The Use of Quality Management System in Enhancing the Quality Assurance Process

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Abstract

With the vision to become a nationally and globally recognised independent quality assurance body in education and training, the Hong Kong Council for Accreditation of Academic and Vocational Qualifications (HKCAAVQ) is dedicated to continuously improve the quality of its accreditation services. It was against this background that HKCAAVQ launched a Quality Management System (QMS) in 2015. QMS is an IT system which is designed to support the quality assurance process and the daily operation of HKCAAVQ. The paper explores how the application of QMS, especially its knowledge management functions, can facilitate the accreditation process for academic and vocational qualifications.

Keyword(s): Academic and vocational qualifications, accreditation, knowledge management, quality assurance

Introduction

This paper examines the use of information technology in the work of quality assurance agencies in education and training. In particular, it explores how knowledge management tools can bring innovative insights for improving the process of accrediting academic and vocational qualifications.

The concept of knowledge management is becoming increasingly important in the field of education. Thanks to advancements in information technology, it is now possible to develop analytic tools for exploring large-scale data that generated from education settings. The analyses can help identify meaningful patterns from the data and the findings can be used for formulating strategies to enhance student learning. Similarly, those analytical tools can be applied to the accreditation work of quality assurance agencies.

Accreditation refers to the process of evaluating whether the operations of learning programmes can meet the applicable standards set by an independent external quality assurance agency. Accreditation plays indispensable key role in assuring the quality of education and training and in turn on the competitiveness of human capital. As a result, it is crucial for a quality assurance agency to make the best use of its knowledge assets for continuous improvement to its work.

This current paper uses the Quality Management System (QMS) of the Hong Kong Council for Accreditation of Academic and Vocational Qualifications (HKCAAVQ) as an example to illustrate the application of information technology and knowledge management tools in the accreditation process.

Background of HKCAAVQ

HKCAAVQ, formerly the Hong Kong Council for Academic Accreditation (HKCAA), was established in 1990 as an independent statutory body to provide authoritative advice on academic standards of degree programmes in higher education institutions in Hong Kong. In 2007, the Council was reconstituted under the HKCAAVQ Ordinance (Chapter 1150). HKCAAVQ took on responsibility for the vocational sector and statutory roles as the Accreditation Authority and Qualifications Register Authority under the Hong Kong Qualifications Framework (HKQF) under the Accreditation of Academic and Vocational Qualifications Ordinance (Chapter 592).

HKCAAVQ provides accreditation services to post-secondary education institutions and vocational education and training institutions as well as course providers to perform its statutory duty. Furthermore, HKCAAVQ provides assessment services for the general public in the form of qualifications assessments and advisory and consultancy services in education qualifications

and standards to government bureaux and professional organisations in Hong Kong and outside of Hong Kong subject to approval from the Secretary for Education.

With the vision to become a nationally and globally recognised independent quality assurance body in education and training, it is the strategy of HKCAAVQ to deliver effective, efficient and innovative quality assurance services for academic and vocational qualifications. It was against this background that HKCAAVQ launched a Quality Management System (QMS) in 2015. QMS is designed to support the quality assurance process and the daily operation of HKCAAVQ. It contains a work flow system to standardise and control the work processes for accreditation. Moreover, it is designed with an integrated database for capturing and storing operational data.

Features of QMS

Customer Relationship Management (CRM) System

The CRM system consists of a centralised database containing key information on accreditation, including details of each accreditation exercise, profiles for specialists (i.e. subject experts who serve as members of accreditation panels) and records of operators (i.e. providers of the learning programmes seeking for accreditation). By putting all the data in one place, the centralised database facilitates staff to identify and locate information easily.

Document Management System (DMS)

Connected to CRM, DMS is a centralised electronic filing system for storing all accreditation records and communication records. It is supported by a well-defined indexing and filing system to facilitate the searching of documents.

