Unified Committee Report
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Preface

As a preeminent national research university, NJIT embraces the traditional mission elements of: education, baccalaureate through doctorate; research; and service to the local and global society. However, as the science and technology university of New Jersey, a state that has the greatest density of scientists and engineers per capita in the nation, NJIT has incorporated the added mission element of economic development. Over the past two decades, in particular, NJIT has made significant progress in developing the capacity to deliver on its mission elements: a 30% increase in its enrollment with an attendant increase of retention and graduation rates, 7% and 23% respectively; a more than 300% increase in its research expenditures; the oldest and largest technology incubator in the state, 90 companies, $85 million in expenditures, 800 employees of which 300 are NJIT students; for the past 5 years, NJIT has been on the US President’s Honor Roll for Community Service with students having contributed 37,000 hours of service.

Strategic planning is the essential process through which NJIT marshals its critical resources and allocates them to achieve our strategic priorities. It does so in order to continuously improve on the outcomes in response to the university’s mission.

From the 2004 and 2010 strategic plans, a number of particularly noteworthy outcomes were achieved:

- Three academic programs achieved national recognition: architecture, mathematics and wireless communications. The Department of Mathematical Sciences was ranked 10th in 2007 for scholarly productivity, totaling more than $2 million annually in external support. The School of Architecture transitioned to a multidisciplinary school, the College of Architecture and Design. Wireless Communications became nationally known for its expertise in privacy and security, interference and jamming, ever increasing user traffic, and rapid transmission through wireless networks.
- Solar research significantly increased at the Big Bear Solar Observatory and the Owens Valley Solar Array.
- A new academic Department of Biology was launched, and new academic degree programs were added.
- The Dorman Honors College successfully completed a single-purpose scholarship campaign enabling it to increase its enrollment to 500 students.
- A new Campus Center opened in order to accommodate the planned growth for student enrollment, and Fenster Hall opened to accommodate more student-centered services and to provide a new home for the growing Department of Biomedical Engineering.

The 2010-2015 Strategic Plan is successfully achieving the following outcomes:

- Research expenditures in excess of $100 million
- A record enrollment of over 10,000 students
- The hiring of 50 new faculty by fall 2014
• An increase in the quality of campus life via a landscape plan, new greens and plazas, and completion of the transition to D1 athletics
• The launch of the NEXT Campaign to raise $150 million for scholarships, fellowships, and enhancement of the university’s physical assets
• The opening of the Warren Street Village in fall 2013, providing a residential honors college for nearly 700 students, a Greek Village of eight residential fraternity townhouses, and additional campus amenities for the campus community
• The initiation of the Gateway Plan to enhance the adjacent neighborhood community and offer increased college town amenities
• The launch of the New Jersey Innovation Institute (NJII), an NJIT corporation for developing industry partnerships

The following 2012 Middle States Accreditation report best characterized the outcomes of this decade of strategic planning and implementation at NJIT:

*The New Jersey Institute of Technology is making a disproportionate impact in higher education given its means. In particular, NJIT is providing an admirable service to first-in-family students attending college. The students are excellent, well trained, and graduates are highly successful after leaving the university. NJIT’s success in providing a first-class education and college experience to a diverse student body is enviable.*

As we now plan for the next five years, we must focus on continuous improvement and be mindful of the following challenges and opportunities: expanding the pipeline of well-prepared students in sufficient numbers to meet the increasing workforce demand for technologically trained professionals; improving retention and graduation of our students; enhancing academic advising; furthering excellence in teaching; expanding co-curricular activities such as undergraduate research, learning communities, and community service; and developing an engaging campus life. Furthermore, we must increase efficiencies within our organization while, at the same time, explore ways to generate additional revenues. With these things in mind, together, we will achieve the kind of recognition that will attract the most gifted students, faculty, and staff that will propel NJIT to become the best possible science and technology institution for the state, nation and beyond.

I want to thank the outstanding leadership of Fadi Deek, Provost and Senior Executive Vice President, his team, and the over 200 faculty, staff and students who have contributed to this preliminary draft of the Vision 2020. I thank you, the reader and stakeholder of NJIT, and look forward to your input as we work toward finalizing Vision 2020 during the fall of 2014.

Most Sincerely,

Joel Bloom, President
Introduction

I am honored to write the introduction to the 2020 Vision: The NJIT Strategic Planning Initiative (2015-2020) Unified Committee Report. Witnessing a process that involved many colleagues working intently on a shared, common future for NJIT, I am deeply aware of the commitment it takes to create a five-year strategic plan as duties of scholarship, teaching, and administration call.

The strategic priorities for this plan emerged from my discussions with deans, chairs, faculty members, and senior staff across the university and were further refined in a November 2013 retreat with the president to discuss university strategic planning and other important academic and administrative matters facing the university.

This Unified Committee Report is the product of more than 200 people working in five committees, one for each strategic priority, and each divided into multiple subcommittees. They represented all university stakeholders from students to senior administrators, alumni and faculty; working together to debate, draft, and revise detailed reports addressing each priority. The result is a true community vision of what NJIT can become by 2020. It offers a multifaceted view brimming with ideas and possibilities. Strategies and objectives which might never occur to a small group of strategic planners emerge with the authenticity of lived experience by NJIT community members.

The Unified Committee Report is divided into five main sections corresponding to the strategic priorities. Each section is organized as follows: vision for the strategic priority, themes for the priority, key performance indicators for the priority, responsible groups for the priority, accountability for the priority, and impact of the priority. Each strategic priority is then supported by objectives, which are divided into strategies. Finally, the section concludes with targets and metrics for the priority. Definitions for these terms are included immediately following the Executive Summary.

Over the past 30 years, NJIT has become an increasingly complex institution. The NJIT Carnegie Classification as STEM dominant, high-research-activity university is a clear indication of our focused, mission-centered success in science, technology, engineering, and mathematics. We must, however, be mindful of the significance of education and research in the design and management disciplines here. Design is an enterprise that cuts across all fields of study at NJIT, but finds its home in the College of Architecture and Design (CoAD). As such, COAD fosters a multidisciplinary environment where visionary creativity and technical sophistication merge. The School of Management also adds another dimension to NJIT in offering a quality education in the field of business. Technology management and innovation allows us to expand education and research in engineering, architecture, and the sciences. With this integrated complexity, any good planning process must be community based.1

Over the next three months, those of us charged with university administration and fiscal management will use the Unified Committee Report as the basis to craft a concise, consistent, and comprehensive vision

for NJIT through 2020. The first step is already underway, as the offices of Budget and Institutional Research and Planning collaborate to model estimated costs and benefits for every proposed strategy.

By September 1st, we will draft a final strategic plan for community review and consideration. With contributions and critiques by the Faculty Senate, University Senate, and student organizations the draft will be revised during the fall semester and a final version will be submitted to the Board of Trustees for approval. Implementation will begin in January 2015. The final plan, based on the community vision, will mobilize all stakeholders to achieve remarkable results for NJIT by 2020.

There is more to successful strategic planning than priorities and objectives. Success depends on an engaged community creating a visionary university. We must believe in ourselves, realize the distinct advantages of our mission, attend to how others perceive us, develop outreach initiatives, offer ourselves as a destination for education and entrepreneurship, account for our decisions, and learn about our capacity to manage contingency and change. Achieving our goals will depend on everyone’s ideas, everyone’s abilities, everyone’s aspirations, and everyone’s contributions. That is to say, a successful strategic plan depends on all of us and this community vision is a step toward success. With President Bloom, I end with thanks to the NJIT community.

Most Sincerely,

Fadi P. Deek, Provost and Senior Executive Vice President
Executive Summary

Our Vision: As a public, technological research university, NJIT will prepare leaders to design the world of tomorrow through STEM and related educational initiatives, applied research, technological innovation, career achievement, and societal engagement.

Our Strategic Priorities: We will achieve our vision through five strategic priorities designed to ensure student success, enhance education and research infrastructure, integrate curricular digital frameworks, advance multidisciplinary research, and promote diverse leadership.

Our Commitment: Over 200 administrators, faculty, instructional staff, students, alumni, and advisory board members are involved in the strategic planning process.

Our Growth: We will grow total enrollment from 10,000 to 12,200 students.

Our Budget: Resources will be directed to maximize the impact of the strategic plan.

Our Impact: We will adapt to a changing environment by providing a sound basis for resource allocation, create a cohesive vision for the future, and emerge as a highly competitive national leader in STEM education and research.
**Our Assessment:** Evaluation of our efforts will be measured by key performance indicators tailored to each strategic priority. These indicators will allow us to judge our success, communicate our challenges, and improve our capacity to respond to change.

**Our Timeline:** The plan will begin in January of 2015.

**Features of Priority 1: Institutional Effectiveness through Student Success**
- New marketing strategies to encourage highly qualified student applicants
- Nuanced approaches to increase retention and graduation rates
- Leadership preparation through professional success and participatory citizenship experiences
- Enhanced quality of campus life community-building initiatives

**Features of Priority 2: Academic Investment through Education and Research Infrastructure**
- New centers for teaching and learning, including the Institute on Teaching Excellence and the University Commons
- Investment in digital infrastructure to promote anytime, anywhere learning, including the Digital Education Support System
- Emphasis on faculty renewal, with attention to multidisciplinary research, research-based instruction, and mentoring
- Refine research support, with attention to both process and policy

**Features of Priority 3: Curricular Advancement through Integrative Education**
- Curricular reform to prepare students for success in the 21st century global culture
- Innovative methods for academic assessment
- Curricular convergence through digital learning
- Promotion of milestone student learning, including research, industrial, service, international, and personal experiences

**Features of Priority 4: Scholarship through Multidisciplinary Approaches**
- Thematic approaches to multidisciplinary, collaborative research in key areas: data science and information technology; convergence of life sciences and engineering; and sustainable systems
- Strategic hiring initiatives to support multidisciplinary research
- Multidisciplinary mentoring for graduate students
- Promotion of the New Jersey Innovation Institute (NJII)
Features of Priority 5: Global Community and Diverse Leadership

- Significant, meaningful increases in women and underrepresented minority faculty and administrators
- Building a global community
Definition of Terms

Modern strategic planning takes its origin in the Harvard Policy Model developed in the Harvard University Business School in the 1920s. By the early 1990s, education had embraced the business model in which agendas were collaboratively established based on a compelling vision, established objectives, key strategies, and key performance indicators. In present practice, the educational measurement community has added a new emphasis on information use to improve student, program, and institutional performance.

Based on current definitions developed by the Joint Commission on Standards for Educational Evaluation (an American National Standards Institute accredited standards developer), we have used the following terms in 2020 Vision: The NJIT Strategic Planning Initiative (2015-2020):

Mission: The stated, universal direction of the university, serving to unify all stakeholders in a common pursuit. The mission is expressed in terms of core university areas of expertise (i.e., NJIT is New Jersey’s Science and Technology University, committed to the pursuit of excellence in education, research, service, and economic development.)

Strategic Priority: A major theme that NJIT has decided to embrace for the designated planning period. The strategic priority is expressed in a general academic domain, followed by a particular emphasis (e.g., Institutional Effectiveness: Student Success).

