

The Effectiveness and Efficiency of Postsecondary Institutions in North Dakota

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Contributors

Aaron S. Horn

Interim Assistant Director for Data
Analysis and Policy Research
aaronh@mhec.org

Aara Johnson

Research Assistant

Takehito Kamata

Graduate Research Assistant

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105 Fifth Avenue South, Suite 450
Minneapolis, MN 55401

Phone: 612-677-2777

Fax: 612-767-3353

Toll-Free: 1-855-767-MHEC (6432)

E-mail: mhec@mhec.org

For more information visit us online at: www.mhec.org

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Graduation rates are frequently employed in rating the effectiveness and efficiency of colleges and universities. The use of graduation rates as performance indicators can be observed in state and federal accountability measures, accreditation regulations, and institutional performance reports. Graduation rates are typically conceptualized as the percentage of degree-seeking students in a first-time, full-time cohort who graduate within a specific period of time, such as four, five, or six years. Graduation rates are sometimes refined by taking into account transfer students or program length, but a raw graduation rate of some sort is typically used in institutional and state comparisons. However, numerous factors beyond institutional control strongly influence graduation rates, especially students' pre-college academic preparedness. Consequently, variation in raw graduation rates may better reflect differences in such factors as admissions selectivity or institutional mission rather than whether institutional practices and programs are in fact conducive to student success. This problem was recently addressed in the MHEC working paper, *Effectiveness and Efficiency in Promoting Timely Degree Completion: A Performance Rating System for the States*. The purpose of this research brief is to summarize the working paper's methodology and findings. Effectiveness and efficiency scores are then presented for colleges and universities in North Dakota.

The Essence of the Institutional Effectiveness and Efficiency Indicators

An institutional effectiveness indicator based on graduation rates must contain two pieces of information: (a) the institution's actual graduation rate and (b) the institution's graduation rate that would be expected given the institution's structural, demographic, and contextual characteristics.ⁱ These data can be related to each other as a difference:

$$(1) \text{ Actual graduation rate} - \text{Expected graduation rate}$$

This difference score constitutes a simple index of an institution's impact on the rate of timely degree completion. The difference will be less than zero when the actual graduation rate is lower than the expected rate, thereby indicating limited effectiveness of institutional practices. The difference will be equal to zero when the actual graduation rate approximates the expected graduation rate, which at the very least provides evidence that institutional practices are not thwarting student progress. Finally, the difference will be greater than zero when students are graduating at a rate that exceeds the expected rate, which would suggest that institutional practices are relatively conducive to student success.

Institutional effectiveness scores can then be related to educational expenditures to produce an indicator of institutional efficiency. Specifically, an effectiveness-cost ratio (effectiveness score / educational expenditures per FTE student) reflects an institution's units of effectiveness per FTE dollar spent.ⁱⁱ

Institutional effectiveness and efficiency scores were computed for public and private institutions in all 50 states. In addition, the average performance scores of public institutions weighted by FTE enrollment were calculated for each state. In the case of four-year institutions (which yielded two effectiveness scores), overall institutional effectiveness and efficiency scores were computed as the average of scores based on the four- and six-year graduation rates. A state's institutional effectiveness score thus reflects the average difference between actual and predicted graduation rates at public institutions (rates predicted from institutional and state attributes). A positive institutional impact is then inferred from the degree to which actual graduation rates approximate or exceed predicted rates. State-level efficiency scores also capture average institutional performance, namely the amount of "effectiveness" yielded per educational expenditure. Tables 1 and 2 portray the resulting state-level indicators of institutional effectiveness and efficiency.

