

*AQIP Category Seven, MEASURING EFFECTIVENESS examines how your organization collects, analyzes, distributes, and uses data, information, and knowledge to manage itself and to drive performance improvement.*

### **Processes (P)**

**7P1.** How do you select, manage, and distribute data and performance information to support your instructional and non-instructional programs and services?

**7P2.** How do you select, manage, and distribute data and performance information to support your planning and improvement efforts?

#### **Address Core Component 5D under 7P2 and 7P4**

5D The institution works systematically to improve its performance.

- The institution develops and documents evidence of performance in its operations.
- The institution learns from its operational experience and applies that learning to improve its institutional effectiveness, capabilities, and sustainability, overall and in its component parts.

**7P3.** How do you determine the needs of your departments and units related to the collection, storage, and accessibility of data and performance information?

**7P4.** How, at the organizational level, do you analyze data and information regarding overall performance? How are these analyses shared throughout the organization?

**7P5.** How do you determine the needs and priorities for comparative data and information? What are your criteria and methods for selecting sources of comparative data and information within and outside the higher education community?

**7P6.** How do you ensure department and unit analysis of data and information aligns with your organizational goals for instructional and non-instructional programs and services? How is this analysis shared?

**7P7.** How do you ensure the timeliness, accuracy, reliability, and security of your information system(s) and related processes?

### **Results**

**7R1.** What measures of the performance and effectiveness of your system for information and knowledge management do you collect and analyze regularly?

**7R2.** What is the evidence that your system for Measuring Effectiveness meets your organization's needs in accomplishing its mission and goals?

**7R3.** How do your results for the performance of your processes for Measuring Effectiveness compare with the results of other higher education organizations and, if appropriate, of organizations outside of higher education?

**Improvement (I)**

**7I1.** What recent improvements have you made in this category? How systematic and comprehensive are your processes and performance results for Measuring Effectiveness?

**7I2.** How do your culture and infrastructure help you to select specific processes to improve and to set targets for improved performance results in Measuring Effectiveness?

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## Measuring Effectiveness

Category Seven, Measuring Effectiveness, focuses on gathering, analyzing, and using data effectively. For some time, leaders and key employees of BSC have been aware of the need to make improvements in this area. The appraisers of our 2009 systems portfolio were correct in noting that there were improvement opportunities. We determined that strengthening our data capacity and use was crucial for the College and went to our last Strategy Forum with the goal of improving the use of data for institutional and departmental decision making. As a result of the Forum, an AQIP Action Project, *Developing Plans and Processes for Systematizing Institutional Effectiveness Efforts* was developed to guide our efforts to consolidate the various existing initiatives related to institutional effectiveness on the campus and then to expand the whole.

We also pursued a focus on improvement in measuring effectiveness. A Title III grant was funded that gave the College an ability to hire needed staff and begin to build the measurement tools and support systems useful to all employees. Through the Action Project and the various grant activities we are establishing a culture that prizes and uses data effectively for making sound decisions.

Recognizing a need for benchmark data, we joined the National Community College Benchmark Project. This affiliation helps us to determine performance indicators, identify benchmarks, and compare data with other community colleges.

We feel these three steps have led to significant progress in this category and provide a good foundation for future improvement. Our maturity level in this category is becoming one of alignment.

Although we have made progress in building a solid foundation, there are still challenges to address. Employees can only use data effectively if they are aware of it and know how to use the data tools. Key to developing a data-informed decision-making culture is effective communication and training.

We anticipate that, as leaders and other employees see the value of improved availability of data, demands for data will grow. To keep up with the increased demand we will need to continually assess and adapt our plan and work the plan to best use our human and financial resources.

**7P1** The selection of data and information to be developed by BSC is based on the need to address several parallel and, occasionally, intersecting needs. Some of those needs include: oversight and management of routine daily campus operational and academic activities and those derived from the campus and NDUS strategic plans; reporting to the NDUS, the Legislature and other state entities; reporting to the federal government (e.g., IPEDS); and maintaining regional accreditation for the college.

