



Master of Management Science in the Management of Technology and Innovation Self-Study Report

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Executive Summary

The Ted Rogers School of Management's Master of Management Science (MMSc) in the Management of Technology and Innovation was originally conceived as a research-intensive program that would result in the production and dissemination of innovative and insightful management and business practices/ knowledge. Although the degree is a unique offering in the Canadian academic realm in that it develops expertise in technology and innovation, its limited scope has not attracted a sufficient number of students required for generating a large body of scholarship. Consequently, TRSM has not kept pace with other business schools in Canada with respect to scholarly research productivity, which may have a negative impact on TRSM's reputation, The Association to Advance Collegiate Schools of Business (AACSB) accreditation, student recruitment, and the future of the program.

To improve TRSM's reputation and maintain AACSB accreditation, an increase in research productivity and intellectual contributions is a must. Increased research productivity and contributions will be accelerated if the School succeeds in enrolling a substantial number of highly qualified graduate students capable of supporting a robust research environment. The MMSc's current limited scope is not attracting ample research talent, and efforts are needed to modify the existing program through expansion beyond Information Technology. Offering a more comprehensive Master's degree with a variety of research options will attract more talent, resulting in greater research capacity. This increased capacity will lead to improved research productivity, thus enhancing TRSM's reputation and ensuring the continuance of the MMSc degree.

Although TRSM has made significant progress with respect to research productivity and intellectual contributions, the School has the potential to increase research quality and output. The narrow focus of the MMSc degree on technology and innovation is not taking advantage of the great demand for applied research in a wide range of management issues, and of the diverse and varied qualifications of TRSM faculty. Many business schools throughout Canada offer comprehensive, research-based graduate degrees in management, with specializations in marketing, accounting, finance, management, organizational studies, financial engineering, operations management and production, human resources management, business intelligence, international logistics, and information technologies.

A revised MMSc degree with several additional research options and a modified course structure and curriculum is proposed. Additional research options may include Finance, Marketing, Supply Chain Management, Human Resources/ Organizational Behaviour, Global Business Management, Business Analytics, Entrepreneurship, and Real Estate Management.

The proposed change requires converting one required core course to be a required elective. This will reduce the number of required core courses from three to two, and will increase the number of required electives from three to four. The added flexibility will allow students to take four recommended electives in their area of specialization. It is also proposed that the MMSc tuition fees be in line with the tuition fees of other research-based Master's degrees at Ryerson University. It is further recommended that the name of the degree be shortened to Master of Management Science and that scholarships be made available initially to attract bright students to TRSM.

This report recommends that the GMAT test not be required for MSc applicants for two reasons. First, the GMAT test is not a good predictor of an individual's ability to undertake research. Secondly, the small pool of qualified GMAT applicants in Canada, where the number of available MBA spots far exceed the number of applicants with a minimum GMAT score of 550, suggests that the GMAT requirement puts significant limits on the pool of otherwise qualified and eligible applicants.

Lastly, the report recommends dedicated space be made available to house at least 20 MSc students, who will spend considerable time on campus doing research.

1. Basic Information

1 a. Program/Degree Information

The Management of Technology and Innovation Program offers a Master's degree that prepares graduates for research careers in industry or academia. This specialized program allows students to pursue a Master of Management Science (MSc) with a focus on the management of technology and innovation. In addition to core courses, a research seminar, and a Master's thesis, students take several electives in IT-focused business administration fields. Specializations are offered in Information Systems Management, Media Management, and Supply Chain Management.

1 b. Program Description

The degree requires the completion of advanced coursework and a Master's thesis. Coursework is designed to provide a strong foundation in qualitative and quantitative research skills that are necessary for the examination of technology management and innovation issues.

Applying these skills to the Master's thesis component allows students to make an original contribution to the theoretical or empirical study of technology/innovation management. The ultimate goal of the MSc degree is to ensure that graduates are well prepared and equipped for careers in research including doctoral studies, applied research in government or industry laboratories, and high level analyst positions in organizations.

The program is offered on a full-time or part-time basis, and students can complete degree requirements in as little as 16 months (full-time) up to six years (part-time) as per structural changes implemented in 2011 (Appendix I-A, including the original program description in 2005, and Fee restructuring request in 2006). Students also have the option of transferring to the MBA program, as the two degrees share courses and are subject to the same departmental regulations.

1 c. Mode of Delivery

The MSc in the Management of Technology and Innovation program is delivered in a traditional class setting at the Ted Rogers School of Management. Courses are not provided through distance education due to the demanding nature of advanced coursework as well as the importance of student-faculty interaction in the completion of the thesis.

1 d. Program History

The Ted Rogers School of Management (TRSM) offers two MBA degrees and one Master of Management Science (MMSc) degree. The MMSc was founded in 2006 and has focused exclusively on producing graduates capable of spearheading innovation and entrepreneurship in the management of technology. The intention was to enable students to effectively bridge the gap between theory and practice through the development of advanced research skills. Given the fact that Ryerson University has numerous partnerships with businesses, the establishment of a co-op program was also envisioned to help students achieve the goal of bridging practical knowledge with an academic foundation. The Ted Rogers School of Management aimed to enroll a large number of students into the MMSc degree given the unique opportunity to gain practical experience and conduct research in the Greater Toronto Area.

Despite the recent The Association to Advance Collegiate Schools of Business (AACSB) accreditation in 2011, student enrollment in MMSc remains very low. Throughout the tenure of the program, only ten students have graduated with an MMSc degree, and only 30 students in total have been enrolled since the program's inception seven years ago (for details, see Appendix I – Tables 1 and 2). In addition, at least two students originally enrolled in the MMSc degree transferred to the MBA program, and six other students permanently withdrew from the program and Ryerson altogether (see Appendix I – Tables 2, 3, and 4). A comparison of admissions data and student academic records over the years also indicates that another nine students who accepted offers of admission failed to show up for their first term of study (Appendix I – Tables 2, 3, and 4).

Several major structural changes to the MMSc degree have been introduced since the launch of the program in order to attract a greater number of highly qualified graduate students. In 2006, degree requirements included the completion of 12 required half-credits (0.5 each = six full credits) and a Master's thesis (Appendix I-A, fee restructuring document). These requirements were changed to seven required credits (1.0 each = seven full credits) and a Master's thesis in the Fall of 2007. Changes were introduced once again in the Fall of 2009, requiring the completion of eight required credits (1.0 each = eight full credits) in addition to a Master's thesis. Finally, the existing program structure of three required core courses (1.0 each = 3 full credits), three electives (1.0 each = 3 full credits), a Research Seminar (pass/fail), and the completion of a Master's thesis came into effect in the Fall of 2011. This final curriculum modification was introduced to better align the MMSc with similar degree programs at other Canadian academic institutions.

The resultant structure is more flexible, allowing students to take preparatory coursework relevant to their research interests while still providing a strong foundation in technology/innovation management theory, research methods, and analytical techniques. Incoming students lacking a background in business are required to complete several foundation courses in business/management. These include Quantitative Methods and Information Systems, Introduction to Management, Accounting, Finance, and Economics. The addition of a Research Seminar also helps in preparing students for post-graduate level research.

Up until the most recent structural overhaul, it was expected that most students would finish their degree within three (full-time) to six terms (part-time). Realizing that most students took longer than

initially anticipated to complete all degree requirements, time to completion guidelines have been adjusted to a minimum of 4 terms for full-time students and 8 terms for part time students (Appendix I-A, fee restructuring document). These revised time to completion guidelines also harmonize the MMSc with guidelines of comparator programs at other universities across Canada.

1 e. Administrative Structure

Administrators

Dr. Murtaza Haider, the Associated Dean of Research and Graduate Programs at TRSM, is the current Acting Director of the MMSc degree program. Dr. Haider oversees all aspects of the MMSc degree in addition to his duties with respect to the facilitation of scholarly, research and creative activity within TRSM. Dr. Ozgur Turetken, Associate Director Academic in the Ted Rogers School of Business Technology management, assists Dr. Haider in overseeing various aspects of the MMSc degree.

Staff

The MMSc draws on staff within the MBA Team Office and the TRSM Office of the Dean. Gloria Fernandes, Graduate Program Administrator, is responsible for administration including admissions, academic counselling, registration and enrollment, academic reporting, class scheduling and other duties. Jabeen Aslam, Program Manager, assists with admissions and recruitment activities, and is supported by Teguh Amith and Theeban Pathmanathan, both of whom are Service & Recruitment Assistants. Niklaus Ashton, Research Support Specialist assists the Associate Dean of Research and Graduate Programs, with monitoring all research activity within TRSM, including the research activity of MMSc students and faculty.

Program Council and Committee Structure

The MMSc degree Council comprised of the following faculty members from TRSM:

- Dr. Deborah Fels, Professor – School of Information Technology Management
- Dr. Ozgur Turetken, Associate Director Academic: Research, External Relations, and Graduate Studies and Associate Professor – School of Information Technology Management
- Dr. Farid Shirazi, Assistant Professor – School of Information Technology Management
- Dr. Tim McLaren, Associate Professor – School of Information Technology Management
- Dr. Catherine Middleton, Professor – School of Information Technology Management
- Dr. Aziz Guergachi, Associate Professor – School of Information Technology Management
- Dr. Murtaza Haider, Associate Dean

TRSM Research Committee

The TRSM Research Committee meets bi-weekly and is comprised of research faculty that address scholarly, research and creative activity across TRSM. The committee serves as a secondary source for providing support and guidance for research activities of the MMSc students.

