

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCES

Report to President Seligman on Recommendations for the University of Rochester's Technology Commercialization Program

1. Executive Summary

The mission of a great research university is the creation and dissemination of knowledge through teaching and research. An important outcome from teaching and research activities is the creation of intellectual property, inventions, and new technologies. Accordingly, the technology transfer function of our University seeks to optimize the long-term benefits of these innovations for the advancement of the University's mission and for the betterment of the society that we serve.

The complexity of the University's role in translating innovations to public use means that technology transfer has more of a hybrid function than many other areas within the University. Technology transfer officers must provide service to the faculty and ensure that commercially useful inventions are patented, but they are also responsible for negotiating with industry and generating revenue. These goals can sometimes conflict with each other and pull in opposite directions. The Steering Committee believes these diverse objectives can be managed within the current technology transfer process so long as there is a clear strategic direction and clear University-wide coordination of policies and procedures. We see the broad strategic direction of the technology transfer function as supporting the creation of intellectual property within the University and optimizing its translation to public use and benefit. Other services related to the technology commercialization process are also important to the University's vision and mission; however they should not pull resources away from the technology patenting and licensing process.

The Committee commenced its work with the knowledge that the University's technology commercialization process has been among the best in the country. Metrics available through the Association of University Technology Managers (AUTM) demonstrate that we have consistently been among the top ten universities in the country in generating royalty revenues. We also benchmark well with our peers in the number of patents we file, in the number of invention disclosures we receive and in the number of licensing or similar transactions we complete each year (see [Appendix 3](#)). However, the technology transfer landscape is changing and US research universities have been criticized by some in industry as being too rigid, unsophisticated and slow for the new environment. The 2004 Report of the Council on Competitiveness on Rochester's economy, while acknowledging the royalty success of the University of Rochester, challenged the productivity of our technology transfer office on measurements related to

patenting, licensing and spin-offs when normalized for the amount of its research funding.¹ The focus of the Committee's work was on how to build on the strengths we have already established so that the University and the public could get even more benefit from the technologies we invent.

Four main areas for Recommendations were identified through the Committee's work. The first area relates to greater role clarity regarding the various services provided along the technology commercialization continuum. The Committee's first series of Recommendations provide for a clearer division of responsibilities among the various functions involved in the technology commercialization process. Specifically, the Offices of Technology Transfer should focus on the core services of reviewing invention disclosures for potential commercial value, prosecuting patents and licensing our technologies. These core services are the base of the pyramid of objectives the University must achieve in the commercialization of our technologies. We need to ensure that these core services are not diluted by a myriad of other, sometimes competing, tasks and objectives. Related services, such as negotiating material transfer agreements, building corporate alliances and nurturing start-ups, should be resourced and managed so that the core services are not compromised.

The second area that engendered Recommendations addresses the structure for coordinating technology commercialization activities, procedures and policies, where appropriate. Many of the services along the technology commercialization continuum overlap. Because of their boundary-spanning roles and evolving nature, the technology commercialization activities create on-going policy and prioritization issues that must be addressed. As a result, our second set of Recommendations provides for a structure for the technology commercialization process that would be coordinated in a robust fashion so that issues that arise can be addressed in a consistent and timely manner, while still allowing latitude for the Medical Center, the College, the Laboratory for Laser Energetics and other schools and divisions of the University to have different strategic initiatives in this area.

In considering this second set of Recommendations, the Committee sought to ensure that the coordination of our activities provided an appropriate level of consistency while still being nimble, dynamic and responsive to the transactional nature of the technology commercialization work. While we recommend retaining two Offices of Technology Transfer, we also propose the creation of a committee (the "policy committee") to coordinate the activities and policies that should be consistent within the University. The Committee decided that the corporate alliances function should have University-wide responsibility, but for now should stay within the Medical Center. Its efforts to liaise with industry would be overseen by the policy committee and it would have a strong liaison with the corporate relations function within the Office of Advancement.

The third area of improvement reflected in the Recommendations concerns the need for our technology commercialization work to be competitive with other world class research

¹ "Fanning the Flames of Economic Progress: Igniting Greater Rochester's Entrepreneurial Economy" Prepared by the US Council on Competitiveness. September 2004, page 8.

universities. A primary goal of each phase of the technology commercialization process at the University must be to be user-friendly, efficient, effective and expert. Our researchers need to perceive that the support they receive from the University for the translation of their discoveries and inventions to public benefit through commercialization is first class, supportive, timely and professional. Likewise, the businesses that sponsor research or license inventions, and those that nurture, manage or invest in our start-ups, should perceive that we are fair, reasonable, expert and prompt in our transactions and external relationships. In order to achieve this important goal, and the others set by senior leadership for our commercialization activities, the administrators who direct the various aspects of the University's commercialization process should receive clear goals with relevant, articulated performance metrics, from the policy committee and the senior leadership of the relevant divisions. Our report recommends the immediate implementation of a reporting process that will serve as the first step toward the development of meaningful performance metrics for our technology commercialization activities. Our metrics should allow for comparison to other research universities to ensure that we measure and encourage the type of performance that makes our commercialization process world class.

These standards of world-class performance are embedded throughout the more specific Recommendations in this Report.

Finally, the Committee defined some of the most important priorities that should be addressed by the University in an area that can be loosely defined as "economic development." This prioritization is important to ensure that the expectations of the community regarding the University's contribution to the economic development of the region are aligned with the University's own expectations and with the skills and resources that we devote to that function. We recommend that the economic development initiatives of the University initially focus on (1) the development and regular communication of the key metrics that measure the University's contribution to economic development; (2) the encouragement of entrepreneurship within the University and, to the extent feasible, within the regional community; (3) the development of one or more programmatic approaches to further develop immature University technologies; and (4) the standardization of the resources provided to start-up companies who license the University's technologies. The policy committee should be charged with initiating the appropriate action (presumably by delegating to ad hoc committees or specific University personnel) to further these economic development initiatives.

2. Committee Charge and Summary of Committee Activity

The Committee was charged with reviewing, prioritizing and addressing the key policies and issues in the technology transfer, commercialization and corporate alliances processes at the University. More specifically, the Committee was charged to recommend to the President ways to (1) more effectively steer our intellectual property process in a manner that is best aligned and integrated with the University's broader goals; (2) ensure that critical business transactions in the technology transfer area are

known and understood by key constituents within the University; (3) ensure that significant policy decisions are considered by the appropriate group of University personnel; and (4) ensure that an adequate knowledge of, and support for, the technology transfer process is disseminated throughout the University. A copy of the full Charge to the Committee is contained in Appendix 1.

