Draft Report

Report of the Research and Graduate Education Task Force

Dimension Statement:

RIT will conduct interdisciplinary, high-impact research that addresses the challenges facing our global society, our professions, and the planet. This research will not be counted by dollars in funding alone, but by the impact it generates: new discoveries and transformative advances, the global reputation of our faculty, undergraduates who are inspired to continue to graduate training, professional masters who enter the work force with cutting-edge skills, and terminal degree holders who are prepared for leadership roles and life-long discovery, creativity, and innovation in the career of their choice.

To achieve these goals, RIT will create an environment that inspires and enables continuous discovery, innovation, and boundless thinking. Students, and the faculty who support them, will be well equipped to thrive in an interdisciplinary environment and will be empowered to create an intellectual and research-oriented culture.

To achieve this vision, RIT must be willing to make radical transitions in its approach to research and graduate education, ultimately creating a culture of discovery, creativity, and innovation in research:

- Developing a crystal-clear vision of how and where research fits at RIT
- Evaluating and communicating transparent indicators that truly communicate our success in reaching these goals
- Willingness and flexibility to invest, adapt, and reinvest to the evolving priorities within a strategically focused research and graduate education portfolio that not only reflects current strengths, but considers shifts in society funding priorities, and identifies and addresses gaps between current strengths and priority goals
- Creating a shared understanding and buy-in across all levels of the university of the reality that research requires strong and sustained investment to succeed: not only financial investment, but also space, personnel, time, trust, and culture.

While the report presented herein highlights the goals developed over 12 weeks of extensive thought, deliberation, and work by the task force, it is also intended to raise awareness of the major barriers that must be smashed for research and graduate education to truly become a premier part of RIT’s future.

Preface 1: RIT must develop a clear and universally-understood identity in research and graduate education

When we posed the questions “Why should RIT have research programs?” and “What are the main benefits of research to RIT students and the institution?” to various stakeholders, the answers, paraphrased below, were staggeringly varied:

- ‘To bring commercializable technologies to market’
- ‘To make fundamental discoveries and scientific or creative advancements’
- ‘To have a more prestigious reputation- to be more like Georgia Tech or Carnegie Mellon’
- ‘To provide students with critical thinking and problem solving skills that are valuable to employees’
- ‘So that students can learn research methods’
- ‘To keep faculty up-to-date in latest trends in their field so they don’t get stale in their teaching’
- ‘RIT should not have research, it is too expensive’ or ‘it detracts from our teaching mission’

While some variety is expected, the level of disparity we observed, particularly when stratified by type of respondent (student, faculty, administrator, employer, alumni, trustee), suggests that RIT may have an ‘identity crisis’ as to our fundamental motivation for investing in research and graduate programs.

We have drafted goals and strategies that assume that RIT aims for a “step change” in research advancement. However, the overarching question is whether RIT really wants to be a player in the research space, or would it be better served by defining itself as a teaching institution first and foremost. If there is a desire to develop a research focus comparable to our aspirational peers, significant new investment of resources is required and new operational models must be enacted.
The current approach is unsustainable: faculty face a drastic mismatch between research expectations and resources available to meet those expectations; graduate students report a disconnect between the perceived and actual opportunities to work on research with RIT faculty; and faculty hired with primary responsibility in teaching are being required, with inadequate experience or training opportunities, to engage in research for promotion. The dual goals of excellence in undergraduate teaching and excellence in research are not incompatible. They do, however, require a significant change in RIT’s investment and approach to research.

To become an institution known for research and graduate excellence, investments are needed to support interdisciplinarity consistent with the research funding climate (Goal 1), a research culture with structural support within the university to facilitate interdisciplinary research and graduate education (Goal 2), and a strong graduate education program (Goal 3).

Preface 2: RIT must have transparent internal and external indicators of research quality and impact

When we set out to find data to inform the development of our goals and strategies, it was surprising to find that so little existed. For example, asking the question “What are RIT’s biggest strengths in research?” led to very predictable heuristics-driven answers, but very little actual quantifiable rationale.