The Research Committee is comprised of the following TRSM faculty members:

- Dr. Murtaza Haider, Associate Dean of Research and Graduate Programs

- Dr. Ozgur Turetken, Associate Director Academic: Research, External Relations, and Graduate Studies and Associate Professor – School of Information Technology Management
- Dr. Vanessa Magness, Associate Professor – School of Business Management (Accounting)
- Dr. Dave Valliere, Director: Entrepreneurship Research Institute and Associate Professor – School of Business Management (Entrepreneurship & Strategy)
- Dr. Yuanshun Li, Assistant Professor – School of Business Management (Finance)
- Dr. Howard Lin, Co-director: International Research Institute and Professor – School of Business Management (Global Management)
- Dr. Winston Isaac, Director – School of Health Services Management
- Dr. Kelly MacKay, Director: Ted Rogers Institute for Tourism and Hospitality Research and Professor – School of Hospitality and Tourism Management
- Dr. Kernaghan Webb, Director: Institute of the Study of Corporate Social Responsibility and Associate Professor – School of Business Management (Law & Business)
- Dr. Rupa Banerjee, Assistant Professor – School of Business Management (HR Management)
- Dr. Joanne McNeish, Assistant Professor – School of Business Management (Marketing)
- Dr. Hong Yu, Associate Professor – School of Retail Management

The research committee members belong to a variety of schools/departments from across TRSM. It is intended that this diversified Research Committee will inspire a strong, growing research culture throughout TRSM, resulting in greater research quality and output. The formation of a Research Committee that is representative of all TRSM schools/departments is a strategic step towards building greater understanding and interest in a research-based degree such as the MMSc throughout TRSM.

2. Developments Since Program Launch

2 a. Previous Developmental Plan

This is the first periodic program review of the MMSc degree since its inception in 2006. The 2005 Proposal for an MBA/MMSc in the Management of Technology and Innovation and the 2011 MMSc degree Revision Proposal (Appendix I-A) are the two previous MMSc developmental plans. The 2005 Program Proposal outlines the major goals and objectives of the core curriculum. They are as follows:

- To develop graduates with a strong understanding of the theoretical foundations of management and their application to technology in organizations
- To develop graduates' understandings of the process of technology diffusion and innovation and how it affects and is affected by organizations
- To develop an understanding of the effective use and management of technology to support organizational objectives, within and beyond traditional organizational boundaries
- To develop graduates who understand emerging trends in the discipline, are familiar with the tools for tracking and forecasting trends, and who can integrate these trends within planning processes
- To develop problem solving and analytical skills and increase the capacity of students to think critically and communicate effectively; to develop graduates who can establish and lead team-based approaches to problem solving

- To foster a sense of professional responsibility among our graduates
- To develop an appreciation of the ethical and legal parameters of technology and innovation Management
- To develop strong quantitative and qualitative research skills and apply these methods to research in technology management and innovation
- To develop a solid grasp of the theoretical foundations of the Management of Technology and Innovation.
- To equip students to make a contribution to the theory or empirical study of the management of technology and innovation
- To provide students with a strong research foundation to pursue doctoral studies in related fields

Although the program has produced a small number of highly skilled graduates possessing the capabilities mentioned above, it has not been successful in attracting and/or producing a significant number of qualified graduate students. As mentioned in the 2011 Program Revision Proposal (Appendix I-A), fewer than 10 students have graduated with an MMSc since the launch of the program in 2006. The small enrollment has made it difficult for TRSM to achieve research productivity and quality goals because faculty members have insufficient access to graduate students, who play a large role in the advancement of research and innovation at academic institutions.

The 2011 Program Revision Proposal identified three main problems of the pre-2011 program that needed to be addressed in order to increase the attractiveness and quality of the program. These issues included the inflexible core curriculum content and structure, unachievable time to completion expectations, and high fees compared to similar programs at other institutions. The document proposed a streamlined, flexible curriculum, more realistic time to completion targets, and a more affordable fee structure similar to other research-based graduate programs at Ryerson.

As of February 2013, the recommended improvements have been implemented to some extent. The curriculum structure and time to completion guidelines have been fully implemented, while partial changes have been made to the MMSc fee structure. Per term fees have been spread over four semesters, however fees are still significantly higher than other research-based graduate programs at Ryerson and other institutions (Table 1). With these changes in place for close to two years, there has yet to be a positive impact on MMSc enrollment numbers.

2 b. Annual Academic Plan

The MMSc's academic plan is included within the TRSM faculty academic plan and within the TRSM self-evaluation report submitted as part of the AACSB accreditation process in 2010. They are related to the overall goals in the TRSM faculty academic plan and to the University's academic plan. Special emphasis is placed on achieving and surpassing the 20 AACSB standards to ensure future program quality and accreditation. AACSB standards particularly relevant to the MMSc degree program address specialized Master's level management learning goals, including the depth and breadth of knowledge required at

the Master's level¹. Appendix I-B details progress with respect to the Assurances of Learning Plan goals developed as part of the AACSB accreditation process.

The MMSc degree has produced graduates capable of understanding and applying management theories and analytical tools as well ensuring students are able to integrate and apply theories of management to solve problems (80 to 100% of students meeting requirements in 08/09 and 09/10 academic years). Most students have also succeeded in understanding research methods and developing research proposals, with 100% in the 08/09 academic year and 60% in the 09/10 academic year meeting expectations. Additional support is required to ensure that MMSc students complete their degrees through the successful production and defense of a thesis, as only half of students in the 08/09 and 09/10 academic years completed the degree in the expected timeframe.

2 c. Response to Recommendations Made by Senate (Not Applicable)

Since this is the first periodic program review for the MMSc, there are no Senate Recommendations that require a response.

2 d. Response to Issues Arising from Previous Accreditation Assessment

Not Applicable, since this is the first program review.

3. Societal Need

3 a. Current and Anticipated Societal Need

Advancing business knowledge in universities can have an enormous impact on business practices². In the long-term, better business management and research have been identified as necessary to ensure Canada's prosperity³. Better business management is in turn connected to job creation⁴ and economic growth. Economic growth increases opportunities for members in society in terms of equal rights, diversity, social justice, and the ability to explore a diverse range of interests.⁵ Thus, both business and society benefit from improved research and management practices through the strengthened organizational performance that flows from them⁶.

Effective management and business research skills are in great demand as demonstrated by enrollment figures for graduate, research-based management programs offered at university business schools throughout Canada (Appendix I-K). Comprehensive Master's and Doctorate degrees in business management and administration offered at other Canadian institutions provide students (and their faculty supervisors) with the opportunity to conduct advanced research and analysis in a multitude of areas. Specializations include marketing, accountancy, finance, management, organizational studies,

¹ (Ted Rogers School of Management, 2010)

² (AACSB International, 2008, p. 22)

³ (AACSB International, 2008, p. 22)

⁴ (Council of Canadian Academies, 2009, p. 1)

⁵ (AACSB International, 2008, p. 22)

⁶ (AACSB International, 2008, p. 22)

financial engineering, operations management and production, human resources management, business intelligence, international logistics, and information technologies.

In terms of graduate prospects, 91.3% of graduates from the field of Business Administration, Management, and Operations are satisfied with their jobs in Canada⁷. In fact, 77.8% would not have opted for a different degree if they had a chance to choose again, and 87.8% think that their degree matches their job position. The average wage per hour for individuals in the management field is \$34.62, and can go as high as \$57.69. It is important to note that these wage ranges include both undergraduate and graduate degrees. Therefore, individuals pursuing master's degrees are expected to be on the higher end of the spectrum.

3 b. Existing and Anticipated Student Demand

The Ted Rogers School of Management's Master of Management Science (MMSc) in the Management of Technology and Innovation was originally conceived as a research-intensive program that would result in the production and dissemination of innovative and insightful management and business practices/knowledge. Although the degree is a unique offering in the Canadian academic realm in that it develops expertise in both technology and innovation, its limited scope has not attracted a sufficient number of students required for the generation of a large body of scholarship. Consequently, TRSM has fallen behind many business schools in Canada with respect to research productivity and contributions, and this has a negative impact on TRSM's reputation, AACSB accreditation, student recruitment, and the future of the program.

Application data indicate that the MMSc degree received an all-time high of 29 applications in the inaugural 2006/2007 academic year (Appendix I – Tables 1 and 2). Following the program launch, the number of MMSc applications received declined to an all-time low of 18 in the 2009/2010 academic year, then increased to 27 in 2010/2011. Since then, applications have declined in number once again with a total of 21 applications received for the 2012/2013 academic year. The full and part-time options received an almost equal number of applications for the launch year, but the part-time option has become significantly less popular over the years. In terms of offers of admission, the program sent out a high of 15 offers in the launch year and a low of five in 2009/2010, coinciding with the total number of applications received. Actual registrants numbered a high of eight in the 2007/2008 academic year and a low of three in the 2008/2009 and 2009/2010 academic years. All of these figures are well below the expected annual enrollment of 20 full-time/10 part-time students projected in the original Management of Technology and Innovation Program Proposal (half of the total projection numbers for both the MMSc and MBA in the Management of Technology and Innovation – Appendix I-A). They are also well below the School of Graduate Studies average (Appendix I – Table 5).

Enrollment figures indicate that no more than eight full-time students and six part-time students have been enrolled at any one time (Appendix I – Table 5). In some years, enrollment has dipped to a low of 2 full-time students and 3 part-time students, putting the MMSc at near the bottom of the graduate

⁷ (Government of Canada, 2012)

program in terms of enrollment. The MSc degree is also below average in terms of females as a proportion of its student body (Appendix I – Tables 6 and 7).

Despite the high demand for graduate level education, the MSc degree has failed to produce a significant number of graduates due to low enrollment and a high number of withdrawals and transfers. Explanations for the inability of the program to attract a sufficient number of students include the limited permitted research foci and the lack of specialization options available. When given the choice, students are more likely to select graduate programs with the option of transitioning into a different specialization, and where cross-disciplinary collaboration is possible. As long as the research scope remains limited and the tuition fees to stay higher than other comparable degrees in Canada, student demand is not anticipated to increase.

3 c. Research-Based Management Masters in Canada

Currently, over 25 universities in Canada offer research-based Master's programs in management or business (Appendix I-K). Many of these schools are located in Ontario and Quebec, with programs also offered in British Columbia, Manitoba and Alberta. These programs range from one to two years in length and consist of required and elective courses, as well as the completion of a thesis or a supervised project.

Out of the Master of Management programs in Canada, HEC Montréal placed 36 out of 70 in the 2012 Financial Times rankings of the top Master of Management programs in the world⁸. In addition, Brock University, Queen's, Concordia, the University of Manitoba and the University of Ottawa have all been awarded chapters in the Beta Gamma Sigma International Honours Society (BGS)⁹.

