



Managing Institutional Data for Quality Assurance without ERP Systems: A Practice-Based Approach from a Resource-Constrained College

Kanimozhi B. 

¹ Department of English, Nirmala College for Women(Autonomous), Coimbatore,
Tamil Nadu, India
kaniphd2020@gmail.com

Abstract. Quality assurance processes in higher education increasingly depend on systematic documentation of institutional activities. Accreditation frameworks such as those of the National Assessment and Accreditation Council (NAAC) require institutions to maintain detailed records relating to academic programmes, student progression, research activities, and extension initiatives. Many institutions manage this information through Enterprise Resource Planning (ERP) systems. However, such systems are often financially and technically difficult to implement in government or aided colleges where resources and technical support are limited. This paper discusses a practice-based approach to institutional data management developed during the preparation of accreditation documentation in a resource-constrained college. The approach emerged from the need to organise large volumes of data collected from multiple departments within a limited time frame and with minimal technological infrastructure. Instead of relying on an ERP system and extensive manpower, the process was built around a structured digital workflow coordinated by the Internal Quality Assurance Cell (IQAC). The method involved the use of standardised departmental templates for data submission, a shared cloud repository organised through programme codes and metric-based folders, and a uniform file-naming protocol to simplify document identification. Programme representatives were responsible for uploading documents, while the criterion team verified them through a systematic scrutiny process. Communication and clarification of instructions were managed through a centralised messaging group, which helped maintain continuity in documentation work. The implementation of this structured process enabled smoother coordination among departments and improved the accessibility of institutional records during the accreditation preparation stage. Faculty members reported that the clear folder structure and standardised instructions reduced confusion and saved time during document verification. The experience suggests that well-organised documentation practices and collaborative digital tools can support effective quality assurance processes even in institutions that do not have access to expensive ERP infrastructure and manpower.

Keywords: Quality Assurance in Higher Education, Institutional Data Management, Accreditation Documentation, IQAC Practices, ERP Alternatives.

1. Introduction

Quality assurance in higher education institutions is increasingly becoming a crucial aspect in recent years. The concept of quality in higher education has been widely discussed in terms of accountability, transformation, and stakeholder expectations [1]. Higher education institutions are required to keep clear and auditable records of various academic and administrative functions, particularly at the time of accreditation processes. The increasing reliance on data-driven decision-making has further strengthened the role of systematic data management in improving institutional effectiveness [2, 5]. In India, accreditation agencies such as the National Assessment and Accreditation Council (NAAC) require institutions to present documentary evidence under various quality criteria during accreditation processes [4], covering aspects like curriculum design, teaching-learning process, research, students, etc. The growing emphasis on institutional accountability and evidence-based quality assurance has increased the importance of systematic data management across higher education institutions [2]. Although considerable research has examined institutional data management and quality assurance practices [2,3], limited attention has been given to practical accreditation data-management models in resource-constrained institutions without advanced ERP facilities. The current study addresses the research gap by documenting a practice-based model after careful observation and experimentation in a resource-constrained autonomous college.

Majority of the higher education institutions make use of an Enterprise Resource Planning system to manage and maintain institutional data. However, an ERP system can be prohibitively expensive and needs technical expertise, maintenance and training. Such systems are not always feasible for government and aided colleges which typically lack rich financial and technical resources. Often such institutions continue to be heavily reliant on manual processes with few digital inputs, which in case of compiling bulk data under stringent time constraints can prove to be disorganised, repetitive and chaotic. This paper aims to present a practice based model where a small team managed to create institutional data without an ERP system, to assist the IQAC in preparation for accreditation documents.

The study focuses on a practical approach designed by the IQAC team to manage large institutional data without relying on an ERP system to compile large quantities of data procured from various programmes for the cause of NAAC accreditation process. This practice-based case study method shows how simple digital tools, clear instructions, and consistent follow-ups can simplify such complex processes into a manageable process.

2. Institutional Context

The institution we consider in this study is a government-aided autonomous college for women, located in Tamil Nadu. It is a college which admits students belonging to a wide spectrum of society mostly from lower-middle and economically disadvantaged backgrounds. The college offers courses in different fields namely, Arts, Science and Commerce, at both undergraduate and postgraduate levels.

The college has maintained very good academic standards and has undergone multiple accreditation cycles, providing experience in institutional quality assurance processes. During the latest accreditation preparation phase, particularly for Criterion I (Curricular Aspects) of the National Assessment and Accreditation Council (NAAC) accreditation framework, the responsibility of data collection and consolidation was handled by a small team of members. The work involved was collecting data from academic programmes in a particular format, each with its own set of documents and records. In the absence of an ERP system in place and with minimal technical resources and manpower, the Criterion I team had to find a solution that could make the data collection and consolidation process manageable without creating unnecessary complexity. The approach that evolved out of such a critical situation was practical and successful in the long run.

