A Systematic Approach to Marketing and Communication: A Case Study of MIT System Design and Management Program

by

Na Wei
Bachelor of Science, Electrical Engineering, 2013
University of California, Los Angeles

Submitted to the System Design and Management Program
in Partial Fulfillment of the Requirements for the Degree of
Master of Science in Engineering and Management
at the

Massachusetts Institute of Technology

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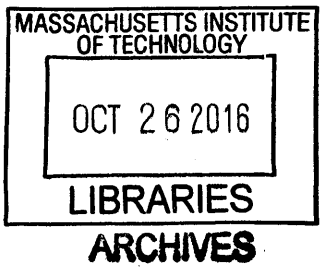

Signature redacted

Signature of Author:.....
Na Wei
System Design and Management Program

Signature redacted

Certified by: .....
Patrick Hale
Thesis Supervisor
Executive Director, System Design and Management Program

Signature redacted

Accepted by: .....
Patrick Hale
Executive Director
System Design and Management Program

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ABSTRACT

Different from the for-profit organizations' marketing objectives, marketers in academic sectors tend to have a different set of priorities comparing to ultimately increasing goods or services sales to gain profit. This thesis attempts to explore the effective marketing and communication methods to establish strong brand recognition and to attract the best and brightest candidates for the graduate program – the MIT's System Design and Management Program (SDM).

This research incorporates findings and observations from the semi-structured interviews with the program employees to obtain a historical overview of the program, the current marketing and communication efforts, and the challenges and difficulties it faces. On the other hand, a student and alumni survey was conducted to exam students' perceptions of SDM's marketing and communication. Based on the data collected and findings gathered, further analysis is carried out to assess SDM's competitiveness among the seven programs participated in the Master of Engineering Management Program Consortium (MEMPC), and to map-out the program's stakeholder value network for stakeholder management navigation.

Additionally, a marketing and communication project assessment form is proposed to estimate the cost-effectiveness of a proposed project based on the ratio of the input values required (dollar amount, man-hour commitment, etc.) and the values it generates (stakeholder satisfactions, increase in engagement, brand recognitions or other anticipated impacts). Meanwhile, the considered implementations to improve SDM's online presence and alumni engagement are suggested.

Thesis Supervisor: Patrick Hale
Title: Executive Director, MIT System Design and Management Program

ACKNOWLEDGEMENT

This thesis concludes the extraordinary journey at MIT. There are so many things and people that I owe my sincerest gratitude to. The support, encouragements, and inspirations I gain from the intelligent, humorous, amazing SDM fellows, friends, and professors at MIT. I thank you for broadening my perception and enriching my life. I truly adore this unforgettable a year and a half we share together and cherish the friendships and connections we built. I sincerely wish you all well and successful.

I would like to thank my thesis advisor, SDM program director, Patrick Hale. His advice, insights, encouragements, and trust guided me through this thesis and more. Pat and the staff team together fostered a caring and loving home and provided me a place I belong. Thank you, sincerely.

My appreciation likewise extends to the SDM staff and SDMers who participated in my thesis research. Thank you all for your time and support. Without your contributions, I wouldn't have completed my research.

Finally, a heartfelt thank you goes to my family. I would not even dare to imagine a life studying and living abroad without my parents' support and belief in me. To my sister Wei and brother Hui, thank you for being my companions. I will never forget what we have been through, and I look forward to what the future holds.

December 24, 2015
Cambridge, MA
Na Wei

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TABLE OF CONTENTS

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CHAPTER 1 – INTRODUCTION

1.1. MIT's System Design and Management Program Background

1.1.1. Program Mission

"This is a program for those who want to lead engineering, not leave engineering."

– MIT Professor Thomas Magnanti, SDM Founding Co-Director (Hale, 2014)

Ever since MIT granted the approval for the formation of the program two decades ago in 1995, the SDM program mission statement always reads:

> *To educate future technical leaders in architecting, engineering, and designing complex products and systems, preparing them for careers as the technically grounded senior managers of their enterprises*
> *To set the standards for delivering career-compatible professional education using MIT's most advanced information and communication technologies [1]*

As a unique program targeting integration of the engineering, management, and system thinking, the program empowers its graduates to excel in obtaining holistic perceptive, "leading organizations in understanding and leveraging complexity", and "transforming ambiguity into clarity" dealing with large-scale, complex problems [1].

1.1.2 Program Origin and Evolvement

The first graduate-level degree-granted academic program offered primarily at the distance at the Massachusetts Institute of Technology (MIT) - the System Design and

Management (SDM or MITsdm) Program was approved in 1995 and welcomed its very first cohort of 35 students representing 11 companies in 1996 [2][3]. In conjunction with MIT's School of Engineering School and Sloan School of Management, the program was co-founded by the (now) Dean of Engineering School (then Professor of Management) Thomas Magnanti and Professor Ed Crawley. The intent is to teach the holistic and systematic approaches to "acquire both engineering depth in the area of system design and new product development and management breadth" [4]. During 1996 to 2004, the program was primarily corporates sponsored and synchronous distance technology supported for the mid-career professionals selected by sponsor companies and approved by SDM's admission process with few self-supported candidates [2].

Because of the close-fitting industrial relation, the program shared the risks of economic variability, which posed a vulnerability to lean economy and led to instability in the program's sustainability. In response to the economic regression in 2000 to 2002 when the industrial discretionary funding reached it's historic low, a career-compatible "Local Commuter" program option was established in 2005 allowing the program to achieve its mission effectively and less dependent on the economic condition [2]. A decade later, the Commuter Option has become the most popular option, and SDM has evolved to provide a combination of the full-time on-campus, part-time distance, and local commuter options. To attract talented and experienced scientists, engineers, military personnel and other technical professionals a mixture of self-supported, partial and full sponsorship options with duration ranging from 12 months to 21 months became the common themes in the program, as demonstrated in Figure 1 [5]. In order to adapt to the different student profiles and to accommodate to their needs, SDM has evolved and became a highly flexible, career-compatible, and adaptive program with a variety of program options.

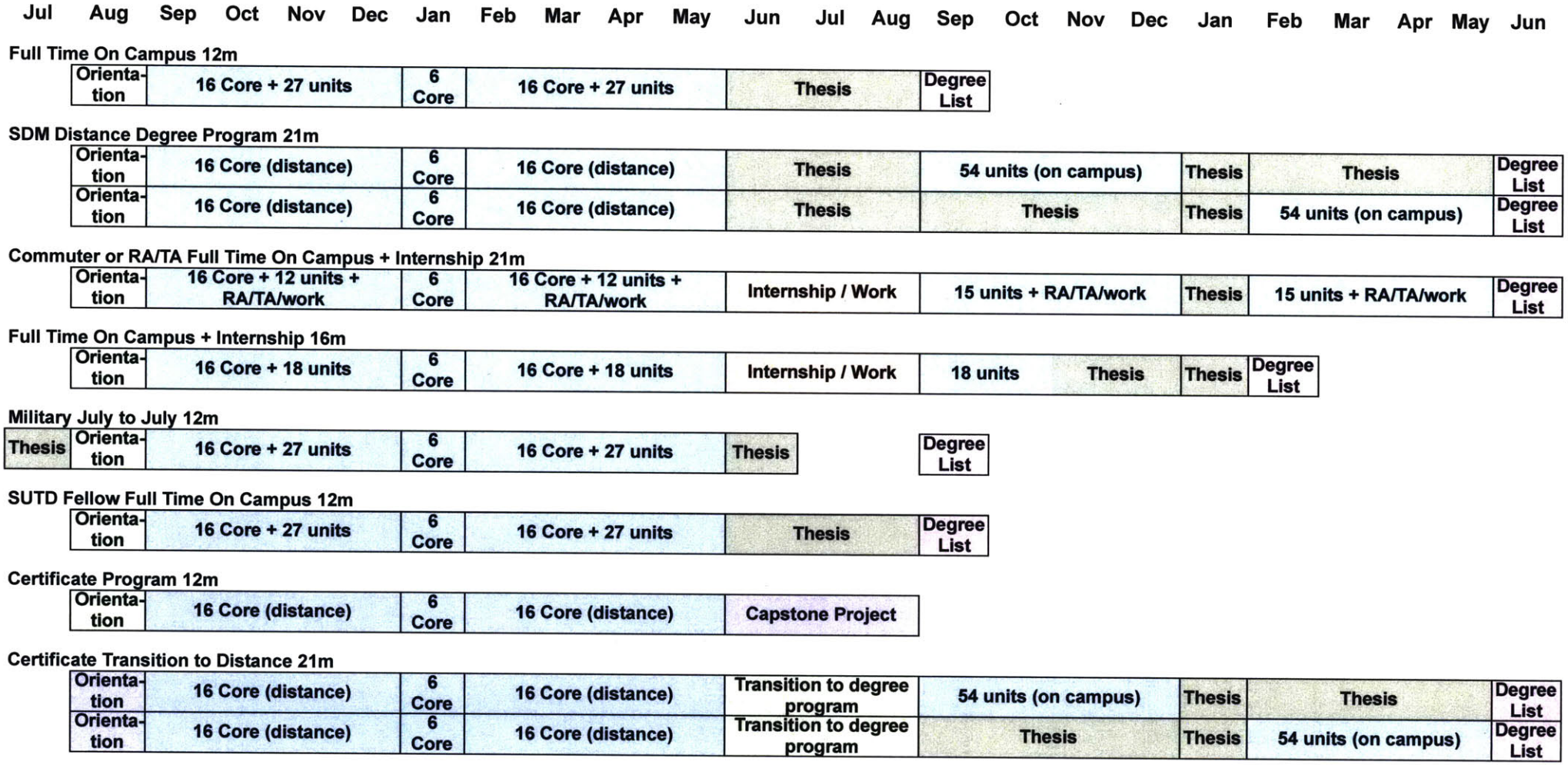

Figure 1. System Design and Management Program Options and Schedules (Hale, 2014)

1.1.3. The Master's Degree Program

SDM master's degree program is offered in conjunction with MIT's School of Engineering and Sloan School of Management. The degree program graduates earn an S.M. in engineering management from MIT. The course requirements include SDM Core Classes, approximately balanced distribution of management, engineering foundations and electives courses, and encourages focus areas per students' preferences. The SDM Core classes are one-year long integrated courses covering subjects in System Architecture, Systems Engineering and Project Management. The foundation and electives courses can be selected from any engineering and management schools at MIT and cross-registration from Harvard University. Such tractable course selections grant the students with complete autonomy. Besides the course requirements, degree students also need to complete a dissertation demonstrating the knowledge, insights and skills one acquired, and intellectual leadership one developed by taking on challenges with "substantial size and significance"[6].

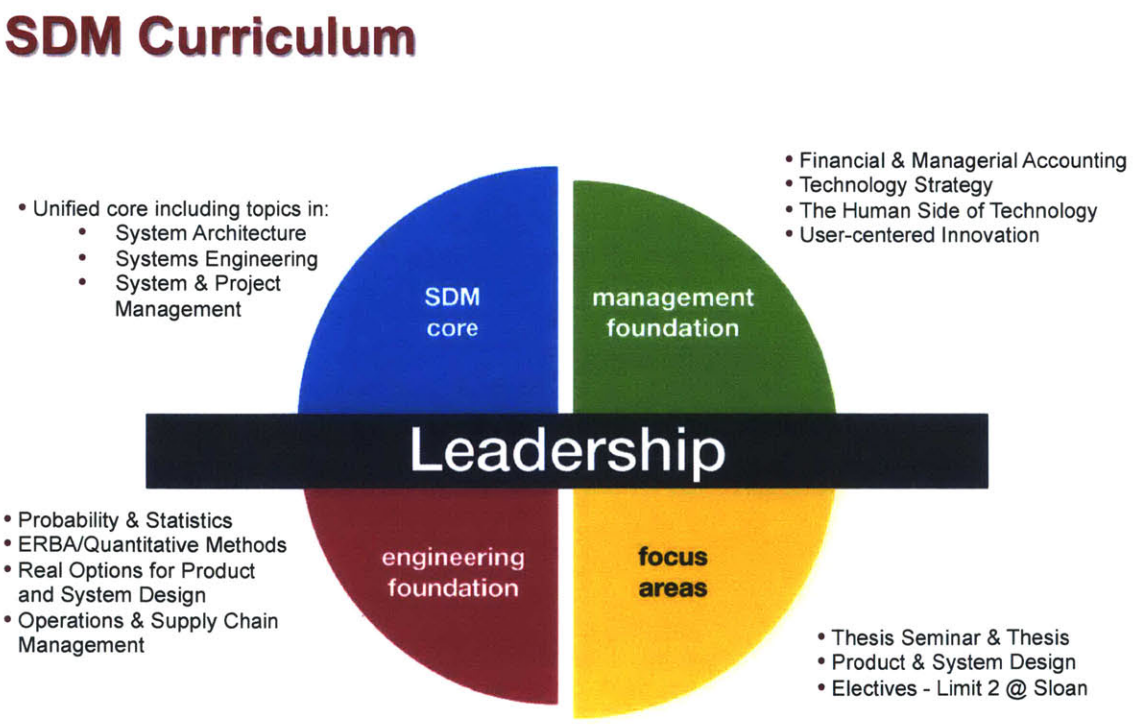

Figure 2. System Design and Management Program Curriculum Overview (Hale, 2013)

1.1.4. The Graduate Certificate Program

In addition to its master's degree program, SDM also offers a one-year graduate certificate in System and Product Development. Such certification program "is offered to the employees of SDM partner companies" and "is designed to move corporations towards a shared definition of systems engineering core capabilities" [7]. The certification program candidates are required to complete the SDM Core Classes together with the degree students either in-residence or at a distance. As a certificate student, one also needs to meet the minimum requirement of two-week MIT residency – a weeklong boot camp session in August and a weeklong seminar session in January. Different from other online certification courses, SDM's certificate program entails a yearlong capstone project selected and evaluated by both sponsored companies and SDM. Jointly the degree, certificate programs and other training opportunities, SDM envisioned to serve the emergent demand for the systematic approach to manage technology-based enterprises across industries and to transform the talented working individuals to competent, capable leaders and system thinkers.