Evaluating Institutional Effectiveness and Efficiency

Institutions and states were rated on a five-point scale to facilitate interpretation. Institutional effectiveness scores equal to or greater than one standard deviation above the mean are assigned an effectiveness rating of “Very High,” wherein institutional conditions are conducive to student progress to an extent that greatly exceeds what would be anticipated from the institution’s structural, demographic, and contextual attributes. Scores within one standard deviation above the mean are assigned a rating of “High.” Scores that approximate zero are assigned a rating of “Moderate,” wherein the actual graduation rate is what one would anticipate from institutional attributes. Scores that fall within one standard deviation below the mean are assigned an effectiveness rating of “Low,” which indicates that students are graduating at rates below what we would expect from institutional attributes. Finally, scores equal to or less than one standard deviation below the mean are assigned a rating of “Very Low,” thereby indicating that institutional practices may be hindering student progress. A similar rating scheme was used for the efficiency indicator.

General Findings

The results demonstrate the potential value of using a measure that adjusts for institutions’ structural, demographic, and contextual characteristics. Low graduation rates may in fact reflect institutional practices that are satisfactory or better. For instance, while a seemingly low proportion of students in degree-seeking cohorts graduate within four or six years in Ohio, the rates are higher than predicted and thus merit the “Very High” effectiveness rating. Moreover, states with nearly identical graduation rates may have dissimilar institutional effectiveness ratings due to different types of institutions, student populations, and institutional contexts. The average graduation rates for public four-year institutions are quite similar in Indiana and Mississippi, but the overall institutional effectiveness ratings differ, “Low” and “High.”

Also noteworthy, an analysis presented in the full report indicated that most public postsecondary institutions and systems are relatively effective and efficient. Based on the four-year graduation rate, 59 percent of public institutions nationwide were rated as at least moderately effective, compared to 47 percent of private institutions. Sector differences in efficiency were even more pronounced. A full 80 percent of public institutions nationwide exhibited at least moderate levels of efficiency, compared to 42 percent of private institutions. At the intersection of these indicators, approximately 51 percent of public four-year institutions nationwide were rated as moderate or above

on efficiency *and* effectiveness, compared to 35 percent of private institutions. Similarly, the state-by-state ratings revealed moderate levels or higher of both effectiveness and efficiency in 62 percent of public four-year college systems and 52 percent of public two-year college systems. However, some public four-year college systems exhibited an overemphasis on efficiency, as observed in Colorado, North Dakota, and Massachusetts where efficiency is high but effectiveness is low.

A Closer Look at North Dakota

Tables 3-6 provide effectiveness and efficiency scores for colleges and universities in North Dakota.ⁱⁱⁱ Among public two-year colleges, Lake Region State College is the most effective and the most efficient. Among public four-year institutions, Dickinson State University is the most effective and the most efficient (based on the six-year graduation rate). Among private four-year institutions, the University of Mary is the most effective and the most efficient.

Final Remarks

This report summarized a method for circumventing the significant shortcomings of using raw graduation rates in accountability systems. The institution’s added value was located in the gap between the actual graduation rate and the rate predicted by structural, demographic, and contextual factors that mainly lie outside of institutional control. The resulting indicators should provide policymakers and institutional leaders with a more accurate depiction of the extent to which postsecondary institutions effectively and efficiently promote timely degree completion (see the final section of this brief for key policy implications).

Definitions

Institutional effectiveness tables

Four-year graduation rate: percentage of full-time, first-time bachelor's degree-seeking students who graduate within four years

Six-year graduation rate: percentage of full-time, first-time bachelor's degree-seeking students who graduate within six years

Transfer-adjusted completion rate (two-year colleges only): percentage of completions plus transfers within 150 percent of program time among first-time, full-time degree/certificate-seeking students

Expected graduation rate: the graduation rate we would expect given an institution's structural, demographic, and contextual attributes

Institutional effectiveness score: actual graduation rate – expected graduation rate

Effectiveness rating: the greater the actual graduation rate exceeds the predicted graduation rate, the higher the effectiveness rating

Very High: Actual graduation rate is considerably above anticipated rate

High: Actual graduation rate is above anticipated rate

Moderate: Actual graduation rate is equivalent to anticipated rate

Low: Actual graduation rate is below anticipated rate

Very Low: Actual graduation rate is considerably below anticipated rate

Institutional efficiency tables

E&R expenditures: education and related expenditures per full-time equivalent student

