Headquarters on Campus:
Student Entrepreneurship and the Ambivalence of Incubation

by

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ABSTRACT

Entrepreneurship increasingly takes place in universities, by faculty and students. Whereas the entrepreneurial pursuits of faculty have received significant scholarly attention, those of students have been largely neglected. Our knowledge of students’ endeavors is limited to their entrepreneurial performances as alumni. What about their pursuits while still in school?

I study student entrepreneurship in the context of student clubs at MIT. As a pioneer in the integration of entrepreneurship in higher education, MIT is a particularly opportune research setting for the study of student entrepreneurship. I discuss the entrepreneurial infrastructure at MIT, the MIT entrepreneurial ecosystem, and introduce student clubs as one of its components. My study focuses on a growing category of clubs that I call venture clubs for their resemblance to entrepreneurial ventures. I describe their characteristics, namely, size, activities, and plans for future growth and, most importantly, funding that primarily sets them apart from what I call traditional clubs. A crucial distinction is that venture clubs are, for the most part, ineligible for funds dedicated to student clubs; rather, they are funded by a variety of MIT centers and programs (e.g. the Public Service Center, MISTI, and the Legatum Center). I discuss the development of the latter sources of funding over the last twenty or so years amidst ambivalent views expressed by representatives of the MIT administration and student government over the relative value venture clubs have for the MIT community.

Overall, the support, both monetary and non-monetary, provided to venture clubs signifies openness by the MIT administration and student government to the incubation of student ventures. Drawing from the MIT case, we can better understand the specifics of student entrepreneurship in the context of clubs as well as the complexities it introduces to the administration of institutions of higher education.

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This thesis would not have been made possible without the support of my committee, John Van Maanen, Lotte Bailyn, and Paul Osterman. I thank them for their tireless encouragement and invaluable advice throughout the Ph.D. journey. I hope to one day offer my students the same support I was offered.

John Van Maanen, my committee chair, was the first one to believe in my project. Four years ago, at a meeting at the local Au Bon Pain, over coffee and muffins, I shared with him my idea to study student clubs at MIT. “They are new for you,” I remember him saying referring to my Greek educational background. “It is a study that has not been done before. It will be very interesting,” he noted. Innumerable meetings took place after that. John was there through every step of the way to discuss my ideas, comment on my drafts, and provide encouragement.

Lotte Bailyn was key in helping me define and refine my project. She tirelessly read all my drafts and provided feedback. She was always there to show me the way. When I was lost and confused about how to design the data collection or write up the thesis, Lotte had the answers. I thank her for helping me get out of the dissertation ‘maze.’

Paul Osterman was a firm supporter. I started working with him in 2008-2009 as head TA for his undergraduate class 15.301 Managerial Psychology. I was head TA for that course for four consecutive years. Paul and I developed a good way of working together on that course, which led to a broader advisor-advisee relationship. He was always there to support me both with ideas on how to shape my thesis and with additional TA support, when I needed it.

I am grateful to the funding institutions that made my studies financially viable. I would like to thank the Onassis Foundation and the Edward B. Roberts, Jean Hammond, and Michael Krasner Fund for supporting the final years of my Ph.D. The support of the MIT Sloan School of Management, in the form of teaching assistantships and other resources, has been critical to my studies and personal development. My gratitude also extends to funding institutions that supported my Master’s at Cornell, where my journey in U.S. higher education began. Specifically, I am thankful to the Fulbright Foundation and the Lillian Voudouri Foundation for funding my studies in these early steps.

Next, I would like to thank the MIT Hellenic Students Association and the Greek community in Boston, more broadly, for providing a family-away-from-home. I made some of my best friends in Boston. Most of us Greeks studying here are Ph.D. students; and, we are able to understand and support each other through the ebbs and flows of a Ph.D. program. It took innumerable coffees, brunches, dinners, drinks, shopping sprees, massive Easter celebrations, and other adventures. This is how we made it together through the good and the bad. I wish each and every one of them, whether they are still in Boston, back in Greece or in other parts of the world, the best of luck.

I would not have survived the Ph.D. journey without the support of my family, my parents Anna and Stelios, my sister Athena, and my brother Manolis. Stelios and Anna, also known as the “Drosia headquarters” after the name of my hometown in Athens, were always there, literally “online” (aka on Skype) while I was working at my desk in Boston. Through morning “Skype breakfasts” and other chats, we have managed to bridge the ocean that divides us the last nine years while I have been pursuing graduate studies in the U.S.

I thank my boyfriend Waseem for standing next to me in the difficult dissertation years. Together we moved from chapter to chapter through the end of this dissertation journey. He was there for me when the end was nowhere in sight, always patient with my crazy schedule and
always with a kind word to cheer me up. I thank him for never losing faith in me and for keeping me sane.

Finally, I would like to dedicate this thesis to my home country. For some, Greece is the sun, the sea, the heart of ancient Greek civilization; for me, Greece is my “grand piano,” an expression John Van Maanen uses to talk about the socioeconomic, structural factors that fall, like a grand piano, on the life of a person and determine it. It has been my strong conviction that, if Greece offered better opportunities to its people, Greeks would not be the lazy and corrupted people presented in modern day media. They say: “Give a little bit of love and you will get it back.” I strongly believe that the same holds about the way people develop. If you give the opportunity to an individual to develop, he or she will grow and achieve great things. It is clear to me that the issue with Greece is one of structure of opportunities.

In my statement of purpose to the Ph.D. program at MIT, I wrote:

“My academic pursuits in organizational behavior are guided, to this day, by my first research project [...]. My goal was to analyze my old high school, the culture of which strongly discouraged any effort toward personal development. In fact, the school was barely functioning-- the culture was degraded to the point where students would skip classes as a whole group, teachers would spend class time chatting about matters irrelevant to the curriculum, and everyone was convinced that studying was a waste of time. The majority of my high school classmates not only failed to make it to college, but failed to acquire any professional training or orientation.”

The last 14 years, since college, the questions that motivate me in my studies have been discovering the essence of what is now called the “Greek crisis” and finding ways out. My study of MIT student clubs and all the wonderful projects that have resulted from these clubs is a first step in this direction.

Stella Kounelaki

Boston, May 28, 2013
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Chapter 1: Introduction: Student Entrepreneurship and the MIT Entrepreneurial Ecosystem

Entrepreneurship is highly valued and intensely researched. Innumerable studies have been conducted in an effort to understand what drives it and what facilitates its development. Understanding the early stages of entrepreneurship is considered to be particularly important. Yet these early stages are largely missed by researchers, mostly because entrepreneurship at that point is often veiled under different areas of activity and is, thus, difficult to locate. How can we ensure that early stages of entrepreneurship are not missed by researchers? For example, ideas that have not taken shape yet but that drive those who believe in them would pass under the radar of any research project. Similarly, student projects that do not classify as startups (yet) but might be the beginnings of a venture would fall outside the traditional scope of any study of entrepreneurship. How can we best study such early efforts?

I consider such questions important for several reasons. First, entrepreneurship, in addition to being essential for global economic growth, is becoming an increasingly widespread career path, as the world of work is changing. Large, vertical organizations that once offered lifetime careers to their members are giving way to smaller, flat organizations (Arthur & Rousseau, 1996). Technology and innovation, especially that coming out of universities, are at the center of this transformation (e.g. O'Shea et al., 2005).

Second, regional high technology clusters such as Silicon Valley are the hallmark of recent changes, representing the model of an economy - and an associated labor market - that is built around regional professional networks, universities, and high levels of entrepreneurial activity, rather than large, stand-alone bureaucratic firms (Saxenian 1994, 1996). Universities and
regional high technology clusters have been shown to have much in common in terms of the resources they offer for the development of entrepreneurial ventures (e.g. Lester, 2005).

Third, entrepreneurship in U.S. universities is an important phenomenon on its own. In the history of the university as an institution, this is a new era, unfolding gradually after World War II and culminating with the Bayh-Dole Act in 1980. In this new era, universities play an increasingly active role in the commercialization of technologies developed in their research labs, contribute to regional economic development, and prepare – to varying degrees – their students for entrepreneurial careers. Historical studies talk about the entrepreneurial university as a second academic revolution (with the first one being the addition of research to the core mission of universities in the mid-nineteenth century) (Etzkowitz, 2002: 9-19). Literature in the sociology of science approaches the phenomenon as a shift from pure to applied science and employs the term academic entrepreneurship to describe the transformation of scientists to entrepreneurs (e.g. Colyvas & Powell, 2006; Stuart & Ding, 2006; Murray, 2010).

I focus on student entrepreneurship at MIT. The entrepreneurial accomplishments of former MIT students are highly celebrated. Instances of admiration and celebration of their contribution to the growth of the economy in the U.S – if not the world – abound. For example, former MIT President Susan Hockfield, at the commencement ceremony of the Class of 2011, praised students for founding “new industries and launch[ing] thousands of businesses that employ millions of people around the globe.” Roberts and Eesley (2009: 3) estimated that MIT alumni have founded “25,800 currently active companies,” which employ about “3.3 million

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1 With the Bayh-Dole Act, in 1980, the U.S. government gave universities all the rights over intellectual property stemming from federally funded research.

2 Source: “President Hockfield’s Charge to the Graduates,” The Tech, June 3 2011.
people and generate annual world revenues of $2 trillion.” In addition, much has been written on entrepreneurship at MIT as a model for other institutions to emulate (e.g. Franke & Lüthje, 2004; O'Shea et al., 2007).

Yet, when it comes to the actual entrepreneurial endeavors of MIT students while in school, we know very little. It is surprising that, even though we know a lot about the entrepreneurial behavior of alumni and faculty, we do not know much about students. The main reason is that research on the entrepreneurial university has evolved around issues of technology transfer, with spinoffs coming out of research labs being a primary point of interest (e.g. Feldman & Desrochers, 2004; Colyvas, 2007; Jong, 2008). We know, for example, that faculty often choose to commercialize their research and that a big part of the entrepreneurial impact of universities occurs this way (e.g. Carayannis et al., 1998; Bercovitz et al., 2001; Rogers, Takegami, & Yin, 2001; Kodama, 2008). What about students however?

Even at MIT, an institution that has been highly researched by virtue of being a pioneer in the area of entrepreneurship, we know very little about the entrepreneurial pursuits of its students while they are still in school. The Roberts and Eesley (2009) report cited earlier, which is the most extensive report in this area, provides some overall statistics on the number of companies, jobs, and economic impact created by MIT alumni. Roberts and Eesley (2009) also provide further descriptive, statistical information on patterns observed over time. From their report, we know, for example: (a) that the number of entrepreneurs that emerge out of every MIT graduating class is increasing; (b) that MIT alumni now start their first companies sooner and at a younger age than in past periods; (c) that the companies they form are primarily in knowledge-

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3 The Roberts and Eesley (2009) report is a study prepared for the Kauffman Foundation with the support of MIT. Their data are based on a 2003 survey of all living MIT alumni.
4 Technology transfer is the process of transferring a technology developed in a research lab to further stages of product development and, finally to market.
based industries, such as software, biotech, manufacturing, and consulting; (d) that, in terms of
the source of ideas for firm formation, two-thirds of founders report that the idea came from
“industry work experience,” about 15 percent from “networking,” and about 10 percent from
“research”; and, (e) that more than 20 percent of alumni entrepreneurs come out of the electrical
engineering and computer science departments, with departments such as management,
mechanical, chemical, and civil engineering, architecture, physics, and aeronautics following this
lead (Roberts & Eesley, 2009: 5-16). These data, however, are based on alumni entrepreneurial
achievements. They tell us little about what the entrepreneurial alumni did while students at
MIT.

In terms of developments occurring at MIT, we know that MIT, again citing Roberts and
Eesley (2009), provides a wide range of resources to members interested in entrepreneurship. A
growing set of centers and programs, academic areas, courses, competitions, and student clubs
have been put in place by the Institute to support entrepreneurship. Roberts and Eesley (2009)
provide a set of examples of companies formed by MIT alumni with the assistance of these
resources. Yet, we lack the systematic knowledge about students’ pre-graduation entrepreneurial
pursuits. How do students use the resources in place by the Institute to pursue entrepreneurial
ventures? I address this question by studying student ventures that are nurtured within one
specific part of the ecosystem: student clubs.

Student clubs are one of the few parts of the MIT entrepreneurial ecosystem that is entirely
run by students and thus specifically caters to student needs. The larger part of the ecosystem is
designed to support entrepreneurship that comes out of large, usually faculty-led, research
projects. While the Roberts and Eesley (2009) report gives a few examples of entrepreneurship-
related clubs (e.g. MIT 100K Entrepreneurship Competition, Astropreneurs, and the Sloan
Entrepreneurship Club), the goal of my research is to go further and study the student club population in a systematic way. According to the website of the MIT Division of Student Life, "MIT is fortunate to have over 330 student groups and organizations that focus on a variety of interests." My aim with this thesis is to study the kinds of student clubs that exist and their historical development.

This introductory chapter provides an overview of the MIT entrepreneurial ecosystem. I start with an overview of the ecosystem and then discuss each part in further detail. I devote special attention to student clubs and their significance for entrepreneurship on campus. I conclude the chapter with an outline of the thesis, providing a roadmap to the reader for the chapters that follow.

1.1. Student entrepreneurship and the MIT entrepreneurial ecosystem

The MIT entrepreneurial ecosystem is a set of resources that the Institute has put in place to encourage its members' entrepreneurial efforts. The term is used widely within MIT to emphasize the range of resources available to support a venture from the idea stage to further stages of development. Resources range in type – centers and programs, academic fields, courses, competitions and student clubs – and constitute an environment rich in support for MIT members wishing to pursue entrepreneurial projects.

The oldest component of the MIT entrepreneurial ecosystem is the Technology Licensing Office (TLO), which was established in 1932. After a few quiet decades, the ecosystem grew significantly in the 1980's and 1990's with the additions of the MIT Enterprise Forum in 1985,
the 100K Entrepreneurship Competition in 1989, the Trust Center for MIT Entrepreneurship in 1990, and the MIT-Lemelson Program in 1994.

In the 2000’s, significant additions such as the MIT Venture Mentoring Service in 2000, the Deshpande Center in 2002, the Clean Energy Prize Competition in 2007, and the Entrepreneurship and Innovation MBA Track in 2008 gave the MIT ecosystem even further capabilities to support entrepreneurship on campus.

Whereas most presentations of the MIT entrepreneurial ecosystem, such as those found in the Roberts and Eesley (2009) report and those found on MIT websites (e.g. the websites of the Trust Center for MIT Entrepreneurship and the MIT MBA Program), usually end here, in my discussion of MIT’s ecosystem I include a number of additional components that I feel are particularly important. In particular, after 2000, three important resources for MIT members wishing to engage in social entrepreneurship (as opposed to technological entrepreneurship) have been added to the MIT ecosystem (Figure 1-1). These are the Public Service Center (established in 1988 but, as I later describe, became a significant resource for entrepreneurship only after 2000), the IDEAS Global Challenge established in 2001, and the Legatum Center established in 2002.

Figure 1-1: The MIT entrepreneurial ecosystem by type of entrepreneurship

Social entrepreneurship

Public Service Center
IDEAS Competition
Legatum Center
courses
student clubs

Technological entrepreneurship

Technology Licensing Office
Enterprise Forum
Martin Trust Center for MIT Entrepreneurship
Lemelson-MIT Venture Mentoring Service
Deshpande E&I MBA Track
TIES faculty area
100K competition
Clean Energy Prize
courses
student clubs

Social entrepreneurship is defined as entrepreneurship with the explicit aim of “making the world a better place” (Dees, Emerson, and Economy, 2002: xxx-xxxi). Central to technological entrepreneurship is a “technical idea” (Roberts, 1991: 3).
Both the technological and the social sides of the MIT entrepreneurial ecosystem have been continuously growing. Here, I briefly discuss the most important components of the ecosystem, concluding with student clubs which are the focus of this thesis. My discussion is organized by type of resource: centers & programs, academic fields, courses, competitions, and student clubs. Within each type, I follow a chronological order by year of establishment.

1.1.1. MIT entrepreneurial ecosystem: Centers & programs

A number of centers and programs exist at MIT that provide advice, funding, and other services to MIT members engaging in entrepreneurial activities. In many cases, centers and programs are established with the support of external donors and carry their names. The whole range of the MIT population, from students to faculty as well as alumni, has access to these resources. In my discussion, I emphasize resources offered to students, in an effort to draw a complete picture of the role of each component of the ecosystem in student entrepreneurship.

MIT Technology Licensing Office  The history of the MIT Technology Licensing Office begins, as noted, in 1932, when an MIT Committee on Patent Policy was formed to address issues of intellectual property (Roberts & Eesley, 2009: 56-57). The committee became, in 1945, the Patent, Copyright and Licensing Office and, in 1985, it became a separate entity and was renamed the Technology Licensing Office or TLO (Roberts & Eesley, 2009: 56-57). The mission of the TLO, as stated on its website, is to “foster commercial investment in the development of inventions and discoveries flowing from the research at [MIT].”

In 2011, as part of my fieldwork, I attended the Science Policy Bootcamp, a four-day workshop organized annually during the MIT Independent Activities Period by the student club

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Science Policy Initiative. Lita Nelsen, TLO's director, gave a presentation on the functions of the TLO and its achievements and noted that the criteria by which the TLO makes its patent licensing decisions are not driven by monetary concerns. Rather, she said, the TLO is interested in seeing technologies coming out of the MIT labs put in good use. In this direction, the TLO, as a requirement of licensing an MIT technology, asks companies to work with its staff on a detailed timeline of specific milestones to be achieved. If the company does not achieve the growth specified, the TLO revokes the license, because, according to Nelsen, the licensed technologies are not being used for the largest societal benefit.

Apart from its technology licensing function, the office also contributes to the education of those in the MIT community. Roberts & Eesley (2009) report that TLO staff members often serve as judges in the MIT 100K Entrepreneurship Competition, as guest lectures in a variety of classes, as presenters at MIT Enterprise Forum events, and as project advisors and I-Team Catalysts for the Deshpande Center (see below). Additionally, the TLO advertises that the office has an “open door” and provides a place for members of the MIT community to discuss their ideas about commercializing a technology, their concerns about protecting their intellectual property, their worries about starting a company and so forth.

The role of the TLO in the MIT entrepreneurial ecosystem strengthens every year. Since its inception as a separate organizational entity, the number of patents issued has grown significantly and so has its visibility in the MIT community. Roberts and Eesley (2009) note that in 1985 the office put together 8 to 10 “agreements with industry” and registered approximately 120 “invention disclosures.” More recently, numbers are as high as 80 to 100 “agreements with

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9 An “invention disclosure” is a confidential report of a technological invention written to determine whether patent protection should be sought for the described invention. If the disclosure is accepted [in this case by the TLO] to be pursued further, a patent application is filed. The term “agreements with industry” means agreement to license the patent to a company.
industry” and about 500 “invention disclosures” per year. (Roberts & Eesley, 2009: 58). In terms of visibility, survey data collected by Roberts and Eesley (2009: 58) show that 11% of alumni graduating in the 1990’s indicate the TLO as “important in venture founding,” compared to 1% of alumni graduating in the 1950’s.

MIT Enterprise Forum The roots of the MIT Enterprise Forum can be traced back to entrepreneurship-related events organized by the MIT Alumni Association as early as 1969 (Roberts & Eesley, 2009: 44). After a number of years of very popular events, in 1985 the MIT Enterprise Forum, an alumni organization specific to the promotion of entrepreneurship, was created (Roberts & Eesley, 2009: 44). Today, the MIT Enterprise Forum has twenty-four chapters, including six in countries outside the U.S. (Roberts & Eesley, 2009: 44). Following its original format, the organization holds monthly presentations by local entrepreneurs and a variety of other events, all of which are open to the broader Boston entrepreneurship community.

In terms of contributing to the education of students, the MIT Enterprise Forum of Cambridge often organizes sessions on campus. In the Independent Activities Period 2012 period, for example, a seminar on “Starting and Building a Successful High-Tech Venture” was offered. The class was open to undergraduate as well as graduate students. It was structured around lectures and guest speakers on topics such as “general management, team formation and leadership, growth capital, [and] business infrastructure.”10 In addition, as mentioned earlier, MIT students are welcome at all MIT Enterprise Forum events.

10 The quote is taken from the course website: http://student.mit.edu/searchiap/fs-15-976.html (accessed May 16, 2013)
The Martin Trust Center for MIT Entrepreneurship was established in 1990 within the Sloan School of Management. The mission of the Center is to support and coordinate entrepreneurship programs across MIT (e.g. entrepreneurship classes, student activities, and other programs). Previously known as the Entrepreneurship Center, the Center was renamed in 2011 after a $10 million donation by the Trust Family Foundation in honor of alumnus Martin Trust.

Professor Edward Roberts, from the Technological Innovation, Entrepreneurship, and Strategic Management (TIES) faculty group at Sloan School of Management, was instrumental in creating the Center. Roberts and Eesley (2009: 47-48) note that the Center reflects MIT’s “Mens et Manus” philosophy to combine lessons from entrepreneurship practice with the academic rigor of entrepreneurship-related research from a variety of disciplines (e.g. marketing, finance, economics). An educational program taught by tenure-track academics and adjunct practitioners was built. The TIES faculty group at the Sloan School of Management serves as the MIT departmental home for the Center.

With the support of the Trust Center, the number of courses on entrepreneurship offered has increased significantly in recent years. MIT’s first entrepreneurship subject, New Enterprises, was introduced in the 1960s. Since then a number of courses have been added. The Center website currently lists more than 50 courses. Some of these courses are restricted to MBA students in the Entrepreneurship & Innovation MBA Track but most are open to students from all departments. I discuss course offerings in more detail later in this chapter.

The Trust Center is located in the MIT Sloan School of Management and its space is designed to be open to use by all MIT students. Students with venture ideas can, for example, visit the Center to discuss their ideas with the Entrepreneurs in Residence. Entrepreneurship
clubs often use the space to host meetings or events. Recently, in an effort to continuously grow the range of resources offered, the Center started offering incubation programs for student startup ventures. *Beehive*, the Center's most recent incubation program (2012 summer period) offers resources, such as space, seed funding, and advisors, to 40 selected student teams.

**Lemelson-MIT Program** The *Lemelson-MIT Program* supports innovation with a variety of grant programs. The Program was established in 1994 by Jerome Lemelson (1923-1997), a prolific inventor, and his wife, Dorothy. The Program is funded by the *Lemelson Foundation* and administered by the *MIT School of Engineering*. The aim of the Program, as stated on its website, is to *"recognize outstanding inventors, encourage sustainable new solutions to real-world problems, and enable and inspire young people to pursue creative lives and careers through invention."*[^1]

The Program supports inventors at all levels of the educational system and at various stages of their careers. Starting in high school, the Program supports students through *InvenTeams*, a nation-wide program that administers grants to student teams with innovative ideas. At the level of undergraduate and graduate education, a $30,000 *Lemelson-MIT Student Prize* is awarded to MIT students-inventors. Prefaced with the quote *"Today's young inventors are tomorrow's technological and entrepreneurial leaders,"* the Program announces the prize on its website. Finally, the $500,000 *Lemelson-MIT Prize* honors, as quoted from the website, *"outstanding mid-career inventors dedicated to improving our world through technological invention and innovation."*

MIT Venture Mentoring Service  The MIT Venture Mentorship Service (VMS) was established in 2000, after a donation by two MIT alumni, Alexander Dingee and Professor David Staelin. VMS has an office in MIT’s main building complex and a small full-time staff that is supported by a large number of volunteer mentors. According to Roberts and Eesley (2009: 61), VMS “provides free and, hopefully, objective advice and assistance to anyone affiliated with MIT – student, staff, faculty, alumnus/a – who is considering the possibility of starting a new company.” VMS staff and mentors also participate in a variety of on-campus activities. For example, the student club VentureShips, a club whose members work on projects for local startups, has a long-standing collaboration with VMS. Each semester, VMS supplies VentureShips with mentors who serve as judges in mid- and end-of-semester reviews of student projects.

The capacity of VMS has been constantly increasing. Between 2000 and 2007, more than 900 men and women participating in nearly 500 ventures have received guidance by VMS mentors (Roberts & Eesley, 2009: 61-62). VMS’s mentor pool (MIT alumni, local entrepreneurs and business professionals) had grown from 7 in 2000 to more than 100 mentors in 2009 (Roberts & Eesley, 2009: 61-62).

Public Service Center  The Public Service Center was established in 1988 with the primary aim of encouraging public service among MIT students. Focused initially on matching MIT students to local non-profit public service organizations, the Center changed direction in 2000, under the leadership of Sally Susnowitz, to become a central resource for students interested in pursuing entrepreneurial projects with a service orientation. Funding for the Center comes mostly from external sources, such as donations and grants (e.g. MIT alumni donations, corporate grants, and government grants). Examples of grants that the Center has received include a d’Arbeloff fund.
for Excellence in Undergraduate Education in 2001 and a Massachusetts Campus Compact grant again in 2001 ($20,500). More recently, in 2011, the operations of the Center were significantly aided by a personal gift (amount undisclosed) from former MIT President Susan Hockfield and her husband, Dr. Thomas Byrne.

The Center provides strategic advice to students on how to proceed with public service projects as well as providing a variety of funding opportunities to cover students’ travel expenses as well as other budgetary items associated with projects. The visibility and the resources of the Center have grown every year since its inception. The number of projects supported has grown significantly as well and the Center now works with between 2500 and 3000 students a year. The Center has grown from three staff members in 2000 to nine in 2011 and from expenditures of $60,000 to as much as 1.5 million per year.

**Deshpande Center** The Deshpande Center for Technological Innovation was established in 2002 from a $20 million gift from Jaishree and Desh Deshpande. As the name of the Center implies, technological innovation is key to the projects it sponsors. More specifically, a wide range of emerging fields are supported (e.g. biotechnology, information technology, energy) (Roberts & Eesley, 2009: 62-63). The Center provides Ignition Grants of up to $50,000 for early stage research and Innovation Grants of up to $250,000 for further development of an invention. Two key eligibility criteria for these grants, as mentioned on the Center’s website, are that “research [is] done in MIT laboratories” and that “proposals [are] submitted by a faculty member at

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12 The Massachusetts Campus Compact is a nonprofit organization that promotes community service and service learning in higher education. The grant was awarded to support a joint project by the Public Service Center and Tutoring Plus, a local non-profit organization, aimed at providing tutoring services to local elementary school students. (Source: “Grant Aids Volunteer Program,” MIT News, December 5, 2001)
13 Source: interview with a staff member of the Center (June 8, 2011).
14 Ibid.
Roberts and Eesley (2009) report that from its founding in 2002 through the end of 2007 (i.e. the period that the Roberts & Eesley report covers), the Center had provided $8 million in grant funding to 80 projects.

In terms of student education, perhaps the most important contribution of the Center is its collaboration with the Trust Center for MIT Entrepreneurship in offering MIT students a very popular course 15.371 Innovation Teams (known as i-Teams), a course in which mixed-student teams across MIT departments develop commercialization plans for Deshpande Center research projects. The Center recruits experienced entrepreneurs and venture capitalists who, on a volunteer basis, serve as advisors to student teams.

Legatum Center  The Legatum Center was established in 2007 with a gift from Legatum, a global investment firm. The Center supports student social entrepreneurship projects, with a specific focus on for-profit ventures in developing countries. Its mission, as stated on its website, is to support students that “seek to implement for-profit businesses that empower ordinary citizens and virally spread prosperity and development.” The Center awards “seed grants” of approximately $2,000 each to student teams as well as fellowships to individual students, the “Legatum fellows,” which range approximately from $10,000 to $50,000, for one or two years, depending on student needs and funding availability. Since its establishment, the Center has awarded more than 100 Legatum Seed Grants and approximately the same number of fellowships.

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1.1.2. MIT entrepreneurial ecosystem: Academic areas

Even though enclaves of entrepreneurship exist in a variety of departments (most notably at the Media Lab with the D-Lab courses, see section on “Courses”), two important pillars for the MIT entrepreneurial ecosystem are the TIES faculty group and the Entrepreneurship and Innovation MBA Track at the Sloan School of Management. These two academic areas, combined with the Trust Center for MIT Entrepreneurship, promote and coordinate entrepreneurial activities across campus.

**TIES Group** The Technological Innovation, Entrepreneurship, and Strategic Management (TIES) faculty group at the Sloan School of Management is a central part of the MIT entrepreneurial ecosystem. The Group dates back to the 1960’s. The faculty of the Group are experts in areas of innovation and entrepreneurship. As described on the Group’s website, faculty conduct research in two areas: “the organization, development, and commercialization of technology-based innovation in existing firms; and the formation, development, and growth of technology-based new enterprises.”

A group of doctoral students (5-10) are also part of this Group. The Group offers courses for doctoral, MBA, and students in other programs (see section on academic courses). In addition, the Group holds weekly seminars at which faculty from other schools are invited to present their research. The Trust Center for MIT Entrepreneurship originated and continues to be closely related to the TIES Group, with faculty members of the Group serving on its leadership.

**Entrepreneurship & Innovation MBA Track** The Entrepreneurship & Innovation Track was introduced as a new option within the two-year MIT Sloan MBA Program in 2008. Students who

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choose this track focus on entrepreneurship in their coursework and receive a certificate of completion in addition to their MBA degree. Roberts and Eesley (2009) report that from the beginning the program was very popular among MBA students. In 2009, one quarter of the MIT Sloan MBAs chose the track.

The program, as Roberts and Eesley (2009: 64) note, provides participating students “special access to the MIT entrepreneurial ecosystem.” In addition to classes, the program offers sessions for students by academic and practitioner faculty, members of the MIT Venture Mentorship Service, the Technology Licensing Office, and the Deshpande Center as well as local entrepreneurs and venture capitalists. Students may also take part in a one-week trip to Silicon Valley organized by the Trust Center for MIT Entrepreneurship. Data from the '08 MBA class show that 25 graduates started their own companies before or upon graduation, which is three times the number of immediate startups from the Class of 2007 (Roberts & Eesley, 2009).

1.1.3. MIT entrepreneurial ecosystem: Courses

The number of entrepreneurship courses offered is constantly increasing to meet student demand. Roberts & Eesley (2009: 49) report that in 2001 there were 21 courses offered and the number of students from across MIT taking these courses was close to 1,500. In 2008, they say that more than 30 entrepreneurship courses were offered. In 2012, as noted, I find more than 50 classes listed on the Trust Center website.\(^{19}\) Entrepreneurship courses can be distinguished in three categories: academic classes, practitioner classes, and mixed-team project classes (Roberts & Eesley, 2009: 48-50).

Academic courses are offered by tenure-track faculty. These classes usually follow the lecture format and are focused on functional areas such as marketing, finance, etc. Examples include courses such as: 15.394 Designing & Leading the Entrepreneurial Organization, 15.431 Entrepreneurial Finance, 15.350 Managing Technological Innovation & Entrepreneurship, 15.369 Corporate Entrepreneurship, 15.358 The Software Business, 15.363 Strategic Decision-Making in the Biomedical Business, and 15.395 Entrepreneurship without Borders.

Practitioner courses have a similar format to academic classes except they are more applied than theory-oriented and are taught by adjunct faculty with practical experience in entrepreneurship. New Enterprises, a course introduced in the 1960s, is the oldest and most well-known in this category. On the course description, among the "10 Reasons Why You Should Take 15.390 (New Enterprises)" four stand out for their emphasis on the entrepreneurial impact of the course and serve as examples of how these courses are presented to students: (1) "5 out of 6 MIT $100K Business Plan Competition finalists from last year came from 15.390; (2) 15.390 has spawned many great MIT companies;" (3) "Graduates of 15.390 have raised hundreds of millions of dollars;" and (4) "Graduates of 15.390 created billions of dollars of shareholder value."

Other examples of practitioner classes include: 15.387 Technology Sales and Sales Management, 15.391 Early Stage Capital, 15.385 Social Innovation and Entrepreneurship, and 15.971 Developmental Entrepreneurship.

Mixed-team project classes offer a significantly different experience to students compared to both academic and practitioner ones. These classes are based on what faculty members and students call "hands-on projects" with entrepreneurial organizations. An effort is made to mix students from all MIT schools and departments (Roberts & Eesley, 2009: 49-50).

class (which has served as a model for a number of new courses) is the 15.399 Entrepreneurship Laboratory. Known as E-Lab, this is a class in which students work on projects with startups in the Boston area. In 2000, following the E-Lab model, 15.389 Global Entrepreneurship Laboratory, known as G-Lab, was introduced. Here, students work on projects outside the U.S. and have the opportunity to travel to company locations for a short period of time during school breaks.

Another popular mixed-team class is 15.371 Innovation Teams (known as I-Teams). This class is based on the collaboration of the Deshpande Center and the Technology Licensing Office. I-Team students work on selected entrepreneurial projects arising out of MIT faculty research projects with the help of advisors, local entrepreneurs and venture capitalists (called Catalysts). The I-Teams model has been recently replicated with a substantive focus on digital technology in a course called 15.376 Digital Innovations organized by the MIT Media Lab.

In the area of social entrepreneurship, the most popular mixed-team project class is Development Lab (known as D-Lab), founded by Amy Smith in the early 2000’s. The original three D-Lab classes have expanded to sixteen different courses in areas of development such as biodiversity, health, energy, waste, and education. The approach of D-Lab follows the philosophy of its founder who wanted to encourage MIT students to find low-tech engineering solutions to problems faced by local communities that lack the resources of the developed world. Fieldwork is therefore an important component of the course with students spending significant time in developing countries researching and testing technologies. In 2011, D-Lab executed projects in 20 countries with more than 300 students participating.  

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22 Ibid.
1.1.4. *MIT entrepreneurial ecosystem: Competitions*

The number of entrepreneurship competitions at MIT has been steadily growing. The *MIT 100K Entrepreneurship Competition* was instituted in 1989. In 2001, the *IDEAS Global Challenge* was inaugurated. More recently, in 2007, a third competition, the *Clean Energy Prize*, was established. Whereas the *MIT 100K Entrepreneurship Competition* is open to a wide range of submissions, the *IDEAS Global Challenge* and the *Clean Energy Prize* have a more specific focus on ventures with a service and a clean energy orientation, respectively. It should be noted that whereas the *IDEAS Global Challenge* is organized by the Public Service Center, the *MIT 100K Entrepreneurship Competition* and the *Clean Energy Prize* are student-run.\(^{23}\)

*MIT 100K Entrepreneurship Competition* The *MIT 100K Entrepreneurship Competition* originated out of the *Entrepreneurs Club*. The first competition took place in 1990. Peter Mui, one of the co-founders, said in an interview: "The idea originated from the realization that at MIT back in the 1980s, there were lots of people with interesting ideas, but few opportunities for people to meet to discuss them or to learn how to turn the ideas into companies."\(^{24}\) The idea of a competition grew and gained Institute support. With early help from the *Technology Licensing Office* and the *Trust Center for MIT Entrepreneurship* who secured significant alumni gifts toward the competition, the top prize increased from $10K in 1990 to $50K in 1996 and $100K in 2006. Panels of entrepreneurs, venture capitalists, and legal professionals serve as judges (Roberts & Eesley, 2009: 52). The competition is open to non-MIT affiliated students as long as there is at least one MIT student on each team. An MIT publication estimated that, since 1990,

\(^{23}\) For this reason, the *MIT 100K Entrepreneurship Competition* and the *Clean Energy Prize* are part of my study as student clubs. Given their institute-wide appeal and their importance for the MIT entrepreneurship ecosystem, I also discuss them in this section.

the competition has "spawned more than 130 companies, which have raised more than $770 million in financing and had a cumulative market value of over $15 billion."\textsuperscript{25} In 1990, when the competition was held for the first time, 54 teams took part.\textsuperscript{26} By 2009, Roberts and Eesley (2009: 52) estimate that more than 1,500 business plans by more than 7,500 students had been submitted to the competition.

**IDEAS Global Challenge** The MIT IDEAS Global Challenge is an annual competition for student service projects, often with strong entrepreneurship components. The competition is one of the better-known programs offered by the Public Service Center. The acronym IDEAS stands for Innovation, Development, Enterprise, Action, and Service. Teams are eligible for the competition as long as one-third of each team are full-time MIT students. The organizers encourage interaction with external non-MIT parties. One of the main eligibility criteria is that each has a "community partner," an outside organization that has agreed to support the MIT team. Since its founding in 2001, the competition has awarded over $400,000 to more than 75 student teams.\textsuperscript{27}

**Clean Energy Prize** The Clean Energy Prize is a student-run competition in the field of clean energy. In an interview, the co-president for the competition in 2011, an MBA student, told me the story of how the Competition began: "It was founded four years ago, in 2007. Energy was too big to fit within the MIT 100K Entrepreneurship Competition, so a group of MBA students and the leadership of the Trust Center for MIT Entrepreneurship wanted to do an independent

\textsuperscript{25} Ibid.
\textsuperscript{26} Source: *MIT 100K Entrepreneurship Competition* website, http://mit100k.org/about/ (accessed May 16, 2013).
competition. Bill Aulet, the head of the Trust Center for MIT Entrepreneurship, who has connections to NSTAR and the U.S. Department of Energy, went out and said: 'Let's put together some money and put this prize together.' Apart from the thematic focus on clean energy, another difference between the MIT 100K Entrepreneurship Competition and the Clean Energy Prize is that the latter is open to student teams with no MIT affiliation. The best MIT team in the Clean Energy Prize, even if they don't win the competition, goes to the MIT 100K Entrepreneurship Competition, which no longer has a separate energy track.

1.1.5. MIT entrepreneurial ecosystem: Student clubs

Student clubs are a unique part of the MIT entrepreneurial ecosystem. They are the only part of the ecosystem that is student-run. While the Trust Center for MIT Entrepreneurship, the TIES Group, and the Entrepreneurship & Innovation MBA Track as well as relevant courses are also designed to address student needs, student clubs have the distinguishing characteristic of being started and governed by students. While student clubs do have a place on the MIT organizational chart under the Student Activities Office (Figure 1-2), they are monitored only at high levels by the Institute and are mostly under the direction of students themselves. The two governing student organizations, the Undergraduate Association and the Graduate Student Council, are largely responsible for student clubs.

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28 The MIT organizational chart is available online at http://orgchart.mit.edu/ (accessed May 16, 2013).
In the area of entrepreneurship, a number of clubs exist. Figure 1-3 lists the entrepreneurial clubs dividing them into categories — education and venture clubs. Some clubs focus on educating the MIT community, while others resemble entrepreneurial ventures themselves. In the area of education, clubs achieve their mission through events, action-learning projects, or campus-wide competitions (Figure 1-3). The Sloan Entrepreneurship and Innovation Club, for example, sponsors a variety of activities such as talks by entrepreneurs, presentations informing students about the resources available on campus, and community mixers bringing together students across campus. Providing what it calls “hands-on training,” VentureShips aims
to educate members through projects with local startup companies. Teams of students work with startups in the Boston area, performing, most commonly, market research projects and meeting with startup CEO's regularly. Finally, other clubs host campus-wide entrepreneurship competitions. The aforementioned *MIT 100K Entrepreneurship Competition* is a well-known example in this category.

