

Entrepreneurial Impact: The Role of MIT

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Table 1. Estimated Employment and Sales Data for All Active MIT Alumni Companies[°]

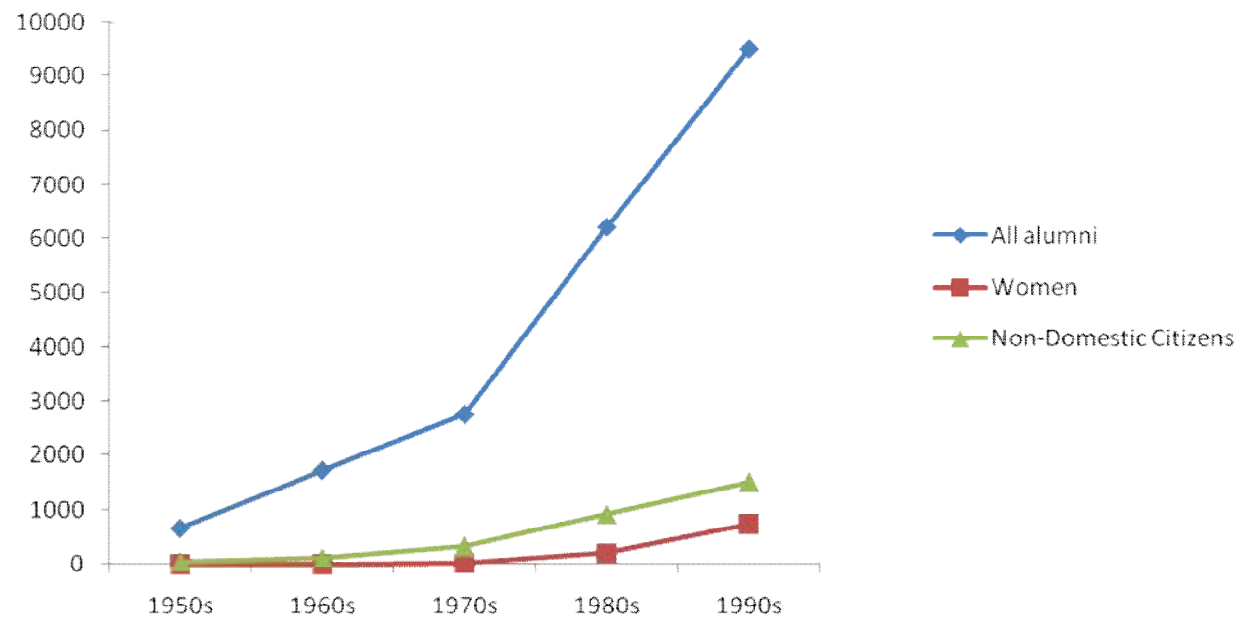
Jobs	Percent of Companies	Median Employees	Median Sales (\$Millions)	Estimated Total Employees	Estimated Total Sales (\$Millions)
More than 10,000	0.3%	15,000	1,523	1,339,361	1,389,075
1,000-10,000	1.8%	1,927	308	1,043,932	235,532
Others, including <1,000 and employment unknown	97.9%	39	11	900,001	226,671
Total	100.0%	155	3	3,283,294	1,851,278

[°]Underlying data from 2003 MIT survey of all living alumni, updated to 2006; ~25,800 active companies.