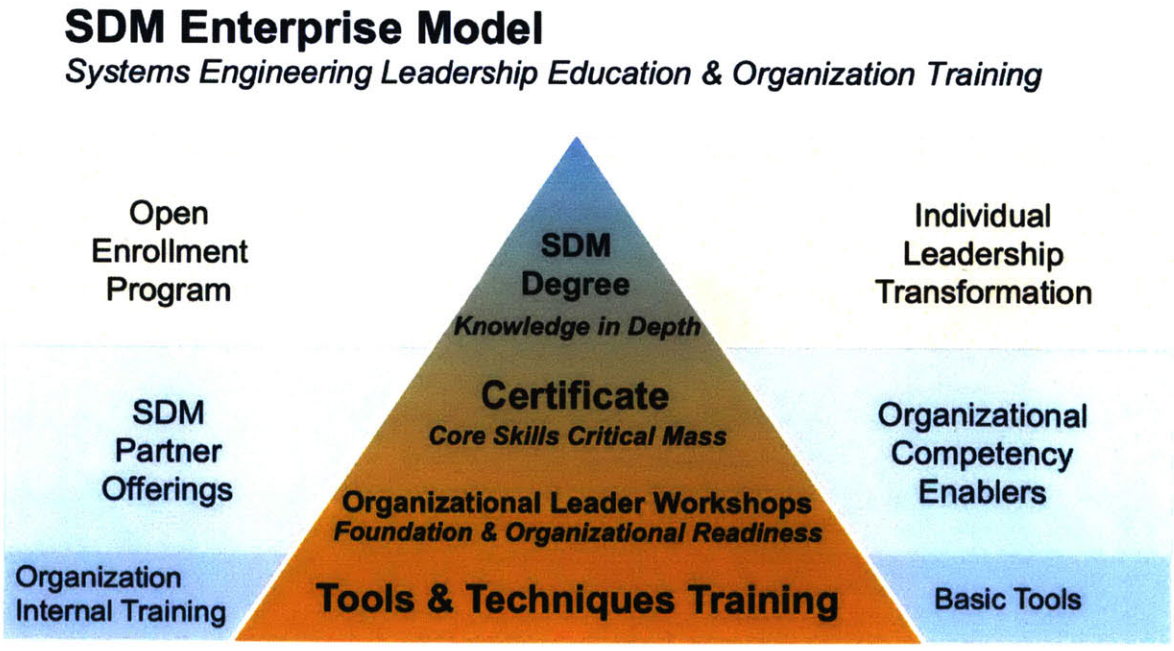

Figure 3. System Design and Management Program Enterprise Model (Seering et al., n.d.)

1.1.5. Student Profile

Different from most of the graduate programs, SDM has its unique focus when it comes to the candidates' selection. Because of its work experience requirement and unprecedented emphasis on integration of engineering, management and systems thinking, SDM students are successful professionals who bring insightful knowledge of corporate challenges to the classroom and become the vibrant participants in the search for the best modern approach to overcome the emerging challenges. According to the SDM Demographic Data Analysis conducted in 2012 with a total of 176 student participants, 71% of the responders had an engineering background, and another 16% were from science disciplines [8]. SDM inegrates cohorts of accomplished scientists, engineers, entrepreneurs, military personnel and other technical talents with diverse educational and industrial backgrounds. The accepted individuals who are committed to develop engineering specialty, strategic mentality, system thinking and other essential skills are transformed to become the next generation of industry leaders.

1.2. Problem Description and Thesis Objectives

This thesis presents SDM's current state analysis and proposes the recommendations for future state implementation to improve the marketing and communications effectiveness. With various program options and distinct students backgrounds, it faces many hurdles that the program must overcome to provide the best experience that its students deserve. First of all, it is challenging to find a streamlined recruitment process for the candidates that possess such unique qualities. Additionally, to be able to gauge, prioritize and meet their expectations in technical and soft skills development is essential for the program; however, it requires continuous monitoring and frequent feedback to stay synchronized and true to the expectations. As a relatively young program, SDM has been unremittingly evolving in order to alternately achieve its mission. Nevertheless, career development support and strengthening

the integration with extended SDM alliances and MIT communities are the areas that in need of attention.

Recognizing the necessity of improving weak areas, this thesis intends to tackle the program challenges by transforming its marketing and communications, particularly concentrating on attracting the best candidates and strengthening the connections among SDM affiliated parties and MIT communities. Through the staff interviews, an essential understanding of the current efforts in the interested area is obtained, and a student survey is performed to attain the perceived effectiveness. Based on the actual program performance and the potential misalignment to stakeholders' expectations, sets of appraisal metrics and recommendations are introduced to resolve the absence of quantitatively data-driven evaluation process and to fulfill the need for practical strategies and tactics to refine the SDM'S marketing and communications.

1.3. Thesis Structure Overview

This thesis consists of five chapters. Chapter 2 discusses the overall research methodology used to define, study and resolve the dissertation problem. Chapter 3 maps out a list of SDM's marketing and communication initiatives that are currently in effect. Brief descriptions of the goals and the stakeholders and needs it is designed to serve are also highlighted in the chapter. The student survey findings demonstrating the perceived communications effectiveness are also incorporated. Based on the interviews, survey and related online research, the competitive and stakeholder analyses are conducted and included in Chapter 4. The competitive analysis consists of all seven programs in the Master of Engineering Management Program Consortium (MEMPC). Meanwhile, the stakeholder analysis aims to understand and prioritize the related entities and their needs holistically. In Chapters 5 and 6, sets of performance evaluation metrics and future implementations are suggested to refine SDM's existing practices.

CHAPTER 2 – RESEARCH METHODOLOGY

2.1. General Approach

The project scope is confined to focus on refining SDM's marketing and communications, attempting to advance the SDM branding, stakeholder engagement management, and candidate recruitment. The dissertation question is further cultivated through discussions with the Program Executive Director, Patrick Hale, and the data is mainly collected through hour-long interviews with program's marketing personnel and a concurrent student/alumni web-based survey. The primary path of this study is identifying the overlooked problem domains and unmet gaps documented through exploratory interviews, survey findings and independent Internet research considered. As a result, a description of the existing program initiatives, a current state analysis, and a set of performance metrics and implementation recommendations are included in Chapter 3 through Chapter 6. The overall thesis formation and approach are summarized in Figure 4.

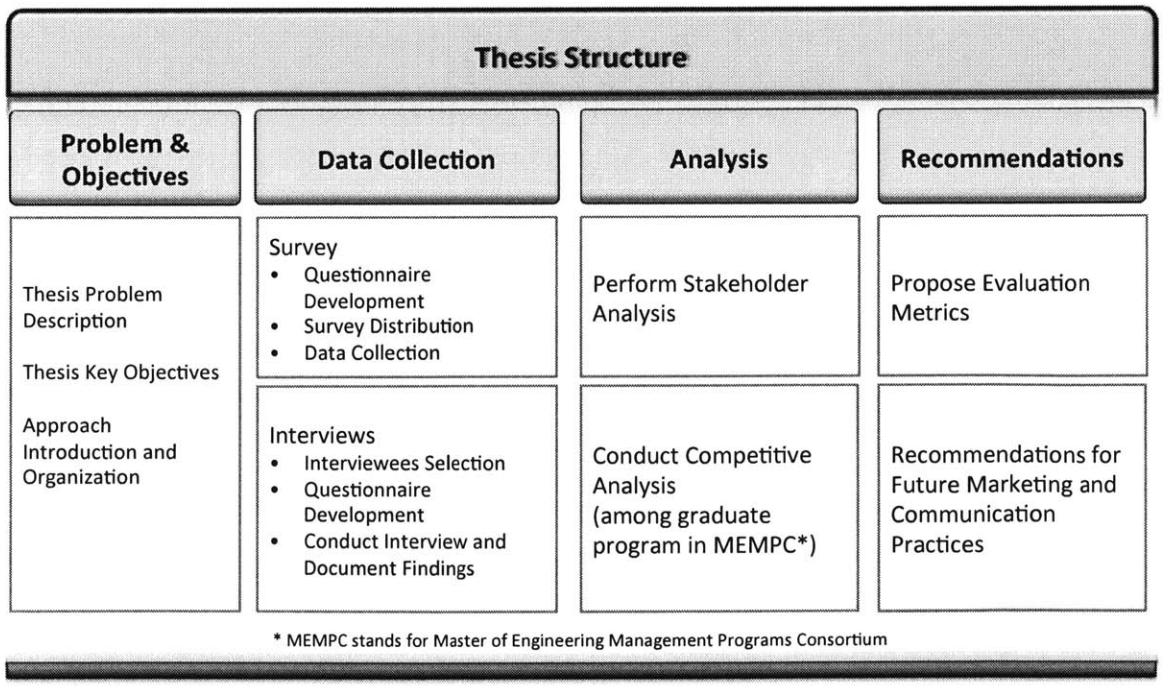

Figure 4. Thesis Structure and Approach

2.2. Data Collection and Analysis

2.2.1. Interviews

The intent of the interviews was to understand the program's existing marketing goals, strategies, channels, performance assessment and pressing challenges. The current Program Executive Director, Communications Director, Industrial Co-director, and former Alumni Relations Coordinator and Marketing Specialist selected and agreed to participate in the face-to-face interviews for approximately one hour each. All interviews were conducted following an open-ended format to maximize the information captured within the time limitation. All interviewees were given an overview of the motivation and objectives of this research, and the following three topics guided the interviews:

1. What are the overall marketing and communication strategies?
2. What are the marketing and communication methods and techniques utilized, and what are the results, impacts, and difficulties?
3. How does SDM prioritize, select, assess and validate the particular events or activities?

Summary of Interview Observations

1. Low availability of project prioritization and performance assessment
2. No effective mechanism in place for program level employment placement
3. Lack of recurring feedback mechanism for existing marketing efforts
4. Insufficient candidate recruitment management

2.2.2. Survey

The primary purpose of the students/alumni survey was to estimate their assessment of the strength and shortcomings of marketing, to verify the perceived effectiveness of the

existing initiatives, and to solicit suggestions and recommendations. The anonymous web-based survey was designed to explore the initiative's outreach coverage and motivation intensity. Additionally, the survey also attempted to discover the key decision drivers for applying to SDM, to identify and to quantify the needs of alumni engagement. Refer to Appendix A. for the complete list of the survey questionnaire.

The survey questionnaire was distributed to both current students and alumni via emails. It was entirely voluntary based without any compensation for participation. Within one-week response time span, a total of 113 participates were recorded, and the complete survey results summary except the last feedback comment were attached in Appendix B.

2.2.3. Data Analysis

To ensure the confidentiality of the survey and interview and participants' privacy, survey data collected were organized, studied and reported in aggregated form. The assessment findings from the survey were adopted as marketing performance indicators and the current evaluation accuracy measurement. The additional insights highlighted the underlying misalignment issues of engagement management.

The interview notes were compiled to support the program background, initiative descriptions, challenges faced. The three topics were utilized to determine the emphasized areas for the proposed recommendations. Asides from the mentioned program employees, students, and alumni, the comprehensive program stakeholder analysis was presented to explore each stakeholder's needs and their impacts. Furthermore, to understand the program attractiveness and to distinguish SDM from other MEM graduate programs, the competitive analysis was also incorporated in this study.

CHAPTER 3 – SDM COMMUNICATION EFFORTS

3.1. Marketing and Communication Tactics

Many initiatives are taken in order to raise program awareness, to increase publicity and to attract the best and brightest candidates. The initiatives leverage both traditional and digital marketing methods, and are carried out with the joint efforts of faculty members, program staff, alumni, and students. High-level descriptions of practices and the intended goals are presented in this thesis. The information sources of all tactics were aggregated from both staff interviews and the historical events information from the program's official website.

3.1.1. MITsdm Websites

The official SDM website (sdm.mit.edu) is the central marketing channel. Served as the primary information hub, the official website includes basic information on the MITsdm overview, career outlook, industry relations, program options and admission logistics that a prospective student needs to be aware of. Additionally, it provides information on MITsdm news, events, and linkages to SDM's social media for the prospective students to get involved and connect with current students or staff to answer customized requests. The website was redesigned in the summer of 2015 and is managed by the program IT crew.

Beyond the official website, the virtual community site (lgosdm.mit.edu) is the go-to place for alumni to keep in touch with the program. The Virtual Community is a password protected website that contains the up-to-date database of the educational and professional background of students and graduates of SDM and its sister programs - Leader for Global Operations (LGO) and Integrated Design and Management (IDM). It supports the continued interactions and facilitates a network among students and alumni, and among alumni themselves.

3.1.2. MITsdm Newsletter – The Pulse

Starting in September 2006, MITsdm introduced the first program newsletter - the Pulse. Distributed both electronically and via a direct mailing to the sponsor companies, the Pulse has consolidated from three issues per year to Fall and Spring issues only. It offers a comprehensive array of articles featuring research findings, practical methods and tools to address complex problems, class profiles spotlighting the incoming cohorts, employment reports summarizing the career outlook for the graduating cohort, and program updates promoting upcoming events. It not only is a means to inform companies about the program and its impacts, but also strengthens industrial relations and enhances the student recruitment process.

3.1.3. SDM Conferences

Originating from the SDM alumni conference founded in 2000 and held on October 25, 2001, SDM has used annual conferences to bring the system thinking community together via annual themes (Slavin, 2002). For the past 15 years, SDM convened an annual gathering of industry experts, enterprise leaders, MIT faculty, alumni and students to share the systems approaches and practices for complex and pressing challenges. The SDM conference is generally two days in length, hosted on the MIT campus, and consisting of speaker sessions, back-to-the-classroom sessions, networking sessions, and an accompanying information session. The speakers at the conferences are leading practitioners of systems approaches from a broad range of fields, and the back-to-the-classroom sessions are dedicated to the latest research studies and their applications. In addition, an abundance of networking opportunities are available for attendees to learn about the program, to discuss the topics in depth, talk about career opportunities and to build connections.

3.1.4. Events/Conferences Sponsorship and Participation

Additionally, SDM has participated in a variety of conferences aiming to share an overview of SDM, to promote systems thinking, to reach out to prospective companies and students and to maintain relations with corporate partners and alumni. Over the past decade, SDM also invested in broadening the student base to stimulate a stronger minority presence. The conferences with targeted audiences such as the National Society of Black Engineers, the Society of Women Engineers, the Society of Hispanic Engineering Professionals, the Grace Hopper Conferences were chosen despite the relatively high capital and non-capital attending costs comparing to their alternatives outreach methods. Finally SDM has also participated in the International Council on Systems Engineering (INCOSE) Symposium since 2004. It is one of the main tactics to promote the program directly to the professionals in systems engineering.

