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Message from the CIO

In 2017, we began our journey to build a strong IT foundation for the future. Our unrelenting focus has been on improving the foundational technology while driving out inefficiencies to help fuel and fund the transformation that will directly support NYU’s strategic goals and mission. Reflecting upon fiscal year 2018, we have many accomplishments to be proud of but are also reminded of the work still needed to reach our ultimate goals.

Although we have made many direct contributions to the overall NYU strategy, a greater amount of effort continues to be necessary to improve our core services and operational stability. The services we provide must be reliable, consistent, and well-designed. The global university depends on these functions 24 hours a day, 7 days a week. In concert with strengthening our core services, we have also committed to developing an equally robust IT professional community.

This 2018 NYU IT Annual Report summarizes the efforts undertaken by NYU IT during the academic year to build the IT foundation and community — the technological and the human. Regardless of where NYU community members may be physically located or what task they need to accomplish, we at NYU IT are fully committed to delivering excellent service.

Teams and Partnerships Work; Boundaries Don’t

Throughout this year, NYU IT has focused on fostering relationships and increasing our touch points and collaborations. This means strengthening existing partnerships with members of the NYU community while also building new relationships. Leading up to 2018, our efforts have included continued collaborations with the Information Security Advisory Group (ISAG) and the Faculty Committee on the Future of Technology-Enhanced Education at NYU (FTEE); the reformation of groups such as the University CIO Council; and the creation of new committees such as the Research Technology Faculty Advisory Board (FAB) and the IT Project Review Committee (PRC). We want to make sure that faculty, students, and administrators across NYU have a voice at the table when it comes to IT decisions.
We are also invested in the development of student programs and Digital TorchTech, an online community to encourage discussion and the exchange of ideas related to IT issues. In March 2018, I was proud to speak at the HackNYU hackathon and pleased to see so many members of NYU IT in attendance to lend assistance as mentors to the student participants and organizers.

Making NYU Data Available and Secure

Another integral aspect of fostering a strong IT community is making sure University researchers, administrators, and instructors have access to the data they need. NYU community members generate a large amount of data as they conduct their work. NYU IT has been exploring innovative ways in which collected data can be applied to the betterment of education and to the refinement of services we provide to the University.

As part of the effort to deliver accurate, curated, easy-to-use data in a secure, governed environment, NYU IT launched several new initiatives. The new Senior Leadership Information Portal (SLIP) that supports the president and University leadership in analyzing key metrics was made available and continues to be refined. The development of the NYU API/Data Portal and enhancement of policies surrounding secure data governance help us evolve the quantity and quality of data available to the NYU community. Advances in learning analytics and adaptive learning technologies are empowering us to build better, more responsive, more customizable learning environments.

Building Today for the Research of Tomorrow

The community surrounding research technology is a vibrant association of researchers, support staff, and faculty, who rely on a rich collection of services to enable and support their work. This community is always looking toward emerging technology and the role it could play in furthering academic study.

Few technologies have grown in recent years at the same pace as artificial intelligence (AI) and machine learning. NYU IT is committed to a substantial investment in resources dedicated to AI and machine learning research and development. Effectively delivering services in this computationally-intensive space requires a network with robust speed and bandwidth. In the coming months, NYU IT will begin implementing a next-generation network capable of speeds up to 100GB, and will be working with University leadership on a strategy to support the growing computational needs for research. It is our goal to create a world-class space, both online and in the physical world, for NYU researchers.

Insist on Excellence

Lastly, as we look at the very many ways that we are supporting the University, we do it with a focus on excellence: everything from basic services to emerging technology solutions and effective process design implementation. Last November, after having visited over half of our global sites, it became clear that we had an opportunity to create a new and excellent experience that was consistent across all sites. As a result, we launched a broad program called Global IT. With this program, we are aiming to create that consistency, improve systems stability, and streamline our existing processes.

I am very happy with the progress we have made that, together with our shared core beliefs, will enable NYU to achieve new levels of success.

Len Peters
Vice President and Chief Information Officer
Insights
Accelerating NYU’s Groundbreaking Research

David Ackerman
Associate Vice President, Research Technology

Since the creation of NYU IT’s Research Technology unit in 2017, there has been tremendous, fast-paced growth in the field. In response to this growth, Research Technology launched and continued to develop a number of exciting projects during the past academic year under the guidance of the Research Technology Faculty Advisory Board (FAB), one of the key initiatives that came to fruition in 2017.

The FAB has been the driving force behind NYU’s continued growth in the research technology realm and the increased alignment between the needs of researchers and the resources the University provides to them. The expansions undertaken with the FAB’s input enable Research Technology to support current, ongoing research as well as to build the foundation for the next generation of research in emerging fields such as artificial intelligence (AI) and immersive reality.

Working with the FAB, key research partners across the University, and a third-party consulting firm, NYU IT Research Technology has realigned its core services and initiated a large-scale outreach effort. This effort will more effectively communicate to the NYU community the diversity of Research Technology services. Raising awareness of resources will result in higher utilization and, ultimately, an increase in groundbreaking research conducted under the banner of New York University.

The fastest growth this year has been in the areas of high performance computing (HPC), and 3D printing and scanning that occurs in additive manufacturing and digitization. HPC at NYU experienced a
significant increase in capacity, with use of resources keeping pace with growth. Additional expansion is being planned to meet anticipated need. A percentage of that new capacity is earmarked for research in the cutting-edge field of AI, the demand for which is expected to increase dramatically in the near future. According to research published by Gartner, Inc. in 2017, AI will become an integral part of many applications, from banking to academic course delivery.1 Focusing on support for AI research will enable NYU to foster the next generation of AI developers, as well as subject-matter experts from across the University who will be “teaching” and cultivating the AI systems themselves in support of a multitude of academic and research pursuits.

NYU is also building the foundation for a dedicated high-speed, low-latency research network that will enable researchers to move large data sets into and out of the central cluster, as well as use the network for applications that require low latency, such as virtual reality.

