

## II. F. Institutional Efficiency and Effectiveness

### Institutional Efficiency and Effectiveness

The University's goal is to be a client-focused organization providing services that are tailored to meet clients' needs and expectations. It invests to develop services that are readily accessible, timely, efficient, effective, and of highest quality. The University hopes to be recognized as an innovator and leading-edge user of technology and staff development to achieve service excellence. It intends to excel in effective institutional resource management. This goal applies to the University's technological infrastructure, service improvement, and management systems.

To focus priorities and measure progress, the following measures have been established:

- 1) using technologies to improve the academic infrastructure and service delivery; and,
- 2) managing resources in ways that result in successful mission-driven activities, efficient operations, and fiscally responsible budget planning.

To increase substantially the number of students, faculty, and staff who benefit from information technology, over the past four years a total of over \$15 million has been invested through the Compact Process in technology to improve services for students, faculty, and staff. Another \$9.3 million has been invested to improve the academic technology infrastructure.

***Use technologies to improve the academic infrastructure and service delivery.***

Indicators: domain popularity; email usage; satisfaction ratings

### Trends.

#### Use of Centrally Supported Web and Email Technology

8.12 million/day	Hits on <a href="http://www.umn.edu">www.umn.edu</a>
300,000/day	Hits on Web-based systems (Enterprise, One-Stop, etc.)
522,471/day	Email messages delivered to students, faculty, staff
1.1 million/day	Email queries and transactions

*Source: Office of Information Technology*

#### Domain popularity

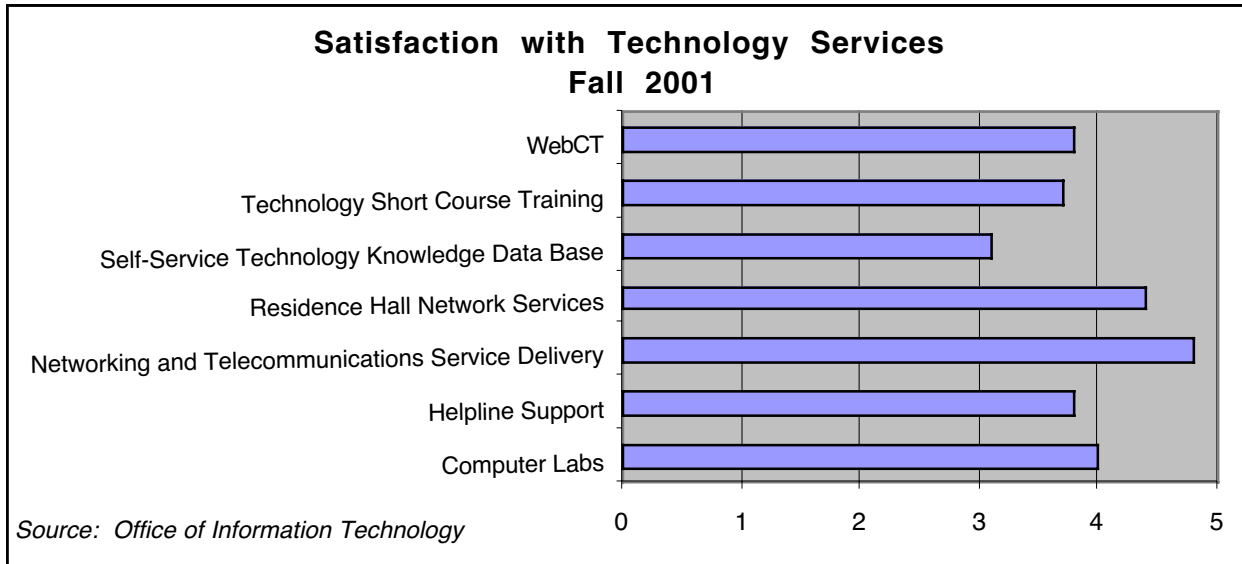
- Institution-wide, the University receives approximately 8.12 million hits per day. Over seven million of these are attributed to the Twin Cities campus.
- Students, faculty, and staff use automated, Web-based Enterprise Systems and processes approximately 300,000 times per business day. These include: class schedules, grades, class registrations, student financial aid, and staff and department searches.

#### Email usage

- The University's central email servers deliver 522,471 messages per day.
- The servers handle approximately 1.1 million mail queries/requests per day.