Adjusted E&R expenditures: education and related expenditures per full-time equivalent student adjusted for interstate cost of living differences

Efficiency score: effectiveness score / adjusted education and related expenditures (converted into a standard score)

Efficiency rating: the greater the positive deviation from the average efficiency level in an institution's Carnegie group nationwide, the higher the efficiency rating

Very High: Effectiveness per expenditure is considerably above average

High: Effectiveness per expenditure is above average

Moderate: Effectiveness per expenditure approximates average

Low: Effectiveness per expenditure is below average

Very Low: Effectiveness per expenditure is considerably below average

Horn, A. S. (2013). *Effectiveness and efficiency in promoting timely degree completion: A performance rating system for the states*. Minneapolis, MN: MHEC.

ⁱ A two-year institution's predicted graduation or transfer rate (150 percent of program time) was estimated from urbanicity, institutional size, the proportion of students who attain less-than-two-year certificates, and student attributes (non-traditionality, socioeconomic status, gender, and ethnicity). A four-year institution's predicted graduation rates (100 percent and 150 percent of program time) were estimated from several factors: institutional type (research, master's, baccalaureate); control (public, private); urbanicity; institutional size; the presence of graduate students; selectivity of admissions; various student characteristics (i.e., academic preparedness, traditional/non-traditional, socioeconomic status, gender, ethnicity); and the size of the state's knowledge labor market.

ⁱⁱ The institutional efficiency indicator was computed as the ratio of effectiveness to education and related expenditures (adjusted for interstate cost of living differences). These quotients were converted into z-scores, which reflect the proximity of an institution's level of efficiency to the mean level. In the case of four-year institutions, efficiency z-scores were calculated separately within each of the nine sub-types identified by the Carnegie Classification system: Baccalaureate Colleges: Arts and Sciences; Baccalaureate Colleges: Diverse Fields; Baccalaureate/Associate's Colleges; Master's Colleges and Universities (larger programs); Master's Colleges and Universities (medium programs); Master's Colleges and Universities (smaller programs); Doctoral/Research Universities; Research Universities (high research activity); and Research Universities (very high research activity).

ⁱⁱⁱ An "N/A" signifies that the institution was excluded from the analysis (usually due to missing data).

Table 1. Overall Effectiveness and Efficiency Ratings for Public 2-year Institutions