3.1.5. Info Sessions

Aside from the info session held during the annual conference, there are two more info sessions every year. Sessions are intended to align with the admission, graduation, and conference timeline to maximize audience attendance. Each info session is an excellent opportunity for prospective students to mingle with SDMers to hear their perspectives and experiences. Each session generally starts with the program overview and then panelists consisting of 5 to 6 SDMers introduce their diverse backgrounds and respond to any questions that the audience may have. Besides the in-person sessions, live virtual info sessions following the similar format are also held and later, available on-demand via the program website and YouTube channel tailoring to a broader range of prospective students outside of Boston area and internationally.

3.1.6. The Webinar Series

As a master's degree program marketing to the mid-career professionals, SDM puts emphasis on fostering strong industrial connections. The MITsdm System Thinking Webinar Series features research conducted by SDM faculty, alumni, students and industry partners. The series is designed to disseminate information on how to employ systems thinking to address engineering, management, and socio-political components of complex challenges.

Celebrating the 5th anniversary of the webinar series in November 2015, the value and benefits that the webinars bring to the SDM and general MIT community is indisputable (Sturtevant, n.d.). The webinar series build the SDM brand and continues raising SDM awareness by showcasing the innovative work of faculty, alumni, industry partners, and students. The subject areas range from energy, healthcare, big data, product innovation, and system safety to systems engineering and other large scale pressing challenges. Available both live online and on-demand via SDM website, this initiative aligns closely with MIT's Open Course Ware and Free Courses from MIT (MITx) efforts and the movement towards free education. Such a wide spectrum of topics and high availability continues to attract a variety of individuals and companies to attend, subscribe and even lead the webinars.

3.1.7. The Tech Trek

Besides the webinar series, SDM, together with the Student Leadership Committee, organizes the spring and fall Tech Trek annually. Either one day (Fall Tech Trek) or one week long (Spring Tech Trek), these events allow students to explore both local companies in and near Boston and the companies located in the Bay area in California. The purpose is to introduce students to the latest practices in industry and enhance SDM's collaboration with existing and potential companies and industrial partners. The Tech Trek is also an incredible opportunity for students to find their internship and full-time employment foci.

3.1.8. Other Promotional Efforts

To adapt to the current connected digital world, SDM also actively pursue to establish online presence through the social media to expand the self-sponsored student base. SDM fosters a balanced authorized and unofficial social network. There are official program groups in LinkedIn, a program profile on Twitter, a program channel on YouTube, as well as informal Facebook pages and SDM Blogs. Moreover, SDM runs underwriting announcements on WBUR - Boston's #1 National Public Radio Station - to attract the working professionals in the greater Boston area to info sessions and the SDM conference, as well as to build brand awareness ("WBUR Official Website," n.d.). Combined with the rest of the marketing projects, SDM has started to build an informative and welcoming brand.

3.2. Current Process for Project Assessment

3.2.1. Evaluation Assessment

According to the employee interviews, there is no comprehensive cost-benefit analysis for project selection. Due to the inadequate program resources and overhead, not many quantitative measurements for each tactic's performance exist either. The favorable method is using survey questionnaire. Pre-event and post event surveys are administered to event participating parties including speakers and company contacts. The main purpose is to assess event success through participation rate, attendees' satisfaction rate, and post-event interaction (web page view and click) growth. Meanwhile, an internal team debriefing is also in place to summarize results and to consolidate participant's feedback, good practices, and insights for future implementation.

3.2.2. Event/Project Approval Criteria

The staff team does not make any light decision when it comes to launch a brand-new initiative. A new project is proposed using an SDM Strategic Approval Request form, where project scope, key messaging, delivery methods, potential impacts, estimated initial and ongoing costs are included. The request form initiates the evaluation process, and the acceptance criteria are gaining the SDM leadership approval. Only the projects where the expected benefits exceed the expenses have the possibility to move forward.

3.3. Survey Data Analysis – Perceived Effectiveness

3.3.1. Survey Participant Overview

To verify the perceived effectiveness of the marketing and communications tactics in students' perspectives, a three minutes short survey is distributed to MITsdm students and alumni. Within less than one-week time horizon from November 2nd to November 8th, a total of 113 responses has been collected.

As shown in Figure 5, the vast majority of the survey participants (about 92.9%) is pursuing or has earned a M.S. degree from MITsdm. Both degree students and graduates are the targeted audience for this study because of their independent self-initiated program search. As SDM's certificate students are fully company sponsored, the candidate recruitment is primarily through program-to-business marketing leveraging SDM's industrial partners and connections. On the other hand, how the master's degree, especially self-sponsored candidates, discover the program differs from the certificate students. The traditional requirement strategies for immediate college graduates are not applicable for SDM because of its exceptional student profile. Being able to reach out to more mid-career-level professionals became the one of the main objectives of the program.

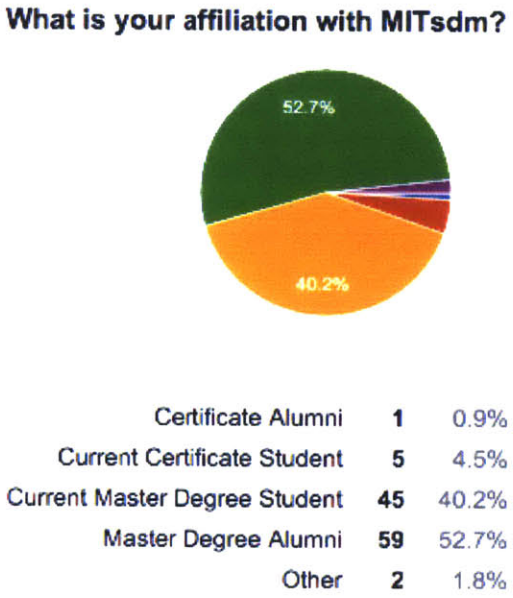

Figure 5. Survey Participants Affiliation with MITsdm

3.3.2. Survey Findings

The purposes of the student survey questionnaire is to assess alternative means to assess program initiative performance and to gain additional feedback on effectiveness of the program's marketing and communication. As a quick means to verify if current initiatives are indeed perceived as effective as contemplated by the crew, the survey findings were very insightful. Although the marketing team takes each initiative approval earnestly and carefully, there is still a lack of performance measurements and figure-of-merit for the events and projects acceptance criteria.

Outreach Broadness

To determine the initiatives with the broadest outreach to the prospective students, all responders were asked to identify the channels that one first hear about MITsdm. Based on the responses gathered in Figure 6., the widest spread tactic from students' perspective was the word-of-mouth; 40.7% of the forthcoming students learned about the program through referral

(SDM, company and other referral). The result justified that the two SDM's marketing strategies - Leveraging the Industrial Relations and Students/Alumni As Ambassadors are very efficacious.

Another one-fourth of the respondents reported the discovery of SDM via Internet search. Also, 13.3% and 9.7% found the program through the official program website and MIT/Sloan website respectively. A powerful online presence is very crucial to the program especially for attracting international applicants. In combination, 47.8% of participants learned about the program for the first time via web-based methods – MIT, Sloan, SDM websites, and Internet search. This finding highlights the significance of comprehensive content availability and high brand awareness on digital networks. To conform to this progressing connected world, SDM shall revisit its digital footprints and refine the online marketing strategies accordingly.

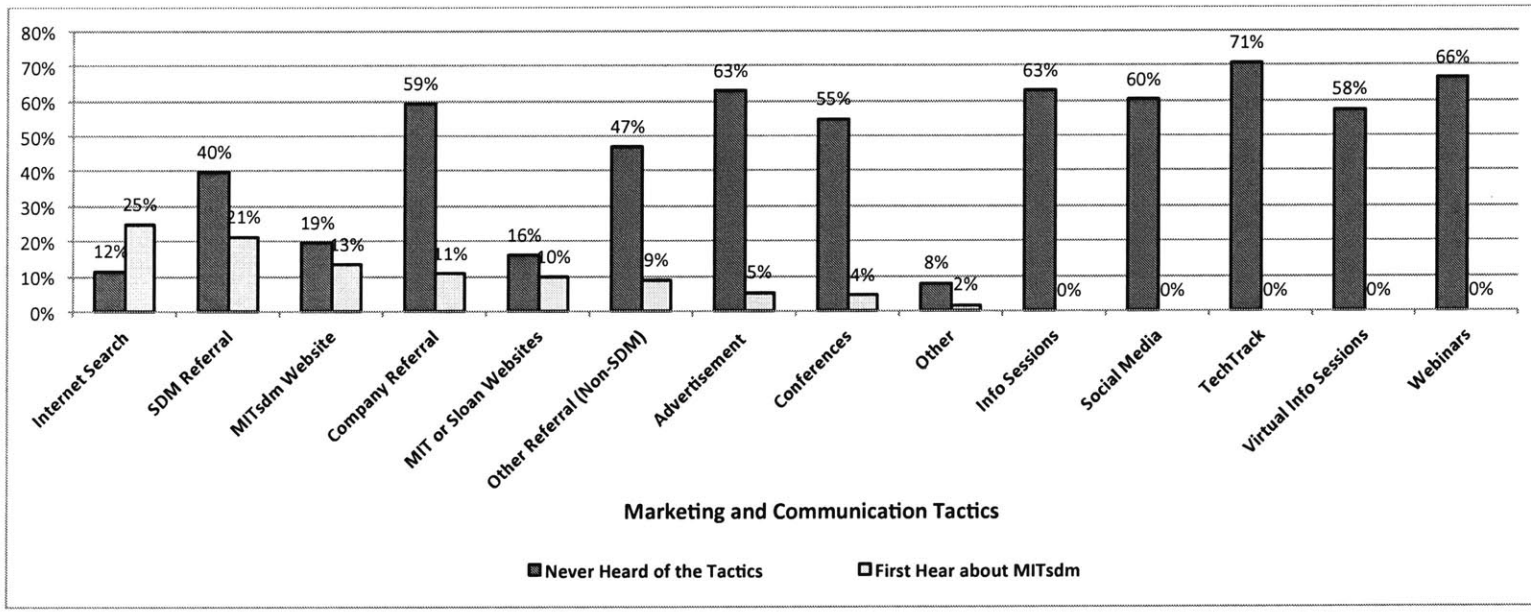

Figure 6. Survey Findings - Marketing and Communication Channels Perceived Effectiveness

Perceived Effectiveness

When asked to identify all the non-web-based tactics before joining MITsdm, more than 3 out of 5 students reported never heard of SDM's radio advertisement, info evenings (virtual or in person), the Tech Trek, the webinar series nor any of the group pages on social media platforms. Although these non-web-based initiatives are not specifically recruiting focused,

such low initiative awareness is quite alarming given that these are the foremost projects with the most allocation of program resources. The SDM program applicants were purposefully browsing online desiring to learn more about the program, yet these initiatives fail to leave an impression on 60% of the survey participants.

Indeed, some of the mentioned tactics are not primarily designed for recruitment. For instance, the advertisements on WBUR radio are tailored for the Boston area young and experienced professionals, while the Tech Trek trips or webinar series focused on establishing industrial connections and SDM community building and growth. Because of a lack of quantitative data on individual project performance, the perceived effectiveness of these communications is a lumped effect. It did not necessarily reflect SDM's investments and efforts on attracting prospective candidates. Despite the program staff's confidence in mentioned initiatives, more data-driven project measures are required to determine the actual project performance.

Information Richness

To further examine the information richness of the content delivered of the overall communication initiatives, the respondents were also asked to identify the marketing channels that motivated them to submit the application for the program. Of course, many factors contributed to one's commitment of choosing an advanced program. The results may reveal insights into better content management. The motivational aspects unveil the important user experience features that the users are seeking. For instance, 41.6% of the responses point out that the official program website was the leading motivator for the decision-making. Comparing to the other two top voted motivators – friends/companies recommendations (34.5%), and interactions with present and former SDMers (27.4%), the program website unarguably provides more comprehensive information with a broader spectrum of topics, and provides the linkages to other program's communication channels.

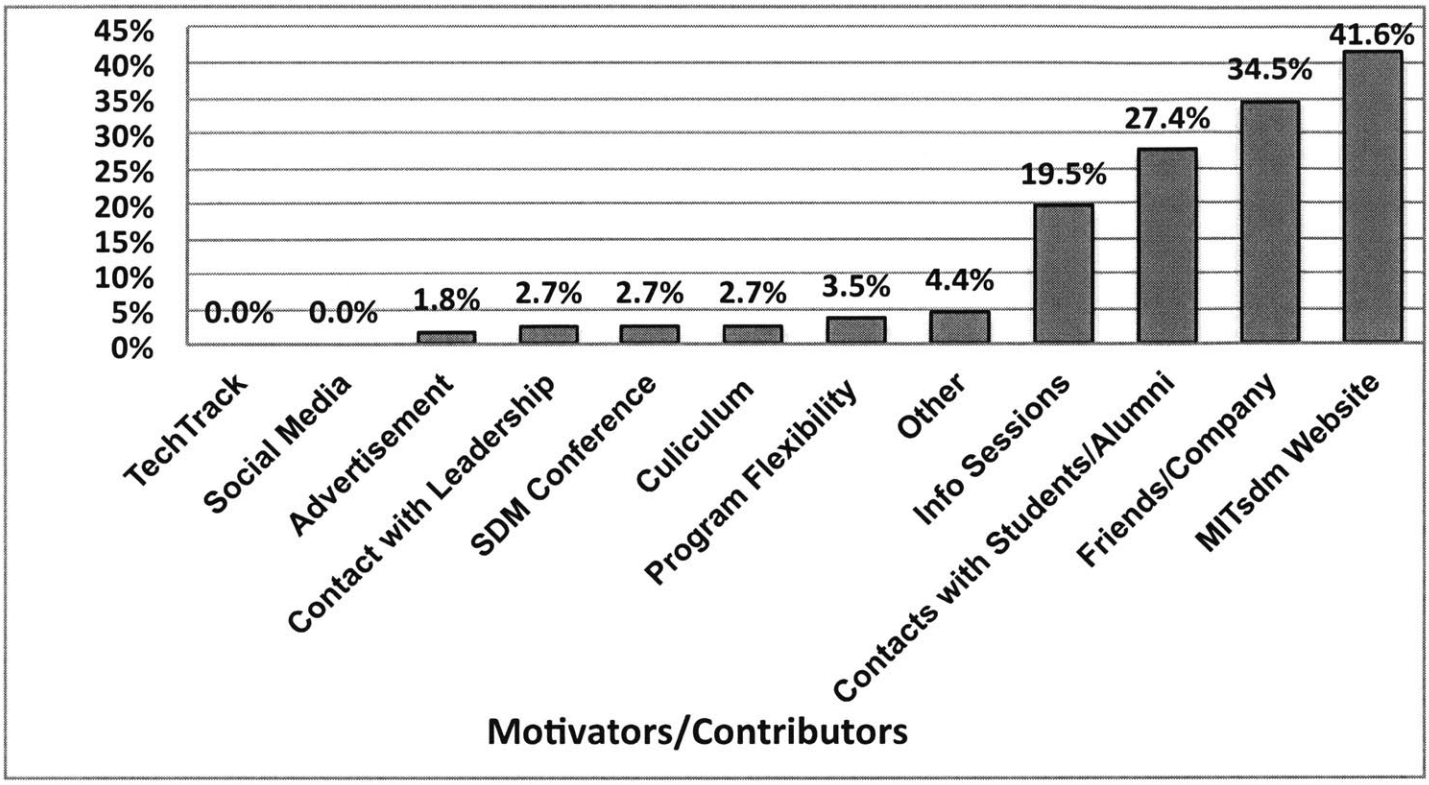

Figure 7. Survey Findings - Rated Contributors for Applying to MITsdm.