The management of data affecting much or all of the campus is typically facilitated by the Office of Institutional Research (IR), only recently bolstered by several new positions funded through a Title III grant. IR coordinates the implementation of nationally normed surveys, develops annual reports, and shares data as needed. Data of more focused importance is identified, gathered, and managed by personnel in the offices that use it for planning and other decision-making.

Distribution of data and information with broad-based utility to the campus is accomplished in a variety of ways depending on the type of information and the way(s) in which it might be used. It may be distributed to the campus as a whole via email or a number of blogs (e.g., president's blog or human resources blog), or it may be placed on a shared drive for access by specific offices. We recognize the value of centralizing data resources and, through the activities of the Title III grant, are working to assure that college data can be accessed through a data portal (CORE) using SharePoint. Information of interest to both internal and external stakeholders may be published on the BSC website. The president gives a

minimum of three campus-wide addresses each year. One, presented in the fall, is a “State of the College Address” that provides all employees with key relevant information on the overall health, well-being, and future of the college. A second general address to campus, coming in late spring, summarizes the year’s accomplishments in meeting strategic goals. A third address, also in late spring, provides employees with information on the newly developed budget for the coming academic year.

Assessment data and related information developed by faculty are collected by the Academic Assessment Committee and compiled into annual reports that are available on the college website, along with other salient assessment information. In addition, an effort is underway to collect and track assessment plans and results using TracDat technology to organize, manage, and report the assessment information.

**7P2** The College selects, manages, and distributes data and performance information to support planning and improvement through the strategic planning process and to address reporting requirements of our governmental oversight entities. The College embarked on a new collaborative strategic planning process in 2011-2012. A variety of strategic planning techniques, such as SWOT (strengths, weakness, opportunities, threats) analysis, future timeline, and cascading agreement, were used to conduct the environmental scan that resulted in significant amounts of data being collected from students, college employees, business leaders, educators, and other stakeholders. The data collected from the process was reviewed by a representative group of employees and others who identified and prioritized goals that would improve the college’s functioning, services, and structure. Goals and objectives are established from the strategic planning process. Performance measures are identified for each objective and champions selected to oversee the objectives. The progress on the strategic plan is recorded in TracDat and is reviewed regularly by the Executive Council and by participants of the annual strategic planning retreat.

**In addition to the strategic plan, the College uses academic assessment plans, the enrollment management plan, financial plans, master facilities plan, department review documents, and other reports for setting goals. The results of the various plans and documents are used by the institutional effectiveness office and other departments to make decisions that will be effective for BSC and its students. (5D)**

The institutional research office is a major resource for providing information and data to employees. Other departments, such as finance and student services, also serve as data repositories and respond to data requests. **In addition, the Operations Council, AQIP Action Project teams, and other cross-functional team’s research, collect, and provide information necessary to support decision-making at the administrative level. Initiatives from the State Board of Higher Education and the NDUS accountability measures also contribute to the data that are used to make institutional improvements. (5D)** The CORE portal is being developed to serve as the centralized source for a vast variety and amount of institutional data.

**7P3** Bismarck State College determines the needs of departments and units related to the collection, storage, and accessibility of data and performance information using teams, departments, divisions, advisory committees, and through individual requests.

BSC’s primary source of information, data collection, and storage is ConnectND. User groups meet to determine what data is needed, how often the data is needed, how to query the data, provide reports, and who has access to controlled data through approval channels. Access to this information is determined through identified job responsibilities. Requests for access are approved through security officers at each campus.

Bismarck State College also has implemented a campus reporting solution which has streamlined the access and execution of reports giving departments the ability to produce “when needed” reports. The reports can be viewed and shared by other departments with appropriate security. The data used for the campus reporting solution comes from three ConnectND extracts (human resources, finance, and

academic records). These extracts are loaded into a SQL database which gives the report writers the ability to create reports more efficiently for any given department. User groups meet to determine what data is needed, how often the data is needed, how to query the data, and who has access to execute and/or view the reports. Requests for access are approved through software administrators at the campus.

