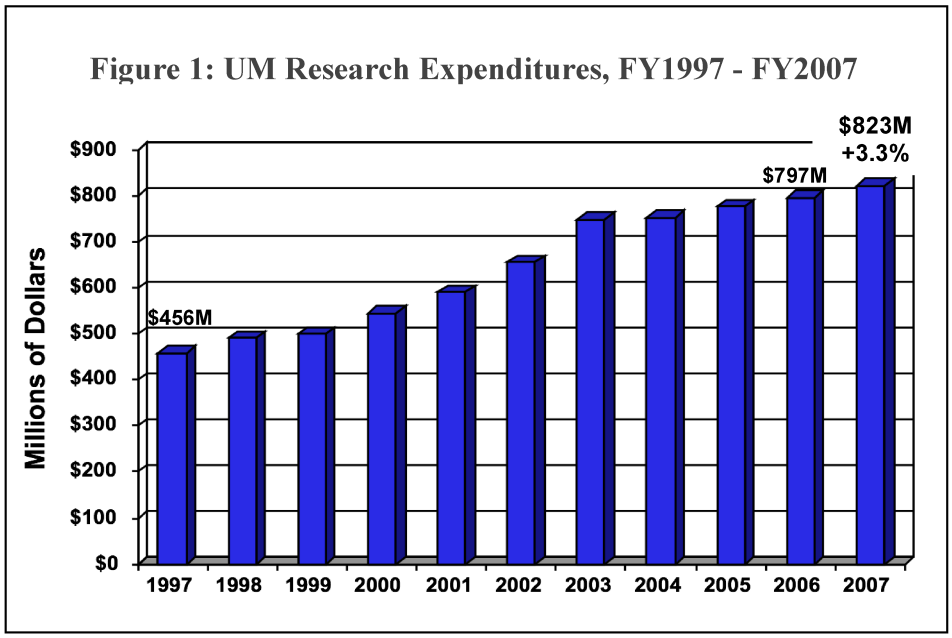
Annual Report on Research and Scholarship
FY2007 Financial Summary

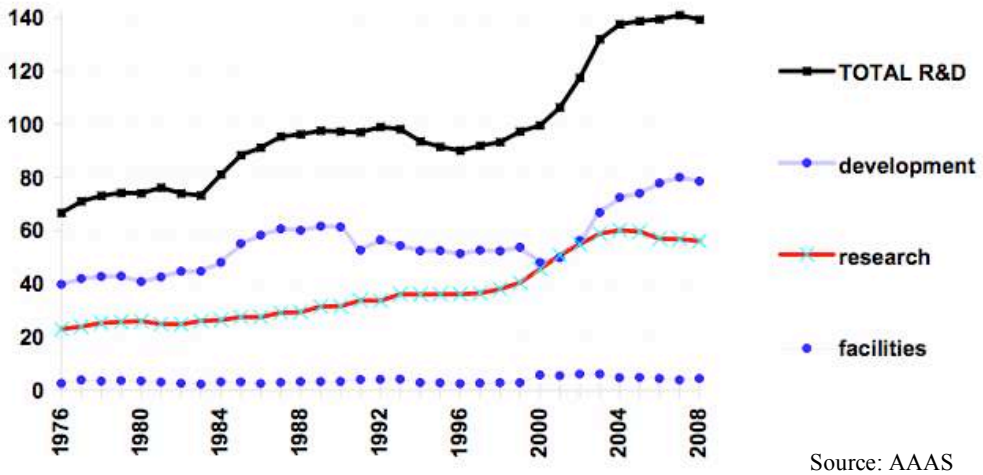
Stephen R. Forrest
Vice President for Research
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January 17, 2008

The University of Michigan expenditures in support of research, scholarship and creative activity continued its trajectory of growth in Fiscal Year 2007 with total expenditures reaching $822,967,675. This represents an increase of 3.3% over FY2006, a satisfactory result given the current condition of the economy and the federal budget picture. Overall, the University's research portfolio remains one of the largest in the country, consistently appearing in the top four university research programs according to statistics tabulated by the National Science Foundation. The University's research expenditures growth trend for the last decade is summarized in Figure 1.



Total research expenditures have nearly doubled during the decade, although growth in the last four years has slowed, reflecting a decline in Federal funding trends, particularly for research. These trends are shown in Figure 2.

