Benchmarking in Higher Education: A Framework for Benchmarking for Quality Improvement

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Abstract

This paper is intended to develop a contextualised benchmarking framework for quality improvements purposes at a polytechnic in the Kingdom of Bahrain. It describes the benchmarking framework in terms of its definition, purpose and types. Further, the internal and external expectations of benchmarking have been identified through revising and analysing key strategic documents. In addition, the criteria for selecting benchmarking partners that are appropriate to the Polytechnic have been set out. To make the benchmarking activities more effective, they were integrated with existing processes. Moreover, roles and responsibilities for carrying out benchmarking activities were provided. Finally, the benchmarking methodology, communication of findings, and conclusion were provided.

Introduction

Nowadays the business world is characterised by fast change and its dominant strategy is to enhance quality and productivity i.e. work effectively and pay off. To do so organisations are striving to make a difference and reach the best expectations of their stakeholders through continuous study and analysis of what that market has to offer and try to match it or better exceed it. It is important though to ensure that the organisation has its own unique offerings and as the Father of the Quality Evolution once said "To copy is to invite disaster" (Deming, 2000).

Bahrain Polytechnic has an obligation and desire to ensure excellence in academic and business practices as stated in its strategic plan. It seeks to achieve a robust quality enhancement process to ensure an environment of Excellence, Learning and Innovation. This commitment to excellence is underpinned by powerful elements, tools and an efficient system. Accordinly, benchmarking is a critical tool for quality improvement in higher education. The desire to learn from each other, share aspects of good practice and promote new and innovative thinking about problems is an effective method to support continuous improvement.

Methodology

This study describes a contextualised benchmarking framework for a higher education institution that offers applied professional education. The institution is in the Kingdom of Bahrain. It aims at developing a theoretical framework through document analysis of major literature reviews that relate to benchmarking practice in higher education and key documents that relate to Bahrain and the institution. Further, the developed framework was presented to

the concerned stakeholders for revision and feedback. The framework was finally approved by the concerned committees.

The Benchmarking Framework
This section describes the benchmarking framework in terms of its definition, purpose and types. In addition, it highlights both Bahrain Polytechnic and external agencies expectations. The criteria for selecting benchmarking partners are listed and the comparison of data and information benchmarks for the Periodic Programme Review and for the Annual Report are identified. Further, the benchmarking cycle, critical questions to answer when undertaking a benchmarking for a Process, roles and responsibilities for carrying out benchmarking activities, benchmarking methodology and communicating findings are explained.

1.1 Contextualised Benchmarking Framework
It is important to develop a contextualised benchmarking framework to ensure fitness for purpose. As mentioned by Hasan (2015, p. iii), the "non-contextualised improvement models so often fail to enhance quality outcomes for students". Further, contextualised frameworks serve different departments and faculties at Bahrain Polytechnic and not as a "one size fits all solution". Hasan (2015, p. 1) found out that "there was little buy-in to the process if it was not contextualised to the local requirements and culture '*the way of doing things*' in Bahrain". (Wittek & Vernbek, 2011, p. 683) indicated that a "contextualised definition will help employees at the institution to avoid the boundary problem and the consequential grey zones of operation, stemming from working with a vague concept".

In this framework as suggested by (Hasan, 2015, p. 161) a range of "user friendly terms and appropriate metaphors as worthy enablers for a contextualised model has been used. Words were chosen carefully for the essential components of the contextualised framework" that reflect Bahrain Polytechnic. The below section shall discuss the contextualised benchmarking definition for Bahrain polytechnic.

1.2 Definition of Benchmarking
"The first time when the term benchmarking was used was when cobblers started to measure people's feet for shoes. Cobblers would place someone's foot on a "bench" and mark it out to make the pattern for the shoes. Particularly benchmarking is mostly used for measuring performance using a specific indicator" as stated by (Bhandari & Verma, 2013, p. 370), which in our framework we shall refer to as a benchmark. A benchmark is a point of reference against which something may be measured.