The data issue has two components: 1) becoming more deliberate in selecting and tracking key metrics that address our internal strengths and our external reputation, and 2) becoming more transparent and honest in understanding the information we currently have. The only data we were able to access are related to research expenditures at an aggregate level, collected as part of the Higher Education Research and Development (HERD) Survey, shown in Table I (actual expenditures), Table II (RIT’s ranking in this national survey), and Figure 1 (relative breakdown of expenditure categories by percentage):

Table I: RIT Annual Research Expenditures ($ Million) by Category

<table>
<thead>
<tr>
<th>Year</th>
<th>Totals</th>
<th>Federal total</th>
<th>Business total</th>
<th>Institution total</th>
<th>Other</th>
<th>Ratio: Total expenditure to Institutional expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY07</td>
<td>$ 21</td>
<td>$ 13</td>
<td>$ 2.4</td>
<td>$ 3.7</td>
<td>$ 1.6</td>
<td>5.7</td>
</tr>
<tr>
<td>FY08</td>
<td>$ 24</td>
<td>$ 14</td>
<td>$ 3.5</td>
<td>$ 4.1</td>
<td>$ 2.1</td>
<td>5.8</td>
</tr>
<tr>
<td>FY09</td>
<td>$ 29</td>
<td>$ 18</td>
<td>$ 3.9</td>
<td>$ 4.1</td>
<td>$ 2.9</td>
<td>7.1</td>
</tr>
<tr>
<td>FY10</td>
<td>$ 39</td>
<td>$ 23</td>
<td>$ 5.0</td>
<td>$ 8.6</td>
<td>$ 1.9</td>
<td>4.5</td>
</tr>
<tr>
<td>FY11</td>
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<td>$ 20</td>
<td>$ 3.0</td>
<td>$ 8.6</td>
<td>$ 2.9</td>
<td>4.1</td>
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<td>$ 19</td>
<td>$ 2.8</td>
<td>$ 11</td>
<td>$ 3.3</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Notes: Business = all industrial or corporate funding; “Other” category includes state, local, and non-profit. The method for determining “Institution” expenditures was not made available to us, but includes direct costs like PhD student stipend and tuition, as well as calculated expenses like “lost F&A return” when the full indirect costs cannot be recovered from a sponsor.

Figure 1: Annual Research Expenditures by Category (same data as Table I but expressed as a percentage, left) and Table II: RIT’s National Ranking in Research Expenditures (right)
The last column in Table 1, a ratio of total to institutional expenditures, was suggested as a rough approximate of RIT’s “return on investment,” or the ability to translate institutional investment into external funding. On average, RIT peers and aspirant peers average about a 4:1 ratio, indicating that RIT has not yet optimized internal investment mechanisms for the maximum return. Nevertheless, this ratio is expected to scale to any total level of expenditures. Thus, if RIT were to aim for $100M in total research expenditures, RIT’s internal investment must increase by a factor of 2-3.

We also attempted to disaggregate these data to determine what topics or “global challenge” areas were receiving the most funding within RIT, and what emerging trends could be observed based on new areas in which faculty are submitting proposals. Aside from disaggregating funding based on college or department level, no standard, objective method exists to truly capture the interdisciplinary problems that this funding is being expended to solve through research.

A key principle from the task force was that RIT must “weigh the beans, not just count the beans,” which speaks to the need to also determine the impact and reputation of our research and graduate programs. We identified numerous metrics for doing so, for example:

- Number of products created (peer-reviewed publications, patents, creative works)
- Topical area of products created, in terms of global challenges being addressed
- Impact of these products (citations, professional societies, invited presentations)
- Number of students involved and ultimate student outcome (career, graduate school, graduate alumni engagement)
- External reputation of research and researchers (external evaluation, benchmarking)

To the best of our knowledge, none of this information is being collected on a uniform basis. (We do note the self-reported Faculty Scholarship Report, but found that in its current form, very few analytics could be performed on the collected data).

To realize the goals and strategies presented herein, RIT must take a clear, objective look at our performance towards reaching research and graduate education goals. We must determine 1) What mechanisms of institutional investment in research have the greatest benefit towards creating impact and obtaining additional funding; 2) What are our true research strengths, not based on perception but on verifiable data; and 3) What impact does our research really create, both for RIT faculty and students, and for the broader external community?

**Goal I: To make a step change as a research institute, RIT will make focused investment to grow areas of research excellence.**

Considering data shown in the preceding section, it is clear that an opportunity exists to optimize use of limited institutional and external funding towards greater impact. The level and diffusivity of current resources (e.g., research student stipends, teaching release, start-up packages, Sponsored Research Service staff support, programmatic administrative support, etc.) will not enable every faculty to conduct research at the same level. We propose that a more effective mechanism is to concentrate research investment towards a few (3-4) strategic areas of truly interdisciplinary, high-impact research.
Specific strategies developed to realize this goal embody initial selection of areas, opportunities to generate new investment, and dynamic, agile re-investment:

- **Strategy 1a:** Select interdisciplinary research areas in which RIT will become world class leaders.