Figure 2: Trends in Federal R&D, FY 1976-2008



Source: AAAS

About one-third of the University's non-hospital budget comes from research funding by external entities – the federal government, industry, foundations, and other categories. Table 1 shows the total research expenditures broken out by major sponsor groups.

Table 1: U-M Research Expenditures by Major Sponsor Group, FY 2007

Sponsor Group	Expenditures	% of total
Total Federal Government	$595,551,058	72.4%
Total Non-Federal Sponsors	$96,726,492	11.8%
Industry	*$38,594,118*	*4.7%*
Foundations	*$18,689,966*	*2.3%*
State of Michigan/Counties/Cities	*$7,003,489*	*0.9%*
Total U-M Funds	$130,690,125	15.9%
Total Research Expenditures	$822,967,675	

Federal funding, which comprises 72% of the U-M's current total, has long been the largest source of research funding at the U-M. University research spending by schools and colleges, departments, and OVPR – all extremely important contributors to our success in obtaining external funding -- accounted for 16% of the year's spending, and industry sources provided 4.7% of the total.

A closer examination of the sources of research expenditures indicates that future growth from federal sources is not likely to be as robust as it has been in the past. Our spending from

federal sources has been relatively flat for several years, increasing by only 1.8% over last year. By comparison, federal research spending on our campus increased by 9.5% from FY1999 to FY2000. Furthermore, expenditures by National Institutes of Health projects, our single largest source of support, grew by 14.5% between FY1999 and FY2000, whereas the NIH total was flat between FY06 and FY07. A summary of the funding increases between FY06 and FY07 from a sampling of sources is provided in Table 2. We can see that industry grew by nearly 15% in FY07, accounting for a substantial fraction of the total 3.3% increase. While we do not know yet if this represents a fluctuation or a trend, it is nevertheless clear that industry research funding does present a significant opportunity for the future growth of our research enterprise.

Table 2: U-M Research Expenditures
Percent Change by Major Sponsor Group, FY 2006-2007

Sponsor Group	FY06	% of total	FY07	% of total	$ Chg.	% Chg.
Total Federal	$585,231,455	73.4%	$595,551,058	72.4%	$10,319,603	1.8%
NIH	*$388,341,125*	*48.7%*	*$387,738,690*	*47.1%*	*-$602,435*	*-0.2%*
NSF	*$63,633,033*	*8.0%*	*$65,319,711*	*7.9%*	*$1,656,678*	*2.6%*
DOD	*$52,241,692*	*6.6%*	*$51,075,003*	*6.2%*	*-$1,166,689*	*-2.2%*
Energy	*$17,569,419*	*2.2%*	*$16,794,966*	*2.0%*	*-$774,453*	*-4.4%*
NASA	*$16,635,867*	*2.1%*	*$16,041,111*	*1.9%*	*-$594,756*	*-3.6%*
Transportation	*$6,917,453*	*0.9%*	*$15,418,486*	*1.9%*	*$8,501,033*	*122.9%*
Commerce	*$6,289,628*	*0.8%*	*$6,713,205*	*0.8%*	*$423,577*	*6.7%*
Total Non-Federal	$90,800,982	11.4%	$96,726,492	11.8%	$5,925,510	6.5%
Industry	*$33,585,188*	*4.2%*	*$38,594,118*	*4.7%*	*$5,008,930*	*14.9%*
Foundations	*$18,124,274*	*2.3%*	*$18,689,966*	*2.3%*	*$565,692*	*3.1%*
State of Mich.	*$9,790,688*	*1.2%*	*$7,003,489*	*0.9%*	*-$2,787,199*	*-28.5%*
Total U-M	$120,932,948	15.2%	$130,690,125	15.9%	$9,757,177	8.1%
Total Expenditures	$796,965,385		$822,967,550		$26,002,290	3.3%

Note that while our federal funding increase was only 1.8%, it still represents $10.3M, exceeding the increase of $5.0M from industry sources. The U-M will continue to win a healthy share of federal grants, as our faculty are extremely competitive. Our recent experience is especially good with regard to federal block grant applications, as U-M faculty groups are submitting strong proposals, and having success in winning against stiff competition (e.g. the CTSA and PSAAP grants, to name a couple of recent major successes). Still, we anticipate continued, small declines in federal support for research to continue into the foreseeable future. Indeed, FY08 looks poor again, with the recent budget passage leaving NSF, DoE and NIH funding nearly flat from FY07. (See the "research" line in Fig. 2.) Specifically, the recently approved FY08 federal budget provides for only a 1.1% increase for NSF, 5.3% for the DoE Office of Science (with the majority of the increase going to earmarks), 0.9% for NIH, and a *decline* of 6.9% for the basic research portion of the DOD budget.

