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**DISCUSSION DRAFT**

**University 2000  
Institutional-Level Critical Measures  
and Performance Goals**

**Third Phase**

**This and other documents related to the first, second, and third phases of the critical measures work can be found on the World Wide Web URL: <http://www.opa.pres.umn.edu/specproj/critmeas/critmeas.htm>**

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# UNIVERSITY 2000 CRITICAL MEASURES

## Third Phase Discussion Drafts

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## Discussion Drafts for Third Phase Critical Measures

**Context and Overview:** The University 2000 Mission, Vision, Strategic Directions, and Performance statement approved by the Board of Regents in January and September 1994 emphasized the areas of research, graduate and professional education, undergraduate education, access and outreach, user-friendliness, and diversity. It also called for the development of "critical measures" for assessing institutional, campus, and unit performance in realizing the goals of U2000. The stated purposes of the critical measures are to: 1) publicly confirm the University's success in reaching its goals; 2) guide institutional, collegiate, and support unit self improvement; 3) serve as a link between planning, performance, evaluation, and resource allocation; and 4) provide a means for comparison with other similar institutions.

**Development Process for Critical Measures:** Existing recommendations and reports and external reporting requirements were reviewed to identify potential measurement areas, and meetings were held inside and outside the University to listen to suggestions and reactions to a proposed list of measures. This process resulted in a list of eighteen critical measurement areas, divided into three development/implementation phases. Five "first phase" critical measures were developed during the summer of 1994, reviewed by the Board of Regents at their September and November 1994 meetings, and approved on December 8, 1994. Seven "second phase" measures were developed during the 1994-95 academic year, reviewed by the Board of Regents at their June 1995 meeting, and approved on July 14, 1995.

Measures for the "third phase" measurement areas are being developed during the 1995-96 academic year, using a two-part discussion process involving groups from the coordinate campuses; provostal offices; University Senate committees on educational policy, finance and planning, research, and computing and information systems; staff groups including collegiate student affairs administrators and placement staff, the Council of Undergraduate Deans, and the civil service and academic staff advisory committees; student organizations/groups including the CLA Student Board and the Graduate and Professional Student Assembly; President Hasselmo's minority advisory committees; the Graduate School, Minnesota Extension Service, Collegiate Program Leaders, Continuing Education and Extension/University College, Office of Information Technology, Office of Minority Affairs and Diversity, and University Libraries; and others.

The first part of this process, which used a discussion outline of possible key aspects of each broad measurement area, has been completed. This document, which is a set of preliminary proposals for how these measures should be defined, is the focus of the second part of the process.

**Summary of Discussion Phase/Key Points for Third Phase Critical Measures:** From the summer of 1995 through February 1996, a great many people have given thoughtful consideration to the third phase measures, including the groups listed above. In reviewing the drafts which follow, note that:

- As noted in the earlier discussion outline, the names of the third phase measurement categories were quite broad and could be interpreted in many different ways; it was noted that some renaming of the categories might be necessary as a result of clarifying the focus of the measures.
- Both renaming and a change in the number of recommended third phase measurement categories is now recommended:

As a result of discussions during recent months, two of the original third phase categories are recommended to be incorporated into earlier (first and second phase) measures:

Reputation of undergraduate, graduate, and professional programs would be reflected in the second phase measurement categories *scholarship, research, and artistic accomplishments* and *post-graduation experience*, and the first phase measurement category characteristics of *entering students*, rather than being a separate third phase measure.

Interdisciplinary and/or applied programs would be reflected in the second phase measure of *scholarship, research, and artistic accomplishments* rather than being a separate category.

Three of the original third phase categories are recommended to be combined into a single category with a different title:

The *outreach and public service, responsiveness to market demand, and responsiveness to compelling state needs* measures are combined into a single category and renamed to reflect the University's many different relationships with its external constituencies; the new name would be *the University's interaction with society: partnerships, services, and impacts*.

The names of the remaining two categories are changed to reflect a somewhat different focus than what was suggested by the earlier titles:

The *customer service/streamlining* measure is focused on student services outside of the classroom and renamed *streamlined student services*.

Instrumentation is removed from the *technology* category, at the same time that the category is broadened to include a stronger focus on information "content"; the new name for this category is *information infrastructure*.

Three new third phase measurement areas are now recommended, rather than the seven categories listed initially. A revised list of the fifteen measurement areas as organized into the three phases is shown below:

#### Revised Development/Implementation Timetable for Critical Measures:

##### First Phase (1994)

- characteristics of entering students
- graduation rate
- underrepresented groups/diversity
- sponsored funding
- investment per student

##### Second Phase (1995)

- student experience
- post-graduation experience
- scholarship, research, artistic accomplishments
- overall satisfaction of Minnesota citizens
- faculty and staff experience
- facilities infrastructure
- resource development

##### Third Phase (1995-96)

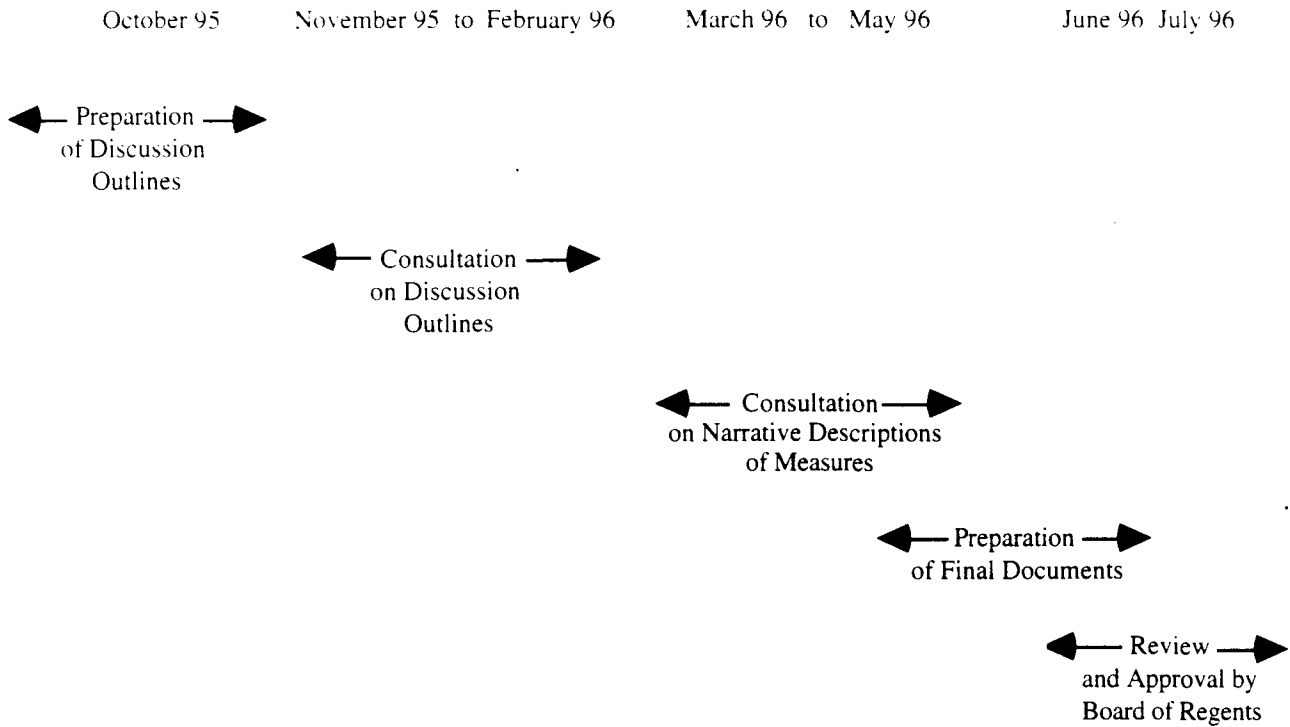
- the University's interaction with society; partnerships, services, and impacts
- streamlined student services
- information infrastructure

• As with many of the second phase measures, baseline data is not available for many of the third phase measures. Goal setting for these measures, where appropriate, will be delayed until baseline data has been collected. For measures such as *the University's Interaction with Society* that are primarily qualitative in focus, goal setting will not be appropriate even after baseline data has been collected.

• Every attempt is made to build on the measurement efforts of the campuses and collegiate units as these measures are further developed, so that measures at the different levels will be compatible and complementary.

- Finally, the third phase measures will be brought to the Board of Regents for discussion in June and action in July, to allow adequate time for consultation and for Regent discussion as shown below:

Timetable for Development of Phase Three Critical Measures:



## Discussion of Academic Reputation of Undergraduate, Graduate, and Professional Programs

**Measurement of Academic Reputation:** Rather than being a unique third phase critical measure, the University's academic reputation will be measured through:

- Inclusion of available graduate and professional program reputational rankings in the "highlights" measure of the second phase *scholarship, research, and artistic accomplishments* critical measure;
- Inclusion of new data on the "college choice" of Minnesota high school graduates in the *characteristics of entering students* measure, specifically, the percent who state that the University is their first choice for an undergraduate education when taking the ACT (American College Testing) test; and
- The retrospective view of graduates of the University's undergraduate, graduate, and/or professional programs concerning the quality of their education (i.e., the University's reputation as seen by its graduates) as measured in the second phase *post-graduation experience* measure.

"Reputation" refers to a subjective opinion of relative quality as perceived by external evaluators. The evaluators, who are usually experts in their fields (or in some cases consumers), are asked to rate programs according to certain attribute(s). Over the years, most reputational studies have used ratings of one or both of two characteristics: faculty scholarly quality, and the program's overall educational effectiveness. The reputation of a program or institution as perceived by external raters is the most common approach to assessing relative quality. However, many issues and concerns have been raised about using reputation as a measure, and these are summarized in the discussion that follows.

The use of "college choice" as a reflection of reputation is based on research showing that academic reputation--the perception of quality--is, in fact, one of the major determinants of student college choice. Thus if a high percentage of Minnesota's college-bound high school graduates view the University of Minnesota as their first choice, the University could be assumed to have a good academic reputation for undergraduate education. Using this ACT data, preference for attending the University can also be looked at for students of different ability levels and for different racial/ethnic groups.

The *post-graduation experience* critical measure is already intended to measure (among other things) graduates' retrospective assessment of their University education, so no additional data elements would need to be added to this measure.

**Relation to University 2000:** U2000's research strategic area notes that research, scholarship, and artistic activity are the basis of every aspect of the University's activities, and that the relationship of teaching to research, scholarship, and artistic activity is what distinguishes the University's undergraduate, graduate, professional, and outreach programs from those of other higher education systems in the state. U2000 states the following broad goals: to sustain and improve its position as one of the premier research universities in the country and the world; to maintain and enhance the quality of the academic disciplines that are at the core of a land-grant, research university; to ensure that highly ranked core disciplines maintain or improve their national rankings; to improve the University's quality nationally relative to its competitors; and to be excellent in those fields in which it chooses to participate.

The graduate and professional education strategic area further states that the University will ensure, by maintaining or improving their levels of program quality, that all of its graduate and professional programs are top-ranked. The undergraduate education strategic area states that the University will

ensure, by maintaining or improving the level of program rankings, that all major programs, whether based in departments or interdisciplinary, are of the highest quality. Reputation of academic programs is therefore important to consider at all three levels: graduate, professional, and undergraduate programs.

