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Project Closeout: Essential but Neglected Practice in Construction Project Management

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Abstract

The typical lifecycle of a building includes pre-design, design, construction, operation and maintenance, and disposal phases. Each phase should dove-tail into one another seamlessly to achieve a functional and sustainable edifice. During the construction phase, different activities and processes are executed, resulting in some amendments, adjustments or fundamental changes. Some of these changes are effectively documented while many others are not. Before the conclusion of the construction phase, there should be a review of the project execution process to ascertain how the emerging edifice aligned with the design and achievements of the client's objectives. This review process is commonly referred to as 'project closeout', which includes end-users' orientation, test running of equipment and fixtures, development of as-built documents, review of project costs and many more. Adopting the case study strategy of qualitative research, this paper examines the execution of three faculty complex buildings between 2016 and 2022, in a higher education institution in Nigeria. The objective of the research was to evaluate how end-users' orientation, test running of equipment and fixtures were executed and the quality of the as-built documents at the project closeout. The research revealed that there was no end-user orientation, the test running exercise, was poorly executed and no functional as-built documents were provided during the handing over exercise. Therefore, effective project closeout exercise should be included in every project procurement document and enforced before final payments are made to consultants and contractors.

Keywords
Lifecycle, Construction phase, end-users' orientation, test running, as-built documents

1. Introduction

The successful execution of a project is not only measured by its timely completion and the quality of deliverables but also by how effectively it is brought to closure. While considerable attention is often given to the documentation and processes that preceded execution and the construction phases, equal importance must be placed on the project closure processes. The closure process should enhance the seamless integration of the end users into the developed facilities, provide adequate documentation that accompany project completion. These activities facilitate clients' satisfaction and provide a lasting reference throughout the project's operational life. The Project Management Institute (PMI, 2021) emphasizes that closeout should encompass contract fulfillment, archiving of project records, and the systematic capture of lessons learned for future applications. Similarly, Turner (2014) highlights that an effective closeout process promotes accountability, facilitates organizational learning, and supports continuous improvement. Furthermore, effective project closeout dovetails into the operation and maintenance phase, which extends throughout the lifespan of the edifice.

Project closeout represents the final phase of the project management lifecycle. Although it is critical to project success, the process is often overlooked, undervalued or poorly executed. While attention is usually focused on design, procurement, and construction, the ending processes of the project ultimately shapes how well the edifice serves the end users. Closeout is not a mere bureaucratic formality but a process of ensuring that systems work, users are empowered, and documentation is complete. Kerzner (2017) observes that neglecting this phase frequently results in unresolved issues, loss of institutional knowledge, and reduced stakeholder satisfaction. In both public and private sectors, project closeout, when executed properly, it holds the potential of increased clients' satisfaction and the learning curve of the participation organisations.

In higher education (HE) institutions, where facilities must endure intensive and varied use, project closeout is particularly important, for proper orientation, reliable systems, and accurate records for long-term functionality. Yet, the practice of project closeouts is often rushed, underfunded, or dismissed altogether. This study examines the closeout practices in three faculty complex buildings constructed between 2016 and 2022 in a Nigerian University, focusing on three essential activities: end-user orientation, test running of equipment and fixtures, and the preparation of as-built documents.

2. Literature Review

2.1 The Purpose of Project Closeout

Project closeout has been widely discussed within the field of project management, yet scholars consistently emphasize that it remains an underdeveloped and often neglected phase. The Project Management Institute (PMI, 2021) identifies project closeout as a critical component of the project management lifecycle, outlining its purpose to include ease of operation of the developed edifice, formalizing project completion, fulfilling contractual requirements, and preserving project knowledge through documentation. This perspective underscores the fact that project closeout is not merely an administrative step but as an integral process that ensures accountability and organizational learning. Turner (2014) extends this argument by stressing the importance of lessons learned during closeout enhances future project performance. Accordingly, effective closeout is a foundation for continuous improvement, as it provides structured opportunities to reflect on successes and failures. By capturing and disseminating these insights, organizations are better positioned to avoid previous mistakes and strengthen future project delivery (Turner, 2014).
Kerzner (2017) further cautions that poor or incomplete closeout can undermine organizational effectiveness. Noting that failure to properly close projects often lead to unresolved contractual disputes, diminished stakeholder satisfaction, and the erosion of institutional memory. This concern is echoed by other researchers who point out that the absence of systematic closeout practices contributes to the loss of valuable knowledge that could otherwise inform future initiatives (Williams, 2016).