Several organisations have defined benchmarking. For instance, the Education and Training Quality Authority (BQA) defines Benchmarking as a formal process of comparing data on certain programme specifications or aspects or processes used to manage the programme between similar programmes offered by different institutions or between different programmes within one institution while the Arab Network for Quality Assurance in Higher Education (ANQAHE) defines Benchmarking as a process of comparison of the academic standards of a programme, the quality of service, or the quality or product, with similar institutions locally, regionally or internationally. Campbell and Rozsnyai (2002, p. 131) defined benchmarking as "setting levels against which quality is measured or a process of identifying and learning from good practice in other organizations". Finally, the International Network for Quality Assurance Agencies (INQAAHE) defines Benchmarking as a "process that enables comparison of inputs, processes or outputs between institutions (or parts of institutions) or within a single institution over time" (The International Network for Quality Assurance Agencies in Higher Education, 2016, p. 5).

In conclusion benchmarking is an essential exercise that organisations undertake these days to improve and make a positive change. It is the process of gauging an organisation's internal processes then recognising, understanding and adapting best practices from other extraordinary organisations. In addition, it does not mean replication. Your business is not exactly like any other, however it is vital to discover which business processes the organisation must follow and to increase the awareness of how much to learn from other successful organisations.

1.3 Purpose of Benchmarking

The purpose of benchmarking is to gauge the Polytechnic's performance in achieving its strategies which shall result in continuous improvement and encourages collaboration. It shall also inform the Polytechnic of its comparative activities and performance.

1.4 Types of Benchmarking

To carry out a successful benchmarking activity it is crucial to identify the type of the needed benchmarking. In literature, there are numerous categorisations of benchmarking due to the wide use of the benchmarking concept in different disciplines. Each type is appropriate and useful for a particular situation. For the purpose of this framework, there are widely accepted types of benchmarking including the following as indicated by Bogan & English (1994). These types include internal (between divisions within the same organisation); competitive (with direct competitors); industry (within the same industry but not with a direct competitor) and generic (comparing process and practice irrespective of the industry).

There needs to be a rationale to support the proposed type of benchmarking. The type of benchmarking depends on the organisation requirements for undertaking certain benchmarking activities. The sections below discuss the Polytechnic expectations and external requirements of a benchmarking framework.

1.5 Bahrain Polytechnic Expectations

Understanding internal expectations of the benchmarking framework is essential to develop a fit for purpose framework. As a result, several internal key documents have been examined. These documents include Bahrain Polytechnic Royal Decree, vision, mission, values and definitions. As for Bahrain Polytechnic Royal Decree several points have been identified that relate to benchmarking activities. These points include collaborating with similar polytechnics in other countries to provide joint programs, when necessary and collaborating with similar internationally recognized polytechnics in the issue of certificates granted by the Polytechnic (Royal Decree No. 65, 2008).

Further, Bahrain Polytechnic vision, mission, values and definition have identified several issues that needs to be considered when undertaking comparison of data and information or benchmarking activities. The elements that need to be benchmarked with other providers locally, regionally and internationally should focus on applied education, career pathway, learning, innovation, excellence, world-class practice, 21st century skills including work-ready, enterprising graduates (Bahrain Polytechnic, 2013).

1.6 External Agencies Expectations

Several external agencies have been considered to understand their expectations in relation to benchmarking. These agencies include the Economic Development Board (From Regional Pioneer to Global Contender: The Economic Vision 2030 for Bahrain), the Cabinet Affairs (Government Action Programme), BQA and Higher Education Council. The Economic Vision 2030 has stated 7 elements that are focusing on enhancing education. These elements include the following (Economic Development Board, 2008, pp. 6-20):

- A first-rate education system enables all Bahrainis to fulfil their ambitions.
- Provide Bahrainis with the skills, knowledge and values that they need to become the employees of choice for high-valued added positions.
- Develop an education system that provides every citizen with educational opportunities appropriate to their individual needs, aspirations and abilities.
  Education and training need to be relevant to the requirements of Bahrain and its economy, delivered to the highest possible quality standards, and accessible based on ability and merit.
- Focus on developing our most important educational resource, our teachers, by improving their recruitment and training, enhancing the management of their performance, improving their image in society, and increasing the attractiveness of careers in teaching.
- Provide quality training to our people in the applied and advanced skills required for global competitiveness and attract new industries to Bahrain.
- Encourage research and development in universities to create the platform for a knowledge-based economy.

