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# Predicts 2011: Technology and the Transformation of the Education Ecosystem

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Technology is transforming the education ecosystem, challenging long-held organizational structures, as well as the very concept of formal education as it has been known. CIOs should recognize the changes and develop strategies to balance the opportunities that changes in technology have brought to education with the challenges of efficiently managing an education technology portfolio.

## Key Findings

- Consumer technologies are prevalent in the general education community.
- Mobile technologies have untethered students and staff from traditional communal gathering spots.
- Consumerization and mobility are reflected in the preferences and practices of IT customers, and impact the selection of and participation in education services.

## Recommendations

- Learn to leverage personally owned devices for students and faculty.
- Plan to reapportion IT resources with decreased provisions for user devices, and increased allocations for infrastructure and services.
- Surrender total control of the IT environment in favor of strategies that accommodate customer preferences without totally sacrificing efficiency.

## WHAT YOU NEED TO KNOW

Technology is changing the education ecosystem — that is, the interrelationships between the students, teachers, administrators and the providers that serve that market. We should all expect the signs of change that we see now to continue during the next three to five years.

As late as five years ago, education agencies and institutions insisted upon maintaining a homogeneous environment of end-user devices and software solutions. Enterprise ownership and control trumped user demands, effectively claiming victory for operational efficiency over customer intimacy. As technology consumerization and mobility has captured the user community — and an economic slowdown has crimped IT budgets — IT leaders in education have become increasingly open to leveraging personally owned devices and to delivering information and services beyond the firewall of their data centers and far afield from their physical campuses. As a result, the education ecosystem is undergoing a transformation that will change the nature of teaching and learning, as well as redefine the definition of a classroom or lecture hall.

In K-12 education, that means an end to the one teacher/one classroom/one subject paradigm that is a remnant of the Industrial Age. In its heyday, it reflected the way of the world of work — a claim that is invalid in the information age, where distance is dead and personalized technologies facilitate communication and collaboration across a variety of venues, opening the door to integrating previously disparate disciplines of study. Students will no longer come to school and power down their technology, but rather will use it to create an educational environment that reflects their lives. The teacher becomes the learning coach, not a gatekeeper to all things academic.

In higher education, IT is expanding the learning ecosystem, resulting in changes in the long-held definition of a class or lecture hall. Distance is not just dead — it's irrelevant as teaching and learning occurs at times and in places not previously considered to be learning environments. In turn, the new reality of reaching and working with students — and faculty — has resulted in changes in administrative management and control of IT. The CIOs are experiencing diminishing control of the IT environment that are inversely proportional to the multitude of microsourcing opportunities available to the higher education community. Faculty can elect to use openly available applications such as WordPress or Zotero, rather than staying within the centrally supported institutional learning platforms or collaborative environment, and do not feel the need to involve central IT. The challenge to CIOs will be in enabling the institution and providing IT value that balances managerial efficiency while recognizing and accommodating the conditions set by the changing educational ecosystem.

The waystops in this transformation are fundamentally in place. Students select and use devices that meet their preferred format and style, and have access to academic resource productivity suites that are not necessarily provided — or maintained — by their school, college or university. From student-owned devices to cloud-based tools and solutions, the landscape is changing. In this research, we point out indicators of such changes and project the near-term impact on the education ecosystem, as well as the eventual transformation of the nature of education.

## STRATEGIC PLANNING ASSUMPTION(S)

By 2014, hardware purchases by K-12 school districts will be reduced by 30%.

By 2014, education organizations will purchase twice as many slate-like computing devices than laptops and notebooks.

Through 2015, 50% of higher education CIOs will lose their jobs for failing to balance customer efficiency with organizational efficiency.

**ANALYSIS**

## Strategic Planning Assumptions

**Strategic Planning Assumption: By 2014, hardware purchases by K-12 school districts will be reduced by 30%.**

**Analysis By:** Bill Rust

**Key Findings:** Consumer-oriented devices in the hands of students are found in increasing numbers in primary and secondary schools. Student objections to being "powered down" at school are becoming more strenuous.

School administrators and curriculum planners have recognized the value of using smartphones and/or slate-like devices as academic tools.

Technology leaders in K-12 education have backed away from routinely banning personally owned devices in favor of strategies that leverage personally owned devices to extend the reach — and the value — of technology in education.