In fulfilling its charge, the Committee met over a ten-month period and reviewed the major aspects of the University's current process of patenting inventions and transferring technology to the commercial world. The Committee benchmarked the University's process against those of comparable research universities. We spoke with representatives from the venture capital arena and from local agencies such as High Tech Rochester and Excell Partners who have community roles that overlap ours. We interviewed other research universities and our faculty concerning the translation of our technology and knowledge into the community. Finally, we conducted surveys of our faculty and our commercial customers to ascertain their perception of and satisfaction with our technology transfer operations. A more detailed summary of the Committee's work is contained in Appendix 2, which includes agendas from each of the information meetings. A full copy of the materials reviewed at each of the Committee's meetings is provided under separate cover.

3. Key Issues Identified Through Committee Work.

The final stage of the Committee's work involved a process of distillation. The technology commercialization continuum is very complex and interfaces with many offices of the University. Even a quick perusal of the materials contained in Appendix 2 will give some flavor of the complicated issues in this area. A comprehensive report on all of the issues raised during the tenure of this Committee would result in a veritable treatise on technology transfer that would be neither helpful nor responsive to the specific charge.

From all of the information the Committee examined, we sought to distill the most critical issues that should be addressed to set the course for the improvement of the technology commercialization function. In so doing, the Committee identified and preserved those aspects of the technology transfer process that contribute to the University's strong results over the past years. We considered and rejected ideas for substantial organizational or operational changes to the process since our relative success among our peers suggested that major change is not necessary. We have recommended alternatives in those aspects of the technology transfer process where improvement can bolster the efficiencies and results in the process.

The first set of issues the Committee has identified and addresses in its recommendations relates to the clear definitions of roles and tasks for the technology transfer offices. What objectives should the technology transfer offices be fulfilling? While in a perfect world, the answer would be "do everything," resource constraints make it impossible for the Offices to continue to do all the things on their plates and meet the level of excellence the

University should expect. The Committee took a hard look at those myriad tasks; its recommendations in this area suggest a refocus on the core chores of the technology transfer offices, and that other tasks should be clearly defined and provided separate resources in a way that will not detract from core tasks.

The second set of issues relates to the structure and operation of the technology commercialization process. To what extent should technology transfer be faculty-centered? Should we merge some or all of the office functions currently performed by the two Offices of Technology Transfer? What effect will structure have on the ability to service faculty? How do we deal with the marked differences in licensing different types of sciences? If technology commercialization services are located in separate offices, how do we ensure that we communicate and coordinate? How do we best meet the community's need to have clear points of contact within the University? The Committee's conclusions on the best ways to address and balance these issues are found in the Recommendations set forth in this Report.

The final set of issues relates to what the University needs to do to make certain that the technology commercialization process is user-friendly and responsive to its internal and external customers. How do we ensure that the technology transfer personnel stay closely in touch with faculty in our diverse departments, laboratories, and centers, while also presenting a single point of interface with the community? How can we provide structure and metrics in a way that will improve our communication and responsiveness to all our constituents? Throughout its tenure, the Committee continually referred to the overriding principles of ensuring that the technology commercialization process is (1) user-centered and focused on meeting the needs of faculty and industry; (2) as simple to access and use as possible; and (3) accountable for its performance.

4. Recommendations

CLUSTER ONE: Recommendations Related to Clear Role Definitions in the Technology Commercialization Process; Re-focus on Core Functions

So that semantics do not interfere with the communication of our Recommendations, the following definitions are necessary:

“Core technology transfer services” or “core services” refers to the work involved in assisting faculty with the protection of intellectual property, education of faculty regarding the patenting process, assessing and evaluating invention disclosures, filing and prosecuting patents from invention disclosures which have commercial promise, and marketing, licensing and monitoring those technologies. When appropriate, these services can include licensing technologies to start-up companies founded by University inventors, but do not include tasks related to the actual structuring and formation of start-up companies. Core technology transfer services also do not include the economic development services, industry sponsored research services or corporate alliances

services defined below, although the personnel providing core technology transfer services would need to work closely with those providing each of these other services.

“Economic development services” refers to the work involved in assisting the business community to use our technologies and other resources. This work can include assisting entrepreneurs in the establishment and operation of a start-up business, acting as a networking center, and connecting faculty researchers to entrepreneurs and other community resources (e.g. legal, financial, accounting, marketing experts, and entrepreneurial managers, as needed). They also might include other community outreach efforts on entrepreneurship training, technical job training, assistance in making equipment and/or facilities available to industry, and coordination of University efforts in this area with government, economic development agencies and other universities. The precise list of services provided will depend on the resources made available for this function and a senior management view of the appropriate role of the University in this area.

“Industry sponsored research services” refers to the work involved in negotiating industry sponsored research agreements. The issues involved in industry-sponsored research agreements overlap with services provided by ORPA (Office of Research and Project Administration), the Office of Technology Transfer and the Office of Corporate Alliances, so coordination of this function is critical.

“Corporate alliances services” refers to the work involved in developing, facilitating and maintaining research relationships between the University and industry, marketing technologies to industry and acting as a link between individual researchers and industry sponsors.

“Technology commercialization process” refers to the broad process of taking university knowledge and transferring it to the public through a business transaction. This activity includes the core technology transfer services, but also the economic development services, industry sponsored research services, corporate alliances services and any other mechanism that translates our University knowledge to public benefit and commercial use.

Recommendation 1: The Committee recommends that the Offices of Technology Transfer (OTT) focus primarily on core technology transfer services; and specifically that these services focus on three key priorities:

- **To optimize the impact of faculty discoveries that can be “transferred” to public use on reasonable commercial terms.**
- **To (1) provide excellent service and support to faculty in technology protection and commercialization and useful education, as needed, on the patenting and licensing process; (2) effectively communicate with faculty and their departments about the status of a particular invention; and (3)**

- effectively communicate with senior University leadership and with the broader University community on OTT's activities.
- To be efficient, effective and expert in dealing with external industry partners, whether they are potential or existing licensees, start-up companies or established corporations, or other not-for-profit or government entities.

Recommendation 2: The Committee recommends that performance measurements for the core technology transfer services be set to ensure that, given our limited resources in this area, sufficient time is being spent on inventions that have the best potential for success. The measurements should assess the efficiency and effectiveness of the technology transfer process and should allow some comparison to other peer universities. The measurements should be quantitative and qualitative. They should address the quality of the patenting process, the use of resources in marketing efforts (i.e. licensing) and the service level to the faculty and licensees, at a minimum. They should include both short-term strategies and tasks and long-term trend data. The measurements should then be tracked and reported periodically to the policy committee and to senior leadership.