Most programs have 15 to 30 students enrolled, with the exception of Concordia University and HEC Montréal, which have 100 and over 900 students enrolled respectively (Appendix I-K). Compared to other universities across Canada, TRSM has seen uncharacteristically low enrollment numbers for the MSc degree. In addition, most institutions, unlike Ryerson, offer at least two to three specializations and/or customized programs.

As indicated in Appendix I-K, a number of the top business schools in Canada are research-focused. HEC Montréal and Ivey are examples of highly ranked schools that are well known for their MBA programs. They also offer advanced research opportunities in management in the form of master's and doctoral programs.

Master of Management Science programs differ in their specific course structure but have several characteristics in common: they generally consist of required research courses, courses specific to the specialization topics, elective courses, and finally, a thesis or supervised project. Some programs also offer other opportunities, such as internships with organizations either in Canada or abroad.

The number of credits for required courses varies, but the thesis portion is generally one year long.

⁸ (The Financial Times Ltd., 2012)

⁹ (Beta Gamma Sigma, Inc., 2013)

Tuition

Tuition rates vary across schools, but are generally within the range of \$8,000 to \$16,000 for full-time programs (see Table-1 on page. The two most expensive options are the Schulich School of Business at York University and the Ivey School of Business at the University of Western Ontario, which cost \$44,837¹⁰ and \$35,000 to \$40,000¹¹ in total, respectively.

We believe that the MMSC fee structure is acting as a significant barrier to entry in the program resulting in lower enrollment. Interestingly, Ryerson University charges significantly less in tuition fees for MBA degree compared to other comparable programs, and at the same time, charges significantly more for MMSc in management than comparable programs at other universities (Table 1). In addition, other research masters degrees at Ryerson University cost significantly less in tuition fee than the MMSc at TRSM.

Table 1: Comparator Program Tuition Fee Structure at Select Canadian Universities

Graduate Management Program Tuition at Select Canadian Universities						
Degree Type	Ryerson	Brock	Concordia	HEC Montreal	UBC	Laurier
MBA Tuition (Full-Time Domestic)	\$1,514.72 per course (1 st year) 10 courses over 3 terms = \$15,147.20 PLUS applicable fees	\$1,155.19 per course (1 st year, \$1,112.40 per course (2 nd year) 20 courses over 4 terms = \$22,675.90 PLUS applicable fees	\$196.71 per credit 45 credits (BComm grads) = \$8,851.95 PLUS applicable fees 57 credits (non-BComm grads) = \$11,212.47 PLUS applicable fees	\$196.51 per credit 57 credits = \$11,201.07 PLUS applicable fees	\$10,544.75 per term (1 st 4 terms, then \$662.33 for each additional term) 4 terms = \$42,179.00 PLUS applicable fees 5 terms = \$42,841.33 PLUS applicable fees	\$8,398.00 per term 3 terms= \$25,195 PLUS applicable fees 4 terms= \$33,592.00 PLUS applicable fees
MMSc Tuition (Full-Time Domestic)	\$4,165.48 per term (1 st year), \$4,011.20 per term (2 nd year) 4 terms= \$16,507.64 PLUS applicable fees 5 terms= \$20,518.84 PLUS applicable fees	\$2,717.36 per term (1 st year), \$2,616.72 per term (2 nd year) 5 terms = \$13,385.52 PLUS applicable fees	\$196.71 per credit 45 credits = \$8,851.95 PLUS applicable fees	\$2,210.74 per term (1st 4 terms), \$400.00 for each additional term 4 terms = \$8,842.96 PLUS applicable fees 5 terms = \$9,242.96 PLUS applicable fees	\$1,449.72 per term (1 st 6 terms, then \$662.33 for each additional term) 3 terms = \$4,349.16 PLUS applicable fees 4 terms = \$5,798.88 PLUS applicable fees 5 terms = \$7,247.88 PLUS applicable fees	\$2,515.85 per term 3 terms= \$7,547.55 PLUS applicable fees 4 terms= \$10,063.40 PLUS applicable fees

Specializations

At most other universities, the Master of Management Science degrees have several specialization options. These specializations generally fall under the category of traditional MBA topics. For instance, Finance, Marketing, and Organizational Studies are offered within most MMSc degrees. Other common specializations include Management Science, Applied Economics, and Human Resource Management.

Some specializations are outside of these categories and set universities apart, similar to how the Management of Technology sets Ryerson apart from other business schools. Examples of niche research options include the Entrepreneurship and Small Business option at the University of Manitoba and the Innovation Management option at the University of Ottawa. Another example of a unique research-

¹⁰ (The Schulich School of Business - York University, 2013)

¹¹ (Richard Ivey School of Business, 2012)

based graduate management program is the MSc/CEMS in International Management at the Ivey School of Business, which offers opportunities to study abroad in partner schools.

Faculty

A wide range of full-time faculty teaches in Master of Management Science programs across Canada. The number of faculty members varies at each school, and correlates with the size of the program. Most academics who teach in the Faculty of Management are available to teach and supervise MMSc students in their respective faculties. The average, however, appears to be around 30 full-time faculty. It is quite common for these professors to have the credentials to teach across disciplines within their business faculties.

Table 2: Financial Times annual ranking of MMSc programs (top 40 in 2012)

Current rank	Average of rank over 3 years*	School name	Country	Weighted salary (US\$)	Employed at three months (%)**
1	2	University of St Gallen	Switzerland	81996	100 (56)
2	2	ESCP Europe	France, UK, Germany, Spain, Italy	63597	89 (61)
3	2	Cems	See table note	60571	95 (47)
4	4	HEC Paris	France	77232	96 (67)
5	7	Essec Business School	France	71853	92 (70)
6		IE Business School	Spain	85706	93 (86)
7	10	Esade Business School	Spain	63704	95 (100)
7	9	Rotterdam School of Management, Erasmus University	Netherlands	63045	92 (95)
9	6	EM Lyon Business School	France	55813	97 (85)
10	8	Indian Institute of Management, Ahmedabad	India	101243	100 (100)
11	23	HHL Leipzig Graduate School of Management	Germany	85923	100 (78)
12	14	Edhec Business School	France	56976	97 (88)
13	9	Grenoble Graduate School of Business	France, UK, Singapore, China	57215	95 (77)
14	18	Imperial College Business School	UK	59705	89 (85)
14	13	Mannheim Business School	Germany	71727	91 (89)
16	12	London School of Economics and Political Science	UK	64378	93 (72)
17	17	City University: Cass	UK	53332	75 (96)
18	16	Stockholm School of Economics	Sweden	62834	95 (51)
19	21	Rouen Business School	France	50502	91 (87)
20	26	HEC Lausanne	Switzerland	54669	96 (69)
20	19	ESC Toulouse	France	52442	89 (42)
22	21	WU (Vienna University of Economics and Business)	Austria	55968	98 (95)
23	27	Università Bocconi	Italy	58743	95 (66)
23	21	Audencia Nantes	France	53036	89 (83)
25	26	Reims Management School	France	48027	93 (85)
25	23	Solvay Brussels School of	Belgium	53624	100 (93)

Economics and Management					
27	29	Skema Business School	France, USA, China	48423	87 (85)
28	31	Kozminski University	Poland	51383	91 (85)
29	23	IAG-Louvain School of Management	Belgium	50248	94 (61)
30	39	Eada	Spain	55376	88 (85)
30	31	Bem Bordeaux Management School	France	47811	94 (99)
32	35	Vlerick Business School	Belgium	55719	89 (90)
33	29	Maastricht University School of Business and Economics	Netherlands	55711	75 (21)
34	31	Euromed Management	France	44733	85 (83)
35		Warwick Business School	UK	58442	100 (77)
36	36	HEC Montreal	Canada	54348	83 (91)
36	35	Aston Business School	UK	46486	91 (72)
36	29	University of Strathclyde Business School	UK	49426	94 (53)
39	34	Aalto University	Finland	52078	97 (90)
40	42	IAE Aix-en-Provence, Aix-Marseille University GSM	France	51370	93 (75)

4. Program Outcomes

The Master of Management Science program is designed to prepare students for a research career in industry or academia, with an emphasis on technology and innovation management. Post-graduation, students are prepared to work as analysts, applied researchers, or as graduate students in a doctoral program.

The program is intended to train students to become competent research professionals and to foster critical thought. Foundation courses in technology and innovation management provide students with a solid background in current theories within the field. This preparation together with foundation courses in research methods, provides students with the skills required to produce original research in the form of a thesis project. The program's goal is to produce graduates who are research professionals within the field of technology and innovation management.

4 a. Learning Outcomes

The following student learning outcomes comprise the MMSc Assurances of Learning Plan developed as part of the AACSB accreditation process (Appendix I-B):

- Foster a strong understanding of the key theories and analytical tools of management
- Work as part of a high-performance team to analyze a business case and to develop a business plan
- Integrate and apply relevant management theories (e.g. strategic and financial analysis) independently to complex real world problems

- Gather information and communicate effectively in a variety of circumstances with particular attention to understanding diversity as part of the management process
- Understand research methods; develop research proposal and execute using appropriate technologies
- Apply research methods and theoretical frameworks to produce and defend a thesis

4 b. Program Consistency with other Academic Plans

In accordance with *Ryerson University Policy of Senate*, policy number 103:

“The special mission of Ryerson University is the advancement of applied knowledge and research to address **societal need**, and the provision of programs of study that provide a **balance between theory and application** and that prepare students for careers in **professional and quasi-professional fields**. As a leading centre for applied education, Ryerson is recognized for **the excellence of its teaching**, the relevance of its curriculum, the success of its students in achieving their academic and career objectives, the quality of its scholarship, research and creative activity, and its commitment to accessibility, lifelong learning, and involvement in the broader community.”¹²

Existing Academic Plans

The University’s *Shaping Our Future: Academic Plan for 2008-2013*¹³ emphasizes five main priority areas that the entire Ryerson community should work towards improving. The priorities are:

1. Ensuring high quality, societally-relevant programs
2. Improving student engagement and success
3. Encouraging, promoting, and advancing learning and teaching excellence
4. Facilitating and supporting scholarly, research, and creative activity
5. Increasing the University’s reputation

In addition, TRSM has developed its own four-year academic plan¹⁴ containing strategic priorities, desired outcomes, and actions required to meet established goals in order to fulfill Ryerson’s commitment to the advancement of applied knowledge and research. There are eight strategic priorities together with targets and required actions to successfully meet the outlined targets. Goals especially relevant to the MSc degree include:

1. Increasing the quality and number of faculty
2. Expanding high quality graduate programs
3. Improving TRSM’s reputation
4. Increasing fundraising efforts
5. Establishing additional partnerships
6. Facilitating the proliferation of high quality scholarly, research, and creative activity

¹² (Ryerson University, 2002, p 1)

¹³ (Ryerson University, 2008)

¹⁴ (Ted Rogers School of Management, 2008)

MMSc degree Consistency with other Academic Plans

The MMSc student learning outcomes described above are consistent with both the University and TRSM's academic plans. Exposing students to real world problems and providing them with the knowledge and tools necessary to solve such problems address societal need. Instilling a deep understanding of and advanced capability in the application of management theory, research methods, and analytical techniques contribute to increased scholarly, research, and creative activity both within and outside of Ryerson. An increase in the quality and quantity of intellectual output in turn improves the reputation of both TRSM and the University as a whole.

