UNIVERSITY OF MONTANA

OneIT

umt.edu/oneit

*Reimagining Information Technology
at the University of Montana*

UNIVERSITY OF MONTANA

*October 31, 2017*

Contents

Introduction

Charge

The OneIT initiative, launched by President Sheila Stearns and CIO Matt Riley in April 2017, seeks to design integrated IT services that align with **UM's strategic vision** and meet the following challenges directly from the charge:

- Maintain and ideally enhance services to faculty, staff, and students

- Achieve efficiencies and cost savings in the deployment of software, hardware, and personnel

- Improve cross-training and professional development for IT personnel across campus

- Ensure that the FTE delivering IT services can flex efficiently and appropriately according to student enrollment, faculty and staff served, research requirements, campus infrastructure size and characteristics, and inevitable expansion of support for online courses, programs, and administrative services.

In short, the goal of OneIT is to design and deliver better IT services more efficiently.

Timeline

The OneIT process was conducted from May-October, 2017.
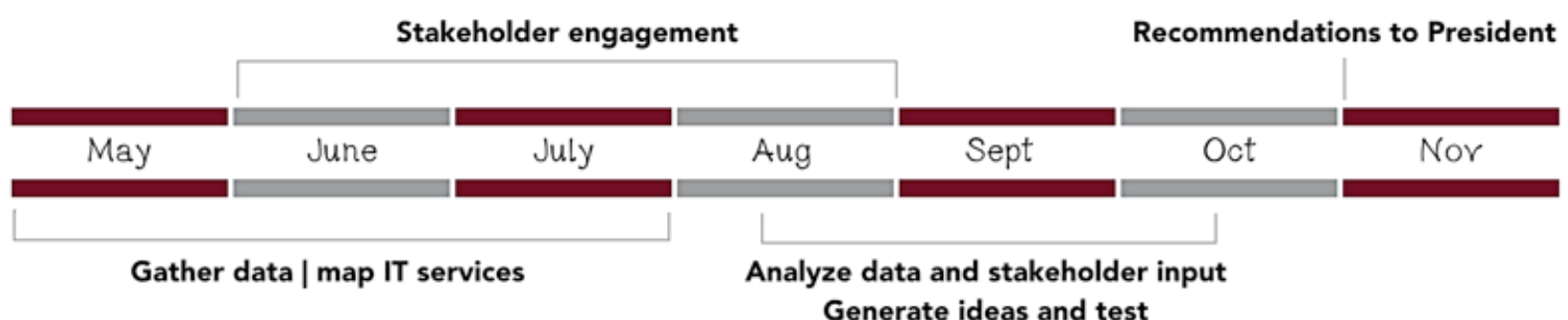
Our process

The OneIT team used design thinking methodology to arrive at recommendations. The critical and time-intensive first phase of design thinking is to empathize. To ensure that we clearly understood the needs of IT staff, IT users, and other key stakeholders, we engaged in the following activities:

- Meetings with administrative and governance leadership teams

- Focus groups with IT teams and functional offices

- Two open campus forums

- Extensive online engagement and community ideation using a tool called IdeaScale

- Faculty and student surveys administered through Educause Technology Research in the Academic Community (ETRAC)