This was a complete reversal from Congress' position of only a few months ago, when the American Competitiveness Initiative passed with near-unanimous support that mandated substantial growth in STEM fields of between 7% and 10%. Instead, the FY08 budget zeroes out significant commitments, such as for the international fusion project known as the International Thermonuclear Experimental Reactor, or ITER. Also, large layoffs are expected at national science gems such as Fermi Lab and the Stanford Linear Accelerator. Hence, every indicator points to nearly flat, or even declining Federal funding for the next several years, and little elasticity that would allow U-M to grow significantly from this source into the foreseeable future.

Within the University, research expenditures are spread among all of our units, including the Dearborn and Flint campuses. The largest site of research spending is the Medical School ($247.6M), followed by the College of Engineering ($132.7M). The Institute for Social Research ($75.3M) has the most spending of any unit that is not a school or college, although many of its projects involve faculty with appointments in academic units. The UM Transportation Research Institute ($21.0M) has the largest research program of units that report to OVPR. A complete list of research spending by unit is in Table 3.

Table 3: Research Expenditures by U-M Unit, FY2007

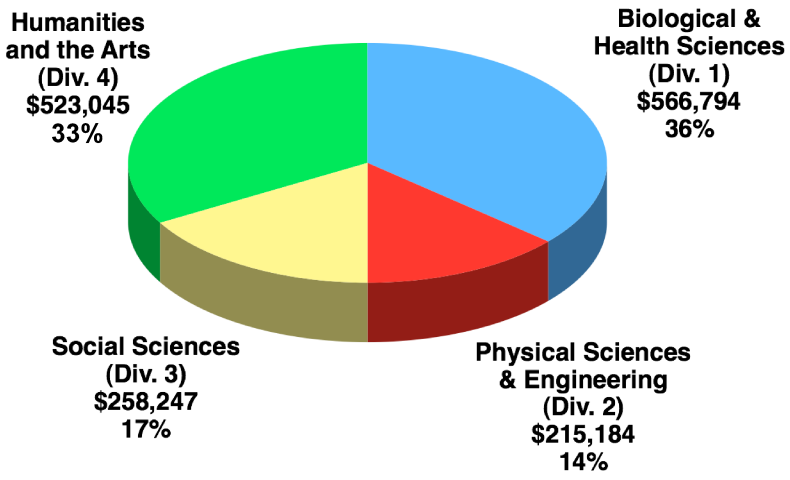
Medical School	$347,590,072	School of Nursing	$4,335,839
College of Engineering	$132,685,007	Rackham Graduate School	$4,222,810
Inst. for Social Research	$75,313,721	Division of Kinesiology	$2,876,718
College of LSA	$71,658,842	Law School	$1,987,797
School of Public Health	$47,749,863	Ford School of Public Policy	$1,843,721
UMTRI	$21,002,753	Taubman CA&UP	$1,027,596
School of Dentistry	$15,920,425	U of M Hospital	$307,187
School of Education	$13,526,897	School of Music	$267,428
Life Sciences Institute	$13,343,612	University Library	$194,870
SNRE	$11,466,545	School of Art and Design	$178,968
Ross School of Business	$7,869,835	Other Ann Arbor Units	$24,646,542
College of Pharmacy	$7,180,368	Univ of Mich-Dearborn	$4,752,764
School of Social Work	$5,442,146	Univ of Mich-Flint	$652,784
School of Information	$4,922,566		

The University of Michigan devotes a significant portion of internal funds to support research and scholarship. As noted above, this amounted to $130.7M in FY07. One of OVPR's major goals is to use some of its budget to support new initiatives, and provide cost-sharing and seed funding that make our faculty proposals to external funding entities more competitive. OVPR also provides support to faculty who conduct work in areas not typically funded by federal agencies or other groups. In FY07, this spending totaled $4.5M, with the majority of our funds matched by the proposing faculty members' school, college, or department.

