

Methodology of Identifying CMU's Peer Institutions

(December, 2014)

Purpose

To identify institutions similar to CMU in role, scope, and mission for the purpose of strategic planning and decision-making through the following functions:

- Providing benchmarks for assessing institutional effectiveness
- Pinpointing areas deserving attention and improvement
- Acting as guidance for policy development and resource allocation

Procedure Overview

The process involves three steps; initial selection through threshold criteria, grouping with two step cluster analysis, and final choice using contextual judgment on the groupings.

Step 1: Threshold Criteria - Choose initial candidate pool from the Integrated Postsecondary Education Data System (IPEDS) using following threshold criteria:

- Control and Sector - Public four year institutions
- Carnegie type
 - Doctoral/Research
 - Master with large programs
 - Research/high activities
- Location - Not in large cities
- Size - more than 14,000 and less than 25,000 undergraduates
- Academic Programs - Exclude law schools
- Highest Degrees - At least 10 doctoral degrees awarded per year

Step 2: Grouping through Two Step Cluster Analysis – Below are the grouping variables used in analysis:

Grouping Variables

- Total expenses
- Total faculty and staff FTE
- Total undergraduate enrollment
- Total new entering FTIAC
- Total number of degrees conferred
- Graduate degrees as a percentage of total number of degrees conferred
- Organizational affiliation - MAC membership
- Faculty collective bargaining status
- Medical School Status
- Status of past candidacy as peer

Step 3: Contextual judgment to determine final list of peer institutions

- Demographic/geographic factors (not substantially different from CMU)
- Similar institutions with medical schools
- Consensus factor (having been previously accepted as CMU's peer institution).

Step 1: Use Threshold Criteria to Identify an Initial Candidate Pool

Based on the threshold criteria described above, the data query results from the IPEDS Peer Analysis tool identified the following 35 institutions that can potentially serve as CMU's peers:

Candidate Pool of Peer Institutions

Appalachian State University	Montclair State University
Auburn University	New Mexico State University-Main Campus
Ball State University	Northern Arizona University
Boise State University	Northern Illinois University
Bowling Green State University-Main Campus	Oakland University
Clemson University	Ohio University-Main Campus
East Carolina University	Oklahoma State University-Main Campus
Eastern Michigan University	Old Dominion University
Georgia Southern University	Saint Cloud State University
Grand Valley State University	Sam Houston State University
Illinois State University	Southeastern Louisiana University
James Madison University	The University of Texas-Pan American
Kansas State University	Towson University
Kennesaw State University	University of Louisiana at Lafayette
Kent State University at Kent	University of Nevada-Reno
Miami University-Oxford	Western Kentucky University
Middle Tennessee State University	Western Michigan University
Missouri State University-Springfield	

Step 2: Cluster Analysis

A two-step cluster analysis using the following grouping variables was used to differentiate the 35 institutions listed above into three groups.

Grouping Variables

- Total expenses
- Total faculty and staff FTE
- Total undergraduate enrollment
- Total new entering FTIAC
- Total number of degrees conferred

- Graduate degrees as a percentage of total number of degrees conferred
- Organizational affiliation - MAC membership
- Faculty collective bargaining status
- Medical school status
- Status of past candidacy

Of the variables listed above, Carnegie type used in step one is an indicator of research activity. Total expenses indicate an institution's overall budget and long-term financial capacity, whereas faculty/staff FTE, size of enrollment, and degrees conferred focus on different aspects of educational capacity. For example, faculty/staff FTE can be largely viewed as an indicator of an institution's instructional and service capacity, while the number of new entering students and size of undergraduate enrollment highlight the institutional capacity of recruiting and retaining students. To a similar extent, the number of graduates and proportion of degrees by level signify the scope and level of academic offerings. In addition to these capacity indicators, the cluster analysis should include two historical measures: MAC affiliation conveys a sense of CMU's traditional perception of a peer group, and other things being equal, institutions that have served as candidates for CMU's peers in the past. Two new variables have been added since the last peer analysis: medical school status and faculty collective bargaining. Because some of these grouping variables contain binary codes, the technique of two-step cluster analysis is used instead of the traditional hierarchical algorithm. In doing so, a 3-cluster solution was imposed in the hope that the institutions can be divided into three groups according to their degree of similarity to CMU.

Judging from the means of cluster centroids, CMU is similar to two of the groups and dissimilar to a third. The Group 1 similarity to CMU coheres around MAC affiliation, previous peer status, total FTE staff, and undergraduate enrollment. The Group 2 similarity to CMU coheres around medical school status, graduate degrees as a percentage of total number of degrees conferred, number of FITAC students, and total graduates. The results can be interpreted as follows:

Group 1: similar

Ball State University	Kent State University at Kent
Bowling Green State University-Main Campus	Miami University-Oxford
Eastern Michigan University	Northern Arizona University
Illinois State University	Ohio University-Main Campus
James Madison University	Western Michigan University

Group 2: similar

Auburn University	New Mexico State University-Main Campus
Clemson University	Northern Illinois University
East Carolina University	Oklahoma State University-Main Campus
Kansas State University	University of Nevada-Reno

Group 3: dissimilar

Appalachian State University
Boise State University
Georgia Southern University
Grand Valley State University
Kennesaw State University
Middle Tennessee State University
Missouri State University-Springfield
Montclair State University
Oakland University

Old Dominion University
Saint Cloud State University
Sam Houston State University
Southeastern Louisiana University
The University of Texas-Pan American
Towson University
University of Louisiana at Lafayette
Western Kentucky University

Step 3: Contextual Judgment in Picking the Final List

The cluster analysis identified Group 3 as the least similar cohort to CMU. Therefore these institutions are excluded from further consideration. The final list was chosen from Groups 1 and 2 relative to the criteria identified earlier. The following is the final list.

Final List of 12 Peer Institutions

Ball State University
Bowling Green State University-Main Campus
East Carolina University
Eastern Michigan University
Illinois State University
James Madison University

Kent State University at Kent
Miami University-Oxford
Northern Illinois University
Ohio University-Main Campus
University of Nevada-Reno
Western Michigan University