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FROM: Fadi Deek, Provost, and Senior Executive Vice President  
Chair, *2020 Vision* Steering Committee  
Date: 1 July 2020  
SUBJECT: *2020 Vision Final Report*

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## 2020 Vision Final Report

### I. Introduction

NJIT has achieved a remarkable run of success over the past five years. We moved into the top 100 of the *US News* ranking of national universities and the *Carnegie Classification* moved NJIT to the highest category of research universities: Very High Research, R1. The original 2020 ranking of US universities by the international organization QS also placed NJIT among the top 75 universities in the United States and third in New Jersey, behind only Princeton University and Rutgers University. This recognition comes as the result of recent measurable strides NJIT has made in education and research, particularly during the five years of *2020 Vision*. The average combined SAT score for entering freshmen rose more than 100 points from 1192 in fall 2014 to 1299 in fall 2019. The graduation rate also rose from 59% to 67% and externally funded research increased from \$63 million to \$106 million. The number of major national awards for faculty went up dramatically from 2 in 2014 to 11 in 2019. This transformation is reflected in more personal ways for students. Opportunities for international exchanges have doubled and the percentage of undergraduate students with milestone experiences at NJIT, including research, internship, and service opportunities, more than tripled in five years from 20% to 62%.

These changes have had an impact on the broader recognition of NJIT. While many universities have struggled to attract students the number of NJIT freshmen applicants has more than doubled from 4,777 in 2014 to over 10,000 for fall 2020. The reputation of NJIT has also improved beyond the local and regional community and this is reflected in an improvement in the *US News and QS* reputation surveys.

Together these developments attest to a very different university emerging from the strategic plan. NJIT has entered the ranks of leading national institutions and counts among the premier schools for a STEM education. These achievements leave us with even greater challenges—building on a strong foundation and attaining prominence amid turbulent times.

## *Overview of this Report*

This final implementation report for *2020 Vision* focuses on the achievements of a remarkable five years, but it does not shrink from assessing those areas where more might have been achieved. The report describes the development of the next plan, *NJIT 2025*, and how it reflects a combination of community sentiment and an assessment of *2020 Vision* with an eye toward continuous improvement. Beyond the community contribution and input from stakeholders at all levels, *NJIT 2025* reflects the imperatives and successes of *2020 Vision* while also addressing any shortcomings. Where our achievements exceeded all expectations, the next plan seeks to build on that strength. Where we made progress as expected, the next plan seeks to continue this growth. Where we fell short of our goals, the next plan seeks innovative solutions to achieve important objectives that eluded us in *2020 Vision*.

Section II of this report provides the 2014 baseline for *2020 Vision* and the final KPI values, without reflecting the disruptions which occurred in Spring 2020. The KPI report shows the most basic, quantifiable measures of our success in implementing *2020 Vision*.

Section III offers a detailed narrative of KPI based assessment emphasizing achievements, describing shortcomings, and linking the results to *NJIT 2025*.

The Appendix describes the specific strategies attached to each of the objectives pursued under *2020 Vision*. In many cases, it offers an assessment of the specific strategy's implementation. It also indicates whether the implementation of that strategy was completed.

## *Developing the Next Plan*

With the 2020 planning cycle drawing to a close, planning priority committees for *2020 Vision* worked with planning committees for the next strategic plan: *Building on a Strong Foundation—NJIT 2025*. Together, they developed new priorities and strategies designed to build on the enormous progress of *2020 Vision* and guide NJIT well into the next decade.

The process began with an NJIT Board of Trustees Retreat in July 2017 and included input by well over 1,000 community members through surveys, focus groups, interviews, and written comments. Out of this emerged five key priorities to organize objectives and strategies: 1) Students; 2) Research; 3) Faculty; 4) Resources; 5) Prominence. Around each of the five priorities we organized committees to review and refine community input, consider best practices by our peers, and study university needs. All of these were considered in light of *2020 Vision* and an objective assessment of that plan.

With this basis, the priority committees developed specific objectives, strategies, and Key Performance Indicators (KPIs) for *NJIT 2025*, the next strategic plan. The draft

sections from the priority committees were then combined, with a revised Mission, Vision, and Core Values, into a single draft plan, reviewed at all leadership levels of the university and commented on by the community. The final draft reflects and balances the diversity of input from all university stakeholders.

The final strategic plan builds on the strong foundation laid by *2020 Vision* and sets even more ambitious targets and goals. Where *2020 Vision* revealed unexpected potential, *NJIT 2025* builds on success. Where *2020 Vision* made solid progress, *NJIT 2025* pushes further, and in those areas where more might have been achieved, such as diversity and the quality of campus life, the new plan proposes new innovations. *NJIT 2025* focuses on the following:

- Achieving greater diversity across the university community, including students, faculty, and administrators
- Cultivating leadership in established fields of applied research
- Improving the quality of student campus life
- Promoting sustainability
- Improving the educational experience, particularly by investing in instructional technology
- Developing the *NJIT Global Campus*
- Investing in instructional facilities
- Establishing the prominence of NJIT

The final draft of *Building on a Strong Foundation—NJIT 2025*, including the revised Mission, Vision, and Core Values, was approved and endorsed by the Board of Trustees at their meeting on 25 June 2020.

### *Spring 2020*

The Spring 2020 disruptions in higher education came without notice and transformed the landscape for universities around the world. Coming at the end of *2020 Vision*, the pandemic had minor impact on plan implementation. Virtually all *2020 Vision* strategies were resourced and implemented as intended with only activities in the second half of the plan's final year affected. Nevertheless, the shutdown necessitated by the global pandemic had a profound impact on KPIs for the year. Research operations, for example, came to a complete halt and the external expenditures that had progressed at a record-setting pace lost almost three months of activity. The pause in operations had the same impact on all facets of research, intellectual property, publications, and student milestone experiences. Furthermore, satisfaction surveys normally conducted by consultants in March and April did not occur, for obvious reasons; therefore, we have no updates for those KPIs.

Rather than offer KPI values not reflecting a full year of activity and leave blanks where no surveys were conducted, the December 2019 KPIs appear in this final report. These

KPIs provide a more complete and fair assessment of our progress toward achieving the targets set for *2020 Vision*.

The pandemic has had a more profound impact on the implementation of *NJIT 2025*. The urgent need for recovery and a restart of university operations necessitates a more focused approach to strategic planning. Rather than ambitious investments in a broad range of strategies and objectives, implementing *NJIT 2025* will initially concentrate on guiding themes only. Of key importance are promoting diversity at all levels of the university, investing in the technology for a new global campus, promoting sustainability, and addressing societal challenges through applied research. Other objectives and strategies are expected to remain on hold until FY 2022.



## II. KPI Summary

The table below offers the final KPIs for *2020 Vision*. All KPIs are updated through the end of 2019. This includes all FY 2019 financial, research, and publication metrics. All enrollment, student outcome, and employment data reflects the final IPEDS reporting from the 2019-2020 academic year. The alumni giving value matches that provided to US News for the 2019-2020 academic year. Survey data collected in Spring is not used for updates because the unique conditions of the spring semester make survey responses non-comparable with prior years.

KPIs marked in green meet the targets set in 2014 or show substantial improvement (> 50%). Yellow indicates improvement but < 50%. Red indicates movement in the wrong direction.

2020 Vision-- Key Performance Indicators (KPIs)						
Strategic Priorities	Objectives		Metrics	2014 Baseline	2019-20	*
Students	Admissions	1	Freshmen applications	4,777	9,048	n,z
		2	Graduate applications	6,305	7,101	n
		3	Transfer applications	1,793	2,002	n
		4	Average composite SAT (M and CR combined)*	1192	1299	n,z
		5	High school GPA	3.50	3.60	n
		6	Average GRE (quantitative) MS (FTFT)	155	158	n
		7	Total enrollment**	10,646	11,859	n
	Retention	8	Retention rate	84%	88%	n
	Graduation	9	Graduation rate (6 year)	59%	67%	n,z
	Campus Quality of Life	10	Student satisfaction with campus life (UG survey)	3.10	3.16	b
Learning	Curricula Assessment	11	% undergraduate programs with learning outcomes assessment	20%	85%	b
	Curricular Reform	12	Educational value of the course, average	3.07	3.11	b,s
		13	Professional MS programs (# of programs/ total # students)	0/0	4/42	b,t
	Courses other than FtF	14	% Courses online/converged/hybrid etc	18%	22%	b
	Milestones	15	% of undergraduate students with milestone experiences	20%	76%	b,e
	Professional Success	16	Job placement of bachelors recipients (6 months)	54%	66%	b
		17	Student FE passing rate	69%	86%	b,f
Scholarly Research	Increase Research	18	Externally funded academic research (millions) (FY)	\$24M	\$37M	c,z
		19	Externally funded technology and business development	\$33M	\$65M	c,z
		20	Total externally funded research and development	\$63M	\$106M	c,k,z
	Multidisciplinary Research	21	Externally funded research with PIs from multiple departments	5	36	c,z
	Doctoral	22	Total enrolled doctoral students	381	525	n,z
	Intellectual Property	23	Total IP assets	310	415	c
	Publications	24	Refereed publications/faculty (FY)	1.54	2.6	b,g,n
		25	Total books published by NJIT community (FY)	14	16	b
	Faculty Recognition	26	Faculty awards	2	11	b,l,z
Community	Global Community	27	% Women students	25%	26%	b,j
		28	# International researchers collaborating with NJIT (FY)	24	63	c
		29	# International exchange students at NJIT (FY)	43	89	b,q
	Diverse Faculty	30	% Women faculty	16%	21%	a,j
		31	% Underrepresented minority faculty	8%	5%	a,j
	Diverse Administration	32	% Women administrative leadership	37%	36%	a,j
		33	% Underrepresented minority administrative leadership	20%	16%	a,j
	Alumni	34	Alumni giving rate	8%	10%	c

2020 Vision-- Key Performance Indicators (KPIs)						
Strategic Priorities	Objectives		Metrics	2014 Baseline	2019-20	*
Investments	Faculty Renewal	35	% Faculty hired in past 10 years	33%	44%	b
		36	# Total T/TT faculty	269	317	a
	Educational Investment	37	Student satisfaction with instruction (UG survey)	3.52	3.46	b,p
		38	Average undergraduate time to degree (Years)	5.13	4.51	b,z
	Infrastructure	39	Facility Condition Index	0.11	0.08	b
		40	Faculty facilities satisfaction	2.76	2.67	b,m
		41	Student facilities satisfaction	3.00	3.11	b,p
		42	Faculty technology satisfaction	3.15	3.07	b,m
		43	Student technology satisfaction	3.48	3.34	b,m

**Notes:**

\* Beginning in fall 2017 all SAT scores are being converted and reported on the new SAT scale.

\*\* 10th Day Enrollment

a- As of November 10, 2019

b- Reported for academic year 2018-19

c- Fiscal year 2019

d- In 3-5 new Professional Science Masters (PSM) programs

e- Metric includes undergraduate research experiences, co-ops, internship, learning abroad, and service learning experiences

f- FE exam passing (unweighted avg. of CE and ME; national unweighted average CE and ME 78%) target 80% of national avg.

g- This includes only academic articles

h- This includes scholarly books, poetry, and monographs

i- Faculty awards using Center standards plus nationally recognized fellowships and non-STEM awards

j- See detailed discussion of diversity KPIs, 2020 Vision report December 2019

k- The balance of total research funding includes educational and service grants

m- Sightlines survey

n- updated for 2019-20

p- Student Satisfaction Survey

q- based on Global Initiatives report to Provost including study abroad, exchange, and dual degree students

r- FCI, a national standard for facilities measure (.11=poor and .08=fair)

s- Course Evaluation survey

t- Cumulative enrollment

z- Notable progress

### III. Achievements of *2020 Vision*

*2020 Vision* has guided NJIT toward remarkable accomplishments over the past five years in education, research, and community growth. The profile of entering undergraduates has transformed with the number of freshmen applications dramatically surpassing initial expectations in 2014 and even upwardly revised expectations since then. The performance of students, particularly the graduation rate and the average time to degree, have also improved dramatically. Consistent with these developments, job placement of students and the percentage of undergraduates with milestone experiences have made notable strides.

The transformation of NJIT has touched all parts of the community. In research, NJIT has seen laudable growth in externally funded research and development with both academic research and NJIT leading the way. This growth has led the Carnegie Classification of Institutions of Higher Education to move NJIT into the highest category (R1) for research activity. Faculty contributions have reached new levels in the number of faculty awards and the impact of scholarship. Additionally, the increase in exchanges and collaborations with international partners, both faculty and students, has notably grown the international image of the university. Finally, our investments in faculty and facilities renewal have paid off in opportunities for education and the potential for research. Combined, this transformation has moved NJIT into the top 100 universities in the United States, according to the *US News* ranking of national universities.

#### *Priority 1—Students*

In this most important priority, the KPIs bear testament to NJIT as a qualitatively different university after the implementation of *2020 Vision*. The number of undergraduate applications has increased quickly since the 2014 baseline. The combined total of undergraduate applications, freshmen and transfer, reached nearly 6,600 in 2014. In contrast, we had more than 12,000 freshmen and transfer applications for fall 2020. With this increase in applications, the profile of admitted students has also changed with an average SAT score of 1299 and a GPA of 3.6 (1192 and 3.5 in 2014). At the same time, we have improved our retention rate, which increased from 84% to 88%, and our graduation rate, which rose from 59% in 2014 to 67%. The average undergraduate time to degree for FTFTF has also improved markedly from nearly 5 years to about 4.5 years.

The number of graduate applications increased but not to the extent projected in 2014. The number of international applicants for masters programs has declined nationwide and the enrollment of international students has declined correspondingly as a result of national policy and program changes. At NJIT we have fared remarkably well with a notably lower decline in applications than many of our peers. Indeed, for fall 2020 the number of graduate applications exceeded 7,000 for the second consecutive year. Bureaucratic and logistical hurdles for international enrollment, particularly in a time of pandemic, have eroded our international graduate student population. As a consequence, the average quantitative GRE scores of enrolled MS students have not

increased as intended in *2020 Vision*. The lower than planned graduate applications also accounts for the shortfall in the anticipated overall enrollment. Addressing these issues through a truly global NJIT campus will be a key priority for *NJIT 2025*.