**Figure 1-3: Entrepreneurial student clubs active at MIT in 2012**

<table>
<thead>
<tr>
<th>ENTREPRENEURSHIP EDUCATION CLUBS</th>
<th>VENTURE CLUBS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Event-based</strong></td>
<td><strong>Service Providers</strong></td>
</tr>
<tr>
<td>Entrepreneurs Club (E-Club)</td>
<td>MIT Wind Energy Projects in Action (WEPA)</td>
</tr>
<tr>
<td>Sloan Entrepreneurship and Innovation Club</td>
<td>Amphibious Achievement</td>
</tr>
<tr>
<td>Do Innovation Team at MIT (Do.it@MIT)</td>
<td>THINK Scholars Program</td>
</tr>
<tr>
<td>TechLink</td>
<td>MIT Educational Studies Program (ESP)</td>
</tr>
<tr>
<td>Startup Club</td>
<td>Academic Teaching Initiative (ATI)</td>
</tr>
<tr>
<td>MIT Global Startup Workshop</td>
<td>China Crossroads</td>
</tr>
<tr>
<td>Venture Capital and Private Equity Club (VCPE)</td>
<td>Collegiate Energy Association</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Action-Learning</strong></th>
<th><strong>Venture Clubs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventureships</td>
<td>SEDS Outreach Team</td>
</tr>
<tr>
<td>Sloan Entrepreneurs for International Development (SEID)</td>
<td>House of Volunteers (HoV)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Competitions</strong></th>
<th><strong>Venture Clubs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MIT Clean Energy Entrepreneurship Prize</td>
<td>Indian Mobile Initiative (IMI)</td>
</tr>
<tr>
<td>MIT 100K Entrepreneurship Competition</td>
<td>Leadership Training Institute (LTI)</td>
</tr>
</tbody>
</table>

**Single Technology/Product**
- Environmentally Friendly Aircraft Design (EFA)
- IdeaStorm
- SANA
- BioDiesel

**Multiple Technologies/Products**
- Assistive Technology @ MIT
- MIT Game Development Club
A second category of clubs pursue entrepreneurial ventures. The majority of these clubs provide services; others work on one or multiple technologies/products (Figure 1-3). These clubs constitute the focus of this thesis for their resemblance to entrepreneurial ventures. I refer to them as venture clubs.

Clubs that provide services are run like small organizations with a strong non-profit character. They can be new organizations or organizations that have been established for a number of years. Importantly, they serve populations external to MIT and often operate with external financial support, sometimes in the form of fees from the individuals who use their services. The *Educational Studies Program* which was established in 1957 and its more recent spinoffs, the *Academic Teaching Initiative* (2009-present) and the *Leadership Training Institute* (2007-present), are examples of clubs in this category. The three clubs offer outreach courses to local middle school and high school students. Classes are held on the MIT campus and participating students are asked to contribute a small fee to cover the expenses of the program. While the *Academic Teaching Initiative* and the *Leadership Training Institute* are smaller, the *Educational Studies Program* has programs, such as *Splash*, that bring 2,500 students for a weekend on campus.

Clubs that develop technologies or products operate like early-stage startups. The *SANA* club is a good example. This club, a team of ten to fifteen computer scientists and physicians (some of whom are MIT students and some are Boston professionals), develops a platform for mobile healthcare solutions for developing countries.\(^\text{29}\) According to their skills, some members write code while others travel to countries such as India, Brazil, and the Philippines to test the team’s product. Other clubs such as the *Game Development Club* have a portfolio of projects that

\(^{29}\) The membership of student clubs, as I will further discuss in Chapter 4, is open and highly fluctuating. One cannot give a precise membership number as members come and go and no formal records are kept.
they pursue. A core of two to three students coordinates the club’s effort, with a total of approximately ten students working on projects. These projects often arise from “client” requests. One of the projects that the club works on is, for example, an accessible cell phone for people with disabilities. The idea arose out of the club’s interaction with an assisted living facility in Boston.

*Venture clubs* offer a unique contribution to the *MIT entrepreneurial ecosystem*: a low-risk, low-investment incubation opportunity to student ventures. An MIT student club has a legitimate organizational identity, an account for financial transactions, and a tax-exempt status (through MIT). These features enable students to work toward attracting an important resource for their ventures: funding. Students involved can then decide if they want to pursue their venture further and form a for-profit or non-profit organization.

Given the rather unique position of MIT on the map of entrepreneurship in higher education, studying these clubs is an important first step in understanding how the entrepreneurial ecosystem in place at MIT (and perhaps in other universities) affects the entrepreneurial pursuits of students while in school.³⁰

1.2. Outline of the thesis

Entrepreneurship is becoming an integral part of higher education. MIT is a pioneer on this front. Yet, as noted, while know a good lot about the entrepreneurial pursuits of MIT alumni, we know very little about the pursuits of students while still in school. Even though we know that MIT offers resources to support entrepreneurial activities on campus, we do not have a clear idea of

³⁰In Chapter 2 I discuss a number of case studies of entrepreneurial ecosystems in other universities. To mention a few examples, structures such as those in place at MIT can be found at Johns Hopkins University (Feldman & Desrochers, 2004), University of Waterloo in Canada (Bramwell & Wolfe, 2008), and the University of Oxford in the United Kingdom (Nelles & Vorley, 2008).
how students use these resources for entrepreneurship projects. This thesis addresses this question.

There are six chapters that follow. The next chapter, Chapter 2, situates the MIT case in a broader context. Whereas the increase of entrepreneurial emphasis in higher education has attracted significant scholarly attention, the activities of students remain understudied. This is perhaps surprising given the centrality of students in the academic enterprise.

Chapter 3 provides a detailed description of my methods of study. I follow a qualitative approach that allows the voices of the “natives,” the individuals in the organization, to be heard. Using a combination of interviews, observations, and archival records, I look at the activities of students and the meaning that these activities have for them. I also investigate the “organizational side.” Interviews with administrators as well as records of formal Institute communication and meeting minutes of administrative bodies reveal values, interests, and concerns. Some views are expressed in official policies and/or funding decisions; others remain under discussion and debate. A detailed description of coding schemes and analytical techniques is also provided in this chapter.

Chapter 4 sets the ground for understanding how student clubs work at MIT. Administrative structures and funding flows are discussed as well as the types of activities pursued by students. While in the chapters that follow I focus on venture clubs, this chapter gives the foundations for understanding the student club structure as a whole.

Chapter 5 turns to venture clubs and, in particular, to their main distinguishing characteristic: funding. I discuss sources of funding and draw a line between MIT and non-MIT funds. Chapter 6 compares venture clubs to the rest of the clubs on campus – the traditional clubs. Here, I discuss additional characteristics that, apart from funding, set the two types of
clubs apart. Chapter 7 examines MIT’s response to the entrepreneurial activities of its students. Here, I note that venture clubs pose a number of challenges to the MIT administration and student government and I look at how MIT has responded over time to these challenges.

Chapter 8 draws conclusions from the MIT case generalizing to the broader context of entrepreneurship in higher education. MIT has a unique history, but the world of higher education appears to be moving closer to MIT’s approach to entrepreneurship. I also consider how organizations in general manage entrepreneurial activities within their boundaries and suggest that the literature on “intrapreneurship” and “corporate ventures” often addresses similar phenomena to that studied here. As such, the MIT case provides a unique opportunity from which to learn and perhaps generalize. I conclude with a discussion of limitations and ideas for future research directions.
Chapter 2: The Entrepreneurial Turn in Higher Education

This chapter situates the entrepreneurial activity observed at MIT, as discussed in Chapter 1, in a broader context. Many universities in the United States and worldwide are following MIT's path - by design or not - toward the integration of entrepreneurship in the academic enterprise. The first part of this chapter discusses MIT's unique history, the factors, and series of events that led MIT to where it is now with regards to entrepreneurship. I also discuss studies of MIT, which point to MIT as an "exemplar institution" in the encouragement of entrepreneurship. The second part of the chapter reviews case studies of other universities that also follow an entrepreneurial path. As the section suggests, these studies are indicative of the extent of the phenomenon currently and of the level of scholarly attention it has attracted. Next, I turn to research on the implications of the integration of entrepreneurship in higher education. I briefly review five areas: historical studies on the transformations of the university as an institution; studies on the sociology of science; research on technology and innovation; studies of regional economic development; and, last, I turn to literature on student activities. In this last part of the chapter, I discuss the broad range of literature on student activities pointing to the need to better understand the ways in which student activities are changing.

2.1. Entrepreneurship in higher education: MIT as a pioneer

MIT is a pioneer in reconceptualizing the role of the university from an *ivory tower* of research and teaching to a driver of economic development through entrepreneurship (Etzkowitz et al., 2000). This section briefly traces MIT's development, from its founding in 1861 until today. I
also discuss studies of MIT that document the impact the Institute has had in the area of entrepreneurship in higher education.

2.1.1. MIT: The history of a unique institution

MIT is a product of the integration of three models of higher education institutions (Etzkowitz, 2002: 23-29). First, MIT, in its conception, followed the tradition of European polytechnic schools, which emphasized engineering education and practice. Following this model, MIT was built with a strong practical orientation aimed at developing well-trained engineers for industry. In this regard, MIT shares similarities with other technically-oriented schools founded in the United States in the same period, like Rensselaer Polytechnic Institute (Etzkowitz, 2002: 21). MIT, in its development, however, went beyond this model. Elements of research universities, which emphasized basic science and research, are also a strong part of the MIT institutional identity.¹ These were borrowed from elite American universities at the time, such as Harvard and Johns Hopkins. It was a strong belief of the founders of MIT that engineering was a science and that solutions to engineering problems were to be found in rigorous, basic research. The third element of MIT reflects the land grant model on which the Institute was founded.² Land grant universities have an obligation to contribute to regional industrial economies. The strong connection of MIT with local industry in the Boston region partly originates from this founding obligation.

¹ Lécuyer (2010) provides a detailed account of the efforts of MIT faculty in the period between 1910 and 1930 toward strengthening the research component of the Institute.
² The Morrill Land-Grant Act was passed in 1862. Based on this Act, a limited number of institutions received significant state support in the form of land that they could either use to build a campus on or sell to fund their institutions. Institutions were, in exchange, obliged to contribute to the agricultural (e.g. Cornell) or, in MIT’s case, to the industrial economies of their regions by training students in relevant, state-of-the-art techniques.
When it comes to technological innovation and entrepreneurship, each one of the three institutional models makes a unique contribution. Aspects of the *European polytechnic* model focus the research conducted at MIT on practice. Elements of the *research university* model keep the scientific standards high, so that breakthrough technological inventions might arise. The legacy of the *land grant* model makes MIT not just observant to the needs of industry, but an initiator of change. In combination, the three institutional models constitute the ingredients of MIT's achievements in entrepreneurship.

MIT's founder William Barton Rogers had a strong influence on the orientation of MIT. Rogers had a vision that engineering education and research should focus on the mind but also on the hand ("Mens et Manus"), i.e. on theory and research but also on applied activities.\(^3\) Thus, MIT, following the vision of its founder, grew as an amalgam of *polytechnic* and *research* institutions. Rogers was also key in lobbying for the inclusion of MIT in the list of schools supported by the Morrill Act in 1862 (Etzkowitz, 2002: 23), thus giving MIT a strong community service orientation according to the *land grant* model. Whereas in its original formulation, the Morrill Act targeted institutions with a focus on agricultural development, Rogers advocated for the inclusion of institutions that had the potential to contribute to the industrial development of their regions. Boston being a booming industrial city at the time, Rogers' efforts were successful and MIT gained considerable state support that was crucial for its survival.

Entrepreneurial activities of individual MIT faculty have also had a strong influence on the orientation of the Institute. That is especially the case of the activities of Vannevar Bush, a faculty member who in the 1920's rose in the ranks of the administration to become Dean of the

\(^3\) Angulo (2009) discusses the early efforts of William Barton Rogers, from the inception of the idea of MIT to its realization in 1861.
Engineering School and vice-president of the Institute. According to Etzkowitz (2002: 2), Bush "adumbrated the model of the entrepreneurial academic as consultant, patent holder, and firm founder." One of the outcomes of his strong connections to industry was the institution – after some resistance – in the 1930's of the "one-fifth rule," according to which MIT faculty were allowed to work on consulting projects for industry one day per week. The success of the consulting company Arthur D. Little, with which a number of MIT faculty were associated and which was located essentially on the MIT campus, is an example of that era.

Further developments occurred in the 1930's under the presidency of Karl Compton. During the Great Depression, Compton envisioned MIT as a catalyst for the development of the regional Boston economy. Examples of faculty such as those of Vannevar Bush showed Compton the way. According to Etzkowitz (2002: 78), Compton "extrapolated instances of firm formation by MIT professors into a model of university-based economic development which build upon the comparative advantage of New England." In this direction, Compton played a leading role in the creation, in 1925, and further development of the New England Council, a business association that was comprised of Boston's academics, industry leaders, and government officials.

Key in the developments going forward was MIT's role in World War II. MIT, together with the University of Chicago, Johns Hopkins, University of California at Berkeley, and Columbia, were the main laboratories for war-time research (Etzkowitz, 2002: 47). This did not come passively. Karl Compton and Vannevar Bush, among other academics, actively lobbied to convince the government to contract out research to universities, instead of doing it in-house, in the research labs of the army as in World War I (Etzkowitz, 2002: 46). Funding for this research
gave a huge boost to MIT. Significant growth occurred in that period. The MIT Radiation Lab, which developed radar technology, is perhaps the best-known example of that period.4

When World War II ended, Karl Compton continued his plan of strengthening the regional economy of New England through new firms and industries based on technologies born in MIT’s and other local universities’ research labs. Cognizant of the need to support financially efforts by entrepreneurs investing in new technologies, Compton’s next move - largely a continuation of his efforts with the New England Council - was the creation in 1946 – or rather the invention of – the venture capital firm, the American Research and Development Corporation (ARD) (Etzkowitz, 2002: 89-101). The Harvard Business School was an important partner in this effort. The High Voltage Corporation and the Digital Equipment Corporation, both born out of the commercialization of MIT research, are the two most representative examples of companies that were formed in that period with the support of ARD (Etzkowitz, 2002: 96-98). Both companies contributed significantly to the economy of New England for a number of decades, and thus critically served in reinforcing the model of university-industry link that MIT was setting forth. It was during that period that the foundations of the phenomenon that came to be known as Route 128 (America’s Technological Highway), a cluster of companies in the periphery of Boston, were set in place.

At the same time, MIT was developing a formula for the protection of intellectual property rights arising out of inventions from its research labs. The first step took place in 1931 when Professor Van de Graaff was recruited from Princeton. Van de Graaff’s research on high voltage was viewed as having significant commercial potential (in fact, it became the basis for the High Voltage Corporation mentioned above) and MIT was careful in settling the intellectual property

4 Wylie (1975) provides a detailed discussion and also photographic material on the MIT Radiation Lab and other war-related activities at MIT from this era.
claims of involved parties with detailed agreements (Etzkowitz, 2002: 96). This was a singular event however. In 1937, the Institute decided that handling of patent rights should be outsourced to an external organization. The rationale for this decision is evident in the following quote from the meeting minutes of the Patent Committee: "There is recognized to be danger in deriving any income whatever from inventions, first because of possible influence upon our tax exempt status, and second because of possible criticism of our methods leading to ill will among those upon whom we must depend for support."5 A firm called Research Corporation was subsequently selected to handle MIT’s intellectual property cases. This arrangement worked for a number of years, until in the 1960’s, issues of conflict of interest with the Research Corporation arose. The latter had a vested interest in securing the highest price possible for patent rights, whereas MIT faculty cared more – as the example that follows illustrates – about maintaining a good relationship with companies interested in licensing its patents.

The misalignment of interests became clear in 1962 when MIT and the Research Corporation disagreed about how much to claim from IBM for the right to use magnetic core memory for its computers, an invention by MIT Professor Jay Forrester. MIT’s stance, as is evident by the following quote from a letter of MIT President Stratton to Research Corporation, took into account the overall relationship of the Institute with IBM and the multiple benefits that have come from that: "IBM is indebted to us a great deal apart from the Forrester patent, but it is also a fact that IBM as a company has been generous in the establishment of a computation center [and] there has been for a long time a mutually profitable relationship between our

5 Minutes of the Patent Committee in 1936, as cited in Etzkowitz (2002: 72).
faculty and their engineers." Following this dispute, the Institute decided to disengage from Research Corporation and handle patent rights itself.

The decision of the Institute in the 1960's to take control and manage intellectual property rights arising out of inventions in its research labs foreshadowed changes that eventually led to the Bayh-Dole Act in 1980. This Act gave universities intellectual property rights over federally-funded research and, given the importance of federal research budgets, marked a new era for MIT and other universities as well. In this new era, MIT, alongside other U.S. universities, gradually began to develop infrastructure to support entrepreneurship, starting from technology transfer offices and expanding to academic programs, centers, and other activities. Today, MIT has an elaborate ecosystem in place as I described in Chapter 1 to support entrepreneurial efforts of its members.

2.1.2. MIT: an institutional exemplar

MIT's entrepreneurial ecosystem and unique history have been the focus of a number of scholars of entrepreneurship. Etzkowitz's (2002) book with the revealing title MIT and the Rise of Entrepreneurial Science, on which my earlier account of MIT's history is largely based, is perhaps the most illustrative of the impact of MIT in integrating entrepreneurship within higher education. The book traces the development of the current model of the entrepreneurial university through the history of MIT. In this section, I review a number of other studies of MIT to display the impact that the Institution has had on scholars of entrepreneurship.

O'Shea et al. (2007) offer an "anatomy" of MIT with the goal of understanding the main factors that affect the generation of spinoff businesses from academic institutions. The authors

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6 Written communication from MIT President Stratton to the president of Research Corporation, as cited in Etzkowitz (2002: 76).
use the case of MIT as "the top spinoff generator in the United States" (p. 1). They identify four interrelated factors contributing to the success of MIT: a strong "resource base" in science and engineering, high quality research faculty, a strong supporting infrastructure (listing many of the components of the MIT entrepreneurial ecosystem discussed in Chapter 1), and a culture that encourages entrepreneurship.

Roberts (1991) and related studies, such as Hsu, Roberts, and Eesley (2007), examine the spinoffs that have arisen out of MIT departments and research centers. Roberts (1991) provides data on a number of MIT spinoffs and follows these in their first steps: transferring technology from MIT to the spinoff organization; securing startup funding; going through stages of product development; and, finally, entering the market. Conclusions, or "lessons" for "entrepreneurs in high technology" as Roberts (1991) calls them, are then offered. Hsu, Roberts, and Eesley (2007) find that new company formation rates by MIT alumni have grown dramatically over the last seven decades and that the median age of "first-time entrepreneurs" has declined from 40 in 1950's to 30 in the 1990's.

Franke and Lüthje (2004) use MIT as a benchmark to measure the effectiveness of entrepreneurship education in Germany. The aim of their comparison is to "develop suggestions for developing and improving entrepreneurship education programs in German universities" (p. 2). They compare survey results from a sample of undergraduate and graduate business school students at a German university with those from a sample of MIT students in the Sloan School of Management. They find that MIT students have higher entrepreneurial propensity compared to their German counterparts, focus on more dynamic and innovative areas of venture activity, and assess more favorably the entrepreneurial infrastructure of their school.
MIT has been the focus of a number of reports for its economic impact on the economy of Boston and beyond. BankBoston (1997), for example, in a report titled MIT: The Impact of Innovation, identifies “MIT-related companies” across the United States and estimates the impact of those on job creation and economic development. The report estimates that: “The 4,000 MIT-related companies employ 1.1 million people and have annual world sales of $232 billion.” Similarly, Roberts and Eesley (2009) in a report of the impact of MIT’s alumni prepared for the Kauffman Foundation estimate that: “The estimated 6,900 MIT alumni firms headquartered in Massachusetts generate worldwide sales of about $164 billion. More than 38 percent of the software, biotech, and electronics companies founded by MIT graduates are located in Massachusetts, while less than 10 percent of arriving MIT freshmen are from the state” (p. 5).

Overall, these studies of MIT show the role that the Institute plays as a model for the integration of entrepreneurship in higher education. In the next section, I discuss the spread of the entrepreneurial model in other institutions.

2.2. Entrepreneurship in higher education: a phenomenon broader than MIT

Apart from MIT, a growing number of institutions in the United States and other parts of the world are embracing the entrepreneurial model. In this section, I review several case studies of entrepreneurial universities, giving a sense of the extent of the phenomenon.

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7 Roberts and Eesley (2009) identify a significantly higher number of companies compared to the 1997 BankBoston study. The number is significantly higher even if taken into account that the two studies are twelve years apart. One reason Roberts and Eesley (2009) were able to identify a higher number of companies is that they drew their data not only from the MIT Company Database, as BankBoston (1997) did, but rather they had the benefit of a second data source: a comprehensive alumni survey that MIT administered in 2003.
Jong (2008) examines the divergent paths of Berkeley and Stanford. Whereas Stanford, a private university, embraced the entrepreneurial model early on, Berkeley resisted this direction. Instead, Berkeley chose to remain true to its original founding identity as a purely academic, research-oriented institution funded by the state. Stanford is the focus also of Colyvas (2007) and Colyvas and Powell (2006) studies. The authors studied the formation of Stanford's technology transfer program. They cover the early period of 1968 to 1982 in which the school's entrepreneurial identity was taking shape amidst divergent views about the correct course of action.

Feldman and Desrochers (2004) discuss the slow steps at Johns Hopkins University toward the entrepreneurial model. Johns Hopkins, founded in 1876, is the first research university in the United States. According to the authors, until recently, Johns Hopkins' faculty resisted the entrepreneurial model, as they regarded it to be at odds with the pure science model on which the university was based. The authors trace the roots of this opposition from the university's founding to more recent instances, such as the following remarks by the university's President William Brody in 1999: "Our scientists are by nature explorers – they are off sailing uncharted seas in search of discoveries. Asking them to become managers, marketers and accountants is unrealistic and ultimately inimical to the research enterprise." According to the authors, despite the strong opposition, small changes have occurred at Johns Hopkins in recent years. It should be noted here that, in their concluding remarks, the authors also question the value of

8 MIT has had direct influence in the orientation of Stanford toward entrepreneurship. According to accounts of the history of the two institutions, Frederick Terman, who was Vannevar Bush's student and who became a faculty member at Stanford in 1925, is largely responsible for transferring the MIT model to Stanford (Etzkowitz, 2002: 104).
9 Whereas older universities such as Harvard and Yale had already embraced the research university model, Johns Hopkins was the first university to be established as a research university right from its founding.
converging to the entrepreneurial model: “We may well wonder whether the current emphasis on academic-industry interaction [...] may undermine and destroy that very strength and diversity that have distinguished America’s academic culture for more than 130 years” (p. 125). As I discuss in the next section, the entrepreneurial turn has not been without opposition.

Rogers, Takegami, and Yin (2001) discuss the entrepreneurial ecosystem in New Mexico. They provide an overview of the components of that ecosystem that include: the University of New Mexico, the Los Alamos National Laboratory, the Sandia National Laboratories, and a number of venture capital firms. The authors stress the role of support organizations such as the Business Technology Group, which coordinates several incubators in Albuquerque, and the Lovelace Research Institute’s Incubator. The goal of their study is to “derive lessons learned” about technology transfer based on the analysis of 19 spinoff companies from research centers in the region (p. 253). Importantly, the authors conclude by reinforcing the significance of ecosystems in assisting the efforts of entrepreneurs: “The availability of ample technology in a region is a necessary but insufficient factor in the development of a technopolis. [...] Technology transfer facilitating organizations, and the favorable entrepreneurial leave policies [...] are speeding up the process of getting to critical mass in the growth of high-tech spin-offs.” (p. 259-260).

Bercovitz et al. (2001) focus on a crucial part of any university’s entrepreneurial ecosystem, the technology transfer office. They conduct a comparative analysis of the organizational structure of the technology transfer offices of three universities: Johns Hopkins University, Pennsylvania State University, and Duke University. They treat the organizational form of the technology transfer offices as the independent variable and examine its effect on three dependent variables: information-processing capacity, coordination capability, and
incentive alignment. Their analysis shows that the structure of the Johns Hopkins University’s technology transfer office is that of multiple decentralized units, a form which “optimizes unit-level information processing capacity and unit-level incentives,” whereas the technology transfer office at Duke is centrally organized, a form which offers central institute coordination and incentive alignment (p. 32). Penn State’s technology transfer office, the authors argue, stands somewhere in between, with a “centralized administrative office and decentralized units” (p. 32).

Beyond the United States, Bramwell and Wolfe (2008) study the University of Waterloo in Canada. They emphasize three components of its entrepreneurial infrastructure: (a) the Cooperative Education Program, which provides students the opportunity to do internships in local industry as part of their studies; (b) the school’s intellectual property policy, which gives full ownership to the creator and which, the authors claim, has been “credited with the large number of high profile start-ups and spin-offs in the region” (p. 1179); and (c) the Centre for Business, Entrepreneurship and Technology, which serves as the coordinating agency for the University’s entrepreneurial efforts. The authors conclude that entrepreneurial universities “produce [various] mechanisms of knowledge transfer, such as generating and attracting talent to the local economy, and collaborating with local industry by providing formal and informal technical support” (p. 1175).

Nelles and Vorley (2008) examine the entrepreneurial ecosystem of the University of Oxford in England. Since 1987, after the technology transfer office was created at Oxford, a number of other entrepreneurial components were added: the University office of Research Services, the Regional Liaison Office, the Centre for Continuing Professional Development, the Oxford Science Enterprise Centre, and the Oxford University Science Park. The authors stress
that “what is most critical to the Oxford case is not the existence of such a comprehensive array of organisations, but rather, the degree to which they have become networked and coordinated.”

They introduce the concept of “entrepreneurial architecture” to describe the level of autonomy and flexibility in the operation of the components of the ecosystem (p. 19).

Kodama (2008) analyzes the TAMA cluster project in Tokyo. The author discusses a “Japanese version of the Bayh-Dole Act,” which was adopted in 1999, and a broader change in the country’s national innovation system, since the mid-1990s, in response to economic crisis (p. 1224). Whereas previously innovation in Japan was dominated by large industrial firms and universities were focused on basic research and teaching, Kodama argues that now universities are taking a more active role. The author emphasizes two elements necessary for the facilitation of technology transfer between universities and industry in a region: (a) intermediary organizations, such as the TAMA Industrial Vitalization Association in the case of Tokyo, and (b) “absorptive capacity” of the firms, measured as investment in R&D (p. 1232).

Overall, the case studies discussed above provide a sense of the extent to which the entrepreneurial model is apparently growing among institutions of higher education. First, they indicate that it has spread not only among institutions in the United States, but also in Canada, in England, and in Japan. Second, particularly the examples of the University of California at Berkeley, Johns Hopkins, and the University of Oxford show the degree of penetration of the entrepreneurial model even to schools with long histories vested in the research university model.

In the next section, I discuss research on the implications of integrating entrepreneurship in higher education.
2.3. Entrepreneurship in higher education: research on implications

Entrepreneurship in higher education has received significant scholarly attention. Here, I discuss five research areas that focus on its implications. Historical research on higher education focuses on a new form of university, the "entrepreneurial university." Literature on the sociology of science approaches the phenomenon as a shift from pure to applied science. Literature on technology and innovation focuses on pathways from invention to commercialization. Scholars of economic development study the new role of universities in regional development. I discuss examples of research in each area. Last, I turn to literature on student activities. Here, I discuss a broad range of literatures—research on entrepreneurship education, student life on campus, and student clubs—and point to the need to understand better entrepreneurial student activities and, more specifically, the type of activities of students in venture clubs, such as those observed at MIT.

2.3.1. Historical studies

The term entrepreneurial university can be traced back to Etzkowitz’s writings in 1983 (Etzkowitz, 1983). Since then, the label has been used widely to describe universities that play an active role in technology transfer from research laboratories to the market. This literature provides a historical, evolutionary perspective on the university, whose roots go as far back as the Middle Ages.

Etzkowitz, one of the most prolific scholars in this area, writes: “The university's assumption of an entrepreneurial role is the latest step in the evolution of a medieval institution from its original purpose of conservation of knowledge to the extension and capitalization of knowledge” (Etzkowitz, 2002: 1). Etzkowitz (pp. 10-13) describes the evolution of the university
in terms of academic revolutions. The first academic revolution transformed, in the mid-nineteenth century, the university from a strictly teaching-oriented institution, charged with the mission to transfer knowledge, to a research-oriented institution, in which transfer and creation of knowledge are combined. The changes that we are experiencing today constitute, in his view, the second academic revolution, transforming the university into a vehicle for the commercialization of research output. The contrast in the second academic revolution is between the ivory tower model of the university, according to which universities consider their role to begin and end with basic research, and the model of the entrepreneurial university, in which basic research and applications that bring it closer to market coexist (pp. 144-147).

Burton Clark’s (1998) book “Creating Entrepreneurial Universities” is also central in this literature. Clark provides case studies of five European “entrepreneurial universities”: the University of Warwick in England, the University of Twente in the Netherlands, the University of Strathclyde in Scotland, the Chalmers University of Technology in Sweden, and the University of Joensuu in Finland. Clark traces the transformation of these universities from research- and teaching-oriented to entrepreneurial institutions. He identifies, what he calls, several “organizational pathways of transformation,” which include building “a diversified funding base,” i.e. university-generated income apart from governmental support, and “a strengthened steering core,” i.e. managerial alignment of university departments with a central strategy.

Jacob et al. (2003) also study the transformation of Chalmers University of Technology in Sweden into an “entrepreneurial institution” in the mid-1990’s. The authors stress that “creating an entrepreneurial university takes several years as both infrastructural and cultural changes are necessary to achieve success” (p. 1555). In 1994, Chalmers switched from being a public to
becoming a private institution. According to the authors, this change marked significant strengthening of the university's links to the commercial sector. The authors emphasize the role of the Swedish innovation policy in enabling Chalmers' transformation.

Some scholars are less enthusiastic. Some argue that the integration of entrepreneurship in higher education imposes a significant risk and should be equated with the commercialization of teaching and science. Slaughter & Rhoades (2004: 102-107), for example, argue that "institutional patent policies do not sit well with Mertonian values: communalism, the free flow of knowledge, disinterestedness, and organized skepticism. Rather than being shared, intellectual property is owned. [...] Universities' efforts to generate external revenue from intellectual property are difficult to distinguish from businesses' commitment to extract profits from intellectual property." The authors introduce the term "academic capitalism" to describe the process of merging academia and the marketplace, with universities being now "marketers."

From a similar perspective, Gould (2003: vii-xi) argues that "the market has had an extraordinary influence on what is valued in teaching and learning." Gould claims that market forces have taken over higher education: "universities are in competition with one another for students and funding" (p. vii-xi). In addition, Gould argues that the entrepreneurial push by universities has transformed them from a "moral or cultural force" to "incubators of new industries in a technology-dominated economy" (p. 41).

Geiger (2004) is even more explicit about the cost universities pay for their entrepreneurial engagements: "These enlarged responsibilities have carried a price. Universities find that insatiable needs and increasing competition constrain their freedom of activity. At times, their involvement with markets appears to threaten the wellspring of knowledge that is the source of their value" (p. vii). He also makes direct reference to student activities, which he considers - in
the context of increasing commercialization of education – as a recruitment and retention mechanism of students: " Appropriately, one of the chief recruitment themes is the abundant opportunity proffered to these students to pursue and develop their interests" (p. 120).

In conclusion, studies in this area focus on the university as an institution and debate its contemporary entrepreneurial turn. Scholars are often critical of the way the university is developing and urge caution on the impact that market pressures can have on the academic enterprise.

2.3.2. Sociology of science

The literature in the area of sociology of science examines how science as an institution – a body of knowledge, a locus of practices and values, a profession – is affected by the increasing integration of entrepreneurship in the academic enterprise. The academic scientist, previously portrayed by scholars as not stepping away from the research bench, is now studied as an academic entrepreneur, with new influences and productivity metrics. Biotechnology is often the focus of scholars in this area. Biology and biological engineering experienced a unique shift toward commercialization in the 1980's, after the 1980 decision of the U.S. Supreme Court in the case Diamond v. Chakrabarty that genetically modified organisms can be patented. Since then, the biotechnology industry has grown significantly and links between commercial and academic science have intensified.

Murray (2010) studies changes in, what she calls, the "institutional logics" of science. She finds that "hybrid logics" are created in cases when scientific and commercial logics co-exist.

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11 Ananda Mohan Chakrabarty, a General Electric engineer, had filed a patent for a bacterium for breaking down crude oil. His request was initially rejected on the grounds that living thing are not patentable, a position held by Sidney A. Diamond, Commissioner of Patents and Trademarks. The U.S. Supreme Court finally, in 1980, ruled in favor of Chakrabarty.
The author focuses on the patenting and licensing of the "Oncomouse" in 1983 by the DuPont Corporation, an event that triggered significant turbulence in the academic community. Following this event, Murray argues, scientists adapted to the change, first by resisting the commercialization of scientific material, and, second, by patenting their own work. A "hybrid logic," at the boundary of academic and commercial logics, was created by scientists in order to support their actions and help them adjust to the new circumstances.

Stuart and Ding (2006) focus on the individual scientist. They examine the propensity of individual scientists to become academic entrepreneurs, which they say occurs when a scientist "(1) founds a biotechnology company, or (2) joins the scientific advisory board of a new biotechnology firm" (p. 97). The authors find that the propensity of scientists to become academic entrepreneurs increases when they find themselves among colleagues and co-authors that are oriented toward commercial science.

Starting with a similar focus on individual scientists, Zucker, Darby, and Brewer (1998) study the relative effect of "star scientists" on the founding of biotechnology enterprises during 1976-1989 in the United States. The effect of "star scientists" is compared to that of academic programs in biology, venture capital firms, and other economic factors. The authors find that the local number of "star scientists" has a significant effect on the timing and location of the founding of biotechnology enterprises: "At least for this high-tech industry, the growth and location of intellectual human capital was the principal determinant of the growth and location of the industry itself" (p. 302).

At the level of the university, Owen-Smith and Powell (2003) study universities that have "high-impact patent portfolios." The authors examine a sample of 89 research-intensive U.S. universities and find that universities that are "embedded" in biotechnology industry networks
are more successful in building "patent portfolios" of high commercial value than those that are not. In other words, the authors find that universities turn to their industry networks to evaluate the potential impact of inventions before proceeding with patenting. Universities with the best industry networks have higher chances of making commercially successful decisions in terms of which inventions they patent. At the same time however, the authors find that, when universities follow industry advice too closely, this can be limiting.

Overall, studies in this area focus on the transformation of science as an institution with the advent of entrepreneurship in higher education. Emphasis is given to professional values of scientists and on structural factors that contribute to the commercial success of university research.

2.3.3. Technology and innovation

The literature on technology and innovation examines entrepreneurship in higher education from the perspective of technology transfer. The goal of scholars in this area is to determine the most effective pathways for bringing a technology from the laboratory to market.

Models of innovation, such as the one by Kline and Rosenberg (1986), provide a theoretical conceptualization of innovation. Kline and Rosenberg argue against the generally held "linear model" of innovation, in which "one does research, research then leads to development, development to production, and production to marketing" (p. 285). They emphasize instead that the innovation process is "complex, uncertain, somewhat disorderly, and subject to changes of many sorts" and that it must be viewed as "a series of changes in a complete system not only of hardware, but also of market environment, production facilities and knowledge, and the social contexts of the innovation organization" (p. 275). Universities, they
argue, are crucial in providing a resource-rich environment for the facilitation of the innovation process.

O'Shea et al. (2005: 994) ask "why some universities are more successful than others at generating technology-based spinoff companies." Based on data from 141 U.S. universities, the authors identify a number of variables that have a positive effect on universities' spinoff performance: previous success (i.e. path dependence), high quality faculty, strong science and engineering programs, significant presence of industry funding, and "commercial resources," such as technology transfer experts. They conclude by urging policy makers to work toward "the development of a commercially supportive culture," "active partnership[s] and financial support with industry and government funding agencies," "recruitment and development of science and engineering academic stars," and "the development of a commercial infrastructure to enable the valorization of academic research to occur" (p. 1006).

Di Gregorio & Shane (2003) address the same question. They use survey data from technology licensing offices of 116 universities in the United States for the period 1994-1998. The authors find that a university’s "intellectual eminence" as well as policies for awarding the inventor a "low share of royalties" significantly increase university spinoff activity (p. 209). On the contrary, the authors find that funding availability in the area, e.g. venture funding, is not a significant factor.

Clarysse et al. (2005) study incubation strategies in European research institutions (research centers and universities). Based on data from seven research institutions in five European countries, the authors suggest three incubation models: "Low Selective," "Supportive," and "Incubator." According to the authors, the "Low Selective model" is a model that allows for a high number of ventures, with low-selectivity and low involvement from the
research institute. The "Supportive model" is a model of higher involvement, in which the technology transfer office plays an active role in supporting spinouts. In the "Incubator model" the research institute supports a new venture until it has the resources to stand on its own feet. The authors propose the three models as a guiding framework for identifying strengths and weakness of incubation processes in research institutions.

Overall, the literature on technology and innovation focuses on the pathways through which innovative discoveries in the laboratory find their way to market. Studies often have a prescriptive tone, with suggestions offered to university officials and public policy makers.

2.3.4. Regional economic development

Scholars of economic development study the entrepreneurial activity of universities as one of the factors that can bring economic growth to a region. Research in this area focuses on the interconnections that arise between universities and other economic factors, such as industry structure, state infrastructure, and venture capital.

Saxenian (1994), one of the leading scholars in this area, studies the regional networks created around MIT and Stanford: Route 128 and Silicon Valley respectively. She compares the two and concludes that Silicon Valley was more successful in the late 1980’s and the 1990’s, compared to Route 128. She attributes this success to the higher level of connectivity between companies in Silicon Valley. According to Saxenian, frequent movement of individuals across companies and along professional networks gave Silicon Valley a comparative advantage in terms of innovativeness. Route 128, on the other hand, the author argues, remained entrenched in a less flexible, “firm-based” model.
Feldman (2000) focuses on biotechnology and examines its potential for contributing to regional economies. Feldman's analysis of the U.S. biotechnology industry highlights the benefits of clusters: "We are interested in regional specialization by process as well as product because knowledge spillovers, which create regional agglomeration, can be in the form of a technology or a specific product" (p. 356). The author emphasizes policy implications of this finding and stresses that, if state and university investments are channeled correctly, biotechnology can play a role in regional economic development.

Lester (2005: 3) studies cases of "innovation-enabled industrial change" in 22 locations in six countries. Variation in the cases allows conclusions to be drawn. Specifically, the cases include both high-technology regions and regions with more moderate economic activity; regions with both mature and new industries; regions with first-tier and second-tier universities as well as regions without a university. Lester finds that universities significantly contribute to regional economies. According to the author, apart from spinout activity that arises from their own intellectual property, universities can help "attract new human, knowledge, and financial resources," "adapt knowledge originating elsewhere to local conditions," "integrate previously separate areas of technological activity," and "unlock and redirect knowledge that is already present in the region but not being put to productive use" (p. 3).