**Rationale for Recommended Approach:** There are two primary reasons for the recommended approach: 1) the coverage and methodological issues that surround reputational rankings; and 2) the existence of other U2000 critical measures that already address many aspects of quality, for example, the measures that concern the characteristics of entering students, the student experience, graduation rates, the post-graduation experience, and faculty scholarly accomplishments. Elements recommended to be added to several of these other measurement categories would address reputation without over-emphasizing it, given its measurement and coverage limitations.

#### Discussion of Issues Surrounding Reputational Rankings:

On the positive side, there are some important reasons for paying attention to reputational rankings. Although studies attempting to assess quality in higher education through reputational ratings have been a matter of controversy ever since the first study was published in 1925 (largely because they are the subjective opinions of peers in the field, and a variety of measurement problems exist), they are still the best available measures to compare academic programs across institutions with respect to their quality. And although reputational ratings of quality are subjective, they are highly correlated with a number of objective measures, including relative research productivity, program size, and several institutional characteristics. In addition, because the demand for external quality assessment of higher education institutions is likely to continue and reputational rankings are easily understood and used, they can influence the size and quality of an institution's student applicant pool, faculty recruitment and retention, and the institution's relative ability to attract sponsored funding; as a result, they are important to recognize as a factor affecting the University's success.

At the same time, it is also important to understand the limitations of such measures. Attachment A summarizes methodological problems (definitional problems, emphasis on research vs. other mission activities, missing and/or incorrect data, methodological variations, time lag, and potential bias); problems of misuse and misinterpretation; incomplete coverage; data collection cost, time, and infrequency; and issues of institutional incentives and disincentives relative to other goals. Limitations specific to the three areas intended as the focus of this measure--graduate, professional, and undergraduate programs--are outlined below:

- Although rankings based on the National Research Council's (NRC) studies are generally accepted as a measure of the quality of doctoral graduate programs, they represent only 33 percent of the doctoral degree programs offered by the University and none of the University's professional programs.
- As for professional programs, there are some reputational studies for different professional programs, but nothing even as inclusive as the NRC study. However, some professional programs are periodically rated and/or ranked within their own fields, for example, education, law, and agriculture. In addition, *U.S. News and World Report's* annual "Best Graduate Schools" guide includes ratings of several of the University's professional programs (see Attachment B).
- Very few reputational studies of specific undergraduate programs exist. *U.S. News and World Report's* annual "America's Best College" guide is the best known study of undergraduate programs but is not discipline specific and has many methodological problems (see Attachment B).

#### Related Measures Already Developed:

As noted above, a number of other U2000 critical measures already address many aspects of quality at the University, including the measure of *characteristics of entering students*, the *student experience*, *graduation rates*, the *post-graduation experience*, and *scholarship, research, and artistic*

*accomplishments*. The measure *sponsored funding* also indirectly reflects the perceived quality and reputation of the University, as does the measure *overall satisfaction of Minnesota citizens*. The fact that a number of already developed first and second phase critical measures are designed to assess the University's reputation means that reputational measures need not be a separate critical measure but rather can be incorporated into some of these other measurement categories, thus providing a way of recognizing the valuable aspects of reputational measures but not overly weighting them. A four-part strategy for including "reputation" in several existing first and second phase measures is described below.

Part 1--Graduate Programs Included in the NRC Ratings: The National Research Council's (NRC) studies, although they are available only once every ten or more years, provide the best available measure of the reputation of graduate programs and are widely accepted and used in higher education. The NRC study published in 1995 (the data was actually collected in 1993) examined more than 3,600 doctoral programs in 41 fields in the biological sciences, the physical sciences and mathematics, the social and behavioral sciences, engineering, and the arts and humanities at 274 universities in the United States. The study included many objective and subjective (reputational) measures--from 17 to 20, varying by discipline. Objective measures were related to the achievements of faculty in each program (such as research support and publication records in science and engineering or awards and honors in the arts and humanities), characteristics of graduates, program size, and size of the institution's library.

Two reputational measures were related to faculty reputation for "scholarly quality" (defined as the "scholarly competence and achievements" of the faculty) and "effectiveness in doctoral education" (defined as "the accessibility of the faculty, the curricula, the instructional and research facilities, the quality of graduate students, the performance of graduates, the appropriateness of program requirements and timetables, the adequacy of graduate advising and mentorship, the commitment of the program in assuring access and promoting success of historically underrepresented groups in graduate education, the quality of associated personnel--post-doctorates, research scientists, et.al.--and other factors that contribute to the effectiveness of the research-doctorate program").

The methodology for the reputational measures was peer review via a questionnaire sent to a sample of faculty in each discipline. Raters were given a list of each program's faculty and asked to rate their "scholarly quality" based on the following five-point scale: 0.00-0.99 = not sufficient for doctoral education, 1.00-1.99 = marginal, 2.00-2.50 = adequate, 2.51-3.00 = good, 3.01-4.00 = strong, and 4.00 or higher = distinguished. A slightly different scale was used for the measure of "effectiveness in educating research scholars and scientists": 0.00-1.49 = not effective, 1.50-2.49 = minimally effective, 2.50-3.49 = reasonably effective, and 3.5-5.0 = extremely effective. The mean ratings for each program show its reputational quality within the field. The mean ratings on scholarly quality for the University of Minnesota programs included in the 1995 study are shown in Attachment C.

A common approach in determining the nation's high quality universities is to rank institutions based on the sum of their reputational rating scores for all programs included in the NRC study having scores above a given threshold. The ratings of "scholarly quality" of program faculty in the 39 University of Minnesota arts, sciences, and humanities doctoral programs included in the NRC study can be used as the basis for an overall institutional ranking, based on the sum of the reputational rating scores for the University programs included in the study. A threshold value of 3.0 (strong) on the five-point scale is generally accepted as an indicator of quality and can be used for calculating the overall academic quality of the University of Minnesota in comparison with other leading institutions. Attachment D shows the University of Minnesota's national ranking using this methodology.

The overall institutional ranking of the scholarly quality of graduate programs from the NRC studies of doctoral programs would be incorporated into the *scholarship, research, and artistic accomplishments measure*, which already includes a section on "scholarly recognition." Note: The other relevant reputation measure in the NRC study, a program's perceived "effectiveness in educating doctoral students," is so highly correlated with the measure of faculty scholarly quality (correlation coefficients

ranging from 0.91 to 0.98 in the 1995 study) that it does not appear to be measuring anything different from the "scholarly quality" measure; therefore these "effectiveness in educating doctoral students" ratings will not be used.

Part 2--Professional Programs and Graduate Programs Not Included in the NRC Ratings: As noted earlier, there are some reputational studies for different professional programs based on assessments by external experts in their fields of study, for example, in education, law, and agriculture. *U.S. News and World Report's* annual "Best Graduate Schools" guide also includes ratings of several of the University's professional programs. Because the credibility of these rating systems varies across the programs, the appropriate data should be determined by chancellors, provosts, and deans and submitted as part of these colleges' annual performance reports. This information would then be incorporated into the scholarship, research, and artistic accomplishments measure "scholarly recognition" section. Attachment E includes an illustrative list of rankings for many of the professional programs.

A similar approach could be used for graduate programs that are not included in the NRC ratings, that is, chancellors, provosts, and deans could submit any relevant rankings for these programs as part of the colleges' annual performance reports.

Part 3--Undergraduate Education: If a high percentage of Minnesota's college-bound high school graduates view the University of Minnesota as their first choice, the University could be assumed to have a good academic reputation for undergraduate education. This information is available from a questionnaire that students fill out when taking the ACT test and is useful as an indication of reputation because the perception of quality (i.e., academic reputation) has been found to be one of the major determinants of student college choice. ACT data are also relatively comprehensive because approximately 90 percent of the state's college-bound high school graduates take the ACT test. Finally, it allows a breakdown by campus, by racial/ethnic group, and by test-score quartile.

Limitations concerning the use of ACT data include the fact that it excludes students who took only the Scholastic Achievement Test (SAT). For students expecting to study in the Eastern and/or Western states, the SAT is more often the required college admission test, and the ACT will therefore provide a somewhat incomplete picture of student preference for the University. However, the percentage of the state's high school graduates who took the SAT appears to be small compared with those who took the ACT; in 1995, while 62 percent of all Minnesota high school graduates took the ACT as a college admission test, only 9 percent took the SAT. A second limitation concerns the fact that student college choice is actually a function of a large number of personal, high school, and institutional characteristics, including gender, race, socio-economic status, high school location and type, cost, location, distance, and special academic programs.

Data are available for the last five years on the percent of all Minnesota college-bound high school graduates who took the ACT and indicated the University of Minnesota as their first choice at the time of testing. Attachment F includes partial data for the Twin Cities, Duluth, Morris, and Crookston campuses broken down by racial/ethnic group and for the upper two quartiles of scores. This data would be added to the measure *characteristics of entering students*.

Part 4--Retrospective View of Graduates: The retrospective view of graduates of the University's undergraduate, graduate, and/or professional programs concerning the quality of their education provides another view of the University's reputation. Since the *post-graduation experience* critical measure is already intended to measure graduates' retrospective assessment of their University education, no additional data elements would need to be added to this measure.

## ATTACHMENT A: ISSUES/CONCERNS/LIMITATIONS

There are several concerns regarding the use of reputation as a critical measure, summarized below:

### 1. Data and methodological problems.

a. Definition problems: Reputational studies attempt to measure different dimensions of quality (e.g., faculty research and scholarship, teaching, student experience and learning) by assuming the reputation is equivalent to quality. However, reputation is not necessarily equivalent to quality; and it means different things for different people. One of the major criticisms of reputational rankings has been that this measure has merely measured the scholarly reputation of the program faculty, which is strongly influenced by name familiarity from faculty publication and also influenced by program size, rather than measuring program quality. Departments whose members have substantial research reputations have higher visibility and higher quality ratings. Moreover, even if reputation indicates perceived quality, quality itself is not a clearly defined concept, and it is very difficult to identify variables for measuring quality.

b. Emphasis on research as opposed to teaching and outreach: It is usually accepted that quality is multidimensional--so that it is impossible to capture quality in a single statistic and a diverse set of quality measures is needed. Recognizing this fact, most studies have ranked academic programs according to the scholarly quality of their graduate faculty and effectiveness in education (i.e., teaching quality). However, when evaluators assess programs according to "effectiveness in education", it is unlikely that they know much about them other than the research reputation of the program faculty. In fact, there is a strong correlation between these two quality ratings (e.g.,  $r$  ranged from .91 to .98 in 41 programs analyzed in the 1995 NRC study), suggesting that "teaching quality" ratings are more or less the same as "faculty quality," rather than a separate measure.

One of the main goals of U2000 is to sustain and improve the University's position as one of the premier research universities in the country; to maintain and enhance the overall quality of undergraduate and graduate programs that are at the core of a land grant, research university. However, the available external quality rankings focus primarily on scholarly quality, which is largely a function of faculty research performance and program size (as measured by the number of program faculty). Thus, a critical measure based on reputational rankings may provide little information about the overall academic quality of undergraduate and graduate educational programs or about outreach and public service.

c. Missing, incorrect, or "fudged" data: Reputational studies have been criticized because for some institutions, data items were missing, or incorrect, or even "fudged" to improve the institution's standing in the rankings.

d. Different rankings based on different methods: A particular institution's ranking among the top rated institutions depends on which methodology or variable is being used. One can considerably change the relative positions of the top-ranked institutions by changing the variable used for ranking or by modifying the method used to average the rating. It should also be noted that "rank ordered" information may magnify small differences in raw scores.

e. Time lag: The time lag is a serious problem in reputational studies because reputations do not usually reflect the current reality. Generally, there are two aspects of this problem. First, information about changes in the quality of programs moves relatively slowly. For example, in the short run, a faculty member's seminal work may not increase the standing of the program when it is published (because it is going to take some time to gain visibility and reputation in the field through citations, scholarly honors, awards, and prizes). In the long run, however, while this seminal work may increase the standing of the program, the faculty member may not continue to be as productive or even to remain at the same institution, but the enhanced reputation remains, at least for a while. Second, there

may be several years delay between the time the data are collected and the time they are published, so the ratings may already be out of date by the time they are reported publicly.

f. Bias: Reputational ranking is not a science--it relies on the personal opinions of raters about certain dimensions of program quality, which can be both faulty and prejudiced. As such, they are often criticized as being "mere compendia of rumor, hearsay, and gossip," and having little or no basis in objective reality. More specific bias problems include alumni bias, regional bias, and halo effects.