### *Priority 2—Learning*

Educational experiences for students over the past five years have improved, with the steady use of program assessment guiding continuous improvement. The indicators of this are closely related to the student priority. The percentage of programs with completed assessment reviews rose to 85%. Retention rates, graduation rates, and the time to degree have improved. The percentage of students with milestone experiences has increased from 20% to 62% over the past five years. The number of international student exchanges has doubled and the job placement for students also improved from 54% to 66%. The FE passing rate and the percentage of courses offered as converged/online/hybrid have also increased.

The KPIs related to student satisfaction with instruction and the ‘educational value of the course’ have not shown meaningful improvement over the past five years. Whether this indicates the need for greater innovation in pedagogy and greater investment in classroom technology or whether it calls into question survey results generally remains an open question. The best answer is probably both options apply. Across all KPIs relying on surveys, from those relating to instruction to those reflecting satisfaction with facilities and technology, survey-based KPIs showed little or no improvement. This suggests the need for caution in assessing these performance indicators. Nevertheless, there is an ongoing need for innovation in pedagogy and the constant renewal of classroom technology to meet the rising expectations of students and the demands of a high-quality STEM education.

The rapid shift to online learning in the spring 2020 semester and the investment in technology to support curriculum change in fall 2020 has done much to update classroom technology. It has also rapidly advanced the development of innovative pedagogies as faculty adjust to unprecedented change in higher education. These circumstances have also moved the growth of the NJIT Global Campus well ahead of schedule.

### *Priority 3—Research*

NJIT’s significant progress in attracting external funds for research and development deserves attention. The Carnegie Classification has moved NJIT to the highest category for research, joining internationally recognized institutions such as Princeton, Berkeley, MIT, Rutgers, and others. The Carnegie Classification reflects NJIT’s improvement in nearly all aspects of research activity from academic research (up more than 50%, from \$24M in 2014 to \$37M in 2019) to technology and business development (up nearly 50% from \$33M to \$64M). Combined externally funded research has increased from

\$62M in 2014 to \$106M in 2019. The number of doctoral students, most of whom receive support from external research funding, has increased nearly 40%, to 525 students. The recognition of faculty scholarship has also improved with the average number of refereed journal publications per faculty member up more than 60% and prestigious faculty awards increasing from 2 to 11. International collaborations and multidisciplinary projects have also increased well beyond expectations.

The suspension of research activities in spring 2020 reduced actual expenditures for all of FY 2020; however, the time gained by researchers was invested in research proposals and the awards won has exceeded all expectations rising past \$70 million. This accomplishment promises a significant research rebound in the pandemic recovery phase.

#### *Priority 4—Community*

Assessing community poses special challenges. Markers such as retention rates and multidisciplinary collaborations indicate success in such areas as students and research and also suggest a more vibrant university community. Increased giving by alumni, rising from 8% to 10% between 2014 and 2019 also demonstrates greater alumni commitment to the NJIT community. Furthermore, many student milestone activities reflect both engagement in the university community and service to the local community of Newark. The increasing number of international faculty collaborations and a doubling of the international exchange students at NJIT (43 in 2014 and 88 in 2019) indicate a university markedly more engaged with international communities and growing in global impact. In a time of national retrenchment, increasing international engagement is no mean accomplishment.

In one area critical to community, NJIT has met with less success than hoped. The campus remains extraordinarily diverse in many ways. The number of women students has increased by almost 350, and the number of underrepresented minority (UR) students increased by more than 310. However, the ratios of women and URM students have not increased as significantly as planned. Additionally, while the number of women faculty has increased from 16% at the beginning of the plan to 21% in 2019, the percentage of women administrative leaders has remained approximately flat at around 36%. Most concerning was a decline in URM administrative leaders from 20% to 16% over the course of the plan.

The inconsistent progress in community diversity underscores the challenge of identifying effective strategies, yet we cannot accept the lack of diversity. The percentage of women students can and must increase during the next strategic plan. Developing effective investments is the key. We will expand the pipeline for women applicants to earlier in their high school careers and directly address parental concerns about safety. For URM students, it will be important to develop more effective ties with local communities such as Newark and to identify alternative markers of students with the potential to succeed. The SAT has been shown to have cultural biases; therefore, it is critical to identify the characteristics of URM students that show they can successfully

complete a challenging STEM curriculum. Identifying these characteristics will serve as the basis for admitting and supporting URM students with tremendous heretofore unrecognized potential

Hiring more diverse faculty and administrative leaders poses a different challenge. Successful strategies must increase the diversity of the recruitment pool by cultivating applicants earlier, ensuring against any biases in candidate assessment, and offering employment benefits that appeal to these candidates in particular. The next strategic plan must also recognize the limits of change by making significant investments in promoting diversity while setting realistic objectives.

These initiatives are fundamental to *NJIT 2025* where diversity rises from being a strategic objective to serving as a guiding principle across the university. Policies and procedures for admissions are already changing, as the university becomes SAT optional and offers students a greater range of indicators to show their potential for success in the NJIT curriculum. Expectations for faculty and staff hiring also reflect a strong commitment to building a hiring pipeline and cultivating potential candidates from within.

#### *Priority 5—Investments*

The NJIT investments in faculty and facility renewal have paid significant dividends. 44% of the NJIT faculty have now been hired in the past 10 years (as opposed to 33% in 2014). This marks a significant achievement for a university making its mark as a leader in STEM education. The emphasis on hiring brought the faculty size to a new high of 319, as reported in IPEDS, a number commensurate with the increased enrollment and research commitment of the university. Finally, the seemingly small change in the Facility Condition Index (FCI) from .11 in 2016 to .08 in 2019 reflects a dramatic improvement in an objective measure of facility conditions. Outside consultants awarded the FCI after a thorough review of NJIT facilities.

The objective nature of the FCI stands in sharp contrast to the satisfaction survey results associated with facilities. Neither students nor faculty are satisfied with facilities according to survey measures. As with the assessment of the quality of instruction, we should treat facility satisfaction survey data with caution. It may reflect rising expectations or changing needs among respondents. The FCI describes the objective condition of the facilities but says nothing about the expectations of the university community.

Finally, the KPIs show significant and unchanging dissatisfaction with computing technology on campus. As with all other survey measures, this data would warrant caution; however, concern about campus technology also reflects results of other internal studies and external consultant reviews. To address these issues, NJIT has already initiated a comprehensive review of technology and developed a strategic plan for Information Services and Technology. This plan will make IT management more streamlined while outsourcing those functions that can be provided more cost

effectively by others. In doing so NJIT will improve services and expand capacity to better meet the needs of students, faculty and staff.

This time of sudden, disruptive change in higher education requires a certain caution about facilities and IT investment. Innovation has come to us and we will continue to embrace it. With the strong commitment to converged learning made in summer 2020, the future needs for physical classrooms may not follow historically established patterns. When more student attend class remotely the need for small classrooms with more flexible arrangements may increase. Similarly, the need for parking facilities or residence halls may also change. The framework for these emerging needs is not yet visible and it will be important to be innovative with facilities and IT planning in the months and years ahead.



# Appendix

## 2020 Vision: Strategies and Tactics

### Priority 1 – Students

#### 1.1 Admissions

##### Objective 1.1.1: Expand Communication and Information Channels

1.1.1.1 Implement focused data-driven marketing, and recruitment strategies for all programs, including those offered fully online. This will help identify prospective students and those who influence their decisions:

Implemented focused, data-driven marketing, and recruitment strategies for undergraduate admissions by working closely with 'Spark 451' (a vendor to assist with communications with prospective freshman, transfer and graduate students) for targeted marketing. The next phase will focus on tracking effectiveness of Open Houses and on-campus recruitment events and continue to use predictive analytics to predict and monitor enrollment and matrix spending. *(Complete for undergraduate programs)*

NJIT established standard marketing campaign tracking practices by tracking generated website traffic via Google Analytics (GA) and through Slate, NJIT's new communication tool. *(Complete for graduate programs)*

1.1.1.2 Communicate the benefits of an NJIT degree more effectively. This will create awareness of the academic community and articulate the opportunities of the NJIT curriculum:

The Offices of Admissions and Strategic Communication have developed key marketing points on which all marketing materials are based, including academic reputation, research, location, cost, and student life. Also, comprehensive marketing strategies which include print ads, digital ads, and social media marketing have been developed. NJIT implemented a new communication software called "Slate" to help track and analyze the recruitment efforts. This tactic will be assessed by analyzing communication outcomes. *(Complete)*

1.1.1.3 Expand the pipeline programs, including pre-college activities and outreach. This will increase the application pool:

Enrollment in student and educator program offerings has increased over prior years as a result of expanded outreach to schools, school districts, professional associations and families throughout New Jersey. This is reflected in our dual enrollment programs, Options, and Academy, as well as participation in professional development offerings such as TRY Engineering, Physics, and Saturday Family STEM Workshops for teachers, families and administrators. Our annual review and assessment of programs, services, and participants' feedback continued to inform revisions made to program design and offerings along with a critical focus on "best practice" in STEM education. *(Complete)*

1.1.1.4 Refine articulation agreements and increase the number of joint programs with community colleges. This will strengthen NJIT's historical relationship with community colleges in the state and region:

We have signed agreements with community colleges across NJ, with the more recent addition of Union County College. Also, NJIT will be part of the State-wide reverse transfer agreement through National Students Clearinghouse. The number of partnerships formalized will be used to assess the success of this articulation. *(Complete)*

1.1.1.5 Centralize applicant information using digital technology. This will facilitate analytics to identify characteristics of successful NJIT students, target recruitment toward students with that profile, and support academic advising:

Admissions implemented Common App and Document Manager, a digital document manager, started in fall 2014. *(Complete)*

## 1.1.2. Strengthen Graduate Student Recruitment

1.1.2.1 Recruit graduate students at the department level, with emphasis on the following: student point of contact, peer outreach, and individual faculty outreach. This will personalize and increase the effectiveness of recruitment efforts:

The offices of Admissions, Strategic Communication, and Graduate Studies have developed department-specific marketing materials and communications for prospective students. In October 2016, NJIT enabled Google Adwords to specified NJIT Google app users - enabling direct purchase of Google Adwords advertisements via a credit card provided by Strategic Communications. A program-focused shopping cart has been developed, which allows students to select and compare different programs and majors. In Fall 2018, NJIT launched its first comprehensive marketing campaign targeting specific graduate programs. This tactic was assessed by the number of graduate applications and enrollment. *(Completed)*

1.1.2.2 Admit graduate students using competitive practices, including an earlier application deadline, timely offer letters, and attractive graduate stipends.

This will increase the number of applicants and produce a better yield for admitted students:

Graduate Studies and Admissions have implemented new admission processes which have resulted in an earlier application deadline and timelier offer letters. Graduate Studies and the Office of the Provost have allocated funds to provide more attractive graduate stipends. Admissions greatly expanded its prospective pool for graduate students in fall 2017. This tactic was assessed by the number of graduate applications and enrollment. *(1 Complete)*

1.1.2.3 Enter into partnerships with international recruiters. This will result in an increase in applications and an improved yield:

NJIT has signed agreements with international recruiters to promote international enrollment starting in fall 2016. We have total of 20 agents and one super agent. For Fall 2018 semester, EduCo generated approximately 160 enrolled students. NJIT also signed several school-to-school agreements with universities in Egypt and China. This tactic was assessed by the number of corporate partnership agreements and the number of students enrolled. *(Complete)*

1.1.2.4 Analyze graduate student success by departments and programs. This will result in a graduate student success profile to inform and guide future admissions:

Analyze graduate students' success by departments and programs to develop a graduate student success profile informing future admissions. Graduate Studies worked with the Office of Institutional Effectiveness to create the profile. This tactic was assessed by a review of future graduate admissions. OIE is collecting relevant data that will lead to the development of a graduate student profile. *(Ongoing)*

### 1.1.3. Improve Web and Social Media Presence

1.1.3.1 Create a high-impact website. This will improve recruitment, promote an NJIT identity, and better serve the needs of the NJIT community through increased communication and functionality:

All academic websites have been updated. A New Enrollment Management website was implemented in fall 2018. Admissions started to incorporate webinars as part of its recruitment and yield strategies. In Spring 2019, NJIT launched its first Chinese website (<http://www.njit-china.cn/>) and WeChat account. This tactic was assessed by completion of the website. *(Complete)*

1.1.3.2 Enhance NJIT's social network presence. This will increase awareness of NJIT, highlight accomplishments, and help in student recruitment:

Enhance NJIT's social network presence to highlight accomplishments and help student recruitment. Undergraduate Admissions had started to communicate to students via texting, auto calls, Facebook, and Twitter in 2015 and 2016; Blogger started in Fall 2016. The graduate certificate programs have been promoted through Google Adwords and other digital media platforms. Starting in Fall 2018, NJIT launched a program-specific comprehensive social media campaign marketing its master programs in both domestic and international markets. The effort continued through 2019-2020 fiscal year. The committee assessed this tactic by monitoring social media activity. *(Complete)*

## Objective 1.2.1: Persistence and Retention

### 1.2.1 Design a Connected Academic Community

1.2.1.1 Use college- or discipline-specific approaches to form effective Learning Communities for all incoming freshman students. This will help undergraduate students receive consistent academic support as part of a cohort of student with similar curricular interests.

We have implemented a comprehensive and engaging freshmen seminar by offering a course that allows students to receive credit for the course and gives them a firm grasp on all areas of the college experience. Currently, the re-designed first-year seminar curriculum is being utilized, which includes specific and measurable learning outcomes. *(Complete)*

1.2.1.2 Connect the student community through increased personal interactions and appropriate technology to create a stronger NJIT identity among students.

NJIT has been utilizing the use of social media, specifically Instagram, Facebook, and Snapchat, to connect with students on campus and informing them about various academic and social events. Staff and faculty have been notified as well and encouraged to attend events so that they may interact with students on a personal level. This tactic was assessed by tracking the number of students attending academic and social events on campus. *(Complete)*

In Fall 2018, Student Life implemented the Highlander Hub, a web-based platform created by Campus Labs for student engagement, campus events, organizations leaders and created several quick guides to learn the new platform. During New Student Orientation, all new students are introduced to Highlander Hub and Corq (the corresponding app to Highlander Hub). *(Complete)*

### 1.2.2 Intensify Academic Advisement

1.2.2.1 Develop consistent university guidelines for advisement across academic departments to achieve more timely graduation.