Although achieving many of the goals in both academic plans, there are certain objectives that the program has yet to fully achieve. The University's strategic plan is universal to all faculties within Ryerson University, and compared to other graduate departments, the Ted Rogers School of Management has not reached its potential of covering the full breadth of research interests represented by the current faculty. As indicated by small enrollment numbers, the MMSc degree has also not adequately met the needs of many students looking to achieve their academic and career objectives in a diverse array of management fields. At this point, the MMSc degree covers only one discipline - technology and innovation management. The annual projected graduate enrollment number for 2006 was 30 (Appendix I-A), which does not match the existing enrollment rate. The low enrollment and relatively high attrition rates have had an effect on the program's ability to produce a large number of highly qualified professional s while contributing to generating quality scholarship.

According to the Ryerson University *Strategic Plan for Scholarly, Research, and Creative Activity 2010-2013*¹⁵, an increase in the number of graduate students and faculty members will enrich research conducted at TRSM. This will result in an increase of creativity and the number of research topics explored. Furthermore, the Academic Plan for 2008-2012, *Shaping our Future*¹⁶, was designed to foster excellence in research, demonstrated by a prominent increase in the amount of grants and the number of contracts signed.

Ryerson University continues to strive for the expansion of its research activity and scholarly output. The Ted Rogers School of Management has the ability to achieve the same result through the expansion of the Master of Management Science program.

TRSM already has the intellectual capital required for the training and supervision of numerous graduate students in a wide range of management research areas, and not just technology and innovation. Faculty numbers have increased substantially over the years, and so have the quality and quantity of scholarly research and creative activities conducted by TRSM faculty. An expansion of the existing program to include additional specializations would position the degree so that it is more in line with the current interests and needs of the faculty. This in turn will allow the program to match the strategic plan and mandates of Ryerson University, and to contribute to increasing the University's intellectual contributions to society.

¹⁵ (Ryerson University: Office of the Vice-President, Research and Innovation, 2010)

¹⁶ (Ryerson University, 2008)

5. Academic Quality

5 a. Description of the Program Curriculum and Structure

The most recent curriculum approved for Fall 2011 requires students to complete three core courses, three elective courses, and one research seminar (Appendix I-E and Appendix I-G). The core courses consist of two research methods courses and one course in theories related to technology and organizations. Electives are intended to allow students to select courses which are applicable to their thesis topic and that provide necessary background knowledge to successfully complete their thesis research project. Supervisors oversee the course selection process in order to ensure that the courses are relevant to the students' research topics.

The general objectives are to help students develop relevant knowledge in the area of technology management and innovation.¹⁷ The core and elective courses are designed to aid students in meeting these objectives and to provide a foundation upon which to carry out in-depth research for the thesis component. For instance, mandatory courses like Research Methods help students develop qualitative and quantitative research skills (Appendix I-F and Appendix I-I).

The research seminar allows students and faculty to share, reflect, and discuss their own research methodologies, approaches, and results. This process, in particular, provides students with opportunities to learn about different research topics related to the area of technology and innovation management, and to engage with faculty. Students learn how to present, understand, and communicate ideas related to their research. Overall, this exposure familiarizes students with the theoretical basis of research, in addition to its practical applications.

Students in the MMSc degree are able to choose MBA courses as part of their selection of elective courses. The role of these courses is to increase the MMSc students' knowledge of practical applications, and to enable them to hone in on a research topic. MBA students also have access to some MMSc courses, as the two programs are highly intertwined.

5 b. Diversity and Inclusion

The Ted Rogers School of Management is committed to providing all of its faculty and students with an inviting environment. While some improvements still need to be made in order to fully meet the needs of students with accessibility concerns, the TRSM is dedicated to admitting students with scholarly merit and to accommodating students who require assistance.

While there are no core courses that specifically address either the theory or practice of diversity and inclusion, there are elective courses (e.g., MT8214 Managing in a Diverse World, Appendix I-F) as well as research topics that focus on these areas.

In particular, Dr. Deborah Fels' primary research focus is on assistive technology, including design and media. Students supervised by Dr. Fels receive in-depth training and exposure to these issues while undertaking their thesis research. In addition, Dr. Fels actively recruits graduate students with

¹⁷ (Ryerson University: Ted Rogers School of Management, 2012, paragraph 1)

disabilities and currently supervises two students (one PhD and one MSc student) with disabilities. Dr. Wendy Cukier is an active researcher in the areas of diversity and inclusion, and focuses on gender and justice studies. Students supervised by Dr. Cukier receive in-depth training and knowledge in these topic areas. Dr. Ojelanki Ngwenyama carries out research related to information technology management in the developing world. He provides students with opportunities to study diversity and inclusion through exposure to different cultures and systems in areas outside of North America.

Finally, the MSc degree consists of a diverse body of students with different cultural backgrounds. About 35% of MSc students are international students, which allows for a considerable amount of cultural diversity within the program.

5 c. Curriculum and Structure – Graduate Degree Level Expectations (GDLEs)

Both the student learning outcome goals and the content, teaching methods, and forms of assessment contained within the core curriculum of the MSc degree address all six of the Master's Degree Expectations (Appendix I-J and Appendix I-L). Depth and breadth of knowledge are gained through the development of an advanced understanding of management theories and analytical techniques as well as through the application of management theories to solve real world problems. These competencies are developed in the Research Seminar and through extensive theory review in the Theories of Technology and Organizations course.

Research and scholarship capabilities are acquired through coursework in advanced management research methods and analytical techniques in both Applied Research Methods courses and culminating in the production and defense of a thesis. The undertaking of a thesis together with skills developed in the Applied Research Methods courses also enhance students' abilities to apply knowledge in a variety of settings and circumstances.

All of the core program components contribute to student professional capacity and autonomy, with the thesis requiring a great deal of intellectual independence and personal responsibility. The thesis and the research seminar also support students in the enhancement of their communication skills. Student awareness of the complexity of knowledge is established particularly in the Research Seminar, the Theories of Technology and Organizations course, and during the process of completing a thesis.

5 d. Curriculum Development

The current curriculum of the MSc degree was devised in 2011 when several changes were made to the program structure, which was established at the program's inception in the fall of 2006. Appendix I-A (program/fee revision proposal) provides a breakdown of the changes implemented at that time. The earlier Program Council developed and proposed these changes in the Program Revision Proposal submitted to the School of Graduate Studies in 2011.

5 e. Enrollment in Program Courses

As Appendix I-M indicates, enrollment in the MSc core courses is very low, with a maximum of nine students enrolled in a required course and several courses having a total enrollment of only two or three students. All core courses with the exception of the Applied Research Methods I course and the

Master's thesis have only MMSc students enrolled. A small number of MBA/MBA-MTI students choose the Applied Research Methods I and/or the Master's thesis as electives.

MMSc students seem to enroll in a select few MBA/MMSc electives. The most popular are MT8212 (Innovation and Org Theory), MT8213 (Technology and Org Strategy), MT8214 (Managing in a Diverse World), and MT8216 (Global Markets & Tech Trends). Some MMSc students attend MBA Global electives and electives from other Ryerson graduate programs.

5 f. Relationship to Current Discipline and Profession

Academic research contributes to curriculum development and elevates teaching materials¹⁸. It also facilitates independent thinking and scholarly inquiry, helping prepare students for future business and leadership positions. Although important and essential to maintaining relevancy, applied research can be restrictive, as it tends to develop within the scope of specific business problems. Applied research must be balanced with basic or pure academic research, which allows for exploratory analysis and the development of new and innovative managerial strategies. Examples of such advances include theories of portfolio selection, agency theory and brand management¹⁹, all of which have heavily influenced management practices.

Students completing the Masters of Management Science in the Management of Technology and Innovation are prepared for research-intensive positions in industry and academia. Students develop research and critical thinking skills in the area of technology and innovation management, and are prepared to continue on in a PhD program in a related discipline, or to continue their career in government or industry.

Currently, students only have the option of specializing in technology and innovation management, and are prepared mainly for positions within this specialization. This narrow focus of the program has greatly reduced the MMSc's relevancy and ability to meet the increasingly diverse research and innovation needs of industry and society as a whole. The addition of several new areas of specialization could increase the effectiveness of TRSM in preparing students to meet a wide range of management issues and challenges, and in taking advantage of the existing intellectual capital of TRSM faculty. Broadly speaking, graduates would have better and more varied employment prospects as research associates or analysts in the financial industry, in consulting, or in other business/related management related fields.

5 f i. Professional Practice

The MMSc degree was created to provide students with rigorous research training. Students work towards completion of a thesis under supervision of a faculty member, and are taught research methods through course work (Appendix I-I and Appendix I-J). Research methods include a discussion of ethics as it relates to research practice. Academic integrity is strongly upheld throughout the program, where originality of any work submitted for evaluation is emphasized. The research component requires students to have a thorough understanding and appreciation for research ethics. This includes a

¹⁸ (AACSB International , 2008, p. 15)

¹⁹ (AACSB International , 2008, pp. 18-19)

required understanding of plagiarism during the program. This concept is expected to be upheld after graduation, whether students become aspiring academics or industry professionals.