In the additive manufacturing and digitization space, the dedication and quality of work at NYU’s LaGuardia Studio continues to attract NYU community members as well as high-profile clients from outside of NYU. LaGuardia Studio has also secured its place as an incubator for emerging additive manufacturing technologies, including new types of 3D printers and print material.

Some recent high-visibility projects include:

- LaGuardia Studio participated in 3D scanning and 3D printing of detailed, lifelike masks for face transplant donors in collaboration with Dr. Eduardo D. Rodriguez and the NYU Langone Medical Center’s Hansjörg Wyss Department of Plastic Surgery and Face Transplant Program.

- 3D printing of masks for “Probably Chelsea,” a touring art installation by Heather Dewey-Hagborg, which used DNA from Chelsea Manning to generate potential facial models, was facilitated by the Studio.

- Artist Morehshin Allahyari and the LaGuardia Studio were featured in an episode of National Geographic’s Genius about 3D printing and related technologies. The series showcases artists who are innovative in their use of technology in art.

- Studio staff completed 3D modeling and fabricating of a tiara in collaboration with designer Ellen Christine for actress Lynda Carter’s outfit at the 2018 Met Gala.

The NYU IT Research Technology unit works closely with the NYU Libraries. This collaboration provides invaluable insight into the impact of technology on a vast array of academic fields that has resulted in substantial growth of the University’s digital humanities resources. Digital Library Technology Services, for example, has greatly expanded the University’s archive of online resources this year.

Looking forward, NYU IT and the Research Technology unit will continue to invest in foundational technology infrastructure that will enable NYU to support the needs of researchers across the many academic disciplines that rely on research technology.

LaGuardia Studio has also secured its place as an incubator for emerging additive manufacturing technologies, including new types of 3D printers and print material.

The Convergence of Data Security, Network Resiliency, and Data Access

Angela Chen
Associate Vice President, Enterprise Data Management

Rich Mikelinich
Chief Technology Officer

Last year, NYU IT focused on rethinking and preparing a technological foundation that would give the organization the tools to embrace new technologies and take advantage of innovative breakthroughs. Those efforts are now being transformed into tangible services and impactful change. Two NYU IT units — Enterprise Data Management (EDM) and Infrastructure — form the groundwork of next-generation foundational technology that will be key to meeting the evolving needs of students, researchers, faculty, and staff.

The first half of 2018 saw hundreds of data breaches and data leaks across the globe. The largest incident was the release of up to 87 million Facebook records to the now-defunct data firm, Cambridge Analytica.¹ With the rise of security attacks against higher education, one of NYU IT’s ongoing top priorities is to balance the need for an effective IT infrastructure and data management framework against the demand for technologies that push the boundaries of scientific and academic research.

Together, EDM and Infrastructure have identified functions that are essential to NYU IT’s vision for delivering a more seamless, reliable, and safe computing experience for community members. These areas include security and stability of the NYU network, identity and access management, application integrations, and the migration of essential computing resources to the cloud. Having full visibility into and control over how University data are aggregated, stored, disseminated, and protected is essential for users who need to access and use that data from a centralized and secure source.

NYU has over 2,000 servers that host the databases and applications used by community members to conduct and drive the University’s mission. Currently, NYU IT is working with a leading technology service provider on implementing a series of recommendations that will improve the resiliency of the network and ensure that these systems perform optimally. The assessment includes plans for a new, high-level network design that will serve as...
the blueprint for operating NYU’s network security architecture and processes across the University’s global sites. Implementing a new network design also lays the groundwork for a dedicated, high-speed research computing network to execute intensive high performance computing functions.

To better meet the University’s increasing demand for high-speed wireless service, NYU IT’s network improvement project is working to expand capacity to support data-intensive applications and devices that require significant bandwidth. Future investments in NYU’s fiber wireless architecture, particularly for mission-critical functions, will help safeguard the University against outages and prevent the interruption of important business processes.

Alongside improvements to network performance, NYU IT strives to keep its IT environment safe from threats while simultaneously enabling community members to use the tools that support their academic work, research, and administrative functions. The Identity and Access Management Program (IAM) is paramount to attaining this. IAM is a large-scale, multi-year initiative that will redesign, rebuild, and enhance NYU’s identity management infrastructure. One major component of IAM is the migration of NYU’s legacy Registry system to a cloud-ready identity and access management solution. Transitioning to this new system will enable the University to manage access control based on business roles, ensuring that the right people gain the right access to the right materials and records at the right time.

NYU’s application landscape is becoming ever more involved, and the applications NYU uses currently rely on custom-built data integrations. These types of data integrations can be very complex and costly. NYU IT is in the process of completing a phased rollout of the API/Data Portal, which allows the creation of reusable and auditable data services through the use of Application Programming Interfaces (APIs). This model is well-suited to support NYU’s next-generation application portfolio.

Shaping a technological foundation that will fully support core University functions requires a holistic, collaborative approach. NYU IT’s EDM and Infrastructure units understand this and are committed to improving University infrastructure and data management services, and to delivering more value, more quickly to the entire NYU community.

Knowledge Is Power: How Data Helps Drive NYU’s Success

Adrian Kulpa
Director, University Data Warehouse Business Intelligence

One of NYU IT’s goals is to provide tools and repeatable processes to support open and well-governed data access that enables data-driven business decision making. To meet this goal, the Senior Leadership Information Portal (SLIP) was developed by the Office of the President, the Office of Institutional Research, and the NYU IT Enterprise Data Management (EDM) unit. This portal provides NYU’s president and senior leaders with insights into major areas of the University. It helps them assess progress against NYU’s core missions, strategic goals, and administrative functions.

SLIP leverages Tableau, NYU’s reporting and data visualization tool. Users can easily navigate and interact with University data via a user-friendly, web-based interface within a secure, shared environment. Meeting the identified need to automate data integrations and connect University core data sets is a project priority.

The development process for SLIP is highly collaborative, with business units actively participating in design, development, testing, and acceptance. Through prototyping and continuous user feedback, the product development process remains adaptive and flexible in aligning with leadership priorities.