- Information gathering about data centers and server rooms

- Started inventories of IT services and software

Design Thinking
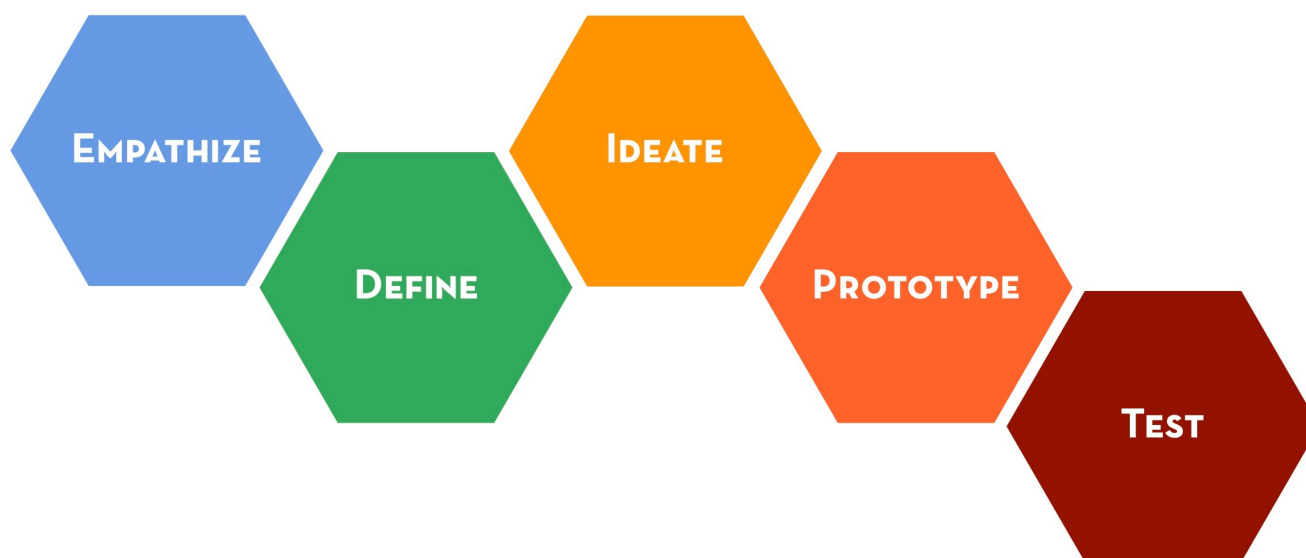
We recommend continuation of design thinking principles in the execution of IT strategies. The OneIT team took the process only through the "ideate" phase. The next steps are to prototype and test ideas as a way of continually moving forward. A design thinking culture also continually circles back to empathy, defining, and ideating, which we believe is critical to building a trusting and innovative IT operation.

Guiding principles

The OneIT team developed the following set of principles to guide decision-making throughout this initiative. We believe that these principles should be core tenets of the IT service culture going forward.

Focus on users

We value the perspectives, needs, and expectations of end users of technology, and strive to meet those needs and expectations.

- IT should be focused on providing creative solutions and tools to serve the needs of users and the organization rather than simply providing a suite of services.

- Solving problems requires that we start with empathy for IT users. That means listening, observing, and seeking understanding in order to design impactful solutions.

- IT services should be accessible to all people.

Keep IT simple

IT systems, interfaces, processes, and practices should consistently be designed for simplicity. This value is inextricably tied to the focus on users.

- Fewer high-impact options are better than numerous mediocre options.

- Activities and services that are similar should be integrated.

- IT systems, services, and experiences should be designed to save time. Time is money.

- IT systems, services, and experiences should follow standards and conventions to reduce time and effort required to orient and learn.

- Communication should strive for clarity. The language we use should be clearly understood by end users and decision makers.

Build partnerships

An agile and resilient IT organization requires developing formal working relationships built on trust and the agreement that we all work for one organization in service to that organization and its stakeholders.

- We make wise decisions together through collaborative governance, strategic planning, and project execution.

- We work, learn, and share across organizational boundaries collegially and collaboratively.

Value data

We value an organizational culture where data informs decision-making.

- We empower effective decision-making across the organization by making data and useable data analytics readily available.

- We design IT projects and initiatives with measurable outcomes.

- We execute IT projects and initiatives through process metrics that inspire changes to individual habits and organizational culture.

- We assess IT services and processes to ensure that we are meeting user expectation.

Current IT environment

We engaged with hundreds of stakeholders over a four-month period to define current state and clarify challenges related to our charge. Our guiding principles (see sidebar) represent much of what IT users and IT professionals said they want and need. Foremost, users want to be empowered by technology, and they need an IT organization willing and able to be partners in providing solutions and serving the University as a whole. IT professionals express the need for clear priorities on workload issues and support for professional development.

The following are significant circumstances and challenges revealed through our engagement:

The IT organization(s)

There are multiple IT organizations and IT professionals spread across campus. The central IT organization comprises roughly half of the IT employees at UM and reports to Chief Information Officer (CIO) Matt Riley. Distributed IT units and professionals who do not report to the CIO comprise the rest of the IT community. For example, Enrollment & Student Affairs and Administration & Finance have dedicated IT teams, as do several colleges. Most other academic and administrative units have just a few IT support employees, some have no clearly defined support.