**Strategy 1b:** Launch a concerted and targeted development campaign to generate new investments in these areas, seeking to catalyze new cross-campus activity in each area.

**Strategy 1c:** Enable faculty to self-select into research areas and further define the vision and investment mechanisms that will best enable a trajectory of growth to world class status.

**Strategy 1d:** Empower a Research Advisory Board, comprised of external experts and internal research active faculty, to advise on the selection and evaluation of the strategic areas.

**Strategy 1e:** Evaluate “return on investment” in each area, based on trajectory of growth and demonstrated impact, and then dynamically re-invest into new strategic areas as research priorities evolve.

**Strategy 1a:** Select interdisciplinary research areas in which RIT will become world class leaders.

The challenge of identifying potential strategic areas was presented to the task force, and the process of trying to meet this deliverable was divisive and, at times, discouraging. However, key principles of selection emerged:

- Areas that build on by current faculty strengths, RIT reputation, and existing resources, but without constraining ourselves only to where we are now.
- Areas that reflect growing significance in society, as reflected by relevance to funding agencies and industries, and
- Areas where RIT can make unique and high impact contributions, particularly given our relatively “young” research endeavor and the presence of well-established competitors.

We strongly caution against promoting areas that only align closely with current disciplines, centers, colleges, etc., but rather recommend creating these areas, through top-down leadership and bottom-up guidance, such that a broad cross-section of faculty can self-select and contribute to at least one topical area. In benchmarking very successful universities, strategic research themes are almost always defined in terms of “grand challenges” and/or as broad initiatives, under which multiple fields can collaborate.

The crux of this issue, however, is how, by whom, and on what basis these areas will ultimately be proposed and selected. This action is not easy, requiring faculty and administration to step out of their current comfort zones of single discipline training and emphasis to consider how to most effectively collaborate across disciplines within colleges, across colleges, and even across multiple universities to form large centers of excellence with RIT as the HUB. Three general mechanisms for this process exist: top-down, hybrid, and bottom-up, each of which is described loosely below:

- **Top-down** – Strategic Planning Leadership, in consultation with small group of advisors and stakeholders, identify 3-4 strategic areas in which they believe RIT can become world-class leaders. Given the time frame of implementation (we were given the date of November 2014 as launch of development activity), it is not clear whether data collection or meaningful faculty input is feasible in the duration. This approach has an advantage of setting a clear leadership vision, but a risk of disenfranchising faculty and reinforcing perception of “haves and have-nots.”

- **Bottom-up** – Faculty input informs identified areas, through a short-term process in which groups of highly interdisciplinary faculty put forth white papers describing proposed strategic strengths and providing a rationale for the impact such an effort would create and the data-driven qualifications of RIT faculty collaborations to pursue this effort (Appendix 1). The ultimate decision would entail some refinement and amalgamation of overlapping efforts. This process, which was favored by many on the task force, has the advantage of creating faculty buy-in and enthusiasm, but a risk of generating ideas that are “business as usual” or creating new divides.

- **Hybrid** – The approach supported by the RGE co-chairs would combine elements of both, through which RIT leadership sets forth a strong vision, informed by data and external analysis, of transformative, interdisciplinary, and inclusive research aspirations, at which point faculty input defines the key elements of each area. Alternatively, this strong vision can be informed by the bottom-up approach as well, but with a decision point at the end to that draws inspiration from the many suggestions likely to be received.
When initially tasked with delivering recommendations to inform a top-down selection process, the task force faithfully identified four strategic research concepts, conceived to be broadly inclusive of existing work, while flexible enough to enable researchers to envision one or more areas to which their research would contribute. The goal was to suggest areas in which someone from any discipline across RIT would be able to contribute.

- **Global Resilience**: Detecting, analyzing, and responding to emerging threats to social, cyber, economic, infrastructure, and ecological systems. Minimizing vulnerability to disruptions and adapting to change without significant losses to human health, economic well-being, information security, and sustainability.
- **Accessibility and Inclusion**: Creating solutions for the inclusion of people with diverse abilities as they engage in education, employment, and the full range of activities expected by all members of society.
- **Advanced Design and Manufacturing**: Re-inventing and revitalizing the US manufacturing sector through innovative technologies, supply chains, and production processes that ultimately lead to job creation and sustainable economic growth.
- **Bio-Renewable Resources**: Leveraging RIT’s unique setting towards transforming products and services coming from regional agricultural and food processing industries into high-value products, biofuels, and resources for a healthy, sustainable Rochester.