Recommendation 2(a): The Committee recommends that the Offices of Technology Transfer initiate enhanced standard reporting. We recommend that a quarterly report be submitted to the policy committee on:

1. List of invention disclosures received within the quarter (listed by name of principal investigator);
2. List of licenses and options executed within the quarter (including identification of the technology, nature of the agreement and name of counterparty to the agreement);
3. List of other agreements executed within the quarter (including identification of the technology, nature of the agreement and name of counterparty to the agreement);
4. License income received within the quarter (listed by licensee) excluding direct reimbursement of patent expenses;
5. List of provisional patent applications filed within the quarter (along with date filed);
6. List of utility patent applications filed within the quarter;

7. **List of PCT and non-US patent applications filed within the quarter (listed by technology, type of application and country of filing);**
8. **Patent expenses incurred;**
9. **Patent expenses reimbursed by licensees;**
10. **Identification of start-up companies or potential start-up companies to whom University technology may be licensed (including an explanation of the proposed work to be done by OTT or others at the University and the resources required); and**
11. **Identification of licenses and options under negotiations (including identification of the technology, nature of the agreement and name of counterparty to the agreement).**

In addition, the Quarterly Report should include a section on Prospective Activities Planning which would include:

1. **Plan of key marketing priorities for upcoming quarter (including list of key technologies to be marketed);**
2. **List of provisional patent applications due for conversion in upcoming quarter and status of our decision-making process on them. Written evaluation of commercial potential of the technology should be included for any provisional that is being considered for conversion;**
3. **List of utility patents due for non-US filings and status of decision-making process on them; and**
4. **List of education and outreach activities planned for upcoming quarter.**

Each Quarterly Report should also include a Progress Report that summarizes projects that were active and discussed in previous reports. This Progress Report should reflect back on the Prospective Activities Planned in the prior quarter and discuss how and why actual activities differed from those planned. It should highlight priorities, licensing opportunities and start-up activities that have changed since last reported. Each Quarterly Report should highlight any key operational or policy issue that should be addressed by senior leadership or the policy committee.

Finally, each Quarterly Report should track all the information reflected above on a technology-by-technology basis so that it is easier to see how a technology is being taken toward commercialization.

Recommendation 2(b): The Committee recommends that once the core technology transfer function is refocused and quarterly reporting is under way, the Offices of Technology Transfer, in consultation with the policy committee, should develop objectives and measurement metrics. Metrics should include the following:

- Metrics that measure patenting costs;
- Metrics that measure efficiency of the technology transfer process;
- Metrics that assess customer satisfaction (internal and external);
 - Licensee satisfaction
 - Faculty satisfaction
 - Responsiveness measurements
- Qualitative measures of the success of the function such as the impact of products developed on the community, quality of life, etc.;
- Measurements regarding the likelihood of a successful transfer (e.g., the probability of a patent filing being licensed vs. closed)

The Association of University Technology Managers has recently commenced an effort to evaluate metrics reporting in technology transfer. It is possible that much of the work done under this AUTM initiative will be useful to us.

Recommendation 3: The Committee recommends that the University's priorities in economic development initiatives should be clearly defined and resourced as appropriate. Resources for economic development initiatives should be identified and managed separately from those resources that relate to core technology transfer services. The Committee's specific suggestions for the University's initial priorities in this area are set forth in **Recommendation 9**.

Recommendation 4: The Committee recommends that primary responsibility for industry-sponsored research projects stay within the Office of Research and Project Administration (ORPA) and that ORPA should dedicate particular staff to those projects who can become expert on the unique issues involved in industry-sponsored research projects.

Recommendation 4(a): The Committee recommends that ORPA continue its collaborative approach for all industry-sponsored research projects so that representatives from OTT and from the Office of Counsel are part of a team for each industry-sponsored research project.

Recommendation 4(b): The Committee recommends that the primary responsibility for Material Transfer Agreements (MTAs) and Confidentiality Agreements (CDAs) should be moved from OTT to ORPA. At least two additional positions will be needed in ORPA to handle the increased workload. ORPA's staffing level for these new responsibilities should be reviewed during the 2007-2008 budgeting process.

Recommendation 4(c): ORPA should initiate a standard report to the policy committee on Industry-Sponsored Research Agreements, MTAs and CDAs, and develop appropriate metrics for those services, including assessment of faculty satisfaction with responsiveness.

Recommendation 5: The Committee recommends that the mission of the Office of Corporate Alliances (OCA) should be to serve the entire University. We recommend that the services provided by OCA should remain administered through the Medical Center for the present time. Records of activities should be kept and an appropriate charge-back reimbursement system instituted to other divisions who are benefited by these activities.

Recommendation 5(a): OCA should actively communicate to the Medical Center, the College and other affected schools concerning its plans and efforts on their behalf, including communication of any anticipated and significant expenditures, before they are incurred.

Recommendation 5(b): The Committee recommends that the Director of the OCA and the Director of Advancement's Corporate Relations Office meet regularly to communicate and coordinate their activities.

Recommendation 5(c): We further recommend that OCA, OTT and ORPA each feed corporate data into the database in Advancement so that we can begin to develop more robust corporate contact information that can be used throughout the University.

Recommendation 5(d): The Committee recommends that OCA should be reviewed by the policy committee at an appropriate time in the future to determine whether it should continue as a distinct entity and, if so, to establish funding for the future and to ensure that it is

optimally organized to facilitate industry's use of our research and technology. OCA should work with the policy committee to develop appropriate reporting and metrics standards.

Rationale for New Role Definition Recommendations:

We want our University to be known for its expertise and approachability in the technology commercialization area. We believe that such a reputation will make us a magnet for good, ambitious, innovative faculty and a desirable research partner for government, foundations and businesses. Our Recommendations 1 through 5 set up clearer responsibilities and points of contact for the various services that are offered along the continuum of the technology commercialization process. As a consequence, constituencies both inside and outside the University will have a better understanding of who to contact with questions regarding patenting, forming a start-up company, industry-funded research opportunities, etc. In addition, the improved role clarity will allow the administrator in charge of each set of services to focus on key goals and deliverables specifically tailored for those services so that each can achieve a high level of excellence, compliance, flexibility, efficiency and user-friendliness.

A principal objective of the Bayh-Dole Act is to stimulate the commercialization of federally-funded inventions by ensuring the transfer of federally-funded technology to the private sector². In its acceptance of federal research dollars, the University has an obligation to ensure that when it elects to take title to inventions created with federal funds, it is using diligent efforts to have those inventions properly patented and used for public benefit. The core technology transfer services at the University provide the necessary infrastructure to fulfill this function, but they are currently under-resourced. The staff is spread too thin to accomplish its core functions as effectively and efficiently as needed partly because of its responsibilities related to a myriad of ad hoc issues ranging from our start-up companies and other services related to economic development to MTA and CDA negotiation.

For instance, nurturing the handful of start-ups that are created each year takes considerable time within OTT and competes with the patenting and licensing of other technologies. Although the core technology transfer services should certainly continue to negotiate licenses with start-up companies where appropriate, given the size and expertise of the OTT staff, they should not venture too far into the area of rendering business assistance to the start-ups regarding corporate organizational structure, financing needs and other internal workings. We need to standardize the approach we take to assisting start-ups (with an emphasis on networking/outsourcing many business development activities) so that we can effectively use our limited resources, optimize access of our start-up companies to business expertise, and avoid institutional and individual conflicts of interest with these nascent business entities and their investors.

² Taken from NIH Statement on iEdison utilization reporting.