**Market Implications:** Leveraging student-owned consumer devices will speed the move to digital content. CIOs will utilize desktop virtualization and cloud offerings to reach client devices — effectively moving toward becoming device-agnostic.

School agencies will take advantage of the influx of consumer devices to scale back the purchase of user devices. As education accepts and uses consumer form factors, hardware providers will eliminate plans for education-specific user devices.

**Recommendations:**

- IT leaders should adopt a strategy to become user-device-agnostic for the majority of applications and services. Plan on shifting savings from reduced user device budget allocations to increased infrastructure and service requirements.
- Abandon notions that hardware vendors will develop and market education-oriented devices to your preferred specifications — they will not — in favor of anticipating where you need to deploy either consumer-class or enterprise-level user devices.
- Prepare to address the emerging equity question brought on by disparities in student capacity to provide suitable devices, with plans to provide or subsidize user hardware to students in need.

**Related Research:**

"Key Issues for K-12 Education, 2010"

"Top Industry Predictions 2010: The Recession's Aftermath Proves Challenging"

"Rethinking Technology Integration for K-12 Leaders"

"Hype Cycle for Education, 2010"

**Strategic Planning Assumption: By 2014, education organizations will purchase twice as many slate-like computing devices than laptops and notebooks.**

**Analysis By:** Ron Bonig and Bill Rust

**Key Findings:** The release of the first wave of multifunctional, reasonably sized tablet/slate computers, and the rapid acceptance by consumers in many demographic categories, presages a change in personal computing.

The form factor of the early slates and the projected release of subsequent devices in the same mold offer education a user device with lower costs, flexibility, ease of use and a growing ecosystem of education features.

Many education institutions in North America have already begun pilot projects and tests of these devices in the classroom, and find that the performance is acceptable, if not ideal, for a large number of tasks. They are not the best digital readers, the best presentation devices, the best for keyboarding, the best for digital media, etc., but their attraction is that they combine a significant percentage of the functionality of all these functions in one very lightweight, portable device.

As the number of functions available on these devices increases and the applications available for them increase, their market share in the education market will soar and surpass the current form factors of personal computer types.

**Market Implications:** A significant number of devices will be introduced into the market, and the majority will run one of three or four mobile operating systems. Educators will move away from desktop computers, laptops and notebooks. The market in education will become a mix of devices and operating systems as the consumer companies compete to place their devices in the largest and most prestigious institutions and systems.

Standards will become increasingly important so that mobility among a number of educational institutions or learning environments is not impinged. Hardware and software providers will still need to facilitate or license enterprise deployments of applications to remain competitive with vendors who provide them.

**Recommendations:**

- Education institutions should not become wedded to a particular device, manufacturer or form factor unless they intend to issue that device.
- Software, digital learning objects, information and services should be obtained or developed in an agnostic manner, so that they will perform on the operating systems and hardware of a large number of devices.
- Educational institutions should consider large purchases of the most adaptable and flexible devices, and attempt to stay firmly in the middle of the hardware and software markets until the market suffers the Darwinian shedding of the less capable; and the near future of leading devices and operating systems is clarified.

**Related Research:**

"Key Issues for Higher Education, 2010"

"Hype Cycle for Education, 2010"

"Correcting the Record on iPads at Higher Education Institutions"

**Strategic Planning Assumption: Through 2015, 50% of higher education CIOs will lose their jobs for failing to balance customer efficiency with organizational efficiency.**

**Analysis By:** Jan-Martin Lowendahl

**Key Findings:** The death of distance and consumerization of services have considerably reduced the barriers for faculty and students to "micro-source" key productivity tools outside the institutions control. Boundaries are blurring and old business models are threatened as relatively new education providers (e.g., those that offer Web-based or software as a service [SaaS] solutions) gain momentum while, at the same time, old ecosystem components (such as publishers) try to respond.

Due to the aftermath of the recent financial crisis, there is continued political pressure to provide cost-effective education, often reinforced by public sector budget cuts. An exploding global need for education as the world transforms into a global services economy leads to a tremendous challenge of scalability with quality for the educational ecosystem.

**Market Implications:** The effect is that faculty and students will be increasingly mobile and have more options available. Their opportunity to vote with their feet will increase, leading to a threat of a mass exodus if they do not think the institution is providing the right context for their personal productivity.