Inclusion of these areas here is not meant to imply a consensus by the task force, but rather to report the ideas that excited us as examples of potentially transformative realignments of our current strengths to tackle the pressing issues facing society.

**Strategy 1b**: Launch a concerted and targeted development campaign to generate new investments in these areas, seeking to catalyze new cross-campus activity in each area.

Research requires significant investment. If research is viewed as essential to RIT’s mission (Preface 1), then it must be prioritized in funding as such. Greater investment in research enables budgetary flexibility and organizational agility, for example, to make strategic hires, offer competitive startup packages, send graduate students to conferences, and create innovative seed funding mechanisms. We recommend that any strategic research area identified in Strategy 1a be invested in on the order of $2-5M/year for a period of 5 years. Goal 2 details some potential investment mechanisms; faculty working in each area should have flexibility to identify others. Strategy 1b deals with enabling this investment.

We recommend that each area is coupled with an integrated development and strategic funding effort: in which relevant organizations (Development, Alumni Relations, Government Relations, Office of the Vice President, etc.) make a concerted case for additional funding. No single source will alone enable the transformation required to take RIT research to the next level, but by combining funding track record, industry partners, student success stories, and the overall motivation (grand challenge) of each area, RIT will create greater leverage for growing research investments through external sponsors.

**Strategy 1c**: Enable faculty to self-select into research areas and further define the vision and investment mechanisms that will best enable a trajectory of growth to world class status.

At the end of the day, it is the faculty, research staff, and undergraduate and graduate students conducting the research that will carry forth each endeavor towards success. RIT must place trust in the experience and imagination of those with “boots on the ground” to help guide the direction of each strategic area. Opening each research area for faculty to self-select into, even across college or program boundaries, will enable the maximum participation and new avenues for collaboration. In some cases, what the area will require may be strategic hires, in others seed funding or post-doctoral fellowships, etc. Given the variety of directions each area may take, participating faculty play a vital role in determining how the effort should be rolled out.

**Strategy 1d**: Empower a Research Advisory Board, comprised of neutral, recognized external experts from multiple disciplines and internal research active faculty, to advise on the selection and evaluation of the strategic areas.

The role of existing research advisory groups is not clear. This recommendation is aimed at establishing a group with two modes of guidance and communication: 1) engagement of research-active faculty and student representatives to provide a direct line of communication to RIT leadership on both routine and strategic research issues (one representative from each strategic area included), and 2) engagement of external research-attuned partners in evaluating progress towards meeting strategic research goals, and, on an ad-hoc basis, advising on the selection of new strategic research themes.

**Strategy 1e**: Evaluate “return on investment” in each area, based on trajectory of growth and demonstrated impact, and then dynamically re-invest into new strategic areas as research priorities evolve.
Ultimately, the initial (five year) investment in each strategic area is intended to lead to advancement in prominence of this research theme, a high degree of external support from a variety of sponsors (federal, industry, and non-profit), and the reputation that enables participation in large, multi-institution partnerships or centers. To reach this point, each strategic area should be assessed annually to verify that it is on a trajectory of growth (of funding, products, students, reputation, and impact).

**Goal II:** RIT will create structures and sustainable investments for interdisciplinary research and graduate education

The challenges facing society increasingly require integrated responses across multiple disciplines, a reality reflected through two key stakeholders: funding agencies are shifting towards large, cross-discipline funding mechanisms and employees seek graduates who can apply critical thinking and problem solving skills beyond their disciplinary training. Yet, RIT faculty and students face a number of structural and cultural barriers to actually working in an interdisciplinary environment. Many faculty reported that they had not incentive, or worse, were actively discouraged from pursuing collaborative proposals, co-authoring publications, or advising students outside their home programs. Students reported that they place a high value on interacting with peers from other programs, but have few opportunities for cross-pollination of ideas or even informal interactions.