5 f ii. Accreditation

The Ted Rogers School of Management attained Association to Advance Collegiate Schools of Business (AACSB) accreditation in 2011. This accreditation is prestigious, and will in turn positively affect TRSM's ability to attract high caliber students. Achieving AACSB accreditation was a rigorous process that took approximately seven years to achieve. To achieve and maintain AACSB accreditation, the Ted Rogers School of Management has had to implement improvements to its curricula, and increase research productivity. Maintaining accreditation will in part depend on sustaining a high research output, and expanding on the intellectual contributions from within TRSM²⁰. As the MMSc in its current form has not attracted a significant number of graduate students capable of contributing to scholarly, research and creative activity, this may reflect poorly in the cyclical review of the AACSB accreditation due in 2014.

The expansion of the current MMSc degree to include additional specializations to attract students with a wider range of research interests will significantly increase research productivity. Research proficiency and productivity is a stated goal of the MMSc degree, and expansion of the program will help TRSM stay on course to achieve this goal.

5 g. Student Engagement

5 g i. Innovative or Creative Content and/or Delivery

The core curriculum is delivered using a range of approaches, which remain within the traditional realm of delivering graduate content. Knowledge attainment is facilitated by lectures and on-line or face-to-face discussion groups, and is reinforced through the critical analysis of case studies, academic literature, and other assigned reading materials (Appendix I-J). Students demonstrate their grasp of key theories and proficiency in successfully applying analytical techniques through presentations and the development of research proposals, term papers, and a thesis. Most instructors also employ Blackboard as a means of facilitating course delivery and tracking grades.

Challenges

The program has followed a typical classroom format of content delivery where students attend classes on-campus. There has yet to be a substantial move towards greater innovation in content delivery. This is largely due to the strong emphasis placed on student-student and student-faculty interaction in achieving program goals. Nevertheless, minor modifications in content delivery that would complement in-class learning could be considered for the MMSc degree. For instance, traditional in-class learning could be better integrated with enhanced online delivery of material, greater use of Internet resources, and social media. Ryerson University is committed to being an accessible institution for all students, and content delivery should be adapted to the needs of individual students in the event that accessibility concerns arise. Ryerson's learning and teaching office could assist the program with this challenge.

²⁰ (Ted Rogers School of Management, 2010)

5 g ii. Partnerships or Collaborative Agreements

TRSM is forming partnerships with leading corporations in the data analytics industry to ensure that the curriculum reflects new and emerging trends in the business world. True to Ryerson's mission of providing a high quality, societally relevant education, corporate partnerships will allow the program to deliver a rigorous, hands-on learning experience that will produce highly skilled and sought-after data specialists. The School has made significant progress in forming partnerships, as a ground-breaking agreement with data and analytical software provider Pitney Bowes has been finalized. In signing this agreement, TRSM received over \$1.6 million worth of state-of-the-art data analysis software and extensive real-world datasets.

5 g iii. Experiential Learning Opportunities

Students gain considerable experience in developing research skills in the Master of Management Science program. The mandatory Research Seminar allows students to share and discuss their research with their colleagues, expanding their knowledge and understanding of the technology/innovation management field. Students also improve their ability to communicate ideas and research findings in a professional manner. Graduate and Teaching Assistant positions that provide relevant experience for students wishing to pursuing careers in academia and research are also available to a limited number of students. The degree culminates with the completion of an original intellectual contribution in the form of a thesis under the guidance of faculty members with expertise in a student's chosen research area. Creating additional GA/TA positions and introducing a research-based internship and/or a client-based research consulting course would better meet the experiential learning needs of students.

5 h. Student Assessment

Students' breadth and depth of knowledge in management theories and analytical tools is assessed by requiring students to present and reflect on their research topics and methodologies in the research seminar and through an extensive theory and literature review in the Theories of Technology and Organizations course (Appendix I-J and Appendix I-L). Research and scholarship skills such as the ability to effectively integrate, apply, and utilize management theories, research methods, and analytical tools are assessed throughout all components of the core curriculum. Qualitative and quantitative research method assignments in the Applied Research courses as well as a research proposal and case analysis assess students' proficiency in the appropriate application of research methods. The ability of students to communicate effectively is evaluated through presentations in the Research Seminar and during the oral defense of a thesis. Professional capacity and awareness of limits of knowledge is assessed throughout the program, with the successful completion and defense of a thesis indicating a student has the capacity to undertake advanced scholarly research independently.

Overall, the various forms of assessment employed within the MSc degree core curriculum effectively and appropriately measure student capacity to meet program learning outcomes and graduate degree level expectations. An exception would be that there is currently no direct evaluation of teamwork and students' ability to develop a successful business plan. Although these skills may not be as crucial to students pursuing careers in academia, they are essential for anyone considering a career in industry.

5 i. Student Success and Achievement

Since the launch of the program, six out of 30 (20%) students who completed at least one term of the MMSc degree withdrew from the program (Appendix I – Table 3). This figure does not include the nine individuals who failed to show up for their first term of classes (Appendix I – Tables 2 and 3). Two additional students transferred over to the MBA program. Surprisingly, only two of the six students who withdrew from the program had a CGPA below the 2.67 minimum for graduate studies, suggesting that other factors besides academic performance resulted in their withdrawal (Appendix I – Tables 3 and 4). Students who transferred to the MBA program were high achievers as MMSc students, and continued to excel in their MBA studies. The cumulative GPA of the students who transferred to the MBA program was 4.080.

Of the 23 students who have remained in the MMSc degree program, there has been only one instance of a student's CGPA dropping below the minimum 2.67 (Appendix I – Tables 3 and 4). However, three students have failed the Applied Research Methods I course. The two students who withdrew from the program due to poor academic performance also failed the Applied Research Methods I course.

In contrast, most students performed well in the Theories of Technology and Organizations course. Half the students received grades ranging from A- to A+, and the other half received grades ranging from B- to B+ (Appendix I – Table 4). One student failed the aforementioned course, but also withdrew from the program.

5 j. Variation from GPA Policy

The Master of Management program has not deviated from the Yeates School of Graduate Studies GPA policies.

5 k. Library Resources

The main library resources used by the MMSc degree include the online research databases. Over 11,000 current journal subscriptions in print or electronic format directly support the students and faculty of the Ted Rogers School of Management, as determined by a subject browse of the Business, Economy and Management and Information Technology categories in the Library's Journals by Title A-Z list (Appendix I-N). The primary databases, required for the specific research areas supervised in the program, include ACM Digital Library, ABI/Inform Global, Age, Scopus, Proquest, Web of Science, Inderscience and Computer Source. All of which are provided through the Ryerson Library. In addition, students have access to large and/or specialized secondary source databases such as Statistics Canada via the Ryerson library, or through supervisor funded access. When academic materials are unavailable, they can be easily accessed through the interlibrary loan option.

The Ryerson library also provides tutorials and seminars on how to use library resources effectively for research. It has a wide range of support services, such as a reader service for blind students who cannot access the electronic databases, some of which are not accessible by screen reading technologies. The Library has also formed a partnership with Student Services in the Ted Rogers School of Management. A team of professional librarians who specialize in business information sources is available for consultation from 12-2, Monday through Thursday in the Student Services office. These librarians also

provide instruction upon request, as well as personalized research support on an as needed basis. These services are in addition to those available in the main library, which include IT Support, a Writing Centre, ESL support, and a Mathematics Assistance Centre.

Challenges

The library provides access to a wide-variety of electronic databases that are well-suited to the research needs of MMSc. For students with disabilities, particularly blind students, these databases are not accessible by screen-reading technologies. This issue is not unique to the MMSc degree, but applicable to all graduate programs.

Library resources are detailed in Appendix I-N.

5 I. Student and Graduate Surveys

Results from student and graduate response surveys are reported in sections: 6 b iv. Program Review Student Satisfaction Survey and 6 b v. Graduate Survey.

6. Academic Quality Indicator Analysis

A recent report published by AACSB explains that the reputation of academic institutions largely depends upon the quality and quantity of their intellectual contributions. AACSB further defines scholarly inquiry as:

“A set of activities designed to systematically seek answers to questions of theoretical or practical importance to organizations, particularly those that focus on economic value creation. This includes examinations of behaviour in organizational contexts, as well as the social and economic settings within which such organizations are embedded. Scholarly inquiry emphasizes the process of inquiry, which in academic settings means applying discipline-specific knowledge and systematic, rigorous methods of analysis.”²¹

The number and quality of publications in peer-reviewed journals are frequently used to assess a school or department’s intellectual contribution. However, contributions can also include presentations at conferences, universities, or trade association meetings. Other intellectual contributions include trade journal articles and working papers. Authors often cite scholarly books, reviews and chapters, in addition to research seminars. Intellectual contributions advance business theory, and are an essential element of pedagogical research²². It is important to note that not all scholarly inquiry translates into intellectual contributions, as many investigations involve proprietary knowledge regarding specific companies. In addition, not all results of scholarly inquiry are publishable.

Academic research and intellectual contributions are important for sustaining and strengthening TRSM’s reputation. University reputations are increasingly dependent not only on accreditation, but also on how they are represented in the media, especially in university rankings. Research-intensive universities tend to fare better in rankings, such as those found in the *Financial Times*, because intellectual contributions

²¹ (AACSB International , 2008, p. 12)

²² (AACSB International , 2008, p. 13)

constitute an important variable in most ranking systems²³. These schools have increased research productivity and contributions by enrolling a substantial number of highly qualified graduate students capable of supporting a robust business research environment.

Although TRSM has made significant progress with respect to research productivity and intellectual contributions²⁴, the School has yet to meet its full potential in terms of research quality and output. The MMSc degree was positioned to be the major driver of research and innovation at TRSM, but has been unable to significantly contribute to scholarly, research and creative activity due to low enrollment. The MMSc degree in its current form is not attracting significant numbers of highly qualified students who are instrumental in the advancement of knowledge and innovation at academic institutions.