> *Stakeholders contend that UM lacks a shared IT vision, clearly articulated priorities, and a collaborative environment needed to achieve strategic alignment.*

Campus administrators, functional offices, and IT professionals all made compelling cases for the value of having distributed IT support embedded within sectors and units. These distributed IT units better understand the unique needs of their users, and can be more agile and responsive than IT support

offered through a more centralized approach. Administrators with distributed IT support value having control over their own IT priorities and initiatives, rather than relying on a central IT organization with a broader scope of priorities, projects, and operations.

Closely aligned central and distributed IT units could provide the best organizational model for delivering quality IT services efficiently, but there is work to be done. There is a general lack of trust, openness, and sharing of knowledge and resources across UM's IT organizational boundaries. Stakeholders further contend that UM lacks a shared IT vision, clearly articulated priorities, and a collaborative environment needed to achieve strategic alignment. As a result, disparate IT units, in many cases, duplicate efforts or work at cross-purposes.

IT funding

Clear and consistent funding represents a significant challenge for UM's IT operations. The recent decision to transition away from individual telephone and port charges to fund IT operations was a step in the right direction. Campus units were choosing to remove telephones from offices and forego access to UM's wired network, opting instead to rely on much less robust wireless access. The port-charge model was replaced by a funding mechanism in which sectors pay for IT services in lump sum payments. That provides stability to IT funding, and ensures that all IT employees have access to tools necessary to do their jobs and serve students.

Unfortunately, there have also been steps backwards in how UM finances IT. Most notably, the IT utilities budget, which funds multi-year contracts for UM's core IT infrastructure and enterprise applications, was removed from a protected status and subjected to budget reductions applied across the organization. That has the effect of diminishing opportunities to invest other IT funding sources, such as student technology fees, into new academic and administrative solutions.

Leadership and governance

We met with all campus vice presidents and their leadership teams as part of our engagement phase. They all acknowledged that some level of dysfunction in the organization and delivery of IT services exists, and they did not appear to be in alignment on how to address these shortcomings. As a result, there are multiple examples of campus sectors duplicating efforts or working at cross-purposes in delivery of IT services.

Collaborations, partnerships, and consolidations across organizational boundaries can only happen when sector leaders are willing and able to work together to make them happen.

IT Senate is the formal (but not only) IT governance committee at UM. IT Senate was constituted in 2012 as the result of a strategic planning process that identified a lack of effective IT governance as a weakness. The OneIT engagement process revealed that IT governance still fails to meet needs and expectations of many stakeholders.

The initial charge of IT Senate—developing and maintaining a strategic plan for all campus IT—was determined to be too broad and ambitious for the committee. That was replaced by the current charge: "to provide a forum for initiation, evaluation, and prioritization of IT strategic initiatives, and to recommend IT strategic directions to the President's Cabinet that are aligned with University goals and aspirations."

IT Senate has had minimal success in delivering on its charge. One of the most ambitious initiatives IT Senate attempted was to develop an enterprise applications procurement process to ensure accountability for large-scale software purchases, but that process faced resistance at the cabinet level and was never put into practice.

There are also several informal and ad hoc committees and communities that provide voice to IT decision-making, such as the Banner Mod Squad, Tech Partners, and a currently dormant data governance group. IT Senate has added representatives from those groups as voting members, but a lack of alignment and accountability remains an issue.

IT employee training and development

UM struggles to invest time and resources into employee development necessary for maintaining quality services and competitive skill sets. Many IT professionals asserted that they receive inadequate training and professional development opportunities throughout the duration of their tenure in IT at UM. Training that does take place is often solely focused on technical skills development and does not focus on developing skill sets reflective of what is needed in the IT profession today. Such skills may include project management, business and data analytics, process and interface design, and vendor relationship management. Furthermore, the speed of technological change challenges IT employees to maintain competency but without sufficient professional training to do so. The result is an IT work-force that is insufficiently prepared to deliver high-quality services, which affects users as well as the morale of IT professionals on campus.

Quality of IT services

Central and distributed IT organizations provide a wide range of services critical to the academic, research, and administrative missions of campus. Some of those services are exemplary but most are just adequate. When viewed from the users' perspective, however, there is lack of clarity about what services are even available and where to go to find them.

In short, academic and administrative leaders suggested they want IT to be proactive partners in developing solutions rather than providing a dizzying array of services from which to choose; services that do not always address unique unit needs. To address this, technology experts should be involved early in any project that has an IT component.