The Vice Provost for Undergraduate Studies led this initiative. The goal was to improve accountability on advisement standards through the use of the Student Success Collaborative (SSC). This tactic was assessed through the advisor usage of SSC and designated reports run by each undergraduate advisor through the SSC in spring 2017 and on-going. *(Complete)*

Academic advisors met monthly with constituents in the Office of the Provost to review policies and procedures to ensure that they were consistent across departments, to discuss activities for professional development, and to focus on practices in advisement for the student population as set forth by the National Academic Advising Association. This tactic was assessed through the advisor usage of the calendar/appointment system and designated reports to be run by each undergraduate advisor through the SSC in spring 2017 and ongoing. *(Complete)*

The Advisor – Liaison committee was created in spring 2018 to begin to establish university guidelines across academic departments. The Advisor – Liaison committee consists of one academic advisor representative from each of the NJIT colleges, as well as advising representatives from our EOP, Advising Success Center, and Athletic offices. The chair of the committee the Vice Provost of Undergraduate Studies. The committee worked on a university-wide advising manual as well as an academic advisor training for the summer terms. The Advisor-Liaisons also reviewed lists of graduating students, one year before their graduation, so they could be advised for the year to ensure they will graduate with all course requirements completed.

Twice the number of advisors that were utilizing SSC in its onset (Spring 2017) used it in Fall 2018. *(Complete)*

1.2.2.2 Increase the use of software tools and analysis in advising. This will assist in tracking students and offering more effective advising by advisors and faculty, followed by appropriate academic and student support.

Utilize an intense online tracking system for students – SSC. Using SSC assists in tracking and managing at-risk students. The system was implemented for the Spring 17 term, and all academic advisors have been requested to use the system for scheduling student appointments and maintaining copious notes of those meetings. It also offers students information needed to make better educational decisions. *(Complete)*

These tools are utilized by all academic advisors to establish regular reporting systems to monitor student retention and progress toward graduation to facilitate timely intervention. The technical foundations and strategies were implemented in spring 2017. This tactic was assessed through the advisor usage of the calendar/appointment system and designated reports to be run by each undergraduate advisor through the SSC in spring 2017 and ongoing. *(Complete)*

Twice the number of advisors that were utilizing SSC in its onset (Spring 2017) used it in Fall 2018. *(Complete)*

1.2.2.3 Admit NJIT students to a college or school of their choice with the option of indicating a provisional major that may be officially declared at the end of the first year. This will improve retention and graduation.

Beginning with NCE, incoming students should apply and designate the major they are looking to pursue. Research on other institution's models for accepting students into colleges rather than specific majors is complete. The method of assessment will be developed when full implementation is closer. *(Complete)*

1.2.2.4 Intensify advisement for first year and sophomore students. This will offer students the support and resources to improve retention and foster academic success.

NJIT had undergraduate students complete a short feedback survey on their advisement to review and make changes as needed. Information on the undergraduate academic advisors on campus was presented to the Provost. This tactic was assessed through the review of the survey results. *(Complete)*

### 1.2.3 Improve Tutoring, Mentoring, and Student Support

1.2.3.1 Coordinate tutoring, mentoring, computer-facilitated learning, and student support across campus. This will improve the management and effectiveness of these programs.

Physics, Chemistry, and the Math departments provide tutoring for their subject areas. This tactic was assessed through the student evaluations and final grades in key courses for students who have completed the supplemental instruction in those courses. *(Complete)*

## Objective 1.3: Graduation

### 1.3.1 Implement Curriculum-Guided Course Scheduling

1.3.1.1 Allocate instructional resources by offering courses in the semesters when they are needed and avoiding scheduling conflicts for required classes. This will promote timely graduation.

Work is being conducted on testing a decentralized vs. centralized course scheduling system. This test may facilitate our capability to offer a multi-year calendar. *(Complete)*

1.3.1.2 Expand the scope of winter and summer sessions by offering additional sections, particularly online. This will also facilitate timely graduation and enhance tuition revenues.

More courses have been offered in the winter and summer. This helps expedite graduation. The target for completion was April 2017; however, the process is ongoing due to changes each term of courses needed to be offered for winter and summer. This tactic was assessed by tracking the number of sessions offered and the number of students registered for the winter and summer semester. The number of courses offered during the summer have substantially increased since the summer 2017 session. *(Complete)*

### 1.3.2 Streamline the Graduation Process

1.3.2.1 Notify students when they are nearing graduation, alerting them to their remaining academic requirements. This will reduce barriers to graduation.

Notify undergraduate students when they are close to the completion of their degree requirements by having the Registrar send out early alerts to students nearing graduation (within 35-40) credits allowing the student to be aware of potential obstacles. The first letter was sent out in November 2016. Student Success Collaborative went live in January 2017 and has helped with this initiative. SSC was also implemented for master's degree students as of Winter 2020 graduates. This tactic was assessed by graduation rates. *(Complete)*

1.3.2.2 Eliminate the student-initiated application for graduation of qualified students. This will prevent administrative delays.

Create a process to certify students proactively for graduation. Any student who has completed the requirements toward their degree will be awarded their degree. This tactic began in November 2016 with the May 2017 undergraduate classes and December 2018 with the Winter 2019 graduate classes. *(Complete)*

1.3.2.3 Expand advising and financial support for senior students. This will increase their chances of completing the final steps toward their degree.

Utilize the functions of SSC to promote timely graduation. Using SSC, students will be notified through their advisors, faculty, and administrators each term keeping them on track toward graduation. SSC went live in January 2017. This tactic was assessed by graduation rates. *(Complete)*

## Objective 1.4: Campus Quality of Life

### 1.4.1 Build a Supportive Environment

1.4.1.1 Cultivate a courteous, welcoming, and supportive campus climate. This will enhance student satisfaction and success.

Collaborate with Office of Institutional Effectiveness to better identify areas of student satisfaction and dissatisfaction. Additionally, several customer service trainings have been conducted for members in multiple office in Academic and Student Affairs and the Department of Public Safety. *(Complete)*

Developed and implemented an online student complaint form so that student concerns can be immediately addressed. This tactic was assessed by the number of responses to student concerns submitted online *(Complete)*

#### 1.4.2 Improve Administrative Processes and Practices

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

Conduct a systematic examination and regular ongoing review of the effect of current policies by an “owner” review of every policy. The university web page should be the most updated versions of the policies, and each department is responsible for ensuring their pages are updated. This tactic was assessed by regular review of policies. *(Complete)*

#### 1.4.3 Support Student Activities

1.4.3.1 Facilitate sustainable and supported campus events and experiences such as intramural athletics and academically oriented teams, like debating and chess. This will engage the entire university community and enhance campus life.

Facilitate sustainable and supported campus events, including competitive academic teams and experiences by adopting a Signature Events Model for students to support major student-focused events and to build academically competitive teams. The Student Senate revised their financial bylaws and modified the funding processes to an annual request system, to support academically competitive teams, such as the chess team, and student organizations to plan for campus events, conference attendance, and tournament participation. This tactic was assessed by student participation in events and the success of academic teams. *(Complete)*

1.4.3.2 Develop an “Events Center” that will provide space and support for student activities and offer venues for NJIT community assemblies.

Construction of the Wellness and Events Center (WEC) is complete.  
*(100% Complete)*

#### Objective: 1.5 Institutional Effectiveness



### 1.5.1 Improve Institutional Effectiveness through Continuous Assessment

1.5.1.1 Use student satisfaction as an indicator of student success by transforming the Student Satisfaction Survey process to better gauge levels of student satisfaction. This tactic was assessed by results of the student satisfaction survey. *(Complete)*

1.5.1.2 Develop assessment plans with learning goals for all programs. This will set clear standards and measures for success and improvement.

Develop Assessment plans with learning goals for all programs by aligning them with Council for the Advancement of Standards in Higher Education (CAS) standards. This tactic was measured by development of, and compliance with, assessment plans. *(Complete)*

### 1.5.2 Make Evaluation Effective

1.5.2.1 Implement independent evaluations for student support programs. This will improve the reliability of the assessment and make the results more useful in guiding resource allocation. *(Complete)*

## Priority 2 - Learning

### Objective: 2.1 Curricular Assessment

#### 2.1.1 Evaluate the Curriculum

2.1.1.1 Continuously assess the curriculum by using the program review process to promote curricular assessment across the university.

This tactic includes an external review component conducted by experts in each degree discipline to assess the nature, content, delivery, and student progress in the core requirements for each degree. A systematic study was undertaken to determine the course(s) causing delays in the graduation of students. Some degree programs are assessed by the following accrediting agencies on a 5-year cycle: ABET (Accreditation Board for Engineering and Technology), AACSB (Association to Advance Collegiate Schools of Business), NAAB (National Architectural Accrediting Board), CIDA (Council for Interior Design Accreditation), and NASAD National Association of Schools of Art and Design). Those programs not assessed by one of the above mentioned accrediting organizations are assessed by a rigorous program review regime according to a set 5-year schedule and detailed in the Program Review section of the OIE website. Review of all NJIT degree programs will have been done by 2020. In 2018, the 5-year cycle was 85% complete. Progress on this tactic will be assessed by the completion of the aforementioned study as well as by the number of degree programs that have sought input from external reviews. *(Complete)*

2.1.1.2 Use assessment to guide curricular reform through the review of individual programs.

This activity in the Physics program has been led by an external consultant's review. The delivery of introductory courses in Physics and Chemistry is being modified through participation in the Gateway to Completion (G2C) program. The Departments of Physics and Chemistry have applied the results of the G2C study to modifications in their curricula and course delivery. OIE has also conducted a study of the mathematics curriculum, and findings and recommendations were reviewed for possible modifications of the curriculum. This tactic will be first assessed by the analyzing the impact of the G2C program. Relevant also is a study of math placement methods which was conducted after final grades for the fall 18 semester were recorded. *(Complete)*

#### 2.1.2 Raise the Prominence of Academic Assessment

2.1.2.1 Establish yearly program assessments and cyclical program reviews using the recently implemented program review template.

All colleges, departments, and academic programs are aware of the cyclical

program review process and cooperating with its continuing implementation. This tactic was assessed by the number of programs undergoing satisfactory review as per the determined cycle. *(Complete)*

2.1.2.2 Highlight the importance of curricular assessment and its impact on learning by rigorously applying the current process for curricular review.

During the 2015-2016 academic year, NCE began program review of its graduate degree programs. During the 2016-2017 academic year, NCE involved the advisory boards of all its departments in assessing the undergraduate curricula for their fitness in preparing students for the current job environment. This tactic was assessed by the number of programs that have completed the curricular assessment process. *(Complete)*

## Objective: 2.2 Curricular Reform

### 2.2.1 Improve Undergraduate Education

2.2.1.1 Update the GUR by establishing a subcommittee of CUE charged to review/update GUR.

After detailed deliberations and receiving input from various constituencies, the committee proposed a new structure for the General Education Requirements (GER) in March 2017. The proposal was approved by CUE, and when it reached the Faculty Senate, it was approved with a modification regarding the structure of requirements in the liberal arts area. The proposal was endorsed by the Provost and was implemented in September 2017. The new GER requirements are eight credits fewer than the prior GUR. It is expected that the credit requirements for most undergraduate degrees will be reduced by eight credits. On March 15, 2018, the Chair of the GER CUE subcommittee re-iterated the charge of the sub-committee as stated in the March 2017 document "Motion to revise General Education Requirements at NJIT": "Using the learning outcomes of the current GUR courses as a guide, we can develop a systematic cataloging and presentation of the set of learning outcomes for each thematic area. The set of learning outcomes for each thematic area can then be used in the management of the general education program, including the addition or elimination of courses." On November 15, 2018, the Faculty Senate approved the definition of literacies for GER. Learning outcomes for all approved GER courses have been completed and approved by the GER CUE subcommittee. A process is in place for approval of any additional GER courses. This tactic can be viewed as complete, but it will be monitored in the future to ensure its successful implementation. *(Complete)*

2.2.1.2 Modify credit requirements and semester load to facilitate retention and graduation and reduce the costs of attending NJIT.

Curriculum review and the approved new GER are expected to lead to new

curricula. All undergraduate programs had to submit new curricula grids for approval by CUE and Faculty Senate by the end of the fall 2017 semester. Progress on this tactic was assessed by the number of curricula having completed modifications. The CUE was charged with this task. The subcommittee has already processed several curricula which reflect the changes dictated by the new GER policy. The new curricula were submitted for the 2018-2019 catalog. *(Complete)*

2.2.1.3 Implement a 4X4 curriculum in which students take four courses at four credits across four years of undergraduate study.

Due to anticipated complications with transfer students and current MOUs with Community Colleges, this tactic has been abandoned, with the approval of the 2020 Vision Steering Committee. *(Cancelled)*

2.2.1.4 Train students in the competencies of current digital technology related to their majors and integrate this into the GER.

The new GER require a three-credit course in computing literacy, and all undergraduate curricula include aspects of computing in various courses. The GER subcommittee is developing a set of GER computing literacy student learning outcomes. This tactic was assessed from data on assessment of both the GER computing literacy course as well as at least one discipline-specific course in each undergraduate curriculum. *(Complete)*

2.2.1.5 Establish learning outcomes for all degree programs and the GER by making the definition of learning outcomes a part of the comprehensive program review process. *(Complete)*

## 2.2.2 Innovate Graduate Education

2.2.2.1 Create Professional Science Master's (PSM) options in MS degree programs.

Five professional options were created in the last three years. In the YWCC, the Cyber Defense option (affiliated with the PSM National Office) in the MS in Cyber Security and Privacy, the Professional Management option (affiliated with the PSM National Office) in the MS in Information Systems, and the Professional Management option in the MS in Information Technology Administration and Security (the application for affiliation of this option with the PSM National Office was submitted in December 2018). In the CSLA, the Biotechnology option (affiliated with the PSM National Office) in the MS in Pharmaceutical Chemistry and the Applied Quantitative Finance option in the MS in Mathematical and Computational Finance. As of 4 December 2018, 129 applications had been received for these professional options, and 47 of these applicants had received admission. Unfortunately, CSLA decided on December 19, 2018, to sunset the MS in Mathematical and Computational Finance program due to low enrollment

and this implies discontinuance of its professional Applied Quantitative Finance option effective in Fall 2019. This tactic was assessed by the number of degree programs that will have the PSM designation. *(Complete)*

#### 2.2.2.2 Create applied master's programs.

An MS degree program in Data Science, offered jointly by the Departments of Computer Science and Mathematical Sciences, has been available since Fall 2017. The number of applications has been increasing drastically, from 71 for spring 2018 to more than 304 for fall of 2018; 200 applicants were admitted for 2018 fall. This tactic was assessed by the number of new MS programs of an applied nature. *(Complete)*

#### 2.2.2.3 Enhance doctoral financial support by increasing stipends.

The stipend was increased in spring 2018 to \$22,000 and was increased to \$24,000 in spring 2019. This tactic was assessed by comparing the stipends NJIT offers with those offered by peer institutions. *(Complete)*

#### 2.2.2.4 A doctoral program in Business Data Science (in MTSM) was approved in AY 2015-2016 and has been offered since fall 2016.