Goal 2 proposes a limited set of strategies aimed at investing in interdisciplinarity to provide faculty and students with incentives and opportunities for collaboration:

**Strategy 2a:** Allocate space to interdisciplinary research and education activities

Space allocation and availability is certainly a pressing issue across campus, and a key need for enabling interdisciplinary research and education. This strategy is not just about requesting new space, but rather re-thinking allocation of space so that cross-college faculty, post-docs, and students working in strategic research areas are provided with the physical environment to enable research success. This space is essential for informal interaction (leading to creative and spontaneous collaborations and advances) and formal programs (project meetings, visitors, symposia, etc.). In many cases, re-imagined spaces can be established around existing lab infrastructure essential to each area.

We would also present space for interdisciplinarity as a broader campus-planning consideration. Many faculty report loneliness and isolation from research-active colleagues. Spontaneous hallway conversations about research rarely emerge. Graduate students struggle to find spots to eat, work, or socialize. We also recommend that new construction and major retrofits of academic buildings integrate into their planning some consideration for flexible, collaborative space for future agility as research areas evolve.

**Strategy 2b:** Create nodes of funding influence to strategically position RIT’s interdisciplinary research strengths

When major multi-disciplinary or multi-institution funding opportunity emerge, RIT often is in “react” mode, as groups struggle to form and connect with industrial, outreach, or educational partners required to be competitive. Further, the funding landscape is not uni-directional: we have an opportunity to influence funding priorities by establishing stronger relationships with key agencies and providing input, where appropriate, to help actually shape the funding landscape (e.g., submission of white papers, response to requests for information, etc.). While individual researchers are usually the experts at funding for their projects, RIT appears to have no individual(s) whose primary mission is to 1) actively seek opportunities to influence funding, 2) communicate emerging opportunities back to RIT faculty, and 3) assist in coordination within RIT to organize groups of researchers and partners able to submit funding proposals competitive with our aspirational peers. Ultimately, such a role should be mirrored by one individual with key priority towards federal sponsors and one individual with key priority towards industrial partners. While industry only makes up a small fraction of our total research expenditures (and is not expected to overtake federal funding), such partners can commit in-kind support (expertise, equipment, time, access to data) that can be leveraged for greater funding competitiveness.

**Strategy 2c:** Reward and reinvest in interdisciplinary collaborations

While industry only makes up a small fraction of our total research expenditures (and is not expected to overtake federal funding)
Many members of the task force reported barriers to collaborative activities that included low value placed on interdisciplinary work in promotion and tenure decision (both cultural and formal credit for co-PI or co-authored activities), diffuse overhead return models that limit reinvestment in collaborative research, college cost models that lead to competition rather than symbiosis in funding collaborative research, and the challenge of advising students outside of their home programs.

This strategy focuses on reinforcing the value of interdisciplinarity and reinvesting towards collaboration.

- The message that interdisciplinary work is valued by the Institute must be reinforced by RIT leadership and integrated into metrics and evaluation processes used by college-level promotion and tenure committees.
- For interdisciplinary work, it is critical that Co-PIs, not just PIs, receive formal credit for their research efforts on grants. In benchmarking other universities, we found that many go beyond credit for grants received as PI and instead count total funding on the basis on contributions towards sponsored projects. These contributions are determined during proposal development, in which all investigators agree on relative intellectual and management involvement on the grant; this percentage is multiplied by the total award value and counted toward each individual’s sponsored research totals, regardless of PI or Co-PI status.
- Sustaining interdisciplinary work requires reinvestment towards future growth. The current redistribution of indirect costs divides a small pool of funds into even smaller shares that have little power towards catalyzing new research. These funds must be used more effectively. To jump start this reinvestment, we propose that 100% of recovered F&A for any grants received in each strategic research areas (Goal 1) should be returned directly to these areas for at least the 5 years of strategic investment. Return F&A should be divided into incentive funds for PI and Co-PIs and a reinvestment fund to catalyze new initiatives in the strategic area.

**Strategy 2d: Create flexible, interdisciplinary pathways for faculty and student success**

One of the key messages coming out of the task force – for both research and graduate education components – is that faculty and students need flexibility to achieve excellence in their own professional life and in contribution to RIT excellence.