However, the current web page still lacks the capacity to incorporate instant feedback or to meet personalized needs. Inherently, both capabilities are essential when selecting a degree program for academic advancement. To address the demand for customized admission and application information, SDM hosts three info evenings annually to answer the specific questions and discuss concerns that the attendees may have. In spite of the low frequency of the events, the info sessions was rated as the fourth contributor (19.5%); becomes the forth most outstanding motivator.

Alumni Engagement

The survey also attempted to estimate the SDM's graduates' self-assessment of the current and preferred engagement. A total of 69 responses is recorded including both students and graduates. For the purpose of understanding the alumni engagement, the nine non-alumni responses were excluded from the following analysis.

On a scale of 0 to 5, 0 being no engagement at all and 5 being extremely engaged, 3 out of 5 alumni rated their actual involvement to be 2 or less. Only 13% of them indicated that they remained highly engaged with SDM (reported with Scale 4 or 5), resulted in an aggregated average score of 2.08 for engagement level. In contrast to the rated alumni association, the survey also discovered the self-assessed preferred involvement to be almost doubled with an average scale of 3.76. In fact, the preponderance (88%) of participates could prefer to interact more frequently with the program.

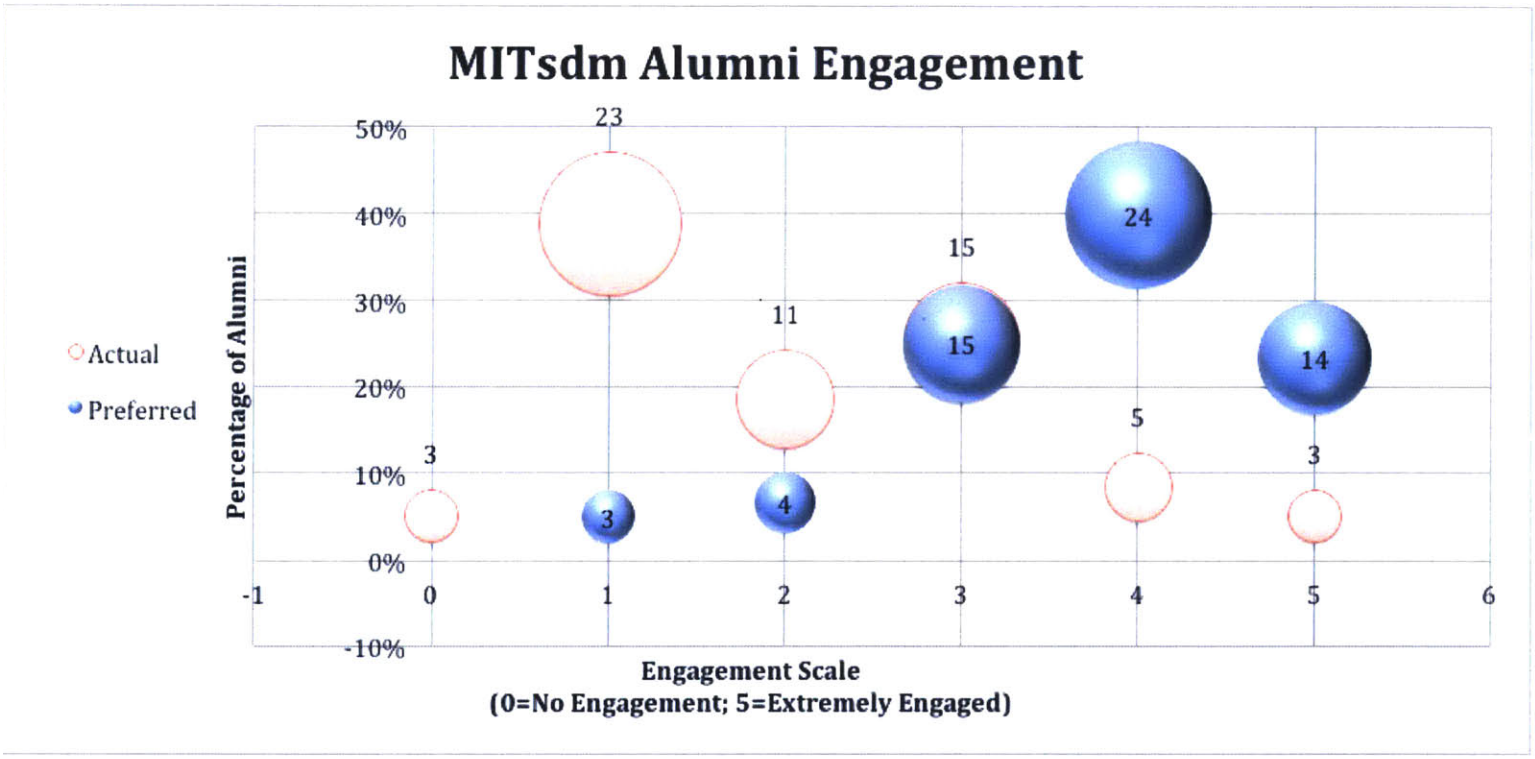

Figure 8. Survey Findings - Alumni Post Graduation Actual and Preferred Engagement Level.

As demonstrated in Figure 8., 2D red bubbles represent the actual assessment, and 3D blue bubbles represent the engagement preference. The size of the bubbles denotes the number of people selected the engagement scale, while the percentage per scale level is indicated on the y-axis. The discrepancy between the two ratings was obvious. Though SDM recognized the substantial influence of alumni engagement to cohort recruitment and industrial

partnership, the survey results pointed out that SDM has not yet taking the full advantage of its alumni networks.

CHAPTER 4 – CURRENT STATE ANALYSIS

4.1. Competitive Analysis

To further understand SDM's overall competitiveness as a graduate degree-granting program, a competitive analysis was conducted among all members of the Master of Engineering Management Programs Consortium (MEMPC). The six other MEM programs are Cornell University, Dartmouth College, Duke University, Northwestern University, Stanford University, and University of Southern California (USC) [7].

4.1.1. Reputation and Brand

According to the Top Graduate Program Ranking by the US News, all seven schools are of distinguished reputation, especially MIT and Stanford with the global rank of No. 2 and No. 4 respectively [8]. On the National Education Rankings for the master's degree by business and engineering schools, the vast majority of the universities in MEMPC are placed in the top 25. The exceptions are Dartmouth's and Duke's engineering school rankings – rated No. 61 and No. 28 respectively [9]. Detail of the academic program ratings is tabulated in Table 1. Among all participants in MEMPC, Stanford and MIT are recognized as extraordinary schools with the well-regarded reputation and respected brand throughout the world. Additionally, both universities also ranked in the top 5 colleges of the Best Value due to the outstanding quality to price ratio and need-based grant availability [10].

U.S. News Education Rankings				
	National Rankings			Global Rankings
	Business School	Engineering School	Best Valued Schools	Overall
Cornell	16	13	17	21
Dartmouth	9	61	9	231
Duke	13	28	7	20
Northwestern	6	21	19	25
MIT	5	1	5	2
Stanford	1	2	4	4
USC	10	25	23	44

Table 1. U.S. News Education Rankings for the six MEMPC schools.

As a sub-program of a world-class university, enormous numbers of applicants are drawn to the SDM program, which is another advantage differentiate it from the rest, in addition to program flexibility and cohort diversity. When asked why does one choose MITsdm, MIT reputation was ranked as the prime driver by 90% of the participants. As a joint degree offered by MIT engineering and management, approximately an equivalent number of participants (60 and 61) acknowledged that Sloan business school's and MIT engineering school's brands also contributed to the decision. With no doubt, the greatest strength SDM has over other MEM programs is indeed the most valuable and highly respected MIT brand.

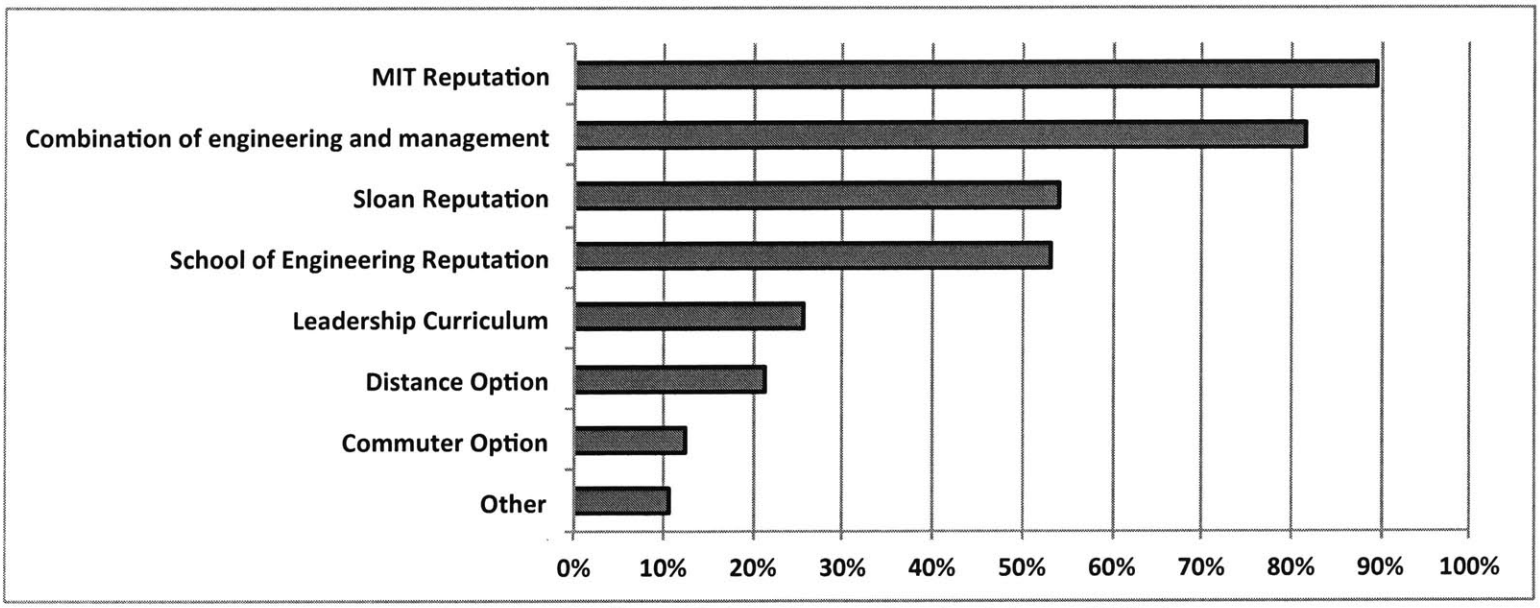

Figure 9. Survey Findings - Driven Factors for Applying to MITsdm.

4.1.2. Estimated Financial Costs

Many factors affect one's decision on whether to pursue a master degree in MEM or which program to apply to, and the financial costs are definitely the top concerns for many. Because multiple MEM programs offer a mixture of part-time, full-time, residential, and distance options with duration vary dramatically, it becomes difficult to decide considering all possible offers. To approximately determine the financial attractiveness of each MEM program, the total expenses for obtaining an MEM degree from the seven MEMPC programs via on-campus options are determined, shown in Table 2.

The financial costs comparison estimated the competitiveness of earning an MEM degree at recommended on-campus program options. The program duration ranging from one year to 16 months is based on the program marketed standard or commonly chosen options [11] [12] [13][14]. Part-time and other extended options with a duration longer than one and a half years, or the online options are not included for the simplicity of this comparison. Also, noted that not all fees are included in this comparison. The student life fees and other service charges are excluded in this analysis. Also, the health insurance policy and the costs of

attendance used were only for a student oneself; dependents or family members is not covered. Lastly, the estimated financial costs analysis does not incorporate the potential financial aid and other funding assistance (i.e. Teaching Assistance, Research Assistance, Fellowship, etc.) that may be available to students either.

Estimated Total Costs for Obtaining A Master's Degree in Engineering Management

	Northwestern	Duke	Stanford	MITsdm (1yr)	MITsdm (1.5yr)	Cornell	Dartmouth	USC
Duration	12 Months	12 Months	12 Months	13 Months	16 Months	16 Months	4 Terms	16 Months
Tuition	$55,812	$48,540	$48,720	$5,400	$54,000	$44,250	$64,160	$53,220
Health Insurance (Single Person)	$3,000	$2,915	$4,680	$2,568	$4,066	$3,840	$3,400	$1,712
Other Cost of Attendance*	$9,800	$19,703	$18,748	$16,546	$24,819	$36,987	$20,800	$46,920
Estimated Total Expenses	$68,612	$71,158	$72,148	$73,114	$82,885	$85,077	$88,360	$101,852

* The Other Cost of Attendance Include books, supplies, housing, estimated personal expenses (average value).