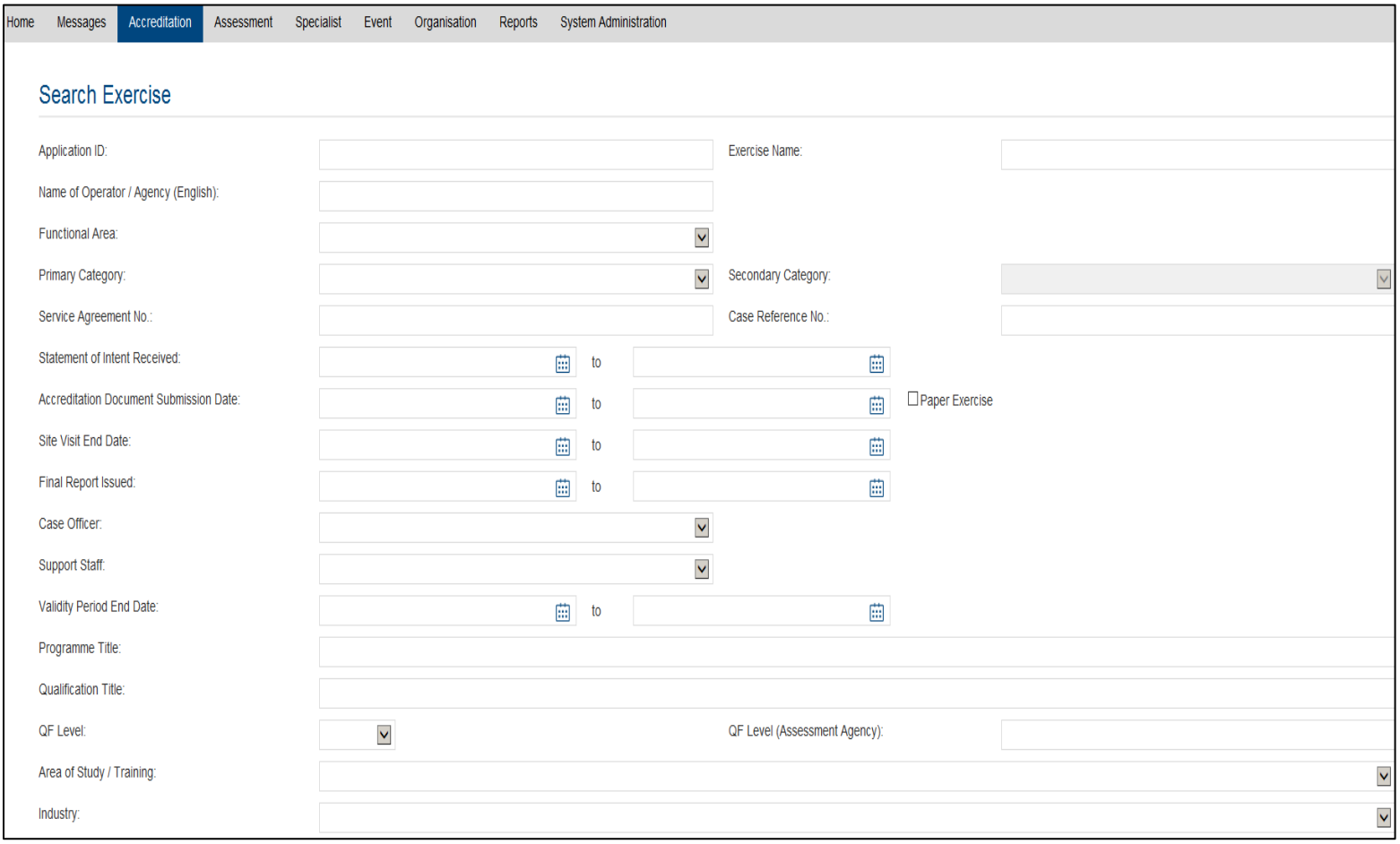
Reporting System

The reporting system consists of a suite of self-service tools for data analyses and report generation drawing on the data kept in the central repository. Staff can make use of the reporting system to generate regular management reports or perform ad-hoc queries to retrieve useful information from the database.