In practice, however, project closeout is frequently rushed or not executed at all. Studies in both public and private sectors reveal that organizations often allocate minimal time, resources, or funding to this phase (Demirkesen and Ozorhon, 2017). This tendency reflects a broader managerial bias toward the execution and final delivery phases of projects, where immediate outputs are more visible, while long-term learning and accountability are overlooked. The consequence is that organizations miss out on the critical opportunities for sustainable improvement and institutional growth (Crawford, 2014).

2.2 The Components of Project Closeout

Project closeout encompasses a comprehensive set of deliverables and documentation that formally conclude project activities. According to Pinto (2013), the key components of closeout include the preparation of final project reports, end-users' orientation, obtaining formal client acceptance, capturing lessons learned, closing contracts, releasing project personnel, and archiving project records. These can be encapsulated as, end-users' orientation, test running of equipment and fixtures and the development of as-built documents (Ameh and Osegbo, 2011; Olanrewaju and Abdul-Aziz, 2015). The lessons learned from the exercise are particularly valuable, as they guarantee that the constructed edifice will be used correctly and the closing out exercise provides structured feedback that supports organizational knowledge retention and improvement. Jugdev (2007a) emphasized that organizations which actively integrate lessons learned into their practices tend to achieve better long-term outcomes, as the recurrence of past mistakes is minimized. Scholars and professional bodies alike highlight best practices that strengthen the closeout process. These include early planning for closure activities, the use of standardized procedures, engaging stakeholders in post-project reviews, thorough documentation of lessons learned, and even symbolic acts such as celebrating project completion. Kerzner (2017) and the Project Management Institute (PMI, 2021) argue that such practices not only enhance stakeholder satisfaction but also foster a culture of learning and continuous improvement within organizations.

A properly executed project closeout typically integrates the following elements:

- Contractual and Administrative Closure: Finalizing contracts, verifying that deliverables meet requirements, and obtaining formal client approval.
- End-users' orientations: Conduct detailed tour, familiarization with the component, fittings and fixtures within the facility and their functions (Kerzner, 2017; PMI, 2021).
- Performance Review: Assessing project outcome against scope, schedule, budget, and quality benchmarks (Marzagão & Carvalho, 2016).
- Test running equipment: Test all equipment and installed machines at full load over an extended time period, provide the appropriate operating manual and educate the operators on simple maintenance of the equipment (PMI, 2021).
- Knowledge Capture: Documenting lessons learned and best practices for future reference (Duffield & Whitty, 2015).
- Resource Release: Reassigning project staff, releasing equipment, and closing financial accounts (PMI, 2021).
- Archival of Documentation: Prepare and present to client the as built documents for all the components of the facility. Preserve key records for legal, historical, and strategic purposes (Demirkesen & Ozorhon, 2017).

Together, these components reinforce transparency, reduce risks, and promote organizational learning and knowledge-sharing (Kerzner, 2017). A well-structured closeout process, therefore, serves not only as the conclusion of a project but also as a foundation for improving the efficiency and effectiveness of future initiatives.

The Challenges of Project Closeout

Although project closeout is widely recognized as an essential stage in the project management lifecycle, it is often undervalued or poorly executed. Scholars consistently point out that neglecting this phase undermines accountability, weakens organizational learning, and reduces long-term project effectiveness (Kerzner, 2017; Turner, 2014). Understanding why closeout is neglected provides a foundation for addressing the challenges that prevent it from being carried out effectively.

One of the primary reasons for neglect is the perception of closeout as a low-value administrative task. Once project deliverables are achieved, the project managers and other team members easily shift their focus to upcoming initiatives, treating closeout as a formality rather than a strategic process (Kerzner, 2017). This forward-looking tendency often leads to neglecting the essential processes of introducing the end-users to the different features of the completed edifice, leading to frustration in operation and maintenance. Similarly, the urge of resuming new initiatives leads to incomplete documentation, rushed reviews, and the abandonment of closure activities (Kerzner, 2017).