This innovative program, blending business applications and big data processing, has attracted substantial interest. It consistently receives the second highest number of applications across all Ph.D. programs at NJIT; 14 of the 78 applicants for 2018 fall were admitted. *(Complete)*

### 2.2.3 Update the Curriculum Continuously

#### 2.2.3.1 Incorporate feedback from professional organizations and accrediting agencies.

The BArch and ET programs have recently introduced curriculum changes to ensure compliance with their accrediting bodies. There have not been any recent visits by accreditation agencies. This tactic will be assessed by the success of accreditation visits. *(Complete)*

#### 2.2.3.2 Incorporate feedback from industry advisory boards (IABs) and employers.

NCE has started a systematic process of seeking input from IABs regarding all undergraduate curricula. The following NCE programs received IAB feedback: Biomedical, Chemical, Civil, Computer, Electrical, Industrial, Mechanical, Engineering Technology - Electrical and Computer Engineering Technology, Engineering Technology - Construction Engineering Technology, Engineering Technology - Mechanical Engineering Technology and Engineering Technology - Surveying Engineering Technology, and Bachelor of Science in Business. The

following undergraduate CSLA degree programs have sought and obtained input from IABs: B.S. in Forensic Science (recently approved program); and B.S. in Mathematical Sciences: Mathematics of Finance & Actuarial Science. Each PSM degree option has its own IAB as per the requirements for national PSM affiliation; these IABs provide input for curriculum revisions. This tactic was assessed by the number of degree programs that have sought and gotten IAB input. *(Complete)*

## Objective: 2.3 Convergence through Digital Technology

### 2.3.1 Create an Instructional Culture of Digital Technology

2.3.1.1 Converge the face-to-face and online modes of course delivery by pilot testing the idea of convergence.

The pilot study, overseen by the Teaching Learning and Technology (TLT) Committee of the Faculty Senate and the Office of Institutional Effectiveness (OIE), found no difference in the pass rates, quiz, or final exam scores between the converged and non-converged sections. In 2018, the Office of Digital Learning conducted a qualitative case study on the student experience in HyFlex courses. The research from this study found that participants found the flexibility of the format to be the main benefit of HyFlex. They also preferred HyFlex courses in comparison to online or other hybrid course formats. The main drawback of HyFlex was the difficulty in communicating with students that were not physically present. During the 2018-19 academic year, the TLT Committee and the Faculty Senate defined five modes of instructional delivery to clarify how courses are delivered at NJIT, namely Face-to-Face, Hybrid, Converged Learning, HyFlex, and Online. This clarification will be beneficial to students and will also allow accuracy in data tracking for course delivery. During FY2018, 22% of lecture courses were offered in the Hybrid, Converged Learning, Hyflex, or Online format. This tactic will be assessed by the number of courses offered in the Hybrid, Converged Learning, Hyflex, and Online mode. The converged model proved critical in the rapid shift to online learning in the pandemic. *(Complete)*

2.3.1.2 Increase the use of digital technology in the classroom by developing online programs based fully on internal NJIT capabilities.

The MS degree programs in Industrial Engineering, Power and Energy Systems, and Applied Science (many of its concentrations) were added to the suite of online programs developed in-house. The MS in Electrical Engineering and the MS in Computer Science migrated from Pearson to NJIT in the summer, bringing the total NJIT-housed online programs to thirteen. A previously approved incentives program, based on enrollment in revised programs, is in the process of being revisited. Finding adequate incentives is important to further increase our online offerings. To further strengthen NJIT's online offerings, the TLT Committee, and Faculty Senate passed a motion stating that effective in the beginning of the fall 2019 semester, students registered for a fully online course

section must be given the option to take their exam in a completely online format with appropriate proctoring. With an endorsement from the TLT Committee and Faculty Senate, the Office of Digital Learning ran a pilot in the fall 2018 and spring 2019 semesters to evaluate the Canvas Learning Management System as an alternative to Moodle. Thirty-two sections, sixteen unique faculty, and 861 unique students participated in the pilot. The pilot was evaluated based on feedback received from students and faculty. After evaluating the feedback, the TLT Committee and Faculty Senate recommended that NJIT transition to Canvas during the 2019 academic year. This tactic was assessed by the number of fully online degree programs developed and offered based exclusively on NJIT capabilities. *(Complete)*

#### 2.3.1.3 Deploy adaptive learning systems to provide at-risk students personalized digitally based instruction.

This tactic has been changed to assisting students by creating the centralized Math and Science Tutoring Center established in January 2017. This tactic was assessed by a satisfaction survey sent in fall 2018 to students using the Tutoring Center. 46% of the students working in the tutoring center rated it a perfect 10 in positively affecting their math grades. 96% rated it 7 or above. Of those surveyed in class, 89% rated it a 7 or above. (1-10 scale) *(Complete)*

### 2.3.2 Assure Academic Rigor

#### 2.3.2.1 Achieve uniformity of academic standards, regardless of delivery mode.

A sub-committee of TLT developed a guidelines document for the development of online courses. The document has been endorsed by the CUE, CGE, and Faculty Senate and is being applied as new online courses are being developed. The TLT subcommittee collaborates with the Institute for Teaching Excellence in overseeing implementation of the guidelines. Achieving uniformity of academic standards regardless of delivery mode remains a priority. The TLT Committee and the Faculty Senate passed a resolution that all instructional staff teaching a digital learning course for the first time must receive training through the Office of Digital Learning. This was implemented in the fall of 2018 and will help ensure that instructors teaching in a digital format are prepared. The Office of Digital Learning continues to promote the Quality Assurance in eLearning rubric. Any new courses developed that are part of an incentive program must pass the rubric. This year several online courses have been reviewed including four new online courses and twelve courses that are part of the MS in Industrial Engineering and the MS in Engineering Management programs, with feedback provided to the departments. Over the summer of 2018, this rubric was used to provide feedback for the programs that transitioned from Pearson to NJIT (Electrical Engineering and Computer Science). The rubric remains a recommendation and is not mandatory. This tactic was assessed by the number of courses successfully using the NJIT Quality Assurance in eLearning Rubric. *(Complete)*

### 2.3.2.2 Create a digital repository for learning artifacts.

There are three separate efforts that support digital repositories. Kaltura Digital Media Repository: In 2016, Kaltura was introduced as a digital repository that stores and archives learning artifacts created by faculty and students. Kaltura allows NJIT users to upload, create, and share media through Moodle and NJIT Mediaspace. Since 2016, Kaltura use has increased in the following ways: Kaltura CaptureSpace has replaced TechSmith Relay for all recorded learning objects and is used extensively to host course learning objects; the Van Houten Library has setup a streaming media channel using Kaltura to host streaming media approved by the library, and all WebEx recordings will be stored in Kaltura. Digital Commons @ NJIT Institutional Repository: In the summer of 2017 The Library introduced an institutional repository using Bepress's Digital Commons software. Digital Commons @ NJIT initially launched with two collections, "Theses and Dissertations" and the "Library Special Collections." For the fall 2018, the Office for Institutional Effectiveness launched a collection that publishes and curates NJIT syllabi. Collections are web-based and can be either public or private. There are plans for Digital Commons @ NJIT to include planning and accreditation documents and faculty research. The Kepler Digital Platform for Curricular Management and Assessment has been in continuous service since its inception in 2005. It provides a means to collect, review, and share all student work products and represents a pioneering effort for closing the education loop between teaching, learning, and assessing outcomes. Developed initially for use in the College of Architecture and Design, it is capable of wide application across the campus. The current system was built on a Microsoft SharePoint chassis and, in 2010, Banner course provisioning was added. The original system pioneered the open sharing of course information and student work within the CoAD community and to three different external professional accreditation bodies starting in 2008. It is now showing its age and is becoming less stable and more costly to maintain with each passing year. A new purpose-built app-based platform is proposed to put Kepler on a firm and cost-effective footing, to improve permissions management and to provide a host of more robust data extraction and reporting capabilities. The curricular management platform can link to NJIT's course management systems, and its modular structure will allow for regular and less expensive updates. The new interface will improve student and faculty user experience. Exploration is ongoing between OIE and CoAD about the possibility of using a revised Kepler system to include learning artifacts beyond those generated by CoAD courses. *(Complete)*

## Objective: 2.4 Milestone Experiences

### 2.4.1 Integrate Milestone Experiences into Undergraduate Programs

#### 2.4.1.1 Expand the Undergraduate Research and Innovation (URI) program.

The program has been expanded and now involves URI Phase-1 and Phase-2



Seed Grants, TechQuest Innovation Competition, Newark Innovation Acceleration Challenge, NSF Research Experience for Undergraduates (REU), and Provost Summer Fellowship programs. These programs are supported by NSF, PSE&G, several foundations, and internal funds. During the 2015 – 2016 Academic Year and summer 2016, over 120 undergraduate students participated, and \$400 K went to student stipends and project support. During AY2017-2018, 312 undergraduate students participated, and about \$565 K went to student stipends and project support. Overall, 62% of undergraduate students participated in at least one milestone experience, up 8% from the previous year. Progress with this tactic was assessed by the number of undergraduate students participating in the URI program. *(Complete)*

#### 2.4.1.2 Increase the number of curricular-based co-ops and internships.

NCE has implemented a new, structured co-op option for its students and potential employers. Utilizing a five-year strategy, students can begin after their sophomore year to work in alternating periods of classroom study and co-op work experiences. In support of this effort, Career Development Services staff members have met with NCE faculty co-op advisors to review program components, developed and begun implementation of a comprehensive marketing plan, updated its website to link to NCE's co-op page, advised students on the new option, and informed employers who may be interested in the five-year plan. This collaboration with NCE will continue and expand into the next academic year. This tactic will be assessed by the number of students selecting the co-op option for their engineering degree. Last summer – 2019, CDS upgraded their career center information management system by converting to Handshake, a comprehensive client relationship management system. The platform sits on top of a shareware system, and NJIT will now have access to the nearly 200,000 employers who use the system to manage their campus recruiting efforts. Employers wishing to engage with us can easily do so by broadcasting a job posting for many schools at once with no additional charge. CDS has already experienced a sharp uptick in job postings, which will lead to stronger outcomes for our graduates. The Handshake platform is one of several strategic marketing initiatives conducted by CDS to prospective employers, which has already produced significant results. More than 100 new co-op and 1,200 internship opportunities have been posted since September 2018. Additionally, the posted positions have drawn robust NJIT student applicant activity. *(Complete)*

#### 2.4.1.3 Develop a robust study abroad program to increase the number of students that will have international experiences before graduating from NJIT.

Inventory will be made of current MOUs with foreign universities to identify study abroad opportunities for our students. NJIT signed in the AY2017-18 six MOUs for dual degrees with overseas universities, and 21 students from the University of Parma studied at NJIT in spring 2018. Fifteen students from Istanbul Technical University studied at NJIT in AY 2018-19. Additional opportunities are

to be identified by the departments, colleges and the Office of Global Initiatives which, in coordination with academic departments, will also start creating a course equivalency inventory. During the AY2017-2018, thirty NJIT students went abroad, and 31 students from foreign universities came to NJIT. During the AY2018-2019, including summer 2018, thirty-nine NJIT students studied abroad, and 22 students from foreign universities came to NJIT as exchange students from partner universities and Global E3. This tactic was assessed by the number of MOUs and the number of NJIT students going for study abroad. *(Complete)*

2.4.1.4 Integrate service-learning projects in the Newark community, and beyond, into the curriculum.

As the unit responsible for assisting civic engagement implementation at NJIT, CDS continues to enhance existing initiatives as well as develop new opportunities for faculty and students. Continued presentations to the Deans and Administrative Councils have strengthened existing efforts to prepare students for civic responsibility. CDS works in collaboration with several academic units to support and in many cases, enhance the service learning experience. Overall, university-wide, we have increased our number of students engaged in Service Learning.

This tactic was assessed by the number of students enrolled in courses that include a service-learning component. *(Complete)*

## 2.4.2 Develop Milestone Experiences for Graduate Programs

2.4.2.1 Foster research, industrial, service, and international learning experiences by increasing the number of destinations and majors available for graduate students through MOUs.

NJIT signed in AY2017-18 six MOUs for joint/dual degrees with overseas universities and 21 students from the University of Parma enrolled at NJIT in spring 2018. See tactic 2.4.1.3 as the MOUs with foreign universities cover graduate students as well. *(Complete)*

2.4.2.2 Expand research and service, including civic engagement opportunities for graduate students.

Students in PSM program options (e.g., Biotechnology) may have the opportunity to pursue (for credit) research as well as service or civic engagement projects. This tactic was assessed by the number of MS students pursuing research and service projects. *(Complete)*

2.4.2.3 Continue to offer cooperative education opportunities to graduate students seeking to gain related work experience.

This is particularly important for our international students who currently utilize their CPT to qualify for US Work Authorization. The current political climate and

proposed legislation have adversely impacted our progress in recruiting employers and placing international graduate students in co-op positions. We will continue to explore methods for assisting our graduate students. *(Complete)*

### 2.4.3 Support Personal Milestone Experiences

2.4.3.1 Provide a framework allowing students to pursue personal milestone experiences by developing an extracurricular NJIT music program.