Internet Portal

In order to enhance communication with external parties, there is an interface for operators and specialists to submit and download documents. An alert system is included to send alerts to relevant staff on information updates from operators and specialists.

Figure 1. Interface of QMS



Methodology

Having been implemented for over a year, a study was conducted to review the impacts of QMS on the work of HKCAAVQ. In particular, this paper discusses how QMS is utilised in managing the information assets of HKCCAVQ to strengthen its role as a quality assurance body in education and training.

The user experience from HKCAAVQ staff members who were responsible for conducting accreditation exercises was reviewed to identify how they made use of QMS in their work and how it could benefit their work efficiency and quality.

Findings

The benefits of QMS can be discussed at three different levels: the operational level, management level and strategic level.

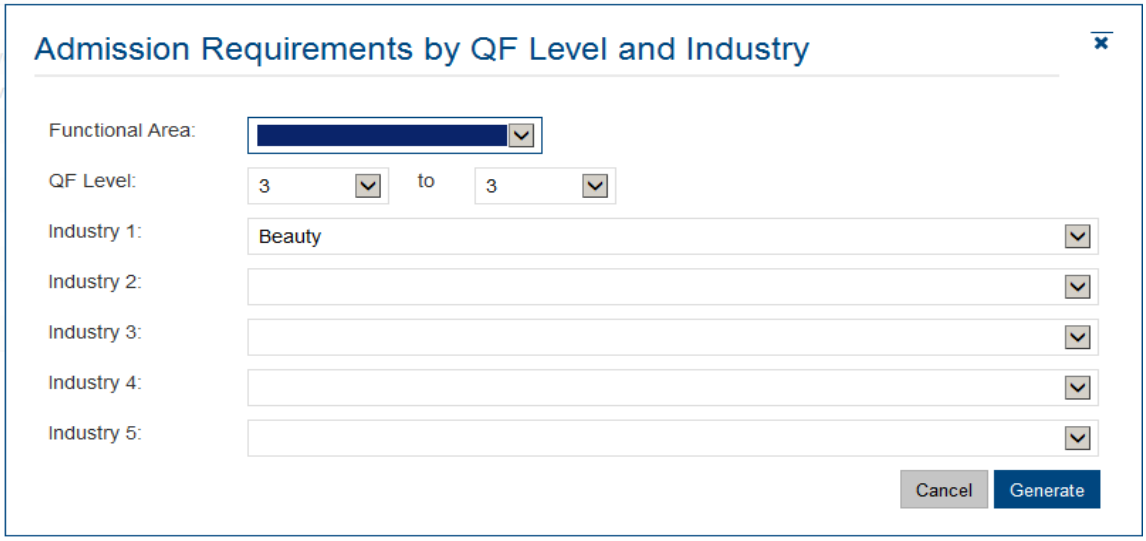
Operational Level: Facilitating the Implementation of Accreditation Process

At the operational level, QMS facilitates the execution of the accreditation process in various ways. To cite but a few, documents are stored digitally and shared among different functional areas. These greatly facilitate the staff to identify and locate the information needed for their work. Moreover, the internet portal can enhance communication and exchange of information between staff and external stakeholders (i.e. operators and specialists).

One of the most prominent benefits of QMS lies in its flexibility of employing query tools to generate useful information for use in accreditation. The central repository of QMS contains information on accredited learning programmes, including qualification titles, learning hours, delivery mode and admission requirements, etc. Up to date, the QMS has stored data for over 1,000 accreditation exercises. Staff can make use of the information to conduct benchmarking analysis and identify common practices in the market for reference.