Vision: An articulated statement of the strategic priority. The vision is expressed as a goal—an end that one strives to achieve (e.g., Our goal is to strengthen the national role of NJIT in science and technology education. In both undergraduate and graduate programs, new initiatives will ensure that graduates are recognized by employers and graduate schools as well prepared to contribute to their fields of study.)

Objective: The aim of the strategic priority and its articulated vision. An objective is expressed in very specific terms. (e.g., Our objective is to admit students likely to succeed at NJIT, graduate in a timely manner, and contribute to their fields.)

Target: Precisely defined aims, expressed in empirical statements. Targets are expressed in measurable terms (e.g., By 2020, we will increase the SAT Mathematics score to 640 for admitted students, while narrowing the range and standard deviation of standardized test scores and using high school transcript to inform our admissions and placement decisions.)

Strategy: Methods identified to allow the university to meet the stated objective. Strategies are expressed as practical directions of action (e.g., NJIT must implement aggressive marketing and recruitment tactics designed to communicate with prospective students and those who influence their decisions.)

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2 Roger Kaufman and Jerry Herman, Strategic Planning for a Better Society,” Educational Leadership 47.8 (1991): 4-11.
Key Performance Indicators: Public measures, often called dashboards, by which the university can demonstrate its ability to meet its targets. KPIs are selected according to standardized (e.g., average SAT scores) and widely accepted (e.g., first-year retention) measures.

Metrics: Internal measures by which the university can advance unique and nuanced aspects of specific strategies. Metrics are often internal measures associated with strategies (e.g., NJIT Student Satisfaction Surveys).

Responsible Groups: Stakeholders responsible for the strategies identified to allow the university to maintain a stated objective. Responsible groups are those constituencies deeply invested in the long-term success of the strategic plan in its advancement of the university mission (e.g., Office of the Provost; committees of the Faculty Senate and the University Senate).

Accountability: Specific reports that will allow the university to determine if targets are being met. These may be either traditional (e.g., Weekly First-year Application Report) or new forms (Semester Retention Report Cards) of documents, available in print or digital formats.

Impact: With an emphasis on information use, the impact statement is an expression of the anticipated consequences of our actions (e.g., Alignment of admission processes, curricular design, academic services, and student satisfaction will yield uniform practices of admissions, retention, and graduation that will, in turn, yield greater levels of student success.)

Used throughout the following document, these terms provide an innovative framework for strategic planning at NJIT.
1. Institutional Effectiveness: Student Success

Vision for Strategic Priority 1: To strengthen the presence of NJIT in science and technology education among benchmark institutions. In both undergraduate and graduate programs, new initiatives will broaden admissions, improve retention and graduation, leverage future professional success, and enrich the quality of life on our campus. These initiatives will ensure that graduates are recognized by employers and graduate schools as well prepared for leadership positions as professionals and citizens.

Themes for Priority 1: To create an environment fostering student success, we have identified the following benefits of attending NJIT: delayed declaration of major; creation of a common first-year curriculum; adoption of social media; enhanced Learning Community experiences; increased experiential learning, including co-op, internships, and study abroad; and adoption of professional success as an academic goal.

Key Performance Indicators for Strategic Priority 1: As public accountability measures for Strategic Priority 1, we will use the following: applications by category; new students by category; average SAT and GRE (by sub score); enrollment by category; retention rate for both undergraduate and graduate; graduation rate for both undergraduate and graduate; post-graduation employment rate and average salary; and overall student satisfaction.

Responsible Groups for Strategic Priority 1: The success of Strategic Priority 1 will be managed by the following constituencies: Lead: Office of Academic Support and Student Affairs; Co-Lead: Office of the Provost; Faculty Senate committees: Undergraduate Studies; Graduate Studies; Academic Outreach; Academic Assessment; University Senate committees: Campus Life; Information Systems and Communication; Murray Center for Women in Technology; Student Senate; Graduate Student Association; and Alumni Association.

Accountability for Strategic Priority 1: In both print and digital format, existing and newly designed reports will allow clear and timely communication of the ability of our strategies to meet our targets. Such formative assessment will allow us to evaluate our ability to adapt to change and meet our targets. The reports will also strengthen our ability to communicate with a variety of campus stakeholders.

Impact of Strategic Priority 1: Alignment of processes intended to leverage student success will advance the educational mission of NJIT while allowing financial return on investment through increased retention and timely graduation.
Objective 1.1: Admissions

Our objective is to admit the students most likely to succeed at NJIT, graduate in a timely manner, and assume leadership positions as professionals and citizens.

Key Strategies for Objective 1.1

In order to meet our objective, we will use the following four strategies:

1. **Strategy: Expand Communication and Information Channels**

   Implementation of aggressive marketing and recruitment strategies will help us identify prospective students and those who influence their decisions. New marketing will create awareness of our academic community, articulate the rigor of the NJIT curriculum, and identify the benefits of an NJIT degree. Important to this strategy is the expansion of pipeline programs including enhancing the visibility of pre-college activities.

   Adoption of social networking will enhance communication efforts. Development of these networks, so common to students, will focus on undergraduate and graduate student recruitment. Special attention will be given to use of social media in international recruiting efforts.

   Centralization of information through a robust Digital Student Management Platform will increase our ability to manage effectively the complex web of information needed to recruit and retain students. Before admission, the platform will allow us to use social media in a coordinated fashion to increase our pool of qualified applicants. A suite of predictive analytics produced from the platform will allow us to identify our best practices which will, in turn, allow us to gain competitiveness in student recruitment.

2. **Strategy: Delay Declaration of Major**

   Intensification of first-year advisement will result in students selecting an appropriate undergraduate degree. As the experience of benchmark universities reveals, first-year students should not be expected to declare their major when applying to college; instead, NJIT students should be admitted to a college or school of their choice. During a student’s entering semester, intensive advisement—combined with a common first-year experience—will result in students declaring majors aligned with demonstrated ability and degree requirements.

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3. **Strategy: Leverage Financial Aid**

*Revision of the current merit scholarship award matrix* will allow the university to meet the growing financial needs of incoming students. Because base state support to NJIT has declined by 25 percent over the past decade—currently representing only 22 percent of total operating resources—it is important that NJIT leverage its affordability to prospective students and increase institutional support by 10% to insure that NJIT is competitive with other institutions when recruiting high achieving high school students.  

4. **Strategy: Promote Differential Tuition**

*Adoption of differential tuition* will allow competition based on cost difference with our benchmark institutions. While the cost of STEM and design related degree programs is substantial, significant returns may be gained from differential pricing for non-STEM degree programs. Special attention should be paid to non-STEM graduate degrees in a revised tuition matrix.

**Targets for Objective 1.1**

In order to focus on increasingly strong academic credentials for our admitted students, we will begin by expanding the current applicant pool of 13,000 students to 17,000 students by the fall of 2020 using a variety of means including the expansion of pipeline programs. As we concentrate on expanding our applicant pool in order to identify students who will succeed at NJIT, we will:

- Conduct an intensive study of all undergraduate admissions data, including full high school transcripts, to identify and admit qualified students
- Design an automated algorithm that automatically assigns a probability of success to each application
- Increase the average SAT Mathematics score for undergraduate students from 614 to 640
- Increase the average SAT Critical Reading score for undergraduate students from 549 to 560
- Increase the average GRE Quantitative Reasoning score for international graduate students from 684 to 700
- Increase undergraduate enrollment from 7,286 students to 8,600 students, 18 percent growth
- Increase total graduate enrollment from 2,844 students to 3,600 students, more than 27 percent growth

**Metrics for Objective 1.1**

To measure our progress internally, we will use information from the following: Applications Reports (Freshmen Weekly Reports, Graduate Weekly Reports, Transfer Weekly Reports); official enrollment reports showing by category reports; high school transcripts; college transcripts; financial aid awards; and Entering Students Survey.

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Objective 1.2: Retention

Our objective is to increase retention rates by strengthening academic and administrative student interactions.

Key Strategies for Objective 1.2

In order to meet our objective, we will use the following five strategies:

1. **Strategy: Design a Connected Academic Community**

   *Expansion of Learning Communities* for students across all majors will help undergraduate students receive consistent academic support as part of a cohort of students with similar curricular interests.

   *Merging of existing campus technology systems* with social media will result in an enlivened student community. Utilize Moodle and other social media platforms such as Facebook and Twitter, to connect students, faculty and staff and promote conversations and a sense of belonging that stems from common academic experiences.

   *Promotion of service learning and community service activities* that are low or no cost to yield an atmosphere of connectedness. Every undergraduate student will have an approved experiential learning component in their portfolio. Special attention will be given to study abroad programs. This strategy will be a distinguishing feature of attending NJIT.

   *Increase of student work-study positions* will contribute to higher retention of first year students and assist them in relationship building with faculty and staff members while also helping with the work of the institution.

   *Implementation of a comprehensive transfer student program* will help students in their transition to NJIT. This assistance will include appropriate transcript review and credit assignment, academic advisement, orientation and other necessary transition support to afford each student with the best opportunity for success.

   *Training of faculty, instructors, academic advisors, and mentors* will ensure that retention is strengthened through uniform approaches to learning experiences, technological systems, policies, and procedures.

2. **Strategy: Establish a Common First-Year Academic Experience**

   *Implementation of a common first year experience*, combined with the delayed declaration of major, should lead to increased retention. Among the goals for the first-year curriculum are

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the following: a hands-on, experiential component designed to give students broad experience in their intended field of study; participation in Learning Communities; and candid advisement based on success in the General University Requirements (GUR).

3. **Strategy: Develop a Systematic Approach for Identifying and Assisting At-Risk Students**

   *Centralization of information* through a robust Digital Student Management Platform described in Objective 1.1, will allow tracking of student progress and identification of necessary interventions for student success. Identification and monitoring of these at-risk students by advisors and staff, followed by appropriate academic consultation and student services support, will result in increased retention.

4. **Strategy: Enhanced Sophomore Year Transition**

   *Emplacement of sophomore students support*, with particular emphasis on the role of the faculty advisor in the major, will offer sophomores the support and resources to foster a smooth transition into their declared major.

5. **Strategy: Create a Model for Effective International Student Retention**

   *Development of a uniform plan for retention of international students pursuing graduate degrees* will result in increased retention and student satisfaction. This academic service should be combined with monitoring of visa and immigration issues.

**Targets for Objective 1.2**

We will incrementally raise the first-time, full-time undergraduate retention rate from 86 percent to 90 percent by the fall of 2020. We will incrementally raise the first-time, full-time retention rate for master’s and doctoral degree students from 89 percent to 93 percent. As we increase the retention rate, we will:

- Assess which strategies proved to be the most influential to retention each fall and spring
- Use that information to increase the retention rate until the desired targets are met
- Promote those experiences that distinguish NJIT while increasing rates of retention
- Increase the amount of student work-study positions from 1,304 students with a total allocation of $2,848,715 to 1,500 students with a total allocation of more than $3.2 million

**Metrics for Objective 1.2**

To measure our progress internally, we will review persistence and retention rates for each grade level (freshmen through doctoral) and by grade point average. We will also assess information from the following: National Survey of Student Engagement (NJIT will strive to match the Carnegie Classification mean); and the NJIT Student Satisfaction Survey (NJIT will strive to increase student satisfaction overall and in areas related to student life).
Objective 1.3: Graduation

Our objective is to ensure that NJIT remains competitive among its peers by exceeding the US News & World Report graduation rate projection of 64 percent for first time, full time undergraduate students who earn a four year degree in six years.¹

Key Strategies for Objective 1.3

In order to meet our objective, we will use the following two strategies:

1. **Strategy: Develop a Structured Academic Advisement Process**

   Development of structured, uniform university guidelines for advisement across academic departments will lead to timely graduation. Increased use of software tools can assist in tracking students, will improve the tracking of at-risk students, and facilitate timely intervention.