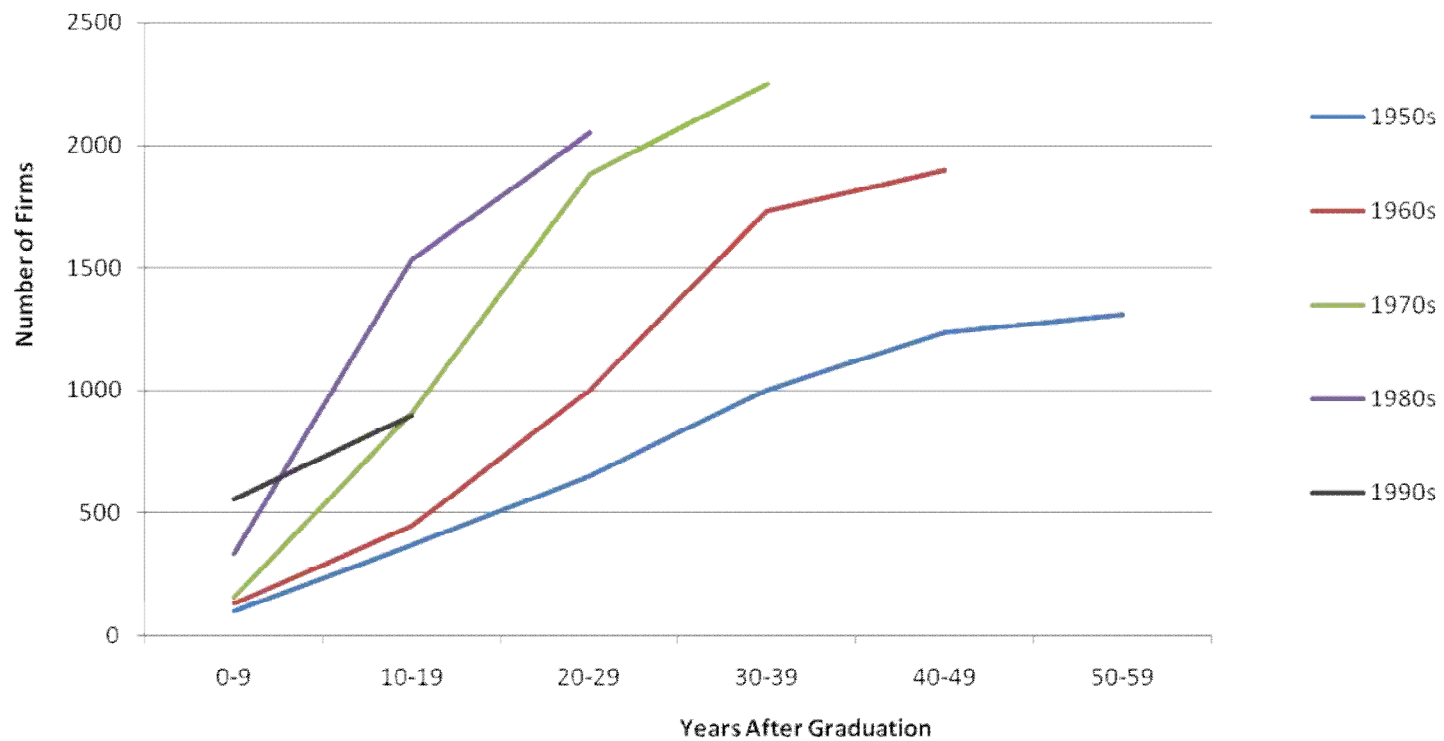
Estimated jobs created by MIT alumni firms
headquartered in these states:

Massachusetts	960,000
California	526,000
New York	231,000
Texas	184,000
Virginia	136,000
Fifteen other states	>10,000 each
Eleven states	< 1,000 each

Estimated Number of “First-Time” Firms Founded Each Decade By MIT Alumni



Cumulative Firms Founded (Bachelors Degree)



More entrepreneurs emerge from each successive MIT class, and they start their companies sooner and at younger ages.

Table 2. Estimated Number of Companies Founded by MIT “Foreign-Student” Alumni

Location of Companies	Total	Manufacturing
United States	2,340	673
Europe	790	51
Latin America	495	63
Asia	342	43

30% of MIT’s foreign-student alumni become entrepreneurs;
half remain in the U.S.