**Customer satisfaction**

- Customer satisfaction with technology services is strongest in area of network services.
- Satisfaction with computer labs is also comparatively strong.
- These results provide a baseline for continued surveys in the future



**Technology and Service Improvements**

Leveraging Technology Investments

Through the Compact Process, from 1999 to 2001, a total of over \$15 million has been invested in technology to strengthen support for student services and classroom technology, faculty development and staff training, access, and other service and management improvements. The goal is to increase substantially the numbers of faculty, students, and staff who benefit from information technology. Examples of these investments are:

Priorities	Outcomes
Digital Libraries	Hired 7 new digital librarians. Significant increases in our digital holdings and access to on-line databases.
Technology enhanced classrooms	Currently have over 150 technology enhanced central classrooms on the Twin Cities campus; an additional 50 on the coordinate campuses. Represents over 60 percent of our total inventory.
Digital Media Center	Center created to assist faculty with technology enhanced learning and research; 800 – 1,000 to be involved over 4 years
Technology enhanced learning grants	Support for nearly 300 faculty led projects using technology enhanced learning. All projects leverage collegiate resources as well

Source: Office of Budget and Finance

Another \$9.3 million has been invested in the academic technology infrastructure. Examples:

Priorities	Outcomes
Student modem pool	Ensures internet access with almost no wait time for all students. Supports greatly expanded help-line services.
ITV and Streaming Video	Support and expansion of distance education technologies. Conversion to streaming video.
Grants management system	Implementation has increased efficiency of grant processing and information for principle investigators
WebCT	Meet demand from faculty for WebCT support

*Source: Office of Budget and Finance*

With the installation of the PeopleSoft core infrastructure, our goal is now to:

- Leverage the investment in new infrastructure and software to support our core businesses.
- Improve services.
- Design and integrate business process improvements in accountable and fiscally responsible ways.
- Enhance a customer-focused service culture.

This service culture is characterized by:

- Focusing first on the needs of the user, not the convenience of the deliverer of the service.
- Exploiting to the fullest tools and technologies that remove obstacles from users who seek to access information/services.

Admissions.

- 80 percent of all admission applications were handled electronically in 2000-01.

Paperless Financial Aid Process.

On April 23, 2001, the University of Minnesota announced that its student financial aid application process had been converted to a paperless system. Beginning in summer 2001, students are able to complete all of their federal financial-aid forms using a series of Web pages. The University of Minnesota is the first institution in the country to offer a process that is paperless from beginning to end. The previous process took six to eight weeks before money was disbursed; with the new system, the process has been cut back to four days and saves 1 million sheets of paper. The system has an 87 percent user rate: of 16,715 eligible students, 14,615 used the Internet to accept, amend, or decline their aid.

Financial FormsNirvana (FFN).

FormsNirvana is a tool, developed internally at the University of Minnesota, that can be used to create, route, approve and process information electronically.

- The FFN application is a “front end” to the University’s general ledger, allowing financial transactions to be prepared, validated, routed, reviewed, and approved electronically. The main advantage to using FFN is that it allows more accurate and timely preparation and approval of financial transactions by departments, thus resulting in better internal controls and improved service delivery. A rollout of FFN was begun in FY 2001, with the goal of achieving at least 95 percent usage for all documents available in FFN. As more departments begin using FFN, paper transaction processing via central systems and units will decrease.
- One-third of total purchases were processed electronically in 2000-01.
- 75 percent of all University services can be provided through one-stop Web-enabled centers.
- Through spring 2001, FFN usage had resulted in a 22 percent decrease in the number of documents that were processed centrally, or approximately 66,000 documents.
- The EGMS (Electronic Grants Management System) application allows principle investigators to prepare a sponsored project proposal electronically and route it for approvals within the University. Currently, EGMS may be used for preparing some National Institutes of Health and National Science Foundation grant applications. Templates for additional sponsors are now being developed. Additionally, grants management forms for conflict of interest disclosures and consulting disclosures are available.

#### Human Resources Self Service (HRSS).

In spring 2001, the University began to provide faculty and staff users the tools to access information and perform routine transactions, organized in a way that makes sense to the individual user. Through a web-based technology called a "portal" every faculty or staff member is able to construct a personalized screen that lets them have immediate access to content that is most important to them – from viewing balances in their health care reimbursement account to seeing their paycheck. A variety of transactions that now require forms to be signed and sent through various offices will be able to be completed electronically and directly by the user, cutting out non-value added steps.