By responding to the strategic information needs of University leaders, SLIP also reflects NYU IT’s commitment to being a driver of excellence, collaboration, and innovation, and to providing intuitive and secure data services that empower NYU community members.
One of the top priorities for Enterprise Data Management (EDM) is increasing the availability of University data assets in a secure and governed fashion. A core part of meeting this goal is the new NYU API/Data Portal. The Portal offers Application Programming Interfaces (APIs) that enable NYU community members to interface and interact with a vast store of data cultivated from many NYU services. In development since 2017, the Portal launched in March 2018 as a pilot service supporting HackNYU, one of the largest student-organized hackathons in the country. Rollout to the larger NYU community is taking place during the fall 2018 semester.

APIs assist developers and delivery teams in building software applications and specify how components should interact. They enable developers and researchers at NYU to access and reuse data efficiently through an API ecosystem, leading to a faster pace of delivery and the ability to quickly create new and innovative experiences. APIs can also greatly reduce the cost of change and enable application owners to modify apps with minimal impact. They hold the potential to free NYU from the limitations of underlying legacy systems and change the way digital products and services are delivered to students, partners, and employees.

The initial set of APIs available through the Portal provide access to data from NYU sources such as Registry (Identity Bio-Demo), Housing, Space, and Public Safety. Following the HackNYU event, the EDM group began working with the NYU community to expand the platform architecture, security, and governance, and to create additional APIs.
Identity and access management (IAM) technologies use various authentication mechanisms to connect NYU community members to the NYU applications, systems, and networks that support their work and studies. NYU IT recognizes that providing an open and secure data access environment is essential to the University’s ability to issue and protect online identities while meeting compliance requirements. In early 2018, NYU IT launched the IAM Program to replace the University’s custom-built Registry data service with an off-the-shelf, cloud-ready identity software provider. Migrating the University’s existing Registry technology to a supported, vendor-provided system will improve the management of online identities and user access, as well as reduce costs and enhance NYU’s IAM systems and processes.

The IAM Program is a multi-year undertaking that involves numerous NYU units and departments, and it plays a crucial part in the University’s strategy for overhauling its data and identity management infrastructure. Due to the project’s complexity, the IAM Program will be rolled out in three work streams: Registry migration, improved birthright and role management, and access control improvements. Efforts to date have resulted in the stabilization of critical components in the existing Registry service and the commencement of new security initiatives. Additionally, NYU IT has invited over 160 community members from across the University to participate in monthly community forums to receive updates, submit questions, and share feedback about the IAM Program.

In today’s complex IT environment, organizations must implement systems and tools that grant authorized users access to the right resources at the right time and in the right context. The University’s shift towards a self-service identity management model will enable greater operational efficiency and governance, and enhance research and productivity through the consistent and centralized management of identity data.
Teaching and learning at universities around the world are changing rapidly, influenced by technology, new teaching methods, and a richer understanding of learning styles and behaviors. Staying current requires instructors and technologists to assess and reassess tools and approaches frequently, and integrate them into in-person and online courses and programs.

According to data collected by the U.S. Department of Education, the percentage of undergraduate students enrolled in at least one distance education course rose to 30 percent in 2016. Among graduate students, that number increased to 36.6 percent. Given the promise that distance education holds for students faced with location, schedule, language, and accessibility challenges, the rise in demand is expected to continue. Teaching and Learning with Technology (TLT) keeps the pace by deploying effective technology and teaching experiences that instructors, technologists, and students need to reach their academic goals. Two key NYU efforts undertaken by TLT throughout the academic year are the creation of Online Program Services (OPS) and the continued development of a learning analytics service.

Online Program Services

Increasingly, NYU Schools, departments, and programs are exploring online and low-residency teaching and learning options. While some Schools have years of experience with online programs, others are just beginning to explore the possibilities. Some will rely exclusively on University-based services, while others will also work with third parties known as Online Program Management companies. Given the growing complexity of this landscape, key stakeholders across NYU, including the Provost’s Office, NYU IT, and Enrollment Management, recognized the need for coordinated support for Schools and departments engaged in developing online programs.

NYU IT responded to this need by forming OPS, which has partnered with Enrollment Management in the creation of a suite of services to support the efforts of online students and corresponding units. OPS will provide them with the tools, consultative resources, and market and institutional knowledge that will equip them to make online program decisions, expedite the launch process, and choose the best resources and vendors to match a unit’s mission and goals.
As the partner to OPS, NYU's Office of Enrollment Management is creating a companion function called Administrative Policy Support for Online programs (APSO). This new collaboration seeks to provide Schools with support and an infrastructure that makes clear the administrative processes, policies, and best practices for developing online programs at NYU. Its goal is to allow Schools to offer, recruit for, and enroll students in online programs in a way that benefits students’ educational pursuits and their institutional goals.

APSO and OPS recently conducted a series of 20 listening sessions attended by 11 Schools and eight administrative units. The goal was to better understand the areas of need as well as the areas of excellence. The findings of these conversations are shaping services that will streamline, clarify, convene, and help coordinate the development and launch of new programs across NYU.

**Learning Analytics**

Thousands of NYU instructors and tens of thousands of students engage with one another each semester in online, in-person, and blended courses. The range of courses is as varied as NYU's Schools and disciplines. Yet, a common theme is the iterative need for faculty to access and review data around how the students in their courses engage with the content and assignments.

As more students participate in online courses, instructors and administrators have an opportunity to analyze data collected during the process and use it to refine online course design. This can mean something as granular as customizing the course for each
student, which can serve as intelligence to enhance the digital learning environment.

TLT recently conducted a learning analytics proof of concept for five courses across various NYU Schools. Through the development of these course-related use cases, faculty had access to Tableau, an interactive data visualization tool, that responded to their questions about topics such as interaction with course material, learning objectives, and student engagement. In addition to a better understanding of faculty questions around learning and analytics, the project is also yielding insights about vendor data and future policy improvements.

The next phase of the project launches in fall 2018. TLT will extend the pilot to faculty from a greater number of Schools, which will help further shape the scaling of the Learning Analytics service that is set to launch in fall 2019.