Table 3. Median Age of Founders When They Established Their First Firms

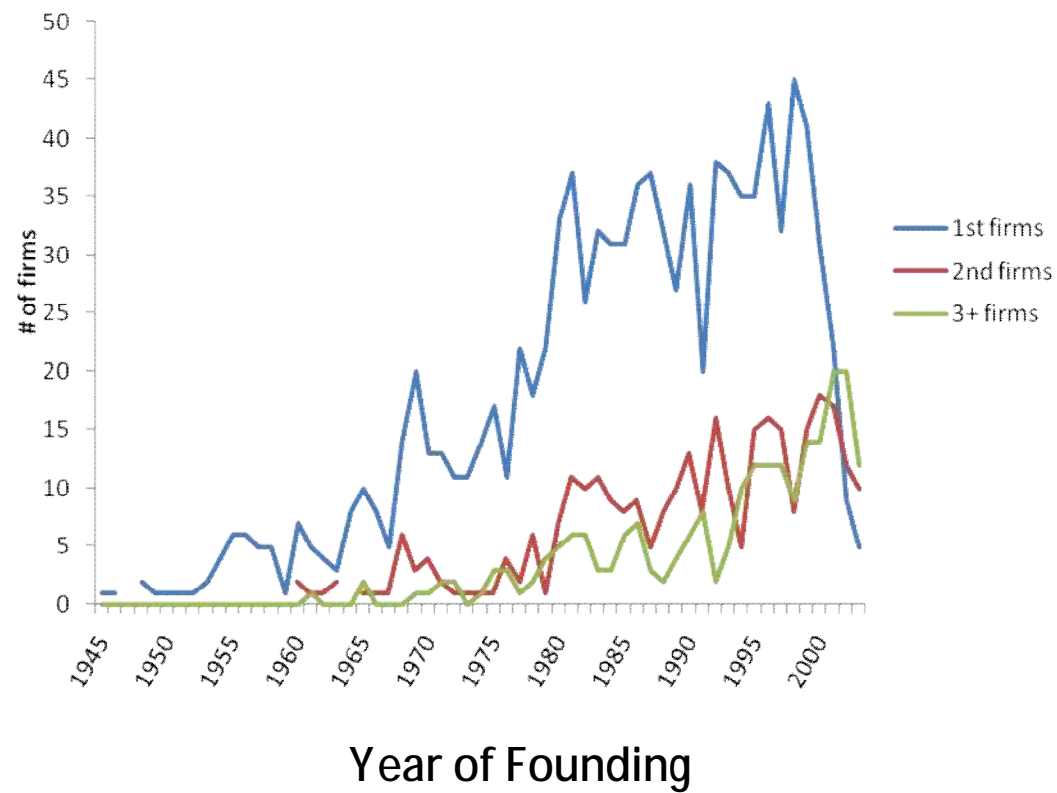
Decade of Graduation	1950s	1960s	1970s	1980s	1990s
All	40.5	39.	35.	32.	28.
Non-U.S. Citizens	38.	35.5	36.5	32.	29.
Women	42.	41.	40.	35.	29.

Table 4. One-Time and Repeat MIT Founders by Decade of Graduation (percent)