QMS enables staff to generate a list of admission requirements of learning programmes from a particular industry and at a specified Qualifications Framework (QF) level. This provides a useful reference for the accreditation panels and facilitates them to identify kinds of evidence that are required to evaluate the learning programme against the accreditation criteria. For example, when the admission requirements of a programme show substantial differences from those of similar programmes in the market, it may be necessary to gather more information regarding the positioning of the programme, the targeted groups of learners as well as the teaching and learning methods tailoring to the needs of those learners.

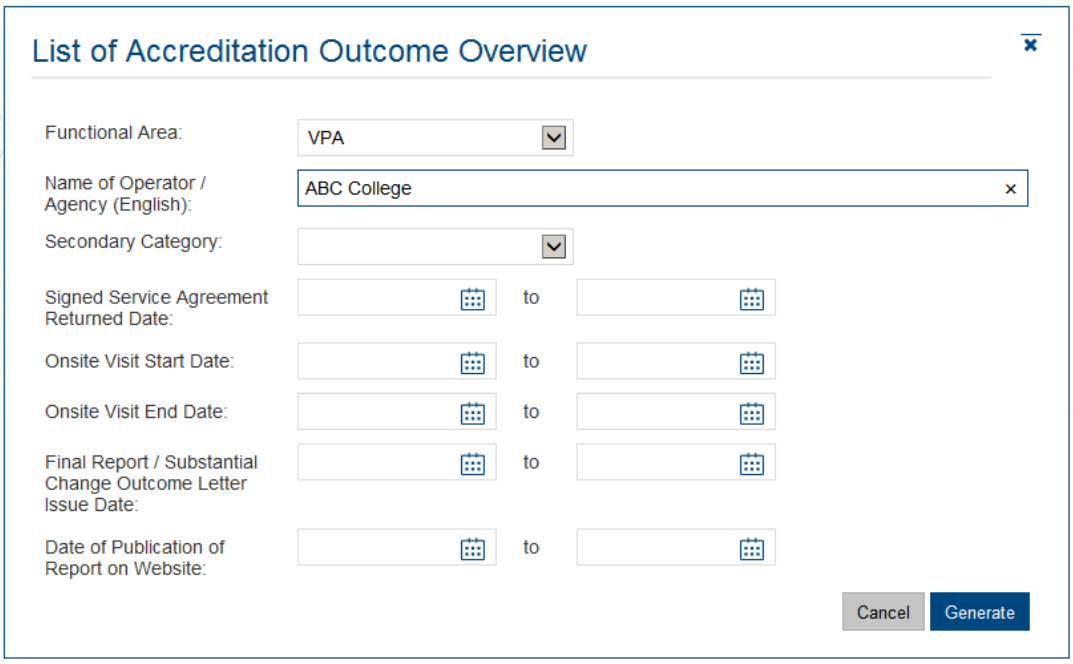
Figure 2. Interface showing search enquiry on admission requirements by QF level and industry



The other key application of QMS is the provision of information for ensuring consistency in determinations among different accreditation exercises, which is one of the major challenges faced by quality assurance agencies.

For the purpose of accreditation, HKCAAVQ has stipulated criteria and standards for evaluating whether an operator or its learning programme(s) can meet its/their stated objectives and QF standards. The criteria and standards cover both institution-wide aspects such as staffing, finance and internal quality assurance mechanism and programme-specific areas such as learning outcomes, programme content and assessment, etc. To complete the accreditation successfully, operators have to demonstrate with supporting evidence that they meet the stipulated criteria and standards. Adopting the principle of “evidence based”, accreditation panels conduct the review and form a judgement by referring to the evidence provided by operators. As operators are different in size, complexity of operation and scope of expertise, types of evidence presented are different and there is no hard and fast rule about which evidence is considered as meeting the criteria and standards. Therefore, sharing the outcomes of previous accreditation exercises, including the rationale on approving/disapproving a programme, conditions stipulated for obtaining or maintaining the accreditation status, can provide accreditation panels with the essential reference and facilitate the adoption of consistent judgement standards. This is particularly useful when a number of accreditation exercises for different learning programmes are conducted concurrently with the same operators. As the institution-wide overarching mechanisms and policies are applied to different learning programmes of an operator, it is crucial to ensure that the same judgement principles are adopted by the different accreditation panels.

