

Reimagining IT at Cornell University

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Vision Statement

The Cornell University information technologies (IT) community will function in a unified manner in the delivery and maintenance of academic, administrative and general campus IT services. The most appropriate standards, processes and procedures will be followed to meet the priorities of the university by using the most secure, efficient and effective means possible. The IT community will be responsive to the needs of its constituencies, be strategically aligned with the mission and direction of the university, and function as a unified, university-wide organization.

Governance

IT leadership must ensure strategic alignment with broader university objectives across all units. This can be accomplished through the development and maintenance of a strategic IT plan, establishing and managing a university-wide IT budget, setting priorities, and regularly reporting IT metrics.

Balance must be struck between the efficiencies to be accomplished by centralized IT and the flexibility and responsiveness gained through local or distributed delivery. An institutional IT organization must embrace, support and enhance the complementary needs and roles of both central and distributed IT services. This balance must also be evident in decision-making processes. The university must provide clear principles, standards and oversight, while allowing for local program and details to inform any central analysis.

The chief information officer (CIO) and university management must be accountable for the delivery of IT services to all units. Annual reviews for units and central offices must include metrics, project profiles, staffing levels and assignments, service quality, IT project strategies and all exceptions.

Cornell should retain a hybrid IT organizational model to balance central optimization and local flexibility. Cornell Information Technologies (CIT) should function as the central utility and service provider that supports unit-specific IT groups that can better meet local needs through closer programmatic connection. For such a model to be successful, we believe it is imperative that the unit IT directors have dual reporting to the CIO and the office of the VP or dean heading the unit.

University-Wide IT Services

While greater collaboration and oversight must be achieved across the university IT function, there remain critical components that should be provided by the central IT unit. Such critical central components include providing general networking, storage, and hosting services; developing, supporting and maintaining campus-wide IT standards; delivering IT services according to institutional priorities; and staffing core functions such as project management, IT quality assurance, IT security and other infrastructure components in the most cost-effective manner possible.

Local IT roles and functions should be focused primarily on value-added and unit-specific IT features. Central coordination for IT decisions, investments and budget must be provided through the CIO and ITGC while relying on local IT for definition and development of standards and their consistent application. Additionally, large applications projects (TIER 1) will be carried out in partnership with local IT and business functional leaders to leverage subject-matter expertise, technical talent and program-specific knowledge.

End User Support Standards

The supported hardware and software platforms must be limited in order to both provide better service and constrain rising costs. While no single hardware vendor or operating system will likely meet the broad needs of the university, two or three hardware vendors, with a small number of configuration options from each vendor, could greatly improve service quality and contain costs while meeting academic and administrative needs. A similar argument holds for system software.

IT support services need to be coordinated to take advantage of modern desktop maintenance tools such as distribution of standardized images and remote debugging. Currently most IT support people on campus have to “figure it out on their own” and they don’t have ready access to the right expertise for solving challenging problems. The second critical change is in end-user support, where it is important to develop approaches that effectively combine centralized support functions with local unit support.

Components critical to implementing this approach include providing effective triage and escalation procedures, which help ensure that the most effective form of support is being used to address a given problem. Certain problems are best fixed by an expert on site, whereas others are best fixed by a remote expert, and yet others by a combination of self-service web sites and phone or chat-based support. Of course, dispatch of local IT specialists for emergency support must be provided to quickly address immediate mission-critical functions in each area. Right now the default in most organizations is on-site support provided by a limited number of staff who may lack the required expertise and who have little backup to cover absences. This is a very expensive service model for handling routine issues.

Application Development Standards

Improving IT at Cornell will require substantial change in both institutional governance and business practices. Changing one while neglecting the other will not achieve the desired results. Effective governance of IT requires effective governance of the academic and business administration that dictate system requirements.

Developing or molding a solution to meet existing, often historical or idiosyncratic practices, is ineffective and expensive. We instead need to make careful choices of standard IT systems and services while simultaneously redesigning the affected work practices so that they are effective with the new systems and services. This will require clear roles and effective partnering between IT leadership, functional area leadership and executive leadership. Decisions made to invest in one area must be balanced against overall university needs and priorities

Perhaps the most important implication of these changes is shifting from a custom-built or extensively customized environment to standard, externally provided software-as-a-service (SaaS) environment or to vendor-supplied applications. The building of in-house software needs to become the last resort rather than the preferred means of providing IT services. This will require substantial changes in our design and requirements processes, as well as a move from a staff with extensive programming skills to one with extensive skills in requirements gathering, choosing and implementing off-the-shelf systems or services, integrating new solutions into our existing infrastructure and managing outside vendors and contractors. Thus, our development efforts must shift from custom development to one of solution integration.

Moving from our current IT environment to the one described above will require a significant cultural, organizational and governance change. This new IT culture must support the achievement of strategic alignment, university-wide IT oversight, broadly accepted IT standards, as well as improved communication and collaboration between central and unit IT management and staff.