OTT resource constraints, caused in part by multiple duties, have taken away from the time the technology transfer staff spends to educate and communicate with the researchers. The faculty survey³ indicated that faculty wanted more education on the patenting process and better access to OTT staff for questions regarding the commercialization of their technologies. In addition, the survey showed OTT could improve communication to inventors on the status of the protection and marketing of their inventions, and to the larger university research community on pertinent activities relating to the commercial use of our technologies. Faculty who had the attention of OTT praised its performance. Others, however, whose inventions or patents were not the subject of marketing efforts or communication, were displeased. We also were told by venture capital representatives, licensees and community entrepreneurs that the University should be timelier and more user-friendly, and should not venture into business support areas where it lacks experience or expertise.

The number and complexity of MTAs and CDAs needing review and comment from OTT has risen dramatically. For Fiscal Year 2005, the University processed more than 600 of these agreements; and they are not the “cookie cutter” agreements they once were. Substantial time is being undertaken to process, draft and negotiate MTAs and CDAs. Again, there are opportunity costs to the OTT staff time invested in the review and negotiation of these agreements, and the faculty survey results indicated that many members of our faculty are not satisfied with our turn-around time. Unresponsiveness in this area can delay or substantially interfere with research, and gives the University a reputation, internally and externally, for being bureaucratic rather than facilitative.

ORPA is already structured to deal directly with researchers on grant administration and is better positioned to administer MTAs and CDSs more effectively and efficiently. Some of the key issues in MTAs are also present in industry-sponsored research agreements, which are administered and negotiated by ORPA personnel. In addition, MTAs are often the first step toward an industry-sponsored research agreement, so it would be more user-friendly for all concerned to keep one contact person for both transactions.

Although the Committee believes that a sharpened focus on the core technology transfer services is needed within the Offices of Technology Transfer, we also recognized that many of the services OTT currently provides related to nurturing our start-ups and nascent technologies are important to achieve objectives of the University and must be continued. These non-core services need to be carefully resourced so that we are sure other important work is not being put aside and that we have the required expertise to carry through the initiative. It may be more appropriate, for instance, that many of these activities be outsourced to those with sufficient resources and business expertise. See **Recommendation 9**.

The University is, and should be, a natural leader in knowledge-based economic development in Rochester. New products, new companies and new industries are a direct result of the innovations that occur at research universities such as ours. But even within

³ The consolidated results of the Faculty Survey are included in [Appendix 7](#) to this Report.

the Committee, there is disagreement concerning what it means for the University to take an active role in economic development. Some members thought our efforts in research and education provided adequate benefit to the community, while others thought we should be more proactive in partnering with our community to encourage economic growth. In the end, the Committee decided that the role of the University in the community's economic development needed a broader University discussion. The direction and priorities given by senior leadership to these specific economic development initiatives, as well as the allocation of resources to them, will ensure that time is being spent on those initiatives that are most important.

With respect to economic development as it relates to the use of our technologies, however, the Committee did reach consensus on Recommendations that encourage an initial focus on key activities that will likely add the greatest benefit to our technologies. The Committee is purposely quite precise in defining the key economic development priorities so that (1) we are sure we keep the activities aligned with the University's needs and abilities; (2) we do not over-commit what we can deliver to the community; and (3) the community does not have unrealistic expectations of what we can provide. Additional recommendations related to the University's economic development initiatives are included *infra*. See **Recommendation 9**.

The current Office of Corporate Alliances has been in existence for a little over one year and is funded by the Medical Center from available government funds. Its mission is to solicit corporate interest for the Medical Center's unique research capabilities. A majority of our industry-sponsored research is generated either through an existing relationship between a researcher and a company or through unsolicited company inquiry. The Office of Corporate Alliances' primary role in the past year was to market our research capabilities and technologies more proactively to targeted companies. The government funding for OCA runs out this year, so a review and recommendation for this Office is timely.

The University needs to focus on long-term relationships with commercial entities that fund research, license products, and employ our students. These long-term relationships require continuous engagement over an extended period of time. Corporations prefer to have one primary contact who can put them in touch with the people within the University who can respond to their specific need or interest. Over time, many different people within the University may become involved with a company, and it is vital that our point of contact can assure long-term effective communication with that corporate partner and within the University.

Commercial entities interested in funding research, licensing inventions, or employing researchers, normally don't operate from philanthropic motives, even if there is a possibility that they may provide a genuine gift or sponsorship. Therefore, the presumption will be that the principal relationship contact with such commercial entities will be overseen by an administrator who is connected with the research and technology commercialization functions (presumably the Office of Corporate Alliance or its successor.) Good liaison and communication, of course, must be maintained with the Advancement Office's corporate relations officer. Mutual communication is essential.

The Advancement Office concurs with our Recommendation that the Director of each of the Office of Corporate Alliance and the Corporate Relations Office in Advancement meet regularly to share their top priority lists of corporate contact projects and decide which office will take the lead for any overlapping corporate relationships.

Our Recommendation related to the responsibility of the various Offices to populate the Advancement Office's database was based on the Committee's perceived need for more robust corporate contact information. The Advancement Office database is being established using state-of-the-art relationship management software and therefore is the most appropriate place to house central contact information. Those in the University who deal with commercial entities in connection with funding research, licensing or similar interests should check the Advancement database for information about other useful contacts or potential interests within the University. Funneling all of our information into this database, however, is not intended to wholly replace databases currently used by OTT, OCA or ORPA. Rather, the consolidation of data is recommended to enhance communications and develop the long-term usefulness of the Advancement Office's database to a broader set of constituents within the University. The Committee also acknowledged that information about faculty consulting relationships would be useful to add to this database, but whether and how to seek this information should be deferred until after the University has successfully accomplished the current objectives for the database.

The Office of Corporate Alliances is so recent in operation that it is hard at this time to determine if it is the most effective and efficient way to handle our corporate relationship needs. Once the policy committee is up and running, OCA should be evaluated to determine the best way to organize the University-wide function of facilitating corporate relationships that deal with research sponsorship and technology commercialization. OCA is currently compiling information for such an evaluation. Once a determination has been made about the appropriate structure of this function, the policy committee should set goals and performance metrics for OCA.

With a renewed focus by the Offices of Technology Transfer on the core technology transfer services, and more specific role definition for OCA, ORPA, and our economic development initiatives in the technology commercialization area, several important benefits can be achieved. First, the personnel performing these services will be able to re-focus on their key objectives for improved performance. With a sharpened focus on its central tasks, OTT staff should be able to better serve faculty through education about the patenting process and information on efforts to commercialize their research. With concentration on key functions, there should be more time available to market existing patents and to negotiate licenses. Response time to both faculty and external parties should improve. Second, the proper amount of effort can be expended in defining and building the University's role in the areas of industry-sponsored research, corporate alliances and economic development without the risk of dilution of focus on our core technology transfer tasks. Third, a more accurate assessment can be made of the amount of University resources being devoted to each type of activity, the amount of resources needed, and whether adjustments should be made to add or decrease resources devoted to various aspects of commercialization. These analyses should ensure that resources are

being used in a way that is best aligned with the University's overall mission and that is efficient and effective.

