

University Services Governance in Algeria between Paper-Based Management and the PROGRES System: The Design–Reality Gap at the Sidi Bel Abbès Directorate of University Services

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Abstract

This study asks how far the PROGRES system has narrowed the "design–reality gap" in the governance of the Sidi Bel Abbès Directorate of University Services when compared with the paper-based management that preceded it. The comparison is made on four governance dimensions (transparency, accountability, internal control and service quality) and across four service areas (housing, scholarship, transport and catering). An exploratory single-case design was adopted, combining two qualitative techniques: documentary analysis of regulatory texts and official statements of the National Office of University Services (ONOU), and the vignette technique, through which twelve analytical profiles of students and staff were built from documents, the literature and the researcher's knowledge of the local context, in order to test the theoretical framework in contrasting situations. The material was coded by hand following the Gioia data structure (first-order concepts, second-order themes, aggregate dimensions), with researcher memos and triangulation of sources, and was then interpreted through an "octopus" logic in which the case is the body and the categories are the arms, meaning being generated by the relations between them. The findings show that paper-based management produced a "quota economy" in which resources were distributed by estimation rather than by counting, which generated waste, informal capture and delayed scholarships. PROGRES moved control from ex-post to real-time by tying each meal to a prior booking, an RFID card and an e-wallet, the scholarship to a verified postal account, and transport to GPS tracking and a QR confirmation code. The gap, however, is not closed. The successive amendments to the booking rules, the unequal digital access among students, and the absence of an internal audit function that exploits the data the system produces all reveal a medium-to-high gap on the process, people and values dimensions of the ITPOSMO model. The study concludes that the system did not solve the governance problem; it made it visible for the first time. Numbered recommendations are addressed to the Directorate, to ONOU and to the Ministry.

Keywords: digital governance; university services; PROGRES; design–reality gap; internal control; vignettes; Algeria.

1. Introduction

University services in Algeria are one of the largest items of social spending directed at a single group of the population. According to the figures announced by the National Office of University Services (ONOU) in August 2026, 467 university residences house 440,082 students, a transport network of 6,326 buses is in operation, and the catering bill reached 21 billion dinars in 2025 before falling to 18 billion dinars in 2026 (ONOU, 2026b). The Algerian student support system was built on the principle of free and democratic access, so that every social class could reach higher education, and this is precisely what has made the diagnosis and reform of the system a research topic in its own right (University Services and Academic Achievement in Algeria, 2023). The question of how these resources are managed is therefore not a marginal administrative question. It is a question of public money governance: who decides, who controls, who is accountable, and how do we know whether the service actually reached the person entitled to it.

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Since 1995 these services have operated under a single institutional framework, the National Office of University Services, created by Executive Decree No. 95-84 of 22 March 1995, amended and completed by Executive Decree No. 03-312 of 14 September 2003, which restructured the Office into local Directorates of University Services. The Directorate of University Services is the executive unit where four daily services meet: housing, scholarship, transport and catering. For two decades these services were run on paper files: a housing application with physical documents, a meal ticket sold and stamped, a scholarship paid out on nominal lists, and a transport service organised through schedules that nobody measured. The text was not absent. The text was clear and the procedure was vague: the right to a meal was fixed by regulation, but the number of meals actually needed on a Thursday compared with a Sunday was known to no one.

The change came with the digitalisation master plan adopted by the Ministry of Higher Education and Scientific Research, which produced dozens of platforms and digital portals under the PROGRES software for the management of research and higher education, covering pedagogical, financial, administrative and human-resource management (Khellat Berarma & Beldjan, 2024). Within this framework, university services were integrated into the WebONOU portal for exclusive online applications for housing, scholarship and transport under the "zero paper" slogan from 2020. The move then extended in 2025–2026 to the Eminha platform for scholarship payment through interconnection with Algérie Poste, to the WebEtud application for prior meal booking, which entered a trial phase on 3 March 2026 and became compulsory from 4 April 2026, and to the MyBus application for bus tracking (ONOU, 2026a, 2026b).

The international literature on e-government in developing countries has been warning for two decades against confusing "installing a system" with "changing governance". The Heeks (2003) model shows that most of these projects fail totally or partially because the design of the system assumes a reality other than the one in which it is installed, and that the width of this gap can be read on seven dimensions (ITPOSMO). Dada's (2006) review confirmed that this gap is the most frequently cited explanation for e-government failure in developing countries, while Krishna and Walsham (2005) showed that success is possible when the system is built on precise local knowledge of the actual procedure. The question this study raises is therefore not "have university services been digitalised?" but rather: to what extent did the PROGRES system actually narrow the design–reality gap in the governance of the Sidi Bel Abbès Directorate of University Services, on the dimensions of transparency, accountability, internal control and service quality, compared with paper-based management?

Four sub-questions follow from this main question:

- What governance failures did the paper-based mode produce in university services?
- How is PROGRES actually used in housing, scholarship, transport and catering, and what control does it make possible?
- Where does the design–reality gap appear, and where does resistance to change appear, after the digital shift?
- What are the consequences for the internal control and the digital governance of the Directorate?

The study matters from three angles. Scientifically, Algerian studies have looked at PROGRES from the angle of digital transformation in general (Khellat Berarma & Beldjan, 2024) or from the angle of student satisfaction with the digital services of the Directorates of University Services (Salmi et al., 2024), but none has placed it inside a theoretical framework that has been tested internationally to explain e-government success and failure. Professionally, the study carries the lens of auditing and internal control, which the researcher developed in his work on the Algerian auditing standards and the mapping of the audit process (Dafri & Besbas, 2021) and on the response of the Algerian framework to crises (Besbas & Bachounda, 2022), from the economic enterprise to the university public service. Practically, it offers the Directorate, ONOU and the Ministry an independent reading of what has worked and what is still pending.

The paper is organised in six sections after this introduction: the theoretical framework and a critical review of the literature, then the method, then the findings by aggregate dimension, then the discussion, and finally the conclusion with recommendations and the limits of the study.