**2. Easy to misuse and misinterpret the results.** There is no study evaluating "institutional quality" or "institutional effectiveness" despite the fact that there are numerous institutional quality rankings based on departmental and program rankings. The compilers of the multidisciplinary rankings have deliberately not aggregated the departmental rankings to get institution-wide rankings because of the considerable differences among institutions and programs assessed. Nonetheless, this has not prevented many researchers, administrators, and media analysts from ranking institutions based on their departmental rankings, which often results in controversial and misleading rankings depending on the methodology used in the rankings.

**3. Incomplete coverage.** A large number of graduate and professional programs do not have any credible external reputational rating. The 1995 NRC study represents only 39, or 33 percent, of the doctoral degree programs offered by the University, although fifty percent of the doctoral degrees awarded by the University of Minnesota between 1987 and the spring of 1992 were offered by those 39 programs. The NRC study excluded all programs in professional schools (e.g., Doctor of Dental Surgery, Doctor of Veterinary Medicine, Juris Doctor, Master of Laws, Master of Agriculture, Doctor of Medicine, Master of Education, Master of Healthcare Administration, Master of Public Health, Doctor of Pharmacy, Master of Business Administration) and in interdisciplinary fields. Many of these programs are considered to be of outstanding quality. Furthermore, very few reputational studies of undergraduate programs exist. Thus, in examining institution-wide quality or reputation, the entire range of programs offered should be taken into account.

**6. Unnecessary measure.** Many believe there is no need to use reputation--which is highly subjective and controversial--as a critical measure when several other critical measures have already been developed to assess the University's quality and reputation (e.g., measures of scholarship, research, and artistic accomplishments, sponsored funding, characteristics of entering students, graduation rates, and overall satisfaction of Minnesota citizens). Moreover, some also argued that the top of the institutional hierarchy in American higher education changes very little over time, and so there is no real value in using reputation as an institutional critical measure.

**7 Resource allocation.** There have been numerous reports from other institutions where some programs and departments were abolished or severely cut back partly because of their poor showing in peer ratings. Given the University of Minnesota's commitment to undergraduate education and outreach, the use of rankings (based primarily on the research reputation of faculty) for resource allocation could be at cross purposes with two other, very important dimensions of the University's mission.

**8. Expensive, time consuming, and infrequent.** Data collection for multidisciplinary and multidimensional reputational studies is expensive and time consuming. Therefore, we have to rely on studies done by external organizations such as the National Research Council. More importantly, these studies are done only every ten years or so, and as a result are not very useful for monitoring changes over time. It is not known when the next NRC study of graduate programs will be conducted.

**9. Institutional disincentives.** Some argue that traditional reputational ratings may only reinforce the institutional status quo and actually impede innovation and improvements. For example, highly ranked departments might be reluctant to implement creative or non-traditional ideas (e.g., interdisciplinary efforts) for fear of losing their rankings since reputational ratings may tend to reward the larger and more traditional departments.

## ATTACHMENT B: U.S. NEWS AND WORLD REPORT REPUTATIONAL RANKING

*U.S. News and World Report* first ranked institutions relative to undergraduate education in 1983 and then in 1985; since 1987 it has published rankings every year. In 1987, it also began to rank graduate and professional education in business, engineering, law, and medicine. In 1992, *U.S. News* also carried its first ever "quality-ratings" of high enrollment graduate arts and science programs: economics, English, history, political science, psychology, and sociology.

*U.S. News* used both reputational evaluations and objective variables to determine the overall quality scores. In the latest ranking of undergraduate education in 1994, *U.S. News* used the following percentages of academic quality: Academic reputation (25%), student selectivity (25%), faculty resources (25%), financial resources (20%), and student satisfaction (5%). Based on the overall scores, the colleges were ranked.

In rankings of graduate and professional programs, *U.S. News* used a slightly different approach. Professional programs (i.e., law, business administration, education, engineering, medicine) were ranked based on both reputational and objective measures, whereas graduate programs in the liberal arts (e.g., economics, English, political science, chemistry) ranked only on the basis of their reputational scores. Reputation was measured using the criterion of "a program's reputation for scholarship, its curriculum and the quality of its faculty and graduate students". Reputational scores were obtained from a *U.S. News* survey of head of graduate studies and departmental chairs. Webster and Massey (1992) asserted that the NRC's "scholarly quality of program quality" criterion to rank graduate programs is closest to matching the broader one used by *U.S. News* in their study of quality rankings of graduate programs.

*U.S. News* has ranked undergraduate programs since 1983, graduate-level professional education since 1987, and doctoral programs in several disciplines since 1992. It is noted that *U.S. News* has changed and improved its methodology over the years. Overall rankings are based on 75% objective measures (such as selectivity, faculty research activity, resources, and student satisfaction) and 25% on reputational ratings.

After an analysis of the methodology and data, Webster (1992) concluded that *U.S. News* rankings were "by far the best of the rankings of undergraduate education that have been published and among the best rankings ever published of any level of higher education" (p.21). Nevertheless, *U.S. News* rankings have many faults because of its methodology, data, and purpose, and thus are severely criticized by many in higher education. First, measures and methodology have been frequently changed. Although the purpose is to make the rankings better based on the comments that the editors receive, changes make it difficult to interpret and compare the results from year to year about the relative quality rankings of colleges and universities. Second, *U.S. News* rankings do not include any "output" measures. Third, some critics have criticized the magazine for changing its attributes so frequently that one cannot learn how colleges and universities have risen and fallen over the years. Fourth, some critics also argued that *U.S. News* ratings are not reliable because many colleges and universities deliberately fudge their data in order to increase their standing in rankings. Finally, some of its "student selectivity" measures such as SAT and ACT scores and rank in high school class are more appropriate for private institutions because many public institutions are often required to admit instate applicants.

## ATTACHMENT C

Reputational Rating National Rank of University of Minnesota  
 Doctoral Programs Based on the Scholarly Quality for the Graduate Faculty

Program	Rating*	1995 National Rank
Chemical Engineering	4.86	1
Psychology	4.46	7
Economics	4.22	10
Geography	4.22	3
Mechanical Engineering	4.09	8
Mathematics	4.08	14
Political Science	3.95	13
Statistics	3.91	13
Chemistry	3.89	21
Ecology Evolution and Behavior	3.88	15
Civil Engineering	3.76	13
Pharmacology	3.76	21
Physics	3.76	23
Electrical Engineering	3.73	18
German	3.68	11
History	3.66	22
Materials Science	3.64	17
Cell and Development Biology (Medicine)	3.54	34
Biomedical Engineering	3.49	18
Cell and Development Biology (Biology)	3.49	37
Biochemistry and Molecular Biology	3.46	39
Neuroscience	3.43	34
Aerospace Engineering	3.40	12
Geology	3.35	31
Sociology	3.29	24
English	3.24	36
Molecular and General Genetics	3.23	39
Music	3.16	31
Spanish	3.06	28
Philosophy	3.01	32
Physiology	3.00	73
Astrophysics and Astronomy	2.89	24
French	2.88	27
Computer Science	2.67	47
Comparative Literature	2.53	28
Biostatistics	2.52	45
Anthropology	2.49	50
Art History	2.47	30
Classics	2.43	24

\* 4.01-5.0 = Distinguished; 3.01-4.00 = Strong; 2.51-3.00 = Good; 2.00-2.50 = Adequate; 1.00-1.99 = Marginal; less than 1.00 = Not sufficient.

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## ATTACHMENT D

Ranking of Universities Based on the Sum of Their Rating Scores  
for Programs Having Ratings Above 3.0 for the Faculty Quality in the 1995 NRC Study

University	1993 National Rank	Number of Programs with Ratings Above 3.0
Stanford University	1	38
University of California-Berkeley	2	36
University of Michigan	3	36
Cornell University	4	35
University of California-Los Angeles	5	34
University of Wisconsin-Madison	6	34
Columbia University	7	33
Harvard University	8	29
University of Pennsylvania	9	33
University of Texas-Austin	10	34
Princeton University	11	29
University of Chicago	12	29
University of Illinois-Urbana/Champaign	13	33
University of Washington	14	32
Yale University	15	27
University of California-San Diego	16	29
<b>University of Minnesota</b>	<b>17</b>	<b>30</b>
Massachusetts Institute of Technology	18	23
Duke University	19	28
Northwestern University	20	27
Johns Hopkins University	21	26
University of North Carolina-Chapel Hill	22	26
University of Virginia	23	26
Pennsylvania State University	24	26
Rutgers State University-New Brunswick	25	25

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**ATTACHMENT E**

Reputational Rank of University of Minnesota Professional Programs

College/Program	Reputational Rank
<b>College of Education<sup>a</sup></b>	6
School Administrators	10
Educational Psychology	10
Elementary Education	9
Higher Education	14
Secondary Education	17
Special Education	4
Vocational & Technical	1
Counseling/Personnel	2
Child Development	[1]
<b>Law School<sup>b</sup></b>	4
<b>Carlson School of Management</b>	
MBA	21
Management Information Sys	2
Part-time MBA	9
<b>Humphrey Institute of Public Affairs</b>	
Public Administration	18
<b>College of Architecture &amp; Landscape Architecture</b>	
Architecture	13
Landscape Architecture.	[10]
<b>College of Agriculture, Food, and Environmental Sciences</b>	[10]
Food Science & Nutrition	[1]
Applied Economics	[1]
<b>College of Human Ecology</b>	
Family Social Science	[1]
Social Work	20
<b>College of Pharmacy</b>	
Pharmacy	3
<b>School of Nursing</b>	
Nursing	21
<b>School of Medicine</b>	
Rural Medicine (UMD)	3
Primary-Care Med Schools (UMD)	7
<b>School of Dentistry</b>	
Dentistry	7
<b>School of Public Health</b>	
Health Services Administration	5

<sup>a</sup> West & Rhee (1995) and <sup>b</sup> Brennan (1996). Rank in [ ] was obtained from unit strategic plan prepared in fall 1994. Rank in italics was obtained from the 1996 U.S. News & World Report's "America's Best Graduate Schools" issue.