Resource constraints further exacerbate the problem. As projects approach completion, budgets are often depleted and personnel reassigned to new tasks. This leaves little capacity for end-users' orientation, test-running of equipment, reflective activities such as lessons-learned reviews, stakeholder evaluations, or archival documentation (Crawford, 2014). In many organizations, the absence of management commitment reinforces the perception that project closure is optional rather than necessary (Turner, 2014). The lack of standardized procedures also contributes to inconsistency.

In any contract documentation (terms and condition of contract). where closeout processes are not embedded within the project governance frameworks, closure is frequently carried out informally or omitted entirely and the project manager may be handicapped to enforce it (Pinto, 2015). Without structured templates, accountability mechanisms, and review protocols, project teams rely on ad hoc approaches that fail to capture knowledge systematically (Jugdev, 2012). Cultural and behavioral barriers add another layer of complexity. Lesson-learned sessions are sometimes perceived as fault-finding exercises, creating resistance among team members who fear blame or reputational harm (Jugdev, 2007). Williams (2016) argues that weak learning cultures within organizations often prevent open reflection, causing recurring mistakes across projects. Moreover, performance metrics in many organizations are skewed toward cost, time, and immediate deliverables, leaving little incentive for managers to invest in closure (Demirkesen & Ozorhon, 2017).

Addressing these challenges requires deliberate, systemic strategies. Scholars advocate for the inclusion of project closeout clause in each contract document, integrating closeout planning into the early stages of the project lifecycle to ensure adequate time and resources are allocated (Kerzner, 2017; PMI, 2021). Establishing standardized procedures, including checklists, templates, and stakeholder review protocols, can help formalize the process and reduce inconsistency (Pinto, 2015). Additionally, cultivating a learning-oriented culture—where lesson-learned sessions are seen as opportunities for growth rather than blame—is critical to ensuring meaningful participation (Jugdev, 2007a). The adoption of digital tools and knowledge management systems can further support the capture and sharing of project insights, reducing the administrative burden of closeout (Williams, 2016). Most importantly, project administrators must reposition closeout as a strategic investment in long-term performance rather than a mere administrative formality. By addressing the barriers of perception, resources, culture, and structure, closeout can evolve into a process that reinforces transparency, enhances accountability, and sustains organizational learning.

The literature reviewed aptly recognized project closeout as a stage that consolidates learning, ensures accountability, enhances end users' satisfaction and sets the foundation for facility management (PMI, 2021; Turner, 2014). Note that the three components of a typical project closeout practice, end-user orientation, test running of equipment and fixtures and as-built documentation are essential for the effective operation and maintenance of the developed edifice throughout the lifecycle. Inadvertently, the findings of this research revealed that the project closeout processes were poorly managed in the projects examined. Therefore, this research recommended that a clause requiring the conduct of project closeout should be provided in the document for the terms and condition of contract. In addition, a clause in the letters of engagement of the consultants should specify the penalty for the failure to comply with any components of the project closeout.

3. Research Methodology

To examine the challenges and neglect of project closeout, this study adopted the single site case study strategy of qualitative research (Yin, 2014). A case study research strategy requires an intensive, in-depth and purposive study of a small portion of a larger problem to understand the research scenario, make sense out of the data collected, and proffer solutions to the research questions (Ogbeifun and Pretorius, 2024). Given that project closeout practices are highly context-dependent and influenced by organizational culture, project governance structures, and stakeholder engagement, a qualitative approach provides deeper insights than a purely quantitative survey (Creswell and Poth, 2018).

The participants were purposively selected from the project execution team (PET) members for each project and two end-users' representatives during the construction exercise, due to their roles during the project execution phase. Table 1 presents the demography of the participants. A total of twenty-three respondents participated in the exercise. Researchers have argued that the quantity of sample size is not critical in qualitative research, but the quality of information or ideas generated, that aptly addressed the research questions (Sarfo, et al., 2021; Malterud, et al., 2015). Furthermore, Bekele and Ago, (2022) observed that, if the participants are experts or knowledgeable persons in the subject of the research, the sample size can be reduced to few participants. However, in case study design, researchers have suggested different ranges for sample size, ranging from as low as four to as high as sixty, depending on the aim of the study, sample simplicity, quality of information and the knowledge of the participants on the research subject (Sarfo, et al., 2021; Malterud, et al., 2015). In this research, the participants selected were knowledgeable in the subject of the research and the sample size of 23 is considered adequate.