A primary source of OVPR support is our Faculty Grants and Awards program. OVPR has increased the size of this program aimed at funding individual faculty projects by 10% this year – its first increase in many years. Figure 4 shows the detailed breakdown of OVPR funds to UM

projects by broad disciplinary area, as defined by the Rackham Graduate School divisions. In addition to providing bridging funds for externally supported but lapsed projects, seed funding for young faculty, as well as more senior faculty who are changing research directions, it also strongly supports projects in the arts. One-third of the total funding from this program alone was directed at supporting the arts and humanities, although the total external funding brought in by these fields is less than 1% of our total research volume. OVPR funds went to four dozen

Figure 3: OVPR Faculty Grants and Awards Program Allocations by Division, FY2007



humanities and arts projects, from support for the production of a publication or recording, to larger grants that made a performance, conference, or exhibit possible.

Another significant responsibility for OVPR is overseeing the management of our intellectual property, largely handled by the Office of Technology Transfer. One measure of our effectiveness in working with industry is found in OTT's performance trends. Figures 4 and 5 show those trends since 2001.

In FY07, disclosures of new technologies were up by 14%, and royalty revenues increased by 18% to $12.5 million. No equity sales occurred in FY08. We launched seven start-ups, bringing to 62 the number of new companies formed between 2001 and 2007. A particularly important indicator of progress is our rate of invention disclosures. These have risen significantly, by 13.9% from 288 in FY06, to 329 in FY07. We believe that this increase does indicate a trend, and provides us with optimism that a subtle shift in our culture of entrepreneurialism is underway. We note that these numbers are by no means indicative of all that we do, or that we must do to improve our interactions with the business community.

Figure 4: Office of Technology Transfer Performance Indicators, FY2002-07

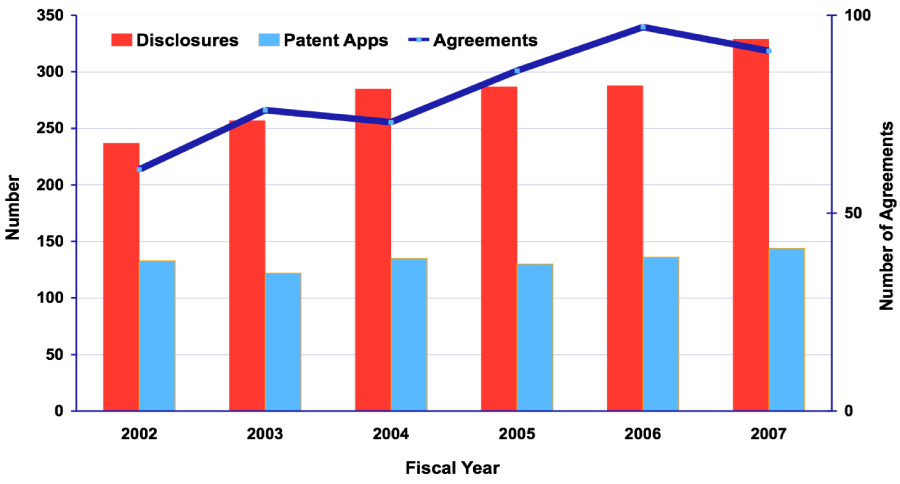
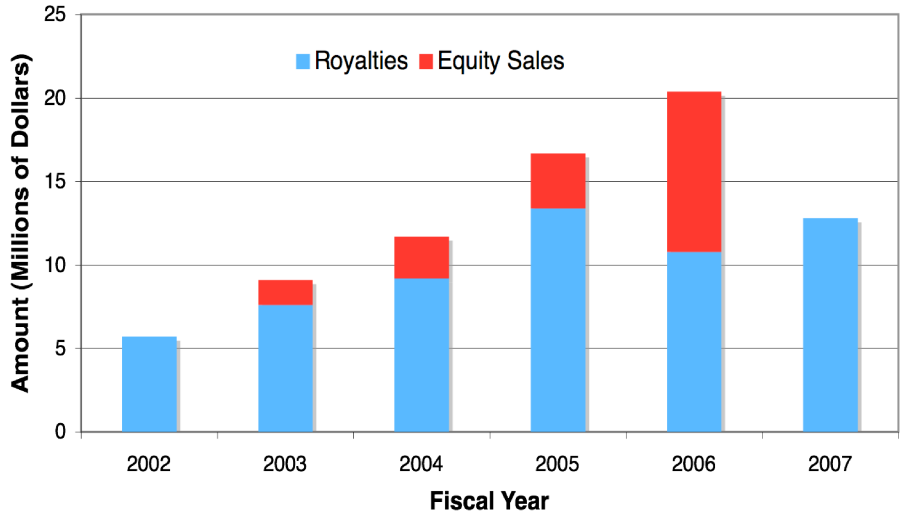
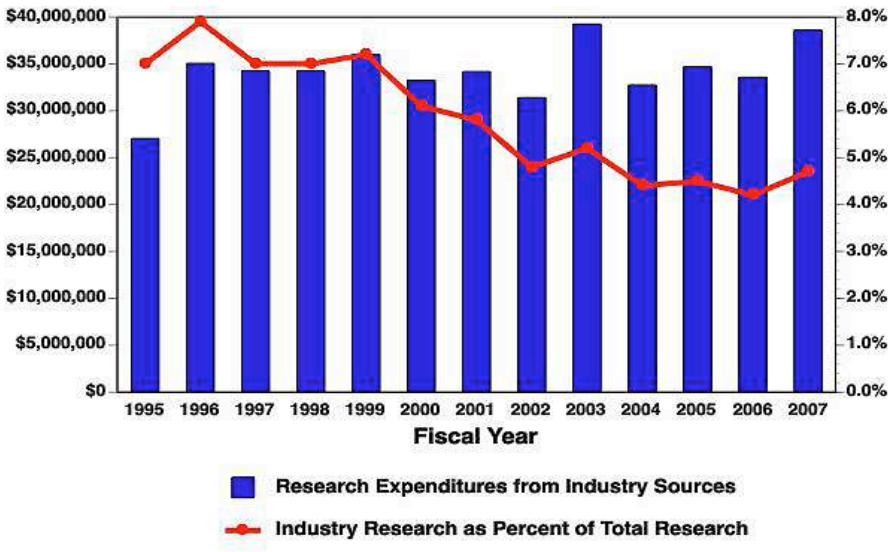