Table 2. Estimated Total Expense for Obtaining A Degree in MEM [11] [12] [13] [14] [15] [16] [11] [12, p. 1] [19]

According to the above estimations, SDM is very economically competitive compared to its alternatives. Based on the program selected and different durations, the financial costs of pursuing a degree can vary from about 70 thousand to 102 thousand dollars. For the one-year resident option, SDM is at the highest price range costing five thousand more in comparisons to Northwestern (the cheapest option). On the other hand, SDM program turns out to be the most economical choice comparing to Cornel, Dartmouth or USC for the 16-month / 4-term options. No wonder the SDM's 16 months Local Commuter comes to be the most favorable option for the SDMers. Given the longer time duration, students not only can take full advantage of the

network and resources available at SDM and MIT; it is also more manageable for them to balance and excel in school, family, budget and work.

4.1.3. Program Flexibility

In spite of the myriad origins and backgrounds the MEM programs have, they all share very similar curriculum arrangements. All seven programs are in the mission of equipping technical professionals and students in Science, Technology, Engineering and Mathematics (STEM) fields with advanced technical expertise, business knowledge, and management skills [20] [21]. As a tech-savvy alternative to the traditional Master of Business Administration (MBA) option, MEM programs enable their students to manage and lead in their industries without turning in their engineering credentials.

To achieve their shared goals, all seven programs offer program options that are flexible enough to accommodate the early, less experienced students, as well as experienced professionals. The program curriculums consist of a combination of required courses, technical and business electives that are tailored to fit one's preferred areas of interests. Additionally, to support the working professionals, Duke, SDM, Cornell and USC established distance programs allowing students to complete their degrees mostly online [22] [23] [24]. Duke and SDM's online options require a few weeks to 3 months residencies on-campus requirement for cohort engagement and team-building [23] [24]. Part-time or commuter options are also available at Duke, SDM, and Northwestern [23] [25] [26].

Moreover, understanding the challenges that the early and experienced working professionals may face, more flexible course schedule are required to make pursuing an MEM degree feasible for them. Among all 7 MEM programs, both Northwestern and MITsdm are mainly targeting mid-career professionals. Both programs have a minimum admission requirement of three years working experience. The overall cohort, on average, has close to eight years (for Northwestern) and ten years (for MITsdm) industrial experience [23] [27]. At Northwestern, classes are offered during evenings and weekends to accommodate one's work

schedule [28]. Indisputably, with such flexible course schedules, these programs indeed make the working professionals' life much convenient. Though some evening courses are available at Sloan and some engineering school, SDM's sponsored fellows still have to plan their work around the rigid course schedules in order to fulfill the degree requirements.

4.1.4. Career Outlook

To help students in developing a combination of technical, analytical, business and managerial skills, integrated collaboration among faculty, students, and companies (both inside and outside of classrooms) is needed. Industry engagement is essential to achieve the objectives and stimulate a thriving career outlook for MEM program graduates.

At Duke, Dartmouth, Cornel, and SDM, partnerships with companies play a significant role in the classroom and graduate employment placement [29] [30] [31] [32]. All four programs have fostered a collaborative environment for companies to sponsor class projects, internships or thesis research. At Dartmouth, the Corporate Collaboration Council, established in 2004, not only helps bring "academically challenging projects" to class but also offers internship assistance and career advice to their students [33]. The active student mentorship and the mandatory summer internship requirement adequately prepare their students for the business of technology. Such efforts helped Dartmouth MEM graduates to secure well-compensated full-time positions. According to the Dartmouth's industry reports on the class of 2015, young graduates with an average entry age of 24 received a median salary of $72,500 upon graduation, which is 40% higher than those with a only a B.S degree in engineering [34].

Similarly, Duke also has a 6-credit engineering management internship and internship assessment course requirements [35]. In order to provide opportunities for their early career professionals to gain more experience in real-world consulting projects, Duke implemented the Consulting Practicum Program in their technical elective curriculum [29]. Likewise, SDM has also established similar initiatives to bring the real industry problems into the classroom via term

projects, speaker lectures, and thesis sponsorships. Meanwhile, bringing students out on Tech Trek trips to see the current industrial practices in action.

Contrary to other MEM programs' candidates, students from both Northwestern and SDM tend to have 8 to 10 years of industry experience before the programs, which potentially presents a challenge in career placement. The extensive experience certainly makes SDMers and Northwesterners' career goals vary from the younger ones. The traditional recruitment methods of giving on-site information sessions, presentations and conducting on-campus interviews are no longer as efficient due to the diverse cohort background and non-entry level status. Although there are many career development recourses from both engineering schools and MBA programs that MEM students could tap into, to develop an economically feasible and effective career advancement process is still a challenge for both SDM and Northwestern programs [36] [37].

Although most of SDMers have to take the initiative to find and coordinate their internships and full-time employment with limited assistance from the program, the annual employment report showed that the career outlook is indeed assuring. According to the 2014 employment report, 97% of the responding 2014 SDMers graduated with an average of 1.8 job offers [38]. Comparing to their previous positions, 2014 SDM graduates reported a 52% increase in base salary from $80,875 (prior to entering the program) to $122,667 [38]. Leveraging the SDM and MIT reputations and network, SDM graduates had the competitive advantage in gaining visibility and credibility within the organization in a wide range of industries.

4.2. Stakeholder Analysis

Given the uniqueness of MITsdm, jointly offered by both engineering and management schools targeting for mid-career professionals, many stakeholders, and beneficiaries are involved in shaping the general direction of the program. Many entities have substantial influence on SDM, and at the same time, are affected by the decisions and well being of the program. Making sure

that the decisions made are in the best interests of the majority of people involved requires a thorough analysis of stakeholders. This analysis is described in the following section regarding the stakeholder network, identifying and prioritizing their needs.

4.2.1. Identify Stakeholders and Their Needs

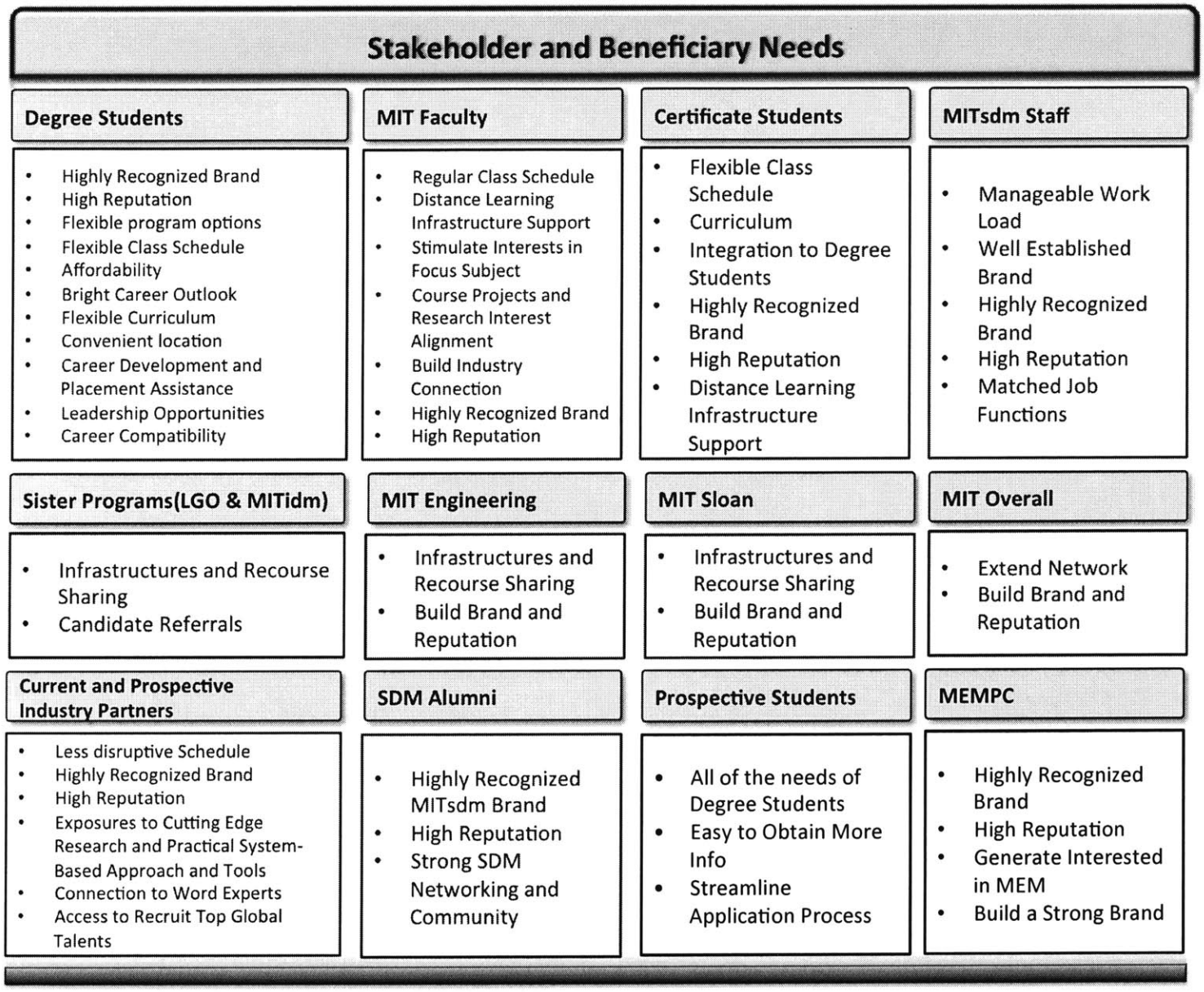

Figure 10. MITsdm Stakeholder and Beneficiary Needs

4.2.2. SDM Stakeholder Needs Flow Network

To further comprehend the dynamics among the main stakeholders, a stakeholder Network is mapped out to interpret their needs as flows. Each party is treated as an entity represented as a node in the network. The array linkages from one to the other indicate the outflows of one's efforts or the outputs satisfying the other's needs. The series of the linkages and bilateral exchanges among different stakeholder entities, in combination, build up a Stakeholder Needs Flow Network. A simple need flow network between only two stakeholders is illustrated in Figure 11.

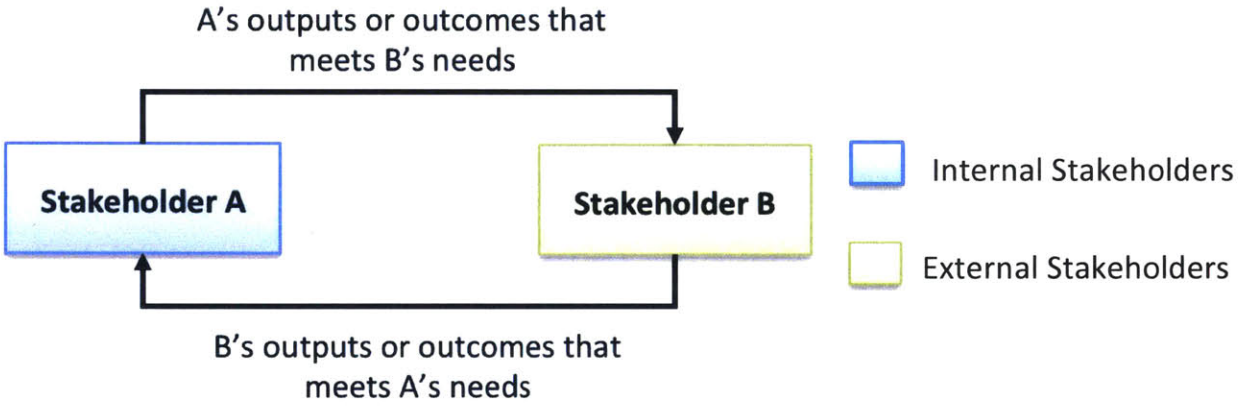

Figure 11. A Demonstration of a Simple Need Flow Network.

Following the same methods, a comprehensive Needs Flow Network can be constructed as shown in Figure 12, where many of the stakeholder entities and the flows of their needs are illustrated to relate SDM and a typical stakeholder network.

MITsdm Stakeholder Needs Flow Network

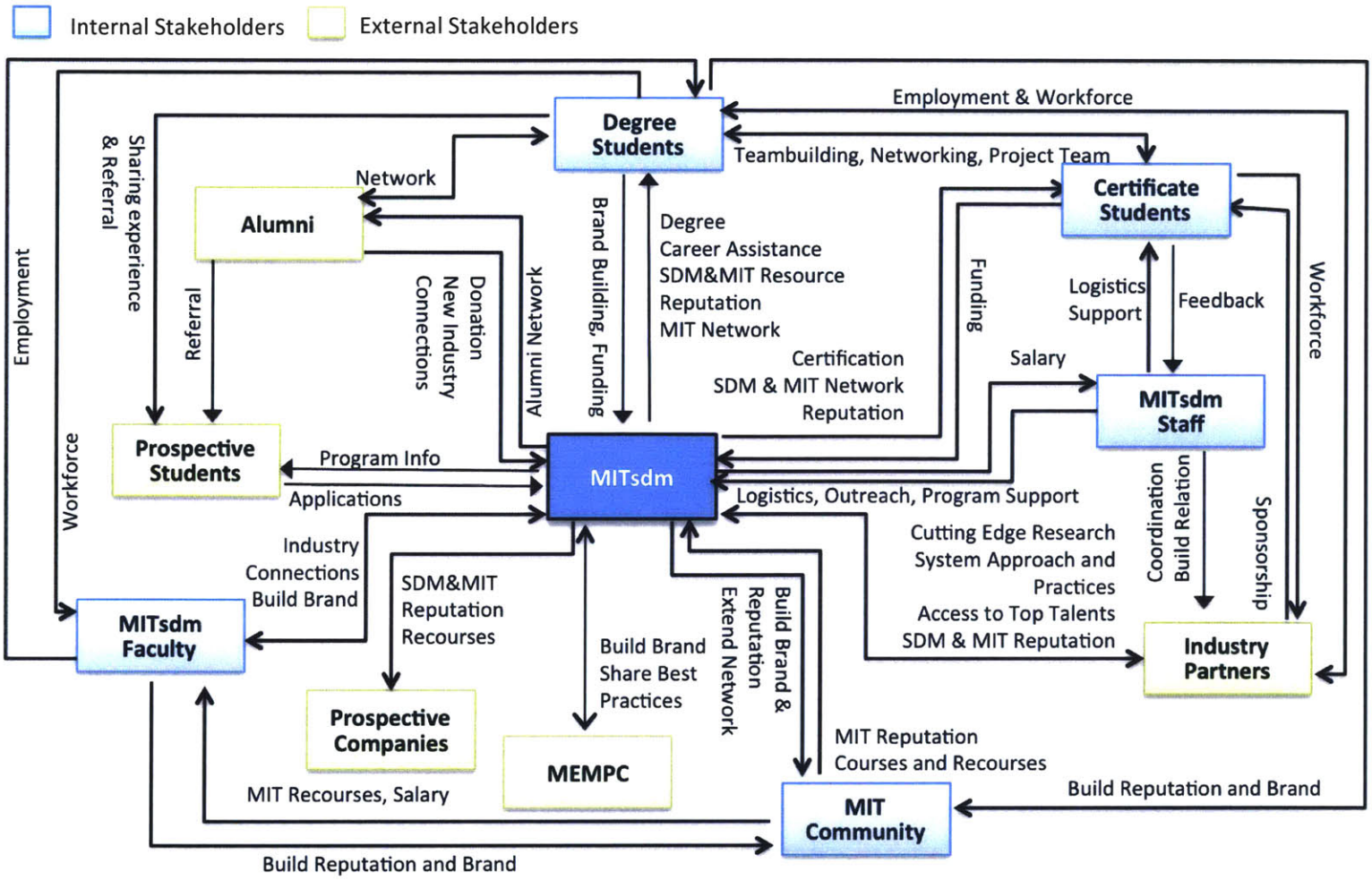

Figure 12. MITsdm Stakeholder Needs Flow Network

According to the need network map, a few of the stakeholders such as the MEMPC programs and the prospective companies are linked only to MITsdm and are isolated from the rest of the stakeholders' network. This is expectable for the relations among SDM and other MEMPC programs. All seven programs joined the partnership together to build MEM brand and to share best practices, but they are entirely independent. All seven programs operate separately and are in competition to recruit for the best MEM candidates. On the other hands, MITsdm should be concerned about the delicate linkages to prospective companies. It implies

that it would take the program more exertions to expand the industrial sponsors because of the void of a powerful network effect.