In addition, the Government Action Programme 2015-2018 has highlighted key expectations of the higher education sector in Bahrain. These expectations aim at sustaining long-term effort to support the advancement of the education sector and scientific research that includes the following (Cabinet Affiars, 2015):

- To work towards harmonizing higher education in pursuit of current and future local and regional priorities and labour market requirements.
- Employing education technology to make a significant leap in the higher education sector in Bahrain.
- Establish a national research governance.
- Promote research capacity in universities, improve public awareness and understand research and innovation mechanisms, while addressing national research priorities.
- Developing the capacity of academic faculties in local universities, which contributes to the high level of achievement and rehabilitation of students.
- Implement the academic accreditation system.
- Develop a mechanism to introduce new academic programs and review existing programs to ensure that they keep up with the developments and needs of the labour market.
- To promote the integration of academic institutions, industry and national economy institutions.

Further, the Education and Training Quality Authority (BQA) summarises its expectations of benchmarking that needs to take place in Bahrain Higher Education Institutes as stated in the handbook for institutional and programme review. The BQA focuses on benchmarking or external comparison of the adequacy of ICT services and benchmarking of the adequacy of facilities with other institutions or through comparative surveys. Further, the Polytechnics' academic standards of its graduates are compatible with equivalent programmes in Bahrain, regionally and internationally (Education & Training Quality Authority, 2009). This needs to be practiced through benchmarking activities or comparison of data. The BQA emphasises on the benchmarking process in terms of the choice of what is benchmarked and what it is against, how the process is managed and how the outcomes are used. The following section discusses the selection criteria for the potential benchmarking partner for the Polytechnic.

1.7 Potential Benchmarking Partners

A wide range of higher education institutions world-wide are potentially suitable as benchmarking partners. A main feature to consider is how superior the potential benchmarking partner in a specific process is. The section below discusses all other criteria in detail. While undertaking benchmarking activities access to the right information is quite challenging. As a result, it is recommended to consider existing Polytechnic networks such as the Postsecondary International Network (PIN) that has been established in 2009 which includes many education institutions in Australia, Canada, New Zealand, the United Kingdom, United States, and other countries in the world.

1.8 Criteria for Selecting Benchmarking Partners

To ensure positive outcomes from benchmarking activities, selecting an appropriate benchmarking partner is crucial and one of the potential challenges. As a result, setting the criteria to select the most suitable partner is highly recommended. According to literature and good practice, the following points should be taken into consideration prior to and while selecting a benchmarking partner. These points include determining the parameters or indicators to measure the benchmarking area and identifying the higher education provider that demonstrates a record of good performance in the area(s) to be benchmarked. Further, it is recommended to select at least two or more benchmarking partners to allow more options. The following table describes the criteria for selecting the benchmarking partners.

**Table 1: Criteria for Selection of the Benchmarking Partners**

Mandatory Criteria
Has a good reputation in the area to be benchmarked
Universities which have a compatible mission, vision and values
Universities which have a commitment to quality enhancement and a 'readiness to share'
Additional Criteria (recommended)
Universities with which Bahrain Polytechnic has a memorandum of understanding or other agreement.
Universities which are of comparable size to Bahrain Polytechnic.

1.9 Comparison of Data and Information

As indicated in INQAAHE "comparison information usually ends with what has been achieved, whereas benchmarking is also fundamentally concerned with how the performance and data has been achieved" (The International Network for Quality Assurance Agencies in Higher Education, 2016, p. 5). The Polytechnic values the comparison of data and information as well as benchmarking activities. As a result, comparison of data and information shall be carried out for critical aspects that are linked to its vision, mission and the national strategy for higher education. The below part explains the 'benchmarks' that the Polytechnic shall use for the comparison of data and information at both programme and institutional level.

1.10 Communications Triangle for Effective Benchmarking Practice

As mentioned above the availability of data and information are crucial to undertake benchmarking exercises in Bahrain. Albuainain (2012) developed an initial communication framework that includes four components: A represents the higher education authority, U the universities and E the employers and their newly hired graduates to represent the views from the labour market, while point S represents employability skills (refer to Figure 1).
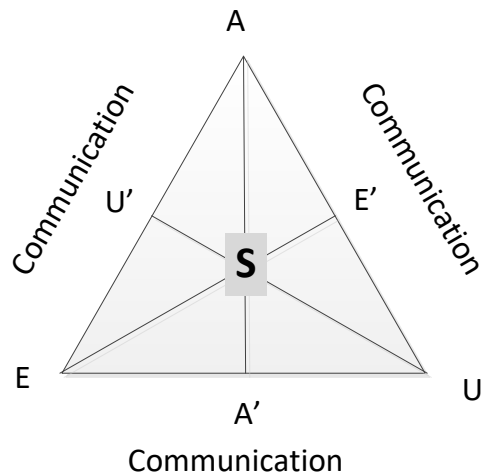
Figure 1: Communications Triangle for Effective Benchmarking Practice

This framework highlights the importance of ideal communications between the three parties, i.e. equal communication between each pair of stakeholders where in return the information identified will ensure a successful benchmarking exercise leading to effective enhancements.