From the perspective of day-to-day technical support, individual users desire simplicity of solutions and clarity on where to go for help.

Hardware and software procurement and management

UM spends millions annually on personal computers, servers, productivity software, and enterprise applications. These purchases are made across multiple units with little coordination or strategic alignment, resulting in product duplication and missed opportunities for negotiating cost savings.

People who purchase technology need better information and support in decision-making, either to help them match their needs with existing solutions or to make wiser choices that can benefit the broader campus. An example where campus IT has already started to address this challenge is through the collaborative software asset management (SAM) initiative (see *Heading in the right direction*, page 8) which has reduced expenditures and improved satisfaction among departments campus-wide. Stakeholders want to see that model extended into other areas, such as the faculty computer roll-out and data center consolidation.

Heading in the right direction

The OneIT team believes that the initiatives below, all involving collaboration across organizational boundaries, represent model behaviors and can be scaled up and replicated out.

Student success technologies projects

More than two dozen technology projects focused on enhancing student services and success are slated to be completed within the next two years. Student success projects include implementation of a new course catalog, advising and academic planning tools, and paperless processes in Admissions and the Registrar's Office. The projects and their oversight are a collaboration of multiple units across campus, including Central Information Technology, the Office for Student Success, the Registrar's Office, Admissions, and Student Affairs IT. The close cross-unit partnership provides centralized project portfolio management, as well as the opportunity to standardize implementation and outreach strategies.

Software asset management initiative

Central IT has taken on the role of leading software licensing management strategies by providing software asset management tools and resources to campus. A significant part of the success of this initiative has been the building of relationships across the organization through the regular Software Asset Management (SAM) Roundtable meetings where stakeholder input is solicited and guidance provided.

Mobile app development

In August 2016, UM launched its first mobile application (UMontana) and continues to develop high-value services that can be delivered effectively on smartphones and tablets. The app integrates content and functionality from Moodle, provides access to grades, helps connect students to academic tutors, and features popular tiles such as the Food Zoo menu, the UDash bus schedule and hours of operation of offices and businesses on campus. In Spring 2017, the mobile app even hosted the Associated Students of UM (ASUM) annual student government election. Successful mobile app development is the result of partnerships across IT units that include Web Technology Services, Enterprise Information Systems, and Student Affairs IT, as well as a number of undergraduate student-workers, a few of whom have graduated into full-time employment with the mobile app vendor, CampusM.

IT service management consolidation (support tickets)

In an effort to inventory, consolidate, and streamline IT services, multiple campus IT units recently partnered in selecting, funding, and implementing a campus-wide IT service managment (ITSM) solution called TeamDynamix (TDX) for Higher Ed. The new tool will provide a single point-of-entry online portal for users to request IT services and support, as well as provide self-help tools and content. The tool will significantly enhance IT professionals' ability to collaborate on tickets and projects across units. TDX also includes enterprise service management options for facilities, human resources, and project management, which offers additional opportunities for integrating and consolidating access to campus services and support.

Central IT funding model change

Central IT is pursuing significant changes to its funding model to ensure that IT funding is sustainable, equitable, and allows the University to meet growing academic, administrative, and research IT needs. As of July 1, 2017, IT discontinued monthly departmental charge-backs on network ports and telephone connections.

Network and telephone charge-backs have constituted a significant part of Information Technology's operating budget for many years, but revenue has dropped 35 percent over the past three years as departments have discontinued telephone service in favor of personal cell phones and opted to have employees connect to the UM network wirelessly rather than through a hardwired network port. While those strategies helped units meet budget challenges, they did not produce overall savings for UM and had a detrimental impact on productivity and services.

Strategic opportunities

Technological innovation is a powerful and rapidly accelerating force. It has disrupted industry after industry and rewired global connections. The challenges outlined above demonstrate that UM feels the effects of that disruption deeply. The OneIT team believes that the IT community, regardless of how it is structured, must be a leader and trusted partner in addressing those disruptions to ultimately establish a creative, dynamic, and sound IT environment at UM.

Keeping in line with the goals of the UM Strategic Vision: Creating Change Together, and based on data collected throughout the engagement phase, we offer the following recommendations to address UM's IT challenges and the President's charge.

