning, just like dialing the phone. Undergraduates have never known anything else.

Learning – Pedagogy is being rethought to exploit the flexibility and placelessness of digital formats while maximizing the value of class time. It is happening course-by-course, department-by-department, and college-by-college. Innovative instructors are exploiting the potential for more effective teaching and learning outcomes. As a result, learning environments – formerly known as classrooms – need to be adapted to support the hybridization of experience. Curricular change still moves through the molasses of traditional committee processes. Pedagogy can move at the speed of an individual instructor as she develops a new course or re-develops part of the existing curriculum.

Almost all pedagogical innovations lead to less in class lecture time, and more problem solving, applying the concepts of the course. Lecture halls and many existing classrooms are ill suited for even minor deviation from the straight lecture model. Group discussion is compromised by rigid seating arrangements. Project work is stifled by the "tablet-arm." Rooms built for mid-20th century lectures are poor substitutes for 21st century learning spaces

In the digitally driven future of higher education, three-dimensional classroom spaces still will be needed. They won't be used in the traditional manner and they won't be the traditional kind. They will be *bigger, flatter, faster* and there will need to be *fewer* classrooms for the same number of students.

Classes that meet on campus will need additional area per student to accommodate interactive configurations, such as those allowing group work in the flow of the traditional class period. Typically these will be flat floors allowing easy configuration changes. At the same time, these rooms must be faster, with access to robust bandwidth.

Both physical and administrative adaptations will be required. While there will be more floor area per student when in class, the number of classroom hours per degree will drop, and all the while the expectation for digital transmission capability will continue to rise. To justify the required investment, institutions will have to rethink the administration of classroom scheduling to maximize effectiveness for students and faculty, and to achieve increased utilization. These are not new or easily managed issues for higher education. The accelerating move to online

instruction will expose existing weaknesses of current systems and the benefits of more strategic investments and scheduling.

Libraries - Libraries are finding the need to provide more usable space for students and faculty. Whether engaged in study, research or course projects, the campus community continues to migrate back to the library. Many librarians are seizing the opportunity to make most of the books go somewhere else. The on-campus space, once used for book storage, can then be renovated and reconfigured for use by the campus community. Libraries have never been about books. They have <u>always</u> been about access to and use of information.

Pedagogical developments recognize the need for much of the learning process to occur outside the formal classroom setting. These developments through "flipping" and other forms of hybridization are requiring the availability of student workspaces outside the classroom. Libraries tend to be well located and able to create more useable space by shedding many of their books, through de-acquisition, remote locations or automated retrieval systems.

Offices – While the rest of North America has moved to mobile devices and shared workspaces, academic organizations tend to be locked into the private, fixed office arrangement of an earlier era - little changed from a time without web browsers and cell phones. Administrative workplaces are often just as quaint.

This might be appropriate if faculty members could actually be in their offices, administrators could function at the speed of paper, and students did not expect 24/7 access. It is troubling that these spaces are used with increasing rarity. Moreover, since the typical office arrangement restricts face-to-face communication, it is dysfunctional. It is ironic that the scholarly isolation crystalized in private offices can work against the forms of interaction that are essential to continued institutional adaptation.

Responding to this challenge is more difficult than improving teaching spaces. It is more problematic than transforming libraries. While workplaces must be functional, offices are personal. The perquisites of status, faculty identity – the very culture of the academy - are threatened.

Digital Visible – From an institutional perspective, many of the implications of digital transformation are difficult to see, lost in a thicket of business issues presenting themselves with increasing urgency. Moreover, the changes induced by digital transformation are difficult to address through traditional facilities development and capital funding processes. These transformations are not about the need for a single new - or better - building, a campus student recreation center or teaching laboratory. This is about adjusting the performance of the whole campus to support a digitally transformed pedagogy and academic community.

The inherent adaptability of students and faculty should allow most institutions the time to modify the campus environment. No campus will easily meet the evolving expectations of the digital transformation. Renovating or creating new buildings suited for evolving ideas about books, lectures and offices will take more than a decade. Campuses that begin to move quickly on their libraries and learning spaces will be better able to provide expected capabilities. Those

that can't move quickly enough will be left to offer less in an increasingly transparent higher education marketplace.

If faculties and administrations have been slow to realize the implications of digital transformation, facilities managers are two steps further behind. Struggling to find money to replace roofs on obsolete buildings, most facilities operations are still in a building mode. More has always been better. This will seldom - and very selectively - be true for a digitally transformed campus.