3. Challenges in Managing Criterion I Data

Among the different criteria of NAAC, Criterion I which dealt with curricular aspects, required special attention. Although it had fewer metrics compared to other criteria, the extent of work involved was significant. In this context, Institutions with limited resources often face challenges in aligning with standardised quality assurance frameworks despite increasing external expectations and growing Institutions with limited resources often face challenges in responding to increasing accountability demands..." [3].

The main challenge here was that one hundred percent of the data had to come directly from individual programmes across the institution. Unlike other criteria, where a part or complete data can be collected either from the college office or library, Criterion I demanded data from the academic programmes completely. When other criteria had to collect data department-wise, Criterion I had to do programme-wise, so the quantum of data to be collected was comparatively higher, as a department may have two programmes-one UG and one PG. For each of the eleven metrics, data had to be collected separately from each programme. Each metric required a data sheet containing specific information and several supporting documents, usually at least five in number.

These documents included syllabus copies, Board of Studies approvals, Academic Council records, and course structure documents. In addition, some metrics required supporting documents such as Memoranda of Understanding (MoUs), attendance records, certificates, brochures, namelists, and reports. Preparing syllabus-related documents was one of the most time-consuming tasks. All the documents had to be arranged carefully in a certain sequence, and relevant portions had to be highlighted clearly to align with the requirements of each metric. After such procedures the documents were exported into PDFs and uploaded into the respective folders. When clarity in documentations became a priority interleaves were also added in between the PDFs to make it presentable. So it was the duty of the criterion I team to scrutinise all these features before final submission.

At the beginning, there was no uniform method for preparing or naming files. Different departments followed different formats, which created confusion during verification. Files were often uploaded in the wrong folders or with unclear names, making it difficult to identify and organise them. Errors like wrong sequences were followed while merging the syllabus into PDFs.

The Criterion I involved in this consolidation process consisted of only four members. They were responsible for making the programme representatives fine tune the data in the required format. The other assignments included in this process were, collecting the data, checking its accuracy, organising it metric-wise, with right file names in the correct folders, and preparing them for submission. The limited number of team members and the volume of data made the process challenging. These difficulties made it clear that a more structured approach was needed to bring consistency and reduce workload.

4. Methodology

Practice-based case studies are particularly useful for understanding institutional processes and contextual solutions within higher education environments [2]. This study adopts a qualitative, practice-based case study approach to examine the process of institutional data management in a resource-constrained higher education setting. The study is descriptive and is limited to participant observation, as the author was directly involved in the planning, execution, and monitoring of the data collection and consolidation process. Data for the study were derived from multiple sources, including institutional documents, digital records maintained during the accreditation process, internal tracking sheets, and informal feedback from programme representatives. The implementation was carried out over the accreditation preparation period, during which the approach evolved iteratively in response to operational challenges. This methodological framework enables an in-depth understanding of how structured practices and simple digital tools can be effectively utilised in the absence of formal ERP systems.

The work was carried out in a step-by-step manner rather than handling all metrics at once. For each metric, instructions and sample documents were shared first. Programme representatives were given a deadline, usually a few days, to prepare and upload their documents. Once the documents were uploaded, the team began the verification process. The tracking sheet was updated regularly to show the status of each submission. Corrections were communicated clearly in the Excel scrutiny sheet, and programme representatives were given time to revise and re-upload their documents. An important feature of the process was the use of positive reinforcement. Programmes that submitted accurate and timely documents were appreciated in the WhatsApp group using simple symbols such as medals or trophies. As soon as a programme completed the scrutiny process successfully, their names will be included in the appreciation list and posted in the WhatsApp group, this created a sense of encouragement and urged the rest to complete their documents on time in order to join the appreciated list and at the same time not pressurising others out of authority to complete soon. Only after all documents were checked and corrected were they downloaded and stored in the local drive in an organised manner. These documents were then prepared for final submission to the website committee.

5. Proposed Approach

The approach did not emerge from prior planning. It developed during the early stages of data collection when the team faced confusion, burdened with heavy workload, and difficulty in coordinating data from multiple programmes. With limited manpower and no clear system in place, it became necessary to find a workable method to manage large volumes of data. The approach that followed was built step by step, using clear instructions, shared responsibility, and simple digital tools that were already available for free.

5.1 Understanding of Metrics and Guidance

Before starting the data collection process, it was important to ensure that all programme representatives clearly understood what each metric demanded. For every metric, detailed instructions were prepared including the list of documents to be submitted, the format to be followed, specific points to be highlighted. The head of Criterion I team played a key role in briefing the NAAC requirements to the programme representatives by meticulously reading the NAAC manual and the Standard Operating Procedures. With regular guidance and monitoring from the IQAC coordinator, the team was able to orient all the programmes about what was expected. This helped to reduce unwanted errors and rework during the consolidation process.