**ATTACHMENT F, Table 1a**

**Minnesota High School Graduates Taking ACT  
University of Minnesota as First Choice  
Racial/Ethnic Breakdown  
Twin Cities Campus**

	1991	1992	1993	1994	1995
<b>All MN high school graduates who took the ACT</b>	29019	29874	31097	30796	31767
# U as first choice	3354	3367	3331	3444	3643
% U as first choice	11.6%	11.3%	10.7%	11.2%	11.5%
<b>White grads taking ACT</b>	25829	26547	27463	26920	27753
# U as first choice	2816	2810	2773	2840	3003
% U as first choice	10.9%	10.6%	10.1%	10.5%	10.8%
<b>African American grads taking ACT</b>	362	386	419	431	450
# U as first choice	64	65	57	62	90
% U as first choice	17.7%	16.8%	13.6%	14.4%	20.0%
<b>American Indian grads taking ACT</b>	196	165	196	208	192
# U as first choice	16	15	12	23	26
% U as first choice	8.2%	9.1%	6.1%	11.1%	13.5%
<b>Chicano/Latino/Hispanic grads taking ACT</b>	272	272	302	289	370
# U as first choice	38	34	34	41	63
% U as first choice	14.0%	12.5%	11.3%	14.2%	17.0%
<b>Asian/Pacific American grads taking ACT</b>	871	985	1196	1111	1072
# U as first choice	243	254	291	281	260
% U as first choice	27.9%	25.8%	24.3%	25.3%	24.25%
<b>All Minority grads taking ACT</b>	1701	1808	2113	2039	2084
# U as first choice	361	368	394	407	439
% U as first choice	21.2%	20.4%	18.6%	20.0%	21.1%

Baseline

**ATTACHMENT F, Table 1b**

**Minnesota High School Graduates Taking ACT  
University of Minnesota as First Choice  
Racial/Ethnic Breakdown  
Duluth Campus**

	1991	1992	1993	1994	1995
<b>ALL MN high school graduates who took the ACT</b>	29019	29874	31097	30796	31767
# U as first choice	1805	1769	1956	1974	1973
% U as first choice	6.2%	5.9%	6.3%	6.4%	6.21%
<b>White grads taking ACT</b>	25829	26547	27463	26920	27753
# U as first choice	1692	1653	1807	1831	1818
% U as first choice	6.6%	6.2%	6.6%	6.8%	6.55%
<b>African American grads taking ACT</b>	362	386	419	431	450
# U as first choice	8	7	6	11	6
% U as first choice	2.2%	1.8%	1.4%	2.6%	1.33%
<b>American Indian grads taking ACT</b>	196	165	196	208	192
# U as first choice	12	8	17	17	7
% U as first choice	6.1%	4.8%	8.7%	8.2%	3.65%
<b>Chicano/Latino/Hispanic grads taking ACT</b>	272	272	302	289	370
# U as first choice	10	29	9	14	21
% U as first choice	3.7%	10.7%	3.0%	4.8%	5.68%
<b>Asian/Pacific American grads taking ACT</b>	871	985	1196	1111	1072
# U as first choice	28	12	49	37	42
% U as first choice	3.2%	1.2%	4.1%	3.3%	3.92%
<b>All Minority grads taking ACT</b>	1701	1808	2113	2039	2084
# U as first choice	58	56	81	79	76
% U as first choice	3.4%	3.1%	3.8%	3.9%	3.65%

Baseline

**ATTACHMENT F, Table 1c**

**Minnesota High School Graduates Taking ACT  
University of Minnesota as First Choice  
Racial/Ethnic Breakdown  
Morris Campus**

	1991	1992	1993	1994	1995
<b>All MN high school graduates who took the ACT</b>	29019	29874	31097	30796	31767
# U as first choice	461	463	506	534	458
% U as first choice	1.6%	1.5%	1.6%	1.7%	1.44%
<b>White grads taking ACT</b>	25829	26547	27463	26920	27753
# U as first choice	426	426	461	482	406
% U as first choice	1.6%	1.6%	1.7%	1.8%	1.46%
<b>African American grads taking ACT</b>	362	386	419	431	450
# U as first choice	3	0	2	3	1
% U as first choice	0.8%	0.0%	0.5%	0.7%	0.22%
<b>American Indian grads taking ACT</b>	196	165	196	208	192
# U as first choice	7	5	4	8	12
% U as first choice	3.6%	3.0%	2.0%	3.8%	6.25%
<b>Chicano/Latino/Hispanic grads taking ACT</b>	272	272	302	289	370
# U as first choice	2	2	6	3	1
% U as first choice	0.7%	0.7%	2.0%	1.0%	0.27%
<b>Asian/Pacific American grads taking ACT</b>	871	985	1196	1111	1072
# U as first choice	8	18	21	18	14
% U as first choice	0.9%	1.8%	1.8%	1.6%	1.31%
<b>All Minority grads taking ACT</b>	1701	1808	2113	2039	2084
# U as first choice	20	25	33	32	28
% U as first choice	1.2%	1.4%	1.6%	1.6%	1.34%

Baseline

ATTACHMENT F, Table 1d

**Minnesota High School Graduates Taking ACT  
University of Minnesota as First Choice  
Racial/Ethnic Breakdown  
Crookston Campus**

	1991	1992*	1993	1994	1995
<b>All MN high school graduates who took the ACT</b>	29019	-	31097	30796	31767
# U as first choice	109	-	123	116	120
% U as first choice	0.4%	-	0.4%	0.4%	0.38%
<b>White grads taking ACT</b>	25829	-	27463	26920	27753
# U as first choice	102	-	118	109	109
% U as first choice	0.4%	-	0.4%	0.4%	0.39%
<b>African American grads taking ACT</b>	362	-	419	431	450
# U as first choice	1	-	0	0	0
% U as first choice	0.3%	-	0.0%	0.0%	0.00%
<b>American Indian grads taking ACT</b>	196	-	196	208	192
# U as first choice	0	-	0	2	1
% U as first choice	0.0%	-	0.0%	1.0%	0.52%
<b>Chicano/Latino/Hispanic grads taking ACT</b>	272	-	302	289	370
# U as first choice	1	-	0	0	0
% U as first choice	0.4%	-	0.0%	0.0%	0.00%
<b>Asian/Pacific American grads taking ACT</b>	871	-	1196	1111	1072
# U as first choice	0	-	1	1	0
% U as first choice	0.0%	-	0.1%	0.1%	0.00%
<b>All Minority grads taking ACT</b>	1701	-	2113	2039	2084
# U as first choice	2	-	1	3	1
% U as first choice	0.1%	-	0.0%	0.1%	0.05%

Baseline

\* Data not available; UMC was not ranked among the reported top 50 colleges with respect to college choices of all Minnesota high school graduates who took the ACT.

**ATTACHMENT F, Table 2**

**Minnesota High School Graduates Scoring in Upper Score Ranges<sup>1</sup> for the ACT Test,  
and Those Indicating the University of Minnesota as Their First Choice  
by Campus**

	1991		1992		1993		1994		1995	
	Top Group	Second Group	Top Group	Second Group	Top Group	Second Group	Top Group	Second Group	Top Group	Second Group
<b>All MN high school graduates who scored in top two scoring groups</b>	3780	9729	4057	10048	4457	10632	4728	10647	4972	11184
<b># UM-Twin Cities as first choice</b>	551	1377	584	1310	584	1383	613	1419	683	1450
<b>% UM-Twin Cities as first choice</b>	14.58%	14.15%	14.39%	13.04%	13.10%	13.01%	12.97%	13.33%	13.74%	12.96%
<b># UM-Duluth as first choice</b>	159	647	168	607	203	718	216	748	212	772
<b>% UM-Duluth as first choice</b>	4.21%	6.65%	4.14%	6.04%	4.55%	6.75%	4.57%	7.03%	4.26%	6.90%
<b># UM-Morris as first choice</b>	96	217	123	214	152	205	162	246	139	201
<b>% UM-Morris as first choice</b>	2.54%	2.23%	3.03%	2.13%	3.41%	1.93%	3.43%	2.31%	2.80%	1.80%
<b># UM-Crookston as first choice</b>	3	22	*	*	2	19	5	16	5	34
<b>% UM-Crookston as first choice</b>	0.08%	0.23%	*	*	0.04%	0.18%	0.11%	0.15%	0.10%	0.30%

Baseline

<sup>1</sup> Scores on the ACT test can be viewed in four "ability" groups as follows: bottom group, scores from 0 to 18; next group, scores from 19 to 21; second from the top group, scores from 22 to 26; and top group, scores from 27 to 36. For purposes of better understanding Minnesota graduates' preference for the University, given the University's goals related to "preparedness" of entering students, this table shows the number of "University as first choice" graduates in the top two scoring groups.

\* Data not available; during these years, the University of Minnesota-Crookston was not ranked among the top 50 colleges with respect to college choices of all Minnesota high school graduates who took the ACT and therefore does not appear in the published ACT report.

## Discussion of Interdisciplinary and/or Applied Programs

**Measurement of Interdisciplinary and/or Applied Programs :** Rather than being a unique third phase critical measure, the University's efforts in interdisciplinary and applied areas will be measured as a sub-category of the "highlights" measure of the second phase *scholarship, research, and artistic accomplishments* critical measure. This recommended approach would add language to the general goal for the *scholarship, research, and artistic accomplishments* measure, to state explicitly that applied and interdisciplinary work would be included (new language underlined):

...to maintain and increase high quality University faculty scholarship, research, and artistic accomplishments, including basic, applied, and interdisciplinary work.

**Relation to University 2000:** It would also add the following language to this section of the *scholarship, research, and artistic accomplishments* measure:

U2000 recognizes the great potential in interdisciplinary programs to make break-throughs in both basic and applied research, and the land grant obligation to put the University's expertise into practice in applied programs--from research, scholarship, and artistic activity, to educational programs, to outreach and public service. It also recognizes that this cannot happen without strong programs in the University's core disciplines, so that any emphasis on interdisciplinary or applied work must be in balance with a continuing emphasis on the improvement and support of basic programs. U2000 talks primarily about creating incentives for interdisciplinary and applied work and opportunities for students.

**Rationale for Recommended Approach:** This recommended approach is an extension of discussions that occurred during the development of the *scholarship, research, and artistic accomplishments* measure, which resulted in the following figure describing the creative process:

Stage 1	Stage 2	Stage 3	Stage 4
<u>Germination of Ideas</u> (e.g., invitation to deliver a paper at a conference; first performance or exhibition in a local venue)	<u>Expansion of Ideas</u> (e.g., publication in refereed journal; book chapter; repeated performance or exhibition)	<u>Recognition of Impact of Ideas</u> (e.g., important book or award; membership on important board or committee; exhibition or performance on national or international scale)	<u>Impact and Application of Ideas</u> (e.g., new technologies/materials/methods; public policies; further inquiries and inventions)

When the *scholarship, research, and artistic accomplishments* measure was completed, it was stated that the measure focused on the second and third stages of the process, and that applications (see stage 4 above) would be the focus of a third phase measure. At that time, however, a question was raised as to how clearly the four stages could be distinguished from each other. Subsequent discussions have emphasized that, whether focusing on the word "interdisciplinary" or focusing on the word "applied," both concepts have very different meanings depending on the perspective of the viewer. As one faculty member said, the definition is often "in the eye of the beholder," as well as being discipline-specific.

In fact, some disciplines are, by definition, interdisciplinary (e.g., biochemistry) or applied (e.g., journalism), whereas other disciplines focus more on a specific discipline or on more basic work (e.g., English). Since what we decide to measure is in many ways a statement of value, attempts to define what is, and is not, interdisciplinary or applied could imply that some departments or programs have greater value than others simply because they are either interdisciplinary or applied in nature (for example, applied economics vs. economics).

In addition, the nature of the work changes over time as the discovery process unfolds and as knowledge continues to evolve--for example, basic work can lead to an application of knowledge, which can lead back into the exploration of a fundamental idea because of something learned in the application process. Where to "draw the lines" in trying to define basic, applied, and interdisciplinary work may ultimately be so artificial that the distinctions are not meaningful; it may also express value in ways that are ultimately at cross-purposes with the University's research and discovery mission.