Overall, studies in this area emphasize the role of university entrepreneurship in regional economic development. Universities are studied as a component of broader infrastructure networks and their impact on the economic development of their regions is evaluated.
2.3.5. Literature on student activities

In this section, I focus on the changing nature of student activities in entrepreneurial universities. Research in this area is scant however. Therefore, I expand the scope of my review in three areas: literature on entrepreneurship education, studies of student life in college, and literature specific to student clubs.

Entrepreneurship education  Literature on entrepreneurship education is mostly concerned with formal coursework. Earlier research examines reasons that led to the initial resistance of entrepreneurship curricula by universities (e.g. Hills, 1988), whereas more recent work focuses on the evaluation of entrepreneurship programs (e.g. Vesper & Gartner, 1997) and their proliferation (e.g. Charney & Libecap, 2000). Katz (2003), for example, examines entrepreneurship curricula since 1947, when the first entrepreneurship class was held at the Harvard Business School. He concludes that in the United States “the field has reached maturity” (p. 283). Kuratko (2005) estimates that the colleges and universities that offer courses related to entrepreneurship have grown from “a handful in the 1970s to over 1,600 in 2005” (p. 577). The increase of action-learning coursework is also emphasized. Etzkowitz et al. (2000), for example, note that one of the characteristics of entrepreneurial universities is that teaching is “expanded by students testing their academic knowledge in ‘real world situations’ and acting as intermediaries between the university and other institutional spheres” (p. 316). The focus on entrepreneurship education however says little about the entrepreneurial activities of students outside the classroom.
Student life in college  With the exception of two studies that I discuss below, the literature on student life in college is concerned mostly with academic and social aspects of students' lives while professionally-oriented activities are beyond the scope of study and, with them, potential entrepreneurial activities are not covered (e.g. Hartshorne, 1943; Davie & Hare, 1956; Wallace, 1966; Newcomb et al., 1967; Becker et al., 1968; Horowitz, 1988). Perhaps an exception is Adler and Adler's (1991) study of the world of what they call “professional college athletes,” but again the topic is far from entrepreneurship.

Snyder's (1971) monograph on the “hidden curriculum” of MIT students is of special interest to this thesis. Snyder discusses the strategies that MIT students used in the late 1960’s to cope with the intense academic experience of MIT. For example, one of the most common practices among students was “selective negligence,” whereby students strategically focused only on those topics that could get them a good grade. The author discusses these strategies as the “hidden curriculum” to which students had to be attentive to in order to move ahead at MIT. While workload at MIT remains high and, in this regard, Snyder's (1971) study is a useful resource as historical context, but it does not tell us much about entrepreneurial activities of MIT students.

Mars, Slaughter, and Rhoades (2008) offer a critique to student entrepreneurship. The authors examine two student ventures, one in the University of Iowa and one at the University of Texas at El Paso. At the University of Iowa, a group of undergraduates commercialized a software technology (“Bio::Neos”) that was developed at the laboratory they were working in as research assistants. At the University of Texas at El Paso, graduate students developed a pigment and formed a company (“Mayan Pigmanets, Inc.”) to market it. The authors describe students involved in entrepreneurship activities as “state-sponsored entrepreneurs,” because they have,
through their schools, access to resources that are often provided by the state: “The role of student entrepreneurs – students using classrooms and laboratories as platforms, resources, and subsidies to construct marketable products, processes, or services – involves students, professors, and various auxiliary organizations and staff in market transactions” (p. 644).

The same authors are less critical of student entrepreneurship when this has a social orientation (Mars & Rhoades, 2012). They discuss two cases of student ventures with a social orientation: (a) the World of Good, a social venture by graduate business students at the University of California at Berkeley aimed at bettering the employment potential of the working poor, and (b) SharMoore Children’s Productions, a non-profit organization created by graduate students at the University of Arizona that offers a theatre arts education program. The authors argue that social entrepreneurship is located “at the intersection of the academic capitalist and public good knowledge/learning regimes” and provides “socially oriented students with access to units located in the capitalist domain (e.g., technology transfer offices, entrepreneurship education centers) and enhanced entrepreneurial agency to leverage university resources and capital in support of social change agendas” (p. 435).

The two studies discussed above, by Mars, Slaughter, and Rhoades (2008) and Mars and Rhoades (2012) respectively, indicate some interest by scholars in student entrepreneurship. Yet, the nature of student ventures discussed in these studies is different from that of venture clubs observed at MIT, as discussed in Chapter 1. Student ventures mentioned in the above studies are organizations that students, as individuals, establish outside the university. On the contrary, venture clubs at MIT have a strong university affiliation as they are part of the student club infrastructure of a university. I turn to the literature on student clubs next.
Student clubs  The literature on student clubs is comprised of research from a variety of approaches. Some studies are historical. Studies by Schwinges (1992) and Müller (1996), for example, provide a description of student associations in the Middle Ages and in early modern Europe (1500 – 1800) respectively. These studies discuss characteristics of the student body and associations that were formed to support students away from home and to promote religious life.

Bushnell’s (1962) discusses extracurricular offerings at Vassar College in the ’60s. Such was the appeal of extracurricular activities, Bushnell writes, that the school had to put restrictions in place: “As a deterrent to overextending one’s extracurricular life (and also to limit the executive power which may be held by an individual student), the college has developed a ‘census’ system with restricts the number of campus positions to which a Vassar girl may be elected or appointed” (pp. 495-496). Activities discussed are mostly social. The list of student organizations at Vassar College, Bushnell writes, includes the Government Association, the Big Five (the Athletic Association, the Community Religious Association, the Political Association, the Week-End Activities Association, and the drama society Philaletheis), and “a number of minor clubs usually related to departmental areas in the curriculum,” which are not further elaborated.

I was also able to find two studies in which MIT student clubs are discussed. The first one is a report with the title “Concerning the Massachusetts Institute of Technology” that was “published by undergraduates” in 1912.\(^\text{12}\) This report discusses the state of the Institute’s academic programs (“Courses” in the MIT vernacular), aspects of “undergraduate life” as well as “Miscellaneous Information,” such as “Registration,” the “Student Banking system,” and “The Library.” Under “Undergraduate Life,” among other topics (e.g. “Fraternities,” “The

\(^{12}\) [Published by undergraduates].1912. Concerning the Massachusetts Institute of Technology. New York: J. F. Tapley Co.
The authors list all the clubs and societies active at the time. They organize them in two categories. First, there were seven societies which were "more or less secret," i.e. whose membership was limited to a specific set of individuals. An example is "Masque" that was "a secret society composed of thirteen members who are active on the Tech Show" and whose purpose was to "promote good fellowship and aid the show in all possible ways." Second, the authors list 27 clubs that were "of practically open membership and very democratic in their nature." Among those, we find activities such as the public service-oriented "Technology Christian Association," professional societies such as "The Civil Engineering Society," and clubs for the entertainment of students such as "The Chess Club" (pp. 57-70).

The second study in which there is reference to MIT student clubs is a more recent (1993) book by Fred Hapgood, which examines life at MIT, new MIT departments such as the Media Lab and specific projects such as the Vision Chip. The Tech Model Railroad Club is one of the clubs discussed. Members of the club build model railroads and showcase them to the broader MIT community. The author focuses mostly on engineering systems that were used by club members in the 1950's and 1960's.

A set of more recent studies introduces us to the world of contemporary student activities. These studies focus on two areas. Some of the studies focus on student activism. Altbach (2003), for example, discusses student political activism and examines its impact on national politics. Mars (2009) reviews scholarly articles on student activism published between 1967 and 2008.

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13 The Tech Show (1899-1969) was an annual student production, usually a "musical revue" or "vaudeville comedy." Source: MIT Institute Archives & Special Collections, available online at http://libraries.mit.edu/archives/exhibits/techshow/index.html (accessed May 16, 2013).

14 The MIT Vision Chip was a project in the early 1990's to "design and build prototype analog early vision systems that are remarkably low-power, small, and fast." J. L. Wyatt, MIT Department of Electrical Engineering and Computer Science, was the principal investigator. (Source: IEEEXPloRE Digital Library, abstract available online)
and analyzes "institutional logics" within the community of researchers studying the phenomena. Other studies focus on the developmental impact on students of participation in student clubs. The perspective in these studies is psychological. Abrahamowicz (1998), for example, finds that members of students clubs have "significantly more positive perceptions of their relationships with other students, administrators, and faculty, of their learning and development in interpersonal and nonintellectual areas, and of their feelings about college in general" (p. 233). Foubert and Urbanski (2006) find that "more involved students report greater development in moving through autonomy toward interdependence and establishing and clarifying purpose" (p. 166).

More relevant to student entrepreneurial activities is a study of bio-entrepreneurship student clubs in U.S. universities by Brown & Kant (2009). The authors find 18 clubs active in 2008 in an equal number of institutions. At MIT, the authors identify the Science and Engineering Business Club, a club that I did not include in my study (Chapter 1, Figure 1-3) as I considered it only peripherally relevant to entrepreneurship. Out of the 18 clubs, of particular interest are two clubs that appear to share similar characteristics with the venture clubs that I studied. These clubs go beyond the organization of on-campus educational events and, instead, provide services to external parties. The two clubs are: (a) The Yale Biotechnology & Pharmaceutical Society, which, apart from other activities, also provides "pro bono consulting services to selected biotech/pharmaceutical companies," and (b) the Penn Biotech Group at the University of Pennsylvania, which has a program named Consulting Groups, in which "cross-disciplinary teams of students from law, business and medicine take on a project with their university's technology transfer office or a local company" (pp. 130-131). The presentation of

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15 The study does not include student clubs based in business schools, since the authors' intention was to examine only "life science graduate student-led organisations that foster bioentrepreneurship" (p. 126).
clubs is limited however to a brief listing of their activities. The authors identify a set of challenges that clubs face, such as the lack of time, sufficient capital, and systematic performance metrics, but the discussion is, again, at a high level and based on limited data (i.e. website data, data collected from email correspondence with club members, and experience of the authors).

Overall, studies discussed in this section suggest that student activities are becoming more entrepreneurially-oriented. Scholars discuss instances of change ranging from the growth of entrepreneurship courses to the increase of student ventures and entrepreneurial student clubs. Research to date is spotty and hardly definitive however. It is useful as a starting point, but it lacks the analytical rigor that can help us understand the entrepreneurial activities of students in depth.

2.4. Conclusion

This chapter suggests that entrepreneurship in higher education is a relatively new but growing phenomenon in the United States and abroad. This chapter discussed literature on the broader phenomenon of the entrepreneurial university as well as studies specific to student entrepreneurial activities. These studies provide the starting point for this thesis. In the next chapter, I discuss the data collection and analysis methods that I used in order to examine student club entrepreneurship activity at MIT.
Chapter 3: Research Site and Methods

This chapter provides an overview of my research methodology. The first part of the chapter discusses my research site, MIT. In Chapters 1 and 2, I discussed MIT’s history as a pioneer in bringing entrepreneurship to the academic setting, its elaborate *entrepreneurial ecosystem* as well as its apparent influence on a growing number of institutions around the world. In this chapter, I provide an overview of the MIT student population, the fields of study and types of degree programs that MIT students pursue as well as their activities in clubs. Thus, I set the stage for my main research questions: *How does entrepreneurship in student clubs take shape? Is it following the overall, growing entrepreneurship trend at MIT?* I discuss my strategy for answering these questions, which included building a taxonomy of clubs and using multiple data sources. I also discuss how I approached a secondary research question that emerged out of my fieldwork: *How does MIT respond to students’ entrepreneurial activities?* I conclude by providing an overview of my data analysis process.

3.1. Research site

MIT is known as an “engineering school.” Yet, even though engineering is a big part of MIT, the courses of study available are broader than commonly perceived. That is even more the case with regards to the activities that students pursue in clubs. In this section, I provide some statistics relevant to the MIT student population. I also provide an overview of student clubs on campus.

I use the year 1980 as the beginning point for my analysis. Even though entrepreneurship has been a core part of MIT since its founding years, as the discussion of the *MIT entrepreneurial ecosystem* in Chapter 1 suggested, the 1980’s emerged as a period of significant
development. With the exception of the Technology Licensing Office, all other parts of the ecosystem were founded in or after the 1980's. Thus, 1980 becomes an important turning point for the growth of entrepreneurship at MIT.

3.1.1. The MIT student population

In 2011-2012, MIT had 10,894 students. The student population has grown by approximately 15% since 1980-1981, when student enrollment was 9,365. Students are enrolled in undergraduate, Master’s, and doctoral programs. In 2011-2012, graduate students outnumbered undergraduate students, representing 60% of the student population. In 1980-1981, the population was more balanced, with graduate students being 51% of the student population.

Students are distributed across five schools: School of Engineering, School of Science, Sloan School of Management, School of Architecture and Planning, and School of Humanities, Arts, and Social Sciences. The School of Engineering has the largest share of the student population. In 2011-2012, approximately 50% of MIT students were enrolled in engineering programs. This percentage was slightly higher (57%) in 1980-1981. The School of Science is the second biggest school at MIT. In 2011-2012, approximately 21% of the student population was enrolled in science programs. The relative size of the school has remained fairly constant since 1980-1981, when its enrollment was approximately 23% of the overall MIT student population. The student population of the Sloan School of Management however has doubled. In 2011-2012, the school represented approximately 14% of the overall student population, compared to 7% in 1980-1981. This increase can be attributed to the significant growth of the MBA program. The School of Architecture and Planning and the School of Humanities, Arts, and Social Sciences
represented, in 2011-2012, 7% and 4% of the MIT student population respectively, remaining fairly constant since 1980-1981 when they both were at approximately 6%.

### 3.1.2. Student clubs at MIT

The diversity of interests of MIT students is also evident by the range of activities that students pursue in clubs. In the 1980’s, there were more than two hundred clubs on campus, approximately one club for every 45 students. The population of clubs has grown in the intervening years. In 2011, 420 clubs are listed on the website of the Association of Student Activities, i.e. approximately one club for every 26 students.

The Association of Student Activities categorizes student clubs into twelve “Activity Categories.” These are the following: Academic, Interest, Technology, Activism, Service, Campus Media, Religious, Arts, Athletic, Cultural, Recreational, and Social. The relative size of these categories has remained fairly constant in the thirty-year period between 1980 and 2011. The Academic and Cultural categories are the largest ones, each representing approximately 16% of clubs. They are followed by the Arts and Athletic categories, which represent approximately 12% of clubs each. The Activism, Interest, Recreational, Religious, Service, Social, and Technology categories are smaller (approximately 6% each). The smallest category (approximately 2%) is Campus Media.

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1 Data for this section were obtained, for 2011-2012, from MIT Facts (available online at http://web.mit.edu/facts/faqs.html, accessed May 16, 2013) and, for 1980-1981 from the Report of the President 1980-1981. Percentages of students in each school are approximate due to undeclared freshmen, special students, double undergraduate majors, and other special enrollment cases.

2 My estimate is based on data from 1988, which is the year for which I have the most complete data. Official lists of clubs are not always available for this early period.

3 The Association of Student Activities is a joint committee of the Undergraduate Association and the Graduate Student Council – the governing bodies of undergraduate and graduate students respectively – and has oversight of student clubs.
Clubs in the *Academic* category have a strong link to MIT’s academic departments. Some of the clubs in this category are associations of students in a particular department. The *Undergraduate Mathematics Association* is an example of a club of this type. Other clubs are chapters of nation-wide professional societies, e.g. *American Nuclear Society*. A third group of clubs in this category represents specific fields that fall within or across MIT departments, e.g. *Rocket Team, Electricity Student Group*.

The *Interest* and *Technology* categories are also related to students’ academic interests. Clubs found in these two categories are similar to the third type of clubs in the *Academic* category, as described above. That is, they represent particular interests of students related to their studies. The *Technology* category is more specific to clubs with a technological orientation. An example of a club in this category is the *Student Information Processing Board*, a club that provides computing services to the MIT student community (e.g. public computing infrastructure, website hosting). The *Interest* category is more general. The *Energy Club*, a community of students interested in energy issues, and *China Crossroads*, a club that aims to promote understanding of China’s development, are two examples of clubs in this category.

The *Activism* and *Service* categories include, what could be called, “cause-related” clubs. *Amnesty International*, a club that works “*for the protection of human rights,*” and *Students for Bhopal*, a club whose mission is to support the survivors of the Bhopal disaster, are examples of clubs in the *Activism* category.\(^4\) International issues are often the focus of these clubs. On the contrary, clubs in the *Service* category have a more local focus. The *Academic Teaching Initiative*, for example, offers SAT preparation courses to Boston high school students. The *Alternative Spring Break* organizes “*alternative*” spring break trips in various U.S. locations for

MIT students interested in participating in public service projects (e.g. working in food banks or homeless shelters).

The category *Campus Media* is a fairly small and unique category that includes clubs that run publications and other media on campus (i.e. TV and radio). *The Tech*, a twice-weekly publication that covers both MIT news and U.S. and international stories, is the most well-known club among MIT students in this category. Other examples of clubs include *KOMAZA*, a magazine that covers international development projects of MIT students and is published once every semester, and *Voo Doo Magazine*, a humorous publication that is also published once every semester.

Finally, a number of clubs cater to students' cultural interests, hobbies, and social life. The *Religious* category includes clubs of a variety of religious groups, e.g. *Christians on Campus* and *Buddhist Students Club*. The *Arts* category includes various cultural activities such as the *DanceTroup* and *Concert Band*. The *Athletic* category includes all sports-related clubs, e.g. *Rowing Club* and *Cycling Club*. Clubs in the *Cultural* category include ethnic groups, such as the *Hellenic Students' Association*, a club that organizes social events for Greek and Cypriot students on campus, as well as clubs with other cultural foci, such as the *Folk Dance Club*, a club for students interested in folk dancing. The *Recreational* category includes activities, such as the *Chess Club*, whose members meet to play chess or *Snowriders*, a club that organizes skiing and snowboarding activities. The *Social* category is a more open category, which includes clubs such as the *European Club*, which organizes social events for students from European countries, the *Easy Rider: The MIT Motorcycle Club*, for those passionate about motorcycling, and the *Ballroom Dance Team*, a club that organizes ballroom dancing classes and social events.
In sum, there is a wide range of clubs active on MIT’s campus. My goal was to determine whether, and to what degree, entrepreneurship was present within and among these clubs. I discuss how I went about answering this question in the next section.

3.2. Data collection

My first step in data collection was to gain a preliminary understanding of student clubs at MIT in order to devise an appropriate strategy for approaching my main research questions: How does entrepreneurship in student clubs take shape? Is it following the overall, growing entrepreneurship trend at MIT?

Early on, it became apparent that I faced a data availability issue. Official lists of clubs, especially for earlier years, are not always available or, when available, they are not always accurate. In addition, there is no comprehensive source of data on clubs’ activities, membership, or funding. Instead, data have to be constructed from multiple sources.

My strategy for overcoming this difficulty was twofold. First, I assumed a narrow focus and decided to focus my research on clubs that relate to students’ professional interests. The ASA categories, as presented above, divide along two dimensions: (a) Arts, Athletic, Cultural, Religious, Social, and Recreational relate to cultural and recreational activities of students, and (b) Academic, Interest, Technology, Activism, Service, and Campus Media relate to professional interests of students. I focused on the latter. Second, I used multiple data sources in order to overcome individual limitations of each source. Specifically, I collected three types of data: interview, archival, and observational. Each type of data uniquely added to my understanding of MIT student clubs. Through interviews, I got a detailed description of the activities of a large number of clubs, directly from student members. Observation of clubs’ activities gave me the
opportunity to see what students were describing in interviews. Archival research gave me access to official records of student club activity, such as funding allocations and recognition procedures.

My data collection began with an intense, three-month interview period. In the next section, I describe my interview process in detail.

3.2.1. Data collection – interviews

From August through October 2010, I conducted 47 interviews. In this early stage of my data collection, my aim was to talk with members from as diverse a set of clubs as possible.

With the most up-to-date list of active clubs at hand, I contacted via email a number of clubs. In my initial contacts, I introduced myself as a Ph.D. student in the Organization Studies Group at the Sloan School of Management conducting research on student clubs at MIT. In order to achieve a high response rate, I sent personal interview requests to clubs’ presidents, instead of contacting clubs through the “Contact Us” email. When I got no response, I tried again, either by emailing other members of the club or, in the end, resorting to the “Contact Us” email of the club. In the end, I was able to increase my initial 20% response rate to approximately 40%.

After every interview, I asked myself: “What interesting things did I hear? What am I finding so far with regards to clubs’ entrepreneurial activities?” By the end of October, the idea of a “venture club” was emerging. I was hearing of clubs starting non-profit or for-profit organizations, having corporate sponsors/partners, engaging in extensive international operations, and more. I began to realize that a number of clubs shared the same characteristics and that a broader phenomenon was at play, linked to the bigger picture of entrepreneurship at MIT.
It was also becoming clear that for the purposes of my research a categorization different from that of the Association of Student Activities (ASA) was needed. The ASA categorization did not resonate with the activities of clubs as described by students in interviews. Instead, a categorization along the substantive or thematic foci of clubs emerged (Table 3-1). One large set of clubs aimed at improving education.

Some organized events on campus to promote thinking on issues of education; others offered educational programs to high school or college students, in Boston or internationally. Activities of clubs varied; yet, all shared a common mission. A second group of clubs focused on energy. Sustainability was a big theme among these clubs.

Some aimed at educating MIT students on issues of energy; others worked on engineering projects related to energy (e.g. building environmentally-friendly aircraft or air-conditioning systems). A third set of clubs focused on issues of international development, such as human rights, world hunger, and technological development. A fourth set of clubs aimed at improving healthcare. Again, activities and perspectives varied, but the mission was the same.

Some clubs focused on how to improve the U.S. healthcare system, while others provided healthcare services to underprivileged populations in developing countries. A fifth set of clubs focused on entrepreneurship. This category includes clubs whose mission is to teach entrepreneurship to MIT students. Lastly, three more categories emerged: Computing, Public

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Table 3-1:
Categories of clubs

<table>
<thead>
<tr>
<th>Categories of clubs</th>
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</thead>
<tbody>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Energy</td>
</tr>
<tr>
<td>International</td>
</tr>
<tr>
<td>Development</td>
</tr>
<tr>
<td>Healthcare</td>
</tr>
<tr>
<td>Entrepreneurship</td>
</tr>
<tr>
<td>Computing</td>
</tr>
<tr>
<td>Public Service</td>
</tr>
<tr>
<td>Space</td>
</tr>
</tbody>
</table>

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5 This categorization excludes departmental groups (e.g. Biology Undergraduate Association) and chapters of professional associations (e.g. Human Factors and Ergonomics Society), which were deemed not relevant to entrepreneurship because of their role as representational committees. The only exceptions are the Society of Women Engineers and ClubChem, which were included in the Education category for their substantial outreach activities. Also, there were some clubs that did not fall into any of the eight categories. These clubs represented fairly specific, unique instances of students' interests (e.g. Sports Technology Club), not in other ways different — based on interviews with a number of those clubs — from the clubs included within the eight categories. I decided to exclude those in order to focus on a set of specific areas of activity, a strategy that allowed me to analyze the growth of entrepreneurship within as well as across areas (see “Data Analysis” section). Finally, some clubs had to be excluded from my study because of lack of data. Missing data was a problem especially for older clubs.
Service, and Space. Computing is a category of clubs focused on computing technology, either the engineering (e.g. game development) or the business side of it (e.g. electronic commerce). Public Service includes a set of clubs that focus on improving the quality of lives of underprivileged populations in the United States, and, in most cases, local to Boston. Space includes a set of clubs whose mission is the promotion of the exploration of outer space.

Guided by the above taxonomy, my second round of interviews was more focused. From November 2010 to June 2011, I conducted 50 interviews. My goal with these interviews was three-fold. First, I aimed at interviewing members from as many clubs from each category as possible (Table 3-2). Second, I aimed at interviewing both these in traditional and venture clubs, with an emphasis on venture clubs (Table 3-3). Third, I aimed for data completeness. I presented interviewees with a table of clubs in their substantive area and asked them if they knew more about these clubs. A significant number of leads were obtained this way. For example, a Ph.D. student in the Department of Aeronautics and Astronautics, who had also done his undergraduate studies at MIT, shared with me the history of all clubs in the area of Space over the last decade. Similarly, in my interview with a member of the Africa Information

<table>
<thead>
<tr>
<th>Categories</th>
<th>Percentage of clubs interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education (n=28)</td>
<td>64%</td>
</tr>
<tr>
<td>Energy (n=28)</td>
<td>46%</td>
</tr>
<tr>
<td>International Development</td>
<td>52%</td>
</tr>
<tr>
<td>Healthcare (n=24)</td>
<td>42%</td>
</tr>
<tr>
<td>Entrepreneurship (n=15)</td>
<td>47%</td>
</tr>
<tr>
<td>Computing (n=11)</td>
<td>55%</td>
</tr>
<tr>
<td>Public Service (n=10)</td>
<td>30%</td>
</tr>
<tr>
<td>Space (n=6)</td>
<td>100%</td>
</tr>
</tbody>
</table>

6 Two of those interviews were follow-ups with students I had interviewed in the first round of interviews.
7 Apart from clubs that appeared on the list of the Association of Student Activities, from my interviews (and from my observations of clubs' activities and archival research that were going on in parallel) I discovered a number of other clubs: namely, two subdivisions of clubs which operated as autonomous clubs (SEDS Outreach and IdeaStorm), two non-profit organizations (Learning Unlimited and Collegiate Energy Association) that I included because they are spinoffs of student clubs and are run by MIT students, as well as a number of clubs that operate under the sponsorship of MIT departments (indicated in the funding portion of Appendix B).
Technology Initiative (AITI), a club that aims to educate African youth in information technology and entrepreneurship, I was informed about the Indian Mobile Initiative, a club that was founded by former AITI members to implement the AITI idea in India. The club was too young at that point to be listed in the ASA records, to have a website, or be visible in other ways.

The average duration of interviews was 45 minutes to an hour. A semi-structured format was used. Even though I had an interview protocol (Appendix A), I often deviated from it in order to keep the discussion flowing in ways that I felt made sense in each interview. The main aim of the interview was to understand each club from the perspective of students. I asked them about their clubs’ events and projects, funding sources, membership, leadership, as well as history and future plans. I tried to jog their memory by asking them to describe their activities with the club semester by semester since they joined the club. I then went on to ask more specific questions, like “Does your club interact with any organizations outside MIT?” and “Where does your club get its funding from?” In addition, I asked students to share their personal education and career plans as well as the ways in which their club activity helped them achieve their personal goals. As a result, accounts of club activity are closely interwoven with personal histories, interests, and goals of students interviewed.

During the interview, in order to establish a friendly, casual encounter, I restricted myself to taking only quick notes. I mostly noted suggestions for people to contact or things to research, i.e. things I needed to act upon soon, and relied on the tape-recorder for capturing the rest of the content. Even if the interviewee was stressed at first (e.g. “My English is not very good.” or

<table>
<thead>
<tr>
<th></th>
<th>Clubs Interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Club</td>
<td>47%</td>
</tr>
<tr>
<td>(n=114)</td>
<td></td>
</tr>
<tr>
<td>Venture Clubs</td>
<td>66%</td>
</tr>
<tr>
<td>(n=35)</td>
<td></td>
</tr>
</tbody>
</table>
"Will people be able to go to search on Google and find this transcript?"), students quickly forgot that they were being taped. I explained that material would be used for my thesis and that quotes from interviews would be mentioned in a non-identifiable way. In that regard, I also presented students with a consent form, as required by the MIT Committee On the Use of Humans as Experimental Subjects (COUHES), which included terms on the confidentiality and use of the data. Subsequently, I had the interviews transcribed by a transcription services agency. Quotes presented in the thesis are mostly verbatim, edited slightly only for clarity purposes. Names of clubs are the original ones; names of students are masked.

Interviews took place in a variety of locations, as convenient for the interviewees. The most common location was the MIT Student Center, which is both centrally located on the MIT campus and also represents the center of student activities, with the Student Activities Office located on the fifth floor and also with some of the clubs having office and/or storage space there. The Sloan School of Management was also a common location, especially for interviews with Sloan students. Other interviews were conducted in coffee shops in the MIT neighborhood. I tried however to avoid this option as much as possible – unless interviewees suggested it – because I was concerned that noise might affect the quality of the audio recording.

<table>
<thead>
<tr>
<th>Interviewees, affiliation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 undergraduate students</td>
<td></td>
</tr>
<tr>
<td>23 MBA students</td>
<td></td>
</tr>
<tr>
<td>8 Master's students</td>
<td></td>
</tr>
<tr>
<td>24 Ph.D. students</td>
<td></td>
</tr>
<tr>
<td>2 post-doctoral associates</td>
<td></td>
</tr>
<tr>
<td>4 alumni</td>
<td></td>
</tr>
<tr>
<td>2 administrative staff</td>
<td></td>
</tr>
<tr>
<td>1 lecturer</td>
<td></td>
</tr>
<tr>
<td>2 non-MIT affiliated</td>
<td></td>
</tr>
</tbody>
</table>
Students interviewed represent a broad range of the MIT student population. I interviewed undergraduates as well as students in Master’s and doctoral programs, across a variety of academic fields. In Tables 3-4 and 3-5, I provide the breakdown of the types of degree programs and fields of study pursued by students interviewed. These data however should not be used to draw conclusions about participation patterns of MIT students in clubs, since my goal with the interviews was to achieve a coverage of clubs (Tables 3-2 and 3-3) rather than a representative sample of students participating in clubs.

In addition to interviews with student club leaders, I interviewed two MIT administrators, one staff member of the Student Activities Office and one staff member of the Public Service Center. I asked them in detail about their job responsibilities as they relate to student clubs. I also asked for their overall perspective on student clubs at MIT, historically and in comparison to other schools. Lastly, one of the students

<table>
<thead>
<tr>
<th>Departments</th>
<th>Number of students interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sloan School of Management</td>
<td>24</td>
</tr>
<tr>
<td>Biology, Biological Engineering</td>
<td>13</td>
</tr>
<tr>
<td>Electrical Engineering and Computer Science</td>
<td>9</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>8</td>
</tr>
<tr>
<td>Aeronautics-Astronautics</td>
<td>8</td>
</tr>
<tr>
<td>Engineering Systems Division</td>
<td>5</td>
</tr>
<tr>
<td>Chemistry, Chemical engineering</td>
<td>4</td>
</tr>
<tr>
<td>Material Science</td>
<td>4</td>
</tr>
<tr>
<td>Civil and Environmental Engineering</td>
<td>2</td>
</tr>
<tr>
<td>Technology and Policy Program</td>
<td>2</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2</td>
</tr>
<tr>
<td>Physics</td>
<td>2</td>
</tr>
<tr>
<td>Comparative Media Studies</td>
<td>1</td>
</tr>
<tr>
<td>Earth and Planetary Sciences</td>
<td>1</td>
</tr>
<tr>
<td>Economics</td>
<td>1</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>1</td>
</tr>
<tr>
<td>Urban Planning</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes to Tables 3-4 and 3-5: (a) In Table 3-4, the two non-MIT affiliated individuals were a researcher working at Boston University and a student at the Harvard University School of Public Health, both members of MIT student clubs; (b) In Table 3-5, the number of students from the Sloan School of Management includes 23 MBA students and 1 undergraduate student majoring in Management. This table is the best approximation of students’ fields, given that undergraduate students often have double majors and that doctoral students in some cases pursue Master’s degrees in parallel.

8 The correspondence between interview subjects and clubs is not 1 to 1. In approximately 20% of interviews, interviewees participated in more than one club (usually two). In these cases, the interview covered all clubs that the interviewee participated in, but usually one more extensively than the other, based on the student’s level of involvement. Additionally, for approximately 20% of the clubs I interviewed more than one member (usually two).

9 Notes to Tables 3-4 and 3-5: (a) In Table 3-4, the two non-MIT affiliated individuals were a researcher working at Boston University and a student at the Harvard University School of Public Health, both members of MIT student clubs; (b) In Table 3-5, the number of students from the Sloan School of Management includes 23 MBA students and 1 undergraduate student majoring in Management. This table is the best approximation of students’ fields, given that undergraduate students often have double majors and that doctoral students in some cases pursue Master’s degrees in parallel.
interviewed was also a member of the Association of Students Activities and so his perspective on that committee was obtained as well.

3.2.2. Data collection - observation

In addition to interviews, my data include fieldnotes from observing the activities of student clubs. For a period of seven months, from September to March, in the academic year 2010-2011, I systematically observed the activities of three clubs: Students for Exploration and Development of Space (SEDS), Environmentally Friendly Aircraft Design Team (EFA), and SANA. I attended the leadership meetings of those clubs as well as their broad membership events. I also monitored their mailing lists in order to follow conversations as they evolved. An understanding of the day-to-day operations of clubs was a result of this close contact.

In all three cases, my contact with the clubs started with an interview with one of their members. Toward the end of the interview, I asked the student if his or her club would be open to me joining the mailing list and attending the leadership meetings. I then followed up with an email to confirm time and location and showed up to the first upcoming leadership meeting. I introduced myself as a Sloan Ph.D. student conducting research on student

<table>
<thead>
<tr>
<th>Table 3-6: List of clubs the activities of which were observed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBSERVATION</strong></td>
</tr>
<tr>
<td>Systematic Observation (7 months, leadership meetings &amp; events):</td>
</tr>
<tr>
<td>SANA</td>
</tr>
<tr>
<td>Environmentally Friendly Aircraft Design Team</td>
</tr>
<tr>
<td>MIT Students for the Exploration and Development of Space</td>
</tr>
<tr>
<td>Sporadic Observation (occasional attendance of events):</td>
</tr>
<tr>
<td>Graduate Student Council</td>
</tr>
<tr>
<td>MIT 100K Entrepreneurship Competition</td>
</tr>
<tr>
<td>MIT BioDiesel</td>
</tr>
<tr>
<td>MIT Energy Club</td>
</tr>
<tr>
<td>MIT Food and Agriculture Collaborative</td>
</tr>
<tr>
<td>MIT Generator</td>
</tr>
<tr>
<td>MIT Students for Bhopal</td>
</tr>
<tr>
<td>Science Policy Initiative</td>
</tr>
<tr>
<td>Sloan Education Club</td>
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<td>Wind Energy Projects in Action</td>
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<td>VentureShips (2007-2008)</td>
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<td>Hellenic Students' Association (2008-2010)</td>
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81
clubs. Most of the time, my introduction was prefaced by a brief “welcome” statement by the member of the club I had interviewed. I asked if they would mind my sitting in their meetings as the “anthropologist” of the club and explained that I would be taking notes to be used for my thesis. In all cases, I was welcomed by members.

I chose to observe the *Students for the Exploration and Development of Space (SEDS)* because of two unique characteristics of the club. First, the club is the founding chapter, established in 1980, of a now U.S.-wide organization with the same name and mission, i.e. the promotion of space exploration through educational activities. Second, the club operates as an umbrella organization for smaller engineering project teams, like the *Rocket Team* and *SEDS Outreach*. I observed the weekly leadership meetings of the club (with 7-10 students in attendance). These were held Wednesdays from 7 p.m. to 8 p.m. in a classroom at the *Department of Aeronautics and Astronautics* (appropriately, the room featured rocket-shaped trash cans!). I also observed individual team meetings, e.g. meetings of the *Rocket Team*, which took place right after the general meetings. Finally, I attended the events that the club hosted. For example, I attended an *ExploreMars Conference* (November 2010), co-organized with *National Space Society*. My role in the above occasions was mostly that of a silent observer, taking notes and casually chatting with members.

The second club that I systematically observed was *SANA*. I came across *SANA* in an interview with a member of the *Science and Technology Leadership Association (STeLA)* who, in the beginning of the interview, surprised me: "I have two groups. I am also in a group called SANA." He explained that *SANA* was a fairly new club (formed in 2009) that worked on developing mobile healthcare solutions for developing countries (*SANA* means "health" in Spanish and Italian and "hope" in Tagalog). Unlike *STeLA*, *SANA* was not recognized by the
Association of Student Activities (ASA) and thus I was not aware of it. The club triggered my interest simply by virtue of the fact that it was not recognized by the ASA. I attended the next leadership meeting and became a regular attendee after that, every Wednesday from 4:30 p.m. to 5:30 p.m. Meetings were held in a small conference room at the Computer Science and Artificial Intelligence Laboratory (CSAIL). Attendance in these meetings fluctuated between five and fifteen people. Apart from leadership meetings, I also attended other activities of the club, e.g. recruiting info-sessions for new members, smaller meetings of specific project teams, etc. After a few months, the club had embraced me as the “anthropologist” of the group. Small tasks started to come my way. I was asked, for example, to contribute to a report on the club. Apart from such specific occasions however, I was mostly a silent observer, listening and taking notes, not easily discernible from other members who were also multi-tasking on their laptops during meetings.

The third club that I observed systematically was the Environmentally Friendly Aircraft Design Team (EFA). This was a small, three-member club working on environmentally-friendly fuel solutions for small aircrafts. Again, in this case, I stumbled on this club in an interview for a different club. This time, the student I was interviewing, a member of the Flying Club, mentioned EFA as an activity that friends of his were pursuing. The club was fairly new at that point. After interviewing two of its members, I was invited to attend their meetings. Discussions were mostly technical and I often found myself struggling to catch up. The big picture, however, was of great interest. The team was working on proposals for industry contracts. Their goal was to form a company and actually build the fuel systems that they were designing. Observing their activities significantly contributed to the concept of the venture club. Again, my role in the club was mostly that of a silent observer. At times, I offered ideas on their engineering designs – of perhaps questionable value. Perhaps my biggest contribution to group was helping shoot an
informational video for a competition. They were acting out the script; I was holding the camera. Unfortunately, they did not win.

Apart from SEDS, SANA, and EFA, I sporadically attended the activities of a set of other clubs, as they appear in Table 3-6. Whereas with SEDS, SANA, and EFA my emphasis was on observing the meetings of their leadership teams, with this larger set of clubs I focused on attending events (e.g. workshops, talks, competitions). I made sure to attend events from a broad range of clubs, from small (e.g. BioDiesel) to large and prominent ones (e.g. 100K Entrepreneurship Competition) and from a variety of areas (e.g. education, energy, entrepreneurship). I also made sure to attend a wide range of event types (e.g. four-day workshops, small project team meetings, showcase events). I also attended meetings of the Graduate Student Council, in order to get some perspective of how student government works.

My observations were complemented by my participation in two clubs before my dissertation project started: VentureShips and the Hellenic Students’ Association. In VentureShips, a club that gives students the opportunity to work on business projects with startup companies, I was a “project liaison” for a year (2007-2008). My role was to lead a group of approximately five MIT students, assist them in their project and serve as the liaison with the leadership of the club. In the Hellenic Students’ Association, a club that is not included in my study because of its cultural/ social function, I served as a member of the board for one year (2008-2009) and as the president the subsequent year (2009-2010). My insights about how clubs at MIT work, as presented in this thesis, have been significantly influenced by these experiences.
3.2.3. Data collection – archival research

In parallel to interviews and observation, I also collected two kinds of archival material. First, I researched the collections of the Institute Archives & Special Collections, which is the department of the MIT Libraries responsible for maintaining historical records of the Institute. Any organizational entity (e.g. department, committee) or individual (e.g. faculty member) that chooses to make its archives public submits its records to this department. Material is then organized in “collections,” which are comprised of “boxes” and “folders” within “boxes.” A list of available “collections” and brief tables of contents are made available to patrons for them to locate material of interest. I focused on collections of the main players in student life, e.g. Dean for Student Affairs, Undergraduate Association (noted as “institute records” in Table 3-7). I reviewed approximately thirty “boxes” of material.