1.11 Benchmarks for Periodic Programme Review and the Annual Report

Several key documents at national and polytechnic level have been reviewed including the National Strategy for Higher Education (Higher Education Council, 2014), the National Strategy for Research and Innovation (Higher Education Council, 2014a) as well as the Polytechnic's key statements. Table 2 sets out the benchmarks for performance and their linkage with the Polytechnic's vision, mission and values. This table shall be used as part of the Periodic Programme Review which shall take place every 4 years. This will allow each programme to monitor its progress against the identified benchmarks. Further, it lists the benchmarks for performance at institutional level and their linkage to the Polytechnic's vision, mission and values. This exercise shall be carried out as part of the Annual Report every 4 years.

Table 2: Benchmarks for Periodic Programme Review and Annual Report

Benchmarking of Performance	Level	Linkage to Government Action Programme, Bahrain Polytechnic Royal Decree, Vision, Mission and Values
- Number of accredited majors - Number of programs accredited locally or internationally	- Programme - Institutional	World Class –Vision Government Action Programme - Implement the academic accreditation system Royal Decree - Collaborate with similar internationally recognized polytechnics in the issue of certificates granted by the Polytechnic
- Increase in the rankings of the programme regionally and internationally	- Programme	World Class - Vision
- Number of majors placed in the Bahrain Qualifications Framework	- Programme	QQA Compliance Government Action Programme - Implement the academic accreditation system
- Satisfaction rate of employers on new graduates	- Programme	Mission - 21 century skills and work ready graduates

Benchmarking of Performance	Level	Linkage to Government Action Programme, Bahrain Polytechnic Royal Decree, Vision, Mission and Values
- Overall satisfaction rate of employers on new graduates	- Institutional	Royal Decree – Provide applied and technical education to qualify its students to enter the labour market effectively and efficiently Royal Decree - To provide the Kingdom with professional, technicians and experts in technical, professional and applied fields. Government Action Programme - Achieving the requirements of the labor market
- The employment rate of graduates - The overall employment rate of graduates	- Programme - Institutional	Mission - 21 century skills and work ready graduates Royal Decree - To work with the private sector on designing educational and training programs commensurate with labour market requirements to create real employment opportunities for students upon graduation.
- Number of students who gained professional certificates along with their degree	- Programme	Mission - 21 Century skills PAD
- Number of students enrolled in lifelong learning	- Institutional	Value – Learning
- Number of majors offering work-based degrees	- Programme	Mission - Enterprising graduates To provide education and training programs which keep abreast of economic trends and labour market requirements in the Kingdom Government Action Programme - To promote the integration of academic institutions, industry and national economy institutions.
- Increase in the number of students in science, technology, engineering and mathematics (STEM)	- Institutional	Vision – Applied higher education
- Increase in the number of accredited blended/online major - Increase in the number of accredited blended/online programmes	- Programme - Institutional	Vision - World class Diversification in teaching, learning, and Long-life learning. Government Action Programme - Employing education technology
- Regional and international accreditation of Bahrain Polytechnic	- Institutional	World Class – Vision
- International partnership with Bahrain Polytechnic	- Institutional	Vision – World class provider
- Number of international and regional students at the undergraduate and graduate level	- Programme & Institutional	Vision – World Class
- Students satisfaction on IT infrastructure - Overall students' satisfaction on IT infrastructure	- Programme - Institutional	World Class facilities – Vision Government Action Programme - Employing education technology
- Faculty satisfaction on IT infrastructure - Overall faculty satisfaction on IT infrastructure	- Programme - Institutional	World Class facilities – Vision Government Action Programme - Employing education technology
- Access to online resource centres	- Programme & Institutional	Values – Learning Government Action Programme - Employing education technology
- Number of majors offering entrepreneurship training programs - Number of programmes offering entrepreneurship training programs	- Programme - Institutional	Bahrain Polytechnic Definition - 21 Century skills necessary for the needs of the community Career Focused Programmes