Including these concepts in the reporting of "highlights" for the *scholarship, research, and artistic accomplishments* measure leaves it to individual faculty to employ definitions that are meaningful to them within their disciplines and fields. In fact, in considering the "highlights" measure, it is probably inevitable that the highlights brought forward will include both interdisciplinary and applied work, and faculty would need only to note these aspects where appropriate. Several changes in wording are needed to broaden the category appropriately:

- The description of the "highlights" measure should be modified as follows (new language underlined):

"Highlights" will include both scholarly products and scholarly recognition, and will be a way of showing particularly significant faculty achievements in the view of faculty within the disciplines .....this measure would not be a count but a brief descriptive listing of the highlight, including an indication that the highlight was viewed as being either interdisciplinary or applied, if applicable, to reflect and communicate the depth and richness of important or influential achievements.

- The listing of "types of products" and "types of recognition" should also be modified to reflect the kinds of products and recognition that may characterize applied work in particular, including scholarly products reflecting other kinds of publications and materials that translate knowledge into practice formats for applied usage. For example, applications in the public policy arena might include important legislation drafted, testimony given, regulations written, etc.; applications in the education arena might include creative teaching materials, study guides, videos and other materials for use in interactive learning; applications in other areas might include innovative informational pamphlets, technical assistance manuals, etc.

**Critical Measure: The University's Interaction With Society: Partnerships, Services, and Impacts** (Formerly the measurement categories of *outreach and public service*, *responsiveness to market demand*, and *responsiveness to compelling state needs*: see footnote \* below)

**Specific Measure:** The specific measures that are the focus of this third phase critical measure are qualitative measures focusing, across all of the University's campuses, on:

- 1) the extent and impact of University interactions with external constituencies (individuals, organizations, businesses, government, local communities, and communities of color), including partnerships and collaborations, services provided, and applied/practitioner-oriented academic programs; and
- 2) the satisfaction of external users of University expertise and services (whether provided by faculty, or staff, or University graduates), including ease of access, quality of interaction, and related results.

Also recommended are additions to two previously developed critical measures, specifically, in the measures of *characteristics of entering students* and *student experience*, information on students served through educational opportunities provided in "non-traditional" ways and on student opportunities for service learning. In addition, accomplishments that reflect external applications of research will be reflected in the "highlights" section of the second phase measure *scholarship, research, and artistic accomplishments*. Finally, the perceived importance and impact of the University to the citizens of the state will be reflected in the second phase measure *overall satisfaction of Minnesota citizens*.

**General Goal for Measure:** To continue and increase the University's successful interactions with and benefits to its external constituencies in research and discovery, teaching and learning, and outreach and public service.

**Rationale for Measure and Relation to University 2000:** U2000 places emphasis on the University's relationship to people and entities outside of the institution in many ways:

- The University's outreach and public service mission is to extend, apply, and exchange knowledge between the University and society by applying scholarly expertise to community problems; helping organizations and individuals respond to their changing environments; and making the knowledge and resources created and preserved at the University accessible to the citizens of the state, the nation, and the world.
- U2000 envisions the University's research, education, and outreach programs as enhancing the social, cultural, economic, physical and intellectual health of Minnesota and the Upper Midwest; it also envisions a broad and diverse array of partnerships and collaborations between the University and its many constituencies.
- The U2000 graduate and professional education strategic area speaks of increasing the number and quality of practitioner-oriented/applied professional programs, especially at the master's level, in response to state and national needs.

\* Note on Language/Name Change: The categories called *outreach and public service*, *responsiveness to market demand*, and *responsiveness to compelling state needs* came out of the initial consultation process in 1994 that was used to establish the measurement categories for the institutional critical measures. In early work on the third phase measures, it became clear that these three areas overlapped and were very interrelated. In order to avoid making arbitrary distinctions among these highly interrelated categories, they were grouped together and the discussion was focused on the broader issue of the University's external relationships and impact, rather than on the specific concepts implied in the

three category titles. Subsequent discussions have suggested that these three categories are not, in fact, a useful way of looking at the University's external relationships and impact in the state and beyond.

- The U2000 outreach and access strategic area describes a strategy of creating a new administrative unit called "University College," in order to: broaden access to traditional degree programs for talented and motivated part-time students; create new collaborative experimental programs that connect advanced education to emerging patterns of employment and connect the University's research and graduate programs to the teaching resources of other postsecondary institutions; offer a range of personal and professional continuing education opportunities; and explore distance education as a means of delivering programs to students throughout the state and beyond state and national borders.

The University's 1993 Outreach Plan also addresses the University's relationship to people and communities outside of the institution. The plan states a mission to "improve and enhance the quality of life, economy, and the environment through the transfer and exchange of knowledge between the University and society." The plan views outreach as being "fully integrated with research and teaching as a basic part of the ...knowledge mission" and as a "a two-way exchange of knowledge, ideas, and vision between the University and society," and describes eight desired outcomes:

- enlightened citizens, liberally educated across the life span
- mentally and physically healthy youths and adults
- educated professional and skilled work forces
- informed and orderly public policy development
- effective, productive organizations, groups, and communities
- globally competitive businesses and industry
- sustainable human-made and natural environments
- effective public institutions, infrastructures, and community designs

Recent discussions of this measurement area have suggested three important themes (viewed across the breadth of the University's mission) to guide development of appropriate measures. The themes are: 1) access--to education, particularly opportunities for learning in "non-traditional" ways; to the University's expertise for addressing external issues and needs; and to the University's graduates, who carry the University's expertise into their own communities and the work force; 2) the extent and quality of the interaction between the University and its external constituencies, including partnerships, collaborations, services, and other kinds of external contact and interaction; and 3) impact or results, including impacts in economic, educational, environmental, health, social, and cultural areas that result from the various interactions, as well as impacts that result from graduates who fill needs in the job market, serve their communities, create new organizations/jobs/economic activity, and/or provide leadership in their fields. These themes reflect the University's outreach mission as well as its responsiveness to state needs and external demand, and in that sense they are true to the original measurement category titles.

**Description of Measure:** As a result of these discussions, a two-part strategy is suggested. The first part of the strategy focuses on a new measurement category to replace the original three titles as a single third phase critical measure. Although this approach is intended to provide a way for the University to tell its outreach story, as well as to receive feedback from external users of its expertise and services, it is not intended to provide a comprehensive definition of the outreach mission. The second part of the strategy suggests that some new data elements should be added to two previously developed critical measures, in the belief that some additional information is needed in order to adequately reflect the University's interaction with society around the teaching and learning mission.

Figure 1 on the following page summarizes the two part strategy, shown in relation to the three themes described above. Attachment B illustrates how the themes and the suggested measures also relate to the University's mission.

**Figure 1  
Measures and Themes**

	<b>Access</b>	<b>Relationships</b>	<b>Impacts (results)</b>
<b>PART ONE: New Third Phase Measures</b>	<i>[implied by extent and diversity of partnerships]</i>	<ul style="list-style-type: none"> <li>• U &amp; other organizations-----&gt; engaged in <b>partnerships</b>-----&gt; and collaborations to-----&gt; address external needs-----&gt;</li> </ul>	Positive <b>outcomes*</b> addressing economic, educational, environmental, health, social, cultural needs
	<i>[implied by range and diversity of recipients of expertise and services]</i>	<ul style="list-style-type: none"> <li>• U of M faculty and staff-----&gt; applying expertise and provid--&gt; ing <b>services</b> to individuals-----&gt; organizations, government,-----&gt; businesses, communities-----&gt;</li> </ul>	Positive <b>outcomes*</b> addressing economic, educational, environmental, health, social, cultural needs
	<ul style="list-style-type: none"> <li>• <b>Satisfaction</b> of external users of U expertise, services, graduates relative to access, quality of relationships/experience, results including graduates with needed skills</li> </ul>		
<b>PART TWO: Add to First Phase &amp; Second Phase Measures</b>	<ul style="list-style-type: none"> <li>• <b>Entering students:</b> <u>Non-traditional learning</u></li> <li>- UC as entry point for degree programs</li> <li>- new collaborative, experimental progs</li> <li>- continuing education, professional development</li> <li>- pre-college programs</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Student experience:</b> <u>service learning</u>, community-based programs, internships</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Applied scholarship, research, artistic accomplishments</i></li> <li>• <i>Post-graduation experience results (grads' perspective)</i></li> </ul>
	<ul style="list-style-type: none"> <li>• <i>Overall satisfaction of Minnesota citizens, with access, quality of interaction, impact and results</i></li> </ul>		

\* For example, the eight outcomes listed in the 1993 Outreach Plan.

**The first part of the two-part strategy** is outlined below. Two measures are suggested: the first measure tells the "interaction" story from the University's perspective, whereas the second measure approaches the University's interaction with society "from the outside, looking in." Given the breadth of the University's expertise and the richness of its related interactions with external constituencies, these measures will be largely qualitative in focus.

"The University's Story" Measure: This measure is about the extent and impact of the University's interaction with external constituencies with descriptive information on the areas listed below:

- a) the extent and impact of effective partnerships and collaborations with external constituencies;
- b) the people and organizations served by University expertise, services, programs, and information, and related impacts and results (e.g., through specific research applications, clinical services, consulting/technical assistance/training, etc.); and

- c) the extent and impact of applied/practitioner-oriented academic programs, including both degree and non-degree programs, that address needs within the state and beyond.

Of particular interest will be partnerships, services, and impacts addressing economic, educational, environmental, health, social, and cultural issues and needs of individuals, organizations, businesses, local communities, and communities of color (Attachment B shows some of the needs and problems that might fall under these broad categories).

This information would be collected from campuses, colleges, and administrative units in their annual performance reports.

"External Users" Measure: This measure is about the reported satisfaction of external users of University expertise, services, and graduates, including:

- a) ease of access to University expertise or information when needed;
- b) the quality of the interaction involved in University partnerships, collaborations, and services; and
- c) ease of access to University graduates with needed skills, both as employees and as community volunteers.

This information would be collected through a periodic survey of public and private agencies, organizations, and businesses in Minnesota, similar to a survey conducted in the summer of 1993 by Lannin & Associates as part of the University's initial strategic planning effort. The survey results would be supplemented by the public opinion poll in the *overall satisfaction of Minnesota citizens* measure, as well as by any customer surveys conducted by colleges or administrative units and reported in their annual performance reports. It is important to note that such a "sample" would not be a random sample, and therefore the results would be suggestive but could not be broadly generalized.

**The second part of the two-part strategy** focuses on the addition of new data elements to several previously developed measures. Because the outreach mission and the University's interaction with external communities crosses all aspects of the University's mission, some of what needs to be measured is about the teaching/learning mission and belongs in measurement categories developed in the first and second phase critical measures. In some cases, new data elements need to be added to these measures; in other cases, the information collected for the measure would need only to be broken out in a particular way or would be available without any change in the measure. Note that, while relevant to this discussion, distance education is being addressed in another third phase measurement category, "Information Infrastructure."

Addition of new data elements to earlier measures: The access theme as it relates to the teaching/learning mission suggests adding new data elements to the *characteristics of entering students* measure concerning opportunities for learning in "non-traditional" ways, including:

- students in traditional degree programs who enter after having earned credits through Continuing Education and Extension/University College;
- students in new collaborative, experimental programs (e.g., the "partnership" programs);
- students and/or registrations in continuing education/professional development (extension classes; independent study; professional development/conferences; Duluth, Morris, and Rochester centers; Crookston campus; and continuing professional education); and
- students in pre-college, pre-admission outreach programs (e.g., Post Secondary Education Options program, Health Sciences Minority Program, Talented Youth Mathematics Program).