Figure 3. Interface showing search enquiry on accreditation outcomes of different accreditation exercises



Management Level: Better Monitoring and Decision Making

From the management perspective, QMS is an important tool for monitoring the accreditation process. QMS provides a standardised workflow and predefined rules to control the accreditation process which ensures consistency of processes and safeguards the quality of the processes. The workflow of an accreditation exercises consists of more than a hundred steps, from forming an accreditation panel, conducting a site-visit to writing of accreditation reports. Before the launch of QMS, it was difficult to monitor the work progress of each staff and check that all steps were conducted properly. With QMS, the whole work process is becoming visible on the system. Staff are required to input work schedules and upload information to QMS. Moreover, staff are required to seek approval via QMS. Staff cannot proceed if there are violations to the defined steps or the required documents have not been uploaded. On the other hand, as the timeline of exercises are recorded in the system, early reminders will pop up to alert the responsible staff members when deadlines are approaching. In cases of overdue exercises, alert messages will be sent to the management. This can help ensure exercises are conducted within the agreed timeline. Moreover, since everything is recorded in the system, management reports can be generated easily to inform management on how the process is going. When exceptions occur, the details of the situation can be easily obtainable for investigation and planning for improvement measures.

On the other hand, QMS can provide quality data for management to make informed decisions regarding the accreditation process. In the recent years, identifying principles and approaches for differentiation in accreditation exercises is a priority in the business plan of HKCAAVQ. HKCAAVQ has been exploring options which would allow more differentiation in how accreditation frameworks are applied to mature operators. Accredited operators will be provided with a customised accreditation scope and/or process in which the degree of customisation is determined by their track records in education/training as ascertained through past accreditation exercises and against the relevant accreditation criteria and standards of HKCAAVQ. Some examples of track records can be evidenced by years of operation after successful accreditation by HKCAAVQ, number and types of programmes that are successfully accredited by HKCAAVQ and outcomes of the previous accreditation exercises. Depending on their level of maturity, the following differentiation approaches are being considered: waiver of site visit, streamlined accreditation submission / site visit, variation in validity period etc.

For differentiation to work there is a need to have robust and justifiable means for recognising maturity and track record, and the means to match this recognition with a proportionate approach to quality assurance. With QMS storing the large amount of data on operators, staff members can generate a full list of previous accreditation exercises conducted with an operator and the associated accreditation outcomes. These kinds of information promote understanding about the operators and allow HKCAAVQ to decide more accurately the scope and evidence required in the upcoming accreditation exercises. The more focused scope can help lighten the documentation load for operators and enhance the efficiency of the accreditation process.

Strategic Level: Continuous Refinements to the Quality Assurance Services

Data generated from QMS can also be used to help HKCAAVQ achieve its strategic objectives. With the mission to safeguard the credibility of qualifications under HKQF and enhance the quality of education and training in Hong Kong, HKCAAVQ is continuously exploring ways to refine its quality assurance framework.

By tapping into the data stored in QMS, HKCAAVQ can conduct analyses to identify factors that are critical to the quality of education and training. For example, QMS can be utilised to understand how operators are performing against particular accreditation criteria. There are a total of ten accreditation criteria for learning programme accreditation. QMS can compile statistics on the number of conditions for obtaining/maintaining accreditation status that are stipulated under different accreditation criteria. The information informs HKCAAVQ of the common strengths and weaknesses of operators and provides insights on actions that have to be taken to enhance the capability of operators.

Table 1 shows an illustration of possible statistics that can be generated from QMS.