Facilities implications are beginning to emerge. Some are subtle: less demand for lecture halls and traditional classrooms, fewer on-campus hours per student, less justification for traditional offices, and increased demand for bandwidth everywhere.

Some will be more dramatic: reduced ability to fund research facilities as "profits" from undergraduate education decrease, less justification to retain obsolete buildings and programs, and more demand for flexibility in space assignments and management.

Economic reality, political discourse, pedagogical innovation and technological development are now aligned to allow - if not require - the rapid expansion of higher education by digital transformation. Some institutions will be weighed down by over-investment in bricks and mortar. If they lack a sufficiently marketable brand involving academic excellence, community or other extrinsic value, the future will be difficult.

Those with sufficient endowments and/or public funding will have enough time to make required adjustments. The rest may struggle to maintain any relevance, as they shrink in subjective stature and objective size.

Changing Trajectory

University presidents and provosts are always faced with the choice of staying the course or modifying the trajectory of their institutions. Due to failing business models, rapidly evolving digital competition and declining public support, the stakes are rising. All should be asking how they should think about the campus built for the 21st century. My recommendations:

- Build no net additional square feet
- Upgrade the best; get rid of the rest
- Manage space and time; rethink capacity
- Right-size the whole
- Take sustainable action
- Make campus matter

Build no net additional square feet. Start with the assumption that you have enough space. Critical observers of academic culture can recount story after story of "turf protection" behavior that leads to the retention of obsolete facilities even after appropriate replacements have been provided. These patterns could be afforded in a resource rich environment. The environment has changed, but the behavior has not.

Resisting edifice complex is difficult. There are some facilities - most notably student housing - that are said to be self-funding and thus add no fiscal or operational burden to the institution. The use of the term - self-funding - results in the inevitable gaming of the system. There are donors who wish to pay for bricks and mortar, but have no interest in kilowatt-hours and building depreciation. My advice is to adopt a policy of no net additional area as a strategic approach to refocusing institutional priorities, rather than a tactical response to fiscal constraints.

Upgrade the best; get rid of the rest. All higher education functions from instruction and research to officing and library require greater bandwidth and physical flexibility. Retaining obsolete facilities diverts resources from investments in modernizing the "keeper" buildings, and leads to replacing roofs on buildings that should be torn down.

This is the essence of good stewardship. It means properly caring for the institutional legacy that will survive long into this century. Often this means retaining and preserving the built history of the place – the Lawn and Ranges of the University of Virginia, or any campus's "Old Main" are the prime examples. Good stewardship also means making hard choices about what legacy can be retained. Assuming all old buildings are worthy of keeping will make the campus no more viable than the old country houses of England.

Manage space <u>and</u> time; re-think capacity. Re-conceptualize the campus in terms of patterns and intensity of use rather than area per student, faculty member, library volume or research dollar. The carrying cost of the physical environment is 24/7. Effectiveness and intensity of use needs to be factored into the management picture. Many patterns of academic facilities use have more to do with traditions of privilege rather than need. Management for both space and time leads to choices that provide strategic value.

Most campuses already have either too much capacity, or too few students. As more of the activity of higher education moves to digital platforms, this will become more apparent. Plan to have more capacity (production of "degrees" per unit of building area). Students will be spending less "seat time" per degree. The consequence will be the potential for increased productivity within the existing facility complement. In the typical case, the instructional capacity of the institution will increase by at least one-third. Alternatively, the institutions will have more space than their market and business model can support.

Right-size the whole. Find those areas where significant adjustments are justified. Classroom and teaching laboratories usually represent less that a tenth of campus space. Yet, they are the most important to the value proposition offered by the physical campus. Adapting teaching environments for the needs of students and faculty should take priority.

In recent years there has been significant growth in research space and administrative offices. Research revenues per square foot of assigned area are well documented. However, it is extremely rare for space to be reallocated due to poor research performance. Since offices often make up more than 30% of campus space, there are more opportunities there than in classrooms. Across the country academic administrative offices are stuck in mid-20th century configurations, while the rest of the world has changed.

Take sustainable action. Make facilities decisions to reduce the institution's carbon footprint per credit hour (or other educational equivalent) delivered. However simplistic this may seem, such a metric leads to sound long-term financial investment strategies, denominated by productivity. Taking action begins by not building unnecessary facilities and continues with reinvesting in the best of existing assets and getting rid of unnecessary and redundant facilities. Only after these steps are investments in new state-of-the-art carbon neutral facilities justifiable.