The formal process of collecting enrollment data is executed by our registrar who then distributes the information to the appropriate staff. This information serves as accountability data and is used for accreditation reports developed by our institutional research office. These requests are primarily determined by the information that is requested from business plans, state funding needs, and institutional needs.

BSC is enhancing its capacity to provide data and information through a Title III grant. As a part of the grant, Bismarck State College staff completed an inventory for identifying existing databases/information, end users, and data providers to establish a common starting point. This inventory was undertaken to understand where data and information is generated and in what offices or departments it is stored and updated. The inventory was the first step in gaining better knowledge and control of the varied information and data sources on the campus. The next step is to consolidate the data sources in the Office of Institutional Research and to communicate their existence and utility to the rest of campus.

In response to mandates, data is collected and disseminated to federal, state, or NDUS entities as required. Departments and committees collect additional data, as needed. Institutional research, institutional effectiveness, and various departments collect and disseminate data as requested. With the use of the CORE SharePoint portal, data is centralized, shared, and accessible to all departments and units. Personal or secure information is available on a need-to-know basis.

**7P4** BSC systematically collects and analyzes information and diverse data sets in an effort to discover and prepare for trends that are, or soon will be, impacting campus and which will require prompt administrative action. **Executive Council, for example, looks at developing enrollment trends throughout the late spring and summer. Headcounts, credit hour production, and accounts receivable are three different but related measures that provide corroborating evidence of these trends. Unexpectedly high or low enrollments raise concerns that are quickly passed on to the dean, department chairs, and program managers to adjust course offerings. Richer, more detailed data sets are studied when fourth week enrollment reports are run each semester, allowing managers to track changes in enrollments among demographic subsets of the student body. Tracking certain of these subsets allows BSC to measure effectiveness of strategies that were implemented to meet strategic goals. (5D)**

**Organizational level data analyses are supplemented by extensive data gathering and analysis at the department, office, and individual levels. Employees are empowered to evaluate data and take appropriate actions. Cross functional teams, committees, and other groups are encouraged to evaluate institutional data for their immediate needs and to gather additional information, as needed. (5D)**

The associate vice president of institutional effectiveness and strategic planning spearheads efforts, funded in part by the Title III grant, to inventory, centralize, coordinate, and distribute the broad range of data sets developed and used on campus. This should increase efficiency of collection, distribution, and use of many data sets.

Sharing and distribution of analyses occurs in a number of ways, including the president's blog, campus-wide informational meetings, email, placement on the shared drive, and posting on the college website. The CORE portal facilitates the distribution of information and improves access to both raw and analyzed data sets. Summary and detail level information will be available for users. This is a secure and permission-based system.

**7P5** The needs and priorities for comparative information are determined by the NDUS accountability measures, strategic planning, AQIP Action Projects, and the National Community College Benchmark Project. Comparative data are routinely identified and provided from system-wide surveys. IPEDS data is produced at the national, state, and institutional level for post-secondary institutions and is used for comparison and peer analysis. Benchmarking takes place in a number of areas with two-year colleges within the NDUS and with community colleges across the country through the National Community College Benchmarking Project. Scores on nationally normed tests, especially those required for certification or licensure, are compared to nationally normed data and nearly all vendor surveys have nationally normed comparison data. Formal program accreditation reports also provide comparison data. When a new initiative is undertaken or new information is sought, the College typically searches for “best practices” and conducts research or identifies other institutions that have experience with the subject.