CLUSTER TWO: Recommendations Related to Structure of Technology Commercialization Process

The Committee recognizes that there is inherent tension among many of the important principles that should be considered when creating an organizational structure. On the one hand, we are one single university and must implement our policies consistently across departments and in an integrated manner. On the other hand, we need to be nimble, dynamic and responsive in the way we operate. For greatest impact, we should be seen as one cohesive research University, but we need to be able to respond to the diverse objectives of our colleges, schools, departments, divisions and centers. Our recommendations on structure attempt to balance these competing principles in a way that ensures the highest quality, consistency and efficiency of the services we provide.

Recommendation 6: The Committee recommends that core technology transfer services should continue to be delivered by the current Offices of Technology Transfer.

Recommendation 6(a): Core technology transfer services for technologies of faculty inventors of the Medical Center should be delivered by the Office of Technology Transfer for the Medical Center. The Office should report to the Dean of the School of Medicine and Dentistry with respect to delivery and budget of these services.

Recommendation 6(b): Core technology transfer services related to technologies of faculty inventors of the College, the Laboratory for Laser Energetics, and the other non-Medical Center colleges, divisions and centers should be delivered by the Office of Technology Transfer for the College. The Office should report to the Dean of the Faculty of Arts, Sciences and Engineering with respect to delivery and budget of these services.

Recommendation 6(c): The senior leadership responsible for each Office of Technology Transfer should consider whether adequate resources are available within the office to perform the responsibilities assigned to them to the optimum level of performance.

Recommendation 7: The Committee recommends that the two Offices of Technology Transfer work closely together at a staff level and that this cooperative operation be monitored by means of a policy committee (see **Recommendation 8**).

Recommendation 7(a): The two Offices of Technology Transfer should present a common “face” to the outside world. This includes website coordination, seamless internal transfer of relevant information, common marketing materials, etc.

Recommendation 7(b): The two Offices of Technology Transfer should operate administrative functions (invention disclosure and patent tracking, iEdison reporting, financial accounting, etc.) in as similar a fashion as practical to ensure that processes are robust, consistent and synergistic.

Rationale for Recommendation for Keeping, but Coordinating, Two Offices for Core Technology Transfer Services:

The Committee members believe that the core technology transfer function should be faculty-centered and department-centered to the fullest extent possible. This implies an organizational structure that can be most responsive to the faculty and to the individual needs of the schools and laboratories. For a majority of the Committee, this suggests that centralization is not ideal, at least not at this time, and that the current structure, in which two offices on each of our major “campuses” provide service to the faculty for that campus, is best. In addition, the focus on individual laboratories housed on each campus allows the technology transfer professionals to identify and respond to commercial realities of different research disciplines and related industry sectors. For instance, in the computer sciences area, where technology is turning over faster than the USPTO can issue patents, it is not unusual to have more open disclosure of inventions and to license software copyrights or patents on a non-exclusive basis. Within the Medical Center, however, the biotech and pharmaceutical industries usually require exclusive licensing of patents as a prerequisite to any deal because of the long time line and high costs to develop a therapeutic.

Moreover, since faculty members invent technology, and they and their departments receive the majority of the revenue that comes from commercializing it, it makes sense that the funding for the core technology transfer services be maintained within each division so that costs can properly be allocated as part of departmental budgets.

There have been a number of studies that attempt to identify critical success factors for technology transfer activities at research universities.⁴ One of the key critical success factors identified was the willingness of the faculty to take part in this process. Whether referred to as the “social capital” a faculty member feels in participating, or the “ethos” or “culture” present within the university about commercializing technology, it is critical

⁴ Ad Hoc Technology Transfer Advisory Committee Report, University of California system. March, 1994. Bay Area Life Sciences Strategic Action Plan: Taking Action for Tomorrow. Organizational Structure as a Determinant of Academic Patent and Licensing Behavior, Journal of Technology Transfer 26, 21-35, 2001.

that faculty feel that this activity is being encouraged and that there are accessible, approachable and supportive resources.

On the other hand, there are several important reasons why strong coordination of the activities of the Offices is essential. First, we have received clear feedback from the community that the two offices create some confusion about which one to contact. Second, more and more of our research and inventions involve cross-functional collaborations and, therefore, an increasing need to coordinate the commercialization activities between the two campuses. Third, an increased use of web-based communications in the marketing of inventions makes it critical to have a user-friendly, easily searchable and legible web site that includes information on how to access services most efficiently. Finally, we need central coordination to ensure that the University's broader interests are protected, to ensure policy consistency and to assist in fostering mutual assistance between technology transfer functions.

Some of this coordination can be accomplished by a central policy committee, see **Recommendation 8** below. Most of the day-to-day work, however, must be done by the staff, particularly the directors, of the Offices. The Committee wants to emphasize that there must be regular, interactive, timely and personal communication between the staff of the two Offices so that a strong working partnership is developed. Some of the key tasks that must be coordinated include creating a common, user-friendly website with attendant search and contact capabilities, developing common marketing databases and best practices, and establishing common data collection and revenue recordkeeping processes.

Recommendation 8: The Committee recommends a University mechanism to coordinate the technology commercialization process at a senior leadership level. We recommend that a permanent committee (which we hereafter call the “policy committee”) be established that has policy making, coordination and monitoring authority over the core technology transfer services as well as the other services provided in the commercialization process (economic development, industry-sponsored research, commercial alliances).

Recommendation 8(a): The policy committee should have the responsibility to:

- monitor the application of University policies related to Intellectual Property and technology transfer and recommend necessary or appropriate changes to existing policy,
- verify that OTT and OCA carry out the University's mission in accordance with the policies, procedures and objectives established,
- review annually the operating results of OTT, OCA and ORPA (with respect to Industry-Sponsored Research Agreements, MTAs and CDAs) and assess them against the established measurements,

- arbitrate any dispute in policy interpretation or dispute between inventors or their respective laboratories, departments, schools or divisions,
- approve and oversee the endeavors to nurture nascent technologies,
- consider whether to establish an advisory committee comprised of faculty, alumni or other business leaders, and
- review the overall technology commercialization process and organization and recommend or make any adjustments necessary to increase the efficiency or effectiveness of the process.

Recommendation 8(b): The policy committee should be comprised of the Provost⁵, a designee of the Dean of the Faculty of Arts, Sciences and Engineering, and a designee of the Senior Vice President for Health Sciences. It is essential that the designees from the College and the Medical Center each have direct management responsibility for their respective Office of Technology Transfer.

Recommendation 8(c): Ex Officio members of the policy committee should be the President, the Senior Vice President of Health Sciences and the Dean of the Faculty of Arts, Sciences and Engineering, who should become involved when significant decisions make their input appropriate.