2. **Strategy: Expand Scholarships and Financial Support to Senior level Students**

   Allocation of additional financial aid to senior students will strengthen graduation rates. Combined with increased student work-study positions, this strategy will keep students engaged and on campus—a key to timely graduation.

Targets for Objective 1.3

We will incrementally increase the 6-year FTFT undergraduate graduation rate from the present rate of 58 percent to 65 percent by the fall of 2020. We will incrementally increase the 3-year FTFT master’s degree graduation rate from the present rate of 85 percent to 88 percent. We will maintain the 8-year FTFT doctoral degree graduation rate at the present rate of 70 percent. As we increase the graduation rate, we will:

- Use historical data to identify barriers to retention and graduation
- Use Digital Student Management Platform to identify and track at-risk students
- Achieve targeted and effective academic advising
- Identify strategies to enhance support for advanced students

¹ United States Department of Education, “Request for Information to Gather Technical Expertise Pertaining to Data Elements, Metrics, Data Collection, Weighting, Scoring, and Presentation of a Postsecondary Institution Rating System.” Federal Register 17 Dec. 2013: 76289–91. Citing a 300 percent rise in average tuition during the past three decades, an average bachelor’s debt of more than $29,400, and a graduation rate of only 58 percent for a four year degree within six years, the Department of Education is spearheading a rating system that will link federal student financial aid to PIRS calculations by 2018.
Metrics for Objective 1.3

To measure our progress internally, we will monitor graduation and retention rates by specific student categories and use analytic assessment to allocate resources meant to improve graduation rates.
Objective 1.4: Professional Success

Our objective is to determine the knowledge, skills, and experience recognized by employers and graduate schools for our students to attain professional success and prepare for leadership positions as professionals and citizens.

Key Strategies for Objective 1.4

In order to meet our objective, we will use the following three strategies:

1. **Strategy: Promote a Comprehensive Definition of Professional Success**

   *Expansion of the definition of success* sends a signal effect to students that we are concerned with their total development. While the traditional measurement of attaining employment following graduation is a standard and useful measure, it is not the immediate objective for all. Viewing professional success as a measure of our ability to prepare and assist students in attaining their first choice destination upon degree completion allows additional focus on the student. Promotion of an expanded definition of professional success and curricular integration of that concept provides an enhanced experience for NJIT students.

   *Consideration of national research findings* regarding the cognitive, interpersonal, and intrapersonal domains of knowledge needed for 21st century STEM and design professionals will allow our emerging definition of professional success to influence curricular development.

2. **Strategy: Expand Experiential Education Options**

   *Expansion of experiential education options*—such as co-op, internship, and other experiential education and leadership development initiatives, including experience abroad—will impact a significant portion of the student body. Every student in good academic standing should participate in experiential education. This strategy will be another feature of attending NJIT.

3. **Strategy: Extend First Year Experience**

   *Adoption of a comprehensive, blended academic and professional development model* for students leverages student success upon graduation. Use of such a model by all academic departments such as a three-semester, credit bearing course will ensure that professional success is a key component for graduation.

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Targets for Objective 1.4

We will incrementally expand the following core measures of professional success as established by Career Development Services and the overall Division of Academic Support and Student Affairs. As we prepare our students for professional success, we will:

- Ensure that job postings are adequately disbursed across all majors
- Increase technology job opportunities posted by 50 percent
- Expand the number of students and alumni attending the NJIT fall and spring career fairs by 25 percent
- Expand the number of students and alumni attending career preparation workshops by 50 percent
- Increase the number of students participating in community service projects by 50 percent
- Increase on-campus recruitment and career fair employers by 40 percent
- Expand on-campus recruitment program student participants by 50 percent
- Expand career preparation workshops and presentations by 30 percent.
- Increase number of hours of community service by NJIT students by 35 percent
- Increase the number of resume referrals to employers nationwide for students and alumni by 50 percent

Metrics for Objective 1.4

To measure our progress internally, we will use information about the following: post-baccalaureate degree attainment; academic and other research career tracks; employment (short and long-term); career choice; continuous education or professional certification and advance degree attainment; career advancement; student loan default rate; and salary ranges 5 and 10 years after graduation.
Objective 1.5: Campus Quality of Life

Our objective is to identify and support key components of campus life leading to student engagement, satisfaction, and pride with on-campus experiences.

Key Strategies for Objective 1.5

In order to meet our objective, we will use the following four strategies.10


Examination and modification of university academic and non-academic administrative policies, practices, and procedures will lend consistency and fairness to the continuing process of improving the campus quality of life.

Development of a service-focused message for all faculty and staff following the systematic examination will ensure that a consistent message of student-centeredness is achieved on campus.

2. Strategy: Expand Learning Community, Recreational, and Social Spaces

Expansion of spaces for specific group activities in an on-going need. Additional spaces for group activities will increase support for learning communities, recreational activities, and other social interaction, which will in turn increase student satisfaction.

3. Strategy: Create NJIT 311 Student Service Center

Creation of a service center will address student questions and direct students to appropriate departments and administrative offices as needed. Development of digital applications to accompany the service center will add value to the use of social media.

4. Strategy: Implement Milestone Community-Building Initiatives

Identification and creation of sustainable and supported events and experiences will engage the entire university community. Over time, these events will grow to become NJIT traditions. Implementation of this strategy will include a review of current activities and procedures and creation of additional programs. Special attention will be given to facilitating intramural activities, particularly those with an academic orientation (e.g. debating and chess), and other experiences. (See Objective 3.4)

4. **Strategy: Institutionalize Support for Diversity**

*Acceptance of diversity as a core value of NJIT* will be achieved by focusing on the following: creation of visible activities in support of student diversity and multi-cultural affairs on the campus; increased course offerings and use of existing courses to foster diversity; community partnership; and academic scholarships.

**Targets for Objective 1.5**

In order to gauge the campus quality of life, we will:

- Implement milestone experiences within the revised GUR as defined in Objective 3.1
- Use existing NJIT Student Satisfaction Survey, focusing on assessment of specific administrative offices
  - Raise overall satisfaction with Office of the Registrar Office of the Bursar and Office of Financial, with additional assessments of departments to be determined
- Use the existing National Student Engagement Survey, to measure improvement in the quality of campus life:
  - Raise Supportive Campus Environment mean to match the Carnegie Class
  - Improve Attending Campus Events for first year students to match the Carnegie Class
  - Improve Quality of Relationships with Faculty Members to match the Carnegie Class

**Metrics for Objective 1.5**

To measure our progress internally, we will use information from the following: Educational Benchmark Institute (EBI) Surveys for Residence Life, Campus Center, Student Activities, Diversity Campus Climate, Greek Life, Leadership; analyses of university academic and non-academic policies, practices and procedures for relevance, consistency and fairness; review of student service programs and practices at NJIT benchmark institutions; NJIT Student Satisfaction; NJIT Music Survey; analysis of current practices, programs, curriculum and experiences of students, faculty and staff regarding diversity and women’s issues through ongoing assessment tools and other resources. We will also conduct analysis of current practices, programs, curriculum and experiences of students, faculty and staff regarding diversity and women’s issues through ongoing assessment tools and other resources.
**2. Academic Investment: Education and Research Infrastructure**

*Vision for Strategic Priority 2*: To create a sustainable, multi-year campus plan for education and research infrastructure that will allow NJIT to expand its state, regional, national, and international role as science and technology research university.

*Themes for Priority 2*: To create a sustainable, multi-year campus plan for education and research, we have identified the following features: the Institute on Teaching Excellence; the University Commons; the Digital Education Support System; research-based instruction; Professor of Practice designation and renewed career paths for University Lecturers and adjuncts; metrics and mentoring for faculty productivity; enhanced administrative support for research; competitive stipends for doctoral students; and renewed processes involving decisions for facilities and technology planning.

*Key Performance Indicators for Strategic Priority 2*: As public accountability for Strategic Priority 2, we will use the following: retention and graduation rates; percent of tenured and tenure-track faculty hired in the past 10 years, with future hires based on past hiring patterns; total research and externally funded research expenditures; external research expenditures per faculty member; and space utilization metrics for classrooms and research.

*Responsible Groups for Strategic Priority 2*: The success of Strategic Priority 2 will be managed by the following constituencies: Lead: Office of the Provost; Co-Lead: Office of Administration and Treasurer; Academic Leadership Council; Office of Research and Development; Office of University Advancement; Office for Human Resources; Faculty Senate committees: Research, Scholarship, and Creative Academic Activity; Academic Strategic Planning and Budget Priorities; and University Senate committees: Finances and Facilities; Strategic Planning.

*Accountability for Strategic Priority 2*: A variety of existing and newly developed analytic reports will allow clear and timely reporting of the ability of our strategies to meet our targets. The reports will also strengthen our ability to communicate with a variety of campus stakeholders.

*Impact of Strategic Priority 2*: Implementation of this priority will result in a sustainable, multi-year university-wide plan that is both economically feasible and capable of providing the laboratory, classroom, and community facilities necessary to meet the standards of our benchmark universities.
Objective 2.1: Educational Support

Our objective is to provide the level of educational support that allows for the achievement of excellence in undergraduate, graduate, and continuing professional education.

Key Strategies for Objective 2.1

In order to meet our objectives, we will use the following six strategies:

1. Strategy: Launch the Institute on Teaching Excellence

Initiation of the Institute on Teaching Excellence as proposed in the NJIT Academic Plan: 2013-2015 will support, promote, and enhance effective teaching. Under the direction of a community of teaching scholars, the Institute will provide consultation, resources, and programs to facilitate the professional development of faculty, lecturers, adjuncts, and graduate students.11

Guidance of the Office of Academic Assessment to course instructors in developing course learning outcomes and syllabus preparation will facilitate course and program assessment.

2. Strategy: Establish a University Commons

Development of a University Commons will serve as the center of all areas of academic support at NJIT. Using existing resources and combining them for greater focus and efficiency, we will create an integrated learning space for academic excellence that encompasses many of the presently disparate locations across campus where informal learning, collaborative learning, and tutoring take place. As outlined in the $120 million Central King Building renovation supported by NJIT and the Building Our Future Bond Act, creation of a single center for academic support will result in a large, integrated space equipped with the best currently available technology, giving us a centralized location for teaching, learning, and collaboration for students and faculty alike. While existing space will continue to be used for academic support, the creation of the University Commons under academic oversight will centralize our instructional efforts. An alternative location for the Commons may be in the current Library building.

Unification of tutoring, mentoring, and student support will allow a common thread to run through the current patchwork of organizations and initiatives associated with academic support. Using the University Commons to increase the coordination and effectiveness of mentoring and support programs across the university will add to increased retention and graduation rates.

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Alignment of the University Commons and the Digital Education Support System described below will ensure a consistent pedagogical orientation in both the GUR and degree courses.