Comparison Level	Data Source	Needs Determination	Criteria Used	Data Use Examples
National	National Community College Benchmarking Project	College needs to compare same/relevant data, to assess BSC’s performance with peers outside of state system	Peer and competitor relevance, comparable out-of-state two year colleges	Institutional measures tied to enrollment traits, student success, student demographics
National and State	IPEDS	Comparing institutional characteristics, enrollment, graduation, retention, transfer, faculty salary, and finances among a group of peer schools	Compare on the national and state level with other two-year community colleges	To determine achievement of purposes; graduation and retention rates can be analyzed and trends watched
State	North Dakota University System	Align the institutional strategic goals with that of the Board of Higher Education and NDUS; comparative data with other colleges in the NDUS	Benchmarking with other two-year colleges within NDUS	To monitor performance/ progress and trends using historical data
State	North Dakota University System Accountability Committee	Determined by State Legislature and State Board of Higher Education	Determined by State Legislature and State Board of Higher Education	Track performance and progress

*Figure 7.1 Comparative data sources*

**7P6** Ensuring that department and unit analysis of data and information aligns with organizational goals is a function of our strategic planning process and our budgeting process. Through budgeting, every department identifies its priorities and objectives for the coming year. These priorities must support the institutional goals and key action plans of the College. These key action plans are driven by SBHE initiatives, strategic planning goals and objectives, and AQIP Action Projects.

Progress on meeting the strategic planning objectives is tracked using TracDat. Reports from TracDat readily show us the progress being made and provide an easy way to share the results with employees.

The operational plan that is linked to the budgeting process is written or updated every year with results on progress or achievement submitted to the Chancellor’s office. The results of surveys, accountability

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measures, budgets, enrollment, TrainND, and other data are used by the president's office to track how well the College is meeting its goals and to demonstrate its progress to the NDUS.

Analysis of data and information is shared to the campus community through the variety of communication avenues addressed in 7P1 and listed in Figure 5.2.

**7R1** BSC, the North Dakota Information Technology Department (ITD), and the NDUS collect and analyze measures of performance and effectiveness of the networks, security, data recovery system, and Peoplesoft Enterprise Resource Planning (ERP) systems.

ITD is the owner of the statewide network system, STAGEnet. ITD collects network usage information to ensure they provide sufficient bandwidth to each of the NDUS member campuses. ITD expands the bandwidth to the campus when the data they collect dictates a trend of increased bandwidth to the Internet is required. The data collected includes, but is not limited to incoming and outgoing traffic by protocol (i.e., TCP, UDP, Multicast, ICMP, etc.) and by service (i.e., HTTP, FTP, SMTP, Peer-to-Peer, etc.). The data is shared with the campus via usage graphs indicating daily, weekly, monthly, and yearly usage. NDUS analyzes the data collected by ITD, checking for systems displaying compromised symptoms. Systems displaying compromised symptoms are removed from the respective campus networks for remediation.

BSC's network is separated into multiple VLANs (Virtual Local Area Networks). VLANs are designed to provide a layer of security segregation between local networks as well as allowing traffic to flow more efficiently within populations of mutual interest. BSC uses network monitoring tools to collect network data and generate reports based on usage by server, VLAN, and by building. The data collected can be reported based on a requested start time and ending time. The data collected is also used for trending usage by servers, VLANs, and by building. The network monitoring tools are also used to quickly notify the appropriate administrators of failed networking equipment.

Campus ERP systems (human resources/payroll, finance, academic records, library system, etc.) are provided by the NDUS. An extensive set of NDUS policies and procedures govern the provision and use of computer systems that all System colleges must follow. The NDUS monitors performance of the ERP systems to measure their effectiveness. Backups of the ERP data are kept by the NDUS and backups are kept of local systems by BSC. The intended use of the backup data is for disaster recovery.

The Campus Quality Survey is used to ascertain employee perceptions about the measurement, use, and effectiveness of data and information at the College. The results of the CQS are shared with the campus through presentations, email, and reports. Video presentations are shared on the CORE portal.

**7R2** In addition to the evidence presented in question 7R2 related to network and systems security and monitoring, regular reports are submitted to the NDUS from each of the System colleges. National academic databases also require timely and accurate reporting. To keep up with the increased need for data and security, additional staff has been added to the Information Technology department. In addition, three institutional research staff members have been hired to meet the goals of the Title III grant and to increase institutional research capacity.