After several rounds of changes to the program, it is believed that the expansion of the MMSc degree to include a broader range of research specializations will make it more appealing to a greater number of people. A more comprehensive program would also take better advantage of the great demand for the scholarly study of a wide range of management issues, and of the diverse and varied qualifications of TRSM faculty. The end result would be greater research capacity, which would lead to increased research productivity that would enhance TRSM's reputation, help maintain the School's AACSB accreditation, and ensure the continuance of the MMSc degree.

6 a. Faculty

6 a i. Faculty Qualifications

Metrics for scholarly contributions made by faculty members who are pivotal to the MMSc degree are summarized in the table below. Appendix II contains the CVs of these faculty members.

Scholarly contribution metrics for MMSc faculty members:

Faculty	H-index	Publications	Citations
Dr. Ojelanki Ngwenyama	17	48	1454
Dr. Ayse Bener (moved to engineering)	14	95	640
Dr. Catherine Middleton	11	87	387
Dr. Deborah Fels	9	95	315
Dr. Ozgur Turetken	8	27	234
Dr. Farid Shirazi	4	18	42
Dr. Tim McLaren	4	9	180
Dr. Margaret Plaza	4	5	40
Dr. Aziz Guergachi	3	22	59

Source: Thompson Reuter's *Web of Knowledge*

6 a ii. Scholarly, Research and Creative Activities

Faculty members at TRSM are recognized leaders in their field. Some members acting as supervisors within the MMSc degree also supervise PhD level students in other departments, and actively contribute

²³ (Council of Canadian Academies, 2009)

²⁴ (Ted Rogers School of Management, 2010)

to research productivity within TRSM. In 2010, 72% of TRSM faculty members had completed a terminal degree (e.g. PhD), up from only 46.95% in 2005²⁵.

Research excellence is encouraged and rewarded within the School. TRSM offers the Faculty Scholarly, Research and Creative Activity Awards as well as SRC travel grants to facilitate research activities of colleagues. The SRC awards recognize outstanding scholarly achievement among faculty members. Each year four awards are given to tenured and untenured faculty.

The breadth of research interests represented by TRSM faculty does offer an excellent base upon which to expand the MMSc degree to include a variety of management research fields. The MMSc degree in its current format does not reflect the diversity of research currently being conducted by TRSM faculty members.

6 b. Students and Graduates

6 b i. Admission Requirements

The Master of Management Science degree seeks to admit competitive candidates with strong research skills. In addition, the following minimum admission requirements are maintained²⁶:

- A minimum overall B (73-76%) average in the last two years of university study
- Completion of a four-year bachelor's degree in a relevant discipline
- A score of 550 or greater on the standardized GMAT test
- Two letters of recommendation, one academic and one from a recent or current employer
- A comprehensive resume
- A statement of research interest and identification of a supervisor
- A test of English language proficiency and meeting the minimum standards are set forth by the Ryerson admission requirements (e.g. TOEFL minimum score of 93) for students with degrees from universities where English is not the language of instruction or examination

Students without a Bachelor of Commerce (Bcomm) or equivalent academic background, may be admitted, but are required to complete a set of foundation courses, mentioned earlier, in preparation for the program. These courses provide a basic introduction to business concepts.

At present, the admission standards require a minimum GMAT score of 550. However, the data from GMAC, the company that manages GMAT tests, reveals that the number of individuals who wrote the GMAT test in Canada during June 1, 2012 and March 31, 2013, scored a minimum of 570, had an undergraduate degree, and at least one year of experience, equalled 1,729. The number for Ontario was lower at 1,094. Given that there are at least three times as many MBA spots in Ontario, it is highly unlikely that those with high GMAT scores will in affect apply to the MMSc degree. Furthermore, the GMAT test is not designed to test the individual's research capabilities. It is therefore recommended that the GMAT test requirement be abolished and the admission criteria should focus on undergraduate

²⁵ (Ted Rogers School of Management, 2010)

²⁶ (Ryerson University: Ted Rogers School of Management, 2013)

GPA, academic references, English language proficiency, and suitability for research judged by previous scholarly work.

6 b ii. Student Qualifications

The incoming qualifications of MMSc students have been satisfactory for the most part, however low application numbers have made it difficult to attract and admit high achieving students with averages in the A range (Appendix I – Table 8). Over half of incoming students had either a B or B+ average, while only a third had averages in the A range. Application numbers were so low in certain years that 16% of admitted students had averages of B- or below. In fact, three incoming students had averages in the C range.

6 b iii. Enrollment, Retention and Graduation Data

Since its inception in 2006, only ten students have graduated with an MMSc degree, and only 30 students in total have been enrolled (Appendix I – Tables 2 and 3). In addition, at least two students originally enrolled in the MMSc degree transferred to the MBA program, and at least six other students permanently withdrew from the program and Ryerson altogether (Appendix I – Tables 3 and 4). A comparison of the number of registrants and student academic records over the years also indicates that nine students who accepted offers of admission failed to show up for their first term of study.

The 2011 Program Revision Proposal identified three main problems of the pre-2011 program that needed to be addressed in order to increase the attractiveness and quality of the program (Appendix I-A). These issues included the inflexible core curriculum content and structure, unachievable time to completion expectations, and high fees compared to similar programs at other institutions. The document proposed a streamlined, flexible curriculum, more realistic time to completion targets, and a more affordable fee structure similar to other research-based graduate programs at Ryerson.

6 b iv. Program Review Student Satisfaction Survey

A survey of current students and recent graduates was conducted for the self-study. Given the low enrollments over the years, the non-random sample consisted of five current students and nine alumni. The detailed results of the survey are presented in Appendix I-O. Given that the same survey was used to collect information from students and graduates, the combined results from students and graduates, and the survey form are presented in Appendix I-O.

Of the fourteen who responded, seven were Canadian citizens, three international students, two permanent residents, and one did not answer the question. Eight respondents were females and six were males. Only two respondents identified themselves as members of a visible minority. Eleven attended the programme as full-time and three attended as part-time students.

Of those who had graduated from the program, seven were employed, one was looking for a job, while another pursued higher education. Of the nine graduates, only three were employed within six months, while six were employed within two years.

Of the fourteen respondents, twelve reported that they would recommend the degree to others. Their satisfaction with the program was instrumental in their willingness to recommend the program to

others. For instance, eleven of the fourteen suggested that their research supervisor provided helpful academic advising. At the same time, of the fourteen, twelve believed that their professors' knowledge was current. Similarly, twelve were of the opinion that the teaching in the MMSc degree was of high quality.

In their written comments, students and graduates recommended that the degree fees should be lowered to bring them in line with the fee structure prevalent in other graduate programs at Ryerson University. At the same time, they also recommended that the research scope be expanded to include other research specialisations. Some also recommended to change the name of the degree to Masters of Management Science by dropping the reference to innovation and technology, which they believed limited the scope of the degree and made it less appealing to those seeking other specialisations.

6 b v. Graduate Survey

See the previous section.

7. Resources

7 a. Human Resources

Since 2006, there have been seven faculty members involved in the delivery of the MMSc core curriculum (see list below in section 7 a i.). Four individuals are associated with the Ted Rogers School of Information Technology Management (TRSITM), one is a member of the Ted Rogers School of Business Management (TRSBM), another is affiliated with Mechanical and Industrial Engineering (formerly TRSITM), and Dr. Wendy Cukier is the University's current Vice-President of Research and Innovation. Elective courses listed in Appendix I-E are taught predominantly by faculty associated with TRSITM and are shared with the MBA in the Management of Technology and Innovation. Appendix I – Table 14 lists all Technology and Innovation courses by term and academic year, with instructors and class enrollment indicated. In the 2011/2012 academic year, 21 faculty members taught 24 Management of Technology and Innovation courses. Student thesis supervisors are drawn primarily from TRSITM (Appendix I – Table 15).

7 a i. Faculty

- MT 8103: Dr. Ojelanki Ngwenyama (TRSITM), Dr. Wendy Cukier (VP, Research & Innovation), Dr. Ayse Bener (Mechanical & Industrial Engineering)
- MT 8104: Dr. Ojelanki Ngwenyama (TRSITM), Dr. Rein Peterson (TRSBM), Dr. Wendy Cukier (VP, Research & Innovation), Dr. Ayse Bener (Mechanical & Industrial Engineering), Dr. Margaret Plaza (TRSITM)
- MT 8219: Dr. Ojelanki Ngwenyama (TRSITMM), Dr. Rein Peterson (TRSBM), Dr. Ozgur Turetken (TRSITM)
- MT 8900: Dr. Wendy Cukier (VP, Research & Innovation), Dr. Deborah Fels (TRSITM)

The faculty members currently involved in teaching MMSc courses are more than sufficient to meet the specialized goals of the existing program. Low enrollment (Appendix I-M) has meant that student to faculty ratios are very low, with no more than six students per faculty member since the program's

inception, and in the 2009/2010 academic year there were only 2.3 students per faculty member (Appendix I – Table 16). If the program is expanded to include additional research areas then TRSM faculty from schools/departments other than just the School of Information Technology Management will need to play a larger role.

7 a ii. Support Staff

The MMSc draws on staff from the MBA Team Office and the TRSM Office of the Dean. Gloria Fernandes, Graduate Program Administrator is responsible for major administration tasks including admissions, academic counselling, registration and enrollment, academic reporting, class scheduling and many other duties. Jabeen Aslam, Program Manager, assists with admissions and recruitment activities, and is supported by Teguh Amith and Theeban Pathmanathan, both of whom are Service & Recruitment Assistants. Niklaus Ashton, Research Support Specialist assists the Associate Dean of Research and Graduate Programs with monitoring all research activity within TRSM, including the research activity of MMSc students and faculty. Appendix I-S provides a summary of current and anticipated faculty/ support staff personnel.

7 a iii. Academic Assistants

Graduate and Teaching Assistant positions that provide relevant experience for students wishing to pursuing careers in academia and research are available to a limited number of students. During the 2011/2012 academic year, three students held Graduate Assistant positions (Appendix I – Table 15).