4.2.3. Characterize and Prioritize Stakeholders and There Needs

Many stakeholders have a stake in SDM's development. Some are stakeholders who contribute to address and meet programs' needs; others are beneficiaries - stakeholders who benefit from SDM's well-being. Of course, one can be both a beneficiary and a stakeholder. Most entities involved, as a matter of fact, have mutually beneficial relations with MITsdm. However, each party tends to have different needs, and their individual desires may even contradict one and another. Hence, to navigate such highly connected stakeholder networks, the program needs to be able to prioritize the stakeholders.

To do so, this analysis proposed to calculate the prioity by the weights of its characteristics – Intensity, Detriment and Coupling. The joint weights of different characteristics per stakeholder can be calculated following the process below.

(1) Stakeholder Needs Characteristics Definition [39]

Benefit/Need intensity – how much utility, worth or benefit fulfillment of the need will bring

Detriment – the adverse reaction that will occur if the stakeholder's need is unmet

Coupling – the degree to which the realization of one need relieves or intensifies another

(2) Assigning Scores

Depends on each stakeholder and their needs, assign an integer score ranging from 1-3 to indicate the intensity of defined characteristics per stakeholder. The more intensified a particular characteristic is, the bigger the number would be.

(3) Calculate the Stakeholder Weight

Once the scoring is complete per characteristic, the stakeholder weight can be calculated by sum up the total scores and normalized it by dividing the sub-total by the full score. The weight per stakeholder then can express in term of percentage ranging from 0% to 100%.

(4) Determine Stakeholder Priority

Critical Stakeholders – High Priority; weight 67% or greater

Important Stakeholders – Medium Priority; weight 33% - 67%

Desirable Stakeholders – Low Priority; weight 33% or less

Based on each stakeholder's weight, we can determine its priority. High priority stakeholders are defined as the ones with stakeholder weight that is greater or equals to 67%, also described as the critical stakeholders. The desirable stakeholders are the ones have a low priority with a weight smaller than 33%. The rest whose weight falls between 33% and 67% are the medium priority stakeholder – defined to be the important stakeholders.

Entity	Stakeholder Category	Needs Intensity	Detriment	Coupling	Stakeholder Weight	Stakeholder Priority
Degree Students	Beneficiaries & Stakeholders	3	3	3	100.0%	High
Certificate Students	Beneficiaries & Stakeholders	3	3	3	100.0%	High
Alumni	Beneficiaries	3	2	1	66.7%	Median
SDM Staff	Beneficiaries & Stakeholders	3	2	2	77.8%	High
Faculty	Beneficiaries & Stakeholders	3	2	2	77.8%	High
Industry Partners	Beneficiaries & Stakeholders	3	2	1	66.7%	Median
Prospective Students	Stakeholders	2	3	1	66.7%	Median
Prospective Companies	Stakeholders	2	2	1	55.6%	Median
MEMPC	Beneficiaries	1	1	1	33.3%	Low
Sister Programs	Beneficiaries	2	1	1	44.4%	Median
MIT Sloan	Stakeholders	2	2	1	55.6%	Median
MIT Engineering	Stakeholders	2	2	2	66.7%	Median
MIT	Beneficiaries & Stakeholders	2	1	2	55.6%	Median

Table 3. Stakeholder and Their Need Priority

In summary, given the limited program resources and capabilities, the critical stakeholders like current degree & certificate students, SDM staff and faculty should be considered as program's top priority, and their needs shall be fulfilled first over the important stakeholders', and then the desirable ones.

CHAPTER 5 – PROPOSED EVALUATION METRICS

5.1. Stakeholder Index

5.1.1 Definition

As discussed in Chapter 4, the stakeholder priorities are assigned based on their benefit: intensity, detriment, and degree of coupling. For instance, the critical stakeholders tend to bring more vital benefits and advantages to the program when their needs are satisfied because of their high connectivity to the rest of the stakeholder network. On the contrary, a negative reinforcing effect would also occur if SDM failed to pay attention to their requests and fulfill their needs. Hence, a stakeholders' index should be included in the evaluation metrics to differentiate stakeholders' significance and stakeholder involvement.

In addition to their priority, stakeholder index shall also take into account of the numbers of stakeholders who are affected both positively and negatively by each initiative. This aspect of the stakeholder index should not merely strive for the larger degree of stakeholder involvement. If the proposed action meets one of the critical stakeholders' desires at the sacrifice of other critical or non-critical stakeholders, then such initiative's attractiveness shall reflect those adverse impacts, and earn a lower stakeholder index number compared to those that doesn't possess such disadvantages, with all else equal.

Lastly, the rate of change in satisfaction of the affected stakeholder(s) makes up the last portion of the index. The change in satisfaction rate is defined to be the incremental satisfaction rate with and without a particular policy or initiative. The progressive change captures both the positive and negative differences. Depending on the complexity of the projects and numbers of stakeholders involved, one can account for the satisfaction and dissatisfaction rates relative to the stakeholder or their individual need level.

5.1.2. Scoring and CalculationStakeholder involvement is included via the user input values for each stakeholder. Following the stakeholder characteristic scoring system, each project is rated to have low (scale of 1), medium (scale of 2) and high (scale of 3) effect per stakeholder per characteristic. The scales are normalized to a percentage, denoting the stakeholder involvement level. For the stakeholders that are not influenced by the project, the scales are left blank, resulted in no involvement. Therefore, appealing projects are the ones with higher involvement value.

Incremental change in satisfaction factors is directly recorded as a percentage in its deference with or without the project. In this case, the sign of each score also indicate the positive or negative effects.

Each characteristic will be modified by a weighting factor. In general, the weighting factors can be equivalently distributed. However, SDM can modify the distribution to put emphasis on a particular aspect. For instance, the program can set the weighting factor of satisfaction to be 70% if SDM wants to target for delivering high quality experience only. The weight factors provide adaptability to SDM's growth stage or strategy changes.

Equations for Stakeholder Index Calculation

$$Stakeholder\ Index$$
$$= Stakeholder\ Involvement * Weight\ 1 + \ Change\ in\ Satisfaction\ \ Rate * Weight\ 2$$

Where different weighting can apply to both factors, and the sum of the weights always equals 100%.

Overall, the stakeholder index, ranging from zero to one, becomes a combination of stakeholder involvement and their respective satisfaction rates. Both factors are expressed in percentages, and the stakeholder index is the normalized sum. Based on program key objectives and overall strategies, the weighting scales can be assigned equally or differently to align with program vision.

5.2. Impact Index

5.2.1. Introduction

Another evaluation metric is to estimate the anticipated consequences of the initiatives or communication tactics. The consequences are first classified into different groups and then assigned with a degree of impact intensity. The category and the intensity of the impacts will vary given the different proposed initiatives. Additionally, each impact group also has a weighting factor assigned, which is modifiable to align with SDM overall strategies or to adapt to different focuses throughout program's development. The product-sum of individual impact category weight and intensity is calculated and normalized by the total number of categories. The result is used to assess a new initiative – defined as the impact index.

Equations for Impact Index Calculation

$$Impact\ Index = \frac{Product\ Sum\ (Individual\ Category\ Assigned\ Weight,\ Individual\ Category\ Impact\ Intensity)}{Total\ Number\ of\ Categories}$$

5.2.2. Discussion

There are many kinds of different ways to categorize project outcomes. In SDM's example, the types of impacts could be to raise the awareness of the program, to broader the internal and external outreach, to increase collaborations and engagement and to expand the sustainable partnerships, etc.. The number of categories and categorization process can vary as program's objectives and goals alter. Each impact category can also be assigned to have different weight during different time horizon as the program strategies changes.

The anticipated intensity of the project outcome should also take into account quantitative measures. For example, here is how one can approximate the impact magnitude for attending a conference. One could estimate the total percentage of the targeted audiences (prospective students, prospective companies, or a combination of both) who will participate in the conference. Determine the projected percentage of the attendees that the proposed tactic is going to reach. The intensity of raising program awareness can be set to be the percentage of the forecasted number of participants stopped by the booth. Additionally, the program stimulation intensity could be estimated as the percentage of additional student/company contacts obtained from the conference. Given the aid of modern technology and available digital footprints, the data can be collected together to make a sound estimation.

The purpose of this impact index calculation is to convert the existing project selection process into a more objective data-driven alternative. Admittedly, there may be an extreme case that one may artificially manipulate the data and skew the result. The proposed means still requires someone to present extensive data and rational argument to back up his or her claim. Since the SDM employees are not commission based, there is no incentive for one to seek such extreme approach.

5.3. Return on Engagement

Due to the shift from traditional marketing and communication methods to digital ones, it changed marketing from passive, unidirectional to highly "integrated, interactive, and customized" two-way communications [34]. Meanwhile, the digital platforms also enable the marketer to track their audiences' interactions via their digital footprints. To take the consumer behavior dynamic change into consideration, a metric - Return on Engagement (ROE), measuring a change in engagement level is established.

ROE intended to capture the behavioral changes with and without adjustments in strategy, policy or initiative, particularly for the digital environment. In the MITsdm case, engagement return of a particular communications projects like the Webinar Series can be

determined by the incremental change in the participation rate. The growth or decrease in the number of web page visits, the number of social media followers, the number of webinars video views, the number of certain webinar session signup and turn-up and so on can all be captured and use as indicators of the return on engagement with or without the project. A variety of the metrics could be used for the ROE measurements.

Similarly, SDM can also apply ROE to assess the non-digital marketing or communication efforts. For the annual SDM system thinking conference, the changes in new individuals, companies, or industries registered could use as indicators for ROE of the conference. Without the automatically collected digital data, the program will have to take the extra mile to gather the information. Depending on the data acquisition method and the response rate, the ROE results may not be as accurate. Nonetheless, SDM may be able to gain valuable insights and to discover latent needs while interacting or observing their stakeholders or users. In addition, ROE could also be used for one particular stakeholder to measure its engagement level across all initiatives over long time horizon to understand the trend in the targeted stakeholder's behavior or preference.

5.4. Return on Investment

Aside from all the possible combination of outputs and consequences, the last and definitely not the least evaluation metric was the determination of Return on Investment (ROI). All of the previous three evaluation metrics solely focus on the outcomes; unarguably, the results become irrelevant without the context of required value inflows. ROI is the ratio of the value outflow and the inputs needed. The higher the ROI, the more attractive the initiative or policy is.

The value added by an individual projects or initiatives is driven by the combined contribution of all three metrics – stakeholder index, impact index, and ROE, while the value inflows represented by the present value of the capital and non-capital expenditures in percentages. The costs rate is calculated to be the ratio of actual expenses of the project over

the total annually available budget. The capital expenses (in percentage) constitute the administrative, operation and marketing costs; while the non-capital expenses (in percentage) cover the staff overhead or human hour spent setting up and maintaining a project or an initiative.

Furthermore, because some projects take less time and effort to sustain after the establishments, the terminal value of such projects shall be discounted from the value inflows. Terminal value or residual value originated in the finance concept of discounted cash flow. It is the lump-sum present value of all cash flows that occur after the projected period [40]. In this proposed ROI metric, the terminal value also represented the total value a project continues to gain even after its completion/termination. For example, an automated online admission system can last as long as its limited capacity is not reached once implemented. In other words, the program can expect its cost saving benefits continuously even if the initial required investment has ended. Depending on the continuity length after the predicted period, the terminal value is calculated to be equal to the perpetuity or annuity valuation.

Perpetuity Calculation

When the stable value continues indefinitely, the perpetuity valuation is

$$PV = \frac{c}{(1+r)^1} + \frac{c}{(1+r)^2} + \frac{c}{(1+r)^3} + \cdots = \frac{c}{r}$$

Where c is the discount rate, and r is the periodically projected value [41]

Annuity Calculation

When the stable value continues for a definite period (T) beyond the completion or termination of the project, the annuity valuation is

$$AV = \frac{c}{(1+r)^1} + \frac{c}{(1+r)^2} + \cdots + \frac{c}{(1+r)^T}$$

Where T is the number of period [41]

Terminal Value Equation

The terminal value in percentage became either

$$Terminal\ Value = \frac{PV}{Total\ Budget} * 100\%\ \ OR\ \ \frac{AV}{Total\ Budget} * 100\%$$

Equations for ROI

$$ROI = \frac{Value\ Outflows}{Value\ Inflows}$$

$$= \frac{\frac{1}{3} * (Stakeholder\ Index(\%) + Impact\ Index(\%) + ROE(\%))}{Capital\ Expenses(\%) + NonCapital\ Expenses(\%) - Terminal\ Value(\%)}$$

Summary

The sample Project Assessment Form Template is provided with equation built-in as shown in Figure 13. The user only needs to follow the instruction insert the assessment values into the designated input elements (colored in orange). By default, the weighting factors are all distributed equivalently. The distribution can be modified accordingly to make suitable for SDM priorities.