It is also suggested that information on student involvement in service learning, internships, and community-based projects be added to the *Student experience* measure. These additions to the first and

second phase measures will be further developed following completion of work on the third phase measures.

Breakdown of earlier measure: The "applied" subcategory that is recommended to be added to the "highlights" measure of the *scholarship, research, artistic accomplishments* measure will also provide information on important external results of scholarly work.

Relevant information but no change required in earlier measures: The *student experience* measure will, through the student satisfaction survey, provide information on the quality of the interaction between the University and its students, including the types of students listed above. The *post-graduation experience* measure will provide information on the experience of the University's graduates in serving their communities. The *overall satisfaction of Minnesota citizens* measure will provide feedback on how the University is perceived by citizens of the state, including perceived access, quality of contact or interaction, and impact or benefits to the state and its citizens.

**Baseline Information and Performance Goals:** Baseline information for the first measure will be established when the campuses and colleges provide this information in their annual performance reports due in the summer of each year; this would occur for the first time in 1997. The appendix to the 1993 Outreach Plan provides examples that are organized according to the eight outcome areas identified in the plan; these examples, which are suggestive of the kind of information that will be reported, are included in Attachment C. A form for possible use in reporting these issue-focused activities and results in relation to the desired outcomes articulated in the Outreach Plan and the constituencies noted above is shown in Attachment D.

Some suggestive qualitative baseline information for the second measure can be found in the Lannin & Associates report prepared for the Board of Regents' September 1993 retreat, based on 63 interviews with leaders and human resource professionals in 43 different public and private organizations in the state.

Note that the Lannin & Associates interviews were focused primarily on these organizations' experience as employers of University graduates, whereas the periodic survey recommended in this measure would be broader in focus. Note also that, not being based on a random sample of public and private organizations in the state, these findings cannot be generalized as reflecting the experiences and perceptions of "Minnesota employers." Key findings from the 1993 Lannin & Associates study included:

- The University's reputation is viewed as average when compared with other institutions. The employer community believes the University has the potential to be a top tier research institution. Strengths cited include the "Minnesota community," selected academic programs, and research capabilities. Weaknesses cited include the bureaucracy, mediocre academic programs, and inaccessible faculty.
- Employers find the University to be passive as a marketer of its graduates. Many of those surveyed feel the University's placement functions are not customer-oriented.
- The University's continuing education programs are viewed as competitive with, but less accessible than--and not aggressively marketed compared with--competing programs.
- Overall, graduates of the University of Minnesota are seen as competitive but not exceptional performers in the workplace. Strengths cited include being cooperative "team players." Weaknesses cited included lack of practical experience; and less skill in creative thinking, leadership, and management.

- Lack of diversity is driving employers to cut back their recruiting efforts at the University and to look to other institutions both locally and nationally for graduates with diverse backgrounds.

Regarding goals, for the two qualitative measures that are the focus of the third phase measurement category, any performance goals should wait for further evolution of the University's outreach plan, since increases in quantity alone may not be an appropriate way to measure the University's progress in interacting with its external constituencies.

**Related Action Initiatives in University 2000:** To continue and increase the University's successful interactions with and benefits to its external constituencies in research, education, and service, the following institutional actions are critical:

- Recruitment and retention of world-class researchers, scholars, and artists
- Application of scholarly expertise to community problems; helping organizations and individuals respond to their changing environments; and making the knowledge and resources created and preserved at the University accessible
- Increasing partnerships and collaborations between the University and its many constituencies
- Increasing the number and quality of practitioner-oriented/applied professional programs, especially at the master's level, in response to state and national needs
- Implementation of "University College" to broaden access to traditional degree programs for talented and motivated part-time students; create new collaborative experimental programs that connect advanced education to emerging patterns of employment and connect the University's research and graduate programs to the teaching resources of other postsecondary institutions; and offer a range of personal and professional continuing education opportunities

**Cost:** Achieving goals for this critical measure will depend on the availability of resources to undertake the action initiatives described above.

**Data Collection Process:** Currently there is no comprehensive institutional or campus baseline data on external partnerships, services, and impacts, although some suggestive information is included in the 1993 Outreach Plan and the 1993 Lannin & Associates Report. Information for the first measure would be collected from campuses, colleges, and administrative units in their annual performance reports. Information for the second measure would be collected through a periodic survey of public and private agencies, organizations, and businesses in Minnesota.

**Breakout of Measure:** This measure could be summarized at the college, provostal/campus, and institutional levels, although the qualitative nature of the information reported may make aggregation of the data difficult, if not impossible, to do in a meaningful way.

**Responsibility:** Responsibility for performance on this critical measure rests with the President, Senior Vice Presidents, Chancellors, Provosts, and Deans, as well as heads of key administrative units.

**ATTACHMENT A**  
**Summary of Themes, Measures, Sources of Data**

	<b>Education</b>	<b>Expertise</b>	<b>Expertise of Graduates</b>
<b>Access</b>	<p>Opportunities for learning in "non-traditional" ways:</p> <ul style="list-style-type: none"> <li>• part-time students in traditional degree programs</li> <li>• new collaborative, experimental programs</li> <li>• practitioner-oriented/ applied masters progs.</li> <li>• continuing education, professional development, training</li> <li>• service learning, internships, community-based projects</li> <li>• distance education</li> <li>• pre-college, pre-admission outreach</li> </ul> <p><i>(characteristics of entering students and student experience</i>  <i>measures: number and diversity of students; # students in service learning etc. programs; # credit of hours taught by telecommunications)</i></p>	<p>Extension of expertise, information, services, programs to address external needs/problems:</p> <ul style="list-style-type: none"> <li>• expertise applied to economic, educational, environmental, health, social problems</li> <li>• clinical, training, professional services for individual, organizational, community needs</li> <li>• other University information and resources: e.g., libraries, arts activities, etc.</li> </ul> <p><i>(reported ease of contact from periodic user/employer survey; number and diversity of users of expertise and services as reported by colleges and administrative units)</i></p>	<p>Connections between U and employers facilitating access to grads (as reported in periodic user/employer survey)</p>
<b>Relationships</b>	<p>Positive student experience (<i>student experience</i> measure satisfaction survey)</p>	<p>Problem-focused partnerships and collaborations; positive interactions using expertise (number, nature, diversity of partnerships reported by units, data reported in user survey)</p>	<p>Reported positive interactions between U and employers for recruitment of grads (as reported in periodic user/employer survey)</p>
<b>Impact/Benefits</b>	<p>Reported benefit by alumni (<i>post-graduation experience</i> survey)</p>	<p>"Applied" research results (<i>scholarship, research, artistic accomplishments</i> measure subcategory)</p> <p>Reported problem or need focused results/ impacts (reported by units and in user/ employer survey)</p>	<p>Reported experience of grads in serving their communities; creating organizations, jobs, etc.; providing leadership (<i>post-graduation experience</i> measure, plus data reported by colleges on their alumni)</p>

## ATTACHMENT B

### Examples of Economic, Educational, Environmental, Health, Social, and Cultural Impacts

- Economic impacts, including the extent to which the University provides educational programs and graduates that are suited to job market (undergraduate, graduate, professional, continuing education and/or retraining); the role of the University and/or its graduates in the starting-up and/or growth of businesses and the related increase in jobs; and the kinds of new or innovative systems, techniques, etc. developed with University expertise that result in the increased competitiveness of state businesses, industries, and other organizations
- Educational impacts, including effective and successful applications of knowledge and support to K-12 systems in the state
- Environmental impacts, including break-throughs in understanding of environmental issues and ways to address or prevent environmental problems, either in policy or in specific applications addressing environmental needs/problems in the state
- Health impacts, including break-throughs in medical knowledge, techniques, and devices, and improved health care for people through provision of clinical services
- Social impacts, including research and applied programs that contribute to improving the lives of children, youth, and families in communities, to improving the status of underrepresented groups, and to promoting strong communities.
- Cultural impacts, including bringing literature and the arts into the lives of people outside of the University to expand their experience and enrich their lives.

## ATTACHMENT C

Desired Outcome: *Mentally and Physically Healthy Youths and Adults*

### Examples of outreach that address this desired outcome

- Alcohol Decisions, a program designed and delivered through 4-H Youth Development in the Minnesota Extension Service, reaches hundreds of youths annually with sound information about use and abuse of alcohol. In addition, this peer training model serves as a leadership development tool for Minnesota teens.
- The Rural Physicians Associate Program, (RPAP), which places U of M medical students and technology in rural communities throughout the state, addresses the problem of limited availability and accessibility of medical care. The University Hospital and clinic supports a computer network linking RPAP communities to the University Hospital, each other, and a nationwide electronic library.
- The Interdepartmental Consortium on Children, Youth, and Families addresses critical educational opportunities at the community level on issues such as poverty and nutrition, family violence, parenting skills, teen pregnancy and substance abuse, and community family support systems.
- The School of Pharmacy maintains a working relationship with more than 3,500 Minnesota pharmacies. Its intern program places pharmacy students in the community, to work with practicing pharmacists and connecting the University's knowledge base with the clientele served locally.
- The School of Public Health's Heart Healthy Program is a community-based healthful lifestyle intervention program with emphasis on cardiovascular and cerebral vascular risk prevention. The intent is to decrease health risk and optimize well-being through media, market place, community education, public awareness, community organizations, schools, churches, etc.
- School of Social Work research and outreach on family violence is a collaboration with the Domestic Abuse Program and is recognized worldwide for impact on what we know about this critical issue.

Desired Outcome: *Educated Professionals and Skilled Work Forces*

Examples of outreach that address this desired outcome

- The College of Architecture and Landscape Architecture (CALA) provides 75% of the principals and staff of architecture and landscape architecture firms in Minnesota. CALA graduates currently operate over 250 businesses in the state and each year the college's graduates design 3,000 to 4,000 projects in Minnesota.
- The Law School's Continuing Legal Education Program is an annual training for practicing lawyers and judges on current issues in law.
- The College of Liberal Arts (CLA) on the Twin Cities campus annually conducts the Summer Institute for Teachers, a program of literature and humanities courses designed for kindergarten through 12th grade educators and taught by CLA faculty.
- Faculty of the College of Veterinary Medicine comb the world for cutting edge research information on swine production. They apply this new knowledge to Minnesota situations through continuing education classes, informal extension programs and one-to-one consultation with veterinarians and producers.
- The Industrial Relations Center of the Carlson School of Management conducts skill-building and employee relations seminars and workshops to help managers, union leaders, and public officials in the field of labor and employment law, policy, and practice.
- The College of Agriculture's Center for Farm Financial Management provides farm managers, agriculture lenders, and educators with computerized tools to apply the principles and concepts of farm planning, financing, and analysis in an individualized and practical way.
- Through the UNITE interactive television system, the CEE Rochester Center provides continuing education opportunities in computer science and electrical engineering to the professional population of Rochester.