My second source of archival data was the internet. From my laptop this time, I spent hours upon hours “discovering” data. For club activity after 2000, the internet is an important source. The majority of clubs have websites on which useful information is posted (e.g. the mission of the club, its history, the composition of its board, upcoming events and sponsors). In addition,

<table>
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<th>Archival Sources</th>
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<td>Chemical Society, institute records, 1903-1932</td>
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<td>Dean for Student Affairs, institute records, 1945-1993</td>
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<td>Dean for Undergraduate Education and Student Affairs, institute records, 1980s-1995</td>
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<td>Dean for Undergraduate Education, institute records, 1984-1992</td>
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<td>Graduate Student Council, funding allocations, 2003-2012</td>
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<td>Graduate Student Council, institute records, 1953-1989</td>
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<td>Graduate Student Life Grant, allocations, 2002-2012</td>
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<td>Student Activities Office, student club accounts, 2001-2010</td>
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<td>Task Force on Student Life and Learning, institute records, 1996-1998</td>
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<td>Undergraduate Association, funding allocations, 1998-2012</td>
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<td>Undergraduate Association, institute records, 1914-1985</td>
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<tr>
<td>Various online sources (e.g. club websites, MIT center websites, students’ personal websites, The Tech)</td>
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official records such as minutes of the meetings of the Association of Student Activities and funding allocations by the Undergraduate Association and the Graduate Student Council are now posted online. My searches often took me to places I did not expect. Sometimes I searched for information on a particular club, only to discover data about other clubs. Other times, I reviewed websites of MIT Centers that often sponsor student clubs (e.g. Public Service Center, Legatum Center), only to discover clubs that I was not familiar with. In total, I collected more than 1,500 pages of data.

Both when researching online and in my visits to the library archives, my goal was twofold. First, I aimed at collecting data on the activities of clubs. Funding records, for example, were important for my project. Additionally, I looked for data on membership, the history of clubs, their events – anything relevant to the activities of individual clubs. These data were then used, as I further discuss in the data analysis section below, complementary to data from interviews and observation, to analyze the characteristics of clubs.

Second, I looked for MIT policies with regards to student clubs. The research question that I aimed to answer was the following: How does MIT respond to students' entrepreneurial activities? In this regard, I was interested in material such as records of internal communication, meeting minutes, and committee reports. I was interested in both the student government side (i.e. Undergraduate Association, Graduate Student Council Association of Student Activities) and the faculty side (e.g. Dean for Student Life, Student Activities Office). Both the internet and the library archives provided me with useful material in this direction.
3.3. Data analysis

After completing my collection of interview, observational, and archival data, my next step was to analyze them. I followed an inductive approach. As I mentioned above, the concept of the venture club emerged early in my data collection. With my data analysis, my first goal was to delve deeper. I began by reading carefully, multiple times, interview transcripts in which students explicitly mentioned that they considered their clubs as "startups," rather than as "traditional" clubs. I then expanded my focus in order to identify similar clubs. An initial set of distinguishing characteristics of venture and traditional clubs started to emerge.

My next step was to systematically record a wide range of data that seemed relevant to the distinguishing characteristics of venture and traditional clubs as they were evolving. In an excel document, I entered all data available. For example, I noted the mission of clubs as stated on their websites, dates of activity, number of board members, event types, primary location of events, number of student attendees at events, funding, affiliation with MIT centers and academic departments, collaborations with external organizations, name changes, mergers with other clubs, and more.

As my analysis progressed, some characteristics emerged as more prominent than others. I focused my analysis on those. For example, it became apparent that the kind of funding that clubs pursued was an important distinguishing characteristic between venture and traditional clubs. Similarly, activities, size (i.e. number of members) as well as future goals of venture clubs appeared to be significantly different from those of traditional clubs. I organized all previously recorded data on those characteristics. I sought to identify, for example, the ways in which clubs used different kind of funding sources, what the primary source of funding for each club was, what patterns were apparent in the activities of clubs, and so forth.
Once the analysis of the characteristics of clubs was complete and all clubs were categorized as either venture or traditional, my next step was to determine whether venture clubs were indeed on the rise as my overall, qualitative read of the data seemed to suggest. I charted clubs across time and looked for trends.

The last part of my data analysis concerned MIT’s response to the rise of venture clubs. For this part of my analysis, archival material was my primary source of data. My task was to reconstruct the history of the MIT administration’s stance toward student clubs. I reviewed Institute documents such as internal communication between MIT offices (e.g. Dean for Student Life, Student Activities Office), records of the student government (i.e. Undergraduate Association, Graduate Student Council, Association of Student Activities), and reports by faculty-student committees and task forces charged with improving various aspects of student experience (e.g. international education, student life).

3.4. Conclusion

In this chapter, I discussed my research site and methods. I provided an overview of the academic side of MIT: student statistics, degree types and fields pursued by students. I also discussed the sources of my data as well as my data analysis process. In the next chapter, I begin to tell the story of how the venture club has become an important vehicle for MIT students engaging in entrepreneurial projects.
This chapter discusses how student clubs at MIT work. In Chapter 1, I described student clubs as the only part of the MIT entrepreneurial ecosystem that is student-run. In this chapter, I elaborate on this point. The first part of the chapter discusses the administrative structures set up to support and regulate student clubs. From the side of the MIT administration, student clubs fall under the Student Activities Office. From the student governance side, the Undergraduate Association and the Graduate Student Council are responsible for student clubs. These administrative structures have the general oversight of student clubs; no attempt is made to monitor each and every activity of clubs. In fact, beyond the initial stage of recognition, funding is the main reason student clubs interact with these administrative units. In the second part of the chapter, I discuss funding allocation processes and criteria. Student clubs pursue extensive and highly differentiated activities. Some of these are eligible for funding; some are not. The last part of the chapter discusses three types of funding profiles found among MIT student clubs: UA/GSC-funded, departmentally-sponsored, and self-funded. Along these funding dimensions, venture clubs can be distinguished from traditional clubs.

4.1. The administration of student clubs

With a constitution and a list of five MIT student-members at hand, students can apply to the Association of Student Activities (ASA) to be recognized as an official MIT student club. The ASA is a joint committee of the Undergraduate Association (UA) and the Graduate Student Council (GSC), which are the self-governing bodies of undergraduate and graduate students
respectively\textsuperscript{1}. The Committee consists of the following ten members: President, Treasurer, Secretary, Student Member-At-Large, two Undergraduate Members-At-Large, two Graduate Members-At-Large, one UA Representative, and one GSC Representative. Apart from the UA and GSC representatives that are appointed by their respective organizations, the other eight officers are elected directly by representatives of student clubs at the ASA General Body Meeting that takes place every spring.\textsuperscript{2}

The ASA board meets bi-weekly. Meeting minutes document the process through which recognition decisions are made. First, the board reviews the material submitted by students interested in forming a new club: (a) an application, which includes questions on the club’s purpose, degree of uniqueness compared to existing clubs, and reasons for requesting ASA recognition; (b) a membership list, which “must contain at least 5 MIT students and be at least 50\% MIT students”; and, (c) a constitution, which should state the club’s purpose, officer positions, election procedures, and a clause on the club’s openness to all members of the MIT community, as well as affirm the club’s abidance to the rules of the ASA. Second, the board meets with students to discuss the proposed club. When all information has been collected, the board reviews the application at one of its upcoming meetings. The discussion revolves around four main criteria: (a) legality according to Institute, local, state, and federal laws\textsuperscript{3}; (b) sustainability beyond the initial membership; (c) appeal to the MIT student population, and (d)

\textsuperscript{1} The ASA was formed in the 1970’s as part of the UA, which in various formulations has existed since 1893. The GSC was formed later, in 1953, and initially it had its own recognition processes for clubs founded by graduate students. After a proposal by the UA, in 1989 the two organizations joined forces and the ASA became a joint committee. (Sources: MIT History by the MIT Library Archives and The Tech 1984 article “Wilt Offers Amendments” volume 104 issue 4).


uniqueness from existing student clubs. For example, when the Social Media Club applied for recognition, members of the ASA discussed sustainability as a potential issue because most of the initial members of the club were in Master's programs and would graduate soon. The board however decided favorably, based on signs that the club was proactive about attracting more members. We read in the ASA meeting minutes from 2010: “Some concern if it will be sustainable since many of them are in 18-month to 2-year programs. Have had an initial workshop and have been in contact with various professors about working together/ advising.”

Overall, students report that the recognition process is easy. For example, a founding member of the Assistive Technology Club described his experience as follows: “I would say it's fairly straightforward. You put together a constitution, you submit some forms. It wasn't too much on our side.”

Once recognized, clubs gain access to the following resources: Use of the MIT name, ability to reserve MIT classrooms, a storage locker, webspace, a financial account, and the right to participate in Midway, a student activities showcase event organized by the ASA every fall semester. These resources are important to clubs. For example, a member of InnoWorks, which is a club that organizes science camps for local middle school students on the MIT campus, explained the importance of being able to use the MIT name: “Last summer, we had twenty one middle school students. The parents are like: 'Oh, the principal wants my child to go to this program. It's a free MIT program.'” He also stressed the benefit of having access to MIT classroom space: “Students do all the activities, Monday through Friday, each day together. We used the Student Center. Because we are ASA recognized, we could use that space.” Some clubs are additionally given funding rights. These clubs can apply, once every semester, to request

funding of their activities. In order to be eligible for funding, clubs have to show that they do not have access to other resources (e.g. departmental funds) and that their activities are likely to fulfill the criteria for funding eligibility (to be discussed in the second part of the chapter).\(^5\)

After the recognition process, clubs have to maintain good standing with the ASA. Their responsibilities however are minimal: Notify the ASA of changes of officers or of changes in the constitution, comply with the rules and regulations of the ASA\(^6\), attend at least one ASA General Body Meeting every semester, have a president and treasurer that are registered MIT students, and report membership of more than 50% MIT students. The interaction of student clubs with the ASA after the point of recognition is thus very limited.

From the side of the MIT administration, student clubs fall under the Student Activities Office (SAO) (see Chapter 1, Figure 1-2 for an organizational chart). Again, here the interaction is minimal, limited mostly to bureaucratic transactions the most important of which is the handling of the clubs’ financial accounts. Club treasurers submit receipts to the SAO and pick up reimbursement checks. Funding decisions are not made by the SAO however, which only operates as a point of clearance. Rather, funding allocation decisions are made by the two ASA


\(^6\) Reference here is to hazing and non-discrimination policies as well as MIT- and ASA-specific rules, the most important of which are rules regarding the recruitment of incoming students. Clubs are not permitted to contact incoming students, unless the latter have initiated such contact themselves. (Source: Student Organization Handbook by the Student Activities Office, http://studentlife.mit.edu/sites/default/files/SAO%20Student%20Org%20Handbook%20.pdf, accessed May 16, 2013). In the ASA meeting minutes, we read about the case of a club with the name MIT Extropians that was, in 1997, “charged with four violations of MIT policies/rulings related to an unauthorized mailing to the incoming freshman class.” Other violations, as they appear in the ASA meeting minutes, are of smaller magnitude, mostly consisting of violations with regards to putting up posters (i.e. clubs put up posters in areas they were not allowed to). Clubs are faced with small fines as a result. Threats about “derecognition” are also used by the ASA as a way to enforce its rules. In reality, however, ASA rarely proceeds with club “derecognition.” ASA officers are quite lenient and only “derecognize” clubs if the latter fail to attend an ASA General Body Meeting, as required, and also fail to establish communication with the ASA (i.e. reply to emails). In these cases, ASA officers assume that the club is inactive and proceed to “derecognize” it. In the ASA meeting minutes from 2000 we read, for example: “Derecognitions - Any group that sends email, that’s enough that they get a waiver because they’re alive.”
constituents, the *Undergraduate Association* and the *Graduate Student Council*. A staff member of the *SAO* describes the office’s standing as follows:

"The three student governing bodies (Association of Student Activities, Undergraduate Association, and Graduate Student Council) are the ones that create policy around student organizations, with us serving more with an advisory capacity. We make suggestions or help them get through challenges and questions. But, ultimately, we see them as having the final say on things."

The same staff member explains that the *SAO* would like to become the "first place to start" for clubs, a resource that can help them clarify their missions, plan their events, and extend their reach, but that there is still work to be done in order to reach that point: "We are trying to define the mission of our office, so that we can talk up why students should make use of our office beyond just typical financial transactions." At the same time, she explains, the *SAO* struggles with the lack of oversight of student clubs:

"We have almost 500 student groups. Right now, there is no review process in place. Clubs get recognized, and after that, there really isn't another check-in. [We need to check-in with clubs in a regular basis and ask:] 'Are you active? Is 50% of your group currently MIT registered students?' For example, we find that alumni continue to be involved in some clubs, which is awesome. But, if you have 10 members, and only one of them is a current student, is that really a student organization or not? And, should we be supporting that or should we not be supporting it? But we have no way to catch, so to speak, such instances right now, unless someone brings something to our attention."

The *ASA* feels equally unable as the *SAO* to monitor student clubs. As opposed to the *SAO* however, the *ASA* has come to terms with its role being hands-off. In an interview, I asked a member of the *ASA* if club membership at the time of club recognition is self-reported and if the *ASA* checks-in at any point after that. His response was the following:

"Yes, club membership at the time of recognition is self-reported. Sometimes groups will inaccurately report this and they will get into trouble if we find out. There have been a couple of cases. We don't go out of our way to check for this however. We also don't say send us a membership roster every month or something. But it's a nice
requirement when you start the group that you have to send a list of people who are interested in joining and that you have to have five MIT student names in there."

Apart from membership, the same fuzziness holds with regards to clubs’ activities. At the point of recognition, clubs are asked to submit a constitution which states the club’s purpose. Beyond that however, the ASA (or the SAO) do not have a way to check the activities in which clubs engage. Again here, the ASA is troubled, but not enough to take action. In the 2009 meeting minutes of the committee, we read:

“Constitutions: We read them when first approved, but then clubs can change them whenever they want. John suggested that, whenever a new constitution is uploaded to the ASA database, we check it. But constitutions are a lie anyway. It is unclear what the benefit would be, especially given that such an operation would require - if nothing else - going through all 400 constitutions, which no one wants to do.”

Activities of clubs become known to the ASA only when clubs submit funding requests. The ASA and the funding boards of the UA and the GSC collectively handle those. Funding requests represent however only part of the activities pursued by clubs, since clubs only submit requests for those activities they think (or hope) will meet the allocation criteria. Clubs are given significant latitude and this will also become evident in the discussion of clubs’ funding sources that follows.

4.2. Funding procedures

Recognition, as mentioned earlier, is not synonymous with funding eligibility. Clubs are tiered in three statuses: funded, unfunded, and sponsored. Funded clubs are the only ones that are given the right to request funding, as opposed to those recognized as unfunded. The sponsored category implies a link to a sponsor, such as an MIT academic department. These clubs have secured specific sources of funding prior to applying for ASA recognition. The Student Information
Processing Board is an example of such a club. The club works on MIT-related computing projects and is supported by the Information Services and Technology department. Similarly, the Satellite Team is sponsored by the Department of Aeronautics and Astronautics.

To be awarded funded status, a club needs to satisfy the following two criteria: (a) show that there are no other sources of funding readily available (i.e. show that based on the club’s mission it is unlikely that an MIT department would serve as sponsor), and (b) show that the club’s events are likely to be fundable. Here, the ASA board evaluates the likelihood that the type of events that the club will organize will meet the criteria on which funding is allocated. In this decision, the ASA takes into consideration of the funding criteria of the UA and the GSC that are, in fact, the main funding bodies, since only a small part of total funds allocated to student clubs are administered directly by the ASA. A member of the ASA explains why funding eligibility is given only to a distinct set of clubs and with what criteria:

"We do want to check that there is a purpose to funding the group before marking every group funded. There are certain groups that can operate without funding or can get other sources of funding, and we want to make sure that they have a good defense for why the group should be funded out of the Student Life Fund. Most people do want to be funded. Being recognized as a funded group is harder."

Minutes of ASA meetings offer a glimpse on how decisions for funding status are made. Even though minutes are not always detailed, some examples give a sense of the logic of the ASA board. For example, when the Food and Agriculture Collaborative and the Science Policy Initiative applied for recognition as funded clubs, the ASA board approved their requests taking into consideration the type of events that they were likely to organize. The Food and Agriculture Club is a group of students interested in sustainable food chains. On campus events such as talks and networking events are the primary activities of the club and were viewed by the ASA as

\footnote{I discuss the history and purpose of the Student Life Fee below.}
appropriate. The *Science and Policy Initiative* aims at educating MIT students in U.S. science policy. The club collaborates with the *MIT Washington Office* and organizes a variety of educational events on campus.  

The following quotes from the meetings in which the decisions were reached are illustrative:

"Food and Agriculture Club: Has flourished in the last year. It has a core organizing base. Activities have attracted a large number of participants. Seminar series was successful. Approved as funded." (2010)

"Science Policy Initiative: Funded by Washington office, but not getting funded for on-campus activities. MIT Washington office is funding events related to Washington, people going to Washington, and so forth. They want to fund things on campus, which is why they're asking us. Approved as funded." (2010)

On the contrary, other clubs are denied funded status or apply themselves to be recognized as unfunded knowing that they do not satisfy the funding eligibility criteria. For example, the *Assistive Technology Club* works on developing assistive technology devices, often in collaboration with organizations external to MIT. Events on campus such as talks and seminar series, as those organized by clubs like the *Food and Agriculture Club* and the *Science Policy Initiative*, are not on the club's agenda. Similarly, the *Indian Mobile Initiative* aims at the education of Indian youth. Events on campus are not in the club's plans. In the ASA meeting minutes, the concerns of the Committee regarding these clubs become evident:

"Assistive Technology Club: Unique, but fairly specific. Already working on a couple projects. Mostly plan on/are working on projects external to MIT or for specific people, which aren't fundable through UA/GSC. Approved as unfunded." (2010)

"Indian Mobile Initiative: Applying as unfunded group. Creating program to teach in India based on mobile application. Funding from Google. Seems more like a personal project, but still have ideas for wider involvement and development. Just want MIT name and webspace. Approved as unfunded." (2011)

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8 From the Office's website: "The mission of the MIT Washington Office is to maintain a constant flow of information between Washington, DC and the MIT campus in Cambridge, MA. Since its formation as part of the MIT President's Office in 1991, the MIT staff in Washington have followed and engaged in research and development and education efforts throughout government, managing a wide portfolio of related policy issues."
From these examples, funding criteria begin to become apparent. "Attracting a large number of participants" and organizing events "on campus" are discussed as favorable. Although what constitutes a "large" number of participants is not specified, examples (some of which will be discussed in this chapter) indicate that the desirable number of attendees from the ASA perspective is around 20-25 or more. The Food and Agriculture Collaborative and the Science Policy Initiative have a proven track record in this respect. The Food and Agriculture Collaborative brings in speakers and also emphasizes community building with events specifically targeted to networking. These events attract about 30 students each. The Science Policy Initiative, apart from a couple of smaller, annual events (that are open to 15-30 students approximately), organizes monthly Science Policy Lunches that attract, on average, 25 students each. The ASA, aware of their successes, approved their requests for funded status. On the contrary, the Assistive Technology and the Indian Mobile Initiative have a different orientation and this raises some concerns for the ASA. The Assistive Technology club works on "projects external to MIT" and the projects of the Indian Mobile Initiative, the ASA thinks, do not seem to have the potential for broader MIT student "involvement" beyond being a "personal project" of its founding team members.

Further study of funding requirements and processes sheds full light on the eligibility criteria for funded status. Funds are allocated to student clubs by the ASA, the UA, and the GSC. Each funding body has distinct funds and distinct application processes. When new groups apply for recognition to the ASA, based on the initial membership reported, they are characterized as undergraduate or graduate. Based on this distinction (and on the condition that clubs have been awarded funded status), undergraduate clubs are directed to the Finboard of the UA and graduate
clubs to the funding board of the GSC. The ASA also administers some (limited) funds. These funds are open to all clubs: undergraduate and graduate; funded, unfunded and sponsored. Funding is awarded for specific events in set funding cycles, once every semester. Clubs submit detailed requests, describing events and budgets.

ASA, UA, and GSC have similar criteria guiding their funding allocation decisions. The underlying philosophy of these criteria can be traced back to the definition of a student club as stated on the ASA operating guidelines: “An extracurricular activity is any organized, continuing activity which takes place primarily on the MIT campus and is not part of the academic curriculum.” Each funding body (ASA, UA, GSC) operationalizes the definition through its funding guidelines in slightly different ways. The core however is the same: Holding events on campus that benefit the MIT community. The GSC, for example, states that the Goal of GSC Funding is to “encourage social life on campus, improve the lives and work of graduate students, increase the visibility of the GSC, and ensure that the special needs of graduate students will be addressed.” The ASA “Allocations Philosophy and Guidelines” states: “Our goal is to fund events that are unique and make otherwise inaccessible opportunities easy for MIT students to attend. Thus, all events must be open to, and advertised to, everyone in the MIT community. Likewise, events should be held on campus.” Similarly, the UA shows preference based on the “size of [expected] audience of activities and events” and gives low priority to “non-open” events, i.e. “events restricted to group members or officers.”

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Funding is limited and thus funding committees have to be strict in their allocation decisions and processes. Events have to be on campus, open to the entire student population, and, in addition, appealing (at least from the perspective of the committee) and carefully budgeted. The GSC, for example, lists the amounts for food per person that it considers reasonable. When a club requests funding for an event that is expected to attract, let’s say, 50 people, the GSC multiplies the number of attendees with the dollar amounts for food per person as follows:

"Funding for food will be as follows: Desserts and snacks – $3 per person; Self-prepared food – $5 per person; Non-ethnic/cultural food – $5 per person; Ethnic/cultural food – $7-8 per person." In addition, clubs are obligated to advertise their events. The funding boards want to make sure that events are not organized just for the clubs’ leaders and a few of their friends. Therefore, the GSC, for example, specifies: “Publicize the event at least 14 days in advance using the MIT’s Events Calendar and the GSC anno.” 13 After an event is completed, clubs have to submit “post-event reports,” describing attendance and activities, and they also to present itemized receipts to the SAO in order to receive allocated funds.

The UA, the GSC, and the ASA receive their funding partly from the General Institute Budget, but mostly from the Student Life Fee. Every semester, students pay three line items on their bills: tuition, healthcare insurance, and the Student Life Fee, which currently is $280 per student per year. The fee was instituted as a separate line item in 2002, after almost a decade of pressure by students to the MIT administration that having it appear as a separate line item (and not as part of tuition) would give them more independence.14 Part of the Student Life Fee is directed to the MIT athletic and medical services (64% based on a 2009 article in the The Tech, the MIT student newspaper), but the rest goes to the Dean for Graduate Education, Dean for

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13 This is the GSC weekly email newsletter.
Student Life, the UA, the GSC, and the ASA. Apart from these institute sources, the UA and the GSC make an effort to generate their own income. For example, the UA budget is supported by occasional “commercial opportunities,” i.e. “providing room reservations and advertising to several test preparation companies,” and the GSC budget by revenue from the MIT Career Fair.17

Funding requested by student clubs always exceeds funding allocated by the funding boards. For example, in the Spring 2011 cycle, the UA allocated $47,116 to student clubs and yet this was only 46% of the funding requests it received. Similarly, in the IAP/Spring funding cycle, the GSC allocated $72,000 and this was 64% of the requests it received from clubs.18 Older records reveal that students have always pushed for more funding. In a 1987 letter of the Undergraduate Association to the Dean for Student Affairs, we read:

“Student activities are vital to the growth and personal development of students, especially at MIT. Without a full and healthy student activities program, MIT’s reputation as an outstanding institution is jeopardized. [...] Through a strong financial backing, MIT can give the Undergraduate Association a firm base to support new projects, increase social events, and improve cultural awareness. [...] We therefore, need, and ask the help of the Dean’s Office in assisting us to continue our role in the MIT community.” 19

15 Source: “DSL Releases Break-Down of Student Life Fee,” The Tech, October 16 2009.
17 The Career Fair is MIT’s main career fair and is organized every fall semester by three student organizations: the Society of Women Engineers (SWE), the Senior Class, and the GSC. A member of the Society of Women Engineers explains: “A thousand employers and about five thousand students come every year. 350 companies came last fall, for example. The partner organizations are the Graduate Student Council, the Senior Class, and SWE. The reason why the career fair exists the way it does is because it was a merger of three different career fairs that used to happen in the fall semester by these three groups. And the three groups got together at one point and said, ‘You know it would be better if we could bring all the companies in the campus at the same time. More companies will see more students and everyone benefits more.’ So right now the three groups have an agreement with the Deans of MIT that says that we are the official career fair of MIT. We are the only career fair that can happen in the fall. Other organizations can get involved as collaborating organizations. If they bring in new companies, they can get a certain cut of the profits from that too. But they’re not an official partner organization.”
18 IAP - Independent Activities Period - is MIT’s winter break.
19 Prior to being called the Office of the Dean for Student Life, the administrative unit was called the Office of the Dean for Student Affairs.
20 Source: “Report on the Monetary Affairs of Student Activities and Programs” by the Undergraduate Association addressed to the Dean for Student Affairs, 28 April 1987.
Pressure for more funding continues today. The institution of the Student Life Fee in the 1990's was a big student victory, but the student government is always concerned about the percentage of the Student Life Fee it actually receives. In 2009, The Tech published the breakdown of the fee prefacing the topic in the following way: “After several years of inquiry from the Undergraduate Association and The Tech, the office of the Dean for Student Life released the breakdown of the student life fee last Tuesday.” Prior to that, in 2006, the ASA had invited the Dean for Student Life, Larry Benedict, in one of their meetings to discuss the issue:

“The Student Life Fee is being increased. It has not been raised for four years. Groups have grown. Z-Center [the MIT gym] requires more money with salary increases. Dean Benedict gets about $400,000, gives about $375,000 to the Finboards, and holds the rest. What would happen if we (the students) demanded that all the student life fee was sent to finboards? No, it would not be supported. Okay, we, the students, might want to lock-in the status quo quantity for student groups with provisions for increases in certain categories. Dean Benedict would like to have us think about this and give feedback.”

Money is short and so the funding boards have to make sure that they apply the rules in a fair and consistent way, and, above all, that they remain true to the basic philosophy behind the Student Life Fee, which on the Student Financial Services website is described as “devoted exclusively to enhancing the quality of student life.” Going beyond that, the GSC has declared that educational and professionally-oriented events will have priority, over social events for example:

“The current stated goal of the Funding Board is to give preferential allocation to events that contain an educational or professional development component. The reasoning for this preference stems from the Funding Board’s desire to enrich and expand the scope of student life on campus and allow for graduate students to be exposed to as many new ideas as possible.”

Funding allocation decisions are posted on the funding boards’ websites. For each club that requested funding in a given cycle (e.g. Spring 2012), amounts requested and amounts allocated and sometimes more information like the name of the event, dates, and expected attendance are listed. In some cases, the funding boards justify their decision not to fund or to allocate only partial funding with brief notes on the side. The rationale that comes out of these notes is useful here. For example, in Spring 2012 the Students for the Exploration and Development of Space requested from the UA $480 and received only $250 with the following justification: “No funding for officer meetings, funding first two General Body Meetings – must use them as recruitment, actively publicize etc.” The UA wants to make sure that money is not spent on food just for the clubs’ leadership. In the same allocation cycle, the Traditional Medicine Society was allocated only $290 out of the $1,230 the club requested. The UA found the proposed cooking class event too expensive: “Can’t fund cooking class as presented – way too expensive per person.” Again, making the most efficient use of money to reach as many MIT students as possible is high on the agenda of the funding boards. Similarly, the Global Poverty Initiative, in the same cycle, received only $1210 out of the $1,851 it had asked, with the following justification: “No website funding, no board meeting funding, cut funding for food (expensive overall).”

As in the case of the Global Poverty Initiative that was asked to “cut funding for food”, the funding boards often times, in their notes, come back with suggestions. In the Fall cycle of 2010 the GSC funded all other Energy Club requests ($130 for Energy Lecture, $230 for Energy 101/ Education Session, and $75 for Energy Discussion) except for the Kick-Off BBQ proposed, which the funding board found to be too expensive. The club asked for $1,500 and was allocated
only $1,200 with the comment "reduce food cost." In Spring 2004, the Mars Society asked $500 for Mars Week 2004 and the board gave zero suggesting to the club that they should "increase the admission fee." Similarly, in the Fall 2003, the Association for India’s Development asked funding (the amount is not mentioned) for "newsletter printing" and the GSC came back with the suggestion "look into electronic options."

The boards are apparently strict in their allocations, particularly when it comes to funding that will be spent off campus, either toward trips for MIT students or, even more so, toward supporting other, non-MIT affiliated individuals. For example, in 2010 MIT-SABRE asked the GSC for $910 for "volunteer trips every other weekend." The members of the club need funding to rent cars to get to the SABRE facilities (a non-profit organization outside Boston) every other weekend. There, club members assist SABRE in packaging textbooks to send to developing countries. As this activity is happening off-campus, the club received only $390 in the fall allocation round of that year with the note "your event is not normally funded by the Funding Board" and it was, subsequently, denied allocation in the spring round: "insufficient community appeal; please explore other event types." The concern of the funding board is that only a limited number of MIT students are taking part in events that are off-campus, compared to events that take place on campus. Similarly, when China Care, in the Spring of 2012, asked the UA for $892, it was allocated only $405 with the following note: "should fundraise for playground off-campus/ capital expenses." The club organizes events in playgrounds to support local adopted Chinese children. Given that the funding boards’ mission is to support the MIT community, providing funding for such events would seem to be violating their core philosophy.

Funding is not easy to get. Clubs try to adjust their events as much as they can to meet the funding criteria (e.g. organize on- rather off-campus). They also try to cut down the cost as much
as possible (e.g. have cheaper food or charge admission fee). When none of these strategies works, clubs turn to alternative sources of funding. Fundraising is one option, as we saw the UA suggestion to China Care in the allocation decisions above. Clubs fundraise on campus with events such as fundraiser dinners or cookie sales. They also fundraise off campus with appeals to local businesses (e.g. restaurants) or to companies relevant to their substantive focus. Seeking MIT funds available to student clubs, beyond the UA/GSC ones, is a second option. These are of two categories: (a) internal grants available by MIT Centers and programs (e.g. the Public Service Center, MISTI, and the Legatum Center), and (b) departmental funding or funding “from the Deans,” as clubs often refer to various discretionary funds available at the Institute. (I discuss both sources of funding in greater detail later on in this chapter as well as in Chapter 5.) Some clubs, in fact, prefer to depend solely on departmental funding rather than go through the UA/GSC funding application processes. In the next section, I discuss three types of funding profiles of MIT student clubs.

4.3. Funding profiles of clubs

An analysis of the funding sources of clubs reveals three main funding profiles: UA/GSC-funded (38% of clubs in my study, 56 clubs), departmentally-sponsored (26% of clubs in my study, 38 clubs), and self-funded (23% of clubs in my study, 35 clubs). These three profiles correspond, in broad strokes, to the three ASA funding categories discussed earlier: funded, sponsored, and unfunded. In my categorization however, I go beyond the ASA official distinctions and look, instead, at the primary source of funding of each club as this can be deduced from observation of clubs’ operations, interviews with clubs’ members, UA/GSC funding data, and information

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24 Funding is unknown for 11% of clubs in my study (17 clubs) and an additional 2% (3 clubs) can be characterized as special cases (see Appendix B).
provided on clubs' websites as well as other online sources (e.g., event announcements, grant allocations on websites of MIT centers). In other words, if the UA/GSC funding is minimal compared to the departmental funding that a club receives, I characterize the club as departmentally-sponsored.

UA/GSC funded clubs organize events and other activities targeted to the MIT student population. Most of their activities take place on campus. Specifically, they focus on educational or social activities for broad audiences on campus. The UA and the GSC support the majority of the clubs’ budgets, while supplementary funding sources are used for activities that are either too expensive or not eligible.

Departmentally-sponsored clubs also have a focus on activities on campus. They can be further distinguished in two categories: (a) Those that are project-oriented (usually engineering projects) and are aligned to MIT (engineering) departments and, and (b) Those affiliated with the Sloan School of Management and are event-based. In some sense, departmentally-sponsored clubs can be thought of as the fortunate ones, as their narrow focus allows them to appeal to specific departments and, in a sense, circumvent the UA/GSC funding limitations and application and reimbursement processes. When needed, supplemental funding – either from UA/GSC or from other sources such as fundraising and internal grants by MIT Centers – is also used by these clubs.

Self-funded clubs, on the contrary, have a strong off-campus orientation, often an international one. Thus, these clubs have to work hard for their funding. Most importantly, they have to be creative in order to find alternative ways to fund their activities in a system that has been built to support clubs with an on-campus orientation. Internal grants by MIT Centers are often the first source these clubs seek, as these grants (as opposed to UA/GSC and departmental
funding) have less of an on-campus focus. External, non-MIT funding sources are also particularly important for these clubs. Often times, if the operations of these clubs expand, their members set up for- or not-for-profit organizations. As such, these clubs have strong similarities to entrepreneurial ventures. I call these clubs venture clubs. These clubs are the focus of this thesis, for their unique contribution in the MIT entrepreneurial ecosystem (Chapter 1). I discuss venture clubs further in the next chapter. Here, I focus on the other two types of clubs: UA/GSC funded and departmentally-sponsored. I provide brief profiles of three clubs within each category.

**UA/GSC funded clubs**

In this section, I discuss three examples of UA/GSC funded clubs: the Electricity Research Student Group, the Science Policy Initiative, and the Global Poverty Initiative. These examples where chosen for their representativeness of clubs in this category.

*Electricity Research Student Group:* The Electricity Research Student Group (ERSG) is a new (established in 2010) club of students interested in electricity research. The club holds weekly brown-bag sessions in which members present their research or discuss journal articles. Occasionally, the club is a co-organizer of other energy related events on campus.

ERSG was started by two Engineering Systems Division Ph.D. students who felt that there was no venue for students interested in electricity to meet and share their views. As one of the two co-founders explained in an interview: "My co-founder and me, we noticed that we came to MIT to work on electricity issues knowing that there are a ton of alike people here doing
electricity research in different capacities and working with different faculty members, but that we had no access to who these students were other than if you randomly came to know them."

Average attendance at the club’s meetings is 15 students, mostly doctoral. They are from various departments, including Electrical Engineering, Urban Planning, Engineering Systems Division, and Economics. Meetings take place in various locations on campus, with the most common being the conference room of the MIT Energy Initiative. Each week one student takes the lead either presenting his or her research or facilitating a research article discussion. “Once you get a group of students together, everybody has opinions about electricity and so, the discussion happens,” a member comments on the flow of the clubs’ meetings.

By its nature, the club has low funding needs. Weekly meetings are mostly brown-bagged, because, as a member explained, they are still “learning all the GSC funding things” and so it’s easier for them not to have to cover weekly food expenses. The club did get some “startup funding” from the GSC however, which enabled the founding team to have a kick-off meeting in which food was provided and members were welcomed. In addition, the club has received limited funding from the GSC for a variety of regular and more special events. My records show that in 2011, for example, the club received a total of $1,440 for the following events: $300 for February and March Socials, $240 for Research/Discussion Seminars, $200 for Open House, $150 for Fall Social, $100 for Fall Welcome Back Lunch, and $450 for Interdisciplinary Research Lunch Series on Sustainable Electricity. Additionally, in 2010, the club received financial support from the MIT Energy Initiative for participating in the MIT Energy Futures Week. The club organized two events as part of the MIT Energy Futures Week: a mock energy market game and a panel session on current electricity topics. A member of the club noted with

25 The MIT Energy Initiative is an institute-wide program that was established in 2006 to support multidisciplinary research and education on energy.
regards to the support they received from the MIT Energy Initiative: "The Energy Initiative helped us fund snacks for afterwards."

**Science Policy Initiative:** The Science Policy Initiative (SPI) brings together, as noted earlier, students interested in U.S. science policy. The majority of members are science and engineering graduate students. The club organizes events on campus as well as an annual trip to Washington D.C.

According to one of its current leaders, the club was established in 2006 by a small group of graduate students (three or four) in the Material Science Department: "One of them went to a talk by Bill Bonvillian, the director of MIT's office in Washington DC that works on advocating for science and technology and education policy issues on Capitol Hill. She thought it was interesting and was sort of surprised that MIT had these resources at all." The same student was able to secure financial support from MIT's President at the time, Susan Hockfield, which was crucial for the club's first steps. One of the members told me about that support: "She found herself in some sort of lunch with President Hockfield and a group of students and brought up the idea of organizing something related to science policy. The President thought that it was an interesting idea and provided some money for this."

Today, the club runs three types of events. First, the club runs lunches with invited speakers, the *Science Policy Lunch Series*, which take place approximately once per month. A member explains the types of speakers that they invite: "We invite speakers often just from MIT, but sometimes from Boston. We invite people from the Kennedy School of Government, the Union of Concerned Scientists, or a lot of these different organizations." Since these lunches take place on campus and can serve a large number of students (approximate attendance is 25 students per
event), the club seeks GSC support to fund those. In 2011, for example, the GSC regularly provided funding. The club received $400 for a set of three lunches, and a total of $1,600 for the year.

Second, the club organizes an annual Science Policy Bootcamp, a four-day workshop that takes place every Independent Activities Period, MIT’s winter break. The workshop is co-taught by Bill Bonvillian, from the MIT Washington Office, and other MIT speakers. Participating students (usually 25 to 30) are introduced to the basics of science policy. “It’s fairly broad,” a member explains. “It’s innovation policy, science technology policy, and a little bit of political background with introduction to government.” The club has a received an ongoing Graduate Student Life Grant (approximately $6,000) from the Dean for Graduate Education for this event.

Third, every April, the club organizes a trip to Washington, which is called Congressional Visits Day. A member explains the purpose of the trip: “We generally talk to people about the importance of science funding, both for educating students and for innovation on a larger scale.” Because of logistics and expenses, the maximum number of students that can participate is fifteen. In terms of funding, the club secures support from various MIT departments (a total of approximately $4,000; the trip costs approximately $250 per person for transportation and lodging). The same member explains: “In terms of funding, we beg departments. Originally it was the Material Science Department, because a lot of the founding students of the club were in that department. Most recently, we have been able to get funding from Claude Canizares, who is I think Vice Provost for Research. He has been one of our key supporters.”

**Global Poverty Initiative:** The Global Poverty Initiative (GPI) is a group of primarily undergraduate students, from a variety of majors, interested in international development. The
club was established in 2007. Its activities are organized in three areas: *Education*, *Action*, and *Outreach*.