2. Theoretical Framework and Literature

2.1 Governance and internal control in the public service

The OECD defines public governance as the arrangements that ensure a public decision is taken transparently, executed with accountability and measured by its results for the citizen. It carried this definition into the digital field in its digital government policy framework (OECD, 2020), which distinguishes between "e-government", which digitalises the existing procedure, and "digital government", which redesigns the service starting from the data. Bertot, Jaeger and Grimes (2010) link information technology to a culture of transparency and treat it as an anti-corruption tool whenever it makes the public transaction visible and traceable. This distinction is central to

our study: a platform that turns a paper file into an electronic form is one thing; a system that decides how many meals are prepared each day on the basis of actual bookings is quite another.

Internal control is read here through the COSO (2013) framework, which treats it as a process of five interrelated components: the control environment, risk assessment, control activities, information and communication, and monitoring activities. The point that concerns us is that the fourth component is the one that changes radically when moving from paper to an integrated system, and the fifth is the one most often neglected once the system is installed. The Global Internal Audit Standards (IIA, 2024) complete this picture with the Three Lines Model, which separates those who run the service, those who oversee risk, and those who provide independent assurance. Cohen and Sayag (2010) showed that internal audit effectiveness in public organisations depends on top management support and on the independence of the function more than on tools, while Roussy and Brivot (2016) showed that "internal audit quality" is a polysemous notion whose meaning changes with whoever is evaluating it. It becomes clear, then, that the question is not whether a system exists, but whether someone uses the system's data to provide independent assurance.

2.2 The design-reality gap model (ITPOSMO)

Heeks (2003) built his model from the observation that most e-government projects in developing countries are designed in a context that assumes accurate information, available technology, rationalised processes, values that respect data, qualified staff and sufficient budgets, and are then installed in a reality that lacks these assumptions. The difference between what the design assumed and what exists in reality is the gap, and it is measured on seven dimensions: information, technology, processes, objectives and values, staffing and skills, management systems and structures, and other resources. Heeks (2006) extended the model to include closure strategies: changing the design to bring it closer to reality, changing reality to bring it closer to the design, or both at once. Heeks and Stanforth (2007), from an actor-network perspective, added that the trajectory of a project is shaped by shifting alliances between actors rather than by a single design decision. The model has also been applied to African universities themselves, in the evaluation of computing curriculum change (Bass & Heeks, 2011), which confirms its relevance to the university context.

What this stream explains well is why technically well-designed systems stumble. What it neglects in the Algerian context is two things. First, it was built on projects that were often designed outside the beneficiary country, whereas PROGRES was designed nationally, inside the Ministry, which makes the values and process gaps less obvious and more in need of examination. Second, it concentrates on the moment of installation and says little about the successive adjustments that management makes after launch, which is exactly what the adaptive governance literature insists on (Janssen & van der Voort, 2016). Its methodological limit is that it is a diagnostic framework, not a predictive one.

2.3 Information systems success and the TOE framework

The DeLone and McLean (2003) model completes the picture from the side of outputs: it links system quality, information quality and service quality to use and user satisfaction, and then to net benefits. Its most useful contribution for our study is the distinction between use that is imposed by instruction and intention to use that is formed through experience. The Mostaganem study confirms that user satisfaction is tied to the ease of use of digital systems more than to how widely they are deployed (The Reality of Digital Transformation in Higher Education, 2026), and the M'sila study found only moderate student satisfaction with the digital services of two Directorates of University Services, with significant differences attributable to the place of residence (Salmi et al., 2024). The TOE framework of Tornatzky and Fleischer (1990) reminds us, for its part, that technology adoption in a public organisation is explained by the structure of the organisation and by the pressures of its environment, not by the characteristics of the technology alone.

2.4 Integrated management systems in the public sector and in universities

The literature on enterprise resource planning systems is the closest reference for understanding PROGRES as an integrated system. Davenport (1998) showed that an integrated system imposes its own logic on the organisation, and Markus and Tanis (2000) proposed the life-cycle model that singles out the "shakedown" phase, the period immediately after go-live that carries the greatest disruption. In universities specifically, Rabaa'i, Bandara and Gable (2009) showed that installing these systems collides with the particularity of academic processes and the multiplicity of actors, while Munoz Acuna, Hernandez-Perlines and Ibarra Cisneros (2024) showed that power relations inside the university shape the path of digital transformation more than the technical architecture does. The review by Dwivedi and colleagues (2015) insists that failure is mostly socio-organisational, and that resistance to change is information to be read rather than a deviation to be corrected. Fountain (2001) adds that the bureaucracy reshapes the system according to its own rules, so that objective technology becomes enacted technology carrying the imprint of the organisation.

2.5 Continuous auditing as an extension of the integrated system

Once every transaction is recorded in the system, what Vasarhelyi and Halper (1991) proposed under the name of continuous auditing becomes possible: automated analytical tests that run on the data as soon as it is generated and produce alerts, instead of waiting for the annual examination. Chan and Vasarhelyi (2011) summarised the essential difference between traditional and continuous auditing in terms of timing and coverage: all transactions rather than a sample, and in real time rather than after the fact. This stream is entirely absent from the Algerian literature on university services, even though the meal booking system produces, every day, exactly the kind of data on which continuous auditing was built.

2.6 Arab and Algerian studies and the position of the gap

In the Arab context, Weerakkody, El-Haddadeh and Al-Shafi (2011) showed in the case of Qatar that the complexities of e-government implementation come from institutional coordination and organisational culture more than from technology, and Al-Jaghoub, Al-Yaseen and Al-Hourani (2010) found in Jordan that awareness and acceptance of the services come before any effect on governance. In Algeria, studies have looked at PROGRES from the angle of the obstacles to digital transformation in general, concluding that it strengthens communication and interaction (Khellat Berarma & Beldjan, 2024), from the angle of the quality of the digital services of the Directorates of University Services measured by questionnaire (Salmi et al., 2024), or from the angle of the creation of electronic portals as an integrated technological entry point to digital transformation. The Algerian accounting literature, for its part, has dealt with digitalisation from the angle of audit firms and the statutory audit profession, but it has not entered the university public service as an object of internal control.