Table 1. Distribution of conditions stipulated under different accreditation criteria during accreditation exercises for vocational learning programmes

	Learning Programme Accreditation	**Learning Programme Re-Accreditation**
Accreditation Criteria	%	%
1. Programme Objectives and Learning Outcomes	6	3
2. Programme Content and Structure	27	30
3. Admission Requirements and Student Selection	6	2
4. Teaching and Learning	6	6
5. Student Assessment	23	35
6. Staffing and Staff Development	9	4
7. Financial and Physical Resources	4	3
8. Quality Assurance	18	16
9. Workplace Attachment and Student Support Services	1	0
10. Student Records and Information Management	0	1
Total	100	100

Note: Data extracted from accreditation exercises conducted between Jan 2013 to Nov 2016

As illustrated above, for both accreditation and re-accreditation of vocational learning programmes[1], *"programme content and structure", "student assessment*", and *"quality assurance"* are the top three criteria for which conditions are stipulated. On the other hand, the distribution percentages for most criteria are similar in accreditation and re-accreditation exercises, except that for *"student assessment*". These pieces of information serve as a good starting point that provide direction for more in-depth and detailed investigations to find out critical issues affecting the quality of vocational learning programmes.

[1] According to the "Report of the Task Force on Promotion of Vocational Education", an initiative led by the Education Bureau of the Government of the Hong Kong Special Administrative Region, vocational learning programmes refers to learning programmes with a high percentage of curriculum consisting of specialised contents in vocational skills or professional knowledge that equip learners with necessary practical skills, attitude and knowledge for their effective performance in relevant professions/industries.

The findings can be used to formulate strategies for enhancing capability of operators and shed light on how the current accreditation services can be refined to improve education/training quality.

Furthermore, for strengthening the capacity of operators, HKCAAVQ can make use of the data generated from QMS to segment operators into different groups and make possible the tailoring of training strategies to targeted operators. For example, HKCAAVQ can conduct analyses to compare the performance of different groups of operators, such as academic operators, vocational operators or operators in different industries, etc. Table 2 shows an illustration of possible statistics that can be generated from QMS.

Table 2. Comparison of distribution of conditions stipulated under different accreditation criteria during accreditation exercises for academic and vocational learning programmes

	Academic Learning Programmes	**Vocational Learning Programmes**
Accreditation Criteria	%	%
1. Programme Objectives and Learning Outcomes	9	5
2. Programme Content and Structure	24	28
3. Admission Requirements and Student Selection	7	4
4. Teaching and Learning	3	6
5. Student Assessment	9	28
6. Staffing and Staff Development	22	7
7. Financial and Physical Resources	6	3
8. Quality Assurance	16	17
9. Workplace Attachment and Student Support Services	4	1
10. Student Records and Information Management	0	1
Total	100	100

Note: Data extracted from accreditation exercises conducted between Jan 2013 to Nov 2016

As shown in the above comparison between academic and vocational learning programmes, it is revealed that although the distribution percentages are similar for most criteria, academic learning programmes tend to have more

conditions stipulated under *"staffing and staff development"*. In contrast, *"student assessment"* remains as the biggest challenge faced by vocational operators. The findings can provide valuable information for formulating training strategies. For example, thematic training workshops can be organised for different groups of operators. Moreover, further analyses can be conducted to identify best practices under different criteria. All these allow HKCAAVQ to make best use of its training resources.

Implications and Conclusions

Evaluation of the usefulness and efficiency of a quality management system is crucial to ensure that the benefits of the system are being fully obtained. The above summarises a few examples out of the many benefits that can be derived from QMS. The findings shed light on how effective use of information technology can benefit the work of a quality assurance agency and encourage future development in designing information technology tools for the accreditation process.

The current study is a foundational step in assessing the use of information technology and knowledge management systems on the work of a quality assurance agency for education and training. Knowledge management is an emerging field in education and training. More work is needed to explore how it can bring benefits to student learning. To step forward, more studies should be conducted to explore how knowledge management systems can be applied to the quality assurance process for education/training and critical success factors that a system should possess in order to maximise the benefits.