A wind ensemble, a string ensemble, and a jazz band have been formed. Conductors have been hired, and equipment has been purchased<sup>4</sup>. The Music Initiative is in its 6th year with student participation growing from 30 in 2014 to over 200 in 2018. In addition to the Wind, String, and Jazz Ensembles, a pep band has been formed to play at Highlander athletic events. The Society of Musical Arts (SOMA), the student music organization, has worked to bring all music groups under the SOMA umbrella and has formed smaller groups to play at university events as requested. The Student Senate, through the ARB, has provided the Music Initiative with funds to purchase several instruments and basic supplies for the ensembles. 2018 is the fourth year of the NJIT Music Initiative. Starting with 20 student musicians, in the fall of 2018, over 200 students participated in the wind, string, and jazz ensembles. A newly formed pep band now has 30 student performances, and in coordination with the Athletics Department, is now playing at all home games, which are nationally televised. This tactic was assessed by the number of students pursuing personal milestone experiences at NJIT. *(Complete)*

2.4.3.2 Coordinate additional joint milestone initiatives between NJIT and Rutgers-Newark.

The Music Initiative has actively recruited students from Rutgers-Newark to join the ensembles. During 2017-2018, three students from Rutgers participated in the wind ensemble. The joint NJIT-Rutgers-Newark Theatre Program brings many Rutgers-Newark Students to the NJIT campus to perform in five yearly theatrical productions. Through the Student Senate, NJIT student organizations have been encouraged to reach out to similar organizations at Rutgers-Newark for jointly sponsored events. *(Complete)*

## Objective: 2.5 Professional Success

### 2.5.1 Promote Paths to Professional Success

2.5.1.1 Prepare students to attain their first-choice destination upon degree completion.

Employment outcomes for 2019 graduates continued to increase from previous years, with 65% of our baccalaureate degree recipients reporting full-time employment within four months of graduation. It's important to note that 17% of

our BS/BA graduates reported that they have enrolled in full-time graduate study this fall (see below). Taken together, 82% of our graduates have attained their degree completion objective of full-time employment or graduate study within four months of graduation. 75% of our master's degree graduates reported full-time employment within four months of graduation. While this percentage is inclusive of graduate students who have remained in a previously attained position, it is important to note that for the majority of graduates, this was a newly attained job. While the national starting salary average for all U. S. college graduates declined by 2% this year to \$50,516, NJIT graduates received a raise even before their first day of work. The average starting salary for all reporting 2018 NJIT BS/BA graduates is \$63,741; an increase of 5.4% from last year's class and 26% higher than the national average. The highest paid undergraduate majors this year are degree recipients in Human-Computer Interaction (\$81,000) and Computer Science (\$73,742). Chemical Engineering, Computer Engineering, and Computer Technology majors all earned starting salaries of just under \$70,000 per year. NJIT Master's degree recipients also fared extremely well with the average starting salaries for ten different majors exceeding \$70,000, and four different majors whose graduates all exceeded \$83,000 per year. The first choice destination of most of our new degree holders relates to full-time employment. 17% of our bachelor's degree and 1% of our master's degree recipients indicated that they will enroll in full-time graduate or professional school during the fall 2018 term. This is 4% higher than the prior year's class and surprising given the strength of the labor market for STEM graduates at the time. The NJIT degree serves as excellent preparation for advanced study. As in past years, NJIT graduates have been accepted to some of the most prestigious graduate degree programs. The primary source of student career development and job attainment assistance is facilitated through CDS. This is accomplished through one-on-one sessions with career advisors, design and facilitation of workshops to teach and hone job search and marketing skills, assisting students to gain a clear understanding of their career options and workplace requirements, exposing them to experiential education opportunities, and helping them obtain meaningful employment in a specialty consistent with their education, experience, and personal goals upon graduation. Paths to professional success occur throughout the university. For example, by changing doctoral degree credit requirements to require earlier and more substantive input from dissertation committees. Ph.D. students now complete important program milestones much earlier. They all present their dissertation proposals before the end of their third year in the program and graduate earlier on the average. Additionally, the PSM program options and applied MS degrees can help students meet their professional objectives faster. This tactic was assessed by the average reduction in time to complete doctoral NJIT degrees. *(Complete)*

#### 2.5.1.2 Provide professional development workshops.

The Department of Civil and Environmental Engineering offered every senior a workshop on review and preparation for the FE exam during the 2015-2016 Academic Year. In AY2016-2017, the department purchased a 68-hour online course comprised of modules with assessment tests to monitor preparation and

made it available to all students planning to take the FE exam. Also, the department sponsors the FE exam registration fee for all students who successfully pass it. *(Complete)*

#### 2.5.1.3 CDS launched on July 1, 2018, a comprehensive client relationship management system entitled Handshake.

The platform sits on top of a shareware system, and NJIT now have access to the nearly 200,000 employers who use the system to manage their campus recruiting efforts. Employers wishing to engage with us can easily do so by broadcasting a job posting for many schools at once with no additional charge. We expect job postings to dramatically increase as the average career center switching to Handshake sees a 60% increase in Employer Engagement. With this transition, we hope to see more interest from new employers, increased interest in recruiting options such as Career Fairs and On-Campus Interviewing, and overall stronger outcomes for our graduates. Also, we need to reactivate the career development course. In the past, CDS hosted a career development course for sophomore students. Reaching beyond job search skills such as resume writing and interviewing techniques, a newly constructed career development course will include all elements of designing and implementing a comprehensive career development plan that encompasses soft and hard skills development, effective techniques for job searching, giving students effective tools and instill confidence in future graduates that they can manage their careers beyond graduation. Students should receive career advisement consistent with their majors. The primary source of student career development and job attainment assistance is facilitated through CDS. This is accomplished through one-on-one sessions with career advisors, design and facilitation of workshops to teach and hone job search and marketing skills, assisting students to gain a clear understanding of their career options and workplace requirements, exposing them to experiential education opportunities, and helping them obtain meaningful employment in a specialty consistent with their education, experience, and personal goals upon graduation. *(Complete)*

### 2.5.2 Promote Engagement with Intended Professions

#### 2.5.2.1 Promote and support student engagement with professional societies on campus.

Various student chapters of professional societies (especially in engineering) get financial support from the corresponding department and the NCE Dean's discretionary funds for on-campus meetings or the support of students participating in regional and national competitions. There are approximately 40 student organizations on campus with academic/pre-professional focus. 2-5 of them are not recognized by the student senate (e.g., ASCE and ASME student chapters). Almost half of them are affiliated with the NCE. The membership of these organizations ranges from 50 to 350. 1-3 organizations participate in

competitions. Members have presented papers and posters at conferences and workshops. Several organizations host on-campus events with companies for the benefit of the students (e.g., resume workshops, networking, interview sessions). As of fall 2018, there were five competitive teams, 23 professional societies, and 136 registered student organizations. Of the latter, 23 are social Greek Fraternities and Sororities, and the rest are a combination of cultural/spiritual, academic/professional, advocacy/service, and recreational/arts organizations. Each organization typically has four E-board positions (President, Vice President, Secretary, Treasurer), so at the very least organizations have four members, but most have many more. A rough estimate is that at least 1,000 students are involved in student organizations and fall 2018 appeared to be an especially strong semester of recruitment. This tactic was assessed by the number of student members of the on-campus professional societies and the placement of student teams in competitions. *(Complete)*

2.5.2.2 See 2.5.1.2. In 2017, 131 NCE students across all majors took the exam, and the passing rate was 54.96%. This tactic was assessed by the number of students opting to take the exam while still at NJIT as well as the average passing rate for those attempting the exam. *(Complete)*

2.5.2.3 Connect students with employers to enhance their job opportunities and broaden their networks.

CDS is in a unique position to facilitate interaction between students and employers. Annual fall and spring career fairs are signature events where over 2,000 students and 200 employers exchange information and network. Similar opportunities occur in reverse career fairs, on-campus interviewing of students by employers, resume day and practice interviews conducted by employers on campus, and company-led information sessions. At the annual employer awards recognition event, student organizations honor those organizations that have had the most impact on the student members. Employers meet with students and offer their business expertise during the annual diversity and networking dinner. Students are also represented on the CDS Advisory Board. CDS facilitated record numbers of employer information sessions this year; more than 50 organizations visited campus to meet with our students. *(Complete)*

2.5.2.4 Connect students with alumni through networking and recruitment.

Students have expressed their interest in more contact with NJIT alumni. CDS yearly partners with Alumni Relations for Speed Networking, where alumni come back to coach students on networking skills and share industry insights. CDS established the Campus Champions program, where alumni act as a conduit from their companies to full-time candidates from NJIT graduates. Alumni are also given special recognition at CDS career fairs so that students can readily identify them. *(Complete)*

## 2.5.3 Assess Student Professional Success

2.5.3.1 Track alumni to periodically assess their success and satisfaction in their professional careers by initiating a comprehensive survey with an outside vendor.

Career Development Services in collaboration with the Office of Institutional Effectiveness annually conducts a First-Destination Survey for our entire graduating class. For the Class of 2018, data collection began as early as October 2017. To increase our knowledge rate, multiple data sources and tactics were employed beyond the traditional direct email surveying methods and the results provided directly by our students and employers. As of September 30<sup>th</sup>, we collected information on the post-graduation plans of 1,191 of our 1609 BS/BA graduates for a knowledge rate of 74%. Similarly, among our Masters' recipients, we have collected information from 717 of our 1,059 graduates, a 67.7% knowledge rate. Alumni surveys are administered every two years for graduates with Bachelor's degrees who graduated two, four, and six years prior, and graduates with MS and Ph.D. degrees who graduated two, four, and six years prior. The most recent surveys and going back to 2005. In response to Q18 on the 2016-2017 undergraduate survey, "How satisfied are you with your current job?" 33.53% answered satisfied and 42.53% answered very satisfied (total of 76.06%). In response to the same question on the 2016-2017 graduate survey, 46.4% answered satisfied, and 32.8% answered very satisfied (total of 79.2%). For 2017-2018, Q3 of the survey asked: "Overall, how satisfied are you with your undergraduate education at NJIT?" 44.85% answered Satisfied, and 29.9% answered Very Satisfied (total of 74.75%). This tactic was assessed by the continuing to track response to the periodic undergraduate alumni survey (*Ongoing*)

2.5.3.2 Effectively survey alumni to determine their satisfaction with their experiences at NJIT through a review and revision of the annual alumni survey process.

The responses to Q.3, "Overall, how satisfied are you with your education at NJIT?," on the same surveys mentioned in 2.5.3.1, 48.65% of alumni who had received a graduate degree answered satisfied, and 27.7% answered very satisfied (total of 76.35). Alumni who had been awarded an undergraduate degree answered 44.85% satisfied and 29.9% answered very satisfied (total of 74.75%). For 2017-2018 the responses were 43.01% and 27.98% (total 70.99). (*Complete*)

## Priority 3 - Scholarly Research

### Objective: 3.1 Faculty Roles in Research

#### 3.1.1 Increase Participation of Current Faculty in Research

3.1.1.1 Develop policies to encourage research by sharing indirect income among primary investigators and academic units and assuring start-up funds for new faculty.

The policy of indirect cost (overhead) return was developed and implemented. A part of the indirect costs has been shared with principal investigators, departments, centers, and colleges. This tactic was assessed by growth in external funding and the number of faculty with active funding *(Complete)*.

3.1.1.2 Increase efforts to fully recover associated research expenditures with a policy on Indirect Costs Return (Overhead) developed through the Faculty Research Advisory Board (FRAB), faculty senate, and administration.

In FY19, more than \$590,000 in overhead return was being provided to about 140 eligible faculty, chairs and deans to re-invest into the research support. Progress on this tactic was assessed by an increase in number of faculty with active funding. *(Complete)*

3.1.1.3 Establish a competitive internal seed-funding program for innovative and exploratory research.

From FY15 to FY20, 135 Faculty Seed Grants have been awarded involving 176 faculty members. Progress was assessed by the number of external grants received by the recipient of faculty seed grants. More than 80% faculty who received Faculty Seed Grants in FY15 and FY16 received external grants. All NJIT faculty receiving NSF CAREER awards in FY17 and FY18 received Faculty Seed Grants in earlier years. *(Complete)*

3.1.1.4 Re-engage faculty not currently active in scholarly research by integrating them into existing or emerging projects by setting up faculty seed grants and undergraduate student seed grants.

Many faculty who have not been active in research have started projects alone or with undergraduate students through faculty seed grants. Progress is measured by the number of new proposals submitted and grants received by faculty who have not been active in past 3 or more years. *(Complete)*

#### 3.1.2 Integrate Research into the Curriculum

3.1.2.1 Advance faculty research in conjunction with academic curriculum content by encouraging research-active faculty to offer opportunities for team-



based research with other faculty, graduate students, and undergraduate students.

MS and Ph.D. programs in Business Data Science were approved this year. They will enable the Martin Tuchman SOM faculty to advance their research objectives while also educating graduate students. Assessment of this tactic includes the number integrated programs. *(Complete)*

3.1.2.2 Develop a faculty research lecture series open to all students by supporting departments that have established research lecture series linked with graduate-level seminar requirements.

Seven institutional showcase, presidential forums and numerous distinguished lectures at the college and department levels were organized in AY17. Progress on this tactic was measured by the number of institutional and college/departmental seminars and showcase events. *(Complete)*

## Objective: 3.2 Academic Research Enterprise

### 3.2.1 Foster Regional, National, and International Collaboration

3.2.1.1 Strengthen collaboration among researchers at NJIT and other universities in the region by establishing more collaborative research centers, adding significantly to the existing group of NJIT research centers which involve faculty from other universities.

More than 60 collaborative projects have been funded in FY18 involving other institutions and organizations. Assessment of this tactic was based on the increase of number of proposals involving two or more institutions/universities. *(Complete)*

3.2.1.2 Support international collaborative research and exchange programs by developing a streamlined process and protocol to facilitate establishing MOUs, contractual agreements policies, and protocols for international visiting research scholars and students.

This activity has been implemented. Sixty-one (61) international collaborative projects, contracts, and exchange program MoUs were active in FY19. Measurement of progress was based on the number of international collaborative projects and its growth. *(Complete)*

### 3.2.2 Improve Communication with Faculty on Research Opportunities

3.2.2.1 Disseminate grant and fellowship opportunities by distributing a description of grant opportunities to members of the university community.

Program Directors from funding agencies have been invited to provide information on current and future funding programs to NJIT faculty and staff. Assessment of this tactic was based on the increase of external funding. *(Complete)*

3.2.2.2 Communicate NJIT researcher accomplishments through a weekly newsletter sent to all faculty featuring recent grants, events, and grant opportunities. Assessment was based on the increase of external funding. *(Complete)*

### 3.2.3 Support Research Activities and Infrastructure

3.2.3.1 Refine and streamline the administrative infrastructure for research support by integrating grant management and accounting operations.