Table 1: Demography of participants

Project	Project manager	Contractor(s)	Client representatives	End-users' representatives
Faculty of Social Sciences	1	3	3	2
Faculty of Management Sciences	1	1	3	2
Faculty of Engineering	1	1	3	2
Total	3	5	9	6

The study used semi-structured interview guide, as instrument for data collection and complemented with the information gleaned for the project archives. This method allows for flexibility in probing participants' experiences while ensuring coverage of core themes of the research, namely, end-user orientation, test running of equipment and fixtures and as-built documentation. This process enabled the researchers to evaluate the documentation practices, lessons learned, stakeholder involvement, and organizational barriers, consistent with best practices in qualitative research (Miles, et al., 2019). The thematic analysis principles were used for the analysis of the qualitative data around the three areas of focus in the research, serving as the themes, thus, allowing for the inductive interpretation of the collected information (Braun and Clarke, 2006).

The validity and authenticity of the research information were ascertained through 'member checks' where the researchers recycled the information collected from each participant and the analysis back to the key informants for confirmation of report and 'thick description' of the respondents in the context in which the enquiry took place (Ogbeifun and Pretorius, 2021). The results of the analysis are presented in the next section.

4. Findings and Discussion

4.1 Background of the projects used in this research

The building complexes used for this research are for the faculties of Social Sciences, Management sciences and Engineering. The construction phase of the faculty of Social Sciences commenced in 2012 and completed in 2020. The project was executed, using the traditional project procurement system, fragmented the project into six lots and awarded to five different contractors. Lots 1, 2 and 4 were completed earlier than lot 3, 5, and 6. Although there was a change in the contractor for Lots 3 and 5 later in the project life, the consultants, client and end-users' representatives did not change. Due to the delays in the execution of this project and the high demand for academic space, the completed lots of the project were commissioned for use, without the due diligence of project closeout exercise.

On the other hand, the faculties of Management Sciences and Engineering were procured through the 'design and build' system. The same consortium executed both projects between 2018 and 2019. These two projects had fundamental challenges from inception. Firstly, during the presentation of the preliminary designs for the faculty of Management Sciences, the client representatives observed that the larger lecture halls should be located at the second floor while the smaller lecture halls are in the ground and first floor, to enhance the structural stability of the edifice. Unfortunately, this and many other observations and suggestions were not reflected in the final design. Secondly, the final working drawings were more than 30% larger than the allocated site for the project. Therefore, there were significant adjustments to the content and configurations of the design. Similarly, during construction, it was observed that the single units of air-conditioning systems were too many for the size of the lecture halls, bearing in mind that the project was in a community on a plateau and the weather condition throughout the year was moderate. Although this project was completed relatively on time, there was no formal project closeout. During the final inspection, preparatory for the project handing over, the leader of the consortium was asked about the 'as-built drawings'. He said, "the as-built drawings will be produced after the expiration of the defect liability period. To ensure that all necessary changes are captured in the revised drawings. Till the time of this research, 2025, this promise was not fulfilled.

Before the design of the facilities for the faculty of Engineering, the topographical survey of the proposed site was provided to the head of the consortium, showing the contours and the vertical sections. Thus, practically showing the undulations on the site. Furthermore, the client requested that basement should be provided at the lower end of the site and the facilities for the Mechanical Engineering Department should be situated in that section, to allow for the workshops and heavy machines to be installed in the basement section. The final working drawing was a single-story

building housing the four departments, sandwiched between the two-story portion for the Dean's office. Contrary to the survey site plan, the architect designed the building, assuming a continuously leveled ground. However, from the topographical survey map and the vertical cross sections, there was about 2.40m in height difference between the location of the Civil Engineering Department and the Mechanical Engineering Department. Due to wrong assumption of the architect, during construction, it became necessary to introduce multiple steps across the length and breadth of the building, to avoid the creation of basements that would have satisfied the anticipation of the client and make effective use of the topography of the site. When confronted by the client representatives on the project, the consortium leader simply said that he had to design according to the "given cost limit". The client representatives observed that the best practice would have been to meet with the client's professionals in a roundtable setting to agree of suitable 'trade-offs' and still achieve the project objectives. As part of the cost saving measures, instead of using reinforced concrete earth retaining walls, twin hollow block walls filled solid with lean concrete were used. Another challenge in the design is that the sizes of many of the lecture space (especially for the 200 and 300 level students) are inadequate for the number of students meant to use the space. Similar to the experience in the development of the faculty of Management Sciences, there was no formal project closeout exercise in this project too and the as-built drawings promised are still being expected.