5.2 Uniform File Naming System

Each programme was assigned a unique number. All documents were named starting with this number along with a short description of the metric and the academic year of the data. For example: If 26 was the number allotted to MA History Programme then all their documents will have files starting with 26. Example: 26MAHistoryInternshipNL23-24.pdf This system made it easier to identify documents quickly, arrange or download them in order. It also saved a significant amount of time for the website team, who were in charge of renaming and uploading all the NAAC documents at the back-end.

5.3 Organised Digital Storage

Google drive was a key factor in making this process workable - all the data collection was done only through google drive rather than involving pen drives, CDs and the physical presence of the programme representatives for data submission. Each metric had its own folder, and within that folder, subfolders were created for different types of documents, such as: Academic Council 2023-24, Board of Studies 2023-24, Syllabus, Course Structure and MoUs and other related records. Programme representatives were requested to upload the required documents in the respective folders as per the guidelines shared in the WhatsApp group. An Excel sheet (data template) was also placed in each folder to collect the required data in a structured format. Usually unaltered NAAC templates were used for each metric, to collect such data. The reliance on structured

templates, standardised documentation, and shared digital platforms reflects broader practices in data-informed institutional management and supports evidence-based decision-making processes [2, 5].

5.4 Use of Sample Documents

To make the document creation process easier for programme representatives, sample documents with structured filenames were uploaded in each folder even before the data collection could begin. These samples helped them to format their own documents by copying its format including activities like highlighting, categorising, merging, naming the files and uploading as per the sample. This method helped to reduce dilemmas and ensured quality data in the required format.

5.5 Communication through WhatsApp

WhatsApp served as the primary communication platform between the criterion I team and the rest of the programmes. A WhatsApp group was created and programme representatives were added in it. This group helped the team to share instructions, clarify doubts, announce deadlines and provide updates for each metric. Using a single communication platform ensured that all participants received the same information at the same time. A detailed, vivid guidelines and instructions regarding the preparation of the documents were shared for each metric in the group at a time. These instructions helped the programme representatives to be precise and clear about their submissions.

5.6 Scrutiny and Tracking System

A separate Excel sheet was maintained to track the status of document verification. This sheet included, Metric name and number, Names of all programmes and Columns for each required document (usually 5-6 documents in number). When a document was checked and approved, a green mark was given adjacent to their programme name, likewise, a red mark with a note of the correction was given for documents that required correction. This Excel sheet was shared in view mode with programme representatives, while only the team had editing access. This allowed programmes to see their progress and make corrections without repeated reminders. This method helped the programme representatives to work from their respective work stations and avoid unwanted shuttling between the IQAC and the department.

5.7 Verification Process

All the documents were scrutinised carefully by the team. Mostly all the members of the criterion I team reviewed all the documents of the same metric at a time. They checked for coherence between all the documents including factors like course code, course name, date, sequence of the information provided, names, years, and filenames. This helped to maintain consistency in evaluation. If any corrections were needed, the concerned staff member was informed through the WhatsApp group or they can trace their status through the scrutiny Excel sheet. After making the necessary corrections, the revised document was once again uploaded for scrutiny. Figure 1 illustrates the IQAC-coordinated workflow model adopted for institutional data management and accreditation documentation in a resource-constrained higher education system.

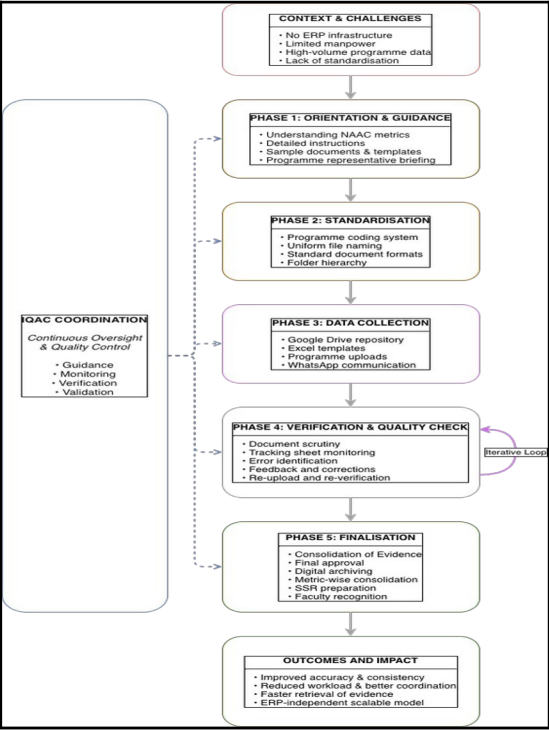


Fig. 1. IQAC-coordinated workflow model for institutional data management and accreditation documentation in a resource-constrained higher education institution.