7 a iv. Curriculum Counselling/Advising

Electives are intended to allow students to select courses which are applicable to their thesis topic and that provide necessary background knowledge to successfully complete their thesis research project. Supervisors oversee the course selection process in order to ensure that the courses are relevant to the students` research topics.

7 b. Physical and Financial Resources

7 b i. Space Allocation

Physical

There are several research centres and institutes within TRSM and one external centre located in Engineering with which the MMSc faculty member are associated with. These are:

- The Diversity Institute in Management and Technology
- The Institute for the Study of Corporate Social Responsibility
- The Institute for Innovation and Technology Management
- Inclusive Media and Design Centre (IMDC)
- Privacy and Cyber Crime Institute (PCCI)
- Centre for Urban Energy (Engineering)
- Customer Analytics Institute (will be launched soon)

Four of these centres/institutes have physical space allocated to them, and students associated with research at these facilities are assigned desks and other resources (e.g., computing, software, etc.) as required. Students associated with the other three facilities, or with supervisors not associated with any of these centres/institutes, have no physical space allocated other than general work areas (e.g., library).

The original plan of the MMSc degree was to allocate space to all of the students. The lack of dedicated space may have contributed to some students not completing the program. Additional space will need to be secured if the program's scope is expanded and enrollment numbers increase. An analysis of space should be conducted for supervisors who do not have allocated space.

7 b ii. Laboratory/Studio Facilities

Students have access to the laboratories associated with the research centres described above.

7 b iii. Computing Facilities

All MMSc students have access to computer labs in TRSM, as well as computing facilities in the Ryerson Library.

7 b iv. Financial Resources

The original implementation of the MMSc degree was to provide all students with financial support, in the amount of at least \$5,000 for each student. However, financial resources in this program are currently very limited, particularly for student stipends. There is neither a departmental budget dedicated for student stipends, nor a consistent and dependable source of grant funding for stipends. However, resources have been made available from the shared MBA/MTI/MMSc budget (as outlined in the table below) and from various grants held by supervising faculty. For instance, one student was able to secure a funding award from the Centre for Urban Energy.

As of 2011, the Ted Rogers School of ITM has committed to placing all MMSc students in GA-ships to provide some financial support and academic preparation training to students. The TA/GA budget for 2013/14 is estimated at \$1.35 million. In the past, similar amounts have been made available to mostly undergraduate students at TRSM and graduate students from other faculties. It is likely that the new crop of MMSc students will be more eligible to work as TA/GAs in TRSM and some of the MMSc student funding will be in the form of teaching and graduate assistantships.

Table 3: MMSc student funding commitment by the faculty in TRSITM

Period	Funding Strategy	Amount/annum
2006 - 2011	Provide all MMSc students with annual program funding Supervisors with research grants to provide student stipends for their own students at level required by funding organization	\$6,000 \$16,500 (NSERC) \$15,000 (SSHRC)
2011	Provide all MMSc students with annual program funding Supervisors with research grants to provide student stipends for their own students at level required by funding organization GAship	\$3,000 No limit (NSERC) No limit (SSHRC) \$4,000
2012	Provide all MMSc students with annum program funding Supervisors with research grants to provide student stipends for their own students at level required by funding organization GA-ship	Uncertain No limit (NSERC) No limit (SSHRC) \$4,000

Challenges

The major challenge for the MMSc degree is to secure a reliable and stable source of student stipend funding. ITM's commitment to allocating TA/GA monies towards this is an important step in meeting this goal. However, there are no funding objectives or goals related to student stipends and these should be set out for the MMSc degree. Example objectives could include setting a minimum level of funding for each student, incentives for faculty to submit grant applications beyond the traditional tri-council funding programs, and an MMSc degree budget to address these suggestions.

8. Strengths, Weaknesses and Opportunities

Although the Master of Management Science in the Management of Technology and Innovation program faces several challenges, it has achieved some of its core objectives. Overall, curriculum content and methods of assessment have been successful in providing students with the knowledge and skills needed to excel in research-based management positions within the IT sector. The core curriculum also ensures graduates leave the program having advanced scholarly and professional capabilities expected of Master's degree graduates. A key strength of the MMSc degree is student exposure to highly qualified faculty who are passionate about research and who are leaders in Information Technology research. A strong faculty committed to teaching excellence and knowledge production has upheld the learning objectives of the MMSc degree, and has inspired program graduates to advance innovation in the IT sector.

Conversely, several aspects of the MMSc degree require improvement in order for the MMSc to meet and surpass enrollment targets, learning outcome objectives, and Graduate Degree Level Expectations. The following weaknesses must be addressed in order to increase the attractiveness and relevance of the existing program:

- The scope of curriculum is too narrow (i.e., it focuses exclusively on the management of technology and innovation) and does not reflect societal need for research and innovation in a variety of management fields (e.g. marketing, finance, human resources management, etc.).
- There is a lack of experiential learning opportunities (e.g. Graduate Assistantships, internships) which aid students in launching careers in academia or industry.
- Financial support and dedicated space for current MSc students is inadequate.

The MSc degree in its current format has seen extraordinarily low enrollment numbers. In comparison to other universities in Canada, it is reasonable to deduce that this difference from the norm can be attributed to a lack of specialization options. There is great opportunity to extend the MSc degree by offering additional research options, which are likely to increase student enrollment. This in turn will contribute to an improvement in TRSM's reputation and research productivity, as graduate students increase research capacity and strengthen research productivity and intellectual contributions. The human resources required for the expansion of the program are already available within TRSM since the MSc degree draws on a variety of faculty members within the Ted Rogers School of Management. In its current form, the program only provides IT related specializations, and as such only a limited number of faculty members are being engaged and their skills utilized to enhance and further develop the degree. Given the presence of excellent faculty in other research specializations, TRSM is well positioned to meet increased student demand for a revised, more comprehensive MSc degree.

Although having the human resources required for a program expansion, space and financial resources pose a challenge. At this time, sufficient space is available for the current level of enrollment in the MSc degree at TRSM. To support increased enrollment in the future with the expanded program, additional office space for students will need to be secured.

Students have so far received some funding when admitted to the program. They are able to receive funding from one or more sources, including scholarships, GA-ships and their supervisors. Students received anywhere from \$3,000 to \$17,000 throughout the program (Appendix I – Table 15). To support program expansion, the University and the TRSM should consider committing funding for up to 20 new students each year, in the amount of \$10,000 per year per student for at least the first three years.

Attracting excellent students depends on offering a comprehensive program with research opportunities that are in line with the breadth of faculty research interests at TRSM. In addition, offering a competitive funding package, or funding opportunities, to new students will act as a good incentive for high caliber students to choose the Ted Rogers School of Management. Other universities in Canada offer funding for MSc students, ranging from \$12,000 - \$15,000. For example, Wilfrid Laurier University offers all incoming students a \$12,000 funding package²⁷. HEC Montréal offers limited automatic funding, but it facilitates and encourages students to apply for external funding. In 2011-2012, a total of 21 MSc students at HEC Montréal received government funding of \$15,000-\$17,500²⁸. In addition, HEC Montréal provides resources for students to find funding opportunities with non-government agencies.

²⁷ (Wilfrid Laurier University, 2012)

²⁸ (HEC Montreal, 2012)

All things considered, attracting high-caliber graduate students will elevate the reputation of the Ted Rogers School of Management, as well as increase the institution's intellectual contributions. Expanding the current scope of the MMSc degree is an opportunity to attract a wider range, and greater number, of bright students. It is important to note that such an expansion requires support from Ryerson University in order to ensure success. Particularly, the expanded program will require support in the form of additional space and funding for the initial few years to attract students. Once a culture of research and scholarship is established, and the program builds brand equity, it is expected that faculty and students will be able to generate research funds to support research at TRSM.

9. Developmental Plan

After numerous attempts to modify the MMSc curriculum structure, time to completion guidelines, and fees structure, it is increasingly apparent that expanding the program to include additional management specializations and research options is the only way to attract a greater number of qualified students. The expansion of the program will increase enrollment and thereby improve TRSM's research capacity, which will enhance TRSM's reputation, help maintain the School's AACSB accreditation, and ensure the continuance of the MMSc degree.

Significant improvements to the School's existing research-based MMSc degree should be implemented. It is proposed that TRSM enhance its current MMSc degree by introducing additional research options and areas of specialization. This is to be accomplished by leveraging TRSM's existing research capacity in the form of highly qualified faculty and research centres/institutes, which will assist in the establishment of a strong research infrastructure capable of supporting a more comprehensive research-based degree. Existing human, physical, and financial resources will be harnessed to develop new curriculum and provide greater support for graduate students as part of the implementation of an expanded program.

Specializations

Throughout Canada, Master of Management Science programs focus on a wide range of topics, including finance, marketing, human resources, and supply chain management (Appendix I-K). In order for TRSM to broaden its research focus, it is proposed that the current MMSc degree be expanded to include, but not limited to, the following specializations:

- Finance and Accounting
- Marketing/Consumer Behaviour
- Management:
 - Retail Management
 - Hospitality Management
 - Supply Chain Management
 - Global Business Management
 - Real Estate Management
- Human Resources/ Organizational Behaviour
- Entrepreneurship
- Business Analytics

Course Structure

In order to accommodate the expanded MSc degree, the current course structure would have to be modified only slightly to provide a foundation for each of the specializations. The change required in the curriculum is minimal. It is proposed that the required theory course, MT8219 (Theories of Technology and Organization), be made an elective course so that those who are interested in technology and innovation may still take the same course, while others may opt for appropriate theory courses that would meet their research needs. Thus, the number of required electives will increase to four from three, whereas the number of required core courses will be reduced from three to two.

Table 4: The current course curriculum

Term	Course	Credit
One	MT8103: Research Methods I	1
	Elective 1	1
	Elective 2	1
	Seminar	Pass/Fail
Two	MT8104: Research Methods II	1
	MT8219: Theories of Tech & Org	1
	Elective 3	1
	Seminar	Pass/Fail
Three & Four	Continuation and completion of the thesis	5

In the revised framework, a specialization-specific theory course will be offered for each specialization in order to ensure that the curriculum is relevant. Theory courses will be developed by the departments/schools responsible for administering each particular specialization. MT8219: Theories of Tech & Org will continue to be available to students pursuing research in technology and innovation.