In collaboration with NYU faculty, instructors, and students, TLT first focuses on inquiry to better understand and help respond to learning needs, goals, and questions. With that understanding, TLT can help align those needs with technology and instructional methods to support excellent learning experiences for the NYU community around the globe.

As more students participate in online courses, instructors and administrators have an opportunity to analyze data collected during the process and use it to refine online course design.

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Today’s world is a mobile place. NYU is a model of this, as students, faculty, and staff move from building to building, campus to campus, even country to country. There is an expectation that, regardless of location, a member of the NYU community can wake up their phone or flip open their laptop and have access to a consistent set of tools and services, whether it is in a computer lab, a classroom, a residence hall, or an administrative space.

Digitally empowering employees produces multiple benefits, from boosting productivity to improving business processes and internal communication. When viewed through the lens of workplace technology, a recent survey by the enterprise IT company, Aruba, found that 74 percent of employees who worked in digitally-enabled workplaces were more likely to report strong job satisfaction.¹ Developing the strategy for implementing a unified physical and data ecosystem — the digital workplace — involves a number of moving parts. At NYU IT, it is a key collaborative effort between the Service Operations and Strategy, Planning, and Engagement units, and IT partners across the University.

The strategy that underpins the digital workplace effort is built on four guiding principles:

- Create an environment where people can easily collaborate and do their best work.
- Enable employees and clients to drive results through improved use of technology.
- Remove existing barriers in all technology experiences.
- Promote self-service where possible, reducing the need for IT intervention.
Among the foundational projects for the digital workplace is managed desktops. Currently, managing desktops — what is installed on any given University computer — is inconsistent across locations and Schools. It is increasingly common for NYU community members to work at more than one workstation. Moving to one computer, only to discover that it does not have the same tools offered by the computer previously used, negatively impacts productivity and triggers a sense of frustration.

Managed desktops seek to alleviate this issue by creating a shared framework and suite of tools and software that remains consistent across all University computers, yet is flexible enough to adapt to the needs of a specific user. For example, many times, this adaptability comes in the form of providing a software package that may not be in wide use and thus is not part of the core desktop installation, but is essential to the job function of a specific person or group of people. NYU IT has undertaken a redesign of the web pages that detail the licensed software that is available to the NYU community, with the goal of streamlining the process of requesting and receiving software packages.

Simplification is another key aspect of the digital workplace. The overhead for requesting and using IT services needs to be reduced whenever possible.

The Digitalization group is spearheading this core initiative to automate the delivery of IT services, eliminating complexity, wait time, and the cost of providing a service.

Concurrent with building a more reliable, agile computing experience, NYU IT is seeking to provide similarly reliable, agile physical space. Just as one needs a consistent computing experience from machine to machine, one also needs a consistent experience from space to space. The availability of IT resources such as wireless and Ethernet access to NYU-NET and other essential resources must be, as with the desktop, dependable and predictable. It also means rethinking the way space is configured and what amenities are provided.

Looking inward, and building outward, NYU IT hopes to develop a digital workplace blueprint that other NYU groups will find useful. Creating a work environment, both on a computer and where the computer sits, enables community members to be more collaborative, focused, and productive, regardless of their physical location. It is within this environment, one that is consistent yet flexible, that the students, faculty, and staff of NYU are empowered to do their best work.

In February 2018, NYU IT formed a new unit, Strategy, Planning, and Engagement. Joining NYU to lead the group, Associate Vice President Annie Merkle spearheads strategic planning initiatives and select strategic priorities while also working to chart the overarching course of NYU IT.

The new unit encompasses several interconnected groups that work to leverage expertise across Strategy, Planning, and Engagement and NYU IT. **Facilities and Workplace Services** provides administrative support, workspace management, move services, and enables increased staff collaboration and colocation. **IT Communications** conveys key insights and information about IT to the broader community. **IT Partnerships and Community Relationships** engages with IT leaders across NYU Schools and institutes to share information, align efforts, and leverage work. **IT Engagement** gathers input from staff, IT leadership, and the community at large to plan and deliver strategically-aligned individual and organizational development opportunities.

The **Student Relationships** program focuses on creating valuable experiences for students and Technology Leadership Program participants working in IT. **Global IT** supports NYU’s global locations, brings consistency of experience, increases service quality, and reduces the cost of how NYU IT manages and delivers services. **Digitalization** will benefit users with easy-to-use, self-service solutions for services that can be automated.

Helping to align the work of NYU IT with NYU’s overall strategic priorities is at the heart of Strategy, Planning, and Engagement’s mission. The unit aims to accomplish this by providing useful tools and information, and by inspiring meaningful collaboration and professional development among NYU IT staff and the larger NYU community.
Digitalization and the Optimal User Experience

Vincent Hou
Director, Digitalization

Today, connected, easy-to-use apps and services are a ubiquitous part of life. People are used to getting what they want in three clicks or less. They expect to be empowered to use technology effortlessly, without friction and quickly enough to accomplish what they want while they wait for the next bus or train to arrive.

Considering this to be the fundamental expectation of future NYU community members, NYU IT asked itself: are the IT services and apps being provided to NYU students, faculty, and staff — apps to learn, teach, and support the University’s academic mission — ready to meet or exceed their expectations?

NYU IT’s Digitalization initiative plans to meet these challenges head on. Instead of simply migrating paper forms and their associated, labor-intensive manual process to electronic websites, this initiative seeks to digitally transform existing technology so that it more closely aligns with the expectations that have been set by popular public apps and websites.

Advances in artificial intelligence and machine learning, such as natural language processing, hold tremendous potential for improving how people interact with and interpret data. Digital transformation requires a reevaluation of the overall experience provided by IT services, including a redesign of look and feel, underlying business practices, and the support model.

Through it all, NYU IT must make effective use of collected data to guide each of those three things: look and feel, business practice, and the support model. To accomplish this, NYU IT recognizes that the foremost guiding principle must be putting the individual’s experience above all else.
Bringing the World into One NYU

Annie Merkle
Associate Vice President, Strategy, Planning, and Engagement

With 14 global locations, NYU’s footprint is impressive. For years, NYU IT has been exploring opportunities to ensure IT services are consistently available to NYU community members, regardless of location. Maintaining reliable global service availability requires resources, sponsorship, and dedication to building the foundation for IT around the globe.