	Percent Graduating within 150 percent of program time (unadjusted)	Institutional Effectiveness Score	Institutional Effectiveness Rating	Institutional Efficiency Score	Institutional Efficiency Rating
Alabama	19.1	0.13	Moderate	-0.05	Moderate
Alaska	31	N/A	N/A	N/A	N/A
Arizona	16.3	-2.41	Low	0.13	Moderate
Arkansas	22.2	-1.46	Low	-0.20	Moderate
California	25.3	2.10	High	0.34	High
Colorado	20.8	-1.56	Low	0.35	High
Connecticut	10.5	-1.16	Low	-0.51	Low
Delaware	12.5	-4.93	Very Low	-0.86	Low
Florida	38.2	4.44	Very High	0.66	High
Georgia	25.1	6.87	Very High	0.65	High
Hawaii	14.5	2.12	High	0.05	Moderate
Idaho	20.2	-2.84	Very Low	-0.53	Low
Illinois	19.4	-0.87	Moderate	0.81	High
Indiana	8.7	-0.42	Moderate	1.13	Very High
Iowa	33	2.39	High	0.08	Moderate
Kansas	30.3	-2.04	Low	-0.12	Moderate
Kentucky	23.9	-0.53	Moderate	-0.19	Moderate
Louisiana	15.6	-0.79	Moderate	-0.47	Low
Maine	26.7	2.34	High	-0.18	Moderate
Maryland	13.8	1.84	High	-0.47	Low
Massachusetts	16.4	0.52	Moderate	-0.20	Moderate
Michigan	14.9	1.64	High	0.23	Moderate
Minnesota	26.3	0.39	Moderate	-0.30	Low
Mississippi	25.2	1.27	High	-0.20	Moderate
Missouri	20.7	-0.60	Moderate	0.25	Moderate
Montana	30.8	-1.95	Low	-0.61	Low
Nebraska	30.9	7.47	Very High	0.83	High
Nevada	16.7	0.52	Moderate	0.02	Moderate
New Hampshire	26.3	N/A	N/A	N/A	N/A
New Jersey	17.1	-0.78	Moderate	0.80	High
New Mexico	14.8	2.10	High	-0.10	Moderate
New York	19.6	0.67	Moderate	-0.04	Moderate
North Carolina	20.3	-2.07	Low	-0.31	Low
North Dakota	38.8	5.28	Very High	0.05	Moderate
Ohio	13.3	0.21	Moderate	0.06	Moderate
Oklahoma	17.3	-2.70	Very Low	-0.16	Moderate
Oregon	13.7	3.01	Very High	-0.36	Low
Pennsylvania	13.9	2.05	High	0.22	Moderate
Rhode Island	9.3	-4.05	Very Low	-0.21	Moderate
South Carolina	11.5	0.53	Moderate	-0.27	Low
South Dakota	52.9	-0.37	Moderate	0.00	Moderate
Tennessee	11.3	-5.47	Very Low	-0.73	Low
Texas	13.1	1.20	High	0.18	Moderate
Utah	35.6	-4.46	Very Low	-0.48	Low
Vermont	15.6	N/A	N/A	N/A	N/A
Virginia	18.2	-1.62	Low	0.03	Moderate
Washington	25.8	0.16	Moderate	-0.25	Moderate
West Virginia	10.3	-1.59	Low	0.02	Moderate
Wisconsin	31.3	0.76	Moderate	-1.03	Very Low
Wyoming	30.4	0.35	Moderate	-0.58	Low

Table 2. Overall Effectiveness and Efficiency Ratings for Public 4-year Institutions