4.2 Results and analysis

The synthesis of the interview reports complemented with the information in the project archive are presented for each project around the three pre-determined themes, to enhance clarity.

4.2.1 End-user orientation

The summary of information from the respondents (The client's representative and end-users) of the three projects, confirmed that end-users' orientation sessions were conducted, but in half hazard manner. The orientations exercises were conducted, mostly after the pre-handing over inspection, when the contractors are correcting the errors observed during the inspection, preparatory for the final handing over of the projects. The orientation exercises are not properly scheduled, resulting in poor attendance by the contractors, consultants and a small fraction of actual users. The end-user respondents observed that many staff members, in their facilities, learned to operate fixtures in their offices or academic space informally or through trial and error. The absence of manuals or follow-up training left users dependent on maintenance staff from the Directorate of Physical Facilities of the university for minor operational issues.

4.2.2 Test-run of equipment and fixtures

While test running machines, mechanical systems and fixtures were provided for in the respective contracts, the implementation varied. Mechanical and electrical systems were tested, to meet the statutory requirements for certification, but often under ideal conditions rather than real-life scenarios at full capacity and for prolong usage. Most of these fixtures were functional during the project handing over ceremonies but began to break down shortly afterwards. The respondents from the faculty of Social Sciences observed the frequent breakdowns in mechanical and electrical fixtures such as stiff electrical switches, loud sounds from electrical fans and inconsistent water supply in restrooms.

In the faculty of management sciences, the most troubling scenario was the failure in the electrical system due to inadequate size control machines and regulatory systems. For example, at full capacity, when all the air-conditioning systems in the lecture halls are operated, within two hours, some of the air-conditioning systems in parts of the hall will switch off themselves. Similarly, if more than three offices in a row are operating their air-conditioning systems, or any two adjacent offices operate more than two electrical systems at a time, the electricity supply will trip off from the distribution board. This ugly situation was addressed through the installation of additional distribution boards and re-distributing the electrical loads in the socket out lets.

The scenario in the faculty of Engineering is identical to what was found in the other faculties. Within few months of occupancy, many of the laboratory machines that were functional during the project handing over became idle. Within the defect liability period, the electrical contractors have been called back to site to effect different repairs. After the defect liability period, the Directorate of Physical Facilities had to do the reconstruction of some of the electrical installations before there was respite. There is a dearth of suitable operating manuals for some equipment and fixtures, preventing the laboratory technicians from carrying out simple maintenance.

4.2.3 As-built documentation

The issue of as-built documents emerged as the weakest area in this research. All the projects experienced significant changes during the construction phase. However, these changes are not properly documented. The promises for the provision of the as-built documentation, after the defect liability periods have remained unfulfilled. Currently, the operatives of the Directorate of Physical Facilities are executing maintenance activities relying on their experience, through guess work or trial and error approaches. These buildings are less than ten years in operation. A major challenge in future, without as-built documents, is the effective execution of any rehabilitation exercise to accommodate change of use.

Only Faculty of Engineering project produced a reasonably accurate as-built package, though even this lacked digital formats suitable for long-term use.

4.3 Discussion of research findings

The findings of this research highlight the systemic weaknesses in the execution of project closeout exercise. The research revealed that end-users' orientation was treated as a token event rather than as an obligation to ensure that the client's brief was effectively achieved in the completed edifice, enhancing the process of knowledge transfer, rather than limiting end-user empowerment (Jugdev, 2012). Although test running of installations and fixtures are clearly specified in the signed contract, the exercise was conducted superficially, undermining its role of effective machine performance in teaching and research for academic staff, learning and skill development of the students (Mirarchi, et al., 2018). There is no gain saying that as-built documentation is an essential cornerstone of long-term facility operation and management. The research revealed that although there were significant changes in the initial design during the construction phase, the promise to produce functional as-built documentation has remained unfulfilled promises. It is worthy of note that without as-built drawings, maintenance exercise will be executed through trial-and-error system, renovation and change of use will be, at best, intelligent guess and migration to effective computerized maintenance management (CMM) will be difficult (Ogbeifun, et al., 2021).