Part of accomplishing this goal involves assessing the IT resources of each global location and implementing improvements and upgrades based on the underlying technological infrastructure. Each location has a unique set of circumstances, making a one-size-fits-all approach ineffective. NYU IT is working with the resources and opportunities available at each location to implement an experience that is as consistent as possible.

NYU IT’s global service delivery enhancements focus on providing a consistent and excellent user experience at any location, at any time. The Global IT Strategic Program is collaborating with consultants and community members across the University towards this vision. Accomplishing it will require communication, expertise, flexibility, and rigor. NYU IT places a premium on its responsibility to add strategic value to NYU, optimize the user experience for every community member, and regularly reimagine and enhance how technology enables productivity and academic success.
Accomplishments
Foundational Technology

Finance and Accounting Systems (FAME) Upgrade

The FAME version 9.2 upgrade project represents a significant improvement to the University's financial system. This transition to the most current versions of the core PeopleSoft application and PeopleTools happened concurrently in both New York and Abu Dhabi in June 2018. The project’s scope focused on the technical backbone of FAME to improve system compliance and align with Oracle’s support requirements.

Data Center Shutdown

NYU IT developed and executed a strategy for relocating or retiring all applications supported in one of its data centers and removing any remaining infrastructure, equipment, storage, and desks. The shutdown migrated applications and hardware to one of three higher-tier NYU data centers and enabled the University to repurpose the vacant location for academic use. Decreasing NYU’s data center footprint contributes to the University’s overall goals of affordability and streamlining operations.

Completed Migration to Feature-Rich Telephony

NYU IT completed the campus-wide migration of 17,500+ Avaya telephone handsets/lines to the Cisco Voice-Over-IP (VoIP) service. This project will save NYU approximately $286K annually starting in September 2019. It will enable faster, more cost-efficient, secure, and scalable IP phone changes and support, ensuring optimum voice quality across NYU’s global network.

Implemented Turbonomic

Turbonomic is a cross-platform virtualization monitoring and management tool designed to work in VMware, Microsoft, Citrix, and Red Hat virtual environments. The tool optimizes infrastructure hardware use and efficiency to realize hardware cost containment and intelligent workload management. Turbonomic does this by interpreting monitoring data and taking automated action when appropriate, removing the need for administrator intervention. It also provides a dashboard-style view of an entire data center and identifies resources that can be reclaimed.

Improving Wireless Connectivity

NYU IT is actively enhancing wireless connectivity by increasing the number of wireless access points across the New York campus. This work both extends wireless coverage and improves bandwidth capabilities. Upgrades will continue in the coming year in New York and at several NYU global locations. Additionally, a community survey was conducted to help identify network coverage issues so that they can be rectified. This included "pop-up" tables at buildings around campus, a joint effort between the IT Service Desk and NYU IT network engineers.
New Chief Information Security Officer

Tony Cetera joined NYU IT as Chief Information Security Officer (CISO) during the summer of 2018. CISO is a strategic role that oversees the implementation of evolving information security measures and University-wide IT security initiatives. Working closely with senior leadership and NYU units, he will spearhead the planning and execution of NYU IT’s enhanced information security strategy and program, risk assessment efforts, and operational activities.

Phased Rollout of API/Data Portal

As part of a major strategic initiative for the NYU community, NYU IT successfully launched a new API/Data Portal in March 2018. Spearheaded by the Enterprise Data Management (EDM) unit, the Portal offers Application Programming Interfaces (APIs) that give NYU users access to secure, real-time data on institutional data assets. The launch of the Portal aligns with users’ growing desire for self-service, yet governed, access to relevant data that can be used to build and facilitate targeted and customized applications in an agile fashion.

University Data Warehouse Plus (UDW+) Enhancements

This year, a new high-capacity server environment was launched for UDW+, which stores major components of financial, HR, research, and student data. As part of NYU IT’s efforts to make data integration work more accessible and flexible, additional data access options are now available in UDW+. In addition to improving the performance of the UDW+ daily refresh processes, a data integration and processing shared service was rolled out to the NYU School of Professional Studies.
Reorganization of Research Technology Services

The Research Technology Service Definition Project was launched in 2018 to address the need for a Research Technology service portfolio that was better defined, coordinated with the Faculty Advisory Board (FAB), and marketed to the NYU community. A core team of Research Technology leadership and service leads partnered with a consulting firm in a collaborative, iterative process that took into account the input of polled faculty from all NYU Schools. Project recommendations implemented thus far include developing an impact statement and renaming select services and groups while structuring them in a matrix that communicates the breadth of services more clearly.

Inaugural Data Services Research Day

Data Services expanded its Geographic Information Systems (GIS) offerings by hosting its first Data Services Research Day (DSRDay) on November 8, 2017. This event was aimed at cultivating the research community by highlighting research technology, services, and resources offered by Data Services and various partners. DSRDay attracted more than 230 attendees, along with 16 speakers. It also featured a research technology showcase with 16 creative mapping and visualization competition entries, as well as a highly-popular augmented reality sandbox.

NYU Digital Library Technology Services

Digital Library Technology Services (DLTS) has several projects underway. In partnership with NYU Press, DLTS is exploring new ways of publishing, reading, and creating discourse around scholarly monographs. The team is partnering with the Internet Archive to preserve the work of contemporary music composers. DLTS is also continuing to digitize books from Arabic countries, with 10,000 made available to date. These efforts are supported by grants exceeding $3 million from the Andrew W. Mellon Foundation, the Arcadia Fund, the Carnegie Corporation of New York, and NYU Abu Dhabi.
Teaching and Learning with Technology

Stern School of Business and TLT Create Stern's First Online Certificate

Teaching and Learning with Technology (TLT) collaborated with NYU Stern School of Business faculty and staff in the creation of the Certificate in Advanced Valuation course. Since it launched in the spring 2017 semester, a total of 382 students have enrolled in the program. Sixty to seventy percent are international students, representing nearly 50 countries. The success of this offering led to TLT and Stern developing a second certificate course, Corporate Finance.