	4-yr Graduation Rate	6-yr Graduation Rate	Institutional Effectiveness Score	Institutional Effectiveness Rating	Efficiency Score	Efficiency Rating
Alabama	22.9	47.5	1.28	High	0.48	High
Alaska	8.2	26.6	-3.86	Very Low	-0.58	Low
Arizona	31.9	57.1	0.95	Moderate	0.58	High
Arkansas	19.7	38.7	-0.65	Moderate	0.49	High
California	34.8	65.1	1.70	High	0.22	Moderate
Colorado	31.5	53.3	-3.78	Very Low	0.89	High
Connecticut	40.6	61.5	0.11	Moderate	-0.03	Moderate
Delaware	54.8	70.8	4.76	Very High	-0.14	Moderate
Florida	35.4	61.4	-0.03	Moderate	0.92	High
Georgia	24	51.6	-2.26	Low	0.50	High
Hawaii	16.3	47.3	-8.33	Very Low	-0.04	Moderate
Idaho	14	37.8	-2.35	Low	0.14	Moderate
Illinois	40.2	62.5	0.73	Moderate	0.19	Moderate
Indiana	27.8	49.7	-1.46	Low	0.24	Moderate
Iowa	39.6	69.4	0.03	Moderate	0.31	High
Kansas	26.2	54.3	-0.56	Moderate	0.44	High
Kentucky	22.1	46.6	0.65	Moderate	-0.02	Moderate
Louisiana	15.5	38.8	-1.15	Low	1.38	Very High
Maine	28.9	48.5	0.65	Moderate	0.02	Moderate
Maryland	43.2	62.3	0.19	Moderate	0.11	Moderate
Massachusetts	35.4	56.4	-1.23	Low	0.65	High
Michigan	32.8	60.7	2.11	High	0.43	High
Minnesota	30.6	56.4	-3.56	Very Low	-0.14	Moderate
Mississippi	26	49.9	2.79	High	0.75	High
Missouri	29.6	54.5	-1.51	Low	0.03	Moderate
Montana	18	42.7	-4.29	Very Low	0.44	High
Nebraska	23.2	55.7	-4.38	Very Low	0.38	High
Nevada	13.5	43.6	-2.91	Low	0.09	Moderate
New Hampshire	46.6	65.4	2.33	High	0.49	High
New Jersey	40.1	66.5	4.47	Very High	0.54	High
New Mexico	11.9	40.6	-2.88	Low	0.36	High
New York	37.8	58.1	0.17	Moderate	0.70	High
North Carolina	35.1	59.1	3.48	Very High	0.13	Moderate
North Dakota	20.9	48.1	-2.43	Low	0.66	High
Ohio	30.3	52.9	3.16	Very High	0.36	High
Oklahoma	21.5	45.4	-0.49	Moderate	0.88	High
Oregon	29.8	54.2	1.20	High	0.71	High
Pennsylvania	39.7	62.1	1.41	High	0.00	Moderate
Rhode Island	34.1	57.8	-0.12	Moderate	0.39	High
South Carolina	38.8	59.1	1.53	High	0.23	Moderate
South Dakota	20.4	46.7	-0.42	Moderate	0.59	High
Tennessee	19.7	45.5	-2.11	Low	-0.18	Moderate
Texas	24.4	49	1.38	High	0.89	High
Utah	20	46.9	-3.27	Very Low	0.24	Moderate
Vermont	46.1	62.9	7.91	Very High	0.26	High
Virginia	49.1	68.4	3.31	Very High	0.72	High
Washington	41.1	68.9	5.95	Very High	0.58	High
West Virginia	24.7	47.4	0.31	Moderate	0.84	High
Wisconsin	27.4	60.4	-3.64	Very Low	-0.23	Moderate
Wyoming	22.5	53	1.19	High	-0.15	Moderate

Table 3. Institutional Effectiveness: Public Two-year Colleges in North Dakota

	Unadjusted Graduation Rate (150 percent program time)	Transfer-adjusted Completion Rate	Expected Transfer-adjusted Completion Rate	Institutional Effectiveness Score	Institutional Effectiveness Rating
Dakota College at Bottineau	32.26	58.87	54.29	4.58	High
Lake Region State College	45.32	64.75	51.51	13.24	Very High
North Dakota State College of Science	42.09	N/A	57.66	N/A	N/A
Williston State College	35.77	39.84	47.56	-7.72	Low

Table 4. Institutional Efficiency: Public Two-year Colleges in North Dakota

	E&R Expend.	Adjusted E&R Expend.	Efficiency Score	Efficiency Rating
Dakota College at Bottineau	\$6,502	\$6,489	0.02	Moderate
Lake Region State College	\$6,257	\$6,245	0.70	High
North Dakota State College of Science	\$9,048	\$9,030	N/A	N/A
Williston State College	\$8,022	\$8,006	-1.03	Very Low

Table 5. Institutional Effectiveness: Four-year Colleges and Universities in North Dakota

	4-year Grad Rate	Expected 4-year Grad Rate	Effectiveness Score	Effectiveness Rating	6-year Grad Rate	Expected 6-year Grad Rate	Effectiveness Score	Effectiveness Rating
Dickinson State University	12.00	11.86	0.14	Moderate	38.00	29.88	8.12	Very High
Jamestown College	28.00	N/A	N/A	N/A	41.00	N/A	N/A	N/A
Mayville State University	17.00	N/A	N/A	N/A	30.00	N/A	N/A	N/A
Minot State University	17.00	15.75	1.25	High	39.00	36.48	2.52	High
North Dakota State University-Main Campus	23.00	24.64	-1.64	Low	51.00	54.07	-3.07	Low
University of Mary	36.00	38.23	-2.23	Low	47.00	52.67	-5.67	Low
University of North Dakota	21.00	27.35	-6.35	Low	51.00	55.55	-4.55	Low
Valley City State University	23.00	18.07	4.93	High	40.00	37.45	2.55	High