#### University Portal Strategy.

The HRSS portal is part of a larger portal strategy that will be made available to all members of the University community. Portals will be used for:

- Distributing information (content distribution) and communications, e.g., web searching, news, reference tools and digitized library material, e-mail and chat groups
- Education and training, e.g., technology enhanced learning (TEL); Web-based courses and testing; video streaming; course delivery to distributed locations; multi-institutional and consortia-based educational programs; health care delivery
- Providing staff and student services via the Web and a common portal, creating, in effect, a one-stop service
- Optimizing business processes through linked transactions, automation, and self-help, e.g., online applications and payment of admissions fees, online purchasing and loan programs
- Electronic grant and development initiatives
- Selling and buying of goods and services
- Extending market reach to new global markets via distance education
- Promoting brand awareness and loyalty
- Building communities, especially learning communities

- Managing relationships and coordinating activities with business partners; redefining business relationships
- Managing and supporting relationships with the University's many constituencies
- Managing risk and compliance

WebCT.

- WebCT is the University's standard web-based course management system, providing an environment for faculty to develop complete web-based courses and enhanced classroom courses with web services such as online syllabus, discussion groups, and quizzes.
- WebCT is integrated with PeopleSoft for daily updates of class lists, and soon will have a grading capability.
- In spring 2001, 1,024 courses utilized WebCT, with a total enrollment of 41,716. In fall 2001, the total number of courses decreased to 865, but had a larger total enrollment of 44,808.

Web One-Stop Service.

Recent patterns of Web use peaked in late fall through mid-spring, and then declined during the early summer, reflecting variations in the academic cycle, which is lighter in the summer.

<u>One-Stop</u>	<u>July-01</u>	<u>May-01</u>	<u>Jan-01</u>	<u>Dec-00</u>	<u>Nov-00</u>
Course Guide	145,715	183,513	226,293	234,971	300,221
Class Schedule	500,863	928,996	1,192,055	1,123,503	1,210,563
Section Status	36,619	60,555	72,470	136,176	118,157
Web Site Search	81,603	93,400	109,607	79,312	87,488
One-Stop Department Lookup	28,959	35, 503	39,194	33,453	38,228
<b><u>Total</u></b>	<b>793,759</b>	<b>1,301,967</b>	<b>1,639,619</b>	<b>1,607,415</b>	<b>1,754,657</b>

Source: Office of Information Technology

***Manage resources in ways that result in successful mission-driven activities,  
efficient operations, and fiscally responsible budget planning.***

Indicators: Instructional cost profiles

**Instructional Cost Profiles**

The ratios, below, help illustrate and measure the University's efficiency. In some cases, comparison data is available for peer institutions. In the broadest context, the most significant trend has been that over the past three years, funds leveraged by state O&M and SS dollars have increased, while O&M revenue per FYE student has decreased or barely held level. (See the table at the end of this section for more detail.)

**Overview: Instructional Cost Profiles**

	1998	1999	2000	2001
Revenue leveraged by O&M/SS \$	\$1.88:\$1	\$1.84:\$1	\$1.89:\$1	\$2.00:\$1
State support per FYE student	\$10,007	\$9,806	\$10,207	\$10,704
State support per T/TT faculty	\$201,841	\$201,286	\$207,276	\$219,225
Tuition per T/TT faculty	\$80,809	\$94,024	\$92,163	\$94,515
Tuition as % instructional expenditures	45.3%	53.0%	52.0%	52.0%
Direct instructional expenditures per FYE student	\$8,851	\$8,648	\$8,146	\$9,092
Direct instructional expenditures per degree	\$41,888	\$40,993	\$42,371	\$47,129
FYE students per T/TT faculty	20.1	20.4	19.3	19.9
Degrees awarded per T/TT faculty	4.2	4.3	4.2	3.8

Source: *Institutional Research and Reporting*

### **Additional Revenue Leveraged for Each O&M/SS Dollar**

- Twenty-one percent of the University's instructional costs are funded from non state appropriations and tuition revenue. These funds come from sources such as private practice income and income from endowments. At 21 percent, the level of support from these other sources is up slightly from 1995, when it was 20 percent.
- Without these other funds (approximately \$130 million), either tuition would need to be 50 percent higher than it is or the state appropriation would need to be significantly larger than it is in order to fund instructional programs at current levels.
- Over the past four years, the funds leveraged by state O&M and SS funds have increased slightly:

1998	\$1.88:\$1
1999	\$1.84:\$1
2000	\$1.89:\$1
2001	\$2.00:\$1

- O&M revenue per FYE student has decreased or barely held level, and the revenue per tenured/tenure-track faculty member has declined.