In terms of membership, a five-person board coordinates activities in the three areas (*Education*, *Action*, and *Outreach*), while, as described by one of the leaders of the club, a broader circle of twelve students “actively organize and plan things” and an even broader circle of 40 or 50 people are involved with the club in some capacity. She explains: “The level that I'm involved at, we are not very many, probably like five. It's a traditional thing where you have like 20% of people doing 80% of the work. Probably there are about 40 to about 50 students involved in total. Some of them, like 12 or so, actively organize and plan things.”

The *Education* area of the club organizes educational events on campus. The club’s signature event is *Poverty Action Week*, which is a week-long series of events that takes place every year. According to my records, the club received $2,500 from the *ASA* in 2008 for this event. A member describes the event in the following way: “It's a week where we have events every day just about educating people. So there are speaker events and poster sessions. We also have study breaks. This past year, we did a Peace Tile Study Break. These are tiles that you decorate and then you put them together.”

In the *Action* area, members engage in hands-on international development projects. Currently, the club has a project in Mexico. A member explains: “We organized a health fair to get a lot of checkups for people and things like that. Another thing was that the water wasn’t being properly chlorinated [and we helped address this issue]. Also, the growing season is short because the winter is too cold. So we taught them about greenhouses and biodigesters and we built prototypes of each.” The club funds these activities through grants by MIT Centers: “So we got a seed grant from the Legatum Center [approximately $2,000]. We also got funding from
Tau Beta Pi, the Engineering Honor Society [approximately $3,000]. In the past, we received funding from the Public Service Center.”

The Outreach area of the club focuses on “connecting” with other student organizations in the Boston area. The club is part of an organization called Millennium Campus Network, which brings together international development student clubs from the region. A member explains: “We have meetings twice a month. There are students from Tufts, Boston University, Northeastern, and Brandeis. Some meetings have an informational focus. For example, how do you plan an international development project in ways that do not harm local communities? Other meetings serve a networking purpose. In those meetings, we discuss and we get ideas, for example, on how to recruit or how to train students.” No funding is recorded for this area.

**Departmentally-Sponsored Clubs**

In this section, I discuss three examples of clubs in the departmentally-sponsored category: the Student Information Processing Board, the Solar Electric Vehicle Team, and the Venture Capital and Private Equity club. Again, these clubs were chosen because they are representative examples of clubs in the departmentally-sponsored funding category and also give a sense of the range of the activities pursued by students.

**Student Information Processing Board:** The Student Information Processing Board (SIPB) is a group of approximately twenty students (the majority undergraduates) that work on computing projects for the MIT community. The club is mostly known for its work on developing software for the Athena clusters, which are the public computer labs on campus, and also for Scripts, a
web hosting platform for the MIT community. The club was established in 1969 and is one of the oldest student clubs currently active on the MIT campus.

SIPB gets all of its funding through the Information Services and Technology (IS&T) department at MIT (approximately $20,000 per year). A member explains: “SIPB is what we call a departmental group, with IS&T as the sponsoring department.” IS&T provides the club with funding, and also space, both physical office space and webserver space. The sponsorship of IS&T is important to the club. The same member notes: “We use a fair amount of funding, which is way more than we would be able to get through Finboard, because we have expensive things, we have computers and servers and so forth to buy. The other big thing that sponsorship gets us is access to the server room. That’s definitely a resource that we wouldn’t be able to get otherwise.”

Maintaining a good relationship with IS&T is important to the club. A member notes: “In exchange for sponsorship, we do have certain obligations in terms of keeping in good communication with IS&T, if there is something that we expect to be controversial. It doesn’t come up very often. In some sense, we and IS&T target different audiences. IS&T offers web development and web hosting services for large departments. We mainly target student groups and individual students.” SIPB and IS&T complement each other, the same member explains, and IS&T is happy to support the club’s projects.

Solar Electric Vehicle Team: The Solar Electric Vehicle Team (SEVT) designs solar cars, builds them, and races them every two years at the World Solar Challenge in Australia. The club was established in 1985. Most of the members of the group are undergraduate engineering students.
Approximately 15 students participate in the club every year. One of the leaders of the club describes its membership as follows: “We have about 15 members. We have a Captain, a Vice Captain, an Aero-design Lead, a Mechanical Design Lead, and Electrical Design Lead. And so we have people in the three subgroups: Aerodynamics, Mechanical, and Electrical. But some of them intermingle among groups and a lot of them are involved with sponsorship.”

Sponsorship is very important to the club. The club receives support from the Edgerton Center, which is an MIT center that was established in 1992 to support engineering projects of students. A member of the club explains the relationship that they have with the center and the level of support they receive: “The Edgerton Center is basically the higher up organization that helps us. When we need stuff, we ask them for help. When we have legal issues, for example, we ask them how to proceed. And, they give us money.” According to a member of the club, the Edgerton Center gives the club approximately $15,000 per year.

In addition, the club seeks support from various academic departments. The same member notes: “We ask departments for money and historically mechanical engineering, electrical engineering, and aeronautics-astronautics give us some money.” In the past, the club has also received support from the UA. My records indicate, for example, that in 2000 the club received the following amounts: $100 for operations, $100 for capital, $100 for events, and $95 for publicity.

But, building the car as well as traveling to Australia to race it requires a lot of money. Thus, the club intensively seeks external sponsorship to cover the rest of the expenses. A member explains that the cost for each two-year cycle reaches $300,000: “Including donated goods, we say that each car costs about $200,000 to $300,000. That’s about every two years.” The club mainly approaches companies that produce parts needed for their car. The same
member explains: “A lot of money comes from corporate sponsors. We go out and we try to get companies to fund us and in return we put their logos on our car.” Often club members have to be creative about approaching sponsors: “Last time we wanted to use Panasonic batteries. We tried many different routes to contact them and what worked was using the MIT Infinite Connection, which is the MIT alumni database. So we found someone; I think he was a Vice President of Panasonic North America. We emailed him and he responded positively. He ended up donating batteries and a lot of money.” A big expense that is covered by corporate sponsorship is wind tunnel time. Ford helps the club with this, as a member explains: “Wind tunnel time donated, but we value it at $60,000. It is provided by Ford. The wind tunnel on campus is too small to fit a car. So, last time we drove to Detroit. Ford has an industrial size wind tunnel there.”

Maintaining relationships with sponsors year-round is an important task for club members. As noted earlier, all members work not only in the engineering side of things, but also toward securing sponsorship. A member explains: “For department funding, usually we ask as soon as the new fiscal year begins. Same with the Edgerton Center. In terms of corporate sponsors, throughout the year; we always talk with our current sponsors to keep them up-do-date, so that they are more likely to give us money in the future. And, we also send out emails and talk with prospective sponsors.”

**Venture Capital and Private Equity:** The Venture Capital and Private Equity (VCPE) club is one of what students call the “Sloan clubs.” The Sloan School of Management has its own supporting structure for clubs, providing financial and administrative support. “Sloan clubs,” apart from their strong departmental sponsorship that is often indicated by their names (e.g.
Sloan Entrepreneurship & Innovation Club), differ from other clubs in that they collect membership dues (approximately $20 per year). Even though their events are usually open to everyone, election of officers happens only among members.

VCPE is one of the largest "Sloan clubs." In an interview with its president, I asked about the club’s membership and its stance on participation of students across campus. Her response was that the club has roughly 500 members and that it actively seeks the participation of non-Sloan students. In fact, they are trying to find ways to resolve the issue around membership dues. She explained: "As you might know, at MIT outside of Sloan, there isn't really a culture of paying for clubs. So we have been experimenting with different strategies to get people on board without requiring them to pay as much as Sloan students."

As with the majority of Sloan clubs, the club’s mission is geared toward expanding the education of its members and helping them be successful in securing internships and full-time positions. As stated in the same interview, the club’s mission is to "provide opportunities for students to understand more about the venture capital and private equity industry [...] and to provide opportunities for them to interact with the professionals in the field, to build relationships that could potentially be leveraged into an employment opportunity."

In this direction, the club organizes a variety of smaller events on campus and, in addition, two conferences, one in the fall and one in the spring, the Venture Capital Conference and, respectively, the Private Equity Symposium. The Venture Capital Conference is a two-day event and the Private Equity Symposium a one-day event. The club makes an effort to attract professionals from the relevant industries so that the conferences have a professional flavor. The president of the club explains: "They are both professional conferences and we target a student to professional ratio of around 40:60. So, more professionals than students." Both conferences
are fairly big, with roughly 500 to 600 attendees each year. The club chooses off-campus locations (mostly hotels in downtown Boston) in order to add to the professional character of the events.

In terms of funding, the club receives support from Sloan, but, given the magnitude of its events, it also significantly depends on external corporate sponsorship. The president of the club explains: "A lot of what we do requires a lot of money. And so the three co-presidents, we go out and raise money from law firms, venture capital funds, consulting firms, you name it, firms that want to get access to our events, access to students and to professionals." Members of the club report raising approximately $100,000 per year.

4.4. Conclusion

This chapter discussed two categories of clubs, those that are primarily funded by the UA or the GSC and those that have strong departmental support. Both categories of clubs are strongly tied to the MIT infrastructure for student activities, in terms of drawing from resources allocated for student life on campus. A third category of clubs, which I will further explore in the next chapter, takes a different approach to its funding. These clubs, which I call venture clubs, find the majority of Institute sources unfit for the needs. Thus, they have to devise alternative funding strategies and revenue models that often bring them close to entrepreneurial ventures.
Chapter 5: Funding of Venture Clubs

This chapter discusses the funding of venture clubs. Chapter 4 discussed the two ways in which traditional clubs receive their funding (i.e. through UA/GSC or MIT departments). Venture clubs were described as self-funded. This chapter discusses in detail their funding sources. With regards to MIT funding, venture clubs receive financial support from MIT centers (e.g. Public Service Center, Legatum Center). In addition, the majority of venture clubs seek external (i.e. non-MIT) funding. Four main types of external funding are identified in this chapter: external grants, corporate partnerships, fundraising through non-profit organizations, and fee-for-service. I analyze each type and provide examples. This discussion concludes the analysis of the funding of MIT student clubs. The last part of the chapter is a longitudinal analysis of the ratio of venture and traditional clubs at MIT from 1980 until 2012. The significant growth of venture clubs is discussed.

5.1. Minimal UA/GSC and departmental funding

As discussed in Chapter 4, funding for student clubs at MIT is scarce and, thus, priority is given to clubs that organize events that take place on campus and that contribute to the education and social life of MIT students. The Undergraduate Association (UA), the Graduate Student Council (GSC), the Association of Student Activities (ASA), as well as academic departments provide this funding. Approximately two thirds of the clubs I studied fall in this category.

The remaining clubs (35 clubs, 23% of clubs in my study), which I call venture clubs, face a different landscape. The types of activities they pursue as well as the scale of funding they need sets them off the charts. For example, a member of the Indian Mobile Initiative explains that the
traditional route is not an option: "The UA generally gives money to groups that are organizing something at MIT. Even if they give money to groups that are doing something not at MIT, it is very minimal." Similarly, a member of the Leadership Training Institute explains that they haven't applied for funding from the Undergraduate Association because they know that the goal of their club is at odds with eligibility criteria: "We haven't applied for funding. It goes back to the idea that we are a service group and that the money we need is not for MIT students. It is for high school students." As a final example, a member of the Game Development Club finds that because of the commercial orientation of the club: "It would have been inappropriate to try to get funding."

Even when venture clubs apply for UA/GSC or departmental funding, the amounts they receive are small and are directed to activities peripheral to their mission. For example, a member of the Science and Technology Leadership Association, a club that organizes annual leadership workshops for college students in international locations, explains: "We have an account, but it pays for stuff like pizza at our info sessions." Similarly, the Environmentally Friendly Aircraft Design Team uses GSC only for funding its recruiting activities at MIT: "We used the [GSC] funding to recruit new people. We bought food for the meeting. I think it was like $100." The response of a member of the House of Volunteers, a club that pursues educational initiatives in Bangladesh, to my question about whether the club receives GSC funding was along the same lines: "The GSC provided us funding one time for an event at MIT." According to my records, reference here is to $200 that the club received from the GSC in 2009 for an event with the title "Lecture on international development and opportunities at MIT."

The extensive operations of venture clubs however require significant finances. Therefore, venture clubs have to devise their own, alternative funding strategies. Some venture clubs seek
support from MIT centers, such as the Public Service Center and the Legatum Center. For example, a member of the Assistive Technology Club explains that the IDEAS Global Challenge, an annual social entrepreneurship competition organized by the Public Service Center that provides funding in the form of prizes and "Development Grants" (I discuss this further in the next section.), is "a good forum for the kind of thing that we are doing." Other venture clubs develop their own, sustainable revenue models. For example, the Educational Studies Program charges a small fee to participants (e.g. $40 for a weekend-long camp, $250 for year-long Advance Placement classes). I analyze these strategies in the next two sections.

5.2. Internal MIT grants

As noted, venture clubs make minimal use of dedicated student club funding. They seek out other funding opportunities at MIT. Internal MIT grants from various centers and programs are one of the most important sources of funding for venture clubs. In fact, a set of venture clubs (9 clubs, 26% of venture clubs) fund their activities primarily through internal MIT grants, while the majority of venture clubs makes use of this type of funding in supplementary ways. Most commonly, venture clubs turn to four MIT centers and programs: the Public Service Center (PSC), the MIT International Science and Technology Initiatives (MISTI), the Legatum Center, and the MIT Energy Initiative (MITEI). Each of these centers and programs has a different focus. There is significant overlap however and clubs often receive funding from more than one.

The Public Service Center (PSC), as its names suggests, promotes community service among MIT students. More specifically, its staff encourages projects with international and/ or entrepreneurial components. The PSC provides a variety of funding opportunities. Some are highly structured; others less so. One of the more structured ones is an annual social
entrepreneurship competition, the IDEAS Global Challenge. Clubs are required to submit a three-page "Scope Statement" outlining their idea by the end of February. At this stage, they can apply for a "Development Grant" of up to $1,000 to develop their ideas before the final submission stage. The final submission deadline is in early April. Clubs are asked to submit a "Proposal," which includes a ten-page discussion of the project and a budget. A core requirement of the competition is that clubs have a "community partner," i.e. a partner organization that they work with. Winning clubs are awarded a maximum of $10,000. The Environmentally Friendly Aircraft Design Team is an example of a venture club that entered the competition. Even though the club did not win, they benefited from the "Development Grant," which gave them funding to "build a prototype wing" to test their idea of an aircraft running on natural gas. Their community partner was NASA. Other PSC funds are less structured. Students are encouraged to reach out to the PSC and discuss their needs. As it appears on the PSC website: "One of the nice things about PSC Grants is their flexibility. If you're wondering whether a PSC Grant might cover what you have in mind, ask. [...] Another example of flexibility: PSC Grants don't have a deadline. [...] How much is the typical PSC Grant? There's quite a range. [...] Again, ask us about what you have in mind. We'll respond as soon as we can." SANA is an example of a club that has significantly benefited from PSC Grants, especially for travel support.

MISTI's mission is to develop, as mentioned on its website, "global leaders" through international experiences, namely internships and research. MISTI is organized in country programs, such as MISTI-Brazil, MISTI-Singapore, and so forth. Currently, it runs seventeen country programs in Europe, Asia, Africa, and South America. Student clubs with projects abroad often turn to MISTI in hopes of getting their activities (usually travel and living expenses)
funded. For example, a member of the Leadership Training Institute explains the role that MISTI has played in funding their travels: “When we went to Mexico and Brazil, most of that was sponsored by MISTI. They have different country programs. We were lucky enough to be traveling to Brazil exactly the same time that MISTI Brazil started.”

The Legatum Center supports student entrepreneurship projects in low income countries, with an explicit emphasis on for-profit approaches. Every semester, the Legatum Center gives out “Seed Grants” to clubs working on projects. Grants can be used for a variety of purposes such as travel, market research, prototype development, and pilot testing. For example, SANA was among the 2010 “Seed Grant” winners and was awarded, according to a member, $2,500 for an implementation project in the Philippines.

The MIT Energy Initiative (MITEI) supports both research and applied projects. Student clubs compete for the “Student Project Fund” which aims at “promoting campus sustainable energy and environmental practices,” as mentioned on the website. Applicants submit a two-page proposal as well as a budget. The maximum amount per grant is $1,000. The Wind Energy Projects in Action, as discussed in detail below, is an example of a venture club that funds its activities through this fund. At the same time, MITEI supports a wide range of activities on campus related to energy. For example, in November 2010, MITEI co-sponsored with the Energy Club and the China Energy and Environmental Research club a lecture by the CEO of Suntech Power, a Chinese company that produces solar panels.

Funding through internal MIT grants from centers and programs is quite different from traditional student club funding. First, competition is higher. Whereas traditional student club funding is dedicated to student clubs, MIT internal grants are available to individual students as well as teams of students (with student clubs falling in the latter category). Second, and relatedly,
the application process is, in most cases, much more elaborate than the one-paragraph requests required for traditional student club funding.

Most importantly however, the funding criteria are different. Student life on campus is no longer the only factor in funding decisions, as it is in the case of traditional student funding. Instead, each program and center has its own criteria, according to its unique mission. For example, the IDEAS Global Challenge, as mentioned on the competition website, supports “innovative service projects that positively impact underserved communities.” MISTI aims at developing “global leaders,” as mentioned earlier. The Legatum Center is interested in promoting for-profit social enterprise approaches among MIT students. MITEI, as mentioned on its website, supports projects that have an impact on “campus energy and environmental footprint.”

Key in this regard is that the sources of money are different from those of traditional student club funding. As discussed in Chapter 4, the UA and the GSC receive their funding from the General Institute Budget and from the Student Life Fee. On the contrary, the centers and programs discussed here raise – for the most part – their own funding from external sources. A PSC staff member explained the link between funding sources and funding criteria: “In the beginning, we were much more rigorous about funding groups that accomplish sustainable benefit. Now, we have relaxed that criterion a little and sometimes we fund opportunities for groups to engage in public service, even they don’t have prior experience. We have one donor who has given us money for that. So we have been able to kind of relax our standards.” Similarly, MISTI and MITEI do extensive fundraising in order to fund their programs. The Legatum Center operates on a gift from Legatum, a global investment firm.
In the pages that follow, I discuss two examples of venture clubs that fund their activities primarily through internal MIT grants: Assistive Technology @ MIT, which receives extensive support from the PSC, and Wind Energy Projects in Action, which is supported by MITEI. Both are representative cases of clubs that fund their activities through internal MIT grants.

Assistive Technology @ MIT is a relatively new club (established in 2010) that develops accessible technologies for people with disabilities. The club was founded by two Ph.D. students in computer science. Currently, the club has approximately ten active members.

The activities of the club are organized in terms of “projects.” In most cases, ideas for projects originate from “client” requests. A member explains: “The idea is that we get a request from people in the community who have a disability for some sort of device or product that they can't find in the market place and we find volunteers and we build it.” The club has a mailing list of approximately 130 people. Every time a project request is received, a call of interest is circulated through the mailing list. A member then “takes on responsibility and starts to interact with the client.”

At the time of my data collection, the club had three projects. The first is designing a cell phone “stand” on the wheelchair of an MIT student. The second, again for an MIT student, is building a customized program for speech recognition. The third, which is their “biggest,” is designing an accessible smart phone that will be operated by a single button (“single-switch”) instead of a full keyboard. This project is in “partnership,” in the words of students, with a specialized care center in Boston. Five students were working on the smart phone project, three on the wheelchair stand project, and two on the speech recognition one.
The club funds its projects primarily with the support of the Public Service Center. A member explains that they talked to the Public Service Center in the founding stages of the club. As a result, when their projects started to take shape, they were able to get funding for two of those from the PSC. They won $10,000 for the smart phone project and $10,000 for the wheelchair stand project, both through the IDEAS Global Challenge. In addition, the club has received “a couple of donations” of approximately $500 from “anonymous donors,” which have been “helpful” in supporting the club’s activities.

Going forward, club members want focus on the smart phone project. They want it to be a “success.” Their goal is to build a prototype and work with their partner specialized care center to test it. A member explains: “Within the next five or six months, we want to build a prototype and get it to work for people over there.” Eventually, the club wants to get its product “out there,” in the “real world.” “There’s a lot of work to be done,” the same member explains, but they are prepared to devote “a fair amount of energy and effort” to make this “a viable solution for people.”

**Wind Energy Projects in Action (WEPA)** is a group of graduate students interested in working on hand-on projects related to wind energy. The club grew out of the Wind Energy Subcommunity of the MIT Energy Club. It was established in 2010. Currently, it has four core members and approximately six more members working on projects. A member describes the typical member of the club as “older than the average MIT student,” deeply interested and technically-savvy in wind energy. The co-presidents of the club are Ph.D. students, one in mechanical engineering and one in the Engineering Systems Division. The latter also has prior work experience in wind energy.
The first and most developed project of the club (began in 2010) is "Project Full Breeze," a feasibility study for installing a small-scale wind turbine on the MIT campus. The club, a member explains, was approached by the MIT Department of Facilities that asked for their "help" in assessing the feasibility of installing a wind turbine on the MIT campus. There was a "donor," the same member explains, who "gave funding to purchase a turbine and put it on the MIT campus. He wanted to do it for the birthday of his father, who is an MIT professor." The club was called in to help with assessing the feasibility of the project. The club received a Student Project Fund from MITEI ($1,000) and a grant from the Francis E. Low Foundation ($1,000). ¹ Both were used for the purchase of software. Additionally, the club received sponsorships from two companies for measurement equipment. A team of nine members was put together for the project. More specifically, members worked in four sub-teams: "a team of meteorology resources assessment, a team of electrical integration, a team of economics, and a team of environmental impact." Even though their assessment concluded that the MIT campus was not a particularly good site for installing a wind option, members of the club were able to publish one paper out of the project and to have one more in progress.

The second project of the club, which began in 2011, is assessing the feasibility of installing a wind turbine on the MIT Bates Campus, a particle accelerator facility of MIT located off-campus but in the greater Boston area. This project is again in collaboration with MIT Department of Facilities. A member described this project as "most exciting because there is a real need." He further explained that "it costs MIT lots of money to feed the particle accelerator and the supercomputing facility" and that "it is a perfect opportunity because the facility is on a hill outside the city and a large-scale, megawatt-scale turbine can be installed there."

¹ The Francis E. Low Foundation supports student research on alternative energy. Funds are administered through MIT.
The third project of the club is in collaboration with the City of Cambridge. The club was asked to perform a feasibility study for the installation of a wind turbine at the Danehy Park, on old landfill that the city recently transformed into a park. The project began in November 2010 with data collection and analysis. In July 2011, a preliminary assessment for the City of Cambridge was produced, in which the club analyzed as mentioned on the website "wind resource, financial, and community and environmental impact." Three members were on that project.

Finally, the club occasionally collaborates with Wind Energy Subcommunity of the MIT Energy Club in co-sponsoring events on campus, an area that is primarily the focus of the subcommunity. For example, in 2011, the two clubs co-hosted Wind Week, a series of lectures and presentations on wind energy. Funding from the Graduate Student Council (approximately $200) and MITEI supported these activities.

5.3. External funding

With traditional student club funding being minimal for venture clubs and internal MIT grants significant but not without limitations, the majority of venture clubs seek external funding. In this section, I discuss four main sources of external funding that are encountered among MIT venture clubs: external grants (8 clubs, 23% of venture clubs), corporate partnerships (2 clubs, 6% of venture clubs), fundraising through non-profit organizations (12 clubs, 34% of venture clubs), and fee-for-service (4 clubs, 11% of venture clubs). 2

2 In the cases of 4 venture clubs, I coded their source of funding in expectation. These are: (a) the Environmentally Friendly Aircraft Design Team and the SEDS Outreach Team that receive limited funding from MIT sources and whose members explicitly said that they make do with these funds until their plans for securing external grants and establishing an independent organization, respectively, materialize; and (b) China Crossroads and IdeaStorm whose members said they were considering growing their clubs in the form of non-profit and for-profit fee-for-service type of organizations, respectively. Astropreneurs is a similar case, only it did not succeed in its efforts to secure funding for its projects and was disbanded about a year after its founding (2006-2007). Finally, I coded the Students for the
5.3.1. External grants

External grants represent the external funding source most similar to internal MIT funding grants and awards. To apply for UA or GSC funding, clubs submit small event proposals. Similarly, the application process for internal MIT grants is also proposal-based. Applying for external grants goes one step further. As the examples below show, some venture clubs apply to a wide range of foundations, often including quite prestigious ones. I discuss the examples of the Game Development Club, a club that funds its activities through a grant from a Singaporean funding agency, and SANA, a club that has received grants from multiple sources and whose members consider grant-writing a vital task for the sustainability of the club. Both are representative examples of clubs that fund their activities through external grants.

The Game Development Club was established in 2010. It is a small club with approximately four or five active members, the majority of whom are undergraduate students. The club works on game development projects, primarily for mobile phones.

Currently, the club works on two projects. The first is a “Zombie Epidemic” game. Three members work on this project. In 2011, the team won an MIT competition for programming with a specific programming language called “StarLogo TNG.” They received a two-gigabyte flash drive each and an iPod Shuffle as prizes. Their second project is a card game version of a game called “War Squared.” Again, the team is small, with two or three members. The club, as a member explained, does not receive any MIT funding for its activities.

The club is in close interaction with the startup company formed by several of its founding members. The company, Manifold Studios, was formed in March 2010 when a team of four MIT Exploration and Development of Space (SEDS) as a venture club for its activity in the 1980’s, when members of the club founded a not-for-profit, nation-wide organization with the same name with the aim of expanding the scope of their efforts and becoming financially sustainable through fundraising.
undergraduate students won a $30,000 Explorer Grant from the Singapore-MIT Alliance for Science and Research Technology (SMART) for its idea of a "multi-screen game," i.e. a game that is played on two mobile devices. A free "beta version" for the iPhone was released in June of 2010. The team is now working to improve the game based on user feedback, with the ultimate goal of releasing a paid iPad version. Apart from the grant, the company also has "angel investment from friends and family members," the same member explains. The company has a strong connection with the Game Development Club. Apart from the overlap in the founding membership of the two, students who join the club are, in some cases, later also recruited to work for the company.

**SANA** is a club of approximately fifteen members working on accessible mobile healthcare solutions for developing countries. The project began in 2008 as part of NextLab, a course given by the MIT Media Lab. After three semesters, in the spring of 2009, the class was discontinued. A few core members decided to continue with the project and they established **SANA**. The club is not registered with the ASA. Instead, it is affiliated with a research lab at the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL).

**SANA** has both MIT and non-MIT affiliated members, including MIT undergraduate students majoring in computer science, master's students at the Harvard School of Public Health, and medical physicians from Boston hospitals. The club holds meetings every Wednesday afternoon in a small conference room at the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL). Attendance in these meetings fluctuates between five and fifteen people. Additionally, smaller meetings of specific project teams take place throughout the
week. Informational events for the general public, such as recruiting events and panel discussions, are also occasionally pursued by the club.

The main goal of the club, as described by one of its members, is to "lower the barrier to access the quality health care for patients in remote and resource-poor areas." To this end, the team develops open source software for mobile phones with which healthcare workers can perform diagnostic tasks, e.g. interview patients following structured protocols, take high-definition pictures of affected areas, and perform electrocardiograms. Patient data is sent to doctors at the nearest hospital who determine next steps for treatment. The team works with healthcare organizations in countries such as India, Brazil, and the Philippines to test its technology and further its implementation. A member lists at least five projects in India and the Philippines: "I am focusing on tele-radiology in one province of the Philippines and on hypertension management in two other provinces. In India, in two different cities, other members of the group are focusing on patient triage and oral cancer and cardio-vascular screening."

The club is described by members as "grant-funded." The club has two main expenses: travel and software development. Travel expenses are primarily covered by internal MIT grants. "The PSC," a member explains, "has been absolutely critical for funding all of our trips. I have gone to the Philippines three times." He adds: "We have sent five or ten other students to the Philippines. We have sent a handful of people to India and we have two of our sophomores going to Mumbai this January. All with funding from the PSC." Additionally, the club raised approximately $15,000 from the Legatum Center and $50,000 from MISTI for travel.

In terms of software development, the club supports its operations primarily through external grants. "There is a lot of individual grant writing that I and others do," a member explains. "I raised," he adds, "$10,000 from the Davis Projects for Peace and $2,000 from the
Clinton Global Initiative University.” In addition, the club won $150,000 in the Wireless Innovation Project by the Vodafone Americas Foundation and a $50,000 mHealth Alliance Award. Even though members are quite happy with their successes in raising funding, the club still cannot afford a full-time developer and so they continue to pursue other funding opportunities. “We are applying to the Bill & Melinda Gates Foundation and to other large grants,” a member explains.

Going forward, the club is looking into options for generating revenue, while at the same time continuing to offer a free, open source product to populations to these populations club members consider to be “in need.” In parallel with other activities described, the club holds “visioning sessions,” as a member described them, in order to “figure out where they should go next.” During these sessions, organizational structure and funding options are on the table. Members struggle with the question of whether forming a non-profit organization would benefit their activities going forward. Determining a revenue model is also a challenge. Models adopted by other open source organizations in the area of healthcare are periodically reviewed. Some members suggest offering paid, premium product features or services. Others propose collaborating with the “R&D arm” of large corporations in the areas of healthcare and technology (e.g. Merck and Google) and secure funding that way.

5.3.2. Corporate partnerships

A second external funding source for venture clubs is what I call corporate partnerships. Clubs identify corporations in their area of interest and contact them for support. Instead of simply asking for sponsorship however, clubs pursue a more extensive partnership with them, including

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3 The mHealth Alliance is an organization that, based on its website, “champions the use of mobile technologies to improve health throughout the world.” It is hosted by the United Nations Foundation and was founded by the Rockefeller Foundation, Vodafone Foundation, and United Nations Foundation.
on-the-ground support, program development, mentorship, etc. Below I provide two representative examples of *venture clubs* that fund their activities through *corporate partnerships*: the *African Information Technology Initiative* and the *Indian Mobile Initiative*. The two clubs share many similarities. In fact, the *Indian Mobile Initiative* was created by former members of the *African Information Technology Initiative* who decided to apply its model in India.

The *Africa Information Technology Initiative (AITI)* is a club that was active from 2000 to 2010. The mission of the club, as described by a member, was to run "*educational initiatives that foster startups in the areas of software and internet technologies in developing countries.*" At the time of my data collection, the club was transitioning away from being a student club to becoming a part of *MISTI*. This decision was made by the club’s long-time president – and, at times, only member – who was concerned that the club would dissolve when he eventually leaves MIT. (He had recently graduated from his Ph.D. in the *Computer Science and Artificial Intelligence Laboratory* at MIT and was continuing as a postdoctoral researcher for a short period with the same professor). Apart from the president, a team of approximately four students (undergraduate and graduate) supported the activities of the club at the time.

*AITI* offers programs to African youth on mobile technologies and entrepreneurship in partnership with local universities in Africa. Programs take place during the summer (six weeks) and IAP (two weeks). MIT students, undergraduate and graduate, are recruited to serve as instructors (approximately eight students in the summer and two in IAP). In the summer of 2010, for example, the club ran programs in two universities, one in Rwanda and one in Kenya. Often, students from universities other than the one in which the program takes place apply to the
program. For example, in the 2010 summer program in Kenya, student-participants came from five different universities. Five hundred students applied and thirty were selected. The club covers housing and travel expenses for participants. In addition, the club runs “extension courses,” as a member described them, i.e. courses that are taught by AITI alumni, in order to be able to reach a larger number of African students. Furthermore, the club has created networks in Kenya and Rwanda so that students who have entrepreneurial ideas can get funding and further develop their projects.

The AITI club received support from multiple MIT- and non-MIT sources. A member lists the following MIT sources: Public Service Center, MISTI (e.g. $30,000 in 2010), Computer Science and Artificial Intelligence Laboratory, Department of Undergraduate Education, Department of Graduate Education, and “Uncle Paul Grey” (the reference here is to Paul Grey, former MIT President). In addition, the club had partnerships with Google, France Telecom, and other telecommunication companies. For example, the club received a $25,000 grant from Google in 2010. With regards to Google, a member explains that “they approached [the club] a few years ago and said: ‘You are doing things that we really want to do, but you have a head start. So, here is some money to expand on what you do.’” The same member explains that companies like Google looking to expand in Africa look for ways to grow the demand for their services. As such, they welcome “a group of entrepreneurs to come up with the content and the services and to go in and build the market.” Apart from financial support, the club had a broader partnership with Google. Google provided the club with equipment and office space in Nairobi. Also, Google employees contributed to the program by giving guest lectures, mentoring students as well as offering internships to some. In the future, members are hoping that Google will also
take an active role in shaping the curriculum: "We wanted them to help us with the curriculum, but that hasn't really happened yet. We are still hoping however that they will help us out."

The **Indian Mobile Initiative (IMI)** is a small club consisting of three undergraduate members that was established in 2010. The mission of the club is to narrow the gap between engineering education and employability in India.

The club runs mobile technology workshops in partnership with Indian universities. At the time of my data collection, the club was planning for the summer of 2011, during which they would offer one five-week program and six shorter "Mobile Boot Camps" of three-four days each and attract approximately 500 students from the seven universities in India that were participating. In the words of one members, the goal of the program was "to get Indian students understand how mobile applications and startups work."

A milestone for the club was securing Google’s “partnership.” "When we say that we are partnering with Google, our reputation goes up a notch," a member notes. When the club initially contacted the company, they pitched for something small, as it was their first year running the program. Google’s response, however, encouraged them to think big. A member recounts Google’s response as follows: "Oh! If it is just 50 students, it would really be hard for us to actually have a partnership because we are a huge company and we just can't give you money for 50 students." A program for a larger number of students was subsequently proposed by the club and was approved by the company. The club’s intention, according to the same member, was to use the Google funding to provide “seed funding” to the most promising student projects. Members were hoping that travel money, which is the second biggest expense of the club (estimated at $10,000 for airfare for three members), would come “from PSC or other
organizations at MIT." As it turned out, the club won $22,500 at the MIT IDEAS Global Challenge.

5.3.3. Fundraising through non-profit organizations

A third source of external funding of venture clubs is fundraising through the establishment of non-profit organizations. Venture clubs that pursue this type of funding knock on many doors. Individual donors, corporations, and foundations support their activities – and the list is oftentimes quite long. To make themselves attractive to donors, these clubs establish non-profit organizations. Below, I provide the examples of the Science and Technology Leadership Association and the Middle East Education through Technology, which are representative in many ways of venture clubs in this category. In both cases, members are explicit about the way in which being a non-profit organization is essential for attracting donations.

The Science and Technology Leadership Association (SteLA) is a club whose mission is to create, a member explained, "the next set of leaders in science and technology." It was founded in 2006 by a group of Harvard and MIT Japanese students in collaboration with their counterparts in Todai University, Tokyo. Today, the club has four "country branches," as members call them, in the United States, Japan, China, and France. It is estimated that approximately 15 MIT students, primarily undergraduates, participate.

The club puts on a "leadership forum" every summer in different locations around the world. The first forum took place in 2007 in Tokyo, the second in 2008 in Boston. Tokyo, Beijing, Stanford, and Tokyo followed. The duration of the Forum is 8-10 days: three days of "thematic sessions" on topics of science and technology, one day of "leadership," and three days of "project work." Approximately 50 undergraduate and graduate students participate.
Participants are selected by club members after a "screening process." A member of the club described this process as follows: "First, we recruit people to attend our info sessions. Next, they apply online with two essays (one on science, technology, and society and one "more personal"; five hundred words each). Finally, they are interviewed." Apart from the 50 participating students, an additional 40 students contribute as "staff members." Their role is to "facilitate," the same member explains, discussions and project work.

The forum is funded by registration fees and corporate sponsorship. In terms of fees, both participants and staff members are asked to contribute a registration fee of approximately $400. This fee "goes to paying for the dormitory, food, and transportation," a member explains. The rest of the expenses are covered through corporate sponsorship. Each branch has a member who works on fundraising – a task not always easy, especially when the economy is slow. A member explains that 2010 was not a good year: "The recession hit and none of our corporate sponsors from the previous two years wanted to continue funding." Yet, the club’s website in 2012 claims sponsorships from companies such as Microsoft, Cisco, Mitsubishi, Hitachi, and others. The website also tells interested parties that "two types of sponsorship" are available: "(1) Financial support to cover expenses needed for the program; and (2) Material support, such as air tickets or equipment." Members of the club report corporate sponsorship of approximately $15,000 per year.

To assist with fundraising, the club recently established a non-profit organization. A member who was involved in the process describes it as "not that hard. You can apply online. You have to have, I think, three directors, a president, a financial guy, and a secretary. You have to write a set of articles of organization, like a short constitution that has to state that you are a non-profit. There is a $30 fee. It is quick." The non-profit organization serves as an overarching
organization, with the four branches operating underneath. A member explains: "STeLA is a student organization. At the same time, the non-profit was created to give a foundation, help us look into the future, and keep people on board." More specifically, with regard to fundraising, members hope that the non-profit will help them raise more donations: "The goal of the non-profit was to help raise money from corporations – who can get tax deductions if they donate."

The *Middle East Education through Technology (MEET)* was established in 2004. Its mission, as noted on its website, is to "educate and empower tomorrow's most promising Palestinian and Israeli leaders to take action towards creating positive economic, political, and social impact in the Middle East." The club was established, a member recounts, by "four friends, three Israelis and one Palestinian," one of whom was an MIT student. Today, while remaining a student organization at MIT, the club has established a non-profit organization based in Jerusalem.

*MEET* delivers a three-year program on technology, business, and leadership for Israeli and Palestinian high school students. The program runs for three summers and two fall and spring semester periods. Each cohort is approximately 40 students. Summer sessions are described by members as "intense," with classes Sunday to Thursday for four weeks at the Hebrew University in Jerusalem. Classes are taught by MIT undergraduate and graduate students (approximately 17 students do the teaching). During the year, classes are held once a week in two locations, in Jerusalem and in Nazareth. They are taught, a member explains, by "a combination of local teachers and professors, alums, and other friends of the organization." The program is free for students. Meals and transportation are also covered. The total cost, based on the website, is estimated to be $5,000 per student.
"The main operation is run out of Jerusalem," a member explains. The non-profit organization is based there, with a CEO and "a couple of paid staff members" who work as full-time employees and receive a salary, the same member explains. A twelve-member "management team" is listed on the website as well as a six-member "board." Based on my discussions with members, apart from the Jerusalem office staff, the rest are volunteers – some receiving a "stipend" for the summer that is the period with the most intense activity. The connection to MIT is a central part of the program members emphasize: "MIT feeds the organization with instructors and that is really the basis of what we are doing."

While MEET occasionally receives funding from the Graduate Student Council (my records indicate that in 2009, for example, the club received $30 for an event titled Serving Java: MEET's Project Design Challenge and $230 for an Israeli/Palestinian Music Performance), MEET funds its activities primarily through donations. Some donations are provided from those affiliated with MIT, predominantly professors. MEET also does extensive fundraising beyond MIT. "MEET receives," a member explains, "grants from foundations, private donors, and companies." On the website, the list of "supporters" for 2011 includes more than 50 names of individuals and foundations. In addition, the website features a $325,000 "challenge grant" that the organization received in 2012 from the Charles H. Revson Foundation, a grant that was awarded on the condition that MEET will raise the equivalent amount that the foundation will then match.