Enhanced Collaboration Between NYU IT and NYU Libraries

Three key collaborations are fostering new approaches to NYU IT’s and NYU Libraries’ support for instructional innovation. The Academic Technology Leadership Group (ATLG) was convened this year and is charged with aligning IT and the NYU Libraries on strategic planning and clarifying parallel services for faculty to minimize redundancies and identify gaps and opportunities. In addition, a smaller ATLG working group has been formed to look at tactical steps towards continuous improvement in supporting faculty via NYU IT and NYU Libraries partnerships. NYU subject-matter librarians and instructional designers also began a new partnership, hosting a number of workshops and lunch-and-learns, and joining several key teaching and learning governance groups.

New Gradebook and Improved Navigation for NYU Classes

During the fall 2017 semester, NYU Classes released a new Gradebook for all course sites. Developed in response to faculty feedback, the new Gradebook delivers significant usability improvements centered around a new spreadsheet-style interface. Additionally, NYU Classes introduced an expandable, accordion-style subpage navigation feature that facilitates site navigation for online courses. This enhanced navigation provides a clearer view of a course’s structure and allows for faster, easier access to its content.

Reimagining Instructional Opportunities for Clinical Work at the NYU College of Dentistry

TLT instructional designers worked with College of Dentistry faculty to convert the Clinical Manuals for Prosthodontics series from static PDFs to an NYU Web Publishing site (powered by WordPress). The innovative website provides a more interactive, dynamic environment, and enables the replacement of static images and image sequences with video. The archive provides free instructional resources for hundreds of students in the Department of Prosthodontics’ predoctoral dental education program.
Data Analytics

Self-Service Reporting (Tableau) Enablement

Launched in 2017, the interactive data visualization tool Tableau continues expanding intelligence and analytics capabilities to the University at large. Loyal to its self-service approach to this initiative, Enterprise Data Management built an enterprise-scaled Tableau server, and provided technical support and training for Schools and administrative units. This allows NYU communities to customize and individually manage, design, and share their Tableau analytics to drive business value at their own pace.

Information Security

Global Expansion of Next-Generation Firewall

NYU IT has made a substantial investment in enhanced network security infrastructure during the past year. In addition to implementing a perimeter firewall in New York, an Intrusion Prevention System (IPS) was installed on the network at NYU Shanghai. These systems have protected NYU’s network from a barrage of exploits since launching. Planning is underway to install firewalls at NYU’s global locations.
NYU Management Fellows

IT Program Services Office (PSO) led Project Management Training and Applied Learning sessions for the inaugural group of NYU Management Fellows. This is a nine-month leadership development initiative sponsored by NYU’s Executive Vice President and Vice President of Human Resources. The Management Fellows worked as teams to develop recommendations on two projects of strategic importance: "Improving University Employment Onboarding," and "Improving Intervention Processes for Undergraduate Students At-Risk of Leaving NYU before Graduation."

Women in Information Technology (WIT) Gains Momentum

Since WIT’s founding in 2017, the group has grown to include sub-committees for a number of initiatives aligned with WIT’s mission to empower women who are working in IT-related professions at NYU, and to encourage them to reach their fullest professional and personal potential. These sub-committees include: Communications, Community Initiatives, Networking, Professional Development, Career Advancement, and Event Planning. WIT has also hosted a number of well-attended events, including: an academic year kickoff with guest speaker Vita Cassese, CEO of Mardon Management Advisors, who discussed her experience as a woman working in IT; a workshop series for Women’s History Month in which attendees could learn strategies for developing their talents; and a user experience (UX) workshop on “Designing for Accessibility Using Empathy Mapping” co-hosted with TorchTech’s UX Community of Practice and led by NYU Tandon School of Engineering Adjunct Professor Regine Gilbert.
Improving Customer Service through Artificial Intelligence (AI)

In support of NYU IT’s commitment to continuous service improvement, efficiency, and client satisfaction, the NYU IT Service Desk has set in motion the development of an AI-enhanced AskIT Chat service. Within the NYU Mobile App and popular NYU services, community members will be able to open a chat window to ask support questions and instantly receive potential answers from the vast ServiceLink knowledge base. Should they need further assistance, the person can then choose to be connected by phone or chat with a live NYU IT Service Desk representative, available 24x7.

Making the Most of Vendor Management

In support of the University’s strategic priority to make studying at NYU more affordable, NYU IT set a goal to increase productivity by 5 percent this fiscal year. By negotiating better pricing and more favorable contractual terms with suppliers and service providers, the NYU IT Vendor Management group is on track to deliver approximately $2.1 million in savings toward that goal. Furthermore, the group is increasingly diligent about monitoring vendor performance to ensure improved service quality.

Enhancing Strategic Sourcing Practices

NYU IT’s implementation of Fieldglass, a contingent workforce management system, has allowed the organization to advance operational goals and automate much of the consultant hiring process. With Fieldglass, NYU IT has shortened the recruitment timeline and improved the caliber of consultants hired into the organization. The system also requires consulting agencies to disclose markup and pay rate information that enables hiring managers to compare and select the best candidate based on cost and merit.

Maximizing Resource Planning Capabilities

In fall 2017, NYU IT launched an organization-wide Effort Reporting initiative to better align its work with organizational priorities, become more efficient, and reduce the investment in “Keep the Lights On” activities. Effort Reporting requires staff and consultants to log the number of hours spent on projects, services, and other work-related activities. Analysis of the resulting data allows NYU IT to prioritize and manage NYU IT to understand time investments, and predict and allocate resources for maximum effectiveness.