These shortcomings align with the wider critiques in the literature, which note that project closeout is often undervalued in the context where immediate delivery of project overshadows the long-term sustainability of the completed edifice (Kerzner, 2017). In the Nigerian higher education context, poorly documented contract procurement and management documents, coupled with the weak enforcement of standards and limited institutional capacity further exacerbate the problem. The consequences are tangible: higher maintenance costs, user dissatisfaction, and reduced building lifespan (Jugdev, 2007b; PMI, 2021).

To ameliorate the challenges being experienced with the execution of effective and functional project closeout exercise, it is imperative to restructure the procurement system, the documents for the terms and condition of contract and the award letters issued to all consultants in further development projects of the institution. Irrespective of the project procurement system (traditional, design and build or relationship), a higher education institution in South Africa, included a clause in the letter of engagement of all consultants and reads thus: *The final 10% (ten percent) of the full fee payable will only become processed for payment on submission of a project completion report and "as built" drawings, acceptable to a university authorized representative*. (Ogbeifun and Pretorius, 2021, p. 922). Adapting this practice, the terms and condition of contract document should specify the content of the required 'project completion report', to incorporate end-users' orientation, systematic and long-time test-running of equipment, provision of appropriate manuals, training and the development of suitable as-built documentations.

Furthermore, the study revealed that effective project closeout is not merely about compliance but about cultivating a culture of reflection, learning, and stakeholder engagement. Addressing the challenges identified—through improved documentation practices, active stakeholder involvement, supportive organizational culture, and dedicated resources—remains essential for unlocking the full potential and strategic value of the project closeout phase.

5. Conclusion

This study examined the practice of project closeout phase of the project management cycle during the development of infrastructure for three faculty complexes in a higher education institution in Nigeria. The case study strategy of qualitative research was adopted for the study. The research revealed that this essential phase in the physical development of infrastructure was often overlooked, undervalued, underfunded, and poorly executed. This neglect results in incomplete documentation, missed opportunities for knowledge capture, weak stakeholder engagement, and limited organizational learning. The evidence underscores that project closeout should not be perceived as a procedural

formality but as a strategic phase with long-term benefits. When executed effectively, it strengthens accountability, enhances stakeholder satisfaction, and builds an organizational knowledge base that prevents the recurrence of mistakes and fosters continuous improvement. Conversely, when closeout is neglected, organizations risk eroding trust, losing valuable insights, and compromising the sustainability of project outcomes. In conclusion, project closeout remains one of the most underappreciated yet strategically significant phases of the project management lifecycle. By prioritizing project closeout activities, organizations can transform this neglected stage into a powerful mechanism for improving performance, knowledge retention, and long-term project success.

To address these challenges, this research recommends that:

- The procurement system, the terms and conditions of contract and the award letters issued to all consultants should be restructured with clearly defined clauses for project closeout exercise and appropriate penalty for default.
- The project execution team members should adopt standardized closeout procedures and allocate dedicated resources to ensure that comprehensive documentation and lessons learned are systematically captured.
- Stakeholder engagement must extend beyond project delivery to include active participation in reviews and evaluations, reinforcing accountability and client satisfaction.

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Biographies

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Jan Harm Christiaan Pretorius earned his MSc (Laser Engineering and Pulse Power) at the University of St Andrews in Scotland (1989), the latter of which was cum laude, and his BSc Hons (Electrotechnics) (1980), MIng (1982), and DIng (1997) degrees in Electrical and Electronic Engineering at the Rand Afrikaans University. During his fifteen years of service, he was a Senior Consulting Engineer at the South African Atomic Energy Corporation (AEC). In addition, he was employed by the Council for Scientific and Industrial Research (CSIR) as the Technology Manager at the Satellite Applications Centre (SAC). Since 1998, he has held the position of Professor in the Postgraduate School of Engineering Management within the Faculty of Engineering and the Built Environment. In addition to supervising 80 PhD and more than 400 master's students, he has co-authored more than 300 research articles.