### **State Support per FYE Student**

- Between 1998 and 2001, state support per FYE student system-wide has increased slightly, from \$10,007 to \$10,704.

### **State Support per Tenured/Tenure-Track Faculty**

- State support per tenured/tenure-track faculty for the system increased from \$201,841 to \$219,225 between 1998 and 2001, a nearly 9 percent increase.

### **Tuition per Tenured/Tenure-Track Faculty**

- Tuition per tenured/tenure-track faculty has increased by 17.3 percent between 1998-2001, nearly twice the rate of state support per tenured/tenure-track faculty over this period.

### **Tuition as Percent of Instructional Expenditures**

- Tuition as a percent of instructional expenditures is gradually increasing – up 5.4 percent between 1997 and 2001 for the system.

### Instructional Expenditures per FYE Student

- Between 1997 and 2000, direct expenditures per FYE student for instruction increased 12.5 percent for the system.
- In FY 2000, the Twin Cities campus ranked eighth among public research universities, and third in the Big 10, after the University of Michigan (\$10,789) and Ohio State (\$9,426), in the instructional expenditures per student.

<b>Expenditures for Instruction per Total Head Count Enrollment FY 2000</b>	
N Carolina	\$16,683
UCLA	\$16,622
UCSD	\$12,503
Michigan	\$10,789
Washington	\$10,622
UC-Berkeley	\$10,090
Ohio St	\$9,426
<b>UMTC</b>	<b>\$8,890</b>
SUNY-SB	\$8,717
Florida	\$8,438
Virginia	\$8,300
Iowa	\$7,863
Wisconsin	\$7,549
Mich St	\$7,403
Purdue	\$7,119
Maryland	\$6,466
UCSB	\$6,388
Indiana	\$6,323
Illinois	\$6,299
Texas	\$6,236
Penn St	\$6,227
Iowa St	\$5,644

Source: Institutional Research and Reporting

### Fully Allocated Instructional Costs per FYE Student

- Fully allocated instructional costs were calculated per FYE student for FY 1999 (the most recent year available). For the system as a whole the proportion was:
 

All funds	\$11,806/FYE student
O&M funds	\$ 9,332/FYE student
Other funds	\$ 2,474 (21 percent of total)/FYE student

### Instructional Expenditures per Degree

- Between 1997 and 2001, direct expenditures for instruction per degree increased by 22.2 percent for the system.
- IN FY 2000, UMTC ranked fourth among 22 Big 10 and other top public research universities in expenditures for instruction per total degrees conferred.

<b>Expenditures for Instruction per Total Degrees FY 2000</b>	
N Carolina	\$67,172
UCLA	\$63,650
UCSD	\$57,025
UMTC	\$44,776
SUNY-SB	\$42,612
Ohio St	\$42,368
Michigan	\$42,347
Washington	\$41,584
Iowa	\$37,689
UC-Berkeley	\$35,535
Wisconsin	\$35,474
Virginia	\$35,144
Purdue	\$34,028
Mich St	\$33,368
Florida	\$31,689
Indiana	\$30,125
Maryland	\$30,072
Iowa St	\$28,702
Texas	\$26,479
Illinois	\$25,692
UCSB	\$24,507
Penn St	\$23,558

*Source: Institutional Research and Reporting*

### FYE Students per Tenured/Tenure-Track Faculty

- From 1993 through 1997, the number of undergraduate students per faculty member was 12.4 or less. Since 1997, the number has increased to 14 students per faculty member.
- Over this period, the number of graduate students per faculty member has remained nearly constant, fluctuating between 5.3 and 5.8.

### Degrees Awarded per Tenured/Tenure Track Faculty

- Between 1992 and 1997, total degrees awarded per faculty member has fluctuated between 3.6 and 4.0.
- The number of undergraduate degrees per faculty member has been steady, or declined slightly, on all campuses between 1997 and 2001.
- In 1999-2000, UMTC averaged 4.3 degrees awarded per faculty member, ranking 13<sup>th</sup>, compared with 16 other top public NCR-ranked and Big 10 universities.