Administrative Metrics Executive Dashboard

NYU IT completed the development and roll-out of the Administrative Metrics Executive Dashboard to Finance leadership. The Dashboard presents executive-level summary service metrics for many of NYU’s administrative service centers, including FinanceLink, PeopleLink, StudentLink, and the IT Service Desk. The data is sourced from ServiceLink and service metrics are grouped into four categories: productivity (e.g., volume metrics like “how many tickets were closed this month?”), timeliness (e.g., “how long did it take to complete a transaction?”), aging (e.g., “how many items are still outstanding beyond their service level agreement and for
how long?”), and quality (e.g., “are the customers satisfied with the quality of service?”). The Dashboard also features data from other systems, including Cisco, FAME, and WorkDay. The Dashboard is a powerful tool that consolidates service, operational, and call center data with the goal of fostering a culture of data-informed decision making and continuous improvement across University administrative units.

**Stern Student Information System Improvements**

Migration of Stern graduate students from the Stern AIS system into the Albert Student Information System (SIS) was completed in July 2018. Campus Solutions 9.2 upgrades and the IntraSee SIS enhancement projects laid the technical groundwork for successful user migration. Student survey responses captured feedback on Albert SIS improvements, including the overall look and feel. The IntraSee implementation addressed these items by delivering a design that is mobile-friendly, accessible, and leverages the existing NYU PeopleSoft portal.

**Indirect Cost Project**

The goal of the Indirect Cost project is to establish University-wide policy and processes to split the indirect cost rate associated with sponsored research projects shared by multiple Schools or departments. The initial phase of the project involved a proof of concept and determined a solution to automate the existing manual process of creating journal entries to split the indirect cost. The automated process, launching in fall 2018, ensures consistent accounting of indirect cost recovery sharing, has a single repository for all agreements, and offers a repeatable recovery allocation process with reporting capabilities.

**myTime Enhancements**

NYU IT and Finance successfully managed two significant improvements to myTime during the 2017-2018 academic year. They are: updates to myTime integrations and processing in order to handle the rollout of New York Paid Family Leave, and implementation of updated HR Sick Leave policies.
**IT Governance**

**Architecture Governance**

NYU IT collaborated with NYU’s Shanghai and Abu Dhabi campuses and a number of Schools and units in New York to set up Lightweight Enterprise Architecture Framework (NYU LEAF), an architecture governance framework based on industry standards established by The Open Group Architecture Framework (TOGAF). NYU LEAF was tailored to meet NYU’s agile approaches and needs, covering various areas of architecture, including business, data, applications, technology, security, and compliance. Its implementation involved training, certification, Architecture Review Board (ARB) membership, and developing standards across these architecture areas.

**Data Governance Support**

Enterprise Data Management has partnered with NYU’s Office of Institutional Research and Data Integrity to further strengthen NYU IT’s commitment to improving data governance best practices and engaging the wider University community. A new effort to build a University data catalog and implement a data quality framework launched in winter 2017. This effort will support data governance work impacting critical data domains in a variety of key University areas.
NYU LaGuardia Co-op Introduces Large-Format Printing for Students

The NYU student community in New York City did not previously have access to a large-format printer for the production of presentations and other large-format prints for classes and conferences. Such prints were generally procured through a third-party retailer and could be quite expensive, as well as difficult to transport to campus. NYU IT has now addressed this need by installing an HP PageWide XL4500 printer at the LaGuardia Co-op Student Technology Center at 539 LaGuardia Place. NYU IT anticipates $262K in savings for students over the next five years by using this printer instead of going to a retailer.

Establishing a Central Application Portfolio

As the University continues to focus on affordability and student success, it is important to have visibility into the many enterprise applications managed not only by central IT, but also by NYU Schools and units. Led by NYU IT Application Development, the inventorying and categorization of University applications via the Central Application Portfolio moves the community closer to the goal of improving the technological experience of users, identifying redundant and overlapping capabilities, and reducing operational costs.

NYU IT Redesigns University-Wide Newsletter

Connect is NYU IT’s longstanding publication dedicated to covering the innovative ways in which technology and IT resources are used across the University. It underwent a substantial redesign and realignment in 2017, resulting in a more nimble, frequently-updated, accessible, and topically-diverse publication that brings IT news and features to the entire NYU community.

NYU IT Garners Multiple Communications Awards

The Association for Computing Machinery (ACM), the world’s largest educational and scientific computing society, recognized NYU IT with several 2017 Communications Awards sponsored by the Special Interest Group on University and College Computing Services (SIGUCCS). The honors included two top “Best of Category” awards for the NYU IT website and social media presence, and an "Award of Excellence" for NYU IT’s Connect online magazine.

NYU IT Publishes First Annual Report

In 2017, NYU IT launched its first annual report, Building a Strong Foundation for the Future. This collaboration between NYU IT Communications and IT leadership shared roadmaps for new initiatives and NYU partnerships, and outlined strategic visions, priorities, and accomplishments from every facet of the reorganized NYU IT units.

Retirement One Stop

The Retirement One Stop project went live in May 2018. Retirement One Stop provides participants with a simplified way to manage their retirement benefits, including making elections, managing their assets, and getting call center support. NYU IT Change Management staff were key in communicating to over 27,000 participants. With TIAA becoming the sole recordkeeper for the
NYU Retirement Program, over one billion dollars in assets were transferred from Vanguard to TIAA.

**Improving the Academic Program Request Process**

A paper-based process was converted to an electronic intake form in the Curriculum Inventory Management system (CIM) module of the CourseLeaf product. The Office of the Academic Program Review and Assessment (OAPRA) uses the form to process requests for creating a new, or modifying an existing, academic program. The type of academic degree, program, and change determines the forms required for submission for New York State Education Department (NYSED) approval. OAPRA streamlines the process, electronically capturing all requests and reporting processing times to enable continued process improvement.
Automating Travel Monitoring

Automating Travel Monitoring enables NYU to assist international students traveling to the United States. Students enrolled in the service can send an alert to NYU in the event they encounter difficulty during their travel. The app was developed for students coming from countries affected by the 2017 federal travel ban. It is currently being tested by the Office of Global Services, Public Safety, and the Immigrant Defense Initiative. Pending a successful pilot phase, NYU plans to roll out the service to all students.