Recommendations

Shared vision, strategy, and accountability starting at the cabinet level

Recommendation addresses:

- Leadership and governance
- Strategic alignment
- IT funding
- Building partnerships
- Valuing data

An ideal IT organization depends on partnerships, collaboration, and strategic alignment among the leaders of various sectors, including vice presidents, deans, and directors, to communicate a shared vision and accept accountability. The recommendations in this document are intended to move UM IT toward this goal. The success of these recommendations unequivocally depends on the cabinet working in unison on technology investment and organizational staffing decisions.

Disrupt silos to deliver integrated services efficiently

Recommendation addresses:

- Quality of IT service
- Efficiencies in personnel
- IT organization flexibility
- Building partnerships
- Strategic vision alignment
- Leadership and governance

Central and distributed IT units can and should operate as one integrated organization even without formal restructuring. Silos create barriers, but those barriers can be removed to reduce duplication of efforts, to increase knowledge sharing, and to deliver services that move the institution forward. It requires a culture focused on collaboration and partnership, not radical structural or organizational change.

Through shared vision, relationship-building, and cooperative agreements, we can integrate and improve services, reduce wasted efforts, improve user experiences, and provide meaningful opportunities for IT professionals.

IT is deeply embedded in everything the University does. IT professionals need to be attuned to the goals and needs of diverse sets of users. Leaders across campus told us they want and expect IT professionals to be agile and responsive to their operational needs and new initiatives; that is the reason distributed IT units exist. They emerged in response to historic challenges central IT faced in meeting rapidly increasing demands for technology services and solutions. The OneIT initiative was never intended to consolidate all IT employees in a single sector. Its goal is simply to maximize productivity, responsiveness, cross-training, and efficiency.

Good things are already happening in this direction. Six units are collaborating to implement a new IT service management system (ITSM) tool that will streamline services and support requests by users (see *Heading in the right direction*, page 8). Also, a repeatedly stalled project to move employee email to the cloud will now be co-led by IT professionals from Student Affairs IT and central IT. This should exemplify successful collaboration across units.

Through shared vision, relationship-building, and cooperative agreements, we can integrate and improve services, reduce wasted efforts, improve user experiences, and provide meaningful opportunities for IT professionals.

Seek funding for physical space to bring IT professionals together

Recommendation addresses:

- Quality of IT service
- Training and development
- IT organization flexibility
- Building partnerships

IT professionals at UM are scattered and often housed in some of the least desirable locations on campus. Many spend their workday in basements with little natural light. Others share converted dorm rooms or cubicles. Separated by walls and distance, chance encounters with IT colleagues in other units happen rarely, inhibiting collaboration.

Silicon Valley tech companies are at the forefront of designing work spaces that foster cross pollination, collaboration, and productivity. The big idea championed by the industry is the concept of working in various spaces rather than at a fixed workstation. There might be "libraries" where employees can go to work quietly, and open space for collaborative activities. This concept, if applied at UM, would allow distributed IT professionals to spend time with their constituents as described above, yet still have an inviting space to go to connect and collaborate with IT colleagues from across campus. Project teams could push and support each other. Incident response teams could be pulled together rapidly to address urgent problems.

A partnership between UM IT and the Mansfield Library could benefit both entities. As the library adapts to a world dominated by digital content, it would benefit from housing the core of UM's IT talent. Large areas of contiguous space lined with bookshelves could be redesigned to maximize IT staff collaboration and efficiency. The space could include a center of innovation for faculty and researchers to work, learn, and develop solutions in partnership with IT professionals and librarians.

We recognize that this opportunity requires investment beyond current budget capacity. We encourage the University Foundation to consider the benefits of seeking private funding for an IT innovation center.

Transform UM's IT workforce to design solutions, not just deliver services

Recommendation addresses:

- Quality of IT service
- Efficiencies in personnel
- Training and development
- IT organization flexibility
- Strategic alignment

An adequately staffed and supported project management office (PMO) is a top priority

Transforming the IT workforce requires rethinking how IT services are provided and organized, as well as investing in the professional development of the people who provide those services. Successful transformation depends on fostering a culture that values continuous learning, sharing, and adaptation.

Both academic and administrative leaders of campus called for an IT organization that can proactively anticipate and creatively solve problems. This requires investment in new skill sets organized and empowered to deliver high value. Such skills include project management, data analysis, systems analysis, talent management, and process and interface design, to name a few.