The gap therefore appears at three points: the absence of a theoretically framed reading of PROGRES as an integrated system in a public service; the absence of a systematic qualitative comparison between the paper mode and the digital mode on specific governance dimensions (the available studies are quantitative and measure satisfaction, not governance); and the absence of any link between the system's data and an internal audit or continuous auditing function. This study tries to fill the three points starting from a single case.

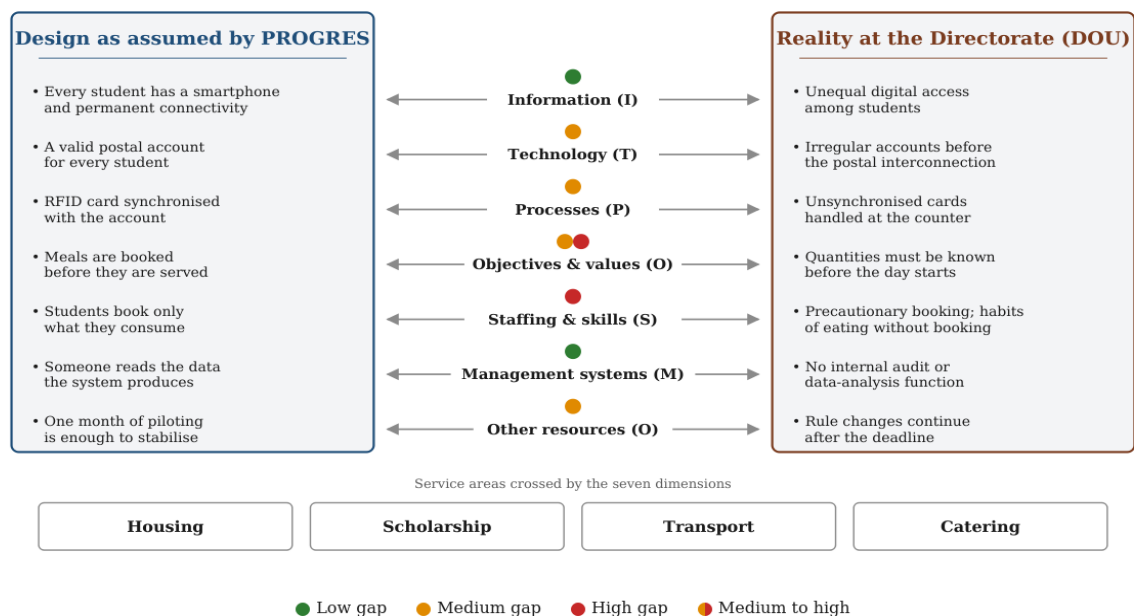
Table 1: Comparison of the literature streams and the position of the research gap

Stream	What it explains	What it neglects in the Algerian context	Methodological limit	Place in this study
Design-reality gap (Heeks, 2003, 2006; Dada, 2006; Bass & Heeks, 2011)	Why technically sound systems stumble; seven gap dimensions	National in-house design; post-launch amendments	Diagnostic, not predictive	Main framework (Table 5)
IS success (DeLone & McLean, 2003)	Link between quality, use and benefits	Use imposed by instruction	Assumes voluntary use	Reading of student satisfaction and use
ERP in the public sector and universities (Davenport, 1998; Markus & Tanis, 2000; Rabaa'i et al., 2009)	System logic; shakedown phase; university particularity	The university social service	Built on the economic enterprise	Timing of findings and reading of resistance
Continuous auditing (Vasarhelyi & Halper, 1991; Chan & Vasarhelyi, 2011)	Using system data for real-time assurance	Entirely absent from the university service	Built on the financial sector	Fourth aggregate dimension of the findings
Governance and control (COSO, 2013; IIA, 2024; Cohen & Sayag, 2010)	Control components; Three Lines; determinants of effectiveness	No mature internal audit function in ONOU	Normative more than explanatory	Standard for judging the governance dimensions (Table 4)

Stream	What it explains	What it neglects in the Algerian context	Methodological limit	Place in this study
Arab and Algerian studies (Weerakkody et al., 2011; Khellat Berarma & Beldjan, 2024; Salmi et al., 2024)	Obstacles to transformation; student satisfaction	Governance and internal control	Descriptive or quantitative	Starting point of the gap

Figure 1: ITPOSMO model adapted to the Directorate of University Services

The design–reality gap of the PROGRES system across the seven dimensions, with the gap rating in the study



Source: prepared by the author, based on Heeks (2003); gap ratings from the study's analysis (Table 5).

Source: prepared by the researcher.

Source: prepared by the researcher, based on Heeks (2003). The figure reads from right to left: the design as assumed by PROGRES (right), the seven ITPOSMO dimensions with the colour-coded degree of gap (centre), and the reality of the Directorate (left). The bottom strip shows the four service areas crossed by the seven dimensions.

3. Method

3.1 Design

The study adopted an exploratory single-case design in the sense given by Yin (2018): the examination of a contemporary phenomenon within its real-life context, where the boundaries between phenomenon and context are not clear, and where the question is of the "how" and "to what extent" type. The case here is typical rather than unique, in the words of Creswell and Poth (2018): what happens in Sidi Bel Abbès happens in the other Directorates, because the system is the same and the instruction is the same. The study does not claim statistical generalisation, but analytical generalisation to the theoretical model.

Two complementary qualitative techniques were combined. The first is documentary analysis in the sense given by Bowen (2009): a systematic reading of regulatory texts and official statements as data to be coded and triangulated, not as mere background. The second is the vignette technique, that is, carefully constructed situations submitted to analysis in order to explore how rules and values work in concrete settings (Barter & Renold, 1999; Hughes & Huby, 2002). Jenkins and colleagues (2010) showed that vignettes allow the exploration of the tensions

between what "should" happen and what "does" happen, which is the very heart of the design–reality gap question. One methodological clarification must be made without ambiguity: the twelve profiles used in this study are analytical scenario profiles built from official documents, the literature and the researcher's field knowledge of the Sidi Bel Abbès university context, with the aim of testing the theoretical framework in contrasting situations. They are not field interviews conducted with identified persons. What is presented from them in the findings is therefore analytical material to be read with the logic of "what happens to a student in this situation", not the testimony of a particular individual.