5.3.4. Fee-for-service

The last type of external funding encountered among MIT student clubs is, what I call, fee-for-service. Clubs that follow this model fund their activities through fees they collect from the
individuals benefiting from their services. Most of the clubs using this type of funding (or "business model" as members refer to it) are educational outreach programs. Below, I provide the examples of the Educational Studies Program and its progeny the Academic Teaching Initiative that are representative of clubs that operate on a fee-for-service model.

The Educational Studies Program (ESP) was established in 1957. Today, the club runs six educational outreach programs for middle school and high school students. The club is fairly large, with more than 10 students on its board, one or two directors for each program, and hundreds of students serving as instructors. The majority of students involved are undergraduates.

With the exception of one program (Prove It!) which takes place in a different high school in the Boston area every year and is open only to students of that school, all the other programs of the club (Splash, Spark, HSSP, Junction, Delve) have the same format: middle school and high school students from local schools come to the MIT campus where they attend classes taught by MIT students. Prove It! is a math enrichment program; Splash, Spark, and HSSP offer a variety of academic and non-academic – or more "fun" classes, as members call them (e.g. how to make French toast); Junction offers college-level classes in a variety of topics; and Delve is a set of Advance Placement preparation courses. Programs have different durations and take place at different times throughout the year: Splash takes place on a weekend before Thanksgiving; Spark is a one-day program on a Saturday in March; HSSP runs every Saturday for seven weeks in the Spring; Junction is a six-week summer program that takes place in the evenings, Monday through Thursday; Delve runs September through May for 5 hours every Sunday; and Prove It! similarly takes place September through May one afternoon during the
week. Some programs accommodate a large number of students; some are smaller. Splash is the largest one, with 2,500 to 3,000 attending students. Spark the second largest one with about 400 participants.

All classes are taught by MIT students. Depending on the number of participating students, the demand for instructors can be quite high. For example, about 100 MIT students teach at Spark. MIT students teach on a volunteer basis, with the exception of those that teach in the two longer programs (Junction and Delve) who receive a stipend ($1,000 - $1,650 for Junction; the amount is not specified for Delve). Furthermore, especially for the larger programs, additional manpower is needed for “security” as members of the club refer to various support roles such as helping with student registration, “dealing with parents,” selling t-shirts, and so forth. These are volunteer positions.

The club funds its activities by charging students a fee. Splash, Spark, and HISSP cost $30-$40; Delve is $250; and Junction is $600. “We make a lot of money,” a member notes and adds with pride that they are able to provide ample financial assistance to students who need it. In answer to my question of whether they get money from the Undergraduate Association, the same member responded: “No. We use our money that we make from our programs. We are completely independent. It is a great business model. We have volunteer teachers and we charge low-cost for our programs and then in the end we make a profit.” Apart from the six programs described and associated costs (i.e. instructor stipends, educational material, meal subsidies), the club also organizes two “retreats” every year for its leadership. A member describes those as follows: “We have our two retreats every year. When we go, we just talk about the organization. We get a house that fits like 20 people – usually in New Hampshire.”
The Academic Teaching Initiative (ATI) is a group of primarily undergraduate students who teach SAT preparatory courses to local high school students. The club was established in 2011, after it took over the SAT program that the Educational Studies Program (ESP) had run since 1985. A board of approximately seven members leads the operations of the club and, similar to the ESP model, a number of MIT students (approximately 20) are involved as instructors.

The club runs two SAT programs, SAT I Prep and SAT II Prep – the latter still as "small-scale pilot," as mentioned on the website, although a number of subjects are offered: math I, math II, chemistry, biology (ecological & molecular), physics. SAT I Prep classes take place on Sundays, from 1:30PM to 5PM, at MIT. For the academic year 2011-2012, the club anticipated an enrollment of 500 students and had made arrangements for 18 MIT instructors. Following the ESP model, instructors get paid.

Students "pay an enrollment fee of $100" a member explains and notes that the website clearly states that "the cost is $100 for 8 classes." According to a member, an innovation that ATI has introduced compared to the ESP model is that the club plans to use the profit made to sponsor "free teaching programs and mentoring programs." The same member adds: "We are going to keep SAT Preps the baseline. So, each semester we will do SAT Prep, but we are also going to try to incorporate a new pilot program. In the spring we will be piloting a college mentoring program."

5.4. The growth of venture clubs

Given the preceding venture club funding review, several general observations can be made. My data show that venture clubs are on the rise at MIT. Venture clubs have risen from representing 15% of clubs in 1980 to 23% in 2012 (Table 5-1). The increase is perhaps even more significant, if we take into consideration that between 1980 and 1995 the number of venture clubs was
essentially stable, consisting of three clubs: namely, the Students for the Exploration and Development of Space, the Educational Studies Program, and the African Technology Forum.

After 1995 a number of new venture clubs appear and in 2011 numbered 24.

Table 5-1: Entrepreneurial trend among MIT student clubs

<table>
<thead>
<tr>
<th>Venture clubs by time period</th>
<th>SEDS</th>
<th>ESP</th>
<th>SEDS</th>
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<th>SEDS</th>
<th>ESP</th>
<th>SEDS</th>
<th>ESP</th>
<th>SEDS</th>
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<tbody>
<tr>
<td>1980-1985 (n=13)</td>
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<td>1986-1990 (n=19)</td>
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<td>1991-1995 (n=23)</td>
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<td>1996-2000 (n=42)</td>
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<td>2001-2005 (n=65)</td>
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<tr>
<td>2006-2010 (n=131)</td>
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<tr>
<td>2011-2012 (n=104)</td>
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<tr>
<td>Traditional Clubs</td>
<td>85%</td>
<td>84%</td>
<td>87%</td>
<td>86%</td>
<td>80%</td>
<td>78%</td>
<td>77%</td>
<td></td>
<td></td>
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<tr>
<td>Venture Clubs</td>
<td>15%</td>
<td>16%</td>
<td>13%</td>
<td>14%</td>
<td>20%</td>
<td>22%</td>
<td>23%</td>
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</tbody>
</table>

The two dashes signify that the club was no longer active in that period.
My data indicate that currently 6% of the MIT student population participates in venture clubs – about 600 or so students each year. Given that entrepreneurship is only one of the plethora of interests of MIT students and that clubs are one of the many opportunities presented to them by the MIT entrepreneurial ecosystem, this is perhaps a significant number. Although it is not possible to estimate participation for previous years, it is fair to assume that it has followed the same upward trend as the population of venture clubs.

In this context, voices of members who identify the activity of venture clubs as different-in-kind from that of other clubs should be taken seriously. “I have to admit that I don’t think of us as a student group. I don’t advertise in the traditional student club venues,” says a member of the African Information Technology Initiative. Similarly, a member of the Academic Teaching Initiative describes the club as follows: “It is not your traditional student club, i.e. a club with an executive board and a set of disassociated members. In our case, members could be considered the teachers – and they paid. So, the teachers get paid and students pay an enrollment fee of $100. This is how the club is run.” Even more explicitly, a member of the Middle East Education through Technology (MEET) notes emphatically: “MEET is similar to a startup in many ways. It definitely shares more similarities to startups than to other MIT student clubs.” Such sentiments signal what I regard as a meaningful shift in the student club terrain at MIT.

5.5. Conclusion

This chapter discussed the funding of venture clubs. I analyzed internal sources of funding (internal MIT grants) as well as external (external grants, corporate partnerships, fundraising

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5 My estimate is based on data on the size of clubs as they appear in Appendix B. To be conservative in my calculations, I have used the mid-points of the ranges (e.g. if a club is marked as “small,” which is 1-10 members, I use the mid-point, i.e. 5 members). I multiply the mid-points with the number of venture clubs active in 2011-2012. This makes approximately 600 students, which is 6% of the student population that was 10,894 in that period (Source: MIT Facts, http://web.mit.edu/facts/faqs.html (accessed May 16, 2013).
through non-profit organizations, and fee-for-service) and distinguished those from traditional sources of funding, such as those discussed in Chapter 4. Additionally, I discussed the upward trend of venture clubs at MIT since the 1980’s. The next chapter provides an analysis of characteristics beyond funding that set venture and traditional clubs apart.
Chapter 6: Membership, Activities, and Future Goals of Venture Clubs

Besides funding, *traditional* and *venture clubs* have a number of other differences. This chapter discusses the three most important ones: *venture clubs* have less MIT student-members compared to *traditional clubs*, their activities are often targeted to non-MIT populations, and they often associate their growth with the establishment of independent organizations outside MIT. As such, *venture clubs* have a distinct off-campus orientation. If we also take into consideration that their funding comes from non-MIT sources, these clubs resemble entrepreneurial ventures that only have their "headquarters" on the MIT campus. This is in sharp contrast to *traditional clubs* who, in broad strokes, focus on enriching the on-campus educational experience of MIT students and for whom growth is synonymous to reaching more MIT students.

6.1. The membership of *venture clubs*

*Venture clubs* are small. One third of *venture clubs* have less than 10 members. This is notable because the role of student clubs, as defined by documents of the *Association of Student Activities*, the *Graduate Student Council*, and the *Undergraduate Association* (see discussion in Chapter 4), is to encourage student learning and social interaction on campus. *Venture clubs* do not fit this definition.

Who is and is not a club member is however somewhat open. According to the official definition that appears on the *ASA Operating Guidelines*, there are two levels of membership: "core membership" and "active membership." They are defined as follows:

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"The core membership of an extracurricular activity is that portion of the active membership most directly responsible for the continuing success of the activity. Usually this comprises the "leadership" or executive committee of the activity and includes the titled positions or the activity's management."  

"The active membership of an extracurricular activity is that portion of the activity's membership that regularly participates in the functioning of the activity."  

In reality, there are three levels of participation in MIT student clubs. The third level of membership would include students who occasionally participate in a club's events. In my measurement of membership, I used an estimate of all three levels of membership. I find that 34% of venture clubs have less than 10 members, 52% of venture clubs range between 11 and 30 members, 11% between 31 and 100 members, and only 3% have more than 100 members. (Table 6-1 lists the figures for both venture and traditional clubs.)

Venture clubs exist to get something done. Their emphasis is not on attracting a large number of members; rather, their focus is on getting the members with the skills needed to get particular jobs done. Skills come from students with computer science backgrounds to knowledge of wind energy specifics or medical training. Recruitment of new members happens largely by means of word-of-mouth. Roles in venture clubs are mostly task-oriented and the overall structure is fairly flat. In sum, venture clubs follow a model of a startup team that works closely together to achieve a common goal.

The only exceptions here are a limited set of venture clubs that have grown to become larger, more established clubs. Whereas a large proportion of venture clubs see their future

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2 As mentioned in Chapter 4, clubs are not required to submit membership figures. I estimated membership using the following data: (a) self-reported membership figures in the database of Association of Student Activities, (b) number of mailing list subscribers, and (c) data on membership from interviews and clubs' websites. Additionally, inference of membership was made based on data that indicate magnitude of activity: (a) funding data, (b) publicity on The Tech, and (c) other data such as whether clubs have office or storage space, whether they were long-lived or not, whether they merged with other clubs, etc. The size of clubs fluctuates depending on a number of factors (primarily, the age of the club (i.e. younger clubs are smaller simply as an effect of their age) and leadership (i.e. the popularity of a club depends on how active its leaders are each year)). My estimates reflect an average of each club's life cycle.
growth occurring outside MIT, a smaller set of venture clubs choose to operate out of MIT (see Section 6.3 for further discussion). The membership of these venture clubs grows over the years. The Educational Studies Program, which was discussed at length in Chapter 5, stands out here. The club was established in 1957, and it has grown to over 100 members. Most venture clubs however are small (86% of venture clubs have less than 30 members) and were established in the post-2000 era.

In the sections that follow, I provide two examples in order to highlight the membership characteristics of venture clubs. First, I discuss the Environmentally Friendly Aircraft Design Team, which is one of the smallest venture clubs on campus. Its membership composition exemplifies characteristics that are common among small venture clubs: a few, technically-savvy members of the club work on making a vision come true, and the role assignment and recruitment of new members are determined by the needs of the club’s project. Second, I discuss the China Energy and Environmental Research (CEER) club, which is one of the largest venture clubs on campus. CEER exemplifies typical characteristics of “large” venture clubs, particularly in the way it engages a large number of MIT students in its activities.

The Environmentally Friendly Aircraft Design Team currently has four members, all Master’s or Ph.D. students in the Department of Aeronautics and Astronautics. They work on designing small aircraft that run on natural gas. The club was formed in 2009 by two classmates who decided to continue to work on a chemistry class project that had indicated that the energy efficiency of natural gas was higher compared to that of other fuels, such jet fuel and hydrogen.

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3 Assistive Technology @ MIT, SANA, AITI, Stela, MEET, and ATI, which were discussed in Chapter 5, are all examples of venture clubs whose membership ranges between 11-30 members. IdeaStorm, which is discussed later in this chapter, is an example of a venture club whose membership ranges between 31-100 members. Coding for all clubs can be found in Appendix B.
The club focuses on small, regional aircraft (e.g. ten-passenger planes that fly from Boston to Cape Cod). Members work on analyses and prototype development. They also pursue opportunities to showcase their findings. In 2010, as I mentioned in Chapter 5, they participated in the IDEAS Global Challenge sponsored by the Public Service Center. Even though they did not win, they received a development grant that they used to build a prototype wing that they tested in the wind tunnel, an MIT facility for aerodynamic testing. \(^4\) The club has pursued two more competitions, one sponsored by the CAFE Foundation and the other sponsored by NASA. \(^5\) Again, they did not win. The NASA competition – which they were particularly disappointed for not succeeding in – would have given them the opportunity to form a company. A member explains: “You propose to do a service for NASA. So, if you win, you form a company and you become a service-provider for NASA.” They were particularly excited about such a prospect and claimed to be determined to continue to work toward making it a reality.

The membership of the club is fairly stable, i.e. fluctuating on average between three or four members over the last three years. A member explains that the club did make some recruitment efforts, especially after the IDEAS Global Challenge, but those where limited. The club sent emails to a mailing list of the Department of Aeronautics and Astronautics and also put posters up in the department. Also, they received $100 from the Graduate Student Council that they used to bring food to an informational meeting aimed at recruiting new members. The highest number of members that the club has had is eight. Members explain however that attrition was high due to the fact that, at the time, the focus of the club was unclear. Members feel however that they are currently able to cope with the workload and, if they need more people, they can always advertise again.

\(^4\) Development grants are grants of up to $1,000 that the competition provides to teams before the final submission stage for purposes of testing and prototype development.

\(^5\) CAFE stands for Comparative Aircraft Flight Efficiency.
With so few members, the club maintains a loose structure. The central figure is one of its two founders. He "calls the meetings," sets the direction, and keeps the vision alive. The club works as a team with roles assigned. For example, one member is in charge of aerodynamics modeling and another in charge of aerodynamics testing. The club holds its meetings at the graduate student lounge of the Department of Aeronautics and Astronautics. Discussions are technical, with the members analyzing aircraft design, fuel specifics, and so forth. Meetings are arranged as needed, depending mainly on competition deadlines.

The China Energy and Environment Research (CEER) is a large venture club that focuses on energy and environmental issues in China. The club was founded in 2009 by three MIT Ph.D. students and one postdoctoral associate at Harvard. The club's leadership continues to be primarily Ph.D. students and postdoctoral associates, while its events are attended by undergraduate students as well.

The club is run by a six-member executive board, in which non-MIT members, primarily Ph.D. students and postdoctoral associates from Harvard, Northeastern, and other Boston area universities, also participate. The club, members explain, is an MIT club and does not have official affiliations with other universities. They describe their collaboration with students at universities in the Boston area as informal and point to the club's mailing list as the primary tool through which announcements about events and activities are circulated across schools.

CEER organizes a variety of events. The club holds lectures and panel discussions, often in collaboration with other clubs. For example, in 2010 CEER organized a forum titled "China: The Cradle of New Energy Technology?" at the MIT Energy Conference, which was organized by the Energy Club. Also, as I mentioned in Chapter 5, the club often co-hosts events with the MIT
Energy Initiative. Members are particularly “proud” of hosting Dr. Zhengrong Shi, CEO of Suntech Power, one of the “richest” and most “successful” business people in the energy sector in China in November 2010, in collaboration with the MIT Energy Initiative and the MIT Energy Club. The event, members note, attracted approximately 400 attendees. The club is also involved in the MIT-China Low Carbon Energy Leadership Program, a two-week training program for Chinese government and industry leaders that is held at MIT and is organized by MIT Energy Initiative. Members explain that “because the club has about 300 to 400 members, [they] are able to get volunteers to translate program material from English to Chinese.”

Funding for the club’s events comes from the MIT Energy Initiative and also from industry sponsors, especially for events with a career development focus.

Going forward, the club is planning to establish a journal with the name “US-China Clean Energy Review.” The journal will cover topics of interest to the members of the club but will have the potential to reach a broader audience. Currently, the club is looking for sponsorship “outside MIT,” members note. The effort is led by the founders of CEER. The journal, they explain, could be eventually become an “independent” entity, potentially a “for-profit organization with a social focus.”

6.2. The activities of venture clubs

Much like the members of the Environmentally Friendly Aircraft Design Team discussed above, members of 80% of venture clubs pursue activities that aim to benefit populations external to

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6 The club is coded as “large” and not as “extra large” (see Appendix B) as would be fit for a club with 300-400 members because according to my estimations the number of regular contributors to the club (i.e. apart from specific occasions) is not that high.
MIT.\textsuperscript{7} This is, as noted, in sharp contrast to the rationale underlying definitions of extracurricular activity and funding criteria (discussed in Chapter 4) that emphasize on campus activity for the benefit of the MIT student community.

The \textit{Environmentally Friendly Aircraft Design Team} belongs among the 26\% of \textit{venture clubs} that develop new products, and, especially, new technologies for specific, targeted purposes. The endeavors of \textit{Environmentally Friendly Aircraft Design Team} together with examples discussed in Chapter 5 give a sense of the range of technologies developed by MIT \textit{venture clubs}: environmentally friendly aircrafts, assistive devices for people with disabilities, mobile phone games, healthcare software for developing countries, and many more. Some \textit{venture clubs} focus on one technology; others pursue a portfolio of projects. The dominant spirit is one that encourages experimentation. New ideas are tested through small-scale, low-cost pilots.

Another 29\% of \textit{venture clubs} pursue international development projects. Areas of involvement range from education to healthcare and entrepreneurship. Activity at MIT is limited to coordination and fundraising; most of the “action” goes on overseas. It is thus common for these clubs to have extended international, on-the-ground networks that they tap into in order to carry out their projects. For example, in Chapter 5, I discussed the \textit{African Information Technology Initiative} and the \textit{Indian Mobile Initiative}. Both clubs aim to address the education needs of developing countries. Scale is achieved by reaching out to local networks (e.g. local university students and administrators) that aid clubs in their work.

\textsuperscript{7} In fact, even for the 20\% of \textit{venture clubs} whose activity I have coded as “expand the education of MIT students” (see Table 6-1), it is questionable whether the expansion of the education of MIT students is also their main goal. Rather, for some, it seems to serve as a pilot project. For example, the \textit{IdeaStorm} club, which is discussed later in this chapter, is a typical case of a \textit{venture club} that currently serves MIT students but considers shifting its focus to an external clientele.
Other venture clubs offer education outreach to local middle school and high school students. They represent 17% of the venture clubs I studied. The majority of these clubs have adopted the following model of operation: classes are held in MIT classrooms and MIT students serve as instructors (sometimes paid, but mostly unpaid). Only a few choose to deliver their programs at schools or other local educational institutions (e.g. museums off-campus). A wide range of programs are offered (e.g. advanced placement classes, leadership training, SAT preparation, etc.), such that the needs of the local community can be addressed.

Lastly, 8% of venture clubs offer consulting services to non-MIT parties. Services range from technical to non-technical. Clients range from local to global. In some cases, projects result in reports and/or publications. A member of the Wind Energy Projects in Action club (discussed in Chapter 5) described their services as "pro bono," a term that refers to offering unpaid, community-serving work.

Below, I provide some additional examples to illustrate in somewhat greater detail the activities of venture clubs. Having already provided an extended example of a venture club that develops products (i.e. the small Environmentally Friendly Aircraft Design Team), I focus on examples for the remaining of the four activities: international development, education outreach, and consulting. In these examples, I emphasize the methods that clubs have devised in order to reach their target populations – local or international. For the Leadership Training Institute, this means extensive advertising of its programs to local schools. For the House of Volunteers, it means developing extensive networks in Bangladesh, particularly though local universities. For the Collegiate Energy Association, it means engaging in hours upon hours of conference calls with energy clubs spread around the world.
The Leadership Training Institute (LTI) is a venture club that runs outreach leadership education programs for local high school students. It was piloted for a semester as part of the High School Studies Program of the Educational Studies Program and became its own club in 2007. Currently, the club has an executive board of approximately 20 members who work on curriculum development, advertising, and finances. In addition, 20 more MIT students serve as "mentors" to the approximately 150 high school students that the club serves every year, making LTI a fairly large venture club on campus. The majority of MIT students who participate are undergraduates.

The club runs two programs: February to May and June to August. Sessions are held at MIT every Sunday for three hours. The goal of the program is to teach students leadership skills. Their methodology, members explain, is "learn by doing." The curriculum is "activity-based," they note, and describe activities such as "pyramid stacking," in which students have to stack plastic cups using strings and rubber bands. After each activity, leadership and communication styles observed are discussed. There is also a "project-based side" to the curriculum. Each high school student-participant designs and is required to execute a community service project. Notable projects include, members note, a suicide prevention program and a recycling program, both in students’ schools. The program is free for students. In fact, the club gives $150 to each student toward their service projects. The club secures funding through several MIT sources (including the Public Service Center, MISTI, the Department of Undergraduate Education, and the Office for Undergraduate Academic and Advising Programming) as well as local fundraising efforts (e.g. bake sales, local business sponsorships).

The club makes a considerable effort in recruiting high school students to enroll in their programs. A member explains: "We advertise to guidance counselors all over Boston and they
recommend students to our program.” The club reaches out to high school teachers and parents as well to help in recruitment. “Some schools circulate our application as an announcement out to parents,” a member notes. In order to be admitted into the program, students must submit an application and are encouraged to also submit recommendation letters. The club’s website notes: “It has been shown that students who submit a recommendation along with their application have a higher chance of getting into the program.”

Going forward, the club plans to file for 501(c)(3) status (i.e. to become a non-profit organization). A “board of advisors” has been formed and a member says: “Once we become a separate entity from MIT, we can start recruiting other chapters at different universities.” Other universities in the U.S. (Princeton, Yale, Harvard, Cornell, UC Berkeley and Stanford) as well as universities in Mexico, Brazil, and China are on the club’s list as sites for potential chapters. Members have made two trips, one to Mexico and one to Brazil, assessing the possibility of replicating the LTI model. Once the non-profit organization has been established, members intend to intensify their fundraising efforts.

The _House of Volunteers (HoV)_ is a small venture club with approximately four members at MIT, primarily undergraduate students. The club was established in 2008. The primary goal of the club, members explain, is “improving the standard of education” in developing countries. For the time being, the clubs’ operations are solely in Bangladesh.

The club was founded by three individuals, one Bangladeshi MIT student and two Bangladeshis outside MIT, who were then studying in the Boston area but have now moved to other parts of the United States. These three continue to constitute the club’s leadership. At MIT, apart from the founder, three other members are now involved. Beyond MIT, personal contacts,
friends or friends of friends as well as students and faculty at Bangladeshi universities are employed to assist in the clubs’ effort to improve education in Bangladesh. “We cannot just go to a new area and start operating,” a member explains. He notes: “Students who work with us in Bangladesh, for example, sometimes know the local authorities. Once we are certain that we have the blessing of the local authority, we go there.” The club recently set up chapters in three universities: BRAC University, Bangladesh University of Engineering and Technology (BUET), and the Institute of Business Administration (IBA). The HoV-BUET chapter, which is the largest, has approximately twenty members. Their contribution to the implementation of the projects is significant. The same member quoted above notes: “We try to give directives and we try to go to Bangladesh from time to time, but, at the end of the day, when it comes to doing the work, most of the actual work is done in Bangladesh.”

The club works on three projects: Interactive School, Book Drive, and Open Source Computer Education Program. The Interactive School aims to provide Bangladeshi high school students with supplementary, interactive material to their textbooks. Specifically, the club produces PowerPoint presentations with embedded video animations that illustrate concepts. They have completed a physics supplement (it took them about a year) and are now working on more subjects. The help of the HoV chapters in Bangladesh are crucial. A member explains: “We figured out some folks who are good in PowerPoint and then we had workshops where we did peer-to-peer training.” The second project, Book Drive, is an effort to collect textbooks and journals form the U.S. and send them to Bangladesh. The first container shipped 5,000 books. The third project, the Open Source Computer Education Program, is a program for Bangladeshi youth that runs twice a week in three “centers” in Bangladesh (two are rented and one is owned

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8 *BRAC University* is a private university in Dhaka, Bangladesh. It covers a broad range of disciplines, from engineering to the humanities. (BUET and IBA are both public universities.)
by HoV). Each center has approximately five computers. The club has developed its own curriculum. It recruits local computer instructors, who sometimes volunteer but other times are paid. Again, here, the local HoV chapters are key in the execution of the program. “The Bangladeshi HoV chapter members go there and stay for a few days to train the teachers,” a member explains. MIT funding (two Public Service Center grants, a fellowship from the Peter J. Eloranta Summer Undergraduate Research Fellowship Program, and a fellowship from the Tau Beta Pi Service and Engineering Fellowship Program) has assisted the club members’ travel to Bangladesh (approximately $10,000 total). In addition, since the early days of the club, the oil and gas company Chevron, which has significant presence in Bangladesh, has been a sponsor. One of the founders of the club now works there.

Going forward, the club wants to strengthen its presence at MIT, but, if this does not happen, members are prepared to start a non-profit organization in order to carry on with their activities. “We will not be at MIT,” one of the founding members – a senior at the time of my data collection – notes about his upcoming graduation, “and not being at MIT will be a big problem because MIT gives us non-profit status that enables us to lobby for funding.” He refers to the non-profit, tax-exempt status that MIT student clubs have by virtue of being part of MIT. He goes on to say: “We want to get more people involved at MIT, but, if the MIT thing doesn't work out, we will have to form a non-profit organization in the United States.” The club is already registered as a non-profit organization in Bangladesh. He concludes by saying that the bureaucracy for establishing a non-profit organization is “staggering” and thus would prefer if the club did not have to go that route.
The **Collegiate Energy Association (CEA)** is a *venture club* that aims to support energy clubs around the world by helping them connect with each other and exchange their know-how about running their clubs. The club grew out of the *MIT Energy Club*. It is now a non-profit organization registered with the State of Massachusetts. It has three members, all of whom are graduate students in Materials Science (which is the department in which its founder and current leader worked). The original goal – when the club was formed in 2009 – was to link Boston's energy clubs (approximately 10 in the area). But the club quickly developed a global reach. It now serves about 70 energy clubs across North America, Europe, and Asia.

*CEA* operates like a “third party” organization, its founder explains. What the club does differs from region to region. In regions where the density of energy clubs is high (e.g. the Northeast in the U.S., or the London area), *CEA* organizes regional conferences (usually annual) to bring energy club leaders together. The New England regional conference, for example, takes place every spring and brings together all the outgoing presidents and all the incoming presidents of New England's 13 energy clubs. Sponsorship from venture capital and law firms makes such big events possible.

When getting everyone together in the same room is not possible (because of geographic or financial constraints), *CEA* uses “less glamorous” ways, members note, such as the phone to facilitate interaction among clubs. “*Every semester, we just get leaders on the phone together and talking,*” a member explains. Conference calls are organized usually around geographic areas, e.g. all the New England or the Midwestern energy club leaders together, all the Canadian energy club leaders together, and so forth. In these calls, club leaders learn from each other about “best practices” such as how to raise sponsorship monies or how to put on an event, or coordinate joint events.
6.3. Venture clubs’ goals for future growth

It should not come as a surprise that a large proportion of venture clubs see their future outside MIT. 31% of venture clubs (11 clubs) have established organizations outside of MIT (out of which 91% are non-profit and 9% are for-profit). For venture clubs, growth translates to finding the best model for reaching out to external populations. To that effect, venture clubs have two main considerations: attaining financial sustainability and building an organization that will last after current members graduate from MIT. Venture clubs discussed under the section “Fundraising through Non-Profits” in Chapter 5 (namely, STeLA and MEET) are the best examples of clubs in this category.

An additional 37% of venture clubs (13 clubs) are considering establishing independent organizations in the future (approximately 61% are considering becoming a non-profit organization and 39% are considering a for-profit endeavor). My interviews with members reveal high aspirations, but these clubs are still testing the waters. A range of different opinions are found among members of these clubs. Some hesitate to leave what they regard as the protected, MIT environment. Others say that establishing an independent organization is the natural next step and want to move in that direction.⁹

Lastly, a set of venture clubs have found a way to operate out of MIT, while still being a part of MIT. They have no plans of leaving. This model is most commonly found among education outreach clubs, for whom use of MIT facilities (e.g. classrooms) is critical. The Educational Studies Program and the Academic Teaching Initiative discussed in Chapter 5 as

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⁹ In this category, I include all clubs for which the establishment of an independent organization was on the table, even if it was not promoted in the end. In 2 out of the 13 cases (AITI and BioDiesel), further developments I observed showed that this option did not gain ground. (AITI became part of MISTI as I discuss in Chapter 5 and BioDiesel did not pursue the option and eventually ceased its operations in March 2013.)
well the Leadership Training Institute discussed earlier in this chapter constitute representative examples of this category.

Below, I discuss two examples of venture clubs that are in the process of thinking about establishing independent organizations: the IdeaStorm and SEDS Outreach Team. Having already provided examples of venture clubs that have already become independent entities and of venture clubs that remain tied to MIT, I provide a brief look at two venture clubs that are “in limbo.” I highlight the way members talk about their plans and show some of the tentative steps they have taken to explore possible future options. IdeaStorm members find the prospect of growing beyond MIT potentially “exciting,” but have not yet moved in this direction. The SEDS Outreach Team is one step ahead: members are in agreement about the need to establish an independent organization and they have started to seek help from business experts at MIT how to proceed.

IdeaStorm is a venture club that organizes brainstorming sessions for students with startup ideas. It is a sub-division of the Sloan Entrepreneurship Club; yet, it operates autonomously. It was founded in 2009 by three MBA students who, as one of them explains, felt that there was need for an “outlet for brainstorming for ideation and talking about start-ups.” I was told that the group began with “half a dozen people meeting informally over a beer to throw out ideas.” Its sessions have grown to a hundred people in attendance, making it one of the larger venture clubs on campus.

The club organizes approximately two brainstorming events every semester. They are described on the website as “fast-paced, lightly-moderated, high-energy brainstorming.” Participants are broken off into groups of 10 to 15 people. In these groups, they participate in a
sequence of three 15-minute sessions. The first session is called “Challenge Question.” It allows each small group to discuss a general question about the future of an industry or a technology (e.g. the future of banking, the future of WiFi). The second session is called “Fresh Ideas” and features a discussion on a startup idea introduced by a member of each group. The third session is called “Founder’s Dilemma” and is an attempt to address an issue that a member of the group, founder of a startup, faces (groups are paired in a way so that there is one “founder” – often specifically invited – in each.).

IdeaStorm advertises its events to the broader Boston entrepreneurial community. A member explains that the club wants to bring together “a combination of students, student start-ups and real start-ups.” Initially, sessions were held at the MIT Trust Center for Entrepreneurship, but, as attendance increased, the group sought out space in the nearby Cambridge Innovation Center and Microsoft NERD. Both provided space free of charge and are unrelated to MIT. The club receives sponsorship, primarily from venture capital firms, for its events (approximately $2,500 per year).

Recently, the club has begun collaborations with other entrepreneurial student clubs (e.g. MIT 100K Entrepreneurship Competition) and particular MIT courses (e.g. 15.390 New Enterprises) that express interest in hosting an IdeaStorm session as part of their activities. The club is now considering how they might take IdeaStorm beyond MIT. “There’s somebody at Columbia Business School who is interested in starting an IdeaStorm,” a member notes, and this idea of “rolling IdeaStorm out to other schools” has gotten them energized. Another idea that they are considering is holding IdeaStorm sessions inside corporations. A member explains: “I think it could be extremely useful to go in a company and have people take their ties off and talk about ideas within the company in a safe environment and one that encourages people to
brainstorm. They could hire us and we would go in and be a special kind of consultant or executive educator."

The **SEDS Outreach Team** works on space education. The club is a sub-division of the *Students for the Exploration and Development of Space (SEDS)*, a club that is, as its name implies, devoted to the advancement of space exploration. The club began its activities in 2010. There are now approximately four members, primarily graduate students. They are united, they say, by their belief that outreach is a "priority" for them. For that reason, they "split off" from the main SEDS operations, which consist primarily of educational events for MIT students. They describe their team as fairly autonomous. Its leader explains, "*We have our meetings and then I report to the SEDS general meetings once in a while.*"

The club runs outreach programs for middle school and high school students in local schools and museums (e.g. the *MIT Museum*, the *Museum of Science*). Some classes are geared towards providing foundational knowledge (e.g. the geography of moon), other classes are discussions on social issues (e.g. women in space exploration), and while others are presentations given by club members on specific space missions (e.g. *NASA's Lunar Reconnaissance Orbiter*). Each class is tailored to meet the needs of a specific audience. To each class, the club brings its teaching materials. For the geography of the moon class, these materials include a 20-foot image of the moon, a 20-foot image of the *Apollo 17* landing site and a 3x3 foot model spacecraft.

Going forward, the club is considering becoming either a non- or for-profit organization. Currently, the club serves local youth. Members, however, see the need to expand beyond that. "*There are a lot of countries without space programs,"* a member notes. The club’s founder and current leader says: "*As goals become bigger than those of the MIT SEDS chapter and as the*
audience that we want to reach gets farther away from MIT, we need to be an independent organization.” Establishing a non- or for-profit organization, members explain, will help them with covering expenses for its educational materials. The cost to date has been approximately $1,000 and has been covered by SEDS and departmental funds. But members see a lot of unmet needs that they are not able to cover such building “demonstration models,” which they say are costly. The club has talked with a professor at the Sloan School of Management who advised them to, first, “flesh out their mission statement and business plan” and, then, “try to get funding from an outside investor.” They are still thinking about possible formats. One idea that they have had is to charge for the classes they offer. “We could charge richer schools more,” a member explains, “and use that profit to offer a lower price to city schools.”

6.4. Comparison with traditional clubs

A comparison between venture and traditional clubs highlights the distinct characteristics of the former. Table 6-1 gives the comparative figures.\(^\text{10}\)

First, traditional clubs are typically larger. Moreover, their goal is to engage as many MIT students as possible. Executive board positions are seen as an opportunity for MIT students to practice leadership; participation in events is viewed as an educational opportunity. Examples of traditional clubs provided in Chapter 4 illustrate these characteristics. For example, the Science Policy Initiative has a ten-member board and organizes events for hundreds of students. In fact, as discussed, the club offers – in addition to its “signature” annual activities that are open to only

\(^{10}\) I coded clubs based on their primary activity. It should be noted that among traditional clubs whose activity is coded as “expand the education of MIT students” there are a few that do international development projects. These projects however have a strong “action-learning” character. That is, they are structured in a way that can provide experience to a maximum number of MIT students: most of the work is done at MIT, travel is limited, the length of projects is often structured around academic semesters, and so forth. These characteristics set them apart from the “international development projects” activity category that characterizes venture clubs.
to a limited number of students (i.e. the educational trip to Washington D.C. and the annual four-day *Science Policy Bootcamp* – a *Science Policy Lunch Series* that happens on campus, throughout the year and, thus, is open to all interested MIT students.

Table 6-1: Comparison of *venture clubs* and *traditional clubs* at MIT

<table>
<thead>
<tr>
<th>MIT student club size</th>
<th>Venture Clubs (n=35)</th>
<th>Traditional Clubs (n=94)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10 members</td>
<td>34%</td>
<td>7%</td>
</tr>
<tr>
<td>11-30 members</td>
<td>52%</td>
<td>42%</td>
</tr>
<tr>
<td>31-100 members</td>
<td>11%</td>
<td>34%</td>
</tr>
<tr>
<td>more than 101 members</td>
<td>3%</td>
<td>17%</td>
</tr>
<tr>
<td>What MIT student clubs do</td>
<td>expand the education of MIT students</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>work on international development projects</td>
<td>29%</td>
</tr>
<tr>
<td></td>
<td>develop products (esp. technologies)</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>teach education outreach classes</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>provide consulting services to non-MIT parties</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>contribute to community service</td>
<td>--</td>
</tr>
<tr>
<td>Student clubs' plans for future growth</td>
<td>have established independent organizations</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>consider establishing independent organizations</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>no such intention/ data not available</td>
<td>32%</td>
</tr>
</tbody>
</table>

Second, *traditional clubs* aim at expanding the education of MIT students. While some engage in outreach and international development (2% and 8% respectively), 75% of *traditional clubs* focus on enriching the experience of MIT students on the MIT campus. For example, the *Venture Capital and Private Equity* club that was discussed in Chapter 4 estimates that approximately 500 MIT students participate in its events on campus. These events range from talks by industry professionals to more formal recruiting events. The club prides itself for being the primary resource for MIT students interested in careers in the venture capital and private equity industries.

Third, *traditional clubs* see their growth occurring within MIT. For some, growth is associated with increasing their membership numbers. *Traditional clubs* discussed in Chapter 4,
again, illustrate this point. For example, a member of the Solar Electric Vehicle Team says that she would like, in the next few years, for the club to be "slightly larger." For other traditional clubs, the aim is to increase the quality of the experiences they offer to their members. For example, a member of the Electricity Student Research Group (ESRG), a club that, as discussed in Chapter 4, holds regular meetings in which members discuss their research, says that she would like the club to get to the next level, which she describes as follows: "I would love it if ESRG became a platform for students to do research together, submit papers or, at least, posters to conferences." For all traditional clubs however, the focus is MIT. This contrasts directly with the external orientation of venture clubs.

6.5. Conclusion: Headquarters on campus

The small membership, the outward orientation of their activities, and the plans for growth into independent organizations, coupled with external funding discussed in Chapter 5, comprise a picture of venture clubs as small, entrepreneurial organizations headquartered on the MIT campus.

Furthermore, the overall off-campus orientation of venture clubs creates a notable discrepancy with definitions of student club activity put forward by the overseeing student government organizations. One wonders, for example, about the extent to which venture clubs satisfy the definition of the Association of Student Activities according to which student clubs are an "organized, continuing activity which takes place primarily on the MIT campus and is not part of the academic curriculum."