Inputs

Outputs

Project Assessment Form	
Project Name	***Sample Project Name***
Propsed Date	***Nov. 24, 2015***

Stakeholder Index Weight	
Weight 1 for Stakeholder Priority	50%
Weight 2 for Change in Satisfaction	50%

5.1. Stakeholder Index

Stakeholders	Needs Intensity Leave blank if no change, 1 = Low 2 = Medium 3 = High	Detriment Leave blank if no change, 1 = Low 2 = Medium 3 = High	Coupling Leave blank if no change, 1 = Low 2 = Medium 3 = High	Stakeholder Involvement	Change in Satisfaction Rate Change in Percentage. The sign indicate change positively or negatively	Stakeholder Index
Degree Students	3	3	3	100.0%	10%	
Certificate Students	3	2	3	88.9%	5%	
Alumni				0.0%		
SDM Staff	1	1		22.2%	-30%	
Faculty				0.0%		
Industry Partners				0.0%		
Prospective Students				0.0%		7.5%
Prospective Companies				0.0%		
MEMPC				0.0%		
Sister Programs				0.0%		
MIT Sloan				0.0%		
MIT Engineering				0.0%		
MIT				0.0%		

5.2. Impact Index

Number of Categories		5	
Impact Categories	Category Weight (%)	Impact Intensity (%)	Impact Index
Raise Awareness	20%	10%	
Broaden Outreach	20%	70%	
Enhance Collaborations	20%	90%	
Expand Industrial Partnerships	20%	60%	
Brand Affinity	20%	60%	
Societal Impact	20%	60%	
TBD			14%
TBD			
TBD			
TBD			
TBD			
TBD			
TBD			

5.3. Return on Engagement

Number of Categories		6	
Categories	Category Weight (%)	Change Rate	ROE
Change in Website Visits	16.7%	5.0%	
Change in Social Media Followers	16.7%	0.0%	
Change in MITsdm in News	16.7%	0.0%	
Change in Related Event Participation	16.7%	5.0%	
Targeted Industry Participation Increase	16.7%	3.0%	
Targeted Program Application Increase	16.7%	1.0%	
Change in Application Conversion			0.4%
Brand Affinity (likes, comments)			
Number of Job Hiring Opportunities from Alumni			
TBD			
TBD			
TBD			
TBD			

5.4. Return on Investment

Value Inflows			Value Outflows	ROI
Expenditures	Required Investment Amount ($thousands)	Total Investment (%)	Obtained Value Outflows (%)	
Total Available Budget	$100.0	100.0%	7.3%	2.9%
Setup Costs	$0.5	0.5%		
Operating Costs	$3.0	-3.0%		
Infrastructure Costs	$5.0	5.0%		
Maintenance Costs	$0.2	0.2%		
Salvage value	$0.5	-0.5%		
Terminal Value	$7.3	7.3%		

Total Periods	0
Discount Rate	30%
Periodic Costs	$2
Annuity	$0
Perpetuity	$7

Figure 13. Sample Template for Project Assessment Form

CHAPTER 6 – RECOMMENDATIONS

6.1. Recommendations

Beyond the evaluation metrics, improvements on the program's online presence, particularly on program's social media and the official website, and the alumni engagement managements are recommended to address stakeholder's concerns and to reduce the gap between current practice and preferred program state.

6.1.1. MITsdm Online Presence

6.1.1.1. Social Media

Social networks are not simply only about a series of websites, as Mike Dilorenzo, Director of Social Media marketing and strategy for the NHL, "They are about experiences" [42]. Unlike the monologue traditional media, the Internet-based media can expand "to capture reach, intimacy, and engagement" [43]. Therefore, the marketers and the communicators have first fully to understand their overall social media strategy and their unique story instead of blindly chasing after new platforms or tactics. Additionally, one also ought to comprehend the tools available and can use them efficiently. For examples, Facebook is suited to "soft content" conveying more of the human side of an organization; Twitter is best for providing people with additional information in real time and directing the traffic back to content on the official website [44]. With the story and the audience in mind, as well as a comprehensive understanding of the platforms' usage, it becomes trivial to decide where and how to share the story.

Current Content

Most of the SDM's official social media pages are solely used for promoting the few major initiatives that the program currently held. The official LinkedIn page is used to publish the featured articles, theses, and to endorse the upcoming webinars and/or conferences [45]. Similarly, the official YouTube Channel presents a great deal of videos from the previous systems thinking conferences, the webinar series, and other videos that illustrates student life at MITsdm [46]. However, these are presented in a cluster of videos without much categorization, and the information becomes relatively difficult for one to navigate. Lastly, the official Facebook page is used mainly for attracting prospective students. The info sessions, admission process and updates of student experiences are featured on the page [47]. Although a consistent pattern of event promotions can be observed across all SDM's official social networks, more work is still needed to make full use of the social media to create an ecosystem.

Future Implementations

- *A Consistent and Concise Theme throughout the Ecosystem*

  Unfortunately, SDM's social networks are lack of a systematic approach to foster "a coherent and integrated story permeated the [social media] ecosystem" [43]. The social media can be a lot more than just event promotional platform. It can be used to establish a consistent and concise theme throughout the ecosystem, leveraging it to tell the same story in different ways. For starters, a brief, concise and consistent message of the program's mission and what the program is should propagate throughout the platforms. Except on SDM's Twitter, no other official pages even have a concise program overview. The message becomes very diluted without a common theme.

- *Categorize the Content by Topics for Easy of Navigation*

  Additionally, to help the users navigate, the content should be organized and displayed by categories and topics instead of timeline only. Most of the posts, articles, or videos available on the official pages are scattered, which can lead to losing audience interests due to

difficulty in finding the right information. A better content management is needed for ease of user navigation. Use SDM's YouTube channel as an example. The videos can be organized by topics such as Entrepreneurship, Health Care, Product Design and so on, or by categories such as virtual info sessions, webinar series, videos on student experience and so on. At the same time, bundle all videos with the same topics/categories as Playlists to have a streamlined customized videos selection for the targeted users.

- *Enrich Content Marketing to Capture Attention*

  Besides, SDM also needs to enhance the content delivered across the platforms. Provide services and information that addresses students' needs and speaks to them. As a master program aiming for mid-career candidates, SDM not only needs to precisely illustrate its value proposition to students but also needs to ensure the feasibility of the program under all constraints that experienced professionals face. Unfortunately, no such message is available on SDM's social networks. To make up for it, a short promotional video should be created and distributed on across platforms. To differentiate SDM from other programs and to ensure the effectiveness of the video, the proposed video follows the four successful factors of the award-winning video marketing project [48].

  Factor 1. Content

  A brief summary of the program

  - The value proposition to students that differentiates SDM from MBA or any other Master of Engineering, Master of Science programs.

  Students as Ambassadors - Let the students speaks for themselves

  - Why they choose SDM?
  - How do they balance their professional, personal, and academic life?
    - Distance students – on managing learning at distance and making connections with SDM
    - Local Commuters – on balancing full-time jobs and SDM

- Parents – on caring for children and family while Studying
- Entrepreneurs – on leveraging the curriculum and SDM/MIT resources and communities
- Tech Savvy – on optimizing their SDM and MIT experiences with cutting edge technology-based courses and projects

Factor 2. Style

Contrasting to the rigid and formal, authoritative marketing tone, the promotional video should reflect the viewpoint based on students' experience and style. Student experience sharing portion does not necessarily need be formal, as long as it is truthful and useful, so that the audience can relate.

Factor 3. Venue

Since the promotional video aimed to market the program via student experience in a light-hearted tone, the ideal venue should be the Student Life Section of the official SDM website, YouTube Channel and Facebook page. At the same time, promotions at all channels are encouraged to provide linkage to social networks and to gradually build an ecosystem.

Factor 4. Partnership with Students

Given the limited human overhead and program resources, SDM can consider partnering with students for this marketing refreshment. SDM studnts come from diverse backgrounds; many of the cohorts have a marketing background and video production expertise. With their technical specialties, experiences with the program, connections to the student speakers, SDM fellows are fully competent to deliver the marketing projects. SDM can also propose this effort as special projects with a few academic credits, as some students may lack just a few units to fulfill their course requirements. Alternatively, it can also be facilitated as a fellowship to help reduce the financial burden.

- *Update Regularly and Frequently to Increase Engagement*

  Finally, the official social media pages need to be updated regularly and frequently to increase engagement. Many of the social media seemed stagnant. The cohort profile is still about 2014 admitted cohorts; most of student life content is still dated back in January of 2015. Without the constant updates, SDM's social networks will not be indexed in the front by the search engines, and it will cause failures in the capture and engage its users.

6.1.1.2. MITsdm Official Website

According to the student survey, SDM's official website (sdm.mit.edu) is the one of the top three channels, which 20% of the participated students and alumni first learn about the program. The website is also rated as the most significant contributor that motivate students to apply for MITsdm. It is, indeed, the central pipeline for information delivery to all program's stakeholders. However, multiple responders expressed in the survey feedback question that they had difficulties finding the specific information on the web page. Certainly, the official website can be improved in its content management, information delivery, and opportunities for bidirectional communications.

Content Management

The website needs to streamline its information streams for the prospective students to highlight content that helps prospective students to make their decisions.

- *Course Structure and Curriculum*

  On the official website, only a high-level description of core courses is available under the curriculum. However, more detailed information about the overall course structures and curriculum requirements are imperative to one's decision-making. Given the tremendous flexibility and diversity the program has, SDM should use the web page to inform the

prospective students about advantages over alternative programs. Provide an overview to highlight the five main categories – SDM Core, Management Foundation, Engineering Foundation, Focus Areas, and Leadership. Elaborate on each category with descriptions and a list of favorite courses. In addition, propose a few focus tracks for interests such as Entrepreneurship, Product Design, Energy or Health Care, etc., and provide a suggested a list of courses in each track. Make all the essential information to the audience; do not make it a scavenger hunt for the users.

- *General Program Schedule for All Program Options*

  As there are online, local commuters, and full-time on campus options with a program duration ranging from 12 months to 2 years, it can be confusing and overwhelming to the audience. Together with the detailed understanding of the various curriculum and overall course requirements, SDM should also include the general program schedule for all different options (similar to the illustration in Figure 1) such that the prospective students can better plan and allocate resources for their study.

- *Admission and Application Information*

  The program should streamline the admission and application information. Make the annual three on-campus info sessions dates and virtual info session's video links available on the Admission Page such that the prospective students can arrange visit accordingly. Besides, as the survey discovered, 34.5% of the students were motivated to apply for the program via friends or company recommendations, SDM should recognize such unique and powerful method of attracting applicants by providing a link or a form for current students, alumni or industrial sponsors to refer potential degree or certificate program candidates. Based on the data collected on program referral, the program could draw the popular trend and insights to justify and/or improve the program's current practice.

- *Showcase Student life*

  Aside from the program overview and admission information, the current official website still lacks content on its students' life at SDM. First of all, the promotional video that provides current student's perspective on why they decided to join SDM and shares their life at SDM shall be included in the student life page. Additionally, information on student profiles, class size, extra curriculum (i.e. entrepreneurial competition, hackathons), student clubs, student blogs and social life together can provide prospective candidates a full picture of what is like to be members of the SDM and MIT family.

Content Delivery

Besides the content included on the websites, the page layout and information display carry equal weight for the success of the website design. The visual display and envisioning of the information could be a complex subject and art itself; however, Edward R. Tufte, the pioneer in visualization practitioners, pointed out that visualization excellence "is that which gives to the viewer the greatest number of ideas in the shortest time with the least ink in the smallest space" [49]. The program's website design failed to follow his suggestion. The pop-up tap for articles, the Pulse, and event reminders can be a distraction and a potential functionality failure point when browsed using mobile devices. Meanwhile, the single column display layout adds separations among related content, limits the information density, and requires an additional step to access specific content.

One of the guiding principles for future implementation of the website design should be striving towards the balance of content density and usability. The content density is determined by the ratio of content on a page in relation to page size, and the usability refers to the clarity, precision, and efficiency in communications [50]. The goal is to aim for maximum information flow by using dense content-focused display methods. If the users cannot access the information that is provided, regardless of the offered content density, no value is added to the users. Therefore, the website shall switch from sectional display interfaces with mainly text to multiple window displays with simple keywords in moderate proportions to help the user

identify the content that appeals and speaks to them [50]. Such keyword summaries a excellent for both usability and advancing in Search Engine Optimization[50]. Additionally, transfer the content in attachment format such as employment report and the Pulse articles into displayed content on the website to reduce viewing barrier and helps web page rank higher in search engines.

Stimulate Bidirectional Communications

The current website design still treats its users as passive observers; however, it needs to be complemented to "allow two-way communications and dialogues between consumers and organizations, but also among consumers themselves" [51]. SDM should create a live forum on the Connect with SDM Page to stimulate an interactive community where prospective students, SDM Alumni, current students can communicate, make connections. Such bi-directional communication method allows multiple stakeholders to have their questions answered in real time. It also easy the burden of admission staff workload by reducing the repeated effort to respond to questions individually, and the forum can be an additional feedback mechanism to grasp the challenges the users are facing, and to guide the future implementation to address their needs.

Maintenance and Update

The official website should be setup, maintained and updated properly. The functionality and compatibility of the website are the fundamental requirements. It is very fundamental and crucial to ensure that all contents and webpage layout features work properly on all stationary and portable devices. In addition, the information should be up-to-date to reflect the program changes and updates. The Annual Employment Reports, Student Profiles and Students Contacts need to be regularly updated. Many current students use the employment statistics as an indicator to make their employment decisions while the prospective students treat it as a career outlook indicator. Update the Student Profile to the most recent year to provide a more accurate impression of class size, student experience level,

and background. Organize the Student Contacts by their degree options (i.e. distance, commuter options) to promote effective communications.

6.1.2. Alumni Engagement Management

As the program former Alumni Relations Coordinator and Marketing Specialist pointed out during her interview session, "Alumni as ambassadors" is one of SDM's main marketing strategies. SDM graduates' experiences in the program, the skills and capabilities they developed from SDM, and their post-graduation career paths are the greatest indications of career success due to SDM. The program needs to manage its alumni engagement to leverage its more than 750 graduates community [52]. According to the survey results on alumni engagement, more efforts are needed to address their desire for higher engagement, lowering the gap from the current average engagement level of 2.08 to 3.76. To do so, SDM should take the initiative to create the Alumni Leadership Council.