3. Strategy: Establish a Digital Educational Support System

*Training of students in the competencies of current digital technology* related to their majors will guarantee that graduates are viewed by industry as agents of change in anticipating and influencing the next wave of state-of-the-practice innovation. Congruent with Priority 3, development of new processes to build software libraries and support integrated software systems will be required as part of both the reformed GUR as mentioned in Objective 3.1, and current and new degree programs.

4. Strategy: Promote Research-based Instruction

*Integration of education and research*—especially in key areas of multidisciplinary research established in Priority 4—will result in an instructional model that maximizes learning opportunities for students. With direct access to research opportunities through the Undergraduate Research and Innovation initiative, the goal is to make NJIT widely known as an institution where research-based instruction is a high priority. This initiative should attract the type and quality of students we seek to recruit under Objective 1.1.

5. Strategy: Establish Professor of Practice Designation

*Designation of a new Professor of Practice* position will bring academic, business, industry, and government leaders into the instructional community of NJIT. This appointment will be made as a non-tenure track, full-time position.

6. Strategy: Revise Non-Tenure Track Compensation and Career Tracks

*Revision of the current compensation and advancement structure* for non-tenure track instructional positions to ensure competitive salary ranges that will, in turn, allow recruitment and retention of highly qualified instructors.

*Development of processes to selectively transition experienced adjuncts* into full-time, university lecturer positions will enhance instructional quality and longevity, while promoting commitment and loyalty to the university.

*Development of processes to selectively transition highly qualified university lecturers* into tenure-track faculty positions will foster professional development and promote commitment and loyalty to the university.
Targets for Objective 2.1

In order to provide the level of educational support required to achieve excellence in undergraduate, graduate, and continuing professional education, we will:

- Launch the Institute on Teaching Excellence, with targeted participation of tenured and tenure track faculty and instructional staff
- Appoint current Master Teachers and recipients of university Excellence in Teaching awards as inaugural Fellows of the Institute and charge its leadership and Fellows to define their role at the university, including the induction of new members
- Establish a University Commons—including a uniform academic tutoring system—and measure the impact of the center and its programs in terms of retention, GPA, and graduation
- Establish a Digital Education Support system and measure its impact in the GUR and in degree programs
- Enhance instructional designations for non-tenure track academic appointments

Metrics for Objective 2.1

To measure the effectiveness of the University Commons and the Institute on Teaching Effectiveness internally, data on retention, graduation, student learning outcomes, student course evaluations, and student satisfaction will be monitored and analyzed longitudinally.
Objective 2.2: Faculty Renewal

Our objective is to hire, develop, and retain faculty with excellence in strategic educational and research areas.

Key Strategies for Objective 2.2

In order to meet our objectives, we will use the following five strategies:

1. **Strategy: Develop Metrics for Faculty Productivity**

   Development of discipline-specific metrics for productivity will allow us to establish individual contributions to the university’s mission of instruction, research, service, and economic development.

   Creation of metrics for multidisciplinary thematic areas—data science and information technology, the convergence of the life sciences and engineering, and sustainable systems—will allow the quantifiable measurements identified in Priority 4 to be achieved.

   Use of these disciplinary and multidisciplinary metrics as a basis upon which to hire new faculty will result in synergistic alignment between the multidisciplinary thematic areas and the university mission.

2. **Strategy: Develop a Uniform Faculty Mentoring Plan**

   Development of a mentoring plan for both faculty and instructional staff will yield a variety of benefits, from augmented external funding for research to excellence in teaching.

3. **Strategy: Develop Departmental and College Hiring Plans**

   Development of five-year hiring plans for each department, college, and school will build strength in areas that address departmental needs in terms of specialty areas, especially in those areas that increase research capabilities and enhance scholarly profiles in the academic community. The diversity strategies of Priority 5 will be included in these plans.

4. **Strategy: Monitor the Distribution of Early Career, Mid-Career, and Senior Faculty**

   Maintenance of a balance among these three levels of education and research expertise will be necessary to launch new multidisciplinary initiatives, sustain traditional research directions, and achieve competitiveness among our benchmark institutions.

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5. **Strategy: Feature Faculty in Advertising**

*Enhancement of faculty visibility* is an excellent way to distinguish NJIT among its benchmarks. Advertising the university as a place where a talented scholar can build an excellent career is important both to attracting outstanding faculty and to prompt interested students to apply.

**Targets for Objective 2.2**

In order to strategically hire, develop, and retain faculty, we will:

- Hire, develop, and retain faculty to advance the university mission and address the changing needs of education in the 21st century
- Establish metrics to measure faculty productivity derived from the Annual Faculty Report
- Establish other measures of productivity especially for those fields in which externally funded research is not one of the main measures of productivity
- Develop productivity targets based on documented patterns of success at NJIT and at the eighteen benchmark institutions
- Establish procedures to ensure that diversity targets are addressed as identified in Strategic Priority 5

**Metrics for Objective 2.2**

To measure our progress internally, we will use information from the Digital Measures Activity Insight platform. We will also track the development and use of faculty mentoring plans by individual departments, schools, and colleges.
Objective 2.3: Research Support

Our objective is to develop an infrastructure that provides effective support for current and future research in both STEM and non-STEM areas.

Key Strategies for Objective 2.3

In order to meet our objectives, we will use the following five strategies13:

1. **Strategy: Refine Administrative Research Support**

   *Refinement of the administrative infrastructure for research support* will streamline the administrative processes associated with both new multidisciplinary initiatives and traditional disciplinary research. To foster administrative support of the research mission of NJIT, we will focus on the following: one-on-one grant-writing and grant-management training for early-career faculty; rollover of research funds across end and start boundaries to facilitate budgetary flexibility; flexible accounts for departmental fundraising; return of indirect costs; bridge funds dedicated to support researchers during difficult funding periods; professional development for post-doctoral fellows; and competitive dissertation-completion fellowships to facilitate retention and graduation of graduate students.

2. **Strategy: Improve General Research Services**

   *Strengthening of general research services* required for all types of research including multidisciplinary research initiatives and new collaborations will advance both research and economic development. Attention will be given to the following: journal databases competitive with those of benchmark universities; enhanced environmental health and safety support and required training; and special attention to the research needs of non-STEM disciplines.

3. **Strategy: Update Common Equipment Requirements**

   *Updating of existing common equipment* through use of the Facilities Master Plan will reduce costs for core facilities use. Academic investment demands special attention to the following: water purification systems; shared computational resources and technologies; identification of a university-wide large, fast and efficient, automated data backup/storage system, including a university-wide computer cluster/cloud computing system; and planning for shared research space for groups of researchers, including students and external collaborators.

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4. **Strategy: Implement Research-Driven Lab Space Policy**

*Development of a university policy on lab space* through use of the Facilities Master Plan will allow administrative allocation and re-allocation of space based upon the researcher’s activities as indicated by publications, grants, student advisement, and other appropriate quantitative measures.

5. **Strategy: Increase Stipend Levels for PhD Students**

*Adjustment of competitive levels of doctoral student support* will yield advanced levels of recruitment and retention among our benchmark peers. Attention will also be given to the allocation of travel funds and work space for doctoral students.

6. **Strategy: Enhance institutional support for non-faculty research staff**

*Development of a policy for professional growth, academic participation, and institutional support* of post-doctoral fellows, research professors, and other non-faculty research staff who are essential for maintaining the quality and productivity of research in many NJIT labs. These personnel enhance multidisciplinary research efforts and contribute to the learning experiences of graduate and undergraduate students.

**Targets for Objective 2.3**

In order to develop an infrastructure that provides effective support for current and future research in both STEM and non-STEM areas, we will:

- Examine and improve research support services and accounting procedures
- Expand appropriate use of reports on laboratory space use so that 100 percent of space allocation is justified according to key performance measures
- Incrementally increase stipend support for PhD students from its present rate of $18,315 to a market-adjusted competitive rate
- Use the Facilities Master Plan, defined in Priority 4, to identify and leverage common equipment requirements and incrementally redesign NJIT’s research support infrastructure

**Metrics for Objective 2.3**

To measure our progress internally, the Office of Academic Assessment will design research to evaluate the impact of the redesign of the research support initiative and common equipment requests.
Objective 2.4: Infrastructure Support for Facilities and Technology

Our objective is to ensure that the physical aspects required for a doctoral, STEM dominant research university are in place, our objective is to provide a campus environment that includes state-of-the-art technology and a visually appealing campus environment that supports the needs of our community.

Key Strategies for Objective 2.4

In order to support the space needs of students, faculty, researchers, and staff on our campus, we recommend the following two strategies:\(^\text{14}\).

1. **Strategy: Use the Facilities Master Plan for Physical Planning Decisions**

   *Use of the Facilities Master Plan* allows us to prepare the campus for the demands of contemporary educational, research, and community needs. In preparing the Facilities Master Plan, as described in Priority 4, academic investment demands that we will give special attention to the following: increased enrollment and retention opportunities; digitally-enabled space; collaborative space; short-term major construction projects, construction of an events center; and parking. In addition, we will develop and follow a life cycle standards for facilities maintenance and capital improvements by applying industry standards.

2. **Strategy: Use the Technology Plan for Campus Technology Decisions**

   *Use of the Technology Plan* will allow the university to incorporate the latest advances in computing, information, and communications technology. Academic investment demands that the annual capital budget developed and submitted to the Board of Trustees include a technology renewal component in addition to capital facilities renewal.

Targets for Objective 2.4

We will use the Facilities Master Plan to ensure that the campus supports the needs of key constituencies, chief among them students, faculty, instructors, and administrators. As we continue to improve the campus environment, we will:

- Update the Facilities Master Plan for space allocation decisions
- Update our Technology Plan to ensure it keeps pace with current developments in technology, facilities, and new systems for delivering technology support
- Develop life cycle standards for maintenance and improvements to the campus

Metrics for Objective 2.4

To measure our progress internally, we will use metrics associated with the Facilities Master Plan and Technology Plan, as well as the emerging life cycle standards.
3. Curricular Advancement: Integrative Education

*Vision for Strategic Priority 3:* To advance excellence in teaching and learning so that it meets high standards of student-centered instruction and evidence-based assessment.15

*Themes for Priority 3:* To advance excellence in teaching and learning, we have identified the following features: innovation in undergraduate and graduate education through application of core learning outcomes and reduced time to degree; targeted assessment of student learning; use of digital technologies such as the Digital Education Support System to provide efficient, flexible, and effective learning options; and promotion of research, industrial, service, and international learning experiences. At the master’s level, curricular advancement should be tailored to meet specific industry and government needs, or to serve as a basis for students to pursue doctoral degrees.

*Key Performance Indicators for Strategic Priority 3:* As public accountability for Strategic Priority 3, we will use the following: impact of integrative education on retention and graduation; course evaluation averages; percent of courses delivered in converged form; percent of programs with effective learning outcomes assessment; and impact of doctoral programs on NJIT reputation.

*Responsible Groups for Strategic Priority 3:* The success of Strategic Priority 3 will be managed by the following constituencies: Lead: Office of the Provost; Co-Lead: Associate Provost for Graduate Studies; Associate Provost for Undergraduate Studies; Academic Leadership Council; Associate Provost for Information Services and Chief Technology Officer; Faculty Senate: Undergraduate Education; Graduate Education; Teaching, Learning, and Technology; University Senate: Information Systems and Communication.