Sponsored Research Administration and Grant & Contract Accounting offices have been merged into the Office of Research to provide seamless support from the identification of grant opportunities to grant closing. Streamlining of purchase requisitions and personnel requisition processes have been planned. The proposal submission module is fully operational and being used since January 2017 for all proposal submissions. Grant award reporting module has been implemented. Reporting dashboards of proposal submission and award are being provided to deans on a regular basis with real-time access. These dashboards are being customized for chairs and faculty. The IRB module is implemented and will be available to faculty in FY20. Other research compliance modules, including IBC, are being implemented and will be available shortly. Assessment of progress was based on the efficiency of the tasks including purchase requisitions, personnel requisitions, budget transfer, and timely billing. *(Complete)*

3.2.3.2 Offer training and support in grant-proposal preparation by providing workshops and grant writing assistance.

Open House events are being offered to address and answer questions related to all functions of proposal submission and grant management. The Faculty Research Advisory Board (FRAB) meets to discuss grant management at multiple events organized by the Office of Research every semester. Faculty Development Workshops are offered covering research proposal preparation and submission training, scholarly research publications, and professional development over six weeks to new faculty. Specific workshops on target funding opportunities such as NSF CAREER funding program have been offered to faculty with follow-up mentoring with senior faculty at the department and college levels. Assessment was based on the increase of external funding *(Complete)*

3.2.3.3 Develop searchable databases of all records of research awards by purchasing and implementing Streamlyne to improve quality of the research database.

The Streamlyne research proposal submission system has been implemented and is being used by faculty for proposal submissions. Research expense and burn rate reporting has been implemented. Since Fall 2017, monthly research expense reports on all grants are sent out to all PIs, chairs, and deans. Assessment was based on the increase of external funding and efficiency of approval and monitoring processes. *(Complete)*

3.2.3.4 Improve the NJIT research grant management and accounting information by developing and delivering training sessions to faculty and staff on the use of Streamlyne Grant Management Software system for proposal submission and online grant billing. A Banner Finance module will expedite grant invoicing and the collection of grant receivables, improving the university's 'grant-related' cash-flow. A protocol is being developed to manage proactively and follow-up on grants and contracts expenditures versus elapsed duration of the awards to ensure optimal grant management. Streamlyne-Banner integration is being implemented. Assessment will be based on the efficiency of proactively following up on the grant billing and monitoring. *(Ongoing)*

3.2.3.5 Reserve the "center" designation for consistently successful research initiatives and develop productive labs into centers by implementing a policy and protocol for the establishment of new research centers and the review and renewal of existing research centers.

Five new research centers and three new research institutes (Institute of Brain and Neuroscience Research, Leir Research Institute of Business, technology, and Society, and Institute of Space Weather Sciences) have been established. Assessment was based on the increase of external funding. *(Complete)*

## Objective: 3.3 Multidisciplinary Research

### 3.3.1 Adopt Multidisciplinary Academic Research Approaches

3.3.1.1 Promote multidisciplinary research through internal meetings to foster building collaborative research teams.

Several meetings have been conducted with faculty internally as well externally to promote core and multidisciplinary research as well as multi-institutional collaborations. Assessment was based on the increase and number of multidisciplinary and multi-institutional proposals. *(Complete)*

3.3.1.2 Assure recognition and reward for faculty engaged in multidisciplinary research using Streamlyne to provide a database, which makes possible recognition and reward for collaborative research.

The collaborative research through research centers and institutes is being rewarded by increased overhead return and operating budgets for increased

infrastructure support. Letters to faculty, chairs and deans are sent when a grant award is received. Assessment was based on the research satisfaction surveys. *(Complete)*

3.3.1.3 Integrate research into academic experience at all levels encouraging doctoral students into multidisciplinary research efforts, provide teaching assistants across departments, and developing interdisciplinary and multidisciplinary curricula.

The doctoral dissertation committees require members from different departments and/or other institutions. Teaching assistants are assigned to colleges to be re-allocated to department and interdisciplinary programs. Number of courses across different academic programs and number of interdisciplinary academic programs such as programs in data science have been increased. Assessment was based on the number and percentage of students involved in research. *(Complete)*

## Objective: 3.4 Economy and Technology Development Partnerships

### 3.4.1 Economy and Technology Development Partnerships

3.4.1.1 Engage the private sector through the university's nonprofit corporation, NJII.

NJII now has launched multiple industry-facing business units (iLabs and coreLabs), each of which is generating program activity in partnership with the private sector and government. These include three large iLabs, two business units, three initiatives, and three units focused on selling programs and services across NJII's more externally-facing units. Since NJII launched in 2014, it has helped increase the impact of NJIT's economic and technology development mission as measured by economic and technology-related (NJII and NJII@NJIT) expenditures, which total \$300 M during the past five years. Since its beginning, NJII has produced 280 million reader impressions, \$3.5 M in earned media credits, and 100,000 social media followers. NJII also accounts for \$1.3 billion of NJIT's economic impact on the State of New Jersey. These increases in impact have been accomplished with significantly reduced reliance on the use of institutional funds. NJII's growing portfolio offers Innovation as a Service, which spans a robust innovation model, Innovation Ecosystems, which leverage the shift from corporate R&D to M&A of innovative companies, both of which are operationalized in NJII's Cluster Readiness Levels framework.

NJII's work with NJIT academic units continues to expand as its relationships and assets grow. Highlights include continued collaboration with the College of Science and Liberal Studies in the biopharma arena, including the graduate certificate program in biotechnology, embedding its chief data analytics scientist in the Ying Wu College of Computing to advance industrial partnerships, and continued partnership with chemical engineering around building an NJ

remediation agenda. The NJIT's Defense and Homeland Security iLab continues to bring funding from Picatinny Arsenal to fund NJIT researchers around projects such as additive manufacturing and technical assessments of IP. Some of the notable private sector partners include Hackensack University Medical Center, AtlantiCare, Atlantic Health, Lockheed Martin, Stryker, the US Army, Nokia, IBM, Bell Labs, Celgene, Novartis, Merck, Johnson & Johnson, Pall Pharma, GE Life Sciences, Panasonic Life Sciences, and the State of New Jersey to name a few. As the metrics reported above suggest, assessment was based on the number of external partnerships and the amount of funding. *(Complete)*

3.4.1.2 Faculty members have also been encouraged to engage in entrepreneurial activities on behalf of the university.

NJIT was designated an NSF I-Corps site in 2015 and, to date, 126 mini-grant awards have been provided to NJIT student and faculty inventor teams to explore commercialization of technologies. Several faculty members have obtained approval to participate in startup activities related to technology that they have developed at NJIT, including microfluidic chips for diagnostic testing, thin films, membranes, biomaterials, advanced vision therapy, vacuum technology, and data mining to name a few. Also, several teams have gone to national I-Corps projects with funding of \$50K per team. Teams have also obtained funding from Federal SBIR, the Philadelphia Science Center, Keck Foundation and the New Jersey Health Foundation to further advance commercialization activity. NJIT has also received a supplement to the I-Corps site grant to focus on support for life sciences female PhDs and post docs from across the state. Assessment was based on the number of teams in translational/entrepreneurial phase. *(Complete)*

3.4.1.3 Reorganize the patent application structure to move it into the Research Office.

The patent application process has been moved to the Office of Research with joint reporting to the Office of General Counsel. The IP Committee has been re-organized with the additional of 8 faculty members representing all colleges and research areas. The IP processing protocols for assessment of invention disclosures for submission of provisional and non-provisional patents have been established and posted on the Research website. NJIT has obtained a total of 410 IP assets including all acquired patents (including waived to inventors), and provisional and no-provisional pending patents. *(Complete)*

### 3.4.2 Serve as a Catalyst for Regional and Economic Growth

3.4.2.1 Capitalize on state and federal funding to develop large-scale technology projects through the NJIT Business Engagement Team (BET), which includes interested academic deans.

The BET again evaluated NJIT's best partnership opportunities and identified more than a dozen high priority companies with whom to engage and deepen relationships with NJIT. To better integrate and coordinate university-wide efforts, BET and University Development partnered to inaugurate a "Corporate Engagement Strategy" process and document to advance coherent university-wide strategies for targeted corporate partners. Broad-scale partnering meetings and company engagements occurred with Stryker. Following the Stryker meeting, BET's role was recommended to become one that is more focused on internal coordination with the several maturing externally-facing organization (MakerSpace, NJII, etc.) playing the direct roles in engaging corporate partners. Assessment was based on the number of technology projects. *(Complete)*

3.4.2.2 Expand the university's presence in state, regional, and national economic development activities by inviting faculty members and students to participate in economic and technology development programs.

NJIT, through NJII, served as the proposal developer and university partner for three NJEDA innovation hub grants. These included Atlantic County (aviation), Fort Monmouth (feasibility study on technology focus), and Newark (smart city). NJIT continued to lead the NJ MarketShift program with its focus on diversifying NJ's aerospace and defense companies. NJII Healthcare Delivery Systems iLab's work (\$20M+/yr., including nearly \$2M in revenues from private sources) now includes assisting physicians to transform their practices by using electronic medical records. NJII hosts the NJ Unmanned Aerial Systems Test Site and the JP Morgan Chase-funded Healthcare IT cluster development program. As well, it also continued to evolve its Smart City Test Bed partnership with Newark and a dozen or more companies.

As reported previously, two years ago, NJII led a major effort to win a NIST-funded U.S. Institute for Manufacturing Innovation in biopharmaceuticals. While not winning that proposal, many efforts, including the commitment to build a cell and gene therapy laboratory, multiple proposals to the U.S. Food and Drug Administration, and new partnership with Rutgers medical school, have evolved from a broad set of NJ partnering companies/organizations, government, research universities (including NJIT), and industry organizations. Rutgers and NJII press forward to develop industry-facing centers in continuous pharmaceutical manufacturing and cell therapies. NJII has also formed statewide frameworks for partnering. In addition to the NJ biopharmaceuticals and remediation efforts mentioned above, NJII has convened a set of statewide leaders to focus on marketing and strengthening the NJ aerospace and defense sector in partnership with NJ state economic development organizations. Finally, NJII coordinates routinely with NJEDA and ChooseNJ on coordinating innovation hub and cluster development activities, including active discussions about a defining study for accelerating cluster development across the Garden State. Assessment of this tactic was based on the number of economic development programs and funding. *(Complete)*

3.4.2.3 Evolve the NJIT and NJII Innovation Commercialization product and service functions and products targeted toward large companies and small, medium enterprises.

NJII won a prestigious federal i6 grant from the US Economic Development Administration (focused on biopharma sector) and has been contracted by Atlantic County to manage the National Aviation Research and Technology Park based on a new framework that leverages the programs of NJII and partners to create a sustainable model for technology business growth. NJII's iLabs feature sector specific scale-up, integration and demonstration projects such as a statewide Healthcare Information Exchange, the Newark Smart City testbed, Biopharmaceutical pilot manufacturing labs, and UAV flight center. The place-based "innovation centers" leverage relationships across the ecosystem and within NJII to serve as a magnet to cluster related companies that has already proven to be advantageous to business growth, and access to real-world demonstration sites further enhances growth rates. Capabilities are offered in the areas of Technology Adoption (focused on large companies), Technology Acceleration (focused on smaller entities), and a set of investment fund management service (focused on angel, VC, and PE firms). (*Ongoing*)

## Objective: 3.5 Facilities and Administrative Planning

### 3.5.1 Optimize Start-up Processes and Resources

3.5.1.1 Provide flexibility of start-up funds usage for all new hires throughout their pre-tenure period by insisting that start-up packages provide access to funds for three years and may be extended in special circumstances. Progress on this tactic was measured by the investment in start-up packages and successful completion of third-year and tenure reviews. (*Complete*)

3.5.1.2 Ensure that new faculty have fully functional research laboratory space upon appointment by assigning lab space at the time or right after the offer of acceptance.

Additionally, new faculty hired in FY15-19 had their laboratories set-up and ready in early September for Fall, and in the first week of January for Spring semester. In Fall FY19 lab renovations for all new faculty hired in Fall have been completed. Assessment was based on the number of renovations labs ready within three months of the start of the semester when new faculty is hired. (*Complete*)

### 3.5.2 Assess and Prioritize Infrastructure

3.5.2.1 Assess infrastructure and document capacity to determine ability to support scholarly research through the assessment and systematic evaluation of research labs and center spaces. Specific lab spaces have also been upgraded to meet research needs. Assessment was based on research satisfaction surveys. (*Complete*)

3.5.2.2 Optimize existing infrastructure use and the prioritizing of needs for new facilities, equipment, and institutional infrastructure.

By assessing research lab space, research needs, and faculty hiring plan, specific research lab/center spaces were identified and prioritized to meet high priority needs. Assessment was based on research satisfaction surveys and the return on investment. *(Complete)*

### 3.5.3 Share Facilities with Council for Higher Education in Newark (CHEN)

3.5.3.1 Expand shared-use facilities, equipment, and institutional support infrastructure by expanding the University Heights Science and technology park.

NJIT also pursued a “High Technology Incubator” to promote collaboration between the universities. Progress was measured by the number of companies in the incubator and total funding. *(Complete)*

3.5.3.2 Collaborate with industry to offer faculty and student access to equipment not otherwise available on campus, by arranging for the first piece of equipment, courtesy the Stryker Corporation, to be shared through the NJIT Makerspace. The Makerspace at NJIT continues to foster relations with industry to provide shared-use equipment. Assessment of this tactic was based on the number of users and projects associated with Makerspace. *(Complete)*

## Objective: 3.6 Improve External Recognition on Scholarly Research

### 3.6.1 Enhance Professional Recognition

3.6.1.1 Encourage and increase the number of faculty activities such as service on editorial boards, conference organizing committees, review panels and chairing teams/groups of professional experts on-site visit teams and recognize and reward these activities in a variety of ways.

A new faculty Committee on International Programs Promotion has been established. In FY19, 63 international projects, collaborations and exchange program MoUs were active. Progress on this tactic was based on the increase and number of faculty serving on conference committees, editorial boards, and review panels. *(Complete)*

3.6.1.2 Recognize and reward professional awards and honors.

Help identify faculty and assist in submitting their nomination packages for state and national honors, such as National Academy of Inventors, NJ Hall of Fame of Inventors. Progress on this tactic was measured by the increase and number of faculty receiving professional awards and honors. In FY19, there were 6 Fellows of the National Academy of Inventors at NJIT. A new Director of Special Projects-



Faculty Awards was hired to help submission of faculty nominations to prestigious professional awards. *(Complete)*

#### 3.6.1.3 Encourage initiatives that organize and promote conferences at NJIT.

Several international conferences with IEEE, American Physics Society, American Mathematical Society, and Amazon have been organized at the campus. Progress was measured by the number of professional conferences and events at NJIT. *(Complete)*

## Priority 4 – Community

### Objective: 4.1 Global Community

#### 4.1.1 Value Diversity

4.1.1.1 Adopt an NJIT definition for diversity that includes: race, sex, sexual orientation, gender identity and expression, marital status, age, religion, national origin, ancestry, citizenship, disability, and veteran status. A Diversity Plan Framework—which includes an NJIT definition of diversity—has been completed and was submitted, in May 2017. See also section 4.3.1.2 below. *(Complete)*

4.1.1.2 Accept diversity as a core value of NJIT by focusing on the creation of visible activities in support of diversity and multi-cultural affairs on the campus.