Electives for the different specializations could be chosen from the Ryerson MBA program and other relevant graduate programs, as well as from courses offered by other institutions, such as the University of Toronto and York University. However, it is recommended that at least one of the four electives be taken at TRSM.

It is also assumed that students pursuing the MSc degree will benefit from the large number of courses offered as part of the MBA degrees. This would reduce the number of new courses required to offer electives in a variety of research specializations. Table 7 below presents a list of courses that have been offered in the MBA programs at TRSM, which are mapped against various research specializations for the MSc degree. While the table presents the mapping for illustrative purposes only, i.e. it will be up to the supervisory committee to propose electives for individual students, it can still be seen that the need to mount new courses will be minimal.

The implementation plan is proposed below.

Implementation

The implementation of the proposed changes will require the following steps:

1. The required core course MT8219 (Theories of Technology and Organization) will no longer be a required course.
2. MT8219 will be replaced by a required elective.
3. The two research methods (MT8103 and MT8104) will continue to be the required courses and will be modified to reflect the diverse research needs of graduate students whose research may focus on the specializations listed above.
4. A new director of the MMSc degree will be appointed to replace the Acting Director at the earliest.
5. A comprehensive marketing plan will be devised to ensure that the expanded MMSc degree is known to prospects in the Greater Toronto Area. A combination of print and digital ads will be taken in addition to a mailing campaign targeting recent graduates.
6. The GMAT requirement will be abolished to ensure that research-oriented students are not discouraged from applying to the MMSc degree.
7. Training workshops will be run in advance for professors on how to supervise graduate students focusing on structuring supervisory committees, developing individual programs of study for students (e.g., specifying electives), monitoring research progress, co-authoring papers with graduate students, providing advisory support for research and thesis, etc.
8. Request for dedicated space for MMSc students in the form of a graduate computer lab in TRSM will be made. At present, there is no space available for MMSc students in an expanded program.
9. The name of the degree will be changed from Master of Management Science in Management of Technology and Innovation to simply “Master of Management Science.”
10. MMSc at TRSM is the most expensive research-based master’s degree at Ryerson University. At the same time, tuition fees of other comparable degrees in Ontario are found to be lower than that of the MMSc at Ryerson University. It is proposed that the MMSc tuition fees be in line with the tuition fees of other research-based Master’s programs at Ryerson University.
11. Assuming that the revised degree will attract 20 students, it is proposed that \$10,000/student be provided for the first three years to help attract bright students.

It is hoped that the proposed changes to the curriculum and the name of the degree will be made in time, making it possible to launch the new degree in September 2014. Several faculty members have indicated interest in attracting MMSc students to TRSM, and they are awaiting regulatory approval so that they can admit students.

Faculty Consultation

Over the past 20 months, the Associate Dean of Research and Graduate Programs has presented the idea of broadening the MMSc specializations to faculty members at TRSM. The idea was first presented to the Chairs and Directors in the Dean’s biweekly meetings on several occasions. Subsequently, the Associate Dean individually addressed faculty meetings of schools and departments to present the idea of an expanded MMSc degree with specializations along the lines of faculty research expertise.

The idea won the support of most faculty members. Some, however, expressed reservations about availability of resources, student funding, the name of the degree, higher tuition fees for the MMSc

degree at Ryerson University, and the lack of flexibility in the curriculum. The proposed changes to the program address all reservations expressed by the faculty.

In addition, a survey was also conducted of all regular faculty members. The detailed results of the survey are presented in Appendix I-R. Of the 130 RFA members in the faculty of management, 56 responded to the survey. Two instructors also responded to the survey. A breakdown of faculty members by rank is presented below.

Table 5: breakdown of faculty members by their academic rank

Rank	Count
Assistant Professor	13
Associate Professor	27
CUPE Instructor	2
Limited Term Faculty	3
Professor	13
Grand Total	58

The survey revealed that since 2006, 75% of faculty members at TRSM have not been involved with the MMSc degree in any capacity. Thus, only a handful of faculty members in the Ted Rogers School of Information Technology Management have been at the helm of the MMSc degree. Of those faculty members who have been involved with the MMSc degree, only two faculty members responded that MMSc students were fully integrated within the faculty members' research agenda.

Only 18% of faculty members reported that they were satisfied with opportunities to supervise graduate students at TRSM. Again, only 14% were satisfied with the opportunities for graduate students to participate in the faculty's research. Despite its shortcomings, only 10% of faculty members supported the idea of abandoning the MMSc degree, suggesting that the overwhelming majority would like to see the degree succeed. For this reason, 73% reported that they would like to see the MMSc degree expanded to include several new research focuses. As well, 64% of respondents expressed a willingness to act as a research supervisor and 61% agreed to serve on supervisory committees. At the same time, only 10% of faculty members supported the idea of abandoning the GMAT requirement for MMSc students. However, given the scarcity of qualified applicants who meet the minimum GMAT score of 550, it is recommended that the GMAT score not be required as part of the admission requirements.

Governance

There exists a Graduate Academic Council (GAC) at TRSM that rules on academic matters related to the MBA and MMSc. The draft of a formal GAC has been ready for implementation at TRSM. Since Senate Policy 45 has been revised recently, the GAC will be reconstituted accordingly by Fall 2013. In the interim, the following governance structure is proposed.

Table 6: MMSc governance structure

Tasks	Dean's office*	Departments/schools
Budget	Dean's office will be responsible for all budgetary allocations/decisions.	
Promotion - marketing	Will coordinate marketing for all MMSc specializations. Funds will be sought to market the expanded degree.	Faculty members will promote and attract students.
Admissions	GAC's admission committee will manage files and transmit to schools/depts. as per the expressed research interests of the applicants.	Will select students, assign supervisors, and send recommendations to the Dean's office.
Curriculum	Senate Policy 45: Graduate Academic Council will govern curriculum for all grad program offerings. Not yet in place.	Schools/depts. will devise respective curriculum and coordinate with GAC.
Common curriculum	Common curriculum: Two research methods courses will have to be redesigned to make them relevant to other specializations in collaboration with departments/schools.	The Schools/depts will identify their unique requirements for the two research method courses.
Staffing/teaching	Director of MMSc program will negotiate with Schools/depts on how and who to teach in the MMSc program. AACSB AQ/PQ requirements to be considered as well as budgetary implications.	Schools/depts will advise and nominate faculty for required and elective courses.
Student progress monitoring	Dean's office will be responsible for graduate record keeping through G. Fernandez.	Schools/depts will be responsible for ensuring that students complete graduate coursework and subsequent research deliverables.
Academic conflicts/disputes	Director of the MMSc will be responsible for dispute resolution. ADRGP will be advised. YSGS procedures and policies will guide the resolution process.	The chair or director of the School/dept will be the first point of contact.
Student funding	Dean's office will negotiate with the University for funding. Not in place yet.	Research supervisors are expected to support students through their research grants. Schools/depts should consider MMSc students as a priority for GA-ships.

* Dean's office is represented by the Associate Dean of Research and Graduate Programs (ADRGP).
GAC: Graduate Academic Council.

Table 7: A list of courses offered in the past in the MBA degrees that could be taken by MMSc students as electives.

Course	Name	MBA Courses	Supply Chain	Global Biz	Marketing	Finance	Misc./Research	MTI
MB8108	Reg Government and Soc Responsibility Mgmt	Required					Misc.	
MB8104	Acc and Finance for Todays Managers	Required				Fin		
MB8105	World Logistics and Supply Chain Mgmt	Required	SC					
MT8215	Finance and Technology Valuation	Required				Fin		
MB8103	Strategy in an Intl Business Environment	Required	SC	GB				
MB8106	Managing in a Diverse World	Required		GB			Misc.	
MT8213	Technology and Organizational Strategy	Required	SC	GB				IT
MT8212	Innovation and Organizational Theory	Required		GB			Misc.	IT
MB8107	Advanced International Marketing	Required		GB	Mktg			
MB8401	Marketing Management	Elective			Mktg			
MT8810	Prod Devel, Commercialization	Elective						IT
MB8600	Research and Communication for Managers*	Required					Research	
MB8202	Intl Environment Financial Decision-Making	Elective		Global Biz		Fin		
MB8004	Accounting	Foundation				Fin		
MB8003	Marketing	Foundation			Mktg			
MB8201	Intl Strategic Management Challenges	Elective	SC	GB				
MB8502	Retail and Commercial Development	Elective				Fin		
MT8216	Global Markets and Technology Trends	Required		GB				IT
MT8214	Managing in a Diverse World	Required		GB			Misc.	
MT8600	* Research and Communication for Managers	Required					Research	
MT8217	Ethics and Corporate Social Responsibility	Required					Misc.	
MB8005	Finance	Foundation				Fin		
MT8425	Digital Media in Practice	Elective			Mktg			IT
MT8310	Special Topics Info Sys Mgmt	Elective						IT
MB8403	Competitive and Market Analysis	Elective		GB	Mktg			
MT8108	Regional Government and Social Responsibility	Required					Misc.	
MB8506	Real Estate Finance	Elective				Fin		
MT8511	Op Mgmt, Process Improvement	Elective	SC	GB				

MB8711	Negotiation and Conflict	Elective	GB			
MT8510	Adv Supply Chain Mgmt Practices	Elective	SC			
MB8602	Investments for Today's Manager	Elective	Fin			
MT8808	Consulting Skills	Elective	SC	GB	Mktg	Fin
MT8220	Adv Project Management	Elective				
MT8304	Governance of IT	Elective				IT
MB8207	Special Topics in International Business	Elective	GB			
MT8314	Human Factors in Tech Design	Elective				IT
MB8407	Special Topics in Marketing	Elective	Mktg			
MT8103	Applied Research Methods I	Required				Research
MB8509	Comparative Healthcare Pol and Mgmt	Elective				

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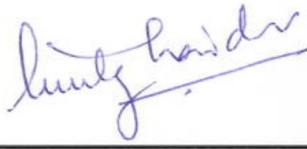
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14. Appendix IV – Approval and Consultation Documentation

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Name	Ken Jones
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