Figure 5: Office of Technology Transfer Revenues, FY2002-07



Finally, the *University of Michigan Innovation Initiative* that OVPR is spearheading on campus, has a goal of increasing the amount of industry-sponsored research conducted by our faculty. As the Initiative takes root, we hope to get a sense of our success by analyzing developing trends in industry research, both on our campus, as well as by benchmarking our performance against our peer institutions. Figure 6 shows the last decade of industry sponsored research expenditures, and the percent of the total research expenditures that they represent. While there was a noticeable increase in FY08, it is unclear whether this represents a pattern.

Figure 6: Industry Research Expenditures
(in dollars and as percent of total research, FY1995-2007)



Another way for the U-M to measure its progress in improving our engagement with industry is through a comparison of this activity with our peers. Looking at our ranking compared to other universities, Table 4 shows that in 2006, our goals are within reach. Overall, we rank in a group of universities which all have the same approximate performance of 10th in the nation.

Table 4: Industry-financed R&D expenditures at universities and colleges, FY 2003-06

	Institution	2003	2004	2005	2006
1	Duke U.	$122,181	$94,359	$134,608	$132,996
2	OH State U. all campuses	$45,957	$56,580	$81,423	$106,252
3	PA State U. all campuses	$77,660	$85,570	$87,928	$89,170
4	MA Institute of Technology	$80,664	$72,227	$72,121	$75,790
5	U. WA	$48,222	$46,531	$45,281	$56,765
6	Purdue U. all campuses	$34,720	$37,908	$46,571	$45,549
7	NC State U.	$35,940	$40,734	$38,710	$41,959
8	U. CA, San Diego	$28,868	$31,028	$34,259	$39,825
9	U. PA	$26,623	$27,678	$34,483	$38,347
10	GA Institute of Technology	$32,839	$29,500	$33,117	$37,279
11	U. CA, San Francisco	$37,396	$31,482	$34,175	$35,621
12	U. South FL	$2,115	$6,533	$28,863	$35,425
13	Stanford U.	$31,176	$34,296	$34,072	$34,637
14	U. MD Baltimore	$65,473	$59,838	$57,806	$33,772
15	TX A&M U. all campuses	$27,006	$32,094	$18,927	$33,613
16	U. FL	$23,893	$16,666	$24,420	$32,942
17	U. TX Austin	$32,174	$27,176	$35,045	$32,637
18	U. AZ	$31,079	$29,571	$32,914	$32,576
19	**U. MICHIGAN**	**$36,087**	**$32,215**	**$34,191**	**$32,275**
20	U. Rochester	$25,298	$27,926	$31,094	$29,433

Source: National Science Foundation

OVPR's commitment to improving the University of Michigan's role in the economic progress of the region and state is strong. We will only achieve our long term goals by continuing to encourage acceptance of industry-related research over the long term.