The most sustainable building is the one that is never built. Unfortunately, most institutions continue to build space they don't need and can't afford to maintain and operate. Even if these buildings are at the cutting edge of sustainable design, institutions are increasing their carbon footprint problem. Having more bricks than necessary is expensive, regardless of how good those bricks are.

Make campus matter. With so much of higher education available in digital and largely asynchronous forms, the justification for a campus must derive from something more than "we have always done it this way." Even at the most traditional institutions "on-campus time per degree" will decrease. This change in convention will make the support of increasingly limited face-to-face time of strategic value, rather than an assumed byproduct of traditional campus life.

There must be something significantly better about the "live performance" and it needs to be more than "sense of place." I believe it is a function of sharing time and place. Whether in the form of agenda driven or serendipitous conversation, "live" interaction and discussion among students and instructors has a bandwidth that exceeds any current digital alternatives. This is a luxury. To justify the expense of a campus, it must be exploited to improve the value of the outcome, not simply to increase the price of admission.

The 21st Century Campus

Fiscal, pedagogical and technological challenges require institutions to accept and support hybrid forms of online education. Survivors will be able to maintain at least some of the traditional campus values of face-to-face instruction. Planning for the emerging future will require integration of wide range of institutional concerns from evolving business models to efficient use of capital resources.

Some are just fine. Harvard, Yale, Princeton and Stanford are examples of elite institutions for which technological transformation and rising financial demands are manageable. Add to this A-list others with strong financial stability and a well-established marketing brand, and you have a group of institutions that are not at risk.

Some like state-defining flagships are too big to fail, but risk decreasing quality by trying to be "all things to all people." Others have relatively large endowments, truly unique missions and exceptional alumni support. These will survive, perhaps continue grow, with modest tweaks here and there.

The Shakeout - If observers from Peter Drucker to Clayton Christensen are even partially right, absent the strengths of wealth, brand, mission and scale, all the rest - a vast swath of American higher education - face threats to continued existence, at least in their current form. Some are too small to withstand periodic fluctuations in demand. Some have poorly differentiated missions and lack sufficient market identity. Some already have structural deficits and lack sufficient financial flexibility to do much more than live "paycheck to paycheck." Still others including smaller regional universities have declining public support and locational disadvantages.

The physical campuses that survive will be smaller than some might wish, and never so large that it compromise an institution's mission to serve its students, faculty and community. Provosts and presidents will need to consider how much campus they actually need. Their campus planners will be caught between decisions of building or not building, in a vise formed by the expectations of deans and practical fiscal constraints of the whole institution. As each contemplates changes to the trajectory of their institution, they will be well served to have the courage to consider both a blank slate and "Old Main." Making campus matter in the 21st century will require two contradictory ideas: respecting legacy and starting fresh.

Even for those choosing to retain a traditional residential model, the digital transformation of higher education is changing the methods and means of teaching, learning, scholarship, research, communications and unmooring all from conventional notions of place. In such a fluid milieu, traditional approaches to campus planning, design and facilities management are of limited value.

Traditional institutions don't view the campus as real estate. Yet, as academic business models morph into being less place-dependent, the importance of making prudent facilities investment choices will become more clear, but no less difficult. Overcoming resistance based on nostalgia can be relatively easy compared to changing traditional turf protection and operating practices. Along with altering decades of institutional inertia, such changes will be painful.

Identity - The identity of traditional institutions is tied to recognizable icons such as the neoclassical dome of Building 10 at MIT or the porches of Old Main at Arizona. Without such markers, every institution might well be as placeless as the University of Phoenix, which uses the term "campus" to refer to rented space in generic office buildings. This strategy, however opportunistically based in marketing wordplay, allows Phoenix to right size facilities with the practical efficiency of real estate investment and disinvestment.

Creating and sustaining the 21st century campus will require more than preserving physical legacy. It requires changing an institution's facilities trajectory. It requires a different way of thinking about the campus. Instead of boasting more area per student, institutions need to focus on effectiveness, considering the campus with its icons and legacy as a blank slate. Only in this way is it possible to define minimum functional requirements rather than planning an unattainable idealized maximum.

Conclusion - Keeping the best of the existing campus (the richest iconography and most cost effective) will be easy choices. Disinvesting in the obsolete and replacing with only what is required will be more difficult. Until recently constant expansion -- while maintaining a wide range of obsolete and underutilized buildings -- was standard practice with limited consequences. In the early 21st century few institutions can continue to tolerate such luxury.

As the need for synchronous place and time evaporates, investments in the physical campus will be questioned as never before. For campuses to be justified, they must provide values that are not available by other means. To become such places, they will need to be adapted and transformed as if their survival were at stake.

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