Desired Outcome: *Informed and Orderly  
Public Policy Development*

Examples of outreach that address this desired outcome

- The Center for Urban and Regional Affairs conducted a large-scale analysis of population and economic change in the Upper Midwest, especially Minnesota. The findings helped guide policymakers and planners in areas such as education, health care, and economic survival of the state's small trade centers.
- The Mondale Policy Forum of the Hubert Horatio Humphrey Institute involves emerging community leaders and international experts in forums, symposia, and conferences on contemporary public policy issues.
- The School of Social Work's Center for Social Policy and Child Welfare provides research-based input to public policy development at local, state, and national levels.
- Fact Find, generated by the Center for Early Education and Development in the Institute of Child Development, is an example of an outreach publication that is used by policymakers who seek objective, current data about early childhood issues.
- Faculty from the School of Statistics and the Department of Economics frequently serve as consultants to various government agencies and community organizations .
- The Center for Transportation Studies in the Department of Civil and Mineral Engineering was established in 1987 to strengthen knowledge in transportation issues.
- Research in the Department of Family Social Science on the economic consequences of divorce in Minnesota contributed to the development of a new "divorcing family income equivalence worksheet," now used in state divorce policy

Desired Outcome: *Effective, Productive  
Organizations, Groups,  
and Communities*

Examples of outreach that address this desired outcome

- Duluth Department of Philosophy works with local historical societies to recapture important aspects of Minnesota history through research and reconstruction of historical artifacts.
- Project Future, a Minnesota Extension Service community self-renewal program, involves local citizens in creating a vision for their community. This vision becomes a basis for setting and achieving goals at the grassroots level.
- Crookston's Management Division faculty conduct outreach programs on total quality management and the continuing improvement process for local community groups, organizations, and businesses.
- The Conflict and Change Center (Twin Cities) is a clearinghouse that provides outreach to individuals and groups seeking information on conflict management.
- CLA maintains an Office of Community and Cultural Affairs dedicated to outreach activities, that works directly with dozens of agencies and organizations annually, coordinating a wide variety of continuing relationships with the community and developing programs and projects that involve CLA faculty and students.
- Students in the Carlson School of Management graduate programs work in consulting teams, with faculty advisors, on interdisciplinary projects identified by corporate and public organizations.
- With a grant from the Blandin Foundation, the Office of Research and Technology Transfer Administration (ORTTA) seeks to communicate University research outcomes to viable industries in rural Minnesota and to form collaborative relationships with rural companies.

Desired Outcome: *Globally Competitive  
Business and Industry*

Examples of outreach that address this desired outcome

- The Center for Interfacial Engineering Small Companies Exchange Program (Institute of Technology) establishes teams of undergraduates, corporate mentors, and University faculty to take on challenges in small business environments. The company gets access to the expertise and facilities of the University, the student gets practical experience in the business environment, and the University fulfills its mission for outreach.
- The Dairy Initiative Program, sponsored by the College of Agriculture and the Minnesota Extension Service, enhances the quality of dairy-farm life, improves farm profitability, strengthens national competitiveness, and increases the vitality of rural communities.
- The College of Biological Sciences Biological Process Technology Institute (BPT) serves as a catalyst of communication between engineers and biologists, laying a foundation of expertise, fundamental research, and trained workers needed to build Minnesota's biotechnology industry.
- The Institute of International Studies (CLA) sponsors numerous long-term partnerships with selected area public schools and the education community statewide. Faculty frequently assist local teachers, helping them introduce international issues into their teaching.
- The Institute of Technology's Productivity Center improves design and manufacturing productivity through collaborative work with small- and medium-sized industries in the state. The center's focus is on technology based solutions for problems of industrial competitiveness.
- Minnesota Project Outreach is a comprehensive information service that brings together University faculty with the state's entrepreneurs and small businesses to provide rapid, accurate answers to technical and business questions.
- Faculty from the College of Veterinary Medicine work with farm co-ops and farm lenders to provide information on animal health management and disease control.

Desired Outcome: *Sustainable Human-Made  
and Natural Environments*

Examples of outreach that address this desired outcome

- Integrated Pest Management programs (College of Agriculture) educate farmers and urban dwellers alike on the use of environmentally conscious management practices for more sustainable farming, fruits, and vegetable production, and yard and garden care.
- The Minnesota Geological Survey maintains a Minnesota water wells database, which is used by agency professionals in local and state ground water management.
- The Cold Climate Housing Center is an interdisciplinary program (Colleges of Human Ecology, Landscape and Landscape Architecture, Natural Resources, and Agriculture) that operates in close contact with the building industry and housing consumers to improve the energy efficiency, durability, and indoor air quality of homes in cold climates.
- The University has a major commitment to issues related to water. Some examples of programs that conduct and transfer research to industry, policymakers, and consumers include: Gray Freshwater Biological Institute, Water Resources Research Center, Limnological Research Center, Sea Grant College Program, Center for Agricultural Impacts on Water Quality, and the Minnesota Extension Service Water Quality Program.
- The Environment and Natural Resources Policy and Training Project (Colleges of Agriculture and Natural Resources) research teams work with policymakers, and managers internationally in developing appropriate natural resource policies and training programs for watershed, forestry, and dry-land management and conservation.
- Faculty from Urban Studies and Geography work with Minnesota communities on issues involving historic preservation, urban design, and the built environment.
- Touring exhibits from the University Art Museum address "sustainable" issues. Two examples include: an exhibit on the meanings associated with fish and fishing in our regional culture; a program on sustainable agriculture.

ATTACHMENT D

REPORT OF:

- Partnerships and Related Impacts
- Services/other and Related Impacts
- Applied/Practitioner Academic Programs

Issue(s) addressed:     Economic    Education    Environment    Health    Social    Cultural

People/groups affected/  
involved:             individuals    organizations    businesses    government  
                          local communities    communities of color

Expected outcomes:<sup>1</sup>

Enlightened citizens,  
liberally educated  
across the life span

Informed and orderly  
public policy development

Sustainable human-made  
and natural environments

Mentally, physically  
healthy youths and adults

Effective public institutions,  
organizations, groups,  
and communities

Effective, productive  
infrastructure, and community  
designs

Educated professionals  
and skilled work forces

Globally competitive  
businesses and industry

Description of Partnership/Service/Program:

<sup>1</sup> outcomes list is from the 1993 University of Minnesota Outreach Plan

## Critical Measure: Streamlined Student Service

**Specific Measure:** This critical measure focuses on enhancing students' ability to be informed and independent decision makers by focusing on improved outcomes for students outside of the classroom, specifically as it relates to processes and procedures involving admissions, financial aid, course registration, and course availability. The specific measures include:

- 1) the percent of students who complete the admissions, financial aid, and/or registration processes electronically, broken out to show each of the three functions separately and by campus;
- 2) the percent of students registering in any given quarter/semester who are not able to get into classes they attempt to register for (whether electronically or otherwise), broken out to show each of the three functions separately and by campus.

It is assumed that the student survey in the *student experience* critical measure will provide feedback from the survey sample on students' evaluations of the admissions, financial aid, and registration information and services provided to them; their perceptions of problems with course availability; and their overall experience with getting needed information at the University.

**General Goal for Measure:** The long-term institutional goal is to streamline the institution's procedures that affect enrollment and progress to graduation, to enable students to be better informed and more independent decision makers.

**Rationale for Measure and Relation to University 2000:** The user-friendly strategic area in University 2000 focuses on building an environment that is inclusive, supportive, and participatory; on creating and maintaining a humane and physically appropriate environment in which all members of the academic community can thrive and work to their fullest potential; on a culture change whereby bureaucracy and indifference give way to a user-friendly approach to program and service delivery. More specifically, U2000 states that the University will establish a customer-oriented approach to program and service delivery, with measures of productivity and customer service standards, requiring accountability for the quality, value, and cost of the services its units provide; provide state-of-the-art technology to up-grade registration, admissions, information processing, financial aid processing, academic advising, and review of graduation status; review structures, policies, and procedures that needlessly drive up operating costs, waste time, or disrupt the scholarly environment of faculty, students, and staff; eliminate low-value-added activities and redirect that effort and savings toward education; decrease functional fragmentation and redundancy when appropriate; streamline procedures; and simplify forms.

Since the late 1980s, the University of Minnesota has been engaged in a sequence of activities and initiatives derived from the approach known as Total Quality Management. Those efforts, now labeled University of Minnesota Quality, have included the funding of quality improvement projects focused on particular institutional functions, including student services. Implicit within the overall effort has been the importance of institutional commitment to implementing a customer service orientation.

The University of Minnesota serves many different customers both within and outside the confines of our campuses, but for purposes of this proposal, students are viewed as a particularly important constituency. However, the words "customer service" have generated considerable debate within the institution, including a question about the appropriateness of thinking of students as customers. Whether or not customer service is viewed as an appropriate concept within the classroom (as opposed to a "professional relationship, much like that of lawyer to client, doctor to patient, or minister to parishioner"), it is hard to argue that students should not be treated as customers when they receive services outside the classroom.

**Description of Measure:** The focus of this critical measure is on the streamlining of essential student services, outside of the classroom, with emphasis on facilitating enrollment and progress towards students' educational goals. Educational goals are viewed as (a) for most students enrolled in day school, completion of a degree program; and (b) for students enrolled in Continuing Education and Extension/University College, completion of a specific course or set of courses, or completion of a certificate program, or completion of a degree program, depending on the needs of individual students.

Four areas that seem to be particularly important to consider for streamlining and student "empowerment" are the admissions, financial aid, and registration processes, as well as the broader issue of course availability. Since the institution is developing an approach by which a student might interact with the institution across the set of functions, the four processes will not be measured separately but rather in ways that (for the most part) cut across the functions.

As background for the discussion of the proposed measures, there appear to be three critical themes:

access--how easy is it for students and prospective students to get access to the information they need?

quality--what is the quality of the interaction?

outcome--do the services received help students achieve their educational objectives?

There are also several important assumptions underlying the proposed measures: a) for routine (non-exceptional) circumstances, electronic systems and processes that are properly designed are more convenient and more "empowering" because they allow access 24 hours a day, from remote as well as campus locations, to a much broader array of information than would be found in a single physical location; b) personal contact is still critical for less routine circumstances, as well as for students who are not fully comfortable with information technology; c) the fewer contacts (ideally only one) that are needed to acquire necessary information, the better; and d) the University should have as a goal not to turn students away from courses they need to take.

In keeping with these assumptions, two new measures are recommended:

1) the percent of students who complete the admissions, financial aid, and/or registration processes electronically, broken out to show each of the three functions separately and by campus;

2) the percent of students registering in any given quarter/semester who are not able to get into classes they attempt to register for (whether electronically or otherwise), broken out to show each of the three functions separately and by campus.

It is assumed that the student survey in the *student experience* critical measure will provide feedback from the survey sample on students' evaluations of the admissions, financial aid, and registration information provided to them, their perceptions of problems with course availability, and their overall experience with getting needed information at the University.

**Baseline Information and Performance Goals:** Although some baseline information is available for these possible measures, additional baseline information will need to be assembled/collected once there is agreement on how to proceed.

**Related Action Initiatives in University 2000:** Several efforts are underway to address students' needs and expectations in each area.

- Admissions:

Utilization of the World Wide Web to enable potential applicants to view information about the University of Minnesota and to use "self application" mechanisms, with opportunities for feedback on what did and did not work for the student using the system

- Financial Aid:

Development of a comprehensive 1996-97 *Scholarship and Financial Aid Handbook* to guide students through the process of applying for financial aid, and facilitation of a "self application" process for financial aid, with opportunities for feedback on what did and did not work for the student using the system

- Registrar's Office:

Expansion of the Registrar's Office Home Page on the World Wide Web and facilitation of "self registration" mechanisms, with opportunities for feedback on what did and did not work for the student using the system

- Course Access:

Provision of supplementary funding to colleges and departments to alleviate course access problems

**Cost:** Achieving more streamlined student services is likely to require additional short-term funding to improve systems that support student service operations.