- One aspect considered by the task force at the request of the Provost was whether universal requirements for scholarship were a benefit or barrier to the RGE goals. It was the consensus of the committee that enabling faculty to excel based on their strengths and individual contributions was an important element of success. Clearly, faculty hired with teaching emphasis struggle with new expectations, but other financial and quality impacts were considered. For example, Sponsored Research Service has a relatively small staff for the volume of proposals submitted, many of which are only going through the system so that faculty can “check a box” on scholarship. As a result, research-active faculty have reduced staff support. Reducing teaching loads viz. adjuncts to enable formerly teaching-focused faculty to conduct research creates a direct cost to the Institute, but this is not counted in “institutional investment” (Preface 2). Further, even allowing a wide range of activities to be counted as scholarship has unintended consequences, as faculty grapple with the uncertainty of what is acceptable. This strategy echoes the previous recommendation to “weigh the beans, don’t just count the beans.”
- RIT has numerous graduate programs that span multiple colleges and degrees, however, very little overlap is observed. We recommend providing new, flexible degree opportunities. Using existing program structures and coursework, create interdisciplinary, blended degrees, such as PhD majors and minors, PhD/MBA pathways, and other co-curricular options for PhD, MFA, and MS degrees.
- Opinions of the task force were mixed regarding joint appointments; however, it is clear that interdisciplinary faculty affiliations create new collaborative opportunities for faculty working at the intersection of two programs. Many graduate programs have “Extended Faculty” designations, but the use, definition, incentives, and barriers are not consistent. For faculty with clear interdisciplinary work plans, specifically those aligned with strategic areas, we recommend creating pathways to create clearly-defined and recognized affiliations in programs outside their home department or college. Another avenue is an institute-wide “university faculty” program, modeled after the Provost’s faculty associate program, in which tenured faculty with strong potential to develop and lead interdisciplinary research or educational efforts may apply to short-term institute-level positions with work plans aimed at developing new collaborations.
- Create a research culture on campus that includes research support for faculty, post-docs, PhD students, master’s students, and undergraduates. Acknowledge that research requires looking beyond RIT to participate in the global research community by initiating regular external speaker series, and by funding research travel at much higher level than currently allocated for conference and collaboration travel. Acknowledge also that research is a 12-month endeavor, with campus facilities supporting faculty and students who remain on campus for summer research.

**Goal III: RIT will create a strong culture of graduate education and research excellence**

The task force co-chairs particularly grappled with the duality of a mission that included research (including graduate students and not) and graduate education (including research and not). Given the predominance of professional or non-research based master programs, it is essential to both distinguish and to integrate, where appropriate, both dimensions. The task force read and discussed the report “Imagine: A Strategic Plan for Graduate Education at RIT – Vision 2020.” While the co-chairs took the strategy of highlighting important emergent themes from
recommendations in this report in the strategies below, we also include (Appendix 2) a full set of tactics suggested by Dean of Graduate Studies Hector Flores.

The intent of the highlighted strategies is to change culture at RIT. An observation early on in our process from a graduate alumni was that going through a masters degree at RIT felt like an ‘extended undergrad program,’ as compared to their later experience in a PhD program, where they were immersed in an intellectual culture and surrounded by other graduate students. Regardless of research/non-research focus, we aspire to developing such an intellectual culture for all our students. Many graduate students reported feeling like ‘second class citizens’ in a nowhere land between undergraduate and faculty, not truly connected to the overall RIT mission. This observation is reflected by low representation of graduates in student governance, minimal housing and transportation options for graduates and families, particularly international students, and lack of emphasis on graduate students by way of orientation, professional development, and training. While these issues are internal, part of the cultural challenge is also external perception and reputation. All of these issues are summarized below and laid out as tactics in Appendix 2.

- **Strategy 3a:** Continuously improve graduate education through data-driven assessment of all graduate programs

- **Strategy 3b:** Elevate RIT’s profile within the global research and graduate education community

- **Strategy 3c:** Prepare students for excellence through graduate professional development spanning their academic “lifetime” at RIT:

Currently, graduate programs move forward, once approved, with minimal review to ensure progress towards excellence or re-evaluation/reallocation of resources as priorities change. Strategy 3a lays out a process by which programs will be evaluated and results used to program continuance, improvements, and resource allocations:

- Conduct independent review of quality and outcomes of every graduate program (Masters and PhD) every 5 years, on a staggered basis
- Take stock of the entire graduate program portfolio every 5 years, with a view to balance professional and research-intensive programs.

As part of this effort, it was recommended that RIT should have Institute-wide definitions of responsibilities and minimum qualifications of “graduate faculty” and “graduate program directors;” provide enhanced orientation and resources for faculty advising graduate students. The intent is not to create two classes of faculty, but rather to ensure these graduate faculty have appropriate training, resources, and experience to foster excellence in their students.