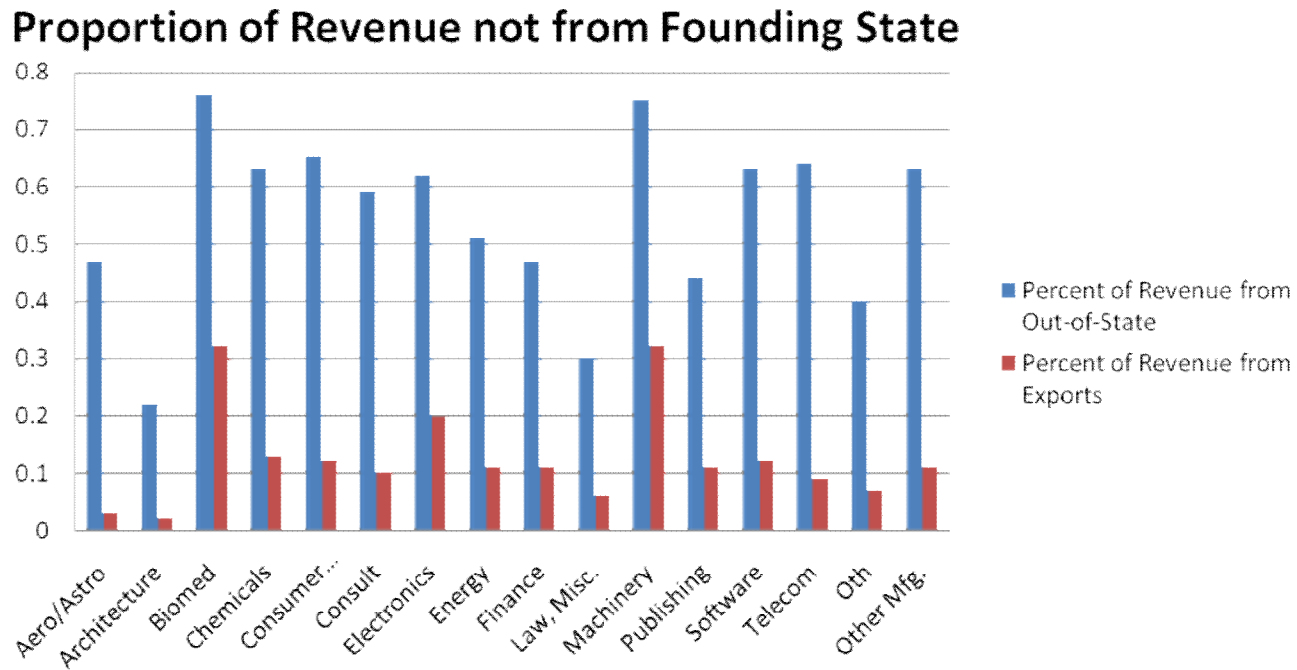
		Decade							
		1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s
Total # Firms Founded	1	67	61	56	54	48	57	61	59
	2	0	11	21	20	23	22	23	28
	3	0	9	10	11	16	11	9	9
	4	11	8	7	7	6	5	3	3
	5+	22	11	7	9	7	5	4	0
% Repeat		33	39	44	46	52	43	39	41

Over time, the number of multiple companies founded per MIT alumnus has been increasing, with dramatically increased economic impact per entrepreneur.

Repeat Founders Among MIT Alumni Entrepreneurs (from limited sample only)