*Accountability for Strategic Priority 3:* A variety of existing and newly developed analytic reports will allow clear and timely reporting of the ability of our strategies to meet our targets. The reports will also strengthen our ability to communicate with a variety of campus stakeholders.

*Impact of Strategic Priority 3:* Creation of a national model of evidence-based curricular transformation will contribute to increases in retention and graduation rates and allow expanded enrollment in targeted areas.

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15 Integrative education is a term used to describe a process in which the curriculum is transformed into a student-centered learning environment while maintaining high standards of instruction and assessment. Through this process, the curriculum is re-designed to identify the knowledge, skills, professional practices, and the methodology for outcomes assessment of each academic degree; links core knowledge, skills, and professional practices to curricular-based problem solving methods at the level of the course and its syllabus; creates convergence between synchronous and asynchronous learning; and provides milestone educational experiences that reflect research and industrial practice.
Objective 3.1: Curricular Synthesis

Our objective is to prepare students for future personal and career success while improving retention and graduation rates, our objective is to identify core learning outcomes for each academic degree and to ensure these outcomes are achieved through common guidelines for curriculum development and assessment. Defined as curricular synthesis, this process is central to curricular advancement.16

Key Strategies for Objective 3.1

In order to meet our objectives, we will use the following two strategies:

1. **Strategy: Reform the General University Requirements**

   *Reform of the GUR* will ensure that students are prepared to participate and succeed professionally in a 21st century global society. Revision of the GUR should especially attend to the following: incorporation of milestone experiences of research, internships, service learning, international study, and arts engagement experiences; total credit hours; tailoring to the needs of individual colleges and schools; and outcomes assessment (See Objective 3.4 for milestone experiences).

2. **Strategy: Reform Undergraduate Education**

   *Short-term modification of credit requirements and semester load* will facilitate retention and graduation and reduce the costs of attending NJIT. Following the best practices of the benchmark institutions, approximately 40-43 three-credit courses should be required to complete a BS degree.

   *Long-term implementation of a 4 X 4 curriculum* in which students take four courses at four credits across four years of undergraduate will further improve retention and graduation rates and reduce degree costs.

3. **Strategy: Innovate Graduate Education**

   *Creation of new professional science master’s (PSM), intended for working professionals, will benefit the university. Such master’s degree programs provide students with a strong science

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16 Curriculum synthesis is governed by processes and procedures established by academic units. Strategic planning initiatives, as part of the process of continuous improvement, are relevant to establishing guidelines to ensure that curricula are relevant, current, and consistent with the university’s mission and objectives. A cursory review of NJIT’s degree programs indicates that there is a wide variation in program objectives, philosophy, and the relative emphasis on theory and practice. Consequently, common metrics for program assessment do not exist, frustrating efforts to assess student learning outcomes and student success. Our purpose is not to dictate course content or curriculum structures since those decisions must be made by faculty. Rather, it is to establish a set of guidelines for curriculum development and assessment that can be used to ensure that degree programs are aligned with the university’s mission and stakeholder expectations.
and/or engineering education and training as well as concentration in business, management, ethics, policy, and communication skills; to augment their applied focus, PSM degrees are often developed in conjunction with industrial partners. While NJIT does not currently offer PSM programs, their creation would enhance the university mission, strengthen multidisciplinary perspectives, and increase graduate enrollment.

*Creation of applied master’s programs entirely online* will yield additional benefits for working professionals. In contrast to PSM degrees, applied programs prepare graduates for jobs in industry by integrating theory with practice so that students can apply advanced techniques and methods to solve business and industry problems. Offering such programs entirely online will yield distinct enrollment advantages.

*Introduction of a professional doctoral program in our School of Management* will elevate the visibility and stature of the school in industry and academia.

**Targets for Objective 3.1**

We will advance excellence in teaching and learning by improving the curriculum at NJIT, developing clear learning outcomes, and building common guidelines for curricular development and assessment. To achieve these we will:

- Advance curricular synthesis for all degree programs
- Reform the GUR
- Expand our present 50 active master’s degrees to 58, primarily through the new professional science master’s degrees
- Among the 58 degrees, 16 of the applied master’s degrees will be offered entirely online by the third year of the strategic plan, and all applied degrees will be offered online by the end of the planning period
- In total, 30 Master of Science degrees will be offered entirely online by the fall of 2020

As a result of these efforts, we will grow the graduate program by 100+ new students each year, until reaching a total graduate enrollment of 3,600 students.

**Metrics for Objective 3.1**

To measure our progress internally, we will use enrollment, retention, and graduation rates as key performance indicators to examine the relationship between student success and curricular synthesis. Special attention will be paid to enrollment in new graduate programs offered entirely in online environments as they contribute to the key performance indicators of retention, graduation, and student satisfaction. We must also monitor enrollment in PSM degrees, which NJIT does not currently offer, in order to benchmark their success against conventional degrees. Also, since our projections show an overall increase of the graduate student population by 100+ additional students per year, actual enrollment figures must be compared against this target.

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17 NJIT, Graduate Studies at NJIT: Strategic Plan (Newark, NJ: NJIT, 2013).
Objective 3.2: Curricular Assessment

Our objective is to assess student learning and use the results for course and program improvement, leading to increased rates of retention and graduation.\(^\text{18}\)

Key Strategies for Objective 3.2

To meet our objectives, we will use the following two strategies.\(^\text{19}\)

1. **Strategy: Evaluate Integrative Education**

   *Assessment of integrative education* is essential to its sustainability. Resources currently available through the Office of Academic Assessment and resources developed during the course of this strategic planning cycle will be employed to determine the success of implementation and the achievement of outcomes for integrative education initiatives. Special attention will be paid to short and long-term innovation in undergraduate education and online graduate education.

2. **Strategy: Develop an Academic Assessment Website**

   *Demonstration of curricular assessment* and the impact of that assessment must be communicated to the NJIT community. Special attention will be paid to the relationship between degree objectives and course outcomes and how both relate to institutional priorities.

   *Institution of yearly program self-assessments and cyclical program reviews* by creating standardized, efficient, and transparent procedures for submission and assessment of reports.

Targets for Objective 3.2

We will incrementally use the NJIT Program Assessment process to achieve integrative education at NJIT. As we engage in this process, we will:

- Map the undergraduate and graduate curriculum, by major, to institutional strategic objectives
- Map learning outcomes for each course to GUR core competencies
- Create a web-based system for academic assessment which facilitates the development, implementation, and easy access to program self-assessments and program reviews

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\(^{18}\) Academic assessment is an ongoing process of gathering and discussing information designed to monitor and improve student learning at the program level. The process includes an evaluation of program outcomes informed by multiple and diverse data sources. A realistic and accurate assessment includes not only factors within a degree program, but also the effectiveness of programs and services which support student success.

• Develop a program of assessment workshops for degree program directors and course instructors to help institute an awareness of the importance of assessment throughout the academic community.

Metrics for Objective 3.2

To measure our progress internally, we will use the NJIT Program Assessment Process as the central vehicle for curricular mapping and assessment as they are related to the key performance indicators of retention, graduation, and student satisfaction.
Objective 3.3: Convergence through Digital Learning

Our objective is to better engage students in the curricula, our objective is to embrace digital learning as the transformative strategy for the delivery of instruction across the curricula. In order to give students an element of control over time, place, path, and pace of education, digital learning will be incorporated into all courses. This is the principal idea of convergence.

Key Strategies for Objective 3.3

In order to meet our objective, we will use the following four strategies:

1. Strategy: Create an Instructional Culture of Digital Learning

   Acceptance of digital learning will better engage students in the curricula. As we pursue our agenda of digital learning, we will pay special attention to the following: the convergence of face-to-face and online modes of instructional delivery; use of advanced instructional technologies in the physical and virtual classrooms; recognition of individual differences in learning styles and the value of adaptive learning to support personalized instruction; and integration of the Digital Education Support System for professional practice as advanced in Objective 2.2, Strategy 3.

2. Strategy: Implement an Effective Infrastructure to Support Digital Learning

   Support of digital learning must be undertaken with special care. As such, the Office of the Associate Provost for Information Services & Technology and Chief Information Officer, working with the Faculty Senate Committee on Teaching, Learning, and Technology, will investigate and advise regarding appropriate digital technology innovations best improve student learning and should therefore be integrated into instructional delivery. Expert faculty will partner with instructional designers to develop innovative content. Special attention will be given to curricula redesign that support the convergence of currently separate face-to-face, hybrid, and online modes of delivery. Academic and student support services will be made available to all students regardless of instructional mode of delivery.

   Creation of a digital repository for learning artifacts will result in sharing of best instructional practice among faculty and contribute to digital literacy among students.

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21 Digital Learning is the application of modern and sustainable digital media, information, and communication technologies that transform the delivery of instruction to provide efficient, flexible, and effective learning options for students. A learning object is a digital artifact designed to present content for meeting a single learning objective.
3. **Strategy: Assure Academic Rigor in the Converged Delivery Mode**

*Assurance of uniformity in digital learning rigor, regardless of course delivery mode, is critical to the success of convergence. While the aim of a converged model is to unify physical and virtual classrooms where appropriate, all students will be held to the same standards for academic excellence, engage in the same discussions, do the same homework, and take the same exams.*\(^{22}\) Because course content and learning outcomes are independent of the delivery mode, academic standards will be consistent.


*Support of personalized digital instruction in lower-level GUR courses, particularly those in mathematics and the sciences, provides students from all backgrounds and levels of preparation with every opportunity to be successful. Adaptive learning technologies can provide a personalized learning experience through continuous assessment, real-time feedback and just-in-time instruction.*

**Targets for Objective 3.3**

Working with the Office of Academic Assessment and the Office of Institutional Research and Planning, we will evaluate and leverage digital learning technologies associated with the Digital Education Support System in all courses and, where appropriate, make courses available to students simultaneously as face-to-face, hybrid, or totally online in a converged delivery mode. As we exploit digital learning, we will:

- Identify and support faculty enthusiastic about adopting digital learning technologies, and in particular, teaching in a converged model
- Build physical and virtual classrooms that support the converged model of instructional delivery
- Incorporate adaptive learning technology into the curriculum with increased emphasis on undergraduate courses
- Introduce a digital repository solution within the Digital Education Support System that can be used by all NJIT faculty and students

**Metrics for Objective 3.3**

To measure our progress internally, we will work with the Office of Institutional Research and Planning to identify strategies to relate digital learning efforts to the key performance indicators of retention, graduation, and student satisfaction.

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\(^{22}\) *Convergence occurs as face-to-face, hybrid, and on-line modes of delivery are unified.*
Objective 3.4: Milestone Experiences

Our objective is to advance engaged learning, multidisciplinary collaboration, and professional development, our objective is to create unique experiences for each student, with particular emphasis on the following: research, industrial, service, international, and personal milestone learning experiences.

Key Strategies for Objective 3.4

In order to meet our objectives, we will use the following four strategies:

1. **Strategy: Promote Undergraduate Research Experiences**

   *Expansion of outreach in the Undergraduate Research and Innovation program* will allow additional ways for students to flourish in collaborative environments. With mentoring by both NJIT professor and/or industry advisors, students relate classroom knowledge to applied research problems. As part of such activities, special attention will be paid to credit-bearing research experience which will be integrated into the degree program.