In an effort to develop these skills and refine existing ones, IT professionals with whom we engaged throughout the OneIT process identified the following as recommendations for achieving a dynamic and growth-minded IT workforce:

- Create an onboarding orientation program for new IT employees that introduces them to knowledge required of IT professionals at UM both online before their start date, as well as in-person upon starting their position.

- Create a framework for individual career development plans to ensure IT professionals at UM build relevant skills and stay competitive for future career goals.

- Create an IT-specific performance evaluation tool that measures performance against general standards of practice for IT professionals at UM, as well as position-specific standards.

- Foster a knowledge-sharing network to facilitate collaborative learning. This would include building on existing offerings like IT short courses and leveraging existing networks like Tech Partners.

- Create an IT Talent Development Officer role to design and facilitate training and professional development opportunities.

An adequately staffed and supported project management office (PMO) is a top priority. Building one will allow for appropriate technology consultation, needs analysis, and the management of collaborative projects that span silos. A PMO will provide a single point-of-entry for large-scale IT projects, ensure that projects support IT and campus strategic priorities, and aid in the alignment of talent to tasks and projects.

▌ *Rethink IT governance*

Recommendation addresses:

- Leadership and governance
- Strategic alignment
- IT funding
- Valuing data
- Building partnerships
- Efficiencies in software, hardware
- IT organization flexibility

The OneIT engagement process revealed that IT governance fails to meet needs and expectations of many stakeholders. IT Senate, as the formal representative IT governing body, should re-evaluate its charge and consider membership and leadership structures that would allow it to effectively influence IT strategic priorities and organizational behaviors.

We also recommend alternative approaches to "governance" to support a more agile IT organization. The OneIT initiative could provide a template. We proactively sought a diversity of voices and perspectives from various levels and sectors of campus as the foundation for making strategic recommendations, activities typically associated with effective governance. We engaged stakeholders individually, in groups, and through a transparent online community ideation tool. This approach, applied as an organizational habit, would ensure a continual flow of data about user needs and stakeholder interests.

Design and execute effective hardware and software procurement policies and processes

Recommendation addresses:

- Efficiencies in software, hardware
- IT organization flexibility
- Focusing on users
- Keeping IT simple
- Valuing data
- IT funding

Hardware and software purchasing represents a significant opportunity for cost savings. There are several specific changes that can be made to save money.

Software

- Develop and maintain a comprehensive inventory of software and applications licensed on campus, and build that data into software evaluation processes to reduce duplication.

- Build on the Software Asset Management model administered by central IT which build partnerships across campus to consolidate software purchasing. In addition to saving money through volume purchasing, there are benefits such moving to different licensing models.

Hardware

- Continue pushing for virtualization of servers and consolidation of data centers and server rooms into the Modular Data Center. This consolidation would save money not just on hardware, but on management, support, and energy costs.

- Standardize computer lab hardware and place it on a set replacement cycle. We also recommend exploring the cost savings possible by moving to a thin client/virtual desktop model as currently in use by several areas across campus.

- Create a standard faculty computer roll-out model. The current faculty roll-out model of disbursing funds to departments causes a wide diversity in machines that need to be supported as well as the amount of funds expended per unit. Creating a process with a set catalog of a limited number of faculty machines available would allow for a more sustainable support model as well as reduce the per-unit cost by pooling purchases into a greater number of units.

Looking forward

As the OneIT process concludes, UM awaits the outcome of an academic and administrative program prioritization process, fallout from staff employee buyout offers, and the arrival of a new president. Those events could significantly alter the landscape for IT. We encourage those who have a role in executing these OneIT recommendations to stay focused on long-term goals and to make decisions consistent with the design thinking process and the shared values in the University's strategic vision.

The IT culture we envision has a bias toward action. Ideally, IT just works, with services that are simple, seamless, intuitive, reliable, and fast. IT should drive innovation and be collaborative, creative, and solution-oriented. While it may take several years to fully realize aspects of this vision, we will only get there if we begin taking iterative steps in the right direction now.

We recommend continuation of design thinking principles in the execution of IT strategies. The OneIT team took the process only through the ideate phase. The next steps are to prototype and test ideas as a way of continually moving forward. A design thinking culture also continually circles back to empathy, defining, and ideating, which we believe is critical to building a trusting and innovative IT operation.

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