Recommendation 8(d): Other key leaders concerned with technology commercialization (e.g. those from ORPA, the Office of Counsel, Advancement, Government Relations, etc.) should be regularly consulted by the policy committee on the issues that might come before it.

Recommendation 8(e): Staff support to the policy committee (e.g. briefing of the issues, metrics reporting, policy considerations, etc.) should be sought from the Directors of the two Offices of Technology Transfer and the Office of Counsel.

Rationale for Strong Central Coordinating Function at the Senior Leadership Level

Technology transfer professionals must be allowed a relatively high degree of autonomy in evaluating the patentability and potential commercial application of reported inventions, and in negotiating the transactions that allow the inventions to be commercialized. The Committee believes this autonomy is necessary so that we can be responsive and reactive during a patent prosecution or license negotiation. Nonetheless, technology transfer must operate within the University's broader policies, standards and

⁵ The Provost would act as a representative for the Laboratory for Laser Energetics, the Simon School, the Eastman School, the Warner School and any other University unit which does not report to the College or the Medical Center.

strategies, and decisions should be made within the context and framework that represent the University's overall philosophy. In addition, technology transfer services should be coordinated between the two campuses and with other overlapping University services to ensure that there is consistency and fluidity in all aspects of its operations.

The policy committee should serve as the focal point for synchronizing these activities. Some members of the Committee raised concerns about the potential workload of this coordinating responsibility if left to such a committee. Questions were raised as to whether one committee could oversee policy matters, manage uniform metrics and measurements, deal with policy issues related to University equity investment in start-ups, etc. Would busy University leaders have the time to fulfill this important responsibility? In addition, a review of the structure of technology transfer at other research universities showed that almost all of our peers accomplished coordination through a central research position. Of the fourteen other research universities we examined, all but three had structures in which technology transfer reported to a university vice president or vice provost for research. In the three other cases, the technology transfer group reported to a university provost or president. A summary of the various structures can be found in Appendix 4.

Despite these concerns, a majority of the Committee believes that, at this time, a policy committee would be the most effective mechanism to coordinate key policy issues and assure joint oversight of these functions. The University's de-centralized culture and the recent appointment of a new Dean of the Faculty of Arts, Sciences and Engineering and a new Senior Vice President for Health Sciences were major factors in the Committee's lack of support for a central research position. Once a policy committee begins to operate, the structure can be tested for effectiveness and additional recommendations may result. For instance, perhaps sub-committees or separate ad hoc committees to undertake portions of its responsibilities would be appropriate.

CLUSTER THREE: Recommendations related to University's Role in Economic Development

The University must ensure that the expectations of the community regarding our contribution to the economic development of the region are aligned with the skills and resources that we devote to that function. The Committee believes that the University should be quite precise in defining what we are setting out to achieve so that there is clarity in the nature of the resources that the University can provide to the community.

Recommendation 9: The University's initial priorities in economic development should be to:

- (1) develop and widely publicize metrics and related data to define the University's contribution to economic development annually and over time,**
- (2) encourage entrepreneurship within the University and, to the extent feasible, within the regional community,**

- (3) create one or more programmatic approaches to develop University technologies that have commercial potential, but need further research and development to be commercially viable, and
- (4) identify, improve and standardize the resources we can provide (directly, or through outsourcing or making introductions to external providers) for start-up companies who license the University's technologies.

Recommendation 9(a): The Committee recommends that the Office for Government Relations develop metrics and collect the data needed to reflect the University's contribution to economic development and growth in our region and nationally, annually and over time. It should work with the Vice President for Communications to disseminate this information to the public and to the University community.

Recommendation 9(b): The Committee recommends that the University personnel responsible for administering the Kauffman Foundation entrepreneurship grant explore ways the University could foster entrepreneurship inside the University and, to the extent feasible, within the regional community.

Recommendation 9(c): The Committee recommends that the policy committee (or an ad hoc committee or administrator charged by the policy committee and the President) look at ways the University could partner with resources already present in our community, and seek additional resources from donations or outside investors so that more of our technologies can mature toward commercial viability to a stage where they would be attractive to licensees.

Recommendation 9(d): Although any promising idea to mature our technologies should be explored, there are several currently under consideration that should be pursued, evaluated and implemented if found sound and potentially beneficial:

- Encouraging an entity capable of early stage drug development and testing to locate in the Rochester area.
- Attracting external funding to develop selected University technologies to a commercial stage.
- Establishing a business entity with venture capital investors that would develop selected University technologies to a commercial stage.
- Leveraging the Clinical Translational Science Award to encourage progression of various health science discoveries to the stage of deployment for the benefit of public health, as well as to provide training for individuals seeking careers with an emphasis on

bringing scientific discoveries to the stage of clinical health care application.

Recommendation 9(e): The Committee recommends that the policy committee oversee the development of a communication and education plan to publicize to interested faculty and potential business partners the resources available externally (whether local, national or international) for supporting the creation and development of start-up companies based on licenses of University created technologies. In parallel, we should encourage the community to continue to grow its pool of risk capital resources and cultivate investors who understand the unique challenges of high technology business development.

Recommendation 9(f): The Committee recommends that the following set of principles governs the University's assistance to start-ups:

1. Our primary focus in University assistance with respect to creation of companies based on licenses of our technologies is to identify, locate and link our inventors to external resources who can provide advice on creation and business plan development, and to resources who can assist in finding capable business management and adequate financing.
2. The University should ensure, to the extent possible, that any start-up to whom we license technology has competent management before the license is executed.
3. To the extent possible, all work undertaken to assist start-up companies should be done prior to licensing so that the University has as much confidence as possible that our technology is being licensed to an entity that can develop it. If necessary, OTT should consider issuing options to license (instead of longer term licenses) that are dependent on the optionee achieving certain formation milestones before the option can be exercised.
4. Inventors should clearly understand that our assistance with a start-up will be provided only if they request it, and then must be approved by senior leadership through the appropriate process.
5. When faculty members are involved in start-up companies, their time and effort commitments to the University may be adversely impacted. Thus, creation of start-ups based upon University research and faculty participation in start-ups are issues for review by senior academic administration.
6. OTT, with guidance of the appropriate senior administrator, will be responsible for ensuring that it is dedicating resources in this area wisely, and that other key activities are not being diluted.

7. **The University will ensure, to the extent possible, that its assistance to start-ups is user-friendly, responsive and expert and, if this is not possible, we will arrange for external assistance.**

Recommendation 9(g): The Committee recommends that all activities undertaken in the area of technology commercialization be consistent with the University’s Code of Conduct and other relevant University policies and guidelines. The relationship of a faculty member to a start-up company should be covered by a conflict of interest management plan. Any additional issues, such as use of University facilities, staff or students, needs to be disclosed and properly managed. Individuals involved in making licensing decisions on behalf of the University must not hold equity positions in companies being considered for such licenses, nor can they acquire future equity positions in these companies unless they can establish that their equity investment is on terms no more favorable than those available to any qualified investor.