- **Strategy 3b:** Elevate RIT’s profile within the global research and graduate education community

RIT often takes a very internal-focused perspective on graduate education, but employment of students, scholarly recognition, and continued funding also are strongly influenced by external reputation. An astute observation made by a member of the President’s Roundtable was that they were always amazed at RIT’s students and research when they came to visit, but once they left, they never heard about RIT in the national media or popular press. At the same time, the task force also noted that many of the advisory boards for RIT leadership do not have significant representation by research or graduate-education focused experts, thus there is an opportunity to engage a broader constituency to provide relevant advise and raise RIT reputation. Several mechanisms were suggested:

- Conduct prominent invited speaker series
- Enable routine practice of visiting faculty and graduate student exchanges
- Significantly expand travel support for students (to disseminate scholarship, network, and seek career enriching opportunities outside RIT)
- Develop centralized and expanded university PR initiatives to highlight research and student achievements
- Form a Graduate Advisory Board with internal and external stakeholders to advise on implementation of these strategies and represent graduate student interest to administrators

- **Strategy 3c:** Prepare students for excellence through graduate professional development spanning their academic “lifetime” at RIT:

- Professional and personal development workshops and training (research methods, communication, thesis preparation, grant writing, teaching)
- Graduate career counseling and placement
- Increased opportunities to gain teaching experience, particularly through optional TA positions, coupled with increased TA training
- Recognition and awards for student excellence, including both the celebration of excellence at the completion of their studies (e.g., Doctoral Dissertation Award) as well as continued showcase of student excellence (e.g., a Graduate Scholarship Report, with profiled graduate students)
New seed funding and competitive internal fellowships for students, particularly aimed at Masters students with innovative scholarship concepts but with no funding to launch their efforts

Providing excellent research resources, particularly by assessing library services with respect to strategic resources for digital media, citation management tools, and scholarly publishing guidance; and where needs exist, investing in additional resources

Appendix 1: Proposed Process for Selection of Strategic Research Areas

Faced with the challenge of identifying strategic areas for future research investment and growth, the majority of members on the RGE task force endorsed a bottom-up process, which would allow groups of faculty to propose interdisciplinary areas of strength. This process is modeled on the strategic strengths process employed by UB during their last strategic planning effort, and was also informed by an extended conversation with one of their strategic strength leaders.

The concept is summarized below:

In the period between completion of task force reports and finalization of the strategic plan elements, faculty across RIT would be encouraged to submit white papers that describe a potential strategic area and the faculty collaboration that could be leveraged to achieve this area. These white papers would contain

- A description of the high-impact challenge being addressed and a justification of why and how an interdisciplinary collaboration would enable transformative advancements not possible with existing structures or collaboration within small faculty groups
- A proposed group of faculty who would collaborate under the strategic area. These groups would be open to anyone, but must contain a high degree of interdisciplinarity and engagement of faculty from multiple programs and colleges
- An assessment of the external landscape currently surrounding the proposed areas, including who the big players are and what competition or collaboration external to RIT might be expected
- A data-driven demonstration of existing strengths and reputation, including recent scholarly works, student accomplishments, citations, related research proposals submitted and awarded, etc.
- An assessment of how the collaborative model would enable “broader impacts” including both benefit to society and engagement of underrepresented groups
- An explanation of the benefit of this area to RIT students, including undergraduate research opportunities and graduate traineeships and research projects
- A high-level estimate of the investment required and specific investment mechanisms that would catalyze this activity, as well as a description of planned funding activities

Subsequent to this process, proposals would be evaluated by objective external and internal advisors, using criteria that address external reputation of proposed participating faculty, demonstrated impact to field (products, funding, workforce development), the ability of this area to move RIT on a trajectory towards aspirational peers, and the relevance of the area to RIT’s current and emerging strengths and brand. This selection process would likely entail an iteration through which overlapping areas are merged and groups reconfigure and provide additional content to their white paper. While this is envisioned to take place over a few months initially, the process is transferable to future cycles of strategic research area identification and investment.

Appendix 2: Full list of tactics proposed to enable Goal 3

Prepared by Hector Flores, April 26, 2014

STRATEGY:

3a. Develop a plan for data-driven assessment, review, and support of high quality graduate education at RIT
1. Every graduate program at RIT will be reviewed by internal and external peers every 5 years, with oversight residing in the Office of Graduate Studies and in coordination with the home Colleges. Cost: $.