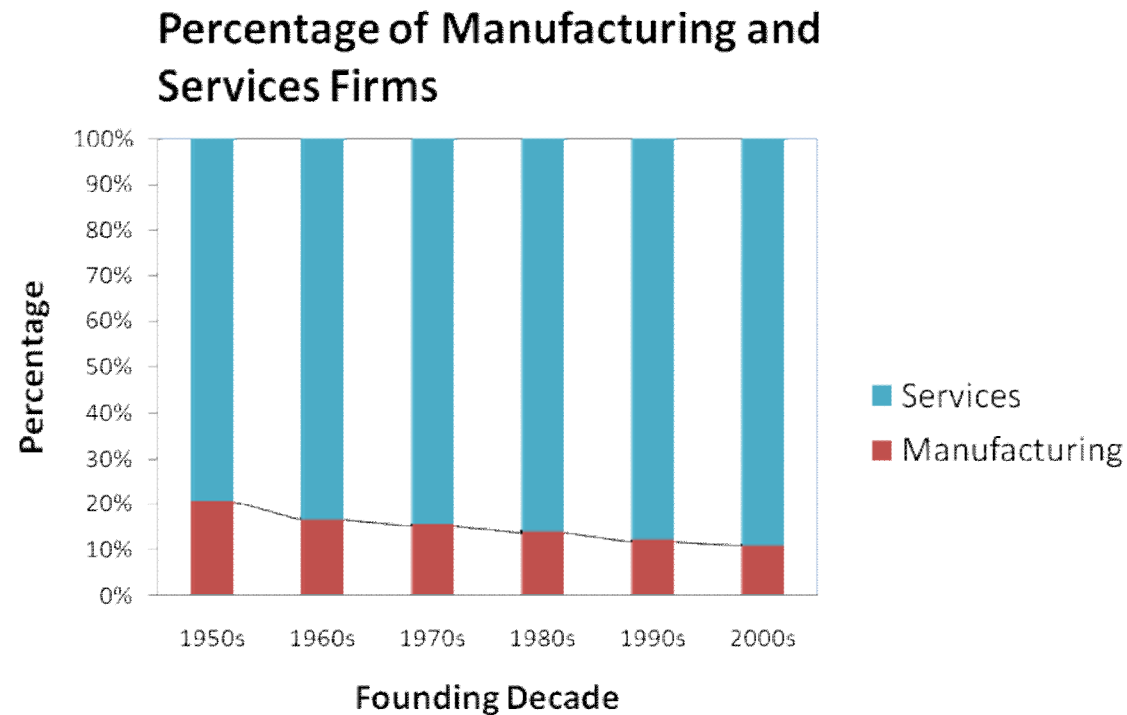


Sales of MIT Alumni Companies Out-of-State and Exported Abroad



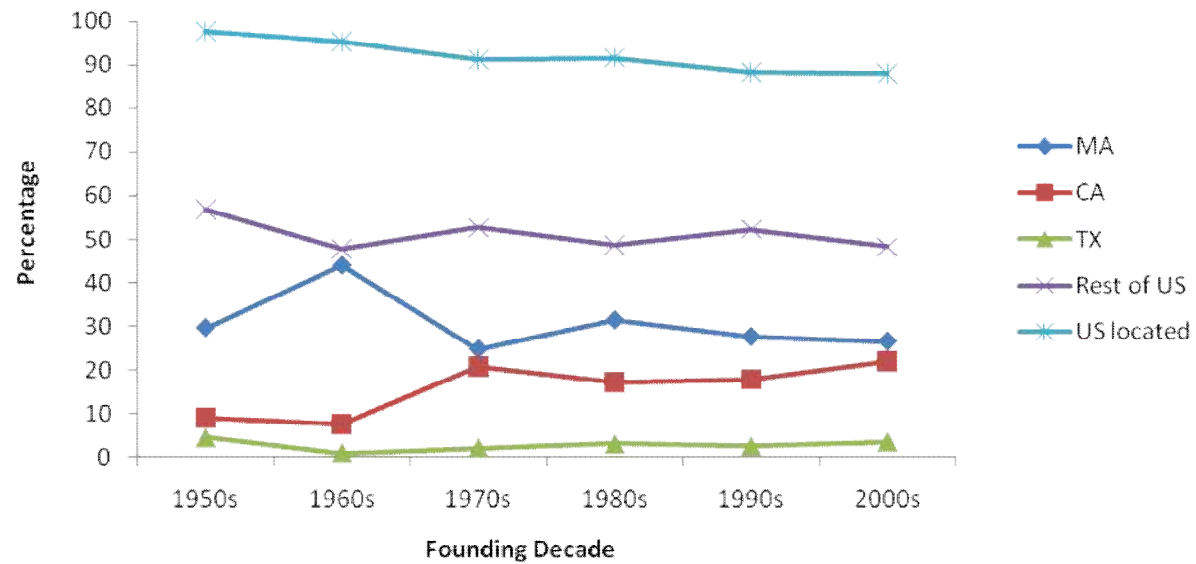
54% of domestic sales to out-of-state, 13% exported

Steady Decline in Manufacturing vs. Services Startups (percent)



But 30% of alumni-created jobs are still in manufacturing.