Recommendation 9(h): The Committee recommends that the policy committee continue to review, monitor and develop the role we play in supporting start-up business activities so that the University has the best assurance that these companies will be healthy, growing companies.

Comments on Economic Development and University Resources (People and Funds)

One of the key principles encompassed in the Recommendations of this Report is that responsibility for tasks should be clearly identified with specific offices so that we can be sure those offices have sufficient staff and funds to accomplish their assignments. One of the main problems in the performance of the Offices of Technology Transfer is that they were provided resources to undertake core technology transfer tasks, but bit-by-bit additional responsibilities seeped into the offices. Under-staffing and under-funding to fulfill the broader set of responsibilities resulted.

The ideas generated by the Committee relating to what we can do to mature our nascent technologies and to assist start-up companies are very exciting and have the potential to help both the University and the region economically. We have recommended giving the policy committee the assignment of an oversight role in the development of these ideas, but currently there do not appear to be either qualified and available people or sufficient funds to develop these ideas to successful application. This raises the risk that responsibility for these initiatives will again “seep” into offices that may not have the expertise or time to handle them, or, if these new tasks are handled, attention and execution to other core tasks will lapse.

We recommend that the President address with his senior leadership team whether and how these initiatives should be staffed and funded.

Finally, we would like to note two points of caution. First, maturing our technologies to product viability and assisting start-up companies involve commercial skills that are not often present in University personnel. Second, these initiatives will involve partnering with our alumni or other external constituencies so it is vital that we undertake them with appropriate commitment and expertise, so that the excellent quality for which our University is known continues and is experienced by our partners.

Rationale for Economic Development Metrics and Data

With the steady erosion in Rochester's traditional manufacturing job base, university-based high-tech and biotechnology research is increasingly viewed as a key component of the region's economic future. Rochester's experience is part of a national trend in which research-intensive universities are considered vehicles for growth, particularly in regions of the country that are struggling economically. Consequently, there is often an implicit understanding that public sector investments in institutions such as the University of Rochester are granted to ultimately generate economic growth, often understood by the public as the formation of start-up companies that create new jobs.

These perceptions about the impact of the University on economic growth must be balanced with the facts. While start-up companies are perhaps the most easy-to-imagine example of the University's economic impact, the University of Rochester plays a more important role in efforts to grow and strengthen the regional economy in a variety of other ways, and the Committee thinks this role of the University should be better understood by the community.

First and foremost, the University is a critical provider of talent, knowledge and innovation to a community. It attracts world-class scientists and researchers, who attract talented students and government research dollars. The students graduate and take leadership positions in our community. As good leaders aggregate in our community, they attract other good people, and a "ripple effect" of positive economic impact to the community is felt. The University also attracts knowledge workers and provides other job opportunities in a range of skill areas to the local community. Another contribution of a healthy university to the local community is the capital and operational expenditures it makes in the local economy. Still another is the contribution the university and its employees make to civic, cultural, health care and community endeavors. This all should be measured and reported to the public as well as the University community to increase understanding about the nature and amount of the University's contribution to economic development.

A good start on the types of metrics we can report to the community can be found in the Annual Report of the School of Medicine and Dentistry and in the School of Engineering

and Applied Sciences recent newsletter that tracked alumni who stayed in Rochester and formed companies, both of which can be found in Appendix 5.

The School of Medicine's report talks about the number of faculty members and clinical departments in the school, and the growth of those over the years. It speaks about the amount of research funding we received and highlights some of the innovative projects the government funded. It highlights the research training programs in a wide variety of fields that the School provides. Most of the accomplishments of the School reflected in that Report can be linked, in some way to economic development.

The School of Engineering and Applied Science's newsletter tracked the University's engineering graduates who became "technology leaders" for the Rochester region by forming high-tech companies that created jobs and revenues. The newsletter clearly tied the educational mission of the School of Engineering to the fueling of entrepreneurship and economic development in the region.

By carefully defining how we contribute to economic development, we can be aggressive and ambitious about what we know we do well and guarded about initiatives that are not solely within our control. For instance, the success of transferring our technologies into start-up companies in the community presumes that there is fertile ground for a new company to take root and grow. The University cannot control whether sufficient managerial talent, seed and venture capital, and general entrepreneurial attitudes exist to get a start-up company successfully launched, or whether start-up companies are managed and funded well. Even the best University technology will not succeed without these types of key business ingredients. "The key is that communities surrounding universities must have the capability to absorb and exploit the science, innovation and technologies that the university generates. In short, the university is a necessary but not sufficient condition for regional economic development."⁶

Rationale for Fostering Entrepreneurship

A key factor to the successful translation of our research to commercial use is that the community has the willingness and resources to absorb and exploit our innovations. The Rochester region cannot benefit from the innovations created at the University if it does not have the necessary environment to keep and grow the technology. One of the critical components to that necessary environment is an atmosphere of entrepreneurship.

Entrepreneurship has been a driving force of the U.S. economy. During the past 15 years, businesses less than five years old have accounted for about 70 percent of the net job creation in the United States.⁷ In addition, about 35% of the companies on the Fortune

⁶ "The Role of the University: Leveraging Talent, Not Technology" by Richard Florida. A copy of the Article is attached in Appendix 6 as well as a related article entitled "Regions and Universities Together Can Foster a Creative Economy" also by Richard Florida.

⁷ "Nationwide Effort Launched to Educate Next Generation of Entrepreneurs and Innovators" at <http://kauffman.org/items.cfm?itemID=732>. Sept. 5, 2006.

500 list are displaced every three or four years by more rapidly expanding firms. The National Commission on Entrepreneurship has determined that the firms on the Inc. 500 list grow at an average rate of 1,312% over five years⁸. Clearly, for the economic health of the Rochester region, there must be a supportive environment to foster this entrepreneurial growth.

Rationale for Developing Programs for Maturing Nascent Technologies

The fact that the University discovers exciting, innovative technology does not mean that a path to commercialization exists. Often, University researchers and technology transfer personnel lack the “opportunity recognition” skills that are needed to assess the commercial potential of an invention. In addition, most basic research emanating from any university requires significant additional applied research and development before it is commercially viable. University technology is often so embryonic that its distance to commercial application is too long and risky for those in the business community. Universities have a significant number of innovations that are frozen by a lack of interest, skills and/or resources to advance them along the development path to commercialization. As a result, there are many promising technologies that are not being developed and brought to market for public use.

At the University of Rochester, there are over 400 patents that are not licensed for commercial use. In addition, there are patents that are licensed in a particular field of use but that may have application in other areas. No university, including ours, can garner sufficient resources internally to support the work needed to proactively identify, evaluate, develop and commercialize all of its promising discoveries. Governmental research funding does not usually provide funds to be used for applied research and development. Many of our unlicensed patents may reflect technology that is not commercially useful or too immature for potential commercial users to deploy because the development risks are too great. We cannot say with any certainty whether there are “hidden gems” among the patents sitting idle.

