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## Technology Is Not Enough

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By [Serena Klempin](#)

**H**igher education is increasingly looking to technology as a means of tackling persistent equity challenges and improving student outcomes. Yet technology in and of itself is not a solution -- unless people use technology to create new systems, behaviors and student experiences.

Encouraging various individuals across an entire institution requires thoughtful leaders who understand how to support those that fundamentally reorient the way an institution and staff members in that challenge.

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Many colleges are particularly interested in applying technology to student support services, which have traditionally been underresourced and overburdened. Technology-mediated advising systems are commonly used to plan educational programming, identify and intervene with students who may be at risk, and monitor student progress. They have the potential to clarify program pathways and connect students to vital support services, thereby increasing student retention and completion.

But how does a college move from putting an electronic advising tool in place to creating large-scale technology-mediated change? My colleagues and I at the Community College Research Center at Teachers College, Columbia University, [studied colleges engaged in this work](#), and we have learned a great deal from their experiences.

One of the most intriguing findings is the role of leadership -- and not just high-level leadership. Both senior and midlevel project leaders must share a commitment to the same actionable vision of technology as a tool for change. Although it is often assumed that presidents and senior leaders are the key to success, our research supports [James Jacobs's assertion](#) in *Inside Higher Ed*, which said midlevel leaders are "the real change agents."

Colleges often consider the implementation of a technological tool as simply a technical problem -- a set of solutions to address inefficiencies. But technology-mediated advising tools ideally provide the gateway to a much larger discussion about a college's entire approach to advising, moving from a shallow service model focused on course registration to a holistic model that provides individualized support throughout a student's time in college and that actively intervenes to keep students on track. As other scholars in education leadership have noted, such a major realignment requires transformative change across three levels of a higher education institution: structural, process and attitudinal. Without change at all three levels, opportunities to better serve students through improved systems will be missed.

This kind of transformative change qualifies as what change experts refer to as an adaptive challenge -- one that requires each institution to develop new ways of problem solving because there are no obvious or clearly "correct" answers. For a college or university to undertake such change, it must have leaders in place across all levels of the institution who are capable of motivating people to have difficult, honest conversations and of encouraging them to think and act differently. As opposed to the authority conferred through a title or an organization chart, leadership for transformative change is a complex, dynamic process.

## Four Key Approaches

Through our research, we identified four different leadership approaches:

- *Presidential*. Senior leaders have a clear vision for change, but have not fully articulated their vision to project leaders.
- *Visionary*. Senior leaders and project leaders collaborate to develop a shared vision of change, and senior leaders grant project leaders the authority for carrying out that vision.
- *Technologically focused*. Neither senior nor project leaders have a clear vision for using technology to drive change; both are focused on the mechanics of implementing the technology.
- *Divided*. Project leaders understand the potential for change, but they lack support from senior leaders. For these deeply rooted changes to occur, support from both levels of leadership is crucial.

At the institutions we studied, senior leaders controlled financial resources, shaped the institutional culture to encourage receptiveness to new technologies and had the authority to mandate use when necessary.

Perhaps counterintuitively, the colleges with a presidential leadership approach were unsuccessful in achieving change, even though they had strong senior leaders. It was only when both senior and project leaders were aligned around an adaptive vision of change (a visionary leadership approach) that structures, processes and attitudes were altered.

For example, at one college, the introduction of an education planning tool sparked several major changes. The senior leadership team championed technology-mediated advising as a crucial component of the institution's student success agenda. Meanwhile, the project leaders were deeply committed to improving advising services through a greater emphasis on multisequence education planning.

As a result, change occurred in the three key areas. The college lengthened advising appointments to allow more time for using the planning tool and also made the creation of an education plan a requirement for a student success course -- a mandatory course for most first-year students covering a range of topics related to acclimating to college and making use of college resources (structural change). Advisers began interacting with students differently, focusing on mapping out courses for an entire degree, rather than just selecting courses for the upcoming semester (process change). They also started to view themselves as professional counselors supporting institutional goals for improving student success rather than administrative clerks (attitudinal change).

Together, all of these changes transformed the way the college approached education planning. Prior to the introduction of the digital planning tool, the only tool available for long-term planning was a paper worksheet that was used randomly and inconsistently. Describing the switch, one adviser explained:

"When you just have a piece of paper that somebody handed you, it has very little meaning. But if you get to drag and drop and move things around and read course descriptions... it's a little bit richer. It's more interactive .... The interactive piece, both with the digital materials and with the adviser, I think, allows for an experience that improves their ability to internalize their plan."

For these deeply rooted changes to occur, support from both levels of leadership was crucial. Senior leaders controlled financial resources, shaped the institutional culture to encourage receptiveness to new technologies and had the authority to mandate use when necessary. However, midlevel project leaders were the ones who ultimately drove change on the ground. Placed in the difficult position of serving as a communication channel between frontline staff, such as advisers, and senior leaders, they were responsible for translating the vision for technology-driven change into action, integrating technological tools into existing systems and processes, and encouraging both advisers and students to use the tools.

Without the support of senior leaders, project leaders did not have enough legitimacy or institutional backing to create the change that was needed. And without the support of project leaders, senior leaders did not have enough knowledge of day-to-day advising functions to create that change, either.

What was the impact on the students? Even though we were only studying the early stages of rolling out these technologies, at the colleges with visionary leadership, significant numbers of students were using the education plans to begin more long-term thinking about their educational and career goals. They were also responding to early alert messages received through risk-targeting systems, and following up with their instructors and advisers to get help when needed.

Interestingly, we also found through our research that it is not necessary for senior and project leaders to begin with a shared adaptive vision. Only one of the three colleges that was beginning to demonstrate signs of change started off with aligned leadership. At the other two colleges, the technology implementation itself served as a learning process for both senior and project-level leaders. In both cases,

at least one leader recognized the technology's potential and was able to convey that vision to leaders at the other level.

Thus, based on our findings, we recommend that colleges considering engaging in technology-mediated reform consider three key steps. First, they should assemble implementation teams that include both strong senior and project leaders. Second, they should provide adequate support for project leaders so that they have the authority to be seen as credible by advisers and other frontline staff, as well as have the legitimacy to convey staff needs to institutional leaders. And finally, they should focus on an adaptive, reform-oriented vision for change occurring at multiple levels -- structural, process and attitudinal -- a vision that connects technological tools to larger advising reforms.

Transformative change is challenging work requiring a great deal of collaboration. Implementation of new technologies and processes usually takes longer than anticipated. Identifying the right combination of senior and midlevel project leaders will not be easy. Supporting project leaders so that they have the authority to enact changes and the credibility to convey staff needs to senior leaders may be even harder still.

But investing in the careful selection and support of midlevel leaders is critical for visionary change to take root. Once aligned, the right kind of leadership supporting both the project implementation and the larger institution can make technology adoption a powerful tool for institutional transformation.

## BIO

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