Geographic Location of U.S. MIT Alumni Firms



MIT Entrepreneurial Ecosystem has grown in its components and impact over the years

Underlying culture, history, role models, and policies

Alumni initiatives: MIT Enterprise Forum

Re-oriented Technology Licensing Office

MIT Entrepreneurship Center:

- Classes: 0 to 30 in 15 years

- Clubs, including MIT \$100K Business Plan Competition

- Conferences, and many forms of internal and external networking

Recent MIT institutional broadening and growth

- Venture Mentoring Service

- MIT Deshpande Center

- Entrepreneurship & Innovation MBA Track

Table 10. Examples of Important MIT-Alumni Founded Companies (ordered by \$ sales) *

Company	Location	Employment (Thousands)	Sales* (\$Millions)	MIT Founder	MIT Class	Founded
Koch Industries	Wichita, Kan.	80	110,000	Charles Koch David Koch	1957 1962	1967 (consolidation)
Intel Corporation	Santa Clara, Calif.	86	38,300	Robert Noyce	1954	1968
Hewlett-Packard	Palo Alto, Calif.	156	22,600	William Hewlett	1936	1939
Raytheon Corporation	Lexington, Mass.	72	21,300	Vannevar Bush	1916	1922
McDonnell Douglas	St. Louis, Mo.	70	14,470	James McDonnell, Jr.	1925	1939
Texas Instruments	Dallas, Tex.	30	13,830	Cecil Green	1923	1930
Digital Equipment Corp. (DEC) (acquired by Compaq/HP)	Maynard, Mass.	140	13,000 (in 1997)	Kenneth Olsen Harlan Anderson	1950 1953	1957
Genentech	San Francisco, Calif.	12	11,724	Robert Swanson	1970	1976
Qualcomm Inc.	San Diego, Calif.	13	9,800	Irwin Jacobs	1959	1985
ThermoElectron	Waltham, Mass.	30	9,000	George Hatsopoulos	1949	1956
America Online	Dulles, Va.	15	6,110	Marc Seriff	1973	2001
Symantec Corp.	Cupertino, Calif.	16	4,143	Denis Coleman	1968	1982
Analog Devices	Norwood, Mass.	8.8	2,570	Ray Stata, Matthew Lorber	1957	1965
Gillette	Boston, Mass.	29	2,250 (in 2003)	William Emery Nickerson	1876	1901
Bose Corporation	Framingham, Mass.	10	2,000	Amar Bose	1956	1964
Teradyne	Boston, Mass.	4	1,600	Alex d'Arbeloff, Nick DeWolf	1949	1960
International Data Group (IDG)	Boston, Mass.	13	1,520	Patrick McGovern	1959	1964
E*Trade Group	New York, N.Y.	4	1,400	William Porter	1967	1991
3Com Corporation	Marlborough, Mass.	6	1,300	Robert Metcalfe	1969	1979
Sepracor	Marlborough, Mass.	2	1.225	Robert Bratzler	1975	1984
Avid Technology	Tewksbury, Mass.	1	930	Bill Warner	1980	1987
Millennium Pharmaceuticals	Cambridge, Mass.	1	527	Eric Lander	1986	1993
Medical Information Technology	Westwood, Mass.	3	400	Neil Pappalardo, Edward Roberts Curtis Marble Jerome Grossman	1961 1957 1961 1962	1969
The Math Works	Natick, Mass.	2	230	Jack Little	1978	1984

*All sales and employment data used in this table are from 2006 where available and otherwise from the most recent year available, and are rounded off to the nearest whole number.

Table 16. Primary Universities Doing Startup Licensing, 2006*

University	Startups Licensed
U. California system	39
MIT	23
U. Utah	17
Purdue	14
SUNY	12
U. Colorado	10
U. Florida	10
U. Washington	10