Alumni Leadership Council

Learning from Dartmouth's MEM program that has actually established the Corporate Collaboration Council leveraging their alumni network, SDM can also build the Alumni Leadership Council (ALC) [33]. SDM has already found the Student Leadership Council, a student-run program-funded initiative enabling SDM fellows to develop leadership skills, build sustainable contributions and foster effective collaboration with staff, students, and alumni. The creation and development of SLC have benefited SDM significantly and became the direct SDM's inbound marketing approach to the MIT community. Likewise, the establishment of ALC can be a great asset to the program not only in marketing but also in recruitment and mentorship.

ALC Value Propositions to SDM

- Organize regional SDM alumni networking events regularly (twice per year or once every quarter)
- Integrated and align the alumni events together with SDM conferences and/or Tech Track
- Provide active mentorship on thesis research and career advisory
- Provide potential summer internship opportunities and full-time employment referral

SDM Support for ALC

- Enhance Virtual Community Site for easy alumni coordination, organizing alumni database by graduation year, by located region (alumni roadmap), and by affiliated companies
- Allocate budget and provide guidelines to ALC
- Assign at least one staff contact to ALC for communication and collaboration

Although to establish ALC indeed will require an additional time commitment for staff, especially during setup stage, the benefits it promises are tremendous. The ALC enhances the network connectivity among alumni, prospective companies as well as the students, and strengthens the relationships between internal and external stakeholders.

Furthermore, SDM can also stimulate more active engagement virtually. To engage remote graduates, SDM should provide more virtual activities for alumni to attend or lead such as virtual speaker series, virtual info sessions, and virtual panelist. Meanwhile, have periodic short Newsletters aside from the Pulse to alumni and include invitations for all on-going engagement.

6.2. Conclusion

During the course of this thesis research, a descriptive summary of current program marketing and communication initiatives and tactics was included to provide a general understanding of the current practices. The current state analysis focused to exam the program competitiveness among all seven MEM programs that participated in MEMPC, followed by a stakeholder analysis to understand and prioritize stakeholders and their needs. Based on the current practices and the current state analysis, sets of future project evaluations metrics and implementations are recommended for future implementations, summerized in Figure 14.

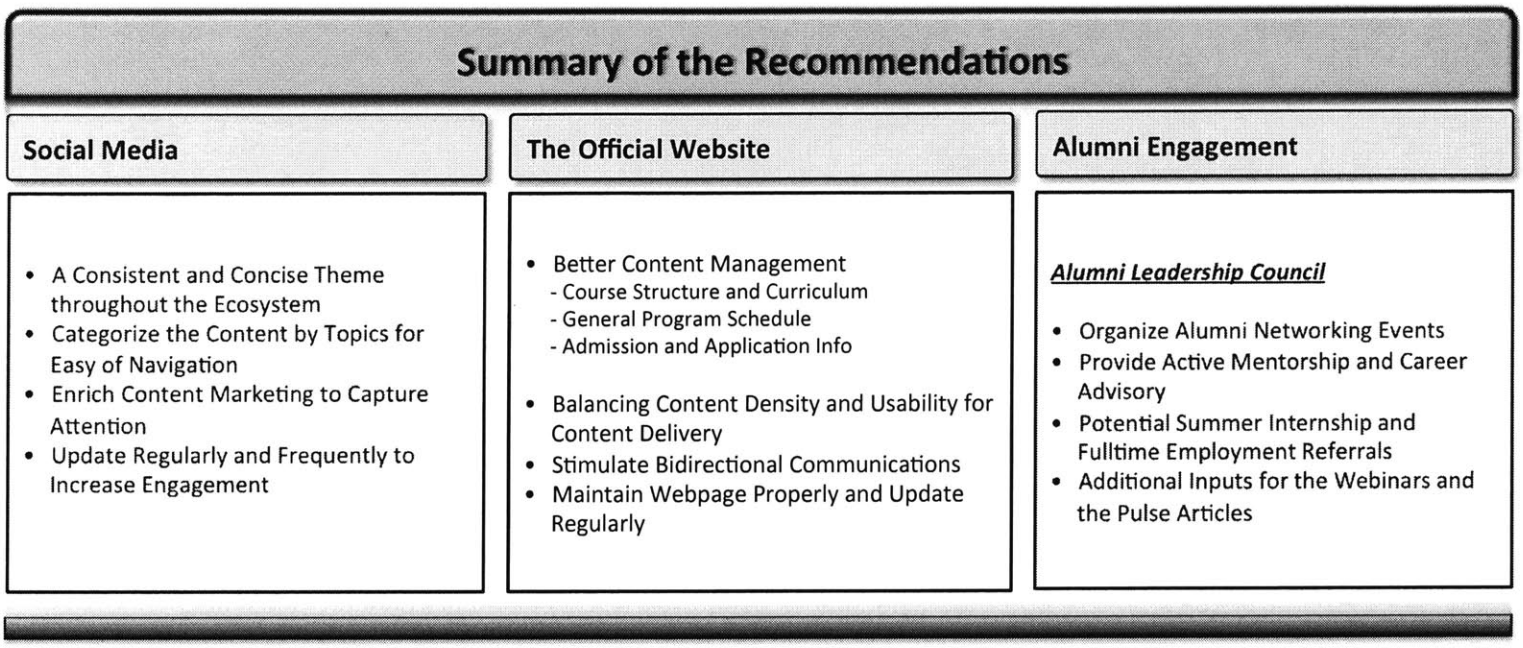

Figure 14. Summary of the Recommendations

The proposed recommendations and evaluation methods are aimed at enhancing the connectivity of the SDM stakeholder networks, to attract more of the best student candidates and prospective industrial partnerships, and together, to grow and strengthen the SDM community. However, there are significant barriers to implementation. First of all, the proposed change will definitely introduce disruptions to SDM's staff work schedule and workload. The

proposals on improving the program's online presence and the promotional video project will require extensive setup effort, continues monitoring and updates in addition to the program staff's current responsibilities and job obligations. Secondly, the evaluating metrics would require explaining and training for proper usage of Project Evaluation Form. If the required support for adoption is not available, the templates will potentially become a meaningless paperwork that adds no value but a waste use of time. Lastly, the establishment of the ALC requires both additional staff overhead, financial support from SDM and alumni commitment to succeed in the project and build an effective ALC.

Besides the potential barriers of implementations, there are still potential scalability challenges. With the limited program resources and budget, SDM ought to take cautions to its community growth at each stage. As a 20-year-old young program, the current emphasis is to continue to expand the program and compete for best talents. When the program reaches its mature stage, the rapid growth in program size would bring out the additional concerns – industrial sponsorship retention, alumni engagement continuity, and internal stakeholders fulfillment. Although the proposed new initiative assessment metrics have the weighting scales to adapt to different program development stages and its strategies changes, a more comprehensive study is needed to appraise the usefulness of the current metrics. If necessary, the program will need to develop replacement method when the stakeholder dynamics and program structure change radically.

6.3. Implications for Future Research

6.3.1. Research Limitations

This thesis is limited to determine the effectiveness of SDM's current marketing and communication effort. The research findings and analysis are mainly based on the employee interviews, student survey, and online search; it does not apprehend an impeccable study of the program itself and other mentioned MEM programs. The competitive analysis only takes

into consideration of the MEMPC programs. It did not adequately capture the competitiveness of the program in the landscape of the whole MEM degree-granting programs, and no comparisons of SDM to other advanced STEM degrees or MBA degrees are covered in this paper. However, it serves the purpose of this thesis - to obtain a basic understanding of SDM, to assess the communication and marketing effectiveness, and to propose future state implementations.

In addition, validation of the usefulness of project assessment and further analysis of the proposed changes are required. SDM needs to be mindful when implementing any changes. The program needs to stay up-to-date to obtain feedback and suggestions from the students and the prospective students on the effectiveness of the updated communications and marketing efforts, from the alumni on the engagement management, and from staff on cost-benefit ratio on the proposed recommendations.

6.3.3. Other Area of Implementations

This thesis research and discussion focuses on understanding, evaluating, and improving SDM's marketing and communications. Because of the explicit focus of this paper, many other research opportunities such as other potential implementations and different aspects of focus areas are not cover in this paper. The recommendations suggested mainly focused on the most cost-effective and impactful areas - improving the online presence and alumni engagement, but other challenges still exist and require SDM's to face. More recommendations and efforts on overcoming the challenges in industrial partnership retention, the career placement assistance, stakeholder managements, and the inbound marketing to MIT community could introduce tremendous advantages to the program's growth. Besides, other aspects of the program development and improvement in admission, operations, and finance can also bring significant impacts to the success of the program.

APPENDIX A. MITsdm Students/Alumni Survey Questionnaire

What is your affiliation with MITsdm? *

- ○ Certificate Alumni
- ○ Current Certificate Students
- ○ Current Master Degree Students
- ○ Master Degree Alumni
- ○ Other:

What is your graduation (or expected graduation) year? *
i.e. 2013

_____

How did you FIRST hear about MITsdm? *

- ○ Advertisement (i.e. WBUR)
- ○ Internet Search
- ○ MITsdm Website
- ○ MIT or Sloan Websites
- ○ SDM Students/Alumni Referral
- ○ Company Referral (i.e. SDM Certificate program)
- ○ Other Referral (Non-SDM)
- ○ SDM's Social Media (i.e. Facebook, Twitter, Linkedin)
- ○ System Thinking Webinar
- ○ SDM Info Sessions
- ○ SDM Tech Track
- ○ Conferences (Please indicate conference name in "other" option.)
- ○ Other:

Which of the following have you NEVER heard of prior to join MITsdm? *
(Select all apply)

- ☐ Advertisement (i.e. WBUR)
- ☐ Internet Search
- ☐ MITsdm Website
- ☐ MIT or Sloan Websites
- ☐ SDM Students/Alumni Referral
- ☐ Company Referral (i.e. SDM certificate program)

- [ ] Other Referral (Non-SDM)
- [ ] Social Media (i.e. Facebook, Twitter, Linkedin)
- [ ] System Thinking Webinar
- [ ] SDM Info Sessions (Cambridge & Silicon Valley)
- [ ] Conferences (Please indicate conference name in "other" option.)
- [ ] SDM Tech Track
- [ ] SDM Virtual Info Sessions
- [ ] Other:

Why did you choose MITsdm? *
(Select all apply)

- [ ] Overall MIT Reputation
- [ ] School of Engineering Reputation
- [ ] MIT Sloan Reputation
- [ ] Combination of engineering and management
- [ ] Leadership Curriculum
- [ ] Distance Option
- [ ] Commuter Option
- [ ] Other:

Which of the following most motivated you to apply to SDM? *
(Select all apply)

- [ ] Advertisement
- [ ] Email exchanges / phone calls / Virtual meetings with SDM Students / Alumni
- [ ] Friends Recommendations
- [ ] MITsdm Website
- [ ] On-campus Info Sessions (including student mixers)
- [ ] SDM Tech Track
- [ ] Virtual Info Sections
- [ ] SDM's Social Media (i.e. Facebook, Twitter, Linkedin)
- [ ] Other:

As an Alumnus, how do you assess your level of engagement with MITsdm post graduation on a scale of 0 - 5?
MITsdm Alumni Only.

	0	1	2	3	4	5	
No Engagement at all	○	○	○	○	○	○	Extremely Engaged

As an Alumnus, on a scale of 0 - 5, how engaged would you like to be with MITsdm?
MITsdm Alumni Only.

	0	1	2	3	4	5	
Not Engaged at All	○	○	○	○	○	○	Extremely Engaged

Please provide any feedback, comments and/or suggestions on SDM's current marketing outreach below.
If you are interested in providing more in-depth feedback or suggestions about SDM's marketing and communication, please include your name and email below to schedule an in-person or virtual discussion. Your additional input is much appreciated.

APPENDIX B. Survey Responses Summary

How did you FIRST hear about MITsdm?		
Internet Search	28	25%
SDM Referral	24	21%
MITsdm Website	15	13%
Company Referral	12	11%
MIT or Sloan Websites	11	10%
Other Referral (Non-SDM)	10	9%
Advertisement	6	5%
Conferences	5	4%
Other	2	2%
Info Sessions	0	0%
Social Media	0	0%
Tech Track	0	0%
Virtual Info Sessions	0	0%
Webinars	0	0%

Which of the following have you NEVER heard of prior to join MITsdm?		
Advertisement	13	12%
Company Referral	45	40%
Tech Track	22	19%
Info Sessions	67	59%
Internet Search	18	16%
MIT or Sloan Websites	53	47%
MITsdm Website	71	63%
Other	62	55%
Other referral (Non-SDM)	9	8%
SDM referral	71	63%
Social Media	68	60%
Conferences	80	71%
Virtual Info Sessions	65	58%
Webinars	75	66%

Which of the following most motivated you to apply to SDM?

TechTrack	0	0.0%
Social Media	0	0.0%
Advertisement	2	1.8%
Contact with Leadership	3	2.7%
SDM Conference	3	2.7%
Culiculum	3	2.7%
Program Flexibility	4	3.5%
Other	5	4.4%
Info Sessions	22	19.5%
Contacts with Students/Alumni	31	27.4%
Friends/Company Recommendations	39	34.5%
MITsdm Website	47	41.6%

Why did you choose MITsdm?

Other	12	11%
Commuter Option	14	12%
Distance Option	24	21%
Leadership Curriculum	29	26%
School of Engineering Reputation	60	53%
Sloan Reputation	61	54%
Combination of engineering and management	92	81%
MIT Reputation	101	89%

As an Alumnus, how do you assess your level of engagement with MITsdm post graduation on scale of 0 - 5?

Discounted the Current Student's responses

	Engagement Level	Percentage
0 (No Engagement at all)	3	5%
1	23	39%
2	11	19%
3	15	25%
4	5	8%
5 (Extremely Engaged)	3	5%
Total Response	60	100%

As an Alumnus, on scale of 0 - 5, how engaged would you like to be with MITsdm?

Discounted the Current Student's responses

	Engagement Level	Percentage
0 (No Engagement at all)	**0**	0%
1	**3**	5%
2	**4**	7%
3	**15**	25%
4	**24**	40%
5 (Extremely Engaged)	**14**	23%
Total Response	60	100%

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