In 2011, Bismarck State and the other NDUS colleges participated in a systematic process for risk assessment identification and for the evaluation of probable adverse conditions or events and the potential effects on the institution. Below are the report's recommendations for BSC that relate to Measuring Effectiveness and the College's response.

Functional Area/Process	Recommendation	BSC's Response
Information Technology	Develop and maintain a formal disaster recovery plan	Work has begun on the plan; estimated completion in 6-9 months
	Secure wireless networks	Networks encrypted; NDUS is working on a more robust encryption system for all colleges in the near future
	Improve system capabilities to produce data reports as needed	Reporting Solutions developed that allows for greater access to data
	Assess the need to develop and maintain an information security plan	Information security is governed by NDUS policy and procedures that establish rigorous standards for information security; these policies and procedures function as a plan for the System colleges
Governance	Develop a central repository to maintain statistical data	Through the Title III grant improved access to data is centralized through CORE

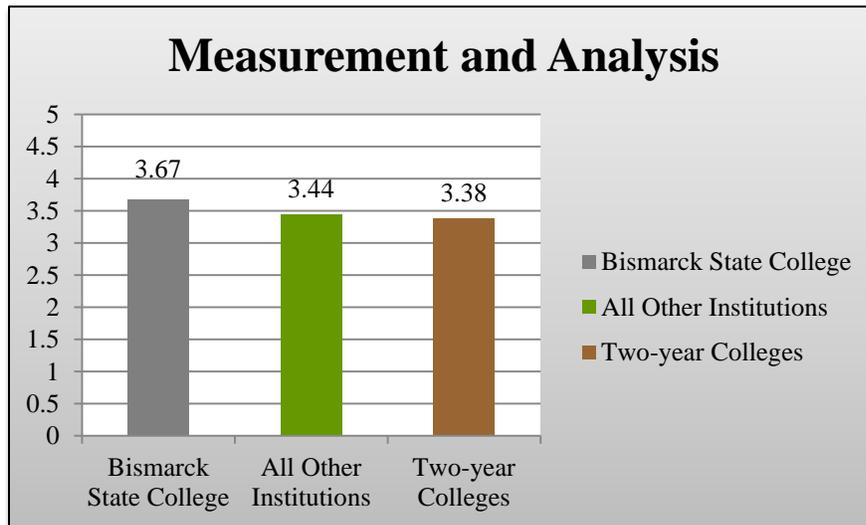
**Figure 7.2 Risk Assessment Report recommendations and BSC response**

Eight survey items from the Campus Quality Survey in the area of Measurement and Analysis provide evidence of employee satisfaction with the College's system of Measuring Effectiveness. Overall, the performance gaps for the Measurement and Analysis scales are quite small. The results for most statements in the section indicate employee satisfaction. Only one statement, *this institution analyzes all relevant data before making decisions*, has a performance gap over 1.000 indicating a higher level of dissatisfaction. With continued progress we are making related to this category, we anticipate that the performance gap for this statement will decrease. The remaining statements indicate that employees have a significant degree of satisfaction with measurement and analysis at BSC.

Scale	How It Should Be	How It is Now	Performance Gap
	Mean	Mean	Mean
<b>Measurement and Analysis</b>	<b>4.384</b>	<b>3.671</b>	<b>0.712</b>
It is easy to get information at this institution	4.498	3.516	0.982
This institution has "user-friendly" computer systems to assist employees and students	4.543	3.713	0.830
This institution uses state and national data to compare its performance with that of other institutions	4.215	3.918	0.297
This institution continually evaluates and upgrades its processes for collecting data	4.259	3.630	0.630
Efforts to improve quality are paying off in this institution	4.385	3.901	0.584
Employees are encouraged to provide suggestions on ways to improve the work flow	4.416	3.824	0.593
Administrators share information regularly with faculty and staff	4.446	3.761	0.685
This institution analyzes all relevant data before making decisions	4.420	3.333	1.087
Quality improvement tools and methods are used regularly to solve problems	4.263	3.544	0.719

**Figure 7.3 Measurement and Analysis, Campus Quality Survey 2012**

**7R3** In the Measurement and Analysis category of the Campus Quality Survey of 2012, BSC scored higher than other colleges. The chart below shows the *how it is now* mean score comparisons of BSC to colleges nationwide.