* Compiled by the authors from AUTM data

Number of Startups Licensed by MIT Technology Licensing Office, 1998-2007

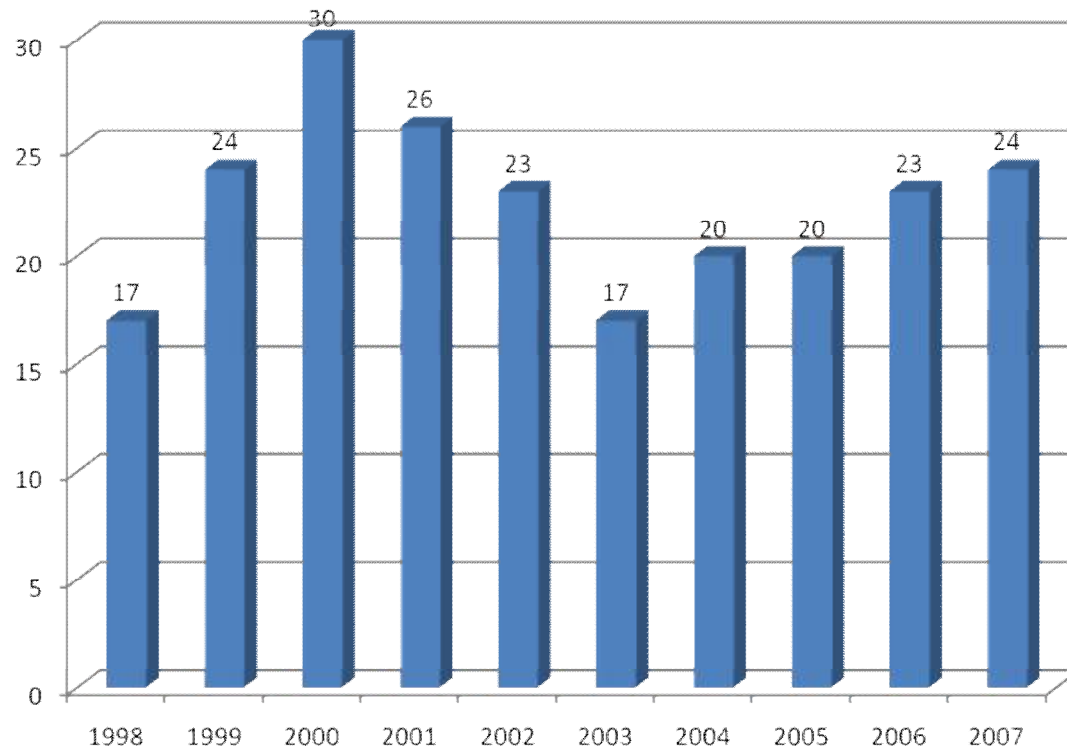


Table 14. Entrepreneurship Center Factors Important to Venture Founding (from limited sample only)

Proportion Rating University Factors as Important in Venture Founding* (%)					
Graduation Decade	1950s (N=73)	1960s (N=111)	1970s (N=147)	1980s (N=144)	1990s (N=145)
MIT Business Plan Competition	0	1	0	3	30
MIT Entrepreneurship Center	3	1	2	1	12
MIT's Entrepreneurial Network	26	25	32	40	50

*Respondents could check all relevant categories.

**Table 18. Some Venturing Mentoring Service Data
(mid-2007 report)**

Ventures served since 2000	469
Entrepreneurs served	932
Companies formed	88
Funding raised by companies	\$350M +
Current mentor pool	121
Mentoring hours (just in the past 12 months)	More than 9,000

Table 8. Role of MIT's Positive Feedback Loop in Venture Founding (from limited sample only)

Proportion of Founders Choosing MIT for the Entrepreneurial Environment (%)					
Graduation Decade	1950s (N=207)	1960s (N=313)	1970s (N=373)	1980s (N=315)	1990s (N=214)
Chose MIT for its Entrepreneurial Reputation	17	12	19	26	42

Enhancing the Role of Research/Technology Universities in an Entrepreneurial Economy: Recommendations

- Institutional leadership critical, with senior role models if possible
- Remove barriers to entrepreneurship from rules and regulations; perhaps provide incentives
- If neighboring support infrastructure is weak, university may need to provide supplemental “incubation” , and even investment, resources
- Engage alumni in university ties with labs, faculty and students
- Build internal entrepreneurship education programs, with integrated academic and practitioner participants
- Create student business plan competitions
- Orient university licensing office toward encouragement of new enterprises
- Adapt to your own settings models comparable to MIT Venture Mentoring Center , Deshpande Center , and Entrepreneurship & Innovation MBA track.