There are two particular “models” that have been used at other research universities to mature nascent technology through the development stage commonly known as “death valley”. The first is the development of early-stage investment funds within the University. The second is to encourage the creation of a separate “Newco” entity for particular types of technologies licensed from the University.

There has been an increase over the past five years in university-affiliated funds that are created to fill the gap between the stage of the discovery (when the University files a patent) and the stage where the technology needs to be progressed to in order to optimize its commercial value. These funds have arisen because typical venture capital financing sources are not interested in most technologies coming out of a university that are too embryonic to meet their traditional funding requirements

⁸ From a “Governor’s Guide to Strengthening State Entrepreneurship Policy. February 2004.

There are two basic types of funds that differ by funding source. In both cases, the financial support is typically given before the technology is licensed and is used to increase commercial viability before licensing. The difference between the two is whether the money is provided by the University, government or a philanthropic organization or whether it comes from for-profit individuals or companies seeking a return on their investment.

The first is philanthropic and tends to be awarded within the University before the technology has been licensed. The size of these funds typically allows for aggregate investments of \$250,000-\$500,000 per year and the average size of each investment is often less than \$50,000. Examples of this include Boston University's Technology Development Awards (\$300,000 annual budget), Columbia's Pre-Seed Fund, University of Colorado's Proof of Concept Grant Program, University of Washington's Technology Gap Innovation Fund, and Washington University's Bear Cub Fund.

The second type of funding is driven by return-on-investment criteria but, hopefully, has less demanding investor control terms than traditional venture capital financing. Examples of this include Emory's Investor Challenge Program (provides matching funds for investment), Case Western's Case Technology Ventures and Vanderbilt's Chancellor's Fund.

Excell Partners, an existing not-for-profit entity controlled by the University and funded by New York State, currently makes early stage grants to start-up companies and is an example of the philanthropic type of fund. We should explore if Excell Partners could expand its mission to include funding individual technologies inside the University (before licensing occurs) to permit development of the technology to a more commercially viable stage. Philanthropic type funds for nurturing nascent technology development could also be provided through internal school self-funding, subject, of course, to an evaluation of the appropriateness of such funding when considered in the context of other University and division priorities. They can also be sought by our Advancement Office or by grant applications to governmental agencies interested in economic development or getting scientific research to public use more quickly. A good example is the recent grant given by the National Institute of Health to the Medical Center for support of clinical translational science advancement.

Another model that has been advanced is to create an entity, non-profit or for-profit, with others who provide the money, whereas the University provides the technology. The purpose of the Newco is to license technologies in a defined field (e.g. medical devices, vaccines, optics, etc.) from the University and continue to develop them until they have optimal commercial value. After further applied research and development, Newco would transfer the enhanced technology to a spin-off company or license the technology to an existing company. The increase in value of the technology, from the time the University licenses it into Newco until Newco licenses to a spin-off or existing company, would be retained by Newco and would be returned to its shareholders (which would include the University and its faculty inventors). Depending on funding and human resources, there

could be several Newcos affiliated with the University. Newco could be funded by alumni of the University or other outside investors or philanthropists who were willing to gamble money on a new business venture focused on turning University inventions into marketable products.

Rationale for Defining, Improving and Standardizing Resources for Start-Up Companies

There is a long sequence of policy issues involved in licensing our technology to start-up companies, and especially to those in which University faculty are involved in running the company. They include issues relating to negotiation of the license, taking equity in lieu of license fees, and potential conflicts of interest, to name a few. The University must ensure that we are addressing these policy issues in a consistent way that has the support of University senior leaders.

In addition, we need to articulate clearly (internally and externally) the role of the University in stimulating entrepreneurial activity in a start-up company. Once a technology “leaves” the University in the form of a license to a start-up company, the company’s ability to thrive and remain in Rochester is dependent upon the availability of several critical resources. Based on historical data, the odds of a start-up company succeeding are small.⁹ New companies often fail because they do not have sufficient cash capital and/or because they do not have sufficiently experienced and entrepreneurial management talent in place. While progress has been made in recent years to address the obstacles to high-tech/biotech business growth in Rochester, many challenges remain.

The University has, in recent years, taken the initial steps to help better support commercial ventures originating from university research and link them to business development resources in the community, and, when appropriate, to resources outside the local area. The primary focus of the University in our start-up companies should continue to be on identifying, locating and linking our inventors to appropriate external resources. These include: funding entities such as Excell Partners and The Trillium Group, incubators such as Lennox Tech Park and Infotonics, professional service and consultant groups, as well as community-based regional economic development organizations. In a few cases, the best source of business support or funding may not be local, but national or even international. A chart that explains the various types of assistance that may be available for University start-up companies is included in Appendix 8. In addition, Appendix 9 contains a list of all start-up companies which licensed technology from the University at the outset of their business and a brief description of the company’s status at the present time.

The Committee agreed that OTT may undertake the following tasks, in coordination with OCA or other appropriate parts of the University, when start-up companies are being initiated to develop our technologies:

⁹ According to the Small Business Administration, new businesses have, at best, a 50/50 chance of surviving. The main reasons new business fail are lack of qualified management and inability to attract necessary capital funding. See <http://www.businessknowhow.com/startup/business-failure.htm>.

- Represent University in technical and IP due diligence.
- Provide initial IP development and patenting strategy.
- Evaluate initial stage of commercial feasibility and licensing potential and propose initial strategy with respect to the invention disclosure. Obtain external assessment of commercial potential in cases where there is a possibility of a large commercial potential.
- Recommend to the relevant supervisory senior leadership whether to further incubate the technology or pursue licensing to a start-up rather than pursue the more conventional path of licensing to an existing company.
- Notify relevant Chair and Dean, if not already involved, about the potential of a start-up.
- Assist in identifying a CEO.
- Identify and introduce company to available external resources.
- Help prepare investor presentations, but only as such presentations relate to the technology.
- Negotiate license of UR technology with the start-up company's management and legal representatives.
- Alert the Conflicts of Interest Committee so that they may deal with conflicts *before* the final documents are signed.

The Committee further agreed that the following tasks should not be undertaken within the University without the advance approval of the policy committee. Since these tasks are less related to the technology and are more commercial in nature, the policy committee's determination should include who, within the University, might most effectively assist the start-up company (e.g. a Simon School representative for marketing matters, the Investment Office for matters relating to capital financing needs, etc.).

- Establish legal entity, including stockholder agreements; manage relationships with outside counsel.
- Write general business plan to include revenue and expense projections.
- Assist in presentations to potential investors or otherwise seek financing.
- Structure and negotiate financing-capital terms with investors.
- Review and approve company business documents.
- Accept founder's equity (above and beyond equity taken in licensing negotiations) in exchange for University investment of cash or sweat equity in establishing the company.
- Undertake any management role in the company
- Agree that the company can use University personnel or facilities.
- Secure board seat or observer rights for University.
- Assist in marketing the company and our technology.
- Bundle several of our technologies together in a platform company which the University forms and manages for eventual sale to an existing business.