3.2 The case

The Sidi Bel Abbès Directorate of University Services is one of the Directorates of ONOU created by the restructuring under Executive Decree 03-312. It manages the university residences, the restaurants, the transport service and the scholarship for the students of Djillali Liabes University and the other higher education institutions of the wilaya. The Directorates of the wilaya are treated in this study as a single case, because they share the same regulatory framework and the same digital system. The researcher is a member of the Djillali Liabes University community, which gave him field knowledge of the context. That knowledge was used in building the vignettes and in the interpretive memos, and it was subjected to the principle of reflexivity by recording the researcher's prior positions before the analysis and returning to them after it (Lincoln & Guba, 1985).

3.3 Sources of evidence

Table 2 presents the two categories of evidence. The first category is made up of regulatory texts and official statements issued by the supervising authorities, selected because they record the design and the decisions at precise dates. The second category is the twelve vignettes (eight student profiles and four staff profiles), selected by the logic of maximum variation (Miles et al., 2014) so as to cover the four service areas, the contrasting situations of digital access, and the positions of staff along the service chain.

Table 2: Sources of evidence

Code	Source / profile	Type	What it brings to the analysis
N1	Executive Decree 95-84 (1995) as amended by Decree 03-312 (2003)	Regulatory text	Missions of ONOU and structure of the Directorates; the right to the service
N2	Law 18-07 (2018) on the protection of personal data	Legislative text	Constraints on the processing of student data
N3	ONOU (2020): opening of WebONOU for exclusive online registration	Official statement	Start of "zero paper": three housing choices, deadlines, appeal
N4	ONOU (2026a): the two statements on prior meal booking (March and April)	Two official statements	Launch rules and their amendment: 6 hours, midnight, 3 days, RFID synchronisation
N5	ONOU (2026b): review of the 2026-2027 academic year preparation	Official statement	National figures; Eminha; MyBus; 21 to 18 billion DZD
S1	Resident student, third year, smartphone and permanent connection	Student profile	Optimal use of the system
S2	Non-resident female student commuting daily by bus from a distant commune	Student profile	Transport and catering without residence
S3	First-year student, new baccalaureate holder, first housing application	Student profile	Entry into the system; the three choices; the appeal
S4	Female student with an old phone and an intermittent connection, from a rural area	Student profile	The digital access gap
S5	Student who booked meals for three days and then travelled unexpectedly	Student profile	Precautionary booking and the new form of waste

Code	Source / profile	Type	What it brings to the analysis
S6	Female student whose scholarship was delayed because of a mismatched postal account	Student profile	Scholarship and interconnection
S7	Student holding a booking proof that does not appear at the restaurant door	Student profile	Card not synchronised with the account
S8	Student member of a student organisation who used to obtain extra meals	Student profile	Informal capture before the system
E1	University restaurant manager who sets cooking quantities	Staff profile	Planning by estimation, then by counting
E2	Housing service officer who handles synchronisation requests	Staff profile	Counter workload after launch
E3	Scholarship service officer who prepares payment lists	Staff profile	Verification of accounts
E4	Head of the control and coordination service at the Directorate	Staff profile	Who reads the system data

Source: prepared by the researcher. Codes: N = official text or statement, S = analytical student profile, E = analytical staff profile.

3.4 Construction of the vignettes

Each profile was built according to a single four-element protocol: the position of the person in the service chain; what used to happen to them under the paper mode; what happens to them after PROGRES; and the point of friction where the design meets reality. Care was taken that each element be derived from a regulatory rule, an official statement or a published finding in the literature, not from free imagination. Profile S5, for instance, rests on ONOU's decision to cap booking at three days "in order to rationalise resources and limit waste"; profile S7 rests on ONOU's instruction that cases where the booking does not appear in the wallet be referred for card synchronisation; and profile S4 rests on what the M'sila study found regarding differences in the evaluation of digital services by place of residence. The profiles are presented in the findings as short first-person extracts to ease the reading, always with the profile code indicated.

3.5 Coding and analysis

The material was coded manually following the structure of Gioia, Corley and Hamilton (2013), which has become the most widely accepted standard of rigour in inductive qualitative research. At the first level, concepts close to the language of the source are extracted; at the second level, they are grouped into theoretical themes formulated by the researcher; at the third level, they are assembled into aggregate dimensions that answer the sub-questions. The coding followed the six-step logic of thematic analysis (Braun & Clarke, 2006): familiarisation with the material, initial coding, searching for themes, reviewing them, defining them, and writing up. Researcher memos accompanied the coding, recording after each reading the questions and connections that emerged, and it is these memos that guided the movement from one level to the next. The interpretation phase then followed the octopus approach: the case is the body, the categories are the arms, and meaning is generated by the relations between the arms, not by each arm taken alone.

3.6 Quality criteria

The four trustworthiness criteria of Lincoln and Guba (1985) were applied. Credibility, through triangulation of sources at three levels: between the regulatory text, the official statement and the vignette; between successive dated sources (2020, March 2026, April 2026, August 2026) to capture change; and between student profiles and staff profiles to see the same procedure from both sides. Transferability, through thick description of the context. Dependability, through an audit trail documenting the coding path from concept to dimension (Table 3). Confirmability, through reflexivity and through the rule that no finding is accepted unless it rests on two sources from two different categories.

3.7 Ethics and limits

No personal data on real students or staff were collected, and no data from inside the system were used, in respect of Law 18-07. The limits of the design lie in the fact that official documents tend to highlight success, that the

vignettes test the framework in constructed situations and cannot replace the testimony of actors, and that the available financial figures are national rather than local. These limits were handled through triangulation and by stating them openly, but they remain.

4. Findings

The coding produced 44 first-order concepts, grouped into 11 second-order themes and then into four aggregate dimensions, as shown in Table 3. Each dimension is then presented along a single path: evidence (a document and an extract from an analytical profile), the researcher's interpretation, the link with the literature, and a practical recommendation.