2. **Strategy: Promote Multidisciplinary Industrial and Service Learning Experiences**

   *Expansion of co-op, internship, and service learning projects* in our community allows undergraduate students to engage in meaningful experiential learning. As part of such activities, special attention will be paid to credit-bearing industrial and service experience which will be integrated into the degree program.

3. **Strategy: Promote International Experiences**

   *Provision of increased international opportunities* for relevant international experience allows undergraduate student to study, live, and work in new cultural environments. As part of such activities, special attention will be paid to credit-bearing international industrial experience which will be integrated into the degree program.

4. **Strategy: Promote Personal Milestone Experiences**

   *Fostering of personal milestone activities* such as participation in an NJIT orchestra and other musical groups, intramural sports teams and competition, and other related opportunities will enhance students experiences and broader development beyond their major. As part of such activities, special attention will be paid to credit-bearing personal milestone experiences that will be integrated into the degree programs.

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5. **Strategy: Promote Milestone Experiences in Graduate Study**

*Fostering of research, industrial, service, and international learning experiences* will also enhance advanced study. New professional science master’s programs and applied master’s programs will receive special attention under this initiative. Additionally, identification of national and international opportunities for graduate students will advance the international presence of the university. As part of such activities, special attention will be paid to credit-bearing experience which will be integrated into the degree program.

**Targets for Objective 3.4**

To create and operationalize milestone experiences within the curriculum for students, we will:

- Incrementally infuse research, industrial, community service, co-op, internship, international, and personal milestone learning experiences and opportunities into all undergraduate degree programs

- Integrate such milestone experiences, as appropriate, into graduate degree programs

**Metrics for Objective 3.4**

To measure our progress internally, we will work with the Office of Institutional Research and Planning to identify strategies to relate milestone efforts to the key performance indicators of retention, graduation, and student satisfaction.
4. Scholarship: Multidisciplinary Approaches

Vision for Strategic Priority 4: To establish and sustain a national and international presence in three strategic multidisciplinary research areas: data science and information technology; the convergence of the life sciences and engineering; and sustainable systems.

Themes for Priority 4: To create an environment for strategic multidisciplinary research, we have identified the following features: adoption of multidisciplinary research as an NJIT hallmark; strategic hiring in multidisciplinary research areas; a process to ensure sustainable multidisciplinary research; advancement of the New Jersey Innovation Institute as an NJIT corporation; plans to enhance faculty participation in multidisciplinary research and evaluate faculty research success; plans for curricular integration of multidisciplinary research; strengthened graduate student support; and use of the Facilities Master Plan in all infrastructure decisions.

Key Performance Indicators for Strategic Priority 4: As public accountability for Strategic Priority 4, we will use reputational measures in targeted areas.

Responsible Groups for Strategic Priority 4: The success of Strategic Priority 4 will be managed by the following constituencies: Lead: Office of the Provost; Co-Lead: Office of Research and Development; Academic Leadership Council; Graduate Studies; Office of University Advancement; Faculty Senate: Committee on Research, Scholarship, and Creative Academic Activity; Committee on Faculty Rights and Responsibilities; Committee on Information Technology, Library, and Academic Resources; University Senate: Committee on Finances and Facilities; Student Senate; and Graduate Student Association.

Accountability for Strategic Priority 4: A variety of existing and newly developed analytic reports will allow clear and timely reporting of the ability of our strategies to meet our targets. The reports will also strengthen our ability to communicate with a variety of campus stakeholders.

Impact of Strategic Priority 4: Strengthening the present strategic research areas will earn national and international recognition for NJIT. Establishing strategies for thematic new initiatives will allow NJIT to maintain its national and international recognition over time.
Objective 4.1: Multidisciplinary Research

Our objective is to establish and sustain a national and international presence in present and emerging areas of multidisciplinary research.

Key Strategies of Objective 4.1

To meet our objective, we will use the following four strategies:

1. Strategy: Adopt Multidisciplinary Research Approaches

Recognition of the challenges and benefits of multidisciplinary research will allow collaborative teams to be created. Creation of collaborative teams will confront the challenges and realize the benefits of multidisciplinary research in innovative ways. Considerations in the development of these teams include: increased time to building research teams; potentially longer time to secure research funding; potentially fewer citations for publications; potentially lower impact factors of interdisciplinary journals; and recognition of importance and significance of the research products rather than professional journal articles. To balance these challenges, new systems and policies must be designed to reconcile major differences in research philosophies, evaluate and reward faculty members who conduct interdisciplinary research, and identify new concepts of an academic home.\(^{24}\)

Identification of opportunities for development of researchers participating in multidisciplinary research will help to identify the benefits of collaboration. Along with the known benefits of enhanced external funding and increased opportunities for publication, identification of opportunities includes attracting high-quality students interested in multi-disciplinary careers and the development of multi-disciplinary degree programs.\(^{25}\)

Collection of information related to multidisciplinary research through the use and development of collaborative maps—a deliverable of NJIT's ADVANCE program—will allow identification of researchers currently participating in collaborative projects. Mapping the research areas and identifying those with a history of collaborative practices is important in establishing multidisciplinary research.

Encouragement of multidisciplinary dissertation committees will allow graduate programs to cross traditional disciplinary boundaries. Demonstrations of the benefits of collaborative research to graduate students will encourage mentorship for students and postdoctoral scholars who wish to work on interdisciplinary problems. As well, opportunities should be

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identified for faculty to teach classes in other departments related to their multidisciplinary research agendas.

2. **Strategy: Engage in Strategic Hiring**

*Multidisciplinary hiring of tenure track and tenured faculty* will strengthen research in the present three strategic initiative areas—data science and information technology; the convergence of the life sciences and engineering; and sustainable systems. Selective investment in research faculty will allow substantial return on investment in terms of securing the research funding needed to raise the present base of $66.7 million in external grants and contracts to $116.5 million by 2020.

*Encouragement of joint academic appointments* and develop clear guidelines for rewarding faculty participation in education and research activities in multiple departments.

*Development of a plan for additional hiring of tenure track and tenured faculty* in multidisciplinary areas will assure continued research and student success. As undergraduate and graduate student enrollment continues to grow, such a hiring plan must be established to advance education and research strengths. This strategic hiring plan should emphasize placing the highest hiring priority on tenure track positions at the level of assistant professors and developing a mentoring plan for early career faculty.

*Enhancement of research communication* will yield substantial benefits to the present and emerging multidisciplinary research communities. Regular and informed communication regarding multidisciplinary research will yield the following benefits: awareness of various grant opportunities; design of a searchable database on all NJIT submitted proposals and funded grants, with the proposal abstracts available; development of a searchable listing of major equipment on campus, equipment managers, and major users; publication of university-wide schedule of research seminars; and announcement of faculty achievements in obtaining grants, publishing significant research results, and delivering significant research outcomes.

*Sustaining of equitable teaching load* based on levels of scholarship and funding at comparable benchmark institutions will allow focused attention to research and research-based instruction. Reviewing the details of the faculty teaching load established in 4.1.4 of *NJIT Academic Plan, 2013-2015* and its December 9, 2013 addendum on workload, as well as earlier work on the subject, should be the highest priority considered by the Faculty Senate in fall 2014.

*Use of an Internal Request for Proposals (RFP) framework* will ensure that the present three strategic initiative areas are modified—if and when needed—to advance our national and international presence. Future strategic priorities should be established on emerging areas of great scientific, societal or technological importance; they should be relevant to the mission of NJIT and to state, regional, national, or international priorities; they should be areas of core competency within NJIT; and, at least for the period of the present strategic plan, they should fall within the broadly defined present priority areas. To continue to strengthen multidisciplinary research in real-time, a planning process modeled on RFPs associated with sponsored research should be developed and implemented.

4. **Strategy: Strengthen Broad Research Impact through the New Jersey Innovation Institute (NJII)**

*Integration of the private sector* through the university’s new non-profit 5.01(c) (3) will yield substantial benefits in raising the present $107 million in funding to $160 million. Industry facing in nature, NJII will yield the following benefits for research faculty: encouragement and development of broad collaboration and partnership with industries and state and local governments to conduct research and produce research outcomes to meet their specific needs; development of distinct budget guideline for grants with industry focused outcomes; flexibility in hiring non-faculty full time researchers or research associates to deliver the project outcomes; development of tiered overhead rates for funding in technology development; commercialization and application of research outcomes, with special attention to intellectual property expansion; and encouragement of faculty to engage in entrepreneurial activities.

**Targets for Objective 4.1**

We will grow external research funding from $66.7 million to $116.5 million. We will incrementally grow the NJIT total research expenditures from $107 million to $160 million. As we grow total research expenditures we will:

- Increase faculty scholarly productivity in both quantity and quality to a level that is comparable to peer universities
- Double faculty participation in externally funded research
- Increase the number of PhD graduates by at least 25 percent
- Demonstrate broad impact of faculty-led research to economic growth and community development
- Promote better integration of research and research outcomes on curriculum building and undergraduate and graduate education
Metrics for Objective 4.1

To measure our progress internally, we will measure the following indicators: NJIT external grants; total research expenditures; commercial licenses and options from university held intellectual property; invention disclosures per mission dollars of sponsored research.
Objective 4.2: Faculty Roles in Multidisciplinary Research

Our objective is to foster collaborative faculty participation in multidisciplinary strategic priorities.

Key Strategies for Objective 4.2

To meet our objective, we will use the following four strategies:

1. Strategy: Increase Participation of Current Faculty in Multidisciplinary Research

   Increasing of faculty participation in multidisciplinary research will yield long-term benefits for new faculty and students. Because the three thematic research initiatives are relatively new to NJIT, plans must be made to engage present faculty.

   Development of policies that will spur additional research engagement: sharing externally-funded overhead with PIs and academic units, establishing seed funding and support to develop faculty-led external funding efforts especially for emerging research topics, and establishing a competitive internal grant-funding program for innovative research that is timely but not clearly a candidate for external funding.  

   Re-engagement of senior faculty members in scholarship by integrating them into existing or emerging research projects will increase overall research capacity at the university.

2. Strategy: Use Shared Governance to Encourage Multidisciplinary Research

   Engagement of the Faculty Senate Committee on Research, Scholarship, and Creative Academic Activity (CRSA) will yield important benefits. Among other priorities, CRSA is expected to work with NJIT Administration to promote and support faculty research by addressing issues relevant to multidisciplinary research. CRSA will address the following: define mechanisms and global metrics (e.g. fellowship, h-index, citations, PhD students graduated, research funding, and similar metrics) to periodically self-assess the faculty scholarship and research portfolio and expand the annual faculty report; work with departments to collect data and publish an annual report on faculty research; incorporate these metrics into the faculty salary and merit distribution process; launch a university-wide effort to double the number of prestigious and highly competitive fellowships attained by faculty; develop a process to evaluate and assess economic impact of faculty-led research activity; and streamline procedures for promotion to the rank of Distinguished Professor, making the process transparent and equitable for both STEM and non-STEM disciplines.