Digitizing the Events Check-In Process

Events Check-In is an app that facilitates efficient management of event check-ins. Initially built for use by NYU student organizations and the Office of Student Affairs, usage has expanded rapidly to include administrative groups such as the Administrative Management Council (AMC), TorchTech, NYU School of Professional Studies (SPS), and Faculty Affairs. Previously, event organizers often had to collect check-ins on a sheet of paper. With digitized check-in, organizers create a QR code that is scanned to quickly complete attendee check-in.

HackNYU 2018

HackNYU is a student-led, 48-hour global hackathon. This year, the event was opened with an address from NYU CIO Len Peters. Over 500 computing enthusiasts participated, resulting in 81 project submissions in four different tracks: Accessibility and Assistive Technology, Healthcare, Sustainability and Social Impact, and Education Technology. NYU IT provided Application Programming Interfaces (APIs) to students via the new API/Data Portal, as well as in-person mentoring and development assistance from technology experts who were available for consultation throughout the event.

NYU Albert Redesign

In January 2018, the University introduced a redesigned NYU Albert, the University’s portal for student enrollment and financial information. Based on student feedback and the growing needs of the community, these improvements included an updated and mobile-friendly site layout, as well as features that are compliant with ADA (Americans with Disabilities Act) standards. Users can take advantage of customized training, videos, and support materials on the Albert Help website at www.nyu.edu/albert/help.

Integration of Financial Aid and Student Receivables

As a result of the collaboration between NYU IT’s Enterprise Data Management unit, the Division of Enrollment Management, and the Financial Operations and Treasury Division, University departments and administrative units can now answer important questions related to strategic priorities, such as the impact of financial aid on student success. NYU’s Financial Aid and upcoming Student Financials “data marts” (a subset of a data warehouse) offer critical information that supports NYU’s affordability and student success initiatives, as well as provides timely government reporting.

Program Manager for IT Student Relationships

NYU IT hired a new Program Manager for IT Student Relationships. The Program
Manager is responsible for developing and implementing a strategy for engaging NYU IT with various student constituencies in an effort to improve the student experience at NYU.

**Launch of the NYU IT Technology Leadership Program**

NYU IT launched a new career development program for recent graduates with exceptional potential. The Technology Leadership Program (TLP) offers five individuals the opportunity to grow their career in information technology by performing meaningful work that is connected to NYU IT’s priorities, strategies, and core beliefs. The 24-month program consists of two sequential one-year rotational assignments in NYU IT departments that align with each participant’s skills and career aspirations. The assignments are paid, full-time positions with benefits.

**NYU “All-University Commencement” Campaign**

In the spring of 2018, NYU’s Digital Communications group and the University Relations and Public Affairs unit launched a central website to celebrate commencement ceremonies held across three degree-granting campuses over the span of three weeks. In addition to photos and regular updates, the website provided information about commencement-related activities happening in New York, Abu Dhabi, and Shanghai. The website launch also coincided with a refresh of the NYU Mobile app and an award-winning social media campaign for NYU New York’s all-University commencement ceremony.
Digital Accessibility

Establishing a Website Accessibility Standard

To align the University’s commitment to inclusion with federal regulations and standards, NYU has developed policies and recommendations for making its websites and digital content accessible to everyone, including those with disabilities. In February 2018, NYU adopted a Website Accessibility Policy that applies to public websites, applications, and digital content across the University and requires these platforms to adhere to the World Wide Web Consortium’s Web Content Accessibility Guidelines (WCAG) 2.0, Level AA standards. NYU’s Digital Accessibility Program also published official procedures that provide information on procurement assistance, responsibilities, and timelines for digital accessibility.

Digital Accessibility Remediation

NYU’s Digital Accessibility Program is working closely with NYU Schools and units to conduct audits of www.nyu.edu websites and is advising on making these websites accessible. In January 2018, the University rolled out a redesigned Albert portal with features that improve Albert’s accessibility. Similarly, high-level accessibility audits and remediation work are currently underway for some of NYU’s largest and most crucial services, including: NYU Classes; the NYU Start page; the NYU ServiceLink knowledge base; and the University’s main web portals, NYUHome and www.nyu.edu. To further support NYU’s remediation efforts, NYU IT acquired a scanning and risk analysis tool that performs monthly accessibility scans of NYU websites. Data from these scans is being used to assess risks, monitor progress, and track improvements during the remediation process.

Staffing Resources

In support of the digital accessibility initiative, NYU IT’s Accessible Technology Services group has partnered with the NYU Moses Center for Students with Disabilities to have a Senior Accessibility Specialist as a joint report for two years. This role focuses on digital accessibility training, content remediation, and assistive technology testing. It also ensures coordination between the digital accessibility efforts of NYU IT and the Moses Center.

Building Digital Accessibility Awareness across NYU

One of the key factors driving NYU’s progress towards WCAG 2.0 compliance is consistent and ongoing communication between Schools and units. In addition to hosting regular meetings and workshops with University stakeholders about the importance of accessibility, a Digital Accessibility Liaisons group was created to include designated School and NYU Libraries representatives who provide technical and remediation support to their respective departments. As part of the University’s WCAG 2.0 compliance initiative, NYU IT has developed a comprehensive training plan that offers accessibility testers and web developers in-person bootcamps and online courses via Deque University. Community members can also access NYUiLearn courses, as well as FAQs, training videos, and step-by-step instructions on the Digital Accessibility website at www.nyu.edu/it/accessibility.
NYU IT CORE BELIEFS

We demonstrate our core beliefs every day in our interactions, attitude, and performance.

People at the heart of everything we do.
We listen to our clients and colleagues, and use our expertise to anticipate and address their needs.

Create space to innovate.
We challenge assumptions, and seek out fresh perspectives and new ways of thinking to fuel our productivity.

Right promises. Right delivery.
We set clear goals and priorities, and execute with speed and agility to deliver better results.

Share information. Build trust.
We engage in open and honest communications that reflects inclusiveness, fairness, and respect for each other.

Teams and partnerships work. Boundaries don’t.
We collaborate to maximize the value we bring to NYU because our best ideas come from working together.

Insist on excellence.
We take pride in what we do, strive to improve constantly, and hold ourselves accountable for the results.