Table 3: Data structure (Gioia): from concepts to aggregate dimensions

First-order concepts (examples)	Second-order themes	Aggregate dimension
Cooking quantities are estimated; leftovers pile up on departure days; the paper ticket circulates; extra meals for those close to the counter; the postal account is not verified	1. Management by estimation 2. The informal quota 3. Break in the information chain	A. The paper quota economy
No booking = no meal; the quantity is known before cooking; the meal is tied to a card and a wallet; the scholarship goes to a verified account; the trip is confirmed by a code; three housing choices and an appeals committee	4. Control embedded in the procedure 5. Verification of identity and entitlement 6. The rule in place of negotiation	B. Real-time embedded control
The rule was changed from 6 hours to midnight; the 3-day cap; precautionary booking; the card not synchronised; the old phone; the crowded counter; "no excuse will be accepted"	7. Design retreating towards reality 8. Quota values migrating into the system 9. Unequal access and compulsion	C. The living design-reality gap
Nobody compares bookings with consumption; MyBus data are not matched with invoices; no monthly report; no declared data policy	10. Data with no reader 11. Absence of the third line	D. Control without audit

Source: prepared by the researcher.

4.1 First dimension: the paper quota economy, or management by estimation rather than by counting

Evidence. The regulatory text (N1) establishes the student's right to housing, catering, transport and scholarship, but it does not fix any mechanism for knowing the actual number of beneficiaries each day. When ONOU justified the adoption of prior booking in 2026 by the need to "determine the actual number of beneficiary students" and to "limit forms of waste" (N4), it was implicitly diagnosing what had been missing. The restaurant manager profile (E1) embodies this situation: "I used to cook for one thousand five hundred every day because that was the number of residents on paper. On Thursday half of them leave, and I only find out when I see the plates." The profile of the student member of a student organisation (S8) completes the picture: "We used to take ten tickets for the activity and nobody asked us where they went." The scholarship officer profile (E3) describes the last link in the chain: "The list is sent to the post office with the accounts as the students declared them; the error only shows up when the student comes back asking about her scholarship."

Researcher's interpretation. What appears here is not corruption in the criminal sense but a quota economy: when resources are distributed by estimation, an informal quota inevitably emerges, and it benefits whoever is closest to the point of distribution. Transparency is absent not because someone is hiding something, but because the information does not exist in the first place. Accountability is disabled because the difference between what is prepared and what is due is never calculated. Internal control in the COSO sense is cut off at the information component: no information, hence no control, hence no monitoring. The precise observation is that the failure does not sit at one point; it sits in the break in the information chain across services. The restaurant does not know who has left, housing does not know who eats, and the scholarship service does not know who holds the account.

Link with the literature. This is exactly what Heeks (2003) describes under the information dimension of the pre-design reality: informal and incomplete data. Fountain (2001) adds that the paper bureaucracy generates its own

unwritten rules, which here are the rules of the quota. Bertot and colleagues (2010) explain why visibility is a precondition for any accountability.

Recommendation. Document the paper mode before its memory is erased, by preparing a 2024–2025 baseline of indicators (meals prepared versus consumed, scholarship payment delays, share of housing appeals) to serve as a reference for measuring the system's impact.

4.2 Second dimension: real-time embedded control, or from the quota to the transaction

Evidence. Since 2020 the housing application has been submitted exclusively through WebONOU, with a maximum of three residence choices, notification of the decision through the account, and appeal before a committee (N3). In 2026 the scholarship payment became fully digital through Eminha, and the interconnection with Algérie Poste made it possible to fix the postal accounts used for payment; transport was supported by the MyBus application for bus tracking and trip confirmation by QR code; and ONOU linked the drop in the catering bill from 21 to 18 billion dinars, despite the arrival of 50,000 additional students, to the prior booking system and the e-wallet, alongside fixed-price contracting (N5). The restaurant manager profile (E1) describes the change: "Now I open the platform in the evening and I know exactly how many meals for tomorrow. I have started adding fruit because I no longer cook for ghosts." The resident student profile (S1) adds: "I book from my phone, I swipe the card at the door, and that is it. No queue for tickets, no discussion." The scholarship-holder profile (S6) shows the other face: "This year I did not submit a single sheet of paper; the scholarship landed in the account the system had verified."

Researcher's interpretation. The essential change is not the application but the unit of measurement: the meal moved from a quota that is estimated to a transaction that is recorded. When the transaction is recorded under a student's name, a card and a wallet, control becomes embedded in the procedure itself: an unbooked meal simply does not exist in the system, and the door to the informal quota closes without any inspection. The same holds for the scholarship, where the interconnection creates a reconciliation control between the student database and the account database, one of the simplest and most effective control activities there is. A caution is needed: the roughly 14% drop in the national bill is partly due to fixed-price contracting, so it cannot be attributed entirely to prior booking; this is the researcher's estimate.

Link with the literature. Here we see what the OECD (2020) calls the move from e-government to digital government: the service was redesigned starting from the data. On the DeLone and McLean (2003) scale, the organisational net benefit appears clearly, while the individual benefit remains observed rather than measured. This matches what Markus and Tanis (2000) call data integration as the first benefit of an integrated system.

Recommendation. Publish the criteria for ranking housing applications and the reason for rejection in a standard text format inside the platform; transparency in the rule is cheaper and stronger than any appeals committee.

4.3 Third dimension: the living design–reality gap, or the rule that is amended and who pays for it

Evidence. In March 2026 the booking rule was "at least six hours in advance", with a trial phase until 4 April. In April a second statement reformulated it: booking closes every day at midnight for the following day; no booking for more than three days is allowed "in order to rationalise resources and limit waste"; and whoever holds a booking proof that does not appear in the wallet must go to the housing service to synchronise the RFID card with the account (N4). The profiles show how this amendment is experienced from four angles. The student who booked three days and then travelled (S5): "I booked for the whole week as a precaution, the way we used to take the tickets before; then they announced the three-day cap, and I understood I was not the only one." The student with the missing booking (S7): "The phone says booked and the card says nothing; they sent me to the housing service and the meal was lost." The student from the rural area (S4): "The network drops in the evening where we live, and midnight means I book from my roommate's phone." The housing officer (E2): "In the first two weeks the counter turned into a synchronisation office; that was not part of our duties." The head of the control service (E4) sums it up: "The instruction says no excuse will be accepted, and we apply it; but what the instruction does not say is what we do with the student who is not at fault."