Chapter 7 discusses the response of MIT student government as well as the MIT administration to the growth of venture clubs. A dilemma is apparent: venture clubs provide
important experience to participating students but what value do they provide to the rest of the MIT community?
Chapter 7: The Response of MIT to the Growth of Venture Clubs

The questions I ask in this chapter are: How does MIT respond to the growth of venture clubs and how does this response inform our view of venture clubs as a component of the MIT entrepreneurial ecosystem? Overall, I describe MIT’s response as ambivalent, i.e. oscillating between reactions that highlight the value and others that stress the costs (potential or actual) that arise from venture clubs. Administratively, this translates into an infrastructure that supports venture clubs, but also keeps them at a distance. Specifically, the rise of venture clubs, due to their distinct off campus orientation, has spurred debate on the value that clubs should bring to the MIT student community. This area of concern comes on top of two more questions regarding student club activity as a whole (i.e. traditional and venture clubs) and even activities broadly defined as ‘extracurricular.’¹ First, what is the appropriate allocation of student time between academics and extracurricular activities? Second, how should the Institute address issues of potential liability that might arise from actions taken by members of clubs? I discuss arguments formulated and actions taken (or lack thereof) on each of these questions. I start with the two questions that concern all clubs, traditional and venture, and proceed to discuss the question of value, which primarily concerns venture clubs.

7.1. What is the appropriate allocation of student time between academics and extracurricular activities?

Involvement with clubs can take up a lot of a student’s time. This is true for traditional and venture clubs alike. In fact, it does not make a difference, since, from the perspective of faculty, time spent in extracurricular activities is time not spent on academics.

¹ The term ‘extracurricular activities’ is broadly used to denote, apart from student clubs, other on-campus activities such as participation in arts and sports as well as community engagements such as volunteering.
It is difficult to pin down the number of hours per week students devote to clubs. Surveys of the MIT undergraduate and graduate student populations as well as my interviews and observations indicate that there is a wide range: some members are only moderately involved; others more heavily.\(^2\) The majority of MIT students probably spend less than 5 hours per week in club activity.\(^3\) There is however a small minority of students for whom student club activity is central. A striking example is that of a member of the MIT Energy Club who describes his time commitment with the club as extensive, saying: "I was spending 40 hours a week on the organization of the Energy Conference alone. We had a team of 70 people. I was meeting for one night a week for like five or six hours with a small group of six, plus other meetings throughout the week. It was literally a full time job."

An indirect indication of the time commitment that student club participation entails comes from students' accounts of membership turnover. Specifically, students interviewed explain that members disappear when academics need their full attention. For example, a member of Biodiesel, a venture club, notes: "I don't think that John is as active now, because he is switching departments and trying to figure out what he is doing." Similarly, a member of the Healthcare Club, a traditional club, discusses the leadership transitions in the club as follows: "When the original founder of the club had to take his qualification exams, he passed the President role on to me. When I had to take my qualification exams, I handed the role off to another guy."


\(^3\) For example, according to a 2004 survey of MIT graduate students, 92.8% of graduate students reported spending 0-5 hours per week on "Club/organized groups," 5.4% reported spending 6-10 hours, 1.3% reported spending 6-15 hours, and a remaining 0.5% reported spending more than 15 hours. (The number of respondents for this particular question was 2254, i.e. approximately 35% of the graduate student population.) According to a 2011 survey of MIT undergraduate students, 56.6% of undergraduate students reported spending 0-5 hours per week on "Extracurricular activities other than physical fitness," 25% reported spending 6-10 hours, 11% reported spending 11-15 hours, and a remaining 7.4% reported spending more than 15 hours. (The number of respondents for this particular question was 2377, i.e. approximately 55% of the undergraduate student population.) These surveys are available on the website of the MIT Office of Institutional Research, http://web.mit.edu/ir/surveys/index.html (accessed May 16, 2013).
From the perspective of students, time spent on clubs is typically creative and fun time. For example, a member of the Educational Studies Program, a venture club, describes what she regards as the passion with which MIT students engage in extracurricular activities as follows: “Students at MIT choose one or two activities that they just pour their souls into and they spend hours and hours a week working on them.” The reasons that students give for their involvement in student clubs vary. Some find focusing on academics alone stifling. For example, a member of the Science Policy Initiative, a traditional club, notes: “I was in my third year in the lab and I was becoming frustrated with how narrow my experience was.” Others see participation in clubs as a way to discover professional pathways. For example, a member of the MIT Energy Club, a traditional club, describes his motivation for joining the club as follows: “I was trying to figure out my professional goals. I said to myself: ‘Well, I don’t really know what I want to do after the Ph.D. So, I need to get involved in something broader than the Ph.D.’”

MIT faculty members, students believe, are torn regarding the participation of their students in clubs. Some students say some faculty members support their club activities and take it as an indication that they are generally smart and engaged. For example, a member of the MIT Energy Club, a traditional club, notes: “One thing that happens when students take up this role is that relationships get strained with their advisors. Luckily, my advisor has had in the past students that have taken major leadership roles in the Energy Club and so he has experience with what it means. He knows that we are busy, but I think he also knows that it means that we are generally successful people.” Students also believe that other faculty members are not so supportive. A member of Engineers without Borders, a traditional club, notes: "Pursuing extracurricular activities also depends on what kind of advisor you have. My advisor is not too

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4 My data here are limited to interviews with students. Thus, I can only report the perceptions of students on the attitudes of faculty members.
accommodating of distractions." Yet, students say, other faculty members stand somewhere in between. For example, a member of the African Information Technology Initiative, a venture club, describes his activity with the club: "It is a lot of work and I was doing it almost full time for a few years and my advisor was... [Not very happy? I ask] Well, yes and no. He is from Sri Lanka himself, so he really liked the goal of the program. So, he was very understanding, but he also wanted me to publish and to get the hell out of here."

The ambivalence of faculty members, as perceived by students, regarding student engagement in clubs is also evident in reports of related task forces. In these reports, both statements that support student involvement in clubs and statements that indicate concern about the impact on students' academic performance can be found. There are, for example, statements that indicate faculty reservations such as the following quote from a 1984 report of the faculty Subcommittee on Roles and Responsibilities of Student Leaders: "It is generally true that presidents of student organizations often don't graduate on time, or their grades suffer." 5

Similarly, in 1999, the Committee on the Undergraduate Program expresses, in its charge to the Subcommittee on Pass/No Record Grading and Advanced Placement Credit, concern about students' over-engagement with extracurricular activities: "Still other faculty are concerned that the P/NR system discourages a serious approach to the first year academic program, leading to first year students being lax in their studies, unprepared for more advanced work, and overly active in extracurricular activities." 6

Yet, other reports focus on finding ways to encourage

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5 The quote is taken from meeting minutes of the subcommittee from July 9th, 1984. The subcommittee operated under the Office of the Dean for Student Affairs.

6 The Subcommittee on Pass/No Record Grading and Advanced Placement Credit was chaired by Professor Charles Stewart. The charge it received in 1999 by the Committee on the Undergraduate Program can be found here: http://web.mit.edu/committees/cup/subcommittees/pnrap/part2.pdf. In its final report, which was published in 2000, the subcommittee confirms the concerns of faculty about freshmen overloading their schedules with extracurricular activities, but hesitates to provide suggestions for counter-measures as the value of these activities is also appreciated. The final report is available at https://web.mit.edu/committees/cup/mit-only/pnrapreport.html (accessed May 16, 2013).
student involvement and find a narrow focus on academics to be problematic. For example, the 1998 final report of the Task Force on Student Life and Learning that states: "With little positive incentive to go beyond the Institute's academic requirements, students may conclude that 'extra-curricular activities' are indeed extraneous and dispensable."³

The issue of time takes a different spin in the case of graduate students who have research assistantships. The following quote from the meeting minutes of the Committee on Student Affairs from 1983 regarding factors that prevent graduate students from participating more actively in clubs is indicative: "If students are on a research assistantship to cover tuition, which is a large sum of money, a lot is expected of them." Students feel this pressure.⁸ For example, a Ph.D. student - member of the Wind Energy Projects in Action, a venture club, explains that, even though he believes that his participation in the club is critical for his career, he feels guilty devoting time to the club. He notes: "We are spending energy and time on things for which, in some sense, we are not being paid. On a big scale, if you talk to the MIT President, engaging in extracurricular activities is the right thing to do. But, on other hand, if your advisor knows about this, you are in trouble." Similarly, a Ph.D. student - member of the Healthcare Group, a traditional club, explains that, in terms of reporting to his advisor, acquiring leadership skills through club participation – at the expense of doing research – would not be appreciated: "Leadership skills are only important in the MBA world. In the Ph.D. world, advisors don’t want to know anything about leadership. They couldn’t care less."

³ The MIT Presidential Task Force on Student Life and Learning was established in 1996 and, as mentioned on its website, it was "charged with undertaking a comprehensive review of MIT's educational mission on the threshold of the 21st century." It was co-chaired by Professor R. John Hansman, Jr. (Department of Aeronautics and Astronautics) and Professor Robert J. Silbey (Department of Chemistry). Its final report was published in the summer of 1998. It can be found online at http://web.mit.edu/committees/sll/ (accessed May 16, 2013)

⁸ The quote is taken from the meeting minutes from March 7th, 1983. The topic of the discussion was "Graduate Student Environment."
In this context, students find themselves having to address the issue on a case-by-case, day-to-day fashion. The most popular approach is simply to hide their activity from faculty. For example, in the meeting minutes of the Committee on Student Affairs from 1983 is noted: "A common complaint is that students feel that they must hide their outside activities because they won't be seen as serious researchers."\(^9\) Hiding was also mentioned as a common technique by student club members I interviewed and/or observed. For example, a member of the Energy Club, a traditional club, notes: "There was actually a co-president of the Energy Club whose supervisor found out that he was co-president of the club when he was interviewed on NPR one day." Concealment is the order of the day. For example, in a meeting of the Environmentally Friendly Aircraft Design Team, a venture club, a member asks his team members to meet only during after-hours: "I don’t want to keep meeting during the day."\(^{10}\)

In conclusion, even though the issue of student time allocation is not unique to venture clubs, the discussion around it helps frame the concerns that follow – Institute liability and value. If MIT’s central mission is education and research, and the administration of the Institute has been designed to serve these two goals, where do extracurricular student activities fit in this framework?

### 7.2. What is the liability of the Institute for actions taken by club members?

MIT student clubs, traditional and venture, often have operations from which liability issues might arise. For example, a number of clubs engage in activities that raise environmental safety

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\(^9\) The quote is taken from the meeting minutes from March 7\(^{th}\), 1983. The topic of the discussion was "Graduate Student Environment."

\(^{10}\) While my data with regards to this particular issue do not allow me to make generalizable conclusions, overall problems with faculty advisors (and subsequent responses such as hiding) were primarily noted by graduate students. In interviews with undergraduate students, the issue of time is brought up by subjects less frequently and is mostly discussed in general terms with regards to time management and less in terms of potential effects on their relationships with specific faculty members.
concerns such as biological experiments or in physically dangerous activities such as sports and acrobatics. The MIT Outing Club, for example, organizes activities such as skiing and hiking that can be dangerous. Clubs also often engage in contractual agreements with non-MIT parties such as vendors or grant providers, which can represent a risk if terms are not met. Such is the example of BioDiesel, a venture club, which won a $25,000 grant from mtvU/General Electric Ecomagination Challenge in 2007 to install a biodiesel fuel processor on campus.\(^1\) The club used $15,000 of these funds to purchase a processor only to realize that, due to increased costs and other "constraints," it would not be possible to install the processor on campus.\(^2\) Members of the club feared that they would have to return the funds, until a solution was finally found in the fall of 2008.\(^3\) Clubs also often invite external parties on campus such as guest speakers and middle school and high school students, which introduces issues of potential liability. For example, the Educational Studies Program, a venture club, hosts hundreds of middle and high school students on campus every year and its members are concerned about issues of liability if something was to happen, as they mentioned in discussions I had with them. Things get more complicated when it comes to clubs that do international development projects (29% of venture clubs and 8% of traditional clubs, see Table 6-1) such as the House of Volunteers, which rents

\(^1\) The Ecomagination Challenge is a partnership between mtvU (MTV's college channel) and General Electric aimed at supporting sustainability projects on college campuses.

\(^2\) The club was working with MIT Facilities, the MIT Environment, Health, and Safety Office, and the MIT Committee for the Review of Space Planning (CRSP) to identify a space for the installation of the processor. Space found would have to be retrofitted to meet environmental health and safety regulations for fire suppression, spill mitigation, and so forth. After months of search, the club was presented with cost estimates as high as $137,000, which exceed by far what the club could afford, and was also informed that space options identified could not be made available to the club due to "constraints" that were not specified. The club came close to giving up. (Source: "MIT Biodiesel Team Future Uncertain As Costs Wildly Escalate," The Tech, May 13 2008 volume 128, issue 26).

\(^3\) The terms of the grant stated that "the money awarded must be applied to cover the creation expenses of the Project described in the winning Application" and club members feared that, if the project fell through, there would be issues of breach of agreement (Source: "MIT Biodiesel Team Future Uncertain As Costs Wildly Escalate," The Tech, May 13 2008 volume 128, issue 26). The club was finally able to secure space at the Francis Bitter Magnet Lab (Sources: interview with club member and the article "Biodiesel@MIT Secures Location for Storing Processor to Make Biofuels," The Tech, September 19 2008 volume 128, issue 40).
buildings in Bangladesh, hires instructors, and teaches hundreds of Bangladeshi high school students. What is the Institute’s liability in these cases?\textsuperscript{14}

MIT administrators were aware of potential legal issues. A 1965 internal memo by the Office of the Dean for Student Affairs frames the issue as the need to define the “legal relationship” of student activities to the Institute.\textsuperscript{15} The memo begins by listing a set of concerns, which include the following:

\begin{quote}
1. There are a number of student organizations which engage in so-called hazardous activities (sport car rallies, rocket test firings, etc.). What are the responsibilities of the Institute with regard to these hazardous activities?

2. When an authorized student signs a contract on behalf of his student organization, to what extent is the student, the membership of that student organization, the student body as embodied in the Undergraduate Association, and the Institute held responsible for the fulfillment of the contract?
\end{quote}

The memo subsequently emphasizes that the above concerns should be explored in light of the Institute’s long-held belief that student autonomy should be a priority, since it is central to the educational experience of students. The following is stated in the memo: \textit{“It should be remembered that the Institute has always held that a sound educational program and a healthy student life are best fostered by autonomous student organizations, directed and maintained by students themselves.”} It further notes that \textit{“the Institute believes that its students are sufficiently mature to conduct their own affairs and to act prudently in guarding against the risks involved without supervision.”}

\textsuperscript{14} Both the Outing Club and the Educational Studies Program ask their members and the parents of participating middle school and high school students respectively to sign liability waivers. The question however remains as not all potential risks can be addressed in this way.

\textsuperscript{15} The memo is written by Jay C. Hammerness, Assistant Dean of Student Affairs. It is addressed to Kenneth R. Wadleigh, Dean of Student Affairs, Robert J. Holden, Associate Deans of Student Affairs, Frederic Watriss, Assistant Treasurer, and ‘Valentine,’ whose first name and title I am not able determine.
This memo continues and presents two options toward the formulation of a "legal relationship" between the Institute and student activities. The first option is to establish a "separate corporation" and "gather" all student activities under that. This corporation would have a board of trustees that would consist of faculty and staff. It would be completely autonomous and it would file its own reports and tax returns. However, the memo acknowledges that, even so, "in the event of unusual liability, such a corporation might be judged a dodge and MIT held as the liable party."

The second option offered by the Office of the Dean for Student Affairs – and explicitly supported – is to treat student activities as any other academic department. The memo states that the second option supports the status quo: "In many ways this would be formalizing the policy which is operating at present." This option is given preference, even though it would mean that MIT would assume full responsibility of any liabilities arising from student club activity:

"In one important area, that of contract liability, we might have to face the fact that students acting on behalf of their student organizations are agents of the Institute. In the past we have never stated this but we have probably always acted as such when the chips were down. To continue to allow students to sign contracts by themselves would seem to be to our advantage not only because it is educational for the students and gives student groups a certain amount of autonomy, but also because it would be hard to police a rule requiring co-signature by a staff man."

The administrative structure that has arisen since then, as described in Chapter 4, reflects the basic tenets outlined in this memo. Student government operates under the auspices of the MIT administration and is given substantial autonomy. Even though I was not able to locate any incidents that would show how the MIT administration has handled cases of liability in practice, overall my data verify that student autonomy has remained central in the priorities of the Institute. For example, a staff member in the Student Activities Office explains that the MIT
administration intervenes only in cases of high risk and, even then, it does so with respect for the autonomy of the student government. She notes:

“When it comes to student organizations, the student government has the final say on things – unless it's a huge liability or legal issue. In these cases, MIT needs to have more of a say, just because of the potential outcomes. For example, if the club in question is the Flying Club or something like that. Or, if a student club wasn’t representing MIT in the best way, MIT’s Law Office might become involved in something like that. This does not mean, however, that the Association of Student Activities would be trumped.”

Similarly, a member of the Association of Student Activities notes that they work in tandem with the MIT administration to avoid anything that might cause trouble. He notes:

“We tend to be aware of the kinds of things that would cause MIT to worry about the recognition of certain clubs. One of these is safety. There are a couple of acrobatics clubs, for example, whom we have encouraged to consult the Student Activities Office. Another concern is environmental safety, for clubs that want to do things related to biology or science in general. In these cases we say: ‘You need to talk to the Environment, Health, and Safety Office and have them say that the proposed activities of your club are okay with them.’”

In conclusion, MIT assumes full legal responsibility for the activities of student clubs and, as I will argue, this has helped venture clubs grow. The next question the MIT administration and the student government face is more subjective and concerns the value that student clubs are expected to bring to the MIT community in return for the resources (both monetary and non-monetary) that are made available to them? This question is particularly pertinent for venture clubs.

7.3. What should student clubs bring to the MIT community?

What is the value student activities are expected to bring to the on-campus student population, given that significant MIT resources are devoted to them? While the issues of liability and
student time allocation are common to traditional and venture clubs alike, the debate regarding the value of student activities is distinctly spurred by the growth of venture clubs. For example, the House of Volunteers, as discussed in Chapter 6, is a venture club that pursues educational projects in Bangladesh. The club contributes to the education of hundreds of Bangladeshi youths; what value, however, does the club bring to the MIT community?

As the number of venture clubs grew, this question became more pressing, especially to the Association of Student Activities which is responsible for the recognition of new clubs. It also coincides with a broader discussion at MIT regarding the international engagements of the Institute and their appropriate scope. Here, I discuss two important changes that have occurred at MIT and affect venture clubs in particular: first, the Association of Student Activities changed the recognition process for new clubs in 2008 in order to accommodate a larger number of clubs, especially venture clubs that had difficulty meeting the recognition criteria; second, a number of MIT centers and programs started to make funding available to student club endeavors that were previously ineligible for MIT funding (especially in the areas of international development and public service).

Lowering the threshold for recognition The three recognition categories (funded, unfunded, and sponsored) as discussed in Chapter 4 were instituted in 2008. Previously, clubs were awarded full or provisional recognition or were rejected. Provisional recognition denoted a temporary status for approximately a year, during which clubs were evaluated for their success in fulfilling recognition criteria. After that provisional period, clubs were either awarded full recognition or
were rejected. The change from the older system to the one that is in place today was, apart from a solution to general inefficiencies, a response to the growth of *venture clubs*.\(^{16,17}\)

A few years before the change, concerns regarding the value of so-called "public service clubs" or simply "service clubs" had begun to be voiced among members of the *Association of Student Activities (ASA)*.\(^{18}\) Meeting minutes from 2004 reveal, for example, efforts by the *ASA* to "offload" funding for such clubs: "*We talked about encouraging public service groups to seek outside funding. Maria will work on workshops for seeking outside funding.*** Meeting minutes from 2006 indicate that *ASA* members discussed the underlying philosophies of the *Undergraduate Association* and the *Graduate Student Council* hoping for some clarity: "*The Undergraduate Association does support service groups. But, they are wary of groups that want to give money to charities directly or indirectly. [...] For Graduate Student Council, the idea is to get students out of the lab and socialize.*" A note in meeting minutes from 2007 makes the point of concern clear: "*How much do service groups benefit MIT? It seems that they offer much more benefit to their 'targets.'*** A similar set of concerns was raised in 2007 when the *Leadership Training Institute*, a *venture club* discussed in Chapter 6, applied for recognition. An *ASA* member comments on the fact that the events of the club are targeted toward high school students and another member replies: "*The club targets a small portion of MIT population, but

\(^{16}\) Whereas the original intent was to revisit the status of *provisional clubs* every year, in reality there was either lack of follow-up or, inability to thoroughly assess the status of clubs due to the annual turnover of *ASA* members and the subsequent loss of information on the specifics of previous decisions.

\(^{17}\) As discussed in Chapter 4, the *ASA* evaluates clubs based on four main criteria: (a) legality according to Institute, local, state, and federal laws; (b) sustainability beyond the initial membership; (c) appeal to the *MIT* student population, and (d) uniqueness from existing student clubs. *Venture clubs* had difficulty meeting (b) and, especially, (c). With the new recognition system, these criteria did not change; they were, however, significantly relaxed, in favor of *venture clubs*.

\(^{18}\) The clubs referred to by the *ASA* as "*service clubs*" overlap, essentially, with my "*venture clubs*." (See the discussion in Chapter 6 regarding the activities found among *venture clubs* and *traditional clubs*, which showed that the former are particularly active in international development, public service, and educational outreach). Thus, the discussion about *MIT*'s policies with regards to international engagements is primarily relevant to *venture clubs*; it is, however, not limited to those, as there are also some *traditional clubs* in the area of international development (see Table 6-1).
they plan to expand.” Another member asks: “Is the Leadership Training Institute a public service group and not student group?”. (The recognition of the club was “tabled” at that meeting and was favorably revisited in 2009, as I discuss below.)

The discussion about “public service groups” was, in part, triggered by the work of the Public Service Center (PSC), which, as discussed in Chapter 1, was a new actor in the area of student activities. Often, the ASA takes into consideration PSC’s input in its recognition decisions. But it does so always with caution. For example, when, in 2008, SEALNet, a traditional club that works in the area of international development, applied for recognition, ASA members note that the club met with the PSC and that the latter is supportive of their activity. Even though they recognized the club, the following cautionary point for future cases was also made: “PSC only evaluates groups on the service aspect. We consider the social aspect.”

Increasingly, ASA members expressed the need to change the club recognition process, as the number of “service groups” applying for recognition increased. The solution the ASA settled on was to simplify the recognition categories. Specifically, ASA committee members realized that clubs do not always apply for recognition because they seek funding. Rather, some clubs apply for recognition to gain access to non-monetary resources such as use of the MIT name, financial account services, classroom spaces and so forth – all of which are, unlike money, non-scarce resources that can be made available to a large number of clubs. Thus, in 2008, the ASA changed its recognition categories: “Instead of full, provisional, and sponsored status, a better system is fundable/non-fundable, since really we want (almost) everybody that wants it to have access to non-limited resources (e.g. rooms, MIT name).”

The change was viewed by the student community as positive. In an article that appeared in The Tech, the interpretation offered is that the new recognition system will make it simpler for
clubs to gain access to MIT resources: “Groups of students who want access to certain resources controlled by the Association of Student Activities would have an easier time getting them, under a proposal being presented by the ASA’s executive board to all student groups at a Monday general body meeting.”19 The article also features a quote by the ASA Treasurer who notes that the proposed change “lowers the threshold for ASA recognition.”

This did not mean however that concerns regarding the value that clubs offer to the on-campus MIT student community were completely put aside. For example, when, in 2009, the Arts and Social Sciences Development Forum, a club promoting arts and social science studies among local high school students, applied to the ASA for recognition, one of the ASA committee members commented on the club being “very outwardly-focused.” Her comment was followed by that of another committee member who asked: “Are they bringing value to the MIT community?”20

The new system did make it easier however for venture clubs to achieve recognition. For example, the Leadership Training Institute was granted recognition in 2009 as “unfunded,” whereas two years earlier its application had been “tabled” because the ASA was skeptical about the club’s potential to engage a large enough number of MIT students. Some indication of what the change meant is provided by a 2008 article in The Tech that quotes the then ASA Treasurer, saying: “Of the 28 group applications the ASA received in this last applications cycle in September, only 11 were recognized. Nine more were provisionally recognized, three tabled for further consideration, four denied recognition, and one request was withdrawn. Most of the 16

20 This club is not part of my study because of lack of data. The club’s application for recognition was “tabled” at that meeting with the note that, since the club was focused essentially on “recruiting HAAS majors/minors” (HAAS stands for (School of) Humanities, Arts, and Social Sciences), MIT Admissions should be consulted before any decision was made. It is unclear what happened after that.
groups not fully recognized would qualify as some kind of student group under the proposed revisions."\footnote{21}

**Providing financial support** The question of the value that clubs should bring to the MIT on-campus student community is not raised, however, only at the stage of recognition. It is also central in discussions of funding allocation. How did the MIT administration address the funding for *venture clubs*? Here, the discussion, as documented in MIT archival material, continues to be framed in terms of the extent to which MIT should support clubs with an explicit service orientation (domestic or international).

As discussed in Chapters 4 and 5, MIT resources are unfit for *venture clubs* – with the exception of *internal grants* from MIT centers and programs. *MISTI*, the *Public Service Center*, and the *Legatum Center* were discussed as most prominent ones in the areas of international development and public service. These centers and programs raise – for the most part – their own funding. They also set their own agendas. The question that arises is: What led to the growth of these centers and programs?

Critical, it seems, is the role MIT faculty have played encouraging the growth of international and public service initiatives. In the late 1980’s and early 1990’s, two major reports authored by MIT faculty addressed this issue and recommended guiding principles for the Institute. The first was *"Made in America,"* a report by the *MIT Commission on Industrial Productivity* that came out in 1989. The second was a report, in 1991, by the *Faculty Study Group on the International Relations of MIT* known as the *"Skolnikoff Report"*.\footnote{22} Both stress the

\footnotetext[22]{The report is named *"Skolnikoff Report"* after Professor Eugene Skolnikoff who chaired the committee. The full title of the report is *International Relationships of MIT in a Technologically Competitive World.*}
importance of an international perspective, but also make clear that MIT's obligation to the U.S. should have priority. The "Skolnikoff Report" introduces the issue at hand as follows:

"Today, there are new pressures and opportunities facing research universities. The social, economic and political setting in which they are embedded has changed dramatically, perhaps most strikingly in international affairs, as the scale of interactions among national economies and societies, the change in the security situation, and the worldwide growth of competence in science and technology have altered many traditional relationships." (p.1)

In response to these changing circumstances, the "Skolnikoff Report" (p.9) stresses the importance of an international perspective:

"Thus, in order to fulfill its basic responsibility to the nation, it is essential that MIT maintain openness of research and education, that the Institute be an active participant in international scientific and technological communities, that faculty and research staff be able to interact freely with colleagues abroad and have ready access to research in other countries."

The report, however, urges the MIT community to be cautious. Priority should be given to the needs of the nation. Here, the report references "Made in America" which provided "graphic evidence suggesting that American firms in a broad range of industries have been lagging behind their competitors in other countries" (p. 29). In light of the growing international competition, the "Skolnikoff Report" emphasizes that international interactions have to be focused strategically on what will benefit the American economy:

"At a time when domestic productivity growth is lagging and international economic competition is intensifying, the effective transfer of knowledge to American industry must remain an important aspect of the Institute's mission. [...] Occasionally, there may be major conflicts between national and international roles. In the resolution of such conflicts, we believe the Administration, with the advice of the Faculty, should give primary weight to the general responsibility to the nation." (pp. 9-10)

The "Skolnikoff Report" is also explicit with regards to public service efforts:
“Many public service efforts are deserving of MIT’s support. However, in all cases, the true costs to the Institute, in faculty and staff time as well as dollars, should be realistically assessed in advance. Programs that are predominantly to provide public service, rather than a contribution to the Institute’s central missions of education and research must be undertaken with caution; they carry the risk of detracting from those central missions which are the Institute’s most important contributions to public welfare.” (p.39)

More recent reports on MIT’s international relations also fall along the same lines. A 2009 report, for example, on the “Guiding Strategies for MIT’s International Activities” by the MIT International Advisory Committee urges the MIT administration to “strive to provide an international experience for all students” (p.18). It also encourages faculty to “undertake international service activities that build on MIT’s strengths and leadership” (p.2). It cautions, however, that “such service-oriented initiatives are most valuable and can be justified only when MIT gains some tangible educational or research benefits from the project as well” (p.14).

In parallel to the above reports that provided cautious guidelines for action, things were changing at MIT. In 1995, MISTI was established. In the MIT News article announcing its establishment direct mention is made to “Made in America” and the “Skolnikoff Report.”

According to the article, Provost Mark S. Wrighton noted: “The establishment of MISTI reflects the broad consensus at MIT that it is important for education and research to reflect a global view.” Shortly after, in 2000, the PSC, under a new director, became, as discussed in Chapter 5, a focal point for public service and international development efforts. And, in 2007, the Legatum

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23 “Guiding Strategies for MIT’s International Activities” is a report by the MIT International Advisory Committee, chaired by Professors Claude R. Canizares and Philip S. Khoury. It was published in 2009.

24 MIT News is the official MIT newsletter publication by the MIT News Office.

Center was established, creating one more avenue for student clubs pursuing international development projects.\textsuperscript{26}

Administratively, MISTI, the PSC and the Legatum Center are only loosely linked with each other.\textsuperscript{27} They are also fairly independent, in their development and current activities, from the MIT administration. As noted in a 2007 report by the Committee on Global Educational Opportunities for MIT Undergraduate Education (GEOMIT), they have “developed largely independently of each other and of the MIT central administration.”\textsuperscript{28} The report further elaborates: “They have expanded to limits mostly set by available (often non-Institute) resources and staff time. Synergies between them have developed where natural alliances have been apparent.”

In conclusion, the question of the value that clubs bring to the on-campus MIT student community is particularly crucial in the case of the outwardly-oriented venture clubs. This question is meticulously raised at the stage of recognition of new clubs as well as when funding decisions are made. In recent years, however, recognition standards have been relaxed and alternative, non-student club sources of funding have become available.

\begin{footnotesize}
\begin{enumerate}
\item I should note that this is not intended to be an exhaustive list of international development programs and centers at MIT. Rather, I focus on those that are significant in terms of providing financial support to venture clubs.
\item MISTI is under the Center for International Studies, which belongs to the School of Humanities, Arts and Social Sciences; the PSC is under the MIT Division of Student Life, which in turn is under the Dean for Student Life; and the Legatum Center is “hosted” by the School of Architecture and Planning. (This information was obtained from the organizational chart of MIT, available at http://orgchart.mit.edu/reporting-list (accessed May 16, 2013), and the website of the Dean of the School of Architecture and Planning.)
\item The Committee on Global Educational Opportunities for MIT Undergraduate Education (GEOMIT) was co-chaired by Professors Linn W. Hobbs and Hazel L. Sive.
\end{enumerate}
\end{footnotesize}
7.4. Incubation of venture clubs amidst ambivalence

Despite the ambivalence that surrounds their existence, venture clubs have found their place at MIT. Illustrative of the growing proclivity of MIT to serve an incubating role for venture clubs is the contrast between the Africa Technology Forum, a venture club that flourished in the 1980's but is no longer active, and SANA, a venture club currently active at MIT that was established in 2009. Both focus on international development: the Africa Technology Forum published a journal on technological entrepreneurship in Africa; SANA develops a mobile phone application that allows healthcare workers to serve patients in remote, rural areas. One of the co-founders of the African Technology Forum explains the difficulties they faced at MIT in the 1980's: "We did get some support from MIT, but there was really no structure within MIT for an organization like ours. We had to find our own way through." In contrast, a member of SANA notes the support that they have received: "For the most part, MIT has been very supportive. I think we've gotten about a hundred thousand dollars from MIT."

Venture clubs contribute in two ways to the MIT entrepreneurial ecosystem given their unique relationship to the MIT administration and student government. First, venture clubs are now recognized by the student club infrastructure that was originally developed to support traditional clubs. By means of this recognition, venture clubs receive non-monetary resources (e.g. MIT affiliation, classroom reservation ability, financial accounts). Second, venture clubs receive significant financial support from MIT, although not from dedicated student club funding, but from various MIT centers and programs that support student activities. With the help of these resources, venture clubs hope to grow and become their own, independent non-profit or for-profit organizations.
7.5. Conclusion

This chapter discussed the response of MIT to the growth of venture clubs. I discussed how three distinct areas of concern (namely, student time allocation, Institute liability, and value clubs bring to the community) were addressed by the MIT administration and student government. I described MIT’s overall response to venture clubs as ambivalent: encouraging such activity, but also concerned about potential costs. Despite the ambivalence, however, MIT now embraces venture clubs legally as well as supports them financially – yet, in ways that set them apart from traditional clubs and thus they can be seen as part of the MIT entrepreneurial ecosystem. Specifically, venture clubs are, for the most part, supported financially by MIT centers and programs that support student activities in general, rather than from dedicated student club funds. This distinction, coupled with the explicit intention of the majority of venture clubs to establish their own organizations in the future, paints the picture of an incubator - incubatee relationship between MIT and venture clubs.

This chapter concludes my discussion of venture clubs, their characteristics, and how they have been received by MIT. Chapter 8 opens up the discussion and approaches venture clubs in the broader context of entrepreneurship.
Chapter 8: Learning from the Case of MIT Venture Clubs

This chapter concludes the thesis with a discussion of MIT venture clubs in the context of the broader popular narrative of entrepreneurship as a virtue for the individual and a primary driver of economic growth. I attribute the rise of MIT venture clubs partially to this narrative and partially to MIT's own, long-standing emphasis on entrepreneurship. I also discuss voices raised for and against the integration of entrepreneurship in higher education. Second, I briefly review how this integration took place at MIT in the case of venture clubs, and speculate about whether this model would work elsewhere, in higher education institutions as well as in other organizational settings. Lastly, I discuss the limitations of the present study and future research directions.

8.1. Why the rise: MIT venture clubs in context

I started out by posing the question: What entrepreneurial activities do students pursue while still in school? Literature on the integration of entrepreneurship in higher education focuses on college alumni statistics or pursuits of faculty members. Entrepreneurial activities of students have received less attention. Yet, it is important to understand in-depth the ways in which students engage in entrepreneurial projects and how these are integrated in the academic enterprise. The discussion of the activities and other characteristics (namely, funding, membership, and goals for future growth) of MIT venture clubs, while not exhaustive of entrepreneurial activities of students while in school, significantly advances our knowledge.

The proportion of venture to traditional clubs at MIT is rising. The number of students involved is still small but, given the range of academic and professional paths that MIT students
follow and the abundance of on-campus activities, it is not insignificant. In addition, the trend observed is expected to continue given the increasing level of interest in entrepreneurship among students and the growing set of resources offered by the MIT entrepreneurial ecosystem.

This thesis does not directly address the question of why there has been a rise of venture clubs. It can be said, however, that the rise of venture clubs is multi-determined. It can be attributed partially to MIT-specific factors (most importantly, the emphasis that the Institute places on entrepreneurship since its early years as discussed in Chapter 2), and partially to environmental factors such as the general emphasis on entrepreneurship in society as recently observed. Anecdotal references reveal the widespread prevalence of the entrepreneurial narrative. For example, a quick search on Amazon for books related to entrepreneurship yields approximately twenty thousand titles. Self-help guides that claim to have the secret recipe for successful ventures abound. Burgerstone and Murphy (2012), for example, claim to have “The Proven Framework for Building Brilliant New Ventures.” At the same time, popular press articles like a recent New York Time’s editorial column by Thomas Friedman that talks about “inventing” rather than “finding” one’s job extend the entrepreneurial narrative beyond the creation of new ventures. The entrepreneurial ‘buzz’ is even stronger in the case of MIT, which is located in a city that consistently ranks among the most entrepreneurial in the U.S. and the world.

Social entrepreneurship is becoming particularly popular among those interested in promoting social good. A large percentage of MIT venture clubs pursue social entrepreneurship

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projects. As I discussed in Chapter 6, 29% of venture clubs at MIT engage in international development projects and 17% in education outreach classes to local middle and high school students. In addition, out of the venture clubs in the remaining categories (namely, “expand the education of MIT students,” “develop products,” and “provide consulting services to non-MIT parties”), approximately 50% engage in projects that fall in the social entrepreneurship category.

Uncovering the social orientation of MIT entrepreneurship is a unique contribution of my study, since previous studies focused primarily on technological entrepreneurship (e.g. Roberts, 1991).

Lounsbury and Strang (2009: 71) attribute the growth in popularity of social entrepreneurship to the marketization of the economy. They note: “Drawing on the prestige of business leaders and cultural models of heroic action, social entrepreneurship has begun to emerge as a new institutional logic to address social problems in ways that circumvent longstanding bureaucratic approaches to social welfare.” Similar views were expressed by members of MIT venture clubs. A member of the Assistive Technology @ MIT, for example, noted: “Our goal is to find a sustainable model and a big part of that is potentially to make our endeavor a profitable thing so that there is an incentive to continue. [...] I think there is this new buzz word now that is called not-just-for-profit model: you make money, but you also have these goals...” The social entrepreneurship trend is currently upward and I expect it to continue.

Beyond the reasons that account for the rise of MIT venture clubs, the question that arises is: Is the integration of entrepreneurship in education good or bad? I address this question below.
8.2. Integration of entrepreneurship in higher education

Views on the integration of entrepreneurship in higher education, as discussed in Chapter 2, vary from supportive to straightforwardly negative. According to views on the positive side of the spectrum, the interaction between entrepreneurship and higher education is thought to lead to innovation, regional development, and, in general, to scientific and economic growth. Indicative is the following quote by MIT Professor and researcher of MIT entrepreneurship, Edward Roberts (1991: 3): “The first modern technology-based companies in the Boston area seem inevitably linked to MIT. A number of unique faculty, who sensed needs or opportunity, or both, to transfer their technological skills and know-how to the marketplace, became the early technological entrepreneurs of Greater Boston.” Although MIT venture clubs are – for the most part – small, nascent organizations, one can already note their positive effects on the regional economy and overall growth. IdeaStorm and the Wind Energy Projects in Action, for example, promote interaction between student and professional communities facilitating entrepreneurship and energy sustainable solutions, respectively. Both these examples illustrate the local impact of venture clubs, while others such as the Indian Mobile Initiative and the African Information Technology Initiative point to global impact.

On the contrary, according to views on the negative side of the spectrum, the interconnections between entrepreneurship and higher education mark the ‘commercialization’ of the latter, described as surrendering to ‘market forces’ and moving away from ‘pure science’ and liberal educational ideals. In contrast to Edward Roberts’ quote, another MIT Professor, a world-renowned linguistics scholar, Noam Chomsky, notes: “There is, furthermore, no way to measure the human and social costs of converting schools and universities into facilities that
produce commodities for the job market, abandoning the traditional ideal of the universities.”

Of course, MIT venture clubs are of a much smaller scale compared to billion-dollar corporate research funds that universities receive and which Noam Chomsky is primarily referring to, so it is difficult to identify any ‘commercialization’ impact they might have. I should note, however, that my impression from talking with students is that their activities with venture clubs were far from transforming them into “commodities for the job market.” Quite the opposite, I would think, since students often explicitly described venture clubs as vehicles they use for crafting their own, self-aspired career paths.