6. Outcomes and Institutional Impact

In real time this approach proved effective in managing a large volume of data within a limited time frame. The team was able to collect and organise data from programmes

without much operational disruption or confusion. They could complete the documentation process for all eleven metrics systematically without pressure and with precision. Their consolidated data for SSR was approximately 9GB for Criterion I alone. The documentation process involved contributions from twenty two undergraduate and ten postgraduate programmes. It required organisation, verification, and consolidation of several hundreds of institutional records across multiple academic years of varied programmes.

The structured process reduced confusion and made it easier to locate and verify documents. Communication became smoother, and departments were able to understand requirements more clearly. The use of a shared drive eliminated the need for physical submission of data through pen drives or CDs. The programme representatives also felt relieved and could find quality time to balance academics and documentation equally. The Excel scrutiny sheet helped in monitoring progress and ensured that the corrections were carried out on time. Overall, the substantial workload became more manageable with these systematic approaches handled by the team. These outcomes are consistent with earlier studies that emphasise the role of organised data systems in enhancing institutional efficiency, planning, monitoring, and quality assurance processes [2, 5].

7. Observations on Workflow Efficiency

The shift from an unstructured approach to a systematic process led to noticeable improvements. Table 1 presents a comparison between the earlier documentation workflow and the revised workflow adopted through the structured IQAC-coordinated approach. The comparison highlights improvements in data collection, communication, storage, verification, and overall efficiency.

Table 1. Comparison of workflow before and after implementation

Activity	Earlier Practice	Revised Approach	Result
Data collection	Repeated follow-ups	Clear instructions	Faster response
Storage	Scattered files	organised folders	Easy access
File naming	Inconsistent	Standard format	Easy identification
Communication	Individual messages	WhatsApp group	Better coordination
Verification	Time-consuming	Tracking sheet	Faster corrections

8. Faculty Reflections

Informal feedback from programme representatives indicated that the process made their work easier and helped them to perform better. One faculty member noted that the folder structure and sample documents helped in understanding what was required. Another observed that the file naming system reduced confusion during submission. Another faculty member specified that one metric at a time with proper guidance helped her prepare the documentation accurately. These responses signal that a clear planning is essential before the commencement of any work. Strategic execution of simple methods in the data collection process will lead to achievable outcomes. Most importantly, following empathy especially in workplaces can lead to proper inter personal relationships among the colleagues and that help to give productive results.

9. Implications for Practice

This approach can be useful for institutions that do not have access to ERP systems but would not compromise the quality of data collection. This process shows that effective data management does not always require advanced technology. The method can be adapted by Government colleges, Aided institutions, Rural colleges and Institutions with limited infrastructure. The key requirement is not technology but systematic collaboration, clarity, consistent follow-up and dedication .

10. Limitations

The approach depends on the active participation of faculty members. It also requires basic digital skills to use shared platforms and prepare documents. For very large institutions with a higher number of programmes, the process may need to be modified or supported by additional tools or workforce.

11. Conclusion

The experience presented in this paper shows that it is possible to manage complex data even without an ERP system. Large volumes of data can be managed effectively through clear planning, coordinated teamwork, and basic digital competencies. The approach also expresses strong possibility for scalability across institutions of varying sizes. Since the framework is process-driven rather than technology-dependent, it can be adapted by institutions with a larger number of programmes through decentralised coordination and metric-wise team structures. From a policy perspective, this model offers a practical alternative for government and aided institutions that operate under financial and infrastructural constraints. It highlights the possibility of achieving standardised and auditable data management practices without reliance on expensive ERP systems, thereby supporting more inclusive and accessible quality assurance mechanisms.

Furthermore, the study indicates provisions for evolving towards hybrid data management systems that combine manual coordination with simple digital tools. The use of

shared platforms, structured templates, and communication channels can serve as a transitional model towards partial automation in the future. Further research may focus on comparative analyses between ERP-based and non-ERP-based systems, measurement of efficiency gains, and the development of scalable low-cost digital frameworks customised to resource-constrained institutions. Ultimately, the approach proves that teamwork, clarity, consistency, and dedication can lead to success. It also stresses that limitations of advanced technology will not necessarily prevent higher education institutions from maintaining quality standards, and human coordination remains an indispensable factor even in the absence of advanced technological systems

Ethics Statement.

This study documents institutional workflow practices developed during accreditation preparation. It did not involve clinical research, intervention, or collection of sensitive personal data. Informal feedback from faculty members was used only to reflect on the implementation process, and no personally identifiable information is reported.

AI Disclosure.

The author used ChatGPT (OpenAI) to assist with language editing, improving clarity, and organising the presentation of the manuscript. All research ideas, institutional experiences, analysis, interpretations, and conclusions are the author's own. The author reviewed and edited the AI-generated suggestions and takes full responsibility for the final content of the manuscript.

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Disclosure of Interests.

The author declares that there are no competing interests.

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