Scenario
Like every institution, State University wants to keep students safe. Security cameras combined with a centralized monitoring system help protect public safety, but it is not practical to have digital cameras scan every part of the campus. The institution had to determine how to place cameras strategically.

In a typical project development scenario, the campus IT staff might collaborate with the campus police department to study security needs campus-wide, conduct an in-depth analysis of the findings, identify critical camera sites, and articulate specific functionalities and goals for each camera location. IT staff at the university elected to take a different approach, applying principles of agile project management to help find the best places to put cameras.

The police department already had a good sense of what locations on campus might be characterized as crime hot spots. Working with the campus police, the IT staff used that information to determine the best initial locations for security cameras. Once cameras were installed in those locations, campus police immediately began to assess their effectiveness, discuss what additional functionality might be needed to better serve particular sites, and identify other sites that might benefit from camera scrutiny. It was relatively easy at that early stage to experiment with possible camera locations and different kinds of camera equipment. In this manner, the effectiveness of camera placement over the whole of the campus was analyzed and adjusted over the course of several months. As patterns started to emerge, it was then possible to implement a system of cameras that best served campus needs.

Application of the agile philosophy in this case enabled the institution to forego a potentially cumbersome planning process that could have been expensive in terms of person-hours committed to the project. Instead, the university was able to directly address the problem at hand, make adjustments in real time to enhance the learning it was gaining from the ongoing review of camera effectiveness, and derive an effective solution to an issue it had identified, faster and at less expense than a more traditional planning approach.

What is it?
The approach to software development and IT project management known as “agile” can perhaps best be described in comparison to traditional models for problem solving. The agile philosophy—summarized at agilemanifesto.org—is more about principles and practice than policy and process. In contrast to approaches that put considerable time and energy into comprehensive planning at a project’s onset and map a prescribed path, agile is predicated on an iterative approach in which requirements and solutions emerge as stakeholders articulate need, often during the development process itself. Agile is sometimes described as the difference between nimble “lightweight” development and highly structured “heavyweight” approaches.

While there is a certain formality to the approach, as well as upfront planning, agile deemphasizes processes—the backbone of traditional planning—in favor of a more incremental approach of developing solutions. In agile, solutions are continuously delivered, tested, and refined. Functionality is delivered in relatively short time frames, or iterations. The goal is to provide continuous improvement based on rapid feedback, rather than rigidly adhering to a predetermined plan. The agile approach is open in that the final product may not be fully envisaged at the outset, and thus finding solutions can be more flexible than traditional planning models where modifications during the project are discouraged. Eschewing organizational hierarchies, agile stresses collaboration between cross-functional teams that form on an ad hoc basis to address a given problem. Rather than engage with the client only at the beginning and end of a project, agile actively encourages direct client input throughout the entire development process.

How does it work?
Like any development process, an agile-styled project starts with identifying a problem and framing a potential solution. Development then starts immediately. The idea is not to wait until all features have been developed, but rather to develop workable solutions, perhaps with minimal functionality, as soon as possible, and test them. In this way, fine-tuning can take place during the project. The work can go in a different direction if that is warranted, before too much time and money have been invested going in what is shown to be the wrong direction. Supporters of agile development believe important knowledge can be gained by following the principles of “release early and often” and “fail early and often.” The faster the release schedule, the shorter the time to the next iteration. The smaller the feature set delivered, the faster and more refined development can be.

Clients are integral throughout an agile-styled project. Developer and client essentially work side by side, with clients testing findings
and providing feedback that helps refine solutions. This dimension of the process helps identify problems early. Moreover, the process helps end users clarify what they need, resulting in a solution that is more aligned with their actual needs.

Who's doing it?
Both Forrester and Gartner report growing adoption of agile methods. IBM uses agile methods internally for development. Atlassian, CollabNet, IBM, Microsoft, and Oracle offer tools for development that use agile methods. In higher education, the Georgia Institute of Technology, the University of Notre Dame, and Wake Forest University formed ScrumU, a collaborative organization dedicated to agile methods. Now with some 15 university members, the group is dedicated to sharing lessons learned from implementing Scrum, an incremental approach to project management that gets its name from a rugby term and is closely allied with agile. SUNY Delhi has successfully applied agile approaches to a range of IT projects, including campus network services and enhancements of its learning management system. All told, the university can document some 30 projects and $425,000 in cost savings that it attributes to its use of agile methodology.

Why is it significant?
The agile approach enables developers to adapt readily as new information is available or environmental changes warrant a shift in direction, making development fundamentally nimble, responsive, and fast. Moreover, the process helps clients better understand, refine, and communicate their own needs, resulting in faster access to solutions that more closely align with their needs. Agile moves the focus of a project from the process (e.g., walking through necessary steps, creating documentation) to the solution. In a world that can be said to be constantly in beta, agile is arguably better suited to problem solving than its more formal cousins. Also, agile can be seen as something of a risk-mitigation tool in that it prevents finding out that a project has failed until the end of a long, potentially expensive process.

What are the downsides?
A relatively new approach, especially in higher education, agile doesn't offer the same ways to measure success as other planning methods have. Thus, it is more difficult to formally assess agile's efficacy. There are few manuals for agile operations and little research that speaks to its processes, tools, and techniques. Agile has the effect of flattening the governance structure for a given project from traditional hierarchies to group collaboration. Thus, it may be difficult for organizations whose cultures are accustomed to certain ways of working—and perhaps more comfortable with more structured paths to development, with more narrowly defined processes—to adapt to the agile model. Also, agile requires a level of openness and transparency that many organizations may find to be outside their comfort zones. Similarly, given that agile is predicated on collaborative teamwork, it can be seen to blur the role of a manager, at least in the way that responsibility is traditionally defined.

Agile is more collaborative, emergent, and iterative than approaches that might be built on the principle of “command and control,” and some criticize it as unstructured and more art than process. Among other specific criticisms, some argue that agile methods give developers an excuse not to document their work. Others suggest that agile is only appropriate for small projects and that it is a difficult model to apply to distributed teams. Without experience in the agile approach, some practitioners fear that learning it will take too much time and will add to their workloads.

Where is it going?
The agile approach in higher education remains in something of a discovery phase, with more institutions learning about it or perhaps testing it than adopting it on a large scale, although some institutions have already logged major successes using agile methodology. The agile movement has its roots in software development, but supporters of the agile model have begun applying its principles in broader instances of IT project management, such as a campus network upgrade, and even into non-IT areas of project management. Advocates of this broader application summarized their philosophy in the Declaration of Interdependence (pmdoi.org), which speaks to such benefits of agile as its ability to create a “continuous flow of value,” engage customers, manage through uncertainty, and unleash creativity and innovation.

What are the implications for higher education?
Large-scale projects at colleges and universities often take so long that they become difficult to manage. For example, if an RFP for new technological equipment takes a year to be developed, get approved, and be implemented, the university may end up buying equipment based on specifications that may already be obsolete. Universities need tools to be able to respond quickly to emerging needs and challenges. In this environment, agile may be precisely the kind of approach that is needed to unlock the solutions that will lead to progress—faster, with more flexibility, with improved collaboration, and at less cost.

One can also argue that the agile ethos is well matched for a world in which change is a constant and the pace of change seems to be accelerating. Agile’s principles and processes may be well suited for this era of higher education, in which institutions are being asked to do more, faster, with less.