Table 6. Institutional Efficiency: Four-year Colleges and Universities in North Dakota

	Carnegie Class	E&R Expend.	Adjusted E&R Expend.	Efficiency Score based on 4-yr Graduation Rate	4-yr Efficiency Rating	Efficiency Score based on 6-yr Graduation Rate	6-yr Efficiency Rating
Dickinson State University	Baccalaureate Colleges--Diverse Fields	\$5,315	\$5,304	1.90	Very High	3.21	Very High
Jamestown College	Baccalaureate Colleges--Diverse Fields	\$6,643	\$6,630	N/A	N/A	N/A	N/A
Mayville State University	Baccalaureate Colleges--Diverse Fields	\$6,212	\$6,200	N/A	N/A	N/A	N/A
Minot State University	Master's Colleges and Universities (medium programs)	\$5,938	\$5,926	0.94	High	1.28	Very High
North Dakota State University-Main Campus	Research Universities (very high research activity)	\$6,987	\$6,973	1.72	Very High	1.55	Very High
University of Mary	Master's Colleges and Universities (larger programs)	\$5,163	\$5,152	1.11	Very High	0.58	High
University of North Dakota	Research Universities (high research activity)	\$11,623	\$11,600	-0.72	Low	-0.62	Low
Valley City State University	Baccalaureate Colleges--Diverse Fields	\$8,899	\$8,882	0.40	High	0.29	High

Implications for Policy and Practice

The institutional effectiveness and efficiency measures are broad indicators of institutional performance in relation to timely degree completion. The indicators were developed to address the shortcomings of using raw graduation rates as performance metrics. The effectiveness indicator for four-year institutions reflects the difference between the actual graduation rate and a predicted rate based on institutional attributes. The effectiveness indicator for two-year institutions reflects the difference between the actual transfer-adjusted success rate (i.e., completions and transfers) and a predicted success rate based on institutional attributes. Institutional efficiency is estimated as the ratio of effectiveness to educational expenditures per full-time equivalent student.

The institutional effectiveness indicators do not remedy the limitations inherent in the data. The IPEDS graduation rate data currently exclude part-time students, transfer students, and first-time students who enroll during the spring, winter, or summer terms. Transfer student data were unavailable for four-year institutions as well as a large proportion of public community colleges. Further, the effectiveness and efficiency measures do not assess other dimensions of institutional performance, such as student learning and employment outcomes. The measures should thus be used with other performance indicators as well as an appreciation of unique institutional and state circumstances that may influence graduation rates.

The following guide provides a general interpretation for different combinations of effectiveness and efficiency ratings. Each combination suggests a distinct set of possible implications, though the tenability of any particular proposition is contingent on additional supporting evidence.

I. If both effectiveness and efficiency ratings are low or very low, then...

- a. Graduation rates are lower than expected given institutional type, demographics, and context.
 - i. Suboptimal graduation rates might be partly attributed to inadequate institutional performance, such as ineffectively addressing low levels of academic preparation.
 - ii. Institutional conditions and/or state policies might not be conducive to student success.
 - iii. The adoption of better policies and practices would likely increase graduation rates.
- b. The amount of effectiveness per FTE student expenditure is lower than the average level of similar institutions (that is, the institution uses relatively more resources to produce “units of effectiveness”).
 - i. Institutional policies and/or practices are not optimizing the utilization of existing resources.
 - ii. Increasing institutional resources may yield a suboptimal return on investment.
 - iii. Better resource management might increase graduation rates.
- c. Key considerations for increasing postsecondary completion rates
 - i. Are policies and practices in place for ensuring educational effectiveness?
 - ii. Can existing resources be better utilized?
 - iii. Are resource levels adequate to support institutional conditions conducive to student success?
 - iv. Is PK-12 academic preparation adequate?