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3. Strategy: Institute Curricular Integration of Multidisciplinary Research

Creation of a university-wide process to better integrate research outcomes and new knowledge from multiple disciplines will achieve substantial curricular improvements. Attendant to the emphasis on multidisciplinary research, the faculty should be encouraged to develop a process to update and improve course contents and curricula to include new research findings and knowledge wherever applicable. Development of a faculty research lecture series coordinated by the Faculty Senate will have curricular implications as well, for example, by serving to fulfill seminar course requirements in graduate degree programs.

Targets for Objective 4.2

We will increase multidisciplinary interaction among faculty in the thematic areas. As we grow such research, we will:

- Insure multidisciplinary faculty participation and oversight by the Faulty Senate’s Committee on Research, Scholarship, and Creative Academic Activity (CRSA)
- Increase the number of tenured and tenure-track faculty to 345 and the number of university lecturers to 115 from their current levels
- Assess faculty contribution to multidisciplinary research
- Establish a regional multi-university research center on each inter-disciplinary theme
- Recruit, educate, mentor, and graduate 100 PhD students per year
- Identify and build 5 new visible international university partnerships to develop joint degree graduate programs with a minimum of 100 students each

Metrics for Objective 4.2

To measure our progress internally, we will use defined metrics to evaluate faculty productivity such as the following: research funding, graduation of PhD students, citations, and professional society fellowships. We will also measure curricular transformation by faculty in multidisciplinary research areas.
Objective 4.3: Graduate Student Roles in Multidisciplinary Research

Our objective is to recruit outstanding graduate students by improving graduate student mentoring and support.

Key Strategies for Objective 4.3

To meet our objective, we will use the following five strategies:

1. **Strategy: Improve Graduate Student Recruitment**

   Recruitment of graduate students at the department level should become the norm. Recruitment should emphasize the following: student point of contact; peer outreach; and individual faculty outreach. Intensive departmental recruiting, with special attention to multidisciplinary research, will enhance student motivation for applying, especially if faculty expertise in multidisciplinary research is highlighted. Departmental recruitment should include attention to the following: planning for market-adjusted competitive rate for graduate student support; adjusting institute-wide PhD application deadline and ensure timely offer letters; aligning deadlines to match that of peer institutions; evaluating applicants and extending offers as soon as possible; increasing enrollment of US citizens and permanent residents eligible for federally funded fellowships; and NJIT branding embedded within all faculty and graduate student conference presentations and posters. Use of social media as defined in Priority 1 should also be used in graduate student recruitment.

2. **Strategy: Quantify Current Graduate Student Recruitment**

   Development of key metrics for graduate student recruitment will allow centralization of information that departments may use to strengthen graduate student recruitment and support, with special recruitment for multidisciplinary research. Key metrics include the following: number of applicants; GRE scores; and GPAs adjusted to rigor of undergraduate institution.

3. **Strategy: Quantify Graduate Student Success**

   Tracking of graduate student success by department and program will include empirical measures. Key measures of student performance include the following: years to completion; multidisciplinary research; number and quality (journal impact factor) of student publications; number and value of grants; and career advancement (position and institution after graduation).
4. **Strategy: Assure Multidisciplinary Mentoring**

*Expansion of advisement processes* for multidisciplinary students will yield benefits for all. While graduate students would benefit from the approaches described in 4.1, unique plans must be in place for multidisciplinary student mentoring. \(^{27}\)

5. **Strategy: Assess Multidisciplinary Graduate Student Performance**

*Assessment of graduate student success in multidisciplinary areas* according to key quantitative measures will allow the effectiveness of strategic multidisciplinary efforts to be examined.

**Targets for Objective 4.3**

As we increase the quality of graduate students and place special emphasis on multidisciplinary research experiences for advanced study, we will:

- Increase the total number of graduate students to 3,600
- Increase the number of master’s degrees granted each year to 1,200
- Increase the number of doctoral degrees granted each year to 80
- Increase the number and quality of applicants
- Increase support for the best applicants to ensure that the best students enroll
- Increase TA stipends to make them competitive with our peer schools students from its present rate of $18,315 to a market-adjusted competitive rate
- Develop co-advising strategies to foster multidisciplinary research
- Encourage and leverage successful grant applications by making TA lines proportional to RA lines among departments
- Provide full tuition scholarship for every PhD candidate Research Assistant funded externally for up to 3 years
- Recognize, explicitly, PhD student advisement in faculty merit distribution process
- Identify, promote and provide additional incentives to the top-3 PhD degree programs graduating minimum of 10 students per year on the average for a decade

**Metrics for Objective 4.3**

To measure our progress internally, we will study graduate student recruitment (number and quality of applicants and matriculated student) and success (time to degree, publication quantity and quality, grant quantity and quality, career advancement).

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Objective 4.4: Facilities and Administrative Planning

Our objective is to create the facility infrastructure necessary to support multidisciplinary research.

Strategies for Objective 4.4

In order to meet our objective, we will focus on the following four strategies:

1. **Strategy: Optimize Start-up Processes and Resources**

   *Flexible use of start-up funds for all new hires throughout their pre-tenure period* in support of their scholarly work as they see fit, with the approval of department chairs and deans, will ensure continuity for nascent research programs.

   *Assurance of a fully functional laboratory space* for research upon appointment, or within a maximum of six months of the faculty hire date, will jump start new faculty research career at NJIT.

2. **Strategy: Document and Assess Infrastructure**

   *Documentation of the current operating infrastructure* includes identification of facilities, equipment, and institutional support infrastructure; *assessment of the infrastructure* includes the capability of this infrastructure to support teaching, learning, and research both within and across the disciplines. The documentation and assessment effort will improve management and allocation of resources and enhance the NJIT brand. The effort will also yield an understanding of university’s research capability, including potential for collaboration across geographic locations.\(^28\)

3. **Strategy: Generate New Resources, Optimize and Prioritize Asset Allocation**

   *Generation of new resources, optimization of existing infrastructure use, and the prioritizing of needs* for new facilities, equipment and institutional infrastructure is essential to current and future research initiatives. Efforts at optimization and prioritization will yield the following: planning for current and new multidisciplinary initiatives at university facilities; establishing an infrastructure that can facilitate an increase in the number and size of research awards to the university; increasing tenants in the Enterprise Development Center; enhancing recruitment of faculty, instructional staff, and students; and enriching alumni involvement.

4. **Strategy: Share Facilities and Services with Industry and CHEN Institutions**

   *Expansion of shared use* of facilities, equipment, and institutional support infrastructure with industry and Rutgers-Newark, Rutgers Biomedical and Health Sciences, and Essex County College will substantially advance multidisciplinary research. Such collaborative facilities sharing will expand research opportunities and increase grant applications. Collaborative

practices involving shared facilities will also allow NJIT to develop new avenues for research funding through joint proposals and projects with industry; provide faculty access to current state-of-the-art equipment through new connections, leverage relationships both internal and external to the university, and enhance student learning experience.


Showcasing facilities, equipment and institutional support infrastructure will expand NJIT’s image as a multidisciplinary research university attendant to the needs of state, regional, national and international communities. Such branding techniques will yield the following: enhanced recruitment and retention of faculty, instructional staff, and students; new opportunities for developing external resources for NJII; and professional success for students upon graduation.

Targets for Objective 4.4

To create the facility infrastructure necessary to support multidisciplinary research, we will:

- Use targets associated with update the Facilities Master Plan
- Use the Facilities Master Plan in all decisions of space allocation

Metrics for Objective 4.4

To measure our progress internally, we will use the following for Strategy 1: outcomes of a capacity analysis utilizing existing data such as Banner, Faculty Load Analysis, Space Inventory, and Space Utilization Report used in F&A rate development; outcomes from SWOT and Gap analyses of the capacity analysis; and assessment of current databases. For Strategy 2, we will use the following: outcomes from surveys of faculty, students, alumni and other stakeholders. For Strategy 3, we will use the following: results from student and industrial surveys; GAP analysis of the student and industrial surveys; and feasibility studies about research and industry. For Strategy 4, we will use the following: marketing studies; university and professional memberships; existing surveys and discussions with faculty, department advisory committees, leaders, and other stakeholders; and information from comments and recommendations from accreditation reports.
5. Global Community: Diverse Leadership

Vision for Strategic Priority 5: To achieve a significant, meaningful increase in the number of women and underrepresented minority faculty, instructors, administrators. To foster an international community on campus and improve the university’s global presence.

Themes for Priority 5: To achieve a significant, meaningful increase in number of women and underrepresented minority faculty, instructors, and administrators, we have identified the following features: recruitment of a volunteer Senior Diversity Liaison and Best Practice Leaders from within the faculty; comprehensive diversity training, mentoring, and accountability; targets based on 2012 recommendations from the Middle States Commission in Higher Education; and formal committees created to advance, evaluate, and improve diverse administrative leadership. We will also strengthen international student support, simplify international agreements, promote scholarly exchanges, and appoint international community representatives.

Key Performance Indicators for Strategic Priority 5: As public accountability for Strategic Priority 5, we will measure the percent of women and minority personnel as a percent of the total faculty and as a percent of the total administrative leadership.

Responsible Groups for Strategic Priority 5: The success of Strategic Priority 5 will be managed by the following constituencies: Lead: Office for Human Resources; Co-Lead: Senior Diversity Liaison; international community representatives; Faculty Best Practice Leaders; Academic Leadership Council; Departmental Search Committees; Office of Administration and Treasurer; Office of Research and Development; Strategic Communications; Vice President for Real Estate Development/Capital Operations; Faculty Senate: Academic Strategic Planning and Budget Priorities; University Senate: Human Resources; Office of Institutional Research and Planning.

Accountability for Strategic Priority 5: A variety of existing and newly developed analytic reports will allow clear and timely reporting of the ability of our strategies to meet our targets.

Impact of Strategic Priority 5: The presence of a diverse faculty and administrative leadership is integral to the recruitment and retention of a diverse student body. Creation of a campus environment in which the diverse perspectives of faculty and administrative leaders are integrated into the campus fabric will add to our community’s quality of life and advance the university’s standing by developing an international presence.
Objective 5.1: Diverse Faculty Leadership

Our objective is to achieve a significant, meaningful increase in number of women and underrepresented minority tenure and tenure-track faculty and instructors in non-tenure track positions.

Key Strategies for Objective 5.1

To achieve our objective, we recommend the following nine strategies:

1. **Strategy: Develop a Standard Definition for Diversity and Inclusion**

   *Establishment of an NJIT definition for diversity and inclusion* will facilitate development of an informed baseline diversity assessment and a comprehensive framework for assessing progress. Adoption and use of a diversity definition will include the following: race, sex, sexual orientation, gender identity and expression, marital status, age, religion, color, national origin, ancestry, citizenship, disability, and veteran status.

2. **Strategy: Centralize Oversight**

   *Increase of oversight and centralized coordination* of efforts to recruit and retain women and minority faculty will result in an increasingly diverse community. To ensure effective coordination of faculty recruitment, a Senior Diversity Liaison will be charged with coordinating and assessing NJIT’s efforts to recruit and retain women and URM faculty. Such an appointment will increase visibility and coordination of efforts to recruit and retain women and minority faculty.

3. **Strategy: Centralize Resources**

   *Centralization of resources and information* increases search committee efforts to recruit diverse future faculty. To this end, the Vice President for Human Resource will work with...