Benchmarking of Performance	Level	Linkage to Government Action Programme, Bahrain Polytechnic Royal Decree, Vision, Mission and Values
- Number of students going through entrepreneurship training programs	- Institutional	Mission – Enterprising graduates
- Percentage of students starting their business during university	- Programme & Institutional	Mission – Enterprising graduates
- Percentage of students starting their business post- university	- Programme & Institutional	Mission – Enterprising graduates
- Number of technology incubators / start-ups by graduates in Bahrain	- Programme	Values – Innovation Government Action Programme - Employing education technology
- Ratio of successful ideas to ideas submitted for staff members at programme level (subject to developing a process to collect innovative ideas) - Ratio of successful ideas to ideas submitted for staff members (subject to developing a process to collect innovative ideas)	- Programme - Institutional	Values – Innovation
- Ratio of successful ideas to ideas submitted for students at programme level (subject to developing a process to collect innovative ideas) - Ratio of successful ideas to ideas submitted for students (subject to developing a process to collect innovative ideas)	- Programme -Institutional	Values – Innovation
- Number of active patents registered with national or international patent offices at programme level - Number of overall active patents registered with national or international patent offices	- Programme - Institutional	Values – Innovation
- Number of papers published per major - Overall number of papers published	- Programme - Institutional	Research 5 % of Budget allocation Royal Decree - To promote applied research Government Action Programme - Promote research capacity in universities
- Number of citations per major - Overall number of citations	-Programme - Institutional	Research 5 % of Budget allocation
- Number of provided social activities to support local community	- Programme & Institutional	Values – Learning
- Ratio of computers to students	- Institutional	World Class facilities – Vision
- Ratio of area per student	- Institutional	World Class facilities – Vision
- Ratio of full-time faculty to full-time students	- Institutional	World Class – Vision
- Ration of full-time faculty to full-time administrative staff	- Institutional	World Class – Vision
- Value for money per student	- Institutional	World Class – Vision International Practice

1.12 Benchmarking Cycle

The benchmarking exercise shall take place at programme and institutional Level every 4 years. The programme benchmarking shall be part of the Periodic Programme Review while the institutional benchmarking shall be part of the Annual Report (refer to Table 2). The idea of including benchmarking activities within the Periodic Programme Review and Annual Report is to ensure that benchmarking shall take place on a systematic way i.e. regularly and not a onetime process as well as to track the Polytechnic's performance progress compared to the selected benchmarking partners. On the other hand, benchmarking for a certain process, service or product shall be carried out as needed and according to the approved procedures.

1.13 Roles and Responsibilities for Carrying out Benchmarking Activities

The Quality, Measurement, Analysis and Planning Directorate (QMAP) shall develop the benchmarking framework and ensure it is valid. Each programme shall produce the benchmarking of performance table during the Periodic Programme Review process. Relevant data will be requested from the data owner. QMAP shall produce the benchmarking of performance table when they develop the annual report. Relevant data will be requested from the data owner. Finally, with regards to benchmarking for a process the requester shall carry out the benchmarking activity based on the approved procedures.

1.14 Benchmarking Methodology

The Benchmarking methodology is an important part of this framework. There are several methodologies that relate to benchmarking. Two methodologies have been selected to be used by Bahrain Polytechnic staff members while carrying out the benchmarking activity. The following section explains the benchmarking methodologies.

- **Corporate Benchmarking Methodology**

The first methodology shall be used in processes that relate to corporate activities. This methodology is adapted from the American Productivity Quality Centre (American Productivity Quality Centre, 2017). It includes four phases; Plan, Act, Analyse and Adapt (refer to the table below). It is worth mentioning that this methodology is widely used in the world for benchmarking activities due to its flexibility in application and focus on results (Bain & Company, 2009).

Table 3: Benchmarking Methodology for Corporate Processes

Phase	Elements to be covered
Plan	- Decide which area or process to be benchmarked. - Form the benchmarking team.
Act	- Prepare comprehensive benchmarking proposal. - Determine the potential partner. - Communicate with the potential partner to get the permission and initial approval to sharing the required information. - Complete the benchmarking partner selection checklist.
Analyse	- Carry out the benchmarking activity. - Determine current performance gaps. - Develop improvement actions plan.
Adapt	- Implement the improvement plan. - Recalibrate. - Plan for continuous improvement.

- **Academic Benchmarking Methodology**

The second methodology is adapted from INQAAHE. This methodology shall be used for academic benchmarking activities (refer to the table below). The INQAAHE methodology includes five phases; Plan, Act, Evaluate, Review and Improve (The International Network for Quality Assurance Agencies in Higher Education, 2016).