**Degrees Awarded per Faculty Member  
1999-2000**

NRC Rank	School	Degrees Awarded per Faculty Member
30	UC SB	7.0
1	UC Berkeley	6.6
14	Texas	6.4
8	UCLA	6.2
26	Penn State	6.0
	Indiana	5.7
16	Washington	5.4
15	UC SD	5.2
19	Illinois	5.0
27	Purdue	4.8
	Michigan State	4.8
4	Michigan	4.4
12	Wisconsin	4.3
20	UMTC	4.3
	Ohio State	4.2
	Iowa	4.0
23	North Carolina	3.7

*Source: Institutional Research and Reporting*

**FYE Students and Degrees per Tenured/Tenure Track Faculty By Campus  
1997-2001**

	1997	1998	1999	2000	2001
<b>Undergraduate Students</b>					
Crookston	27.7	29.6	28.5	30.4	29.5
Duluth	25.2	26.4	28.3	28.1	28.2
Morris	21.3	21.6	21.7	19.4	18.1
Twin Cities	10.3	11.3	11.8	12.0	11.9
<b>Graduate Students</b>					
Duluth	1.2	1.1	1.4	1.6	1.6
Twin Cities	5.2	5.5	5.6	5.5	5.6
<b>Undergraduate Degrees</b>					
Crookston	4.3	6.4	6.8	4.6	4.9
Duluth	3.7	4.4	5.1	4.6	4.2
Morris	4.9	4.4	3.9	3.7	3.2
Twin Cities	2.1	2.3	2.3	2.2	2.1
<b>Graduate Degrees</b>					
Duluth	0.6	0.6	0.7	0.7	0.7
Twin Cities	1.7	1.8	1.8	1.9	2.1

*Source: Institutional Research and Reporting*

## **Implications for 2002-2003 planning and initiatives**

Questions for future consideration:

- What infrastructure do we need to build today to meet the teaching, learning, and service needs of the future?
- What type of technology support and investments will faculty need to remain competitive?
- What is the “rate of return” (monetary and nonmonetary) on our infrastructure investments and what is an appropriate rate of return to expect?
- What will be the expectations for and nature of the fiscal support for the University as the sources of funding continue to shift away from a “traditional” land-grant, public university model?
- What standards should be established for core areas of performance related to fiscal and human resources?
- For example, through the Compact Process, individual colleges may designate additional measures to assess the impact of technology on efficiency, satisfaction, and effectiveness. These may include:
  - Comparisons of student satisfaction with electronic and paper class scheduling.
  - Comparisons of learning outcomes between classes that use, and that do not use, learning technologies.

### Instructional Cost Profiles: Campus and System Ratios

Fiscal Year	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>RATIOS: U of M</b>									
<b>State Support per TT Faculty FTE</b>									
UMNCR	\$0	\$0	\$0	\$0	\$0	\$232,798	\$215,550	\$227,648	\$197,952
UMNDL	\$0	\$0	\$0	\$0	\$0	\$130,056	\$136,160	\$140,373	\$147,467
UMNMO	\$0	\$0	\$0	\$0	\$0	\$118,299	\$127,699	\$129,404	\$133,685
UMNTC	\$0	\$0	\$0	\$0	\$0	\$213,588	\$211,647	\$218,134	\$232,021
Univ	\$0	\$0	\$0	\$0	\$0	\$201,841	\$201,286	\$207,276	\$219,225
<b>State Support per FYE Student</b>									
UMNCR	\$0	\$0	\$0	\$0	\$0	\$5,486	\$5,144	\$5,180	\$4,830
UMNDL	\$0	\$0	\$0	\$0	\$0	\$5,305	\$4,746	\$4,683	\$4,910
UMNMO	\$0	\$0	\$0	\$0	\$0	\$5,655	\$5,893	\$6,591	\$7,425
UMNTC	\$0	\$0	\$0	\$0	\$0	\$11,068	\$11,014	\$11,580	\$12,174
Univ	\$0	\$0	\$0	\$0	\$0	\$10,007	\$9,806	\$10,207	\$10,704
<b>FYE per TT Faculty FTE</b>									
UMNCR	17.47	27.24	29.80	33.63	38.78	42.43	41.91	43.95	40.98
UMNDL	24.16	24.39	24.42	23.22	23.12	24.52	28.69	29.97	30.03
UMNMO	21.07	23.05	23.86	25.13	20.62	20.92	21.67	19.63	18.01
UMNTC	17.68	17.81	18.38	18.84	18.56	19.30	19.22	18.84	19.06
Univ	18.41	18.73	19.28	19.66	19.34	20.17	20.53	20.31	20.48
<b>Tuition per TT Faculty FTE</b>									
UMNCR	\$0	\$0	\$0	\$0	\$0	\$101,804	\$104,674	\$107,735	\$93,878
UMNDL	\$0	\$0	\$0	\$0	\$0	\$95,628	\$122,282	\$122,787	\$125,534
UMNMO	\$0	\$0	\$0	\$0	\$0	\$80,673	\$83,397	\$79,565	\$79,854
UMNTC	\$0	\$0	\$0	\$0	\$0	\$78,715	\$90,999	\$88,811	\$91,370
Univ	\$0	\$0	\$0	\$0	\$0	\$80,809	\$94,024	\$92,163	\$94,515