Researcher's interpretation. This dimension is the heart of the study. Changing the rule from six hours to midnight means that the design assumed a kitchen that adapts to orders arriving a few hours before the meal, whereas reality requires that the quantity be known before the day begins; the design retreated towards reality. Fixing a three-day cap means that students had been booking as a precaution, a rational behaviour in the old quota economy, so the system reproduced waste in a new form, and the rule stepped in to bring reality closer to the design. The synchronisation disruption reveals a technology gap between the account database and the physical card. Most importantly, the cost of this gap is not shared equally: the student with a recent phone and a permanent connection (S1) does not feel it, and the one without (S4) pays it every night. The phrase "no excuse will be accepted" shows

that management chose compulsion as its closure strategy, which is effective in the short term but produces imposed use rather than intention to use.

Link with the literature. These events fall within the shakedown phase of Markus and Tanis (2000), and they illustrate the mutual convergence of design and reality described by Heeks (2006). What the M'sila study found in terms of significant differences in the evaluation of digital services by place of residence (Salmi et al., 2024) is read here as the effect of this same access gap. As for resistance, it is not refusal but adaptation, which is what Dwivedi and colleagues (2015) invite us to read as information.

Recommendation. Create an official register of amendments to the operating rules (date, reason, effect) at the level of ONOU, and a permanent digital support desk in every residence during the first six weeks of each academic year, with booking made available by SMS or through an alternative counter for anyone who can show that access is impossible.

4.4 Fourth dimension: control without audit, or data with no reader

Evidence. None of the official texts and statements (N1–N5) mentions an internal audit function or a data analysis unit that exploits what the system produces, nor any declared policy on data retention and access, despite the obligations of Law 18-07 (N2). The head of the control and coordination service (E4) describes the situation from the inside: "The system tells me how many meals were booked and how many were consumed, but nobody asked me to compare the two, and there is no report template for it." The restaurant manager (E1) adds: "I see the numbers every day, but I am a cook, not an auditor." In transport, the non-resident student profile (S2) notes that "the application shows where the bus is, and we scan the code when we get on", but there is no trace in the sources of anyone matching these data against the operators' invoices.

Researcher's interpretation. Here the absence of evidence is the evidence. The system produces every day exactly the kind of data on which continuous auditing rests: every transaction recorded, with a time and an identity. But in the logic of the Three Lines Model, the first line (restaurant, housing, scholarship) produces the data, the second line (control and coordination) supervises the procedure, and the third line that provides independent assurance is missing. The result is that the real-time control achieved in the second dimension remains "regulation" at the point of service rather than "governance" that learns from its data, and the drop in the bill cannot be decomposed between the price effect and the booking effect because nobody carries out that decomposition.

Link with the literature. This is the staffing and skills dimension of ITPOSMO: the technology is present, and the competence that turns its data into assurance is not established. Chan and Vasarhelyi (2011) show that the real value of continuous auditing appears when simple tests are added to data that already exist (consumption without booking, repeated booking without consumption, trips without confirmation), while Cohen and Sayag (2010) remind us that this does not happen without explicit top management support for the function.

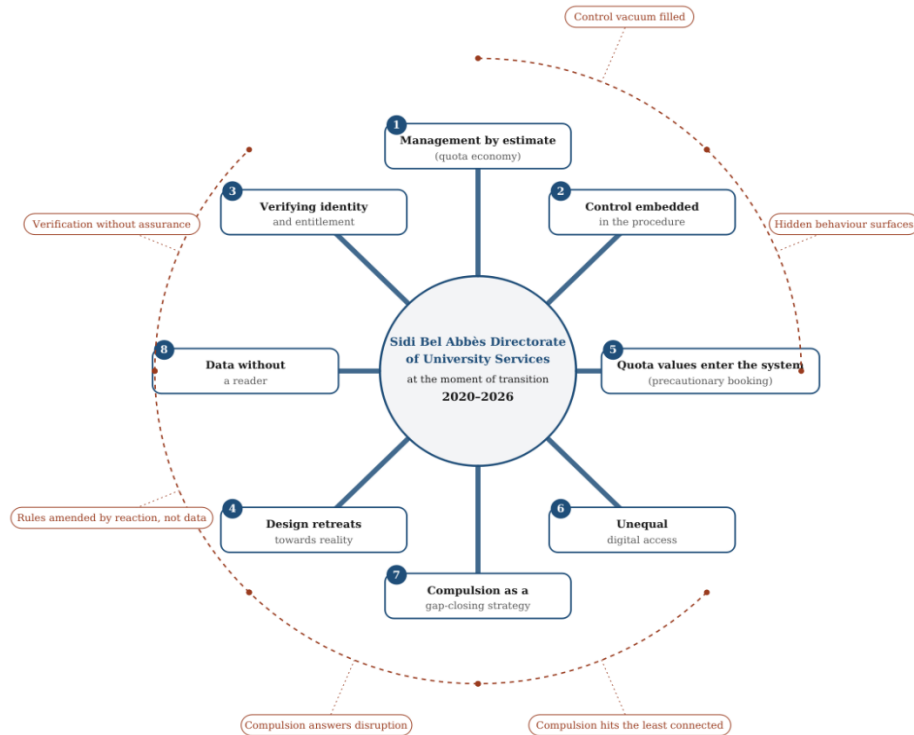
Recommendation. Task the control and coordination service with an internal monthly report drawn from WebEtud and MyBus data (booked, consumed, booked but not consumed, and matching of a sample of trips against invoices), and create an internal audit unit at the level of ONOU working under the IIA (2024) standards, with continuous auditing of catering and transport data as its first engagement.

4.5 The octopus: meaning from the relations between the arms

Read separately, the four dimensions would give a simple picture: a good system replaced a poor one. Read together, they produce a different meaning. The first arm (the quota economy) explains why the second arm (embedded control) succeeded so quickly: the system was not competing with an existing control, it was filling a void. The second arm explains the third (the amendment of the rules): once the meal becomes a transaction, the precautionary stocking behaviour that paper used to hide appears at once, and with it appears whoever had been silently paying the price of the gap. The third and fourth arms share one point: management amends the rules in reaction to the disruption visible at the counter, not by reading the data the system produces, because nobody is tasked with reading it. The meaning that emerges from these relations is that PROGRES has closed the information and technology gaps to a large extent, but it has exposed the people, process and values gaps that paper used to conceal. In other words, the system did not solve the governance problem; it made it visible for the first time, and that in itself is an achievement.