2. Annual surveys on all academic aspects of graduate education and on graduate student life will be conducted under the oversight of the Office of Graduate Studies (OGS), in collaboration with the appropriate offices (e.g., Assessment, Institutional Research, Student Affairs), with results analyzed and shared with the graduate programs, academic Departments and Colleges.

3. The results of ongoing assessment of graduate education and graduate program review will be used by Academic Affairs to determine program continuous/improvements, resource allocation, or discontinuance as appropriate.

4. The assessment of PhD, MFA, MBA and MS program quality will include a set of integrated metrics such as quality of faculty and students, quality of outcomes (dissemination, peer-reviewed research, scholarly and/or creative output, etc.), quality of student placement after graduation. Oversight for collection of graduate assessment data will reside with the OGS in collaboration and coordination with the home Departments, Colleges, Institutional Research and Assessment offices).

5. Provide the appropriate administrative structures/processes to enable sustained graduate program quality, namely: campus-wide definition of the minimal responsibilities rights, and qualifications for faculty to be considered graduate program faculty; a process to select and nurture graduate faculty; campus-wide definitions of the minimal expectations, responsibilities, and evaluation of graduate program directors/ coordinators.

6. Provide all graduate faculty with the appropriate skills to be effective graduate teachers and graduate mentors/advisors; to be led by the OGS.

7. Provide resource training to all graduate faculty and program directors to enhance and update their ability to meet graduate student needs (e.g., student wellness, mediation and conflict resolution, academic integrity issues, etc.); to be led by OGS.

8. Provide all graduate programs on campus with the appropriate resources to carry out their responsibilities for high quality graduate education (release time, administrative support), as well as adequate recognition of graduate faculty and graduate program directors/coordinators contribution in their respective workloads.

9. Review the entire graduate program portfolio every 3 years, with a view to identifying opportunities for an enhanced balance of professional degrees and research-intensive programs. Led by the OGS in collaboration with Colleges.

(Note: most of these are relatively low cost investments; cost for institutionalizing 3a. ii through ix would be: $)

3b. Integrate RIT graduate education into the global graduate education and research communities by providing appropriate support and opportunities for internal and external visibility, recognition, and success

1. Create an endowed travel fund for graduate students to travel to national laboratories and international research facilities, museums, special collections, etc., to conduct scholarly research in support of professional and creative work.

2. Create an endowed fund to support visiting researchers and scholars engaged in interdisciplinary collaborations with RIT faculty and students.

3. Recognize excellence in graduate education at all levels via annual awards for outstanding PhD dissertation, MS thesis, MFA thesis, to Graduate Student of the Year, and outstanding faculty/staff graduate mentor; develop an annual pipeline to compete for graduate student dissertation/thesis awards nationally and internally.

4. Significantly increase the investment in publicizing RIT research and creativity nationally and internationally, including strategic placement of PR/press releases in the national and international press.

3c. Develop and sustain year-long professional and research development opportunities for all graduate students through the life time of their graduate experience at RIT.

1. Enrich the graduate student experience by offering calendar year-round professional and personal skills development workshops on the following and related topics, tailored to the graduate student’s stage of development: thesis project planning, development, and completion; grant proposal writing skills; teaching assistant training; effective use of technology; written and oral communication skills; personal and professional ethics; leadership, innovation and entrepreneurial skills; resume preparation and interviewing skills; preparation for nimble career paths. These would be a partnership between the OGS and the appropriate offices (Library, Writing Center, Career Services, etc.)

2. Provide career counseling and placement services for all graduate students throughout the students’ career, to enable a life-long career evolution and cultivate strong graduate alumni connectedness and loyalty; Office of Career Services would be lead partner.

3. Create a Graduate Center to provide the physical and intellectual space to facilitate inter and trans-disciplinary graduate student and faculty networking and collaboration. Cost: $.

4. Significantly expand the support available to graduate students to present their accomplishments at national and international meetings and seek career enriching opportunities outside RIT.

5. Create a seed-grant fund or graduate students to explore interdisciplinary research, scholarship and creativity. Cost: $.

6. Offer novel and flexible opportunities to enhance the graduate students’ interdisciplinary training, such as PhD majors and minors, combined MS/MFA degrees, a PhD/MBA path, etc.

7. Provide the graduate community with significantly enhanced library support services, such as strategic purchases of e-books and digital journals to enhanced citation management tools, scholarly publishing guidance, additional open-access journals, etc.

(Combined cost for institutionalizing most of these initiatives, except as noted above, would be low: $, as it mostly involves coordination between the OGS and offices on campus)