II. If both effectiveness and efficiency ratings are moderate, then...

- a. Graduation rates approximate what we would expect given institutional type, demographics, and context.
 - i. Suboptimal graduation rates might be partly attributed to average institutional performance.
 - ii. Institutional conditions and/or state policies are enabling student success to some extent.
 - iii. The adoption of better policies and practices would likely increase graduation rates.
- b. The amount of effectiveness per FTE student expenditure approximates the average level of similar institutions (that is, the institution uses about the average amount of resources to produce “units of effectiveness”).
 - i. Institutional policies and/or practices are optimizing the utilization of existing resources to some extent.
 - ii. Increasing institutional resources may yield a satisfactory return on investment.
 - iii. Better resource management might increase graduation rates.
- c. Key considerations for increasing postsecondary completion rates
 - i. Are policies and practices in place for ensuring educational effectiveness?

- ii. Can existing resources be better utilized?
- iii. Are resource levels adequate to support institutional conditions conducive to student success?
- iv. Is PK-12 academic preparation adequate?

III. If effectiveness is low or very low and efficiency is high or very high, then...

- a. Graduation rates are lower than expected given institutional type, demographics, and context.
 - i. Suboptimal graduation rates might be partly attributed to inadequate institutional performance, such as ineffectively addressing low levels of academic preparation.
 - ii. Institutional conditions and/or state policies might not be conducive to student success.
 - iii. The adoption of better policies and practices would likely increase graduation rates.
- b. The amount of effectiveness per FTE student expenditure is higher than the average level of similar institutions (that is, the institution uses relatively fewer resources to produce "units of effectiveness").
 - i. Institutional policies and/or practices are optimizing the utilization of existing resources.
 - ii. Increasing institutional resources will likely yield a high return on investment.
 - iii. Additional resources (rather than better resource management) are likely needed to increase graduation rates.
- c. Key considerations for increasing postsecondary completion rates
 - i. Are policies and practices in place for ensuring educational effectiveness?
 - ii. Are resource levels adequate to support institutional conditions conducive to student success?
 - iii. Is PK-12 academic preparation adequate?

IV. If effectiveness is high or very high and efficiency is low or very low, then...

- a. Graduation rates are higher than expected given institutional type, demographics, and context.
 - i. Suboptimal graduation rates may be more attributable to such factors as pre-college academic preparation than institutional performance.
 - ii. Institutional conditions and/or state policies are highly conducive to student success.
- b. The amount of effectiveness per FTE student expenditure is lower than the average level of similar institutions (that is, the institution uses relatively more resources to produce "units of effectiveness").
 - i. Institutional policies and/or practices are not optimizing the utilization of existing resources.
 - ii. The current return on investment may be suboptimal.
 - iii. Better resource management might enhance cost containment with minimal effects on quality.
- c. Key consideration for increasing postsecondary completion rates
 - i. Can existing resources be better utilized?
 - ii. Is PK-12 academic preparation adequate?

V. If both effectiveness and efficiency ratings are high or very high, then...

- a. Graduation rates are higher than expected given institutional type, demographics, and context.
 - i. Suboptimal graduation rates may be more attributable to such factors as pre-college academic preparation than institutional performance.
 - ii. Institutional conditions and/or state policies are highly conducive to student success.
- b. The amount of effectiveness per FTE student expenditure is higher than the average level of similar institutions (that is, the institution uses relatively fewer resources to produce "units of effectiveness").
 - i. Institutional policies and/or practices are optimizing the utilization of existing resources.
 - ii. The current return on investment is likely very high.
 - iii. Decreasing resources may result in diminished quality and lower graduation rates.
- c. Key consideration for increasing postsecondary completion rates
 - i. Is PK-12 academic preparation adequate?