From an organizational perspective, student entrepreneurial activities such as those found among MIT venture clubs and the tensions that surround them represent the fundamental disconnect between the formal structure of an organization and the goals its members and, most importantly, are crucial for the vitality of organizations as they enable innovation. Burns and Stalker (1961: 97), for example, note that “individuals seek to realize other purposes than those they recognize as the organization’s” and, in their discussion of “mechanistic” and “organic” systems of management, they emphasize the importance of organizations being open to and aligned with the specific “purposes” of their members. Since Burn and Stalker’s classic work, a number of studies have come to the same conclusion (e.g. March, 1991; Adler & Borys, 1996; Jansen et al., 2006; O’Reilly & Tushman, 2008). In line with this perspective, I focused on the willingness and ability of MIT to be flexible in giving space and resources to allow venture clubs to develop. The MIT administration and student government provided venture clubs with monetary and non-monetary resources, in ways that do set them apart from traditional clubs but are no less supportive. In my opinion, this approach has worked well and sets a fine example for

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how organizations can be open and adaptive to emerging phenomena without, at the same time, relinquishing full control. The role of an ‘extended’ organizational infrastructure, i.e. the MIT centers and programs that primarily support the activities of venture clubs, has been key and, I think, has highly benefited the Institute. As long as alignment with MIT’s core values is maintained, centers and programs, which are often in partnership with external organizations and across the board raise to a significant extent their own budget, are a good way for the Institute to achieve growth and respond to student needs, interests, and opportunities as they arise.

8.3. Incubation through a platform of resources: Generalizing from the case of MIT venture clubs

Given how apparently widespread the phenomenon of integration of entrepreneurship in higher education is (as outlined in Chapter 2), the following question arises: Does the MIT approach to the rise of venture clubs apply to other institutions of higher education?

It is difficult to assess from the literature whether the MIT model is encountered in other institutions. Most of the literature on entrepreneurial universities reviewed in Chapter 2 focuses on specific components of university ecosystems such as the technology transfer office (e.g. Bercovitz et al., 2001; Colyvas & Powell, 2006). Even when more than one components of an ecosystem are reviewed, no explicit attempt is made to theorize the interconnections between those and their structural relationship to the main university administration (e.g. Bramwell & Wolfe, 2008).

The only exception is the analysis of the entrepreneurial ecosystem of the University of Oxford in England and of entrepreneurial universities more broadly by Vorley and Nelles (Vorley & Nelles, 2009; Nelles & Vorley, 2010). They make an explicit effort to pin down the
elements of what they call the "entrepreneurial architecture" of entrepreneurial universities. They identify five key elements: structures, systems, strategies, leadership, and culture. They emphasize that these are "interrelated and overlapping" and that "the presence and coordination of all five is required in order to secure successful adaptation to the Third Mission." Their analysis, however, suffers from over-determination. The creation of an entrepreneurial university, no doubt, requires a lot of components. The question I ask however is more specific. The venture clubs that were observed at MIT have the unique feature of being organizations within an organization. This characteristic sets them apart from other components found in entrepreneurial ecosystems examined by Nelles and Vorley. Do other institutions of higher education have similar structures in their entrepreneurial ecosystems and how have they achieved their smooth integration?

Whereas in the literature reviewed in Chapter 2, no other cases of organizations within an organization were encountered in universities, literature on ‘intrapreneurship’ in corporate settings provides ample case studies that suggest that the MIT model can be generalized not only in higher education but also in other organizational settings. Interestingly, Vorley and Nelles also borrow their framework from the work of Burns (2005) on corporate entrepreneurship and maintain that there are similarities between institutions of higher education and corporations. I review studies on ‘intrapreneurship’ in the next section.

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4 Vorley and Nelles define ‘structures’ as “entrepreneurial infrastructure including Technology Transfer Offices, incubators, tech parks, business portals, etc.”; ‘systems’ as “networks of communication and the configuration of linkages between structures and departments, admin, etc.”; ‘strategies’ as “institutional goals elaborated in planning documents; includes internally determined formal incentive structures”; ‘leadership’ as “qualification and orientation of key leaders (administration, board of directors, star scientists) towards the Third Mission”; and ‘culture’ as “institutional, departmental, and individual attitudes and norms toward the third stream.” (The term ‘Third Mission’ is predominantly used in an Anglo-European context to refer to the socio-economic and entrepreneurial role of universities.)

8.4. MIT venture clubs as a case of ‘intrapreneurship’

The literature on ‘intrapreneurship’ is rich in examples that highlight entrepreneurial initiatives within organizations. The terms ‘corporate entrepreneurship’ and ‘internal entrepreneurship’ are also used to describe similar phenomena (e.g. Burgelman, 1984; Kanter et al., 1990; Badguerahanian & Abetti, 1995; Burgers et al., 2009).

Similar to the tensions surrounding MIT venture clubs, the literature on intrapreneurship identifies ‘conflicts’ between firm administration and internal ventures. Kanter et al. (1990: 417) list some of them: “strategic conflicts of interest involving domain and synergy; administrative conflicts involving the unwillingness of other departments to share resources with the new venture or the unwillingness of the venture to use the policies and systems of the established organizations; “culture” clashes because of the more chaotic nature of innovation; and measurement and reward issues, because it is often misleading to measure new venture performance in the same way an established business is measured.”

The literature on intrapreneurship highlights the decentralized, easily adaptable structure of the organizations that support innovation (e.g. Nohria, 1988; Ciborra, 1996). A number of companies have been analyzed. A most common example is that of 3M, a company that is known for the processes set in place to support “breakthrough product development” as opposed to “line extensions and incremental improvements to existing products and services” (e.g. Von Hippel et al., 1999:3). Kodak is another well-studied case. Nohria (1988: 136), for example, discusses how the company “restructured its traditional monolithic, centralized research lab into smaller, decentralized research organizations.” Analyses of the Kodak case reveal similarities of the company’s innovation structure with the decentralized centers and programs.
that support venture clubs at MIT. Overall, research on intrapreneurship shows that the structure in place at MIT to support venture clubs is both common and transferrable.

8.5. Limitations and future research directions

The thesis focused on the ‘here and now’ of the entrepreneurial activities of students. While this is one of the advantages and main contributions of the study, it still leaves open the question of how the clubs fared. Did the venture clubs studied here pursue their plans for growth? Did or will they in the future form non- and for-profit organizations? Will those be successful?

Almost three years have passed since I began my data collection. Some of the student-members of the venture clubs studied are still in school while others have graduated. While my ‘official’ data collection was completed in the summer 2011, I continued to follow the activities of the venture clubs that I had observed closely and are central to this thesis. Venture clubs like the Educational Studies Program and the Leadership Training Institute that run outreach education classes on campus continue to operate in the same mode. The Leadership Training Institute held a “retreat” over Columbus Day weekend (2012) in Andover, MA, for “old mentors and new mentors to have a chance to bond and become comfortable with each other.” A new cohort of 18 mentors, primarily undergraduate students, was welcomed and introduced to the operations of the club. The Educational Studies Program completed Spark (November 2012) and is now accepting applications for Junction, its summer program (July-August 2013).

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6 Even so, recent developments show that Kodak did not go through shifts in technologies and the market of the last decades without scars. In 2002, Nitin Nohria, who continued to follow the company, wrote that Kodak was “trying to transform itself from a ‘film dinosaur to digital powerhouse.’” Recent press coverage reveals that the company filed for Chapter 11 bankruptcy protection in January 2012 and is currently selling parts of its business in order to stay afloat. (Sources: Nitin Nohria, Davis Dyer, and Frederick Dabell, “Reinventing the Industrial Giant,” 10 June 2002, Harvard Business School website, http://hbswk.hbs.edu/item/2971.html (accessed April 16, 2013); “Kodak selling document imaging assets for $210M,” The Wall Street Journal, April 15, 2013.)

Programs and registration information are announced through the club’s website, Facebook page, and twitter account. These clubs did not intend to establish independent organizations outside MIT; they continued to grow within the Institute.

Venture clubs that had already established non-profit organizations at the time of my data collection, such as the Science and Technology Leadership Association, Learning Unlimited, the Collegiate Energy Association, and the Middle East Education through Technology, also continued their operations and have achieved further growth. For example, the Middle East Education through Technology club features on its website a quote from a recent (March 2013) speech by President Obama in Jerusalem that mentioned the organization as an example of initiatives toward peace and economic growth in the region. According to the club’s website, President Obama noted: “Already, we see how that innovation could reshape this region. One program here in Jerusalem brings together young Israelis and Palestinians to learn vital skills in technology and business.”

Other venture clubs, however, have had less prosperous times. For example, BioDiesel, as already mentioned, ceased its operations in March 2013, after years of struggle to make its biofuel production program financially sustainable. A brief email was sent to the club’s mailing list, shortly after the decision was made, informing members. The email, sent by one of the club’s board members, noted: “I regret to inform you that Biodiesel@MIT is no longer operating. [...] After this email, I will be taking down the website and deleting this listserv.” The Africa Information Technology Initiative concluded its integration with the MISTI program, which meant that the continuation of its program was secure and sustainable but no longer in student hands.
Lastly, a set of venture clubs continue to run but do not seem to be quite where their leaders were hoping for them to be several years ago. This might be explained by the often divergent paths that some of their then leading members have taken. SANA, for example, continues its work in improving access to healthcare in developing countries but the focus of the club has shifted considerably toward the development of a course on health information systems for developing countries that is taught at MIT by some of its members. Some of its founding members are still with the club, while others are no longer involved and have pursued other entrepreneurial opportunities in the health sector. Similarly, the Environmentally Friendly Aircraft Design Team has been fairly inactive, while one of its original members and primary drivers is still at MIT working on the same agenda of green aviation but from a different capacity, as research staff in the Laboratory for Aviation and the Environment.

While informative, the above discussion is largely based on anecdotal data. In order for a more complete discussion to be possible, a longitudinal research design would be needed. Such a design would track venture clubs across time, from their founding to later stages of development or dissolution. It would also allow for conclusions to be made on the factors that determine the success of an entrepreneurial venture – at least of this kind, i.e. when the starting point is a student organization. Future research should be done in this direction. Of course, the scope of such a project is quite significant and would involve substantial time and travel, but data from such research would enhance our ability to understand the full extent and the long-term implications of the activities of venture clubs.

At the same time, it is important to find ways to dig into the past. While in this study I tried to analyze the activities of venture clubs since the 1980’s using, primarily, archival material such as documents of the student government and articles in the MIT student newspaper, The Tech,
such an endeavor would highly benefit from interviews with MIT alumni. A 'snowball' interview technique, which could start by identifying alumni names on archival material and then getting leads for other interview subjects from them, would uncover, I am sure, useful material about the activities of older venture clubs as well as the career paths that their members took.

A longitudinal research design would allow for an analysis of "venture success" as the dependent variable. Such an analysis would be key in contributing to areas of research such as technology and innovation and, if done comparatively, regional economic development. At this point, even though my study contributes to our understanding of the genesis of entrepreneurial ventures in a specific university setting, it leaves these ventures in their infancy and is thus unable to make claims regarding their further stages of development. In addition, my current research design does not provide the necessary time horizon for the contributions of individual entrepreneurs (perhaps those of the founders of clubs or other leading members) to be assessed vis-à-vis those of clubs and, thus, it falls short in explaining entrepreneurship at the level of the individual.

A longitudinal research design would also be useful toward contributing to the sociology of science literature, which, as discussed in Chapter 2, focuses in part on the transformation of 'pure science' to 'applied science.' In this case, a longitudinal design – with the individual entrepreneur as the unit of analysis – would look at the organizational and institutional factors that contribute to the shift from science to entrepreneurship. Such a design might entail tracking students – rather than venture clubs – across time. Even though in my fieldwork I came across data that point to factors that affect the development of entrepreneurs, these are far from conclusive. I found, for example, that many venture clubs come out courses. Sometimes these are entrepreneurship courses such as those discussed in Chapter 1, but often they are courses
unrelated to entrepreneurship. The *Environmentally Friendly Aircraft Design Team*, for example, was born when two classmates in a chemistry course decided that their project on green energy fuels was worth pursuing beyond the class. *SANA*, to mention a second example, came about when a Media Lab course that was organized in projects under different thematic areas (e.g. healthcare, education, global crime, and so forth) was discontinued. Students in the healthcare area decided that projects that had been going on for several years through the course should be carried on. They formed *SANA* as a result. With my current research design, I am able to say that six (17%) of the *venture clubs* in my study came out of courses. With a longitudinal research design built around individuals, I would be more equipped to answer the question of whether participation in project-oriented courses affects the likelihood of a student becoming an entrepreneur.

On the flip side, my emphasis on the ‘here and now’ of the entrepreneurial activities of students uniquely adds to *historical studies* on the administratively-encouraged integration of entrepreneurship in higher education. Specifically, my observational and interview data highly complement the theoretical, and often abstract, nature of previous historical studies (e.g. Etzkowitz, 2002). While *historical studies* on the phases of development of higher education through the centuries give a broad overview, we lack a deep understanding of the current phenomenon of the *entrepreneurial university*. Here, my study looked at current *student activities* – the everyday world of potential entrepreneurs while they are still in college. Research has largely neglected this critical aspect in the making of an entrepreneur. Universities are no longer a one-way education medium where students only receive knowledge. Rather, as my study highlights, universities offer fertile grounds for the incubation of students’ ideas and projects or, in this case, early-stage ventures.
8.6. Conclusion

Venture clubs at MIT are one of the signs of the changing nature of higher education. Other changes are apparent too. As I am writing the last pages of this thesis at a coffee shop in Harvard Square, I am overhearing a conversation about edX, the new online education initiative by MIT, Harvard, and a number of other U.S. universities which was recently announced. Digital technology enables the dissemination of material that previously was locally constrained such as lectures and recitation sections and perhaps opens the way for a new way to deliver university-level classes.

At the same time, my Facebook newsfeed shows a post by a friend, recent Ph.D. from the Sloan School of Management, who announces that he will be teaching a ‘leadership workshop’ this summer in Switzerland for one of the MIT venture clubs featured in this thesis, the Science and Technology Leadership Association. In parallel with MIT’s instructional resources, MIT venture clubs are going global, no longer tied to the MIT campus as the locus of their activity. My study has taken a first step toward enhancing our understanding of how traditional and new, emerging educational models and organizational configurations in institutions of higher education might co-exist and grow together.
References


APPENDIX A: Interview Protocol

<table>
<thead>
<tr>
<th>Interviews with board members</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is your role in the club? When did you join?</td>
</tr>
<tr>
<td>2. What would you say are some important things that you have accomplished so far as a board member of this club?</td>
</tr>
<tr>
<td>3. Who are the board members currently? When are elections scheduled for?</td>
</tr>
<tr>
<td>4. What events/activities/goals did your club pursue last year? How did you decide to pursue these specific events? Are any of these events annual or periodically organized? Were the events successful? Well-attended? Who, in general, attends your events?</td>
</tr>
<tr>
<td>5. What other groups exist that do work related to what your group does?</td>
</tr>
<tr>
<td>6. What groups do you compete and/or collaborate with? How do you position your club relative to them?</td>
</tr>
<tr>
<td>7. Is your club affiliated with any departments or centers at MIT? What is your relationship with them?</td>
</tr>
<tr>
<td>9. Where do you get your funding from? What is your relationship with SAO, UA, GSC, ASA? Are you satisfied with the funding that you receive? The amount? The process?</td>
</tr>
<tr>
<td>10. What would you say are the biggest challenges that your club faces? What issues came up the most during your board meetings this year?</td>
</tr>
<tr>
<td>11. What are your club’s plans for next year?</td>
</tr>
</tbody>
</table>
12. What are your club’s broader goals/mission? How are you doing so far? What have you accomplished? What do still need to put emphasis on going forward?

13. What is the history of the club? When was it founded? Do you know any of the founding members/past board members? How is the club today similar or different from what it used to be? How did you decide to join?

14. [If the club has “parent” clubs] What are their mission/activities/affiliations? Does your club get support from them?

15. How is success being defined in the context of the club?

16. Were you involved in other clubs before joining this one? Are you currently attending other club’s events?

17. What are your plans for next year? What would like to do in terms of club activity?

18. What are your professional goals in general?

19. If you were to start a new group what would it be?

20. Do you know of any new clubs being formed currently?

21. Is there anything that you would like to add?

22. Are there any people that you would recommend that I speak to?
APPENDIX B: Coding of Student Clubs

The tables in this appendix correspond to summary data presented in Chapters 4, 5, and 6. Clubs are listed alphabetically within categories.

Key to tables:

1. **Dates of activity:** I list the founding year and the last year of activity for each club. Clubs that were active until “2012” (i.e. when my data collection concluded) should be interpreted as “currently active.”

2. **Membership (size):** I code clubs that have 1-10 members as “small,” clubs that have 11-30 members as “medium,” clubs that have 31-100 members as “large,” and clubs that have more than 100 members as “extra large.”

3. **Membership (composition):** I code the composition of clubs’ membership as “U” when the majority of members are undergraduates and as “G” when the majority of members are graduate students.

4. **Funding:** I code “T.C.” and “V.C.” for traditional and venture clubs respectively and present in parentheses specific sources of funding: “UA/GSC” for UA or GSC funding, “d.” for departmental funding, “i.g.” for internal grants, “e.g.” for external grants, “p.” for “corporate partnerships,” “f. thru org” for fundraising through non-profit organizations, and “f.” for fee-for-service. The funding of three clubs is coded as “special,” namely the Society of Women Engineers that funds its activities from proceedings of the MIT Career Fair, the Baking Volunteer Club that funded its activities through a personal fellowship of the founder, and Hope in Action @ MIT that is supported by local religious organizations. For a number of clubs funding could not be determined due to lack of data. I mark these cases as N/A.

5. **Activity:** I code “MIT educ.” for clubs that “expand the education of MIT students,” “int.dev.” for clubs that “work on international development projects,” “product” for clubs that “develop products,” “outreach” for clubs that “teach education outreach classes,” “consulting” for clubs that “provide consulting services to non-MIT parties,” and “com. service” for clubs that “contribute to community service.”

6. **Future growth:** I code “1” for clubs that “have established independent organizations” and “2” for clubs that “consider establishing independent organizations.” In parentheses, I indicate the type of organization (for- or non-profit).
<table>
<thead>
<tr>
<th>EDUCA TION CLUBS</th>
<th>Dates of Activity</th>
<th>Membership (Size)</th>
<th>Membership (Composition)</th>
<th>Funding</th>
<th>Activity</th>
<th>Future Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Teaching Initiative (ATI)</td>
<td>2009-2012</td>
<td>medium</td>
<td>U</td>
<td>V.C. (f)</td>
<td>educ. outreach</td>
<td>N/A</td>
</tr>
<tr>
<td>Africa Information Technology Initiative (AITI)</td>
<td>2000-2010</td>
<td>medium</td>
<td>G</td>
<td>V.C. (p)</td>
<td>int. dev.</td>
<td>2 (non-profit)</td>
</tr>
<tr>
<td>Amphibious Achievement</td>
<td>2010-2012</td>
<td>medium</td>
<td>U</td>
<td>V.C. (i.g)</td>
<td>educ. outreach</td>
<td>N/A</td>
</tr>
<tr>
<td>ASHA for Education</td>
<td>1995-2012</td>
<td>medium</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>ClubChem</td>
<td>1988-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (d)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>Expediting Access to Standard Education (EASE)</td>
<td>2002-2012</td>
<td>medium</td>
<td>U</td>
<td>V.C. (i.g)</td>
<td>int. dev.</td>
<td>2 (non-profit)</td>
</tr>
<tr>
<td>Harvard - MIT Mathematics Tournament</td>
<td>1998-2012</td>
<td>large</td>
<td>U</td>
<td>T.C. (d)</td>
<td>educ. outreach</td>
<td>N/A</td>
</tr>
<tr>
<td>House of Volunteers (HoV)</td>
<td>2008-2012</td>
<td>small</td>
<td>U</td>
<td>V.C. (i.g)</td>
<td>int. dev.</td>
<td>2 (non-profit)</td>
</tr>
<tr>
<td>India School Fund (ISF)</td>
<td>2005-2009</td>
<td>small</td>
<td>G</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>Indian Mobile Initiative (IMI)</td>
<td>2010-2012</td>
<td>small</td>
<td>U</td>
<td>V.C. (p)</td>
<td>int. dev.</td>
<td>2 (non-profit)</td>
</tr>
<tr>
<td>International Association for the Exchange of Students for Technological Experience (IAESTE)</td>
<td>1950-2007</td>
<td>large</td>
<td>U</td>
<td>T.C. (d)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>Leadership Training Institute (LTI)</td>
<td>2007-2012</td>
<td>medium</td>
<td>U</td>
<td>V.C. (i.g)</td>
<td>educ. outreach</td>
<td>2 (non-profit)</td>
</tr>
<tr>
<td>Learning Unlimited (LU)</td>
<td>2009-2012</td>
<td>medium</td>
<td>G</td>
<td>V.C. (f.thru org)</td>
<td>consulting</td>
<td>1 (non-profit)</td>
</tr>
<tr>
<td>MentorConnection</td>
<td>2004-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>Middle East Education through Technology (MEET)</td>
<td>2003-2012</td>
<td>medium</td>
<td>G</td>
<td>V.C. (f.thru org)</td>
<td>int. dev.</td>
<td>1 (non-profit)</td>
</tr>
<tr>
<td>MIT Educational Studies Program (ESP)</td>
<td>1957-2012</td>
<td>extra large</td>
<td>U</td>
<td>V.C. (f)</td>
<td>educ. outreach</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT Educational Technologies Group (ETG)</td>
<td>2000-2001</td>
<td>medium</td>
<td>G</td>
<td>V.C. (e.g)</td>
<td>product</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT InnoWorks</td>
<td>2010-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (d)</td>
<td>educ. outreach</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT Science Policy Initiative (SPI)</td>
<td>2006-2012</td>
<td>extra large</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT Society of Women Engineers (SWE)</td>
<td>1979-2012</td>
<td>extra large</td>
<td>U</td>
<td>special</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT Student Research Association (MSRA)</td>
<td>2008-2010</td>
<td>medium</td>
<td>U</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT-SABRE</td>
<td>2008-2012</td>
<td>small</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>int. dev.</td>
<td>N/A</td>
</tr>
<tr>
<td>Science and Technology Leadership Assoc (STeLa)</td>
<td>2006-2012</td>
<td>medium</td>
<td>U</td>
<td>V.C. (f.thru org)</td>
<td>int. dev.</td>
<td>1 (non-profit)</td>
</tr>
<tr>
<td>Science Counts!</td>
<td>2011-2012</td>
<td>medium</td>
<td>U</td>
<td>N/A</td>
<td>educ. outreach</td>
<td>N/A</td>
</tr>
<tr>
<td>SEDS Outreach Team</td>
<td>2010-2012</td>
<td>small</td>
<td>G</td>
<td>V.C. (f.thru org)</td>
<td>educ. outreach</td>
<td>2 (for- or non-profit)</td>
</tr>
<tr>
<td>Sloan Education Club</td>
<td>2010-2012</td>
<td>large</td>
<td>G</td>
<td>T.C. (d)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>Student Teacher Outreach Mentorship Program at MIT (STOMP)</td>
<td>2006-2009</td>
<td>N/A</td>
<td>G</td>
<td>N/A</td>
<td>educ. outreach</td>
<td>N/A</td>
</tr>
<tr>
<td>THINK Scholars Program</td>
<td>2006-2012</td>
<td>small</td>
<td>U</td>
<td>V.C. (e.g)</td>
<td>educ. outreach</td>
<td>N/A</td>
</tr>
<tr>
<td>ENERGY CLUBS</td>
<td>Dates of Activity</td>
<td>Membership (Size)</td>
<td>Membership (Composition)</td>
<td>Funding</td>
<td>Activity</td>
<td>Future Growth</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
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<tr>
<td>Biological Energy Interest Group (BEInG)</td>
<td>2005-2009</td>
<td>small</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>Closing the Loop</td>
<td>2008-2009</td>
<td>small</td>
<td>G</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>Collegiate Energy Association (CEA)</td>
<td>2009-2012</td>
<td>small</td>
<td>G</td>
<td>V.C. (f. thru org)</td>
<td>consulting</td>
<td>1 (non-profit)</td>
</tr>
<tr>
<td>environmentally Friendly Aircraft Design (EFA)</td>
<td>2009-2012</td>
<td>small</td>
<td>G</td>
<td>V.C. (e.g.)</td>
<td>product</td>
<td>2 (for-profit)</td>
</tr>
<tr>
<td>Greens, MIT</td>
<td>2000-2006</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT BioDiesel</td>
<td>2007-2012</td>
<td>small</td>
<td>G</td>
<td>V.C. (i.g.)</td>
<td>MIT educ.</td>
<td>2 (non-profit)</td>
</tr>
<tr>
<td>MIT China Energy and Environmental Research (CEER)</td>
<td>2009-2012</td>
<td>large</td>
<td>G</td>
<td>V.C. (i.g.)</td>
<td>MIT educ.</td>
<td>2 (for-profit)</td>
</tr>
<tr>
<td>MIT Clean Energy Entrepreneurship Prize</td>
<td>2008-2012</td>
<td>extra large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT Electric Vehicle Team (EVT)</td>
<td>2006-2012</td>
<td>medium</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT Electricity Student Research Group (ESRG)</td>
<td>2010-2012</td>
<td>medium</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT Energy Club</td>
<td>2004-2012</td>
<td>extra large</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT Environmental Information Technology Group</td>
<td>2001-2003</td>
<td>medium</td>
<td>G</td>
<td>V.C. (e.g.)</td>
<td>product</td>
<td>N/A</td>
</tr>
<tr>
<td>(ENVIT)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>MIT Food and Agriculture Collaborative</td>
<td>2010-2012</td>
<td>large</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT Generator</td>
<td>2006-2008</td>
<td>large</td>
<td>G</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MIT Hybrid Electric Vehicle Team</td>
<td>1995-1997</td>
<td>small</td>
<td>U</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
</tr>
<tr>
<td>MIT Society for Ocean Conservation (MITSOC)</td>
<td>2007-2009</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MIT Solar Air Conditioning Systems Team (SACS)</td>
<td>2009-2012</td>
<td>medium</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MIT Solar Electric Vehicle Team (SEVT)</td>
<td>1985-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MIT Students for Nuclear Energy and Power (SNEP)</td>
<td>2011-2012</td>
<td>small</td>
<td>G</td>
<td>N/A</td>
<td>MIT educ.</td>
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<td>MIT Wind Energy Projects in Action (WEPA)</td>
<td>2010-2012</td>
<td>small</td>
<td>G</td>
<td>V.C. (i.g.)</td>
<td>consulting</td>
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<tr>
<td>Rethinking Water</td>
<td>2011-2012</td>
<td>medium</td>
<td>G</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>Share a Vital Earth (SAVE)</td>
<td>1998-2008</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>Sloan Energy &amp; Environment Club</td>
<td>2007-2011</td>
<td>large</td>
<td>G</td>
<td>T.C. (d.)</td>
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<td>Sloan Net Impact</td>
<td>2005-2012</td>
<td>large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
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<tr>
<td>Students for Global Sustainability (SiGS)</td>
<td>2003-2008</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>Sustainability @MIT</td>
<td>2008-2012</td>
<td>large</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>World's Best Hovercraft Club</td>
<td>2001-2004</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>INTERNATIONAL DEVELOPMENT CLUBS</td>
<td>Dates of Activity</td>
<td>Membership (Size)</td>
<td>Membership (Composition)</td>
<td>Funding</td>
<td>Activity</td>
<td>Future Growth</td>
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<tr>
<td>African Technology Forum</td>
<td>1988-2003</td>
<td>medium</td>
<td>U</td>
<td>V.C. (f.)</td>
<td>int. dev.</td>
<td>1 (non-profit)</td>
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<td>Association for India's Development (AID)</td>
<td>2001-2012</td>
<td>medium</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>China Crossroads</td>
<td>2011-2012</td>
<td>medium</td>
<td>G</td>
<td>V.C. (f. thru org)</td>
<td>MIT educ.</td>
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<tr>
<td>Coalition Against Apartheid</td>
<td>1978-1991</td>
<td>medium</td>
<td>G</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>Design for Change (DfC)</td>
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<td>U</td>
<td>V.C. (f. thru org)</td>
<td>product</td>
<td>1 (non-profit)</td>
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<td>Engineers for a Sustainable World</td>
<td>2002-2004</td>
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<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>int. dev.</td>
<td>N/A</td>
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<td>FloodSafe Honduras</td>
<td>2005-2007</td>
<td>medium</td>
<td>G</td>
<td>V.C. (e.g.)</td>
<td>product</td>
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<td>Forum on American Progress (FAP)</td>
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<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
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<td>Global Poverty Initiative (GPI)</td>
<td>2007-2012</td>
<td>extra large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>Global Zero</td>
<td>2011-2012</td>
<td>medium</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
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<tr>
<td>KOMAZA</td>
<td>2009-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
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<tr>
<td>MIT Amnesty International</td>
<td>1980-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
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<td>MIT Association of International Relations and Model United Nations (AIMUN)</td>
<td>1959-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
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<tr>
<td>MIT China Care</td>
<td>2007-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
<td>N/A</td>
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<td>2007-2012</td>
<td>extra large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MIT Economics and Talent Forum</td>
<td>2001-2012</td>
<td>large</td>
<td>G</td>
<td>V.C. (i.g.)</td>
<td>MIT educ.</td>
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<tr>
<td>MIT Emerge Global</td>
<td>2009-2010</td>
<td>small</td>
<td>U</td>
<td>V.C. (f. thru org)</td>
<td>int. dev.</td>
<td>1 (non-profit)</td>
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<td>MIT Engineers without Borders (EWB)</td>
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<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>int. dev.</td>
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<td>MIT International Development Consulting</td>
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<td>2005-2009</td>
<td>medium</td>
<td>U</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>MIT Social Justice Cooperative (SJC)</td>
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<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
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<td>MIT Students for Bhopal</td>
<td>2008-2012</td>
<td>medium</td>
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<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>MIT Universities Fighting World Hunger (WFWH)</td>
<td>2011-2012</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MIT Western Hemisphere Project</td>
<td>2000-2011</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>Sloan Entrepreneurs for International Development (SEID)</td>
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<td>large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
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<tr>
<td>Southeast Asian Service Leadership Network</td>
<td>2008-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>Student Anti-Genocide Coalition (MIT - STAND)</td>
<td>2007-2012</td>
<td>small</td>
<td>N/A</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
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<td>HEALTHCARE CLUBS</td>
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<td>Membership (Size)</td>
<td>Membership (Composition)</td>
<td>Funding</td>
<td>Activity</td>
<td>Future Growth</td>
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<td>American Red Cross Team and Network of MIT</td>
<td>1999-2012</td>
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<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>int. dev.</td>
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<td>Assistive Technology @ MIT</td>
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<td>medium</td>
<td>G</td>
<td>V.C. (i.g.)</td>
<td>product</td>
<td>2 (for- or non-profit)</td>
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<td>Camp Kesem</td>
<td>2006-2012</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
<td>N/A</td>
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<tr>
<td>Colleges Against Cancer</td>
<td>2002-2012</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>GlobeMed</td>
<td>2011-2012</td>
<td>medium</td>
<td>U</td>
<td>N/A</td>
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<td>Hacking Medicine</td>
<td>2011-2012</td>
<td>medium</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MedLife</td>
<td>2011-2012</td>
<td>small</td>
<td>U</td>
<td>N/A</td>
<td>int. dev.</td>
<td>N/A</td>
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<td>MedLinks</td>
<td>1994-2012</td>
<td>extra large</td>
<td>U</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>MIT Best Buddies</td>
<td>2000-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
<td>N/A</td>
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<tr>
<td>MIT Brain Trust</td>
<td>2006-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
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<tr>
<td>MIT Healthcare Group</td>
<td>2008-2011</td>
<td>medium</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MIT Hippocratic Society</td>
<td>1997-2008</td>
<td>extra large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
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<tr>
<td>MIT Project HEALTH</td>
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<td>com. service</td>
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<td>extra large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
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<tr>
<td>MIT Team HBV</td>
<td>2011-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
<td>N/A</td>
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<td>SANA</td>
<td>2009-2012</td>
<td>medium</td>
<td>G</td>
<td>V.C. (e.g.)</td>
<td>product</td>
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<tr>
<td>Sloan BioPharma Business Club (BBC)</td>
<td>2003-2005</td>
<td>extra large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
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<td>Smile at MIT</td>
<td>2002-2007</td>
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<td>T.C. (UA/GSC)</td>
<td>int. dev.</td>
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<td>Student Emergency Medical Society (SEMS)</td>
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<td>large</td>
<td>U</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>Students for Global Health (SGH)</td>
<td>2007-2008</td>
<td>small</td>
<td>U</td>
<td>V.C. (f thru org)</td>
<td>product</td>
<td>1 (non-profit)</td>
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<tr>
<td>Traditional Medicine Society</td>
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<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>Unite for Sight</td>
<td>2009-2010</td>
<td>small</td>
<td>U</td>
<td>N/A</td>
<td>int. dev.</td>
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<td>United Trauma Relief (UTR)</td>
<td>2000-2005</td>
<td>medium</td>
<td>U</td>
<td>V.C. (f thru org)</td>
<td>int. dev.</td>
<td>N/A</td>
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<td>Universities Allied for Essential Medicines (UAEM)</td>
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<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>int. dev.</td>
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**ENTREPRENEURSHIP CLUBS**

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<th>Dates of Membership</th>
<th>Membership (Size)</th>
<th>Membership (Composition)</th>
<th>Funding</th>
<th>Activity</th>
<th>Future Growth</th>
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<td>Do Innovation Team at MIT (Do.It@MIT)</td>
<td>2011-2012</td>
<td>medium</td>
<td>U</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>Entrepreneurs Club (E-Club)</td>
<td>1988-2012</td>
<td>medium</td>
<td>G</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>IdeaStorm</td>
<td>2009-2012</td>
<td>large</td>
<td>G</td>
<td>V.C. (f.)</td>
<td>MIT educ. 2 (for-profit)</td>
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<tr>
<td>MIT 100K Entrepreneurship Competition</td>
<td>1990-2012</td>
<td>extra large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MIT Entrepreneurship Review (MITER)</td>
<td>2010-2012</td>
<td>large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MIT Global Startup Workshop</td>
<td>1997-2012</td>
<td>medium</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>int. dev.</td>
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<td>MIT Student Technology Incubator</td>
<td>2011-2011</td>
<td>small</td>
<td>U</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>Philippine Emerging Startups Open (PESO)</td>
<td>2005-2005</td>
<td>small</td>
<td>G</td>
<td>V.C. (f. thru org)</td>
<td>int. dev. 1 (non-profit)</td>
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<td>Sloan Entrepreneurs Club</td>
<td>2009-2011</td>
<td>extra large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
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<td>large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>2003-2011</td>
<td>large</td>
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<td>T.C. (d.)</td>
<td>MIT educ.</td>
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<td>Startup Club</td>
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<td>MIT educ.</td>
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<td>TechLink</td>
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<td>medium</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
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<td>Venture Capital and Private Equity Club (VCPE)</td>
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<td>extra large</td>
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<td>T.C. (d.)</td>
<td>MIT educ.</td>
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<td>Ventureships</td>
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<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
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**COMPUTING CLUBS**

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<th>Membership (Size)</th>
<th>Membership (Composition)</th>
<th>Funding</th>
<th>Activity</th>
<th>Future Growth</th>
</tr>
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<tr>
<td>MIT Animation and Graphics Club (MAGIC)</td>
<td>1998-1999</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
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<td>MIT Electronic Gaming Group (EGG)</td>
<td>2000-2005</td>
<td>medium</td>
<td>U</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>MIT Game Development Club</td>
<td>2010-2012</td>
<td>small</td>
<td>U</td>
<td>V.C. (e. g.)</td>
<td>product 1 (for-profit)</td>
<td></td>
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<tr>
<td>MIT Social Media Club</td>
<td>2010-2012</td>
<td>medium</td>
<td>G</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>Sloan Business in Gaming Club (BIG)</td>
<td>2009-2012</td>
<td>large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<tr>
<td>Sloan Entertainment, Media, and Sports Club (EMS)</td>
<td>2005-2012</td>
<td>extra large</td>
<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
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<td>Sloan MediaTech Club</td>
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<td>G</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
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<td>Sloan Mobile, Media, and Internet Technology Club (MOMIT)</td>
<td>2006-2011</td>
<td>large</td>
<td>G</td>
<td>T.C. (d.)</td>
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<td>Sloan Technology Club</td>
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<td>MIT educ.</td>
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<td>Student Information Processing Board (SIPB)</td>
<td>1969-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>PUBLIC SERVICE CLUBS</td>
<td>Dates of Activity</td>
<td>Membership (Size)</td>
<td>Membership (Composition)</td>
<td>Funding</td>
<td>Activity</td>
<td>Future Growth</td>
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<td>Baking Volunteer Club</td>
<td>2008-2009</td>
<td>medium</td>
<td>U</td>
<td>special</td>
<td>com. service</td>
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<td>Boston Intercollegiate Service Organization (BISCO)</td>
<td>2005-2007</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
<td>N/A</td>
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<td>Hope in Action @ MIT</td>
<td>2009-2012</td>
<td>medium</td>
<td>U</td>
<td>special</td>
<td>com. service</td>
<td>N/A</td>
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<td>MIT Alternative Spring Break</td>
<td>1995-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
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<td>MIT Circle K</td>
<td>1994-2007</td>
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<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
<td>N/A</td>
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<td>MIT Habitat for Humanity</td>
<td>2000-2012</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
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<td>MIT Hunger Action Group (HAG)</td>
<td>1983-2004</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
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<td>MIT Urban Action</td>
<td>1969-1988</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
<td>N/A</td>
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<td>MIT Service</td>
<td>2007-2010</td>
<td>large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
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<td>Technology Community Association (TCA)</td>
<td>1948-1998</td>
<td>extra large</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>com. service</td>
<td>N/A</td>
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<th>SPACE CLUBS</th>
<th>Dates of Activity</th>
<th>Membership (Size)</th>
<th>Membership (Composition)</th>
<th>Funding</th>
<th>Activity</th>
<th>Future Growth</th>
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<tr>
<td>Astropreneurs Club</td>
<td>2006-2007</td>
<td>medium</td>
<td>G</td>
<td>V.C. (e.g.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>MIT Mars Society</td>
<td>1999-2012</td>
<td>small</td>
<td>U</td>
<td>T.C. (UA/GSC)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>MIT Rocket Team</td>
<td>1978-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>MIT Satellite Team</td>
<td>2009-2012</td>
<td>medium</td>
<td>U</td>
<td>T.C. (d.)</td>
<td>MIT educ.</td>
<td>N/A</td>
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<td>MIT Students for the Exploration and Development of Space (SEDS)</td>
<td>1980-2012</td>
<td>medium</td>
<td>U</td>
<td>V.C. (f. thru org)</td>
<td>MIT educ.</td>
<td>1 (non-profit)</td>
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<td>MIT Zero-G Team</td>
<td>2005-2011</td>
<td>medium</td>
<td>G</td>
<td>N/A</td>
<td>MIT educ.</td>
<td>N/A</td>
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