**Data Collection Process:** It is likely that most if not all of these measures will be electronically retrievable as part of the Student 2000 System Replacement Project, including data on course demand and courses provided. Other information may be collected through the *student experience* student satisfaction survey and through other methods employed by the responsible units.

**Breakout of Measure:** Broadly stated institutional goals will be specified, although campus specific breakdowns are necessary to reflect circumstances unique to each of the four campuses.

**Responsibilities:** Responsibility for performance on these measures rests with the President and the provosts, chancellors, deans and those senior officers and directors with responsibilities for admissions, financial aid, and registration operations.

## Critical Measure: Information Infrastructure

(Formerly the Technology measurement category)

**Specific Measure:** The specific measures of the information infrastructure are:

- 1) access to needed information resources by faculty, students, staff, and others, measured in two ways: access provided by University Libraries and their information resources, by electronic, telephone, walk-in, and other means; and access provided in a wide variety of other ways by campuses, colleges, and administrative units
- 2) access provided through technology, measured by the percent of faculty and staff having both the necessary equipment and the network connection needed to meet minimum quality standards; and the percent of students who own their own computers.
- 3) use of technology in teaching, measured as a) the percent of all credit courses that are taught using some form of instructional technology; b) the percent of all courses involving distance education (further broken out to show courses where the University is the originator or "sender" of information and courses where the University is the "receiver" of distance education from other locations); and c) the number of student credit hours taught by telecommunications

Note on Language/Name Change: This measurement category was originally called "technology," in part to ensure that the initial discussion would be broad enough for consideration not only of information technology but of other kinds of technology as well (e.g., instrumentation) that are critical to the University's success as a research institution. Subsequent discussions of this category have resulted in two changes in the way this third phase measure is viewed.

First, the general consensus is that, while important, instrumentation is sufficiently different from the other aspects of this category (it deals with neither information nor with technology related to information) that it should not be included as part of this measure. Second, information itself--the informational "content" that is found, for example, in our libraries--is critically important to the University's role as both a research and a land grant university; although technology is expected to play an increasingly important role in both access to and use of this information, information (and its importance) is much broader than technology. For this reason, this measurement area has been given the broader name of "information infrastructure."

Figures 1 and 2 on the following page summarize the role of information and its infrastructure at the University. For purposes of this measure, the "information infrastructure" is defined as including at least the following three key kinds of resources:

Information: Information is created and disseminated in every aspect of the University's mission. Information comes into the University from both local and remote sources in both electronic and print formats; it is also created and used within the University in many different formats as an integral part of the University's research/discovery and teaching/learning missions; and it is disseminated and transmitted outside of the institution in the advancement of knowledge and the outreach/public service mission. Information may be raw data, or it may be organized or formatted and ready to use. Information resources may include not only the information itself, but also the systems created to identify, find, access, and retrieve it.

Information available through libraries includes locally held collections of print, microform, sound, images, video, and machine readable databases (e.g., statistical data, textual files, courseware, and

**Figure 1**  
**The Role of Information at the University**

<u>What do we do with information?</u>	<u>How do we do it?</u>
• create it----->	• scholarship, research, artistic activity
• acquire it----->	• buy or receive it "free" (e.g., gifts, Internet)
• preserve it ----->	• libraries/archives, museums, recordings, etc.
• use it----->	• in teaching/learning, in outreach/service, in
• disseminate/transfer it----->	discovering and advancing knowledge
 <u>In what forms does this information exist (whether as raw data or organized/formatted)?</u>	
• print • microform • sound/recordings • images • video • machine readable	
• electronic • live (e.g., performances) • in databases • in information systems/services	

**Figure 2**  
**University Information Infrastructure**

<p><u>What is the infrastructure that supports the creation, acquisition, preservation, use, and dissemination of information?</u></p> <ul style="list-style-type: none"> <li>• <u>physical access</u> on campus and off campus: libraries, including bibliographic resources such as   catalogues, indexes, abstracts, bibliographies museums theaters extension offices other University sites (e.g., Arboretum, NRRI, etc.)</li> <li>• <u>access through technology</u>, locally and from remote locations: desktop computer workstations local and wide area network connections high performance computing and communication servers (e.g.,   Gopher, World-Wide-Web) electronic classrooms student computing labs online (LUMINA) bibliographic resources, including   catalogues, indexes, abstracts, bibliographies</li> <li>• <u>support services/people</u> who develop the technology and the information resources and aid/advise in their use (e.g., student computing lab managers, college/departmental LAN adminis- trators, central help desk staff, library staff, and staff at other sites, etc.) through training, demonstrations, repair services, multimedia learning resource centers for courseware develop- ment, etc.</li> </ul>
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multimedia materials); remotely accessible collections, through interlibrary loan and electronic gateways; and bibliographic resources such as print and online catalogs, indexes, abstracts, and bibliographies that help to identify and locate information. Information available through other sources includes databases developed through research and experimentation; data and information available through internal Web servers for teaching and research; University-wide administrative information systems and campus-wide public information services; information available through world-wide Internet access tools such as gopher servers and World-Wide-Web home pages; and University Press publications, catalogs, newsletters, magazines, and other sources of information about the University.

**Technology:** Technology provides access to a rapidly expanding array of information for many different kinds of users in many different settings, as well as an efficient and effective mechanism for transmitting information, both on and off campus. The technology itself includes: desktop computer workstations, local and wide area network connections, high performance computing and communication servers, electronic classrooms, student computing labs, and the University Libraries' LUMINA interface.

**Support:** Support is often critical in helping people use information, including information technology. Support services are the people resources who 1) develop the information resources and the technology and 2) aid and advise in their use, for example: library staff, student computing lab managers, college/departmental LAN administrators, and central help desk and technical support staff. Support is also provided through short-course training, pre-sale and post-sale product demonstration centers, warranty repair service centers, and multimedia learning resource centers for courseware development and faculty training.

**General Goal for Measure:** Increase access to and use of information and information technology to advance the University's three-part mission of teaching and learning, research and discovery, and outreach and public service.

**Rationale for Measure and Relation to University 2000:** U2000 speaks of upgrading and enhancing the research environment and increasing substantially the University's investment in the research infrastructure, including libraries, laboratories, instrumentation, computers, and information-transfer technologies. The undergraduate education strategic area speaks of using appropriate technologies in teaching. The outreach/access strategic area states the need to explore innovative teaching methods and technology and to extend the University's program offerings throughout the state and beyond state and national borders through distance-learning technologies.

**Description of Measure:** To understand how the University is making progress in using information and information technology in support of its mission, this critical measure focuses on access to and use of information and information technology by students, faculty, and staff, as well as people outside the University. There are three areas of measurement in the information infrastructure critical measure.

The first measure is focused on access to information in general, whether electronically or through other means, by faculty, students, staff, and others. This measure has two parts, focusing on a) the University's libraries, and b) information used by and available through the University's many campuses, colleges, and administrative units.

**Information Access Measure:** Access to needed information resources by faculty, students, staff, and others, measured as:

- a) a count of University Libraries' circulation and reserve transactions, interlibrary loans, reference use, and online system use by electronic, telephone, walk-in, and other means, broken out by type of user (students, faculty, staff, other organizations, and the general public) when appropriate; and
- b) as described (qualitatively and/or quantitatively) by campuses, colleges, and administrative units in their annual performance reports.

The second measure is focused on access to technology and has two critical components: access to the network, and access to the necessary equipment "at the desktop" in order to make use of the network. To position itself for the future, the University must be able to meet minimum quality and capacity standards in both of these areas for University students, faculty, and staff. Because these standards are in the process of being developed but are not yet complete, this measure refers to the standards that will exist in the future.

In the broadest sense, technology access is needed in many different University locations including offices, classrooms, public student labs, college and/or department-based student labs, libraries, study spaces, residence hall rooms, dial-in modem pools, and other general campus locations/buildings. Because circumstances are somewhat different for students, as compared with University employees (i.e., faculty and staff), this measure focuses on two areas: a) office desktop capacity (equipment + network connection) for faculty and staff, and b) student access through ownership of a computer. Student ownership is viewed as the appropriate focus because in the long term, public labs will most likely be equipped with higher performance equipment to supplement individually owned computers, rather than being viewed as a primary access point.

Technology Access Measure: Access to technology will be measured by:

- a) the percent of faculty and staff having both the necessary equipment and the network connection needed to meet minimum quality standards; and
- b) the percent of students who own their own computers.

The third measure attempts to address the use of information technology. In many ways, one of the most important questions related to information technology deal with its use: by whom, for what, how much? Although this question could be asked across the broad range of the University's mission, a particularly important area of focus is in the University's teaching and learning mission. Use in teaching will reflect an important aspect of the student experience and the delivery of education to a broader array of students, as well as the use of technology by faculty. It could reasonably be assumed that if faculty are using technology in teaching, they are probably also using it for other purposes as well.

Assuming that use of technology in teaching can increase both quality and access (across time, distance, for people with disabilities, etc.), it is important to measure its use in the broadest possible way, while still being able to answer more specific questions. For this reason, several measures will be used, going from the broadest level to several more specific subcategorize.

Use of Technology in Teaching Measure: There are three measures in this category:

- a) the percentage of all credit courses taught using some form of information technology, for example, e-mail or group-ware for communication with, and among, students; World-Wide-Web based course materials; multimedia presentations in the classroom; class assignments to search and access WW based information sources; interactive television; etc.;
- b) the percentage of all credit courses involving distance education, broken out to show courses where the University is the originator or "sender" of the course and where the University is the remote location or "receiver" of distance education originating in a different location. Courses where the University is both sender and receiver (i.e., where a course originating on one campus is sent to other University campuses) would be counted only once, in the "sender" category; and
- c) the number of student credit hours taught by telecommunications (initially defined as IT or e-mail; it is expected that it will subsequently be defined as including a broad range of both live and delayed methods of delivery), which is the Minnesota Legislature's "performance incentive" measure.

**Baseline Information and Performance Goals:** Baseline information is expected to be available for some of these measures and will be included in the next version of this draft. Goal setting will occur for those measures that are appropriate after the baseline information is compiled.

**Related Action Initiatives in University 2000:** To increase access to and use of information and information technology to advance the University's three-part mission of teaching and learning, research and discovery, and outreach and public service, the following institutional actions are critical:

- Increasing substantially the University's investment in the research infrastructure, including libraries, computers, and information-transfer technologies
- Increased use of innovative teaching methods involving information technology, including extending the University's program offerings throughout the state and beyond state and national borders through distance-learning technologies

**Cost:** Achieving goals for the University's Information Infrastructure Critical Measure will depend on the availability of resources to undertake the action initiatives described above.

**Data Collection Process:** Information for these measures will be collected from University Libraries, campuses, colleges, and administrative units, the Office of Information Technology, the Distance Education Office in CEE/UC, the course guide prepared by the Registrar's Office.

**Breakout of Measure:** This measure will be summarized at the campus and institutional levels; it is not clear whether any meaningful breakdowns can be made below these levels.

**Responsibility:** Responsibility for performance on this critical measure rests with the President, Senior Vice Presidents, Chancellors, Provosts, and Deans, as well as heads of key administrative units. Deans/directors of the University Libraries, Office of Information Technology, and Distance Education Office in CEE/UC will be particularly important in carrying out the responsibilities associated with this critical measure.