Over eighty-five campus student and staff diversity activities and programming were held. A wide variety of multicultural awareness activities, including cuisine, dance, and religion, were also sponsored. Also, student staff hosted peer to peer dialogues that focused on deeper diversity topics such as racism, sexism, ageism and religious intolerance, including programs on issues facing the LGBTQ student population. *(Complete)*

#### 4.1.2 Support Student Diversity

4.1.2.1 Foster a safe university environment that respects differences and encourages inclusiveness.

Mandatory sexual and other unlawful harassment training has now been completed by all NJIT employees. The 2018-2019 academic year was the first time the Dean of Students and Campus Life Office utilized the two-part, on-line Everfi Sexual Assault Prevention Training. The results for the 2018-2019 academic year is as follows:

Total Undergraduate Registrations- 4,615

Part 1 Completed -4,048 (88%)

Part 2 Completed- 2,067 (45%)

Total Graduate Registrations- 608

Part 1 Completed- 520 (86%)

Part 2 Completed- 229 (38%)

For the 2019-2020 academic year, the Everfi Sexual Assault Prevention Training was introduced to incoming first-year students during the summer with follow-up early during the fall semester. Follow-up with sophomores, juniors, seniors, and graduate students who did not complete the training or did not register for the training began in early September 2019.

A series of semester-long cultural and religious programs and activities (53) along with almost daily student-sponsored programs and activities (32) were conducted throughout the semester. Further, three Safe Zone training programs, with 70 students, faculty and staff participating, were conducted. *(Complete)*

4.1.2.2 Ensure that the university's academic curriculum creates global awareness and promotes tolerance and understanding among students. Course syllabi being centralized in the new Digital Commons will allow for a comprehensive analysis of diversity/multicultural course components across the curriculum. *(Ongoing)*

4.1.2.3 Train dedicated staff in departments, schools, and colleges to enhance understanding and communication with international students.

In our efforts to enhance understanding of international students' issues, the Office of Global Initiatives trained Resident Assistants on the issues pertaining to international students as they transition to their new lives at NJIT. The training served as a forum to share information about international students' perspectives, increase awareness about their needs, and hear Resident Assistants' concerns about working with this population. *((Complete)*

4.1.2.4 Increase the percentage of women students by supporting targeted activities that encourage accepted female students to matriculate.

This will help NJIT better reflect the larger community it serves and will help maintain a stable undergraduate enrollment. This new tactic, incorporated into the *2020 Vision* strategic plan in January 2018, built on ongoing efforts to convert accepts to matrices—e.g., the increasingly well-attended brunch programs the Murray Center hosts for women accepts and their families during Open Houses. In addition to the brunches, during AY2018-2019 personal telephone calls were made by current YWCC female students to accepted female freshmen, and yield postcard and emails were sent to all accepted female freshmen highlighting the Murray Women's Center. These strategies were assessed by monitoring enrollment and yield for female students. We will continue to develop additional strategies to positively impact the yield and enrollment of new female students. *(Complete)*

#### 4.1.3 Simplify the Process for International Collaboration and Exchanges

4.1.3.1 Establish larger-scale, long-term exchange programs with universities in other countries.

Student exchange programs have been promoted with faculty. The Offices of the Provost and Global Initiatives have continued to spearhead the development of international partnerships to promote student exchange. NJIT currently has 33 valid MOUs for student exchange and joint degrees. The Office of Global

Initiatives has continued to promote these opportunities to all students. This was assessed by monitoring the number of MOUs. *(100% Completed and ongoing)*

#### 4.1.3.2 Streamline the approval process and assign individual responsibility for international agreements.

The policies and protocols for international agreements and visiting scholars have been established and posted on the website. To date, we have more than 59 international collaborators through projects, agreements, and visiting scholars program. The assessment included the number and growth of international agreements. *(Complete)*

#### 4.1.3.3 Encourage and simplify visiting and courtesy appointments.

The policies and protocols for visiting scholars and courtesy appointments have been established and posted on the website. The assessment included the number and growth of visiting scholars and courtesy appointments. *(Complete)*

#### 4.1.3.4 Promote significant research projects between NJIT and international researchers.

The Office of Research has been promoting international collaborative research through NJIT research centers. The assessment included the number and growth of international projects. *(Complete)*

### 4.1.4 Appoint NJIT Faculty as International Community Representatives

#### 4.1.4.1 Leverage the globally diverse NJIT faculty as spokespersons on campus and abroad.

The Office of Research initiated an International Programs Support Committee with faculty representatives from each college and Director of the Office of Global Initiatives. The committee worked on developing a report and recommendations on enhancing international research collaborations, student-exchange, and visitor programs. These tactics are continuing to be developed as part of the *NJIT 2025* strategic plan. *(Complete)*

#### 4.1.4.2 Cultivate and communicate the global perspective of NJIT.

The International Programs Support Committee with faculty representatives from each college and Director of the Office of Global Initiatives developed recommendations on enhancing international research collaborations, student-exchange, and visitor programs. The Committee worked to create a more robust communication between the Office of Global Initiatives and the Office of Strategic Communication. These tactics are continuing to be developed as part of the *NJIT 2025* strategic plan. *(Complete)*

## Objective: 4.2 University Governance

### 4.2.1 Facilitate the Integration of Shared Governance

4.2.1.1 Acknowledge the importance of the faculty's role in the university community through the Faculty Senate.

The faculty senate meets twice monthly and is represented on all shared governance standing committees and the University Senate. Assessment has taken place through faculty surveys about governance satisfaction. (100% Complete)

4.2.1.2 Recognize the importance of all other campus stakeholders and ensure their voice is heard through the University Senate.

The Lecturers and Educators Congress, Administrators Council, and the Staff Council continue to represent their constituents within the framework of shared governance. A new policy on the Hiring and Promotion of University Lecturers has been approved by the Faculty Senate and by the Provost. Assessment has taken place through lecturer, staff, and other stakeholder surveys about satisfaction with shared governance. *(Complete)*

### 4.2.2 Cultivate an Atmosphere of Civility and Mutual Respect Across the University Community

4.2.2.1 Emphasize the dignity of all members of the university community and the respect they deserve.

The on-line training program "Unlawful Harassment Prevention" was launched in October 2017 for all faculty, staff, and supervisors. All faculty and staff have completed the program. New staff and faculty are expected to complete the training within 30 days of hire. *(Complete)*

4.2.2.2 Acknowledge the importance of the voice of the student body.

The student senate president and graduate student association presidents are voting members of the University Senate and the standing committee for human resources. The student senate president also serves on the Executive Committee. Student representatives attend Faculty Senate meetings and often serve on university search committees. They also serve on the planning/accreditation committee and have student representatives serving on Board of Trustee committees. *(Complete)*

## Objective: 4.3 Diverse Faculty Leadership

### 4.3.1 Support Diversity

#### 4.3.1.1 Establish a baseline for diversity assessment.

The Faculty Diversity Liaisons have reviewed longitudinal faculty diversity data, by academic unit, and discussed how best to use this data to increase faculty diversity. Faculty search committees have been provided with candidate diversity profiles and tools for analyzing candidate pools. Faculty search committees are charged with, and provided support for, being more intentional and strategic in their searches in order to broaden the candidate pool. *(Complete)*

#### 4.3.1.2 Expand the NJIT Affirmative Action Plan to include a comprehensive Diversity Plan.

The completed Diversity Framework (4.1.1.1) and the university's updated Affirmative Action Plan forms the basis of an expanded document that includes individualized diversity plans crafted by each academic unit in response to disciplinary pool data and strategic goals. *(Complete)*

### 4.3.2 Coordinate Recruitment and Retention

#### 4.3.2.1 Engage college and school deans to develop plans for achieving faculty diversity.

The Diversity Liaison Group has met, reviewed benchmark data, and discussed key parameters for School/College Diversity Plans in their units. With school specific AAPs now available, specific faculty diversity goals and strategies were developed for the fall 2019 faculty recruiting effort. *(Complete)*

#### 4.3.2.2 Increase coordination of efforts to recruit and retain women and minority faculty by appointing a diversity liaison officer at college and university levels.

A Diversity Liaison Group has been formed, headed by the university's Faculty Diversity Liaison officer, with representatives from each school/college. The group met in the fall of 2018 with the VP, Human Resources, and the Provost to review their charge and prioritize its activities in support of recruiting and retaining women and minority faculty. *(Complete)*

#### 4.3.2.3 Coordinate resources and information to recruit diverse faculty at college, school, and department levels.

The Faculty Search and Selection Guidelines (2016) and the new Policy on the Hiring and Promotion of University Lecturers (2017) together constitute a rich resource of procedures and best practices now available to all departmental search committees. These documents, plus face-to-face search committee training sessions conducted by HR, are part of a coordinated effort to increase the recruitment of diverse faculty. Beginning in December 2018, applicant pool diversity data was provided every two weeks to each of the 13 active departmental search committees via their school/college Diversity Liaison and

Dean. Additional data, comparing the diversity of NJIT applicant pools to national doctoral pool data by discipline, was provided as well. Analysis of the 2018-19 recruiting cycle data suggests that these tactics were modestly successful: nine of 21 new faculty hires (43%) were female. (69% of offers made to women were accepted.) To evaluate these outcomes further, in late April of 2019, HR sent each search committee chair a survey instrument designed to gauge the use and effectiveness of best practice tools and guidelines. The results of this assessment were used to improve search committee training and monitoring during the next hiring cycle. *(Complete)*

4.3.2.4 Cultivate potential faculty through conferences and speaking engagements.

Preliminary results from a baseline study of outside speakers invited by academic departments in 2016 suggest that the university was not yet using this tactic to cultivate potential women and minority hires. A follow-up study will be conducted. *(Suspended)*

4.3.2.5 Train search committees for accountability, especially in implicit bias awareness.

Search committee chair training was conducted in the Fall of 2018 with a focus on recruiting and hiring best practices, including the potential use of social media and technology for identifying or targeting potential candidates. All faculty search committee members were required to complete the web-based training program, "Uncovering Unconscious Bias." *(Complete)*

## Objective: 4.4 Diverse Administrative Leadership

### 4.4.1 Analyze the Availability of Potential Candidates

4.4.1.1 Develop a hiring program to promote diversity among administrators.

While there is no formal hiring program to promote diversity among administrators, a human resources representative is assigned to every non-faculty search committee to ensure hiring best practices are implemented. *(Complete)*

4.4.1.2 Improve utilization of university databases containing administrator rank and diversity data. Quarterly review of employee download implemented to ensure complete and accurate data. *(Complete)*

### 4.4.2 Develop and Sustain a Diverse Talent Pool

4.4.2.1 Establish a diverse administrative talent pool to yield opportunities and pathways for professional growth and advancement.

We continue to establish a diverse talent pool of administrators, through targeted recruitment utilizing open-position advertising. Recruitment of women and underrepresented minority candidates through targeted open position advertising is ongoing. In addition, the launch of the Management and Staff Academy and its professional development programs is open to all staff. Since the beginning of FY2019, 19 programs were offered with 242 employees participating. *(Complete)*

4.4.2.2 Build relationships with professional organizations to diversify participation on the university's volunteer leadership boards and include a statement of commitment to diversity in all volunteer boards.

A preliminary analysis of the gender composition of NJIT volunteer boards has been completed, establishing a baseline against which the tactic can be measured. Twenty-three percent of the Board of Trustees members are female, but women make up only 8.5% of the Board of Overseers. Overall, 21%, of NJIT Advisory Board members are female, but the data varies considerably by unit: MTSOM-34%; CSLA-29%; CoAD-13%; YWCC-11%; NCE-10%. *(Ongoing)*

## Objective: 4.5 Alumni Engagement

### 4.5.1 Promote Alumni Engagement

4.5.1.1 Promote a culture of alumni engagement and satisfaction built on passion and pride for NJIT.

The total number of active alumni volunteers has increased 75% from last year, and the total number of active alumni regional clubs stands at eleven (11). The total number of active alumni corporate clubs stands at nine (9), with two additional clubs in formation (Exxon and TIAA). The mobile-optimized Highlander Monthly e-newsletter was launched in November 2017; open rates have increased since it was launched and now average approximately 14% in a typical month. *(Complete)*

4.5.1.2 Engage alumni in student recruitment, campus life, and career services. Campus life. *(Complete)*

- In addition to efforts previously noted, the Senior Soiree has become a campus tradition, as noted by mentions in The Nucleus and The Vector, and hosted jointly with the Student Senate.
- The Alumni Association has created a Speakers Bureau from which student clubs can request alumni speakers. These names have been sent to all student groups.
- Student organization outreach has increased substantially. Several Greek chapters, along with SHPE and NSBE, have partnered with us to sponsor



their events, share alumni data, and communicate about upcoming programs.

- In partnership with Jonathan Ferrer '14, a special watch for NJIT seniors was developed and marketed to all seniors.
- Alumni were represented at the Graduate Fair, with more than 200 students signing up to join a mailing list of alumni activities and programs.
- For the third consecutive year, all seniors are invited, free of charge, to the Alumni Weekend dinner.

#### Career Services

In early 2019, Highlander Nation, an online networking and mentoring platform for alumni, opened to students. The launch of Highlander Nation was, in large measure, a response to the results of recent surveys of alumni, which showed that alumni are most interested in serving as mentors to current students and recent graduates. Four (4) direct mentorship relationships have begun due to the invitation.

#### Admissions (*Complete*)

- In addition to efforts previously noted, six (6) alumni volunteers, representing NJIT's colleges and from various professional backgrounds, wrote letters that were sent to prospective NJIT undergraduate students who have not yet committed to attend.
- In spring 2019, three (3) alumni who are high-school teachers and principals convened a teleconference to review alumni recruitment efforts at the high-school level. Next step was a planning conference call with Admissions in the summer.
- In 2019, two partnership events were planned and conducted with Admissions. The first event, hosted by an alumnus vice president, took place at Dolby headquarters in San Francisco, CA, and drew five prospective students and their parents. The second took place at Stryker headquarters in Mahwah, NJ, and drew seven prospective students and their parents. Of those who attended the Stryker event, six have committed to attending NJIT.