*Figure 7.4 National comparisons of Measurement and Analysis, CQS*

Performance gap comparisons of BSC and nationwide two-year colleges are shown below:

Scale	Bismarck State College	National Norms of Two-Year Colleges
It is easy to get information at this institution	0.982	1.244
This institution has “user-friendly” computer systems to assist employees and students	0.830	1.100
This institution uses state and national data to compare its performance with that of other institutions	0.297	0.725
This institution continually evaluates and upgrades its processes for collecting data	0.630	0.887
Efforts to improve quality are paying off in this institution	0.584	0.957
Employees are encouraged to provide suggestions on ways to improve the work flow	0.593	1.260
Administrators share information regularly with faculty and staff	0.685	1.189
This institution analyzes all relevant data before making decisions	1.087	1.419
Quality improvement tools and methods are used regularly to solve problems	0.719	1.094

*Figure 7.5 Performance gap comparisons, Measurement and Analysis, CQS*

**7I1** BSC improves its processes for measuring effectiveness by systematically reviewing the college’s strategic plan, regularly monitoring the data, and making changes to assess needs, strengths, and weaknesses. The Operations Council, individual departments, and cross-functional teams evaluate processes for measuring effectiveness and suggest changes for data gathering and analysis as needs are identified.

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Since our last systems portfolio, a number of changes have been made to improve access to data and information. Databases of information have been developed and a data analyst was hired in information technology services. The data analyst is skilled at querying our enterprise system for specialized information and reports. Previously, getting information from the system was difficult and required the help of the NDUS specialists, often a slow process that did not provide the data in a timely manner.

We have increased our use of TracDat, a data tracking software, for student learning assessment and tracking progress on the strategic plan and other initiatives. A major goal was to establish a single repository to centralize data/information that filters requests and assists with analysis. To meet that goal, SharePoint was purchased and a campus portal, CORE (Collaboration, Organization, Reporting, Efficiency), was developed to centralize data and make it more accessible to employees. Employees are receiving training in the use of SharePoint and are finding it to be an effective way to access and share data and other information. Departmental SharePoint sites have been developed and are proving to be valuable for providing information to the campus. Departments are also finding SharePoint useful for the collaboration and sharing of information internally in a department. In addition to the various departmental sites, general campus information, data, and reports are available.

BSC administers a number of surveys, both commercial and institutionally developed. We have improved the sharing of the surveys to campus. Reports are written summarizing the data, presentations are made to groups of employees, and charts and PowerPoint presentations are created in an effort to ensure that everyone has access to pertinent survey results. The results are also added to CORE and made available on the public website. The reporting of results, once sporadic, is now a systematic and consistent activity.

**7I2** BSC has made significant strides in developing a culture of evidence and data-driven decision-making. Establishing the Office of Institutional Effectiveness and Strategic Planning demonstrates administrative recognition and support for greater focus on data, accountability, planning, and effectiveness. An AQIP Action Project to systematize institutional effectiveness efforts is helping to foster an effectiveness mindset.

The awarding of a \$1.9 million Title III grant has allowed the college to improve our infrastructure for acquiring and sharing data. We were also able to hire three additional employees to assist with data gathering and use, institutional research activities, and assessment and evaluation. BSC employees are increasingly recognizing the value of strong research capabilities and institutional effectiveness. With the additional Title III staff, we are able to provide help and services to all employees as they seek to make sound decisions based on reliable and pertinent data.

A suggestion of our last Systems Appraisal was for BSC to join the National Community College Benchmark Project. We did so and received our first report in August of 2012. The results allow us to compare ourselves to other community colleges and they help us to set targets for improvement. Other surveys results also are used to select processes and determine targets for improvement.