Figure 2: The octopus map — case, categories and relations

The case is the body, the eight categories are the arms, and meaning arises from the dotted relations between the arms. Solid line: category emerging from the case. Dotted line: interpretive relation between two categories.



“The system did not solve the governance problem; it made it visible.”

Source: prepared by the author.

Source: prepared by the researcher. Solid lines: emergence of a category from the case. Dotted lines: explanatory relation between two categories.

Table 4: Paper-based management versus PROGRES on the four governance dimensions

Dimension	Paper-based management	PROGRES (2020–2026)	What is still pending	Evidence
Transparency	The information does not exist; the housing decision is negotiated at the counter	Booking, decision and scholarship are recorded under the student's name and visible in the account	Housing ranking criteria not published; no reports on system data	N1, N3, N4, S1, S3
Accountability	The difference between what is prepared and what is due is never calculated; no individual trace on the meal or the trip	Every meal, trip and scholarship is a transaction with an owner and a time	Who is answerable for reading the data? No third line	N5, S8, E1, E4
Internal control	Ex-post, sample-based, relying on physical inspection	Real-time, embedded in the procedure (no booking = no meal; no verified account = no payment)	COSO monitoring component missing; no regular reconciliation	N4, N5, E3, E4

Dimension	Paper-based management	PROGRES (2020-2026)	What is still pending	Evidence
Service quality	Waste on departure days; shortage on peak days; delayed scholarship	Preparation according to those actually present; better meals; paperless payment	Quality not measured; extra burden on the student with least digital access	N5, S4, S6, S7, E1

Source: prepared by the researcher.

Table 5: The design–reality gap on the seven ITPOSMO dimensions

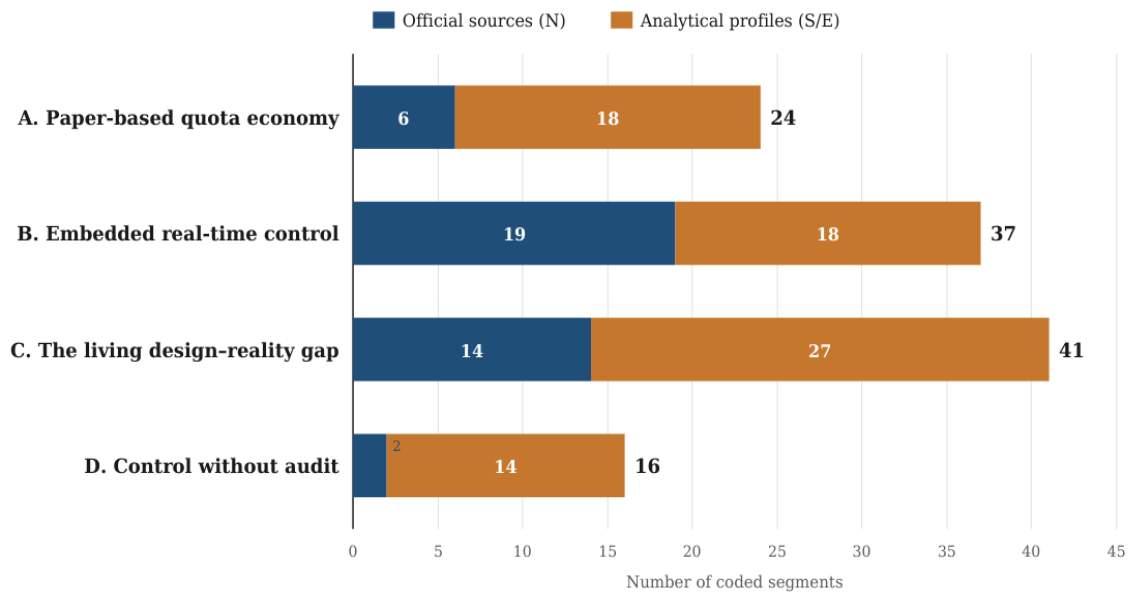
Dimension	Design assumption	Analysed reality	Degree of gap	Justification
Information	The number of beneficiaries is known before the service is delivered	It became known through booking, account and code	Low	The system's biggest gain (N4, N5, E1)
Technology	Card, wallet and account are always synchronised	Cases of non-synchronisation handled manually at the counter	Medium	The April 2026 statement acknowledges the problem (N4, S7, E2)
Processes	The kitchen adapts to bookings arriving 6 hours ahead	The quantity must be known before the day begins; amended to midnight	Medium	The design retreated towards reality in under a month (N4, E1)
Objectives and values	The student books only what they will consume	Precautionary booking for several days; 3-day cap imposed	Medium to high	Quota economy values migrated into the system (N4, S5, S8)
Staffing and skills	Someone reads the data and turns it into decisions and control	No internal audit or data analysis function	High	The absence of evidence is the evidence (N1–N5, E4)
Management systems and structures	Interconnection with the post office; appeals committees; extended powers for directors	Interconnection achieved; committees in place	Low	N3, N5, S6
Other resources (money/time)	One month of trial is enough for stabilisation	Amendments continue after the rule became compulsory	Medium	Shakedown longer than planned (N4, E2)

Source: prepared by the researcher, based on Heeks (2003).

Figure 3: Frequency of first-order concepts by aggregate dimension

Bar values from the researcher's coding of official sources and analytical profiles

17 sources and profiles · 44 first-order concepts · 118 coded segments



The contrast between official sources and analytical profiles in dimensions A and D is itself a finding: what the official documents leave unsaid is what the actors' situations bring to light.

Source: prepared by the author.

Source: prepared by the researcher. Values from the researcher's coding of 17 sources and profiles (44 first-order concepts, 118 coded segments): A. paper quota economy, 24 (official 6 / profiles 18); B. real-time embedded control, 37 (19 / 18); C. living design-reality gap, 41 (14 / 27); D. control without audit, 16 (2 / 14). The difference between official sources and analytical profiles in the first and fourth dimensions is itself a finding: what the official documents keep silent about is what the situations of the actors bring to light.