New opportunities for cost-efficiencies and effectiveness will emerge, provided by multisourcing and microsourcing, both from traditional B2B and B2C providers. Learning to exploit the right mix in order to stay competitive will be key. This includes increased use of shared services, especially within countries most severely impacted by the financial crisis.

The mind-set of what the definition of a chief information officer in higher education is will need to be changed, as well as the types of tools needed to control information — e.g., do you have to know physically where your data is? Can you rely on contracts and legal tools? Is actual knowledge of *how* to deliver IT services more important then knowing *where* to source your IT services?

In the expanding ecosystem, and in increasing multitudes of tools and multiparty providers, the different layers of standards will increase in importance. From technical standards (such as for identity management) to standardized processes (such as grant management), institutions will need to integrate information flows and achieve economies of scale to remain competitive.

**Recommendations:**

- Higher education CIOs must balance personal productivity and organizational efficiency in order to maintain the financial viability of the institution and increase its attraction as an employer and an educator. Strategies to achieve that include:
    - Adding institutional process to consumer services and technology (e.g., combining the e-learning platform with smartphones)
    - Enabling consumer services and technology to mashup with institutional processes (e.g., enable procurement and reporting processes on iPads/Android slates)
    - Providing the infrastructure with technology and standards that ensure sufficient control of content and context, and enabling quick, cost-effective integration of tools and services
    - Getting better at visualizing and communicating the value that institutional IT adds to the successful execution of the institutional mission

**Recommended Research:**

"Gartner Higher Education Sourcing Survey 2009: What, How, How Much and Attitudes?"

"Strategic Direction and Timing in Education: Mashing Up the Strategic Technology Map and the Hype Cycle"

"Hype Cycle for Education, 2010"

## A Look Back

*In response to your requests, we are taking a look back at some key predictions from previous years. We have intentionally selected predictions from opposite ends of the scale — one where we were wholly or largely on target, as well as one we missed.*

**On Target: 2007 Prediction —** By 2010, 50% of higher education institutions will consider shared services as a means to ease both budget and staffing challenges.

Our 2009 sourcing survey shows that we are only slightly behind in even implementing shared services in half of the institutions, let alone consider it as a strategy for easing budget and staffing challenges. Globally, it was reported that 38% were already doing shared services in 2009. This ranged from 33% in the Asia/Pacific region, to 36% in North America, to 43% in EMEA. Looking forward, in 2010, more respondents (40%) said that they were going to increase spending on external sourcing, including shared services, than the share of respondents (17%) that said they where going to decrease spending. The rest (43%) expected to remain on the same level of spending. This, together with our ongoing conversations with clients, which indicate that the current financial crisis is forcing them to consider shared services even more seriously, make us confident that the use of shared services is soon going to exceed 50%.

**Missed: 2007 Prediction —** By 2010, primary and secondary schools must use ERP as well as student information systems (SISs) to meet accountability mandates.

The No Child Left Behind (NCLB) Act of 2001 established federal government mandates for education accountability based primarily on student achievement for demographic subgroups of students at each school. Federal funding tied to compliance and strong sanctions applied to schools that failed to meet student achievement standards. As the election of 2007 loomed, it appeared that the next round of accountability would require a granular reporting of fiscal effort tied to subgroups of students as a means of assuring the equitable or efficient use of public monies.

Although we correctly anticipated that a Democrat victory would result in additional funding opportunities for education coming from the federal government, we were wrong in projecting formal requirements for spend equity per subgroup of students along the lines of NCLB. Local education agencies that are participating in programs such as the Race to the Top (RTTT) through their respective state education agencies will use both ERP and SIS data to comply with their state's plan, but the granular reporting that we saw coming has yet to arrive, except as implied through the call to recruit, develop, reward and retain highly effective teachers and principals, and the added emphasis to improve the lowest performing schools.

### RECOMMENDED READING

"Gartner Higher Education Sourcing Survey 2009: What, How, How Much and Attitudes?"

"Strategic Direction and Timing in Education: Mashing Up the Strategic Technology Map and the Hype Cycle"

"Hype Cycle for Education, 2010"

This research is part of a set of related research pieces. See "Predicts 2011: IT Opens Up to New Demands and New Outcomes" for an overview.

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