Fiscal Year	1993	1994	1995	1996	1997	1998	1999	2000	2001
UMNCR	0.0%	0.0%	0.0%	0.0%	0.0%	90.3%	97.6%	82.4%	88.3%
UMNDL	0.0%	0.0%	0.0%	0.0%	0.0%	88.6%	94.4%	95.8%	94.5%
UMNMO	0.0%	0.0%	0.0%	0.0%	0.0%	94.2%	90.4%	84.2%	85.6%
UMNTC	0.0%	0.0%	0.0%	0.0%	0.0%	41.0%	48.5%	47.4%	47.3%
Univ	0.0%	0.0%	0.0%	0.0%	0.0%	45.3%	53.0%	52.0%	52.0%

**Exp for Instruction per FYE Student**

UMNCR	\$3,753	\$3,000	\$3,587	\$2,822	\$2,857	\$2,656	\$2,558	\$2,974	\$2,594
UMNDL	\$3,637	\$3,608	\$3,843	\$4,042	\$4,262	\$4,400	\$4,515	\$4,276	\$4,421
UMNMO	\$3,566	\$3,357	\$3,714	\$3,727	\$3,859	\$4,096	\$4,256	\$4,811	\$5,183
UMNTC	\$8,092	\$7,791	\$8,333	\$8,224	\$8,659	\$9,943	\$9,763	\$9,946	\$10,127
Univ	\$7,295	\$7,011	\$7,516	\$7,432	\$7,807	\$8,851	\$8,648	\$8,735	\$8,881

**Exp for Instruction per Degree**

UMNCR	\$24,474	\$25,660	\$27,710	\$27,229	\$25,880	\$17,699	\$15,884	\$28,194	\$21,919
UMNDL	\$28,261	\$23,542	\$22,819	\$18,524	\$23,127	\$21,612	\$22,263	\$24,181	\$26,765
UMNMO	\$18,730	\$19,403	\$23,587	\$19,662	\$16,269	\$19,636	\$23,390	\$25,562	\$28,738
UMNTC	\$39,436	\$37,969	\$40,445	\$40,013	\$41,967	\$46,353	\$45,345	\$46,056	\$51,695
Univ	\$37,585	\$35,811	\$37,940	\$36,395	\$38,558	\$41,888	\$40,993	\$42,371	\$47,129

**Fully Allocated Instructional Costs for FY 1999 (most recent year available)**

	FYE Students	Total Direct Costs by Source of Funds			All Funds Indirect Costs	Total Direct + Indirect Costs	Costs per FYE Student					% of Cost from Other Funds
		O&M	Other	Total			All Funds Direct	All Funds Indirect	All Funds Total	O&M Funds Subtotal	Other Funds Subtotal	
Summary by Campus												
UMNCR	1,341	\$3,364,840	\$1,317	\$3,366,157	\$6,424,196	\$9,790,353	\$2,510	\$4,791	\$7,301	\$6,887	\$414	5.7%
UMNDL	7,298	\$32,785,791	\$1,953,623	\$34,739,413	\$20,100,400	\$54,839,813	\$4,760	\$2,754	\$7,514	\$6,974	\$540	7.2%
UMNMO	1,907	\$8,090,406	\$4,437	\$8,094,835	\$8,978,292	\$17,073,227	\$4,245	\$4,708	\$8,953	\$8,508	\$445	5.0%
UMNTC	38,726	\$295,020,742	\$71,576,099	\$366,596,841	\$147,141,866	\$513,738,707	\$9,466	\$3,800	\$13,266	\$10,135	\$3,131	23.6%
UNIV	52,543	\$353,295,103	\$73,828,344	\$427,123,439	\$193,188,574	\$620,312,114	\$8,129	\$3,677	\$11,806	\$9,332	\$2,474	21.0%