4.5.1.3 Develop a strategic plan for alumni relations that employs best practices from across higher education and at peer institutions. The original alumni relations strategic plan, developed in 2015, has been revisited and is in the process of being updated and revised. (*Complete*)

#### 4.5.2 Continuous Improvement of Alumni Engagement

4.5.2.1 Set clear, measurable goals and objectives for the improvement of alumni engagement.

Number of unique alumni attending NJIT events has increased: from 1,222 FY18 YTD to 1,395 FY19 YTD. A quarterly progress report was instituted in FY19, which includes and tracks 5-6 "top-level" quantitative and qualitative annual

goals for all departments in the Office of Development and Alumni Relations.  
(Complete)

4.5.2.2 Create metrics and establish standard reports on alumni engagement.

An “alumni engagement scoring” system was created in November 2017. It uses event attendance, giving history, volunteerism, and communications to create a numerical score. Alumni Relations updates these alumni engagement scores on a quarterly basis; increasing the percentage of alumni scoring a 4 or higher (up to 16.7% FY19 Q3, compared to 15.4% FY18 Q3) will continue to serve as an annual goal and is one of the goals tracked in the aforementioned quarterly progress report. (Complete)

4.5.2.3 Use social media to build a digital-alumni contact list. In spring 2018, Alumni Relations launched HighlanderNation, an online directory, networking, and mentoring platform for alumni. In spring 2019, HighlanderNation opened to students for mentoring by and networking with, alumni. More than 800 alumni and 150 students have signed up. (Complete)

## Priority Five – Investments

### Objective 5.1 - Educational Investment

#### 5.1.1 Promote Teaching Excellence

5.1.1.1 Develop the Institute for Teaching Excellence. The Institute is located in the Central King Building and is actively providing resources and programs to develop faculty, lecturers, adjuncts, and graduate students. Completion of the permanent location of the Institute for Teaching Excellence was the assessment for this tactic. *(Complete)*

5.1.1.2 Guide instructors in developing their course learning outcomes and syllabi, using the appropriate surveys and assessments. This will help monitor and guide curricular change.

The issue of developing course outcomes and aligning them with the assessment tools for a course (quizzes, exams, etc.) is being addressed both at the “Lunch at ITE” weekly series as well as during the ITE Workshops held in January, May, and August. Non-tenure/tenure-track faculty have also become a focus of training through workshops with a specific focus on developing adjunct faculty teaching skills and providing support for university lecturers to attend teaching and learning conferences. As an assessment, the percentage of course syllabi that have course outcomes was utilized. To date, 85% of the programs have successfully passed the review process and have learning outcomes. The open and affordable textbook initiative was also successfully launched. This program provided support to faculty who would develop low cost or free alternatives to textbooks for their classes, impacting over 1700 students and saving students over \$160,000 (estimated). *(Complete)*

#### 5.1.2 Improve Academic Support

5.1.2.1 Develop a ‘university commons’ by constructing such a space in the Central King Building.

This facility now provides an integrated learning space for collaboration and tutoring. This space opened in January 2017 and includes the writing center and the math emporium. Completion of the university commons was the assessment for this tactic. *(Complete)*

5.1.2.2 Create spaces for student study and interaction, especially in proximity to large lecture halls and classrooms. New study spaces will promote student interaction and collaboration.

The new Makerspace provides hands-on collaboration for students in all disciplines. The renovated Central King Building added 7,400 square feet of student study and interaction space. The Life Science and Engineering Center

added student study spaces in common areas outside the research laboratories. The Wellness and Events Center north corridor and arena concourse provide locations for student interaction, study, and collaboration. Additional spaces will be constructed in subsequent fiscal years. A \$10 million grant from the state supported expansion of the makerspace, growing the facility to nearly 20,000 gsf, providing for collaborative, experiential learning. Completion of the Board approved capital projects related to this tactic was the assessment tool.  
(Complete)

### 5.1.3 Revise Non-Tenure Track Compensation and Career Tracks

5.1.3.1 Revise the current compensation and advancement structure for non-tenure track instructors through the formation of the Subcommittee on Non-Tenure-Track Instruction of the Faculty Senate Committee on Faculty Rights and Responsibilities (CFRR) which addresses issues of hiring and promotion policy for lecturers is ongoing. It does not address adjunct status, nor does it discuss compensation levels for lecturers. It does propose moving hiring and promotion policy to the Faculty Handbook and the Provost's Office, in line with how Faculty Promotion and Tenure are now handled. Compensation for adjuncts has also increased. (Complete)

5.1.3.2 Create a non-tenure track full-time Professor of Practice position and seek the position's endorsement by the Faculty Senate.

The Professor of Practice position engages individuals who possess contemporary expertise in fields such as business, industry, government, the arts, and the professions. Creation of the position was the assessment for this tactic.  
(Complete)

## Objective 5.2 – Faculty Renewal

### 5.2.1 Engage in Strategic Hiring

5.2.1.1 Develop five-year hiring plans for each department, college, and school.

A comprehensive hiring plan spanning FY17 – FY21 has been developed at the college/department level. This list further defines the number of Tenured/Tenured Track, Performance/Opportunities Hires, University Lecturers, Professors of Practice, and Research Professors. This tactic was assessed based on the actual faculty hiring versus the plan for each year. (Complete)

5.2.1.2 Encourage joint academic appointments and the development of clear guidelines for rewarding faculty who engage in research and education in multiple departments.

In the past two years, there have been four joint appointments. Also, the Associate Provost for Research has identified research clusters which foster

interdisciplinary research: Center for Brain Imaging, Big Data Center, Cybersecurity Center, Center for Solar Research, Center for Heliophysics, Center for Natural Research Development and Protection, and Center for Building Knowledge. Progress on this tactic was assessed based on the completion of the guidelines and number of joint appointments made per fiscal year. *(Complete)*

5.2.1.3 Develop a plan to hire tenure-tenure track and tenured faculty in interdisciplinary areas.

The current faculty recruitment process is competitive, and our faculty start-up packages are competitive, given the STEM fields for which we are recruiting. Assessment was completed by examining the tenure-tenure track faculty versus the established hiring plan per college. *(Complete)*

5.2.1.4 Maintain an appropriate balance between faculty ranks. The comprehensive faculty hiring plan (F17-F21) was designed to achieve this balance. The faculty plan included targets to assess progress. *(Complete)*

5.2.1.5 Enhance faculty diversity through targeted recruitment and retention by setting up a pool of funds for targeted hires.

NJIT has established a pool of funds for targeted hires and has been utilizing this incentive to attract and retain underrepresented minorities and women. The FY18 hiring plan has successfully recruited from these groups. Traditional diversity metrics, such as the number of underrepresented minority and women faculty hires, were used to assess progress. *(Complete)*

5.2.1.6 Develop family-friendly hiring practices by becoming a member of the Higher Education Recruitment Consortium (HERC), which works to connect academic spouses and partners with employment. As a member of the New Jersey - Eastern Pennsylvania - Delaware Chapter of the Higher Education Recruitment Consortium (HERC), which supports the efforts of each of its member institutions to recruit and retain outstanding faculty, administrators, and staff through the sharing of information and resources - NJIT's HERC membership allows us to facilitate connections with other local colleges and universities that can help with dual-career issues. HERC maintains its list of dual-career resources and provides a dual-career search engine as well. Faculty hiring outcomes were examined to determine if academic spouses and partners were able to obtain employment if requested. *(Complete)*

5.2.1.7 Develop a mentoring plan for both faculty and instructional staff by setting up specific plans within each college.

CSLA developed and implemented a plan; the balance of the Colleges continue to work on the development of their plans. This tactic was assessed based on the completion of the mentoring plan in each of the Colleges. *(Complete)*

## 5.2.2 Refine Metrics for Faculty Assessment

5.2.2.1 Understand the key factors in faculty success by asking colleges to provide data needed to identify useful metrics by the end of the year.

The Faculty Senate has a subcommittee which examined metrics and methodologies for faculty assessment. *(Ongoing)*

5.2.2.2 Benchmark teaching load based on scholarly research and funding at comparable institutions by analyzing the national Delaware Faculty Load Study. *(Complete)*

5.2.2.3 Implement a transition-to-retirement program where faculty can reduce hours, responsibilities, and compensation by offering a Faculty Separation Incentive Program (FSIP). *(Complete)*

## Objective 5.3 – Research Investment

### 5.3.1 Automate Pre- and Post-Award Administration

5.3.1.1 Achieve excellence in the delivery of services in sponsored research through automation by fully implementing the Streamlyne (Ekualiti KC) – Grant Management Software system.

The system was purchased at the end of FY15, and training started February 2016. The system is now fully implemented. This tactic was assessed based on the percentage of submissions being made through the system versus the total number of submissions. *(Complete)*

5.3.1.2 Streamline grants management by launching electronic processing of grant expenses.

A Banner Finance module expedited grant invoicing and the collection of grant receivables, improving the university's 'grant-related' cash-flow. A protocol was developed to manage proactively and follow-up on grants and contracts expenditures versus elapsed duration of the awards to ensure optimal grant management. Research expense and burn rate reporting has been implemented. Since Fall 2017, monthly research expense reports on all grants are sent out to all PIs, chairs, and deans. Streamlyne-Banner integration is being implemented and expected to be completed by Fall 2018. Percent complete progress on the implementation of the Banner Finance module was the assessment for this tactic. *(Complete)*

### 5.3.2 Improve Research Resources, Services, Equipment, and Facilities

5.3.2.1 Strengthen research resources and services by submitting a proposal to the National Science Foundation for an S-STEM Scholar Program–Pathway to a STEM-educated workforce. Two Letters of Intent were filed with the National Science Foundation to be able to compete for the Inclusion across the Nation Communities of Learners of Undergraduate Underrepresented Discoveries in Engineering and Science. *(Complete)*

5.3.2.2 Collaborate with other universities for enhanced sharing of assets by initiating multi-institutional collaborations. These include the establishment of NJIT Institute of Brain and Neuroscience Research and its partnerships with Rutgers University, Robert Wood Johnson Medical School, NJ Medical School, and Princeton University. NJIT participates with RUN and RWJMC in the multi-institutional Faculty Seed Grant in Neuroscience. One grant was awarded to NJIT and the NJ Medical School. *(Complete)*

5.3.2.3 Promote environmental health and safety programs by appointing a new Director of Environmental Health and Safety in March 2016. Health and Safety programs were re-written as a part of an overall Environmental Management System for NJIT. *(100% Complete)*

5.3.2.4 Update existing common equipment through the Facilities Master Plan, which is being re-examined and aligned with *2020 Vision*.

The Facilities Master Plan update was approved by the Board of Trustees in April 2018. The expansion of research spaces was included in the updated plan, which examined need through 2030. Annual expenditures on common equipment versus the departmental requests for such equipment were utilized to assess progress on this tactic. Completion of the updated Facilities Master Plan was the metric used for assessment of this tactic. *(Complete)*

5.3.2.5 Develop a university policy on lab space by updating the Facilities Master Plan. Laboratory space metrics have been scrutinized during the space planning effort and reduced from national benchmarks due to the strategic direction toward common facilities and flexible, open labs. These formed the basis for research space needs planning within the Facilities Master Plan. The progress on this tactic was assessed based on the actual development of new and renovated labs versus the recommended space metric. *(Complete)*

### 5.3.3 Enhance Institutional Support for Non-Faculty Research Staff

5.3.3.1 Establish policies and guidelines for appointments of research professors. *(Complete)*

5.3.3.2 Develop a policy for professional growth and institutional support of post-doctoral fellows, research professors, and other non-faculty research staff by fully engaging them with the Research Office in promoting their research. They

participated in the Faculty Research Showcase, and NJIT Research Center Showcase events. (Ongoing)

## Objective 5.4 – Infrastructure Support for Facilities and Technology

### 5.4.1 Update the Facilities Master Plan for Physical Planning Decisions

5.4.1.1 Update the Facilities Master Plan, including the evaluation of space utilization for effective physical planning decisions process by aligning it with the *2020 Vision*. A new Facilities Master plan update was approved by the NJIT Board of Trustees in April 2018 after a collaborative process utilizing shared governance. Completion of the Facilities Master Plan was the metric to assess this tactic. *(Complete)*

5.4.1.2 Ensure facilities development includes considerations for digitally-enabled common, instructional and collaborative spaces; short-term major construction projects; construction of an event center, renewal of capital assets, and parking.

Construction of the Wellness and Events Center was completed in January 2018, and the associated athletic field was completed in 2019. There was also a financial plan for the renewal of capital assets which provided for over \$20M annually by 2020. Collaborative instructional spaces were constructed in the Life Science and Engineering Building and the Central King Building. A new parking garage opened in the summer of 2016 to provide safe, convenient parking for the NJIT community. A facilities condition assessment was completed in the spring of 2017 to assist in targeting life-sustaining repair and maintenance for campus system. Renovations to Faculty Memorial Hall began in the fall of 2017 and were complete by spring 2019. The Facilities Condition Index, which was produced through the facilities condition assessment, was the metric used to assess this tactic. *(Complete)*

### 5.4.2 Use the Technology Plan for Campus Technology Decisions

5.4.2.1 Update the Technology Plan for campus technology by establishing an IST Capital Replacement and Renewal Schedule with original funding sources.

The IST Capital Replacement and Renewal schedule continues to be maintained and shared with the Finance division. Three major IT planning activities are underway: (i) A plan to cloud source enterprise computing services. This would address business continuity and disaster recovery concerns for such services and avoid large lifecycle replacement costs of IT infrastructure (servers, storage) and building critical infrastructure (HVAC, UPS, power distribution). Capital costs would be smoothed as smaller, more predictable, annual operating costs. (ii) The university has received a Technology Roadmap grant from IBM to help plan for an advanced cyberinfrastructure to support the university's evolving research agenda. (iii) Strategic priorities for an overall IT service strategy were discussed



with committees of the Faculty Senate. A new IST structure is currently being implemented, and the new CIO will be focusing on the completion of the Technology Plan update in the coming months. *(Complete)*

5.4.2.2 A comprehensive assessment of the IT infrastructure, systems, and personnel is currently underway. The roadmap created by this plan will consider the required investment and strategies for subsequent fiscal years. In FY20, \$750K has been set aside from the Capital Renewal and Replacement budget for emergent issue mitigation. *(Complete)*