Table 4: Benchmarking Methodology for Academic Processes

Phase	Elements to be covered
Plan	Develop the initiative that includes what? And Why? - Identify the benchmarks and understand it. - Form the benchmarking team. - Develop a plan. - Develop hypotheses about what expected issues, trammels and gaps may be.
Act	Implement your plan which includes all the activities that are undertaken to achieve objectives and complete the benchmarking project. - Identify stakeholders and develop necessary communication channels to communicate and get the required data. - Communicate with the potential partner to get the permission and initial approval to sharing the required data. - Complete the benchmarking partner selection checklist. - Gain stakeholders' approval and support for the chosen partners. - Carry out the benchmarking activity.
Evaluate	Check the results and make further improvements (short-term and medium-term). - Measure and study the results. - Determine current performance gaps. - Root cause analyses - Study effected factors. - Implement the best solutions - Develop improvement actions plan.
Review	Monitoring and inspection (long-term). - Establish improvement plan.
Improve	Test and evaluate whether the solutions have worked or not.

In summary, each benchmarking methodology is a loop, not a process with a beginning and an end. In other words, the areas to be improved become the new baseline for another benchmark and it need to be continuously improved to make the targeted process even better to enhance its effectiveness.

1.15 Critical Questions to Answer When Undertaking a Benchmarking for a Process

Considering the benchmarking methodology described above it is necessary to address several critical questions while undertaking any benchmarking activity. The European Commission for Benchmarking suggests several questions when undertaking a benchmarking for a process (The European Commission for Benchmarking, 2017). These questions are "how well are we doing compared to others? how good do we want to be? What are our objectives? who is doing it the best? how do they do it? how can we adapt what they do to our institution? and how can we become better than the best?"

Prior to undertaking the benchmarking activity, a full proposal must be submitted to QMAP. This proposal is critical to ensure that the benchmarking activity is fit for purpose. The following section outlines the benchmarking proposal elements.

1.16 Elements of the Benchmarking Proposal

It is necessary to prepare a full benchmarking proposal prior to conducting the actual benchmarking study. The intention of this proposal is to assist QMAP in understanding the expectation of the requester to undertake the needed benchmarking activity and provide the approval accordingly. It will further, guide the implementer of the way to carry out the entire benchmarking activity. The requester should address all aspects outlined in the proposal in the final benchmarking study report. The 10 elements that needs to be covered in the proposal are there needs to be a rationale to support the need to undertake the benchmarking, the key objective(s) for the benchmarking project, the benchmarking scope, the expected outcomes, the Type of Benchmarking which is being undertaken, resources for Benchmarking including financial resources where applicable, reference points, benchmarking partners, limitations and timeline. Once the benchmarking activity is completed sharing the findings and improvement actions are important. The following section explains the communication of findings practice.

1.17 Communicating Findings

Benchmarking is considered a learning tool that helps higher education institutions to learn from each other. As a result, positive enhancement should take place to improve learning and teaching practices i.e. the core business. To achieve this, the key findings of the benchmarking exercises should be communicated effectively to the institution community. It is highly recommended that all concerned people are involved in the discussion of the benchmarking findings to ensure buy-in and ownership. The emerged findings should be translated into actions and implemented. The effectiveness of the implementation needs to be tested and measured as well as the impact of these improvements.

To sum up, this study shows the importance of developing a comprehensive benchmarking framework that is contextualised to the institution and national expectations. This will enable staff members to undertake benchmarking activities by referring to the framework elements. The next step is to start piloting this framework and revise it based on the lessons learnt from the pilot.

Conclusion

To develop a contextualised framework the internal and external agencies expectations should be understood. The resulted framework shall address the institution needs as well as external agencies requirements. Further, the benchmarking activities should be linked with the existing processes at the institution to ensure a systematic implementation and integration. Benchmarking is a quality improvement tool that can be used effectively to enhance institution practice in relation to core processes.

Benchmarking does not mean replication. Your business is not exactly like any other, it is vital to discover which business processes the organisation must follow and to increase the awareness of how much to learn from other successful organisations. Comparison of data and information usually ends with what has been achieved, whereas benchmarking is also fundamentally concerned with how the performance and data has been achieved. To ensure that institutions are able to undertake benchmarking activities effectively, the availability of data is crucial therefore, the employers, higher education authorities and universities should collaborate in providing data and information.

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