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29 Faculty diversity is a driver of excellence throughout the university. Studies have shown that human diversity enhances innovation and creativity in collective problem-solving. The presence of a diverse faculty is integral to the recruitment and retention of a diverse student body. Indeed, the 2012 Middle State Commission Report urges NJIT to “[increase] the number of women and underrepresented minority faculty” for just this reason: “a faculty that reflects the nature of the student body and the society that the university serves will pay rich dividends in terms of future student recruitment, retention, graduation, and ultimate success” (4). For more key resources on diversity, see the following sources: Scott E. Page, *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies* (Princeton, NJ: Princeton University Press, 2007). See also Anita Williams Wooley, et al., “Evidence for a Collective Intelligence Factor in the Performance of Human Groups,” *Science*, 330.6004 (29 October 2010): 686-688. John P. Holdren, *Federal Science, Technology, Engineering, and Mathematics (STEM) Education: 5-Year Strategic Plan* (A Report from the Committee on STEM Education National Science and Technology Council (Washington, DC: Office of Science and Technology Policy, 2013). Related initiatives may be found on the homepage of the Office of Science and Technology Policy.
each college, school, and department as a link to academic units and the Senior Diversity Liaison and HR. This direct interaction will yield increased search committee effectiveness in diversity recruitment.

4. Strategy: Train Search Committees

*Training of search committee for accountability*, especially in implicit bias awareness, will increase effectiveness of diversity recruitment. To achieve such training, prior to beginning the search each faculty search committee will submit for the provost’s approval a formal written recruitment plan describing the specific steps the committee plans to take to ensure a diverse pool of candidates. To facilitate diverse hiring practices, all faculty and potential search committee members will participate in best practices training in order to be eligible to serve on any search committee.

5. Strategy: Increase Diversity through competitive Recruitment and Retention

*Achievement of faculty diversity through a targeted recruitment and retention process* by making available a competitive pool of funds for salary and start-ups to departments, schools, and colleges will increase the academic strength of the university.

6. Strategy: Formalize Accountability

*Standardization of diversity recruitment* will allow transparency for all stakeholders. To that end, each college and school dean should develop a plan for achieving faculty diversity. These plans should describe how the increased recruitment and retention of women and URM faculty and instructors will be achieved, as well as ensuring that that they are consistent with Federal and State laws and employment regulations.


*Provision of best practices information to decision-makers* will contribute to diversity hiring plans and therefore help facilitate recruitment of diverse faculty. Faculty Best Practices Leaders will be selected in each department which will provide additional training, and help raise awareness of implicit bias in search and promotion and tenure processes.

8. Strategy: Recruit Continuously

*Ongoing recruitment of faculty* will increase the likelihood of successful diversity hiring. This effort will be advanced by: inviting women and minority speakers to campus, encouraging women and minority visiting professors and research associates to join NJIT; and creation of a website with a menu of resources for prospective faculty. The university will also host an annual Career Advancement Workshop for young female and URM PhDs who may be potential faculty hires.
9. Strategy: Mentor for Success

Understanding of the importance of diversity mentoring will lead to a university-wide team-based mentoring and peer-networking program for all untenured, tenure-track women and URM faculty members and require chairs to develop proactive career advancement plans, including three-year and five-year review processes, for all tenure and tenure track women and URM faculty. To develop such leadership, funds will be provided to send one woman or URM professor each year to an established leadership program in order to increase their visibility and advance women and URM to leadership roles.

Targets for Objective 5.1

In order to achieve a meaningful increase in the number of women and underrepresented minority faculty and instructors, we will make good faith efforts to meet the following targets by the end of the strategic planning period:

- Women will be at least 20 percent in tenure-track faculty ranks and 30 percent in non-tenure-track faculty ranks
- URM groups will be at least 10 percent in both tenure and non-tenure track faculty ranks

As we concentrate on expanding the number of women and underrepresented minority faculty and instructors, we will:

- Ensure effective coordination of faculty hiring
- Centralize resources/data required to enhance the pool of excellent prospective faculty
- Improve search committee practices to increase the number and diversity of applicants
- Ensure accountability of hiring for excellence initiatives
- Provide academic decision-makers with resources they need to recruit and retain diverse faculty
- Establish a process of continuous recruitment of women and underrepresented minority faculty
- Ensure that all faculty members, particularly women/URM are mentored effectively for success

Metrics for Objective 5.1

To assess our progress internally, we will monitor each of these performance measures: ensure that each recruitment plan includes specific diversity goals based on the rate at which new women and underrepresented minority PhD recipients enter the academic workplace; collect, store, and analyze applicant pool and outcome data from each faculty search; track attendance at search committee training; track data on offers made to prospective faculty; track data on comparative faculty productivity data; hold each college/school dean accountable for achieving faculty diversity goals; explore maintenance of a prospective faculty data base and track hires; analyze promotion and tenure data annually by department, gender, and ethnicity; and track individuals for advancement opportunities.
Objective 5.2: Diverse Administrator Leadership

Our objective is to achieve a significant, meaningful increase in number of women and underrepresented minority administrators.

Key Strategies of Objective 5.2

In order to meet our objective, we will use the following seven strategies:

1. **Strategy: Utilize Existing Databases Containing Administrator Rank and Diversity Data**

   *Utilization of university databases* that contain both administrator rank and diversity data will allow the university to accurately assess diversity within and across established bands of administrative rank and identify departmental gaps that need to be corrected.

2. **Strategy: Establish a Committee on Administrator Diversity**

   *Committee oversight of recruitment, development, and mentorship* of a diverse talent pool will establish opportunities and pathways for professional growth and advancement that will lead to robust diversity among administrative leaders. The committee will report to the Vice President of Human Resources, and its members will serve on search committees.

3. **Strategy: Recruit, Develop, and Mentor a Diverse Talent Pool**

   *Establishment of a diverse administrative talent pool* will yield opportunities and pathways for professional growth and advancement that will, in turn, lead to robust diversity in institutional leadership at all administrator levels. The following formal process will facilitate diverse administrative leadership: a one-to-one administrator mentoring program; administrator networking opportunities that purposefully promote the establishment of diverse professional collaboration and relationships; an employee support program specifically related to diversity issues; and recruitment and retention tactics designed to enhance workforce diversity such as flexible schedules, dual employment options for couples\(^30\), representation of diversity in NJIT advertising and promotional materials, and policies that require administrator leaders to report inclusion metrics within their units.

4. **Strategy: Develop One-to-One Administrator Mentoring Programs**

   *Mentoring of a diverse talent pool* will establish opportunities and pathways for professional growth and advancement that will lead to robust diversity among institutional leadership.

\(^{30}\) For more on dual employment, see the Higher Education Recruitment Consortium and the Dual Career Initiative at Cornell University.
5. **Strategy: Attract Diverse Representation in Volunteer Leadership**

*Establishment of relationships with professional organizations* will cultivate diverse participation on the university’s volunteer leadership boards. Key targets for diverse representation include the Board of Trustees, Board of Overseers, and various boards of visitors. Inclusion of a statement of commitment to diversity in all volunteer boards will facilitate the attraction of diverse leadership.

**Targets for Objective 5.2**

In order to achieve a meaningful increase in the diversity of administrative leaders, we will make good faith efforts to meet or exceed the following targets by the end of the strategic planning period: 20 percent women administrators and 10 percent URM administrators. As we concentrate on expanding the number of women and underrepresented administrative leaders, we will:

- Develop a standard definition for diversity/inclusion that can be tied to available or collectable data in order to enable accurate initial assessment and tracking of progress
- Construct a database that contains both administrator rank and diversity data
- Recruit, develop, and mentor a diverse talent pool for leadership
- Develop one-to-one administrator mentoring programs for leadership
- Facilitate administrator networking opportunities for leadership
- Explore the creation of an employee support program specifically related to diversity issues
- Implement a recruitment and retention plan designed to enhance workforce diversity
- Require administrative leaders to report inclusion metrics within their units
- Encourage diverse representation among members of NJIT’s volunteer leadership

**Metrics for Objective 5.2**

To measure our progress internally, we will monitor each of these performance measures: Gap analysis of database by rank and diversity data; number of women and URM hired; career development initiatives for diversity; type and frequency of mentoring program activities; number of career networking opportunities organized within and outside NJIT; review marketing materials to assess diversity alignment; and diversity reports by department.
Objective 5.3: Building a Global Community

Our objective is to foster a global community on our campus and improve the university’s standing by developing international presence.

Key Strategies for Objective 5.3

To achieve our objective we recommend the following four strategies:

1. **Strategy: Offer College/School-based International Students Support in their own colleges**

   Training of selected staff in departments, schools, and colleges will rapidly address problems of international students. These people will be selected for their ability to interact with international students and will receive training to more effectively address the support needs of international students and scholars within the academic departments.

2. **Strategy: Simplify the Process for International Agreements**

   Standardization of a streamlined approval process will simplify international agreements. The university has long encouraged international agreements and Memoranda of Understanding (MOU) with international institutions. Without a standard format, however, developing them has been laborious and implementing them has been inconsistent. A limited set of well understood templates for international agreements will facilitate the process and make the agreements easier to implement. A designated office or individual should named as the responsible entity for each MOU.

3. **Strategy: Promote Scholarship and Research Exchanges**

   Encouraging of visiting and courtesy appointments will promote global collaboration. These appointments should be used to expand NJIT scholarship, develop research potential, and improve the university’s international standing.

4. **Strategy: Appoint NJIT Faculty as an International Community Representatives**

   Leveraging of globally diverse NJIT faculty as spokespersons will enhance the university’s global presence, and communicate the needs and concerns of the international community of students and scholars on our campus.

Targets for Objective 5.3

In order to build a global community on campus and develop an international reputation, we will:

- Foster international networks to recruit international students
• Offer international students a more supportive campus environment
• Educate US students through milestone international experiences
• Develop agreements with international universities that have a real impact on NJIT
• Develop research collaborations, and cultivate an international reputation as a premiere science and technological university

Metrics for Objective 5.3

To measure our progress we will track the satisfaction of international students through surveys and monitor the number and productivity of visiting and courtesy appointments, monitor the number of active international agreements, and separately account for the productivity of international research collaborations.
Conclusion

Strategic planning is an essential element in the continuing evolution of a NJIT. Our strategic plan will help us in adapting to a changing environment, create a cohesive vision for the future, and provide a sustainable basis for allocating resources. Our plan will help us achieve our desire of a unified university for all.

While the plan presented here will begin in the spring of 2015, the present document provides a roadmap for the next five years of the university’s future. As is the case with all great state universities, we plan to play a major role in the state, region, and nation—a role that will have demonstrated international influence as well. As the preface to this plan establishes, our vision is clear:

As a public, technological research university, New Jersey Institute of Technology will prepare leaders to design the world of tomorrow through applied research, technological innovation, career achievement, and societal engagement.

To achieve this vision, we will concurrently promote student success, faculty research, and university recognition. We will continue to make NJIT a place that all graduates will remember as a hallmark experience of their lives.

We trust that readers will find the plan as exciting as we do. If that is indeed the case, then we ask that you join us in creating our common future. Fulfilling our vision will depend on everyone’s abilities, aspirations, and contributions. We welcome all who wish to work with us in creating our productive, hopeful future.