5. Discussion

5.1 Confronting the findings with the literature

The findings support the central hypothesis of the Heeks (2003) model but amend it on one important point. The model, as summarised in Dada's (2006) review, expects the information and technology gaps to be the hardest ones in developing countries, because the design comes from a data-rich context into a data-poor reality. What we found is the reverse: the information gap is the smallest and the people and values gaps are the largest. The explanation is that the design was national and in-house, and was built on precise knowledge of the paper reality, which is what Krishna and Walsham (2005) identified as a condition of success. The technical architecture therefore came adapted to local conditions, but the design could not change what technology does not change: the habits of obtaining the service, and the absence of a culture of reading data inside the administration. This suggests an adjustment to the model when it is applied to nationally designed systems: the soft dimensions may be wider than the hard ones, which meets what Bass and Heeks (2011) found in African universities, where the values and skills gap proved more stubborn than the equipment gap.

The findings confirm the life-cycle model of Markus and Tanis (2000) almost to the letter: a long chartering period (2020–2025), then a project, then a shakedown (March–April 2026) marked by rapid amendments, then an onward phase that has not yet stabilised. What the Algerian case adds is that the shakedown was not managed by negotiation with users but by instruction, which shortens it in appearance but pushes resistance into the operating phase in the form of individual adaptations. Here our findings meet what Munoz Acuna and colleagues (2024) found, namely that power relations inside the university institution shape the path of transformation more than the technical architecture, and what Weerakkody and colleagues (2011) confirmed in the Arab context, namely that the complexity is institutional before being technical. DeLone and McLean (2003), for their part, are supported on their service quality dimension as independent from system quality: the system works, but the

student who finds their booking missing at the restaurant door judges the service, not the system, and this explains the moderate satisfaction recorded by the M'sila study (Salmi et al., 2024) despite complete digitalisation.

The findings also add to the continuous auditing literature an observation that had not been formulated in it before: the technical condition of continuous auditing (Vasarhelyi & Halper, 1991) can be fully met in a public organisation without its organisational condition being met, which produces a state of "control without audit" in which the organisation generates assurance data that nobody reads. This state is explained by what Cohen and Sayag (2010) showed about top management support as a precondition of internal audit effectiveness, and by what Roussy and Brivot (2016) showed about audit quality being defined by whoever requests it; in our case, nobody requests it.

5.2 The Algerian particularity

Three particularities distinguish the case. The first is institutional: university services are free or almost free and are financed from the general budget, which means that the student's incentive to rationalise consumption is weak by nature, and that the digital system replaces the missing price signal with a booking signal. The three-day cap is thus an implicit pricing tool, not merely a technical rule, and this meets the attempts to apply activity-based costing in Algerian university residences, which revealed that the real cost of the service is simply unknown in the traditional mode. The second is organisational: decision-making is centralised in ONOU and the Ministry, and the Directorate is an execution unit; the successive amendments are therefore to be read as learning at the level of ONOU, which speeds up generalisation but neglects local variation. The third is legal: Law 18-07 imposes constraints on the processing of personal data, and merging booking, location and postal account data in a single database calls for a declared policy on data retention and access, which is mentioned in none of the sources. This adds an implicit eighth dimension to ITPOSMO in the Algerian context: the legal gap.

5.3 What the article adds

The paper makes three contributions. Theoretically, it shows that the design-reality gap model, when applied to nationally designed systems, needs its dimensions reordered so that the people, values and process dimensions carry more weight than the information and technology dimensions, and it introduces the concept of "control without audit" as an intermediate state between digitalisation and governance. Methodologically, it shows that combining documentary analysis of successive official statements with the vignette technique makes it possible to track the movement of the gap (its widening and narrowing between March and April 2026) and to see the same procedure from the student's side and the staff's side together, which the quantitative questionnaires that dominate Algerian studies cannot offer. Practically, it moves the internal control question from "is there control?" to "who reads what the system produces?", and it suggests that the next step is not a new platform but an internal audit function that exploits the existing ones.

6. Conclusion

6.1 Answers to the sub-questions

First question – the failures of the paper mode: The paper mode produced a quota economy in which resources were distributed by estimation, generating waste on departure days and shortage on peak days, an informal quota for whoever was closest to the point of distribution, and delayed scholarships because of unverified accounts. The fault was not in the text but in the break in the information chain between services.

Second question – the actual use of PROGRES: In housing: an online application with three choices, a decision in the account, and an appeal before a committee. In scholarship: paperless payment through interconnection with the post office. In transport: location tracking and confirmation by code. In catering: compulsory prior booking tied to a card and a wallet, which produced control embedded in the procedure and contributed to lowering the national bill.

Third question – the position of the gap and of resistance: The gap appears in processes (the booking rule amended in less than a month), in values (precautionary booking, which carried the quota logic into the system), and in technology (the card not synchronised with the account), and its cost is paid unevenly according to digital access. Resistance is adaptation, not refusal, and management answered it with compulsion.

Fourth question – the effects on internal control and digital governance: Control moved from ex-post to real-time and embedded, which is a real gain; but digital governance is not complete, because the data are not read regularly for assurance and learning purposes, and because the decision criteria and the personal data policy are not published: control without audit.

Answer to the main question: PROGRES narrowed the design-reality gap to a large degree on the transparency and internal control dimensions, to a medium degree on the service quality dimension, and to a limited degree on the accountability dimension. The remaining gap is not technical; it is human and organisational.

6.2 Recommendations

For the Sidi Bel Abbès Directorate of University Services:

- Prepare a 2024–2025 baseline of indicators (meals prepared/consumed, scholarship delays, housing appeals) to measure the system's impact.
- Task the control and coordination service with a monthly report from WebEtud and MyBus data: booked, consumed, booked but not consumed, and matching of a sample of trips against invoices.
- Set up a permanent digital support desk in every residence during the first six weeks of each academic year, with an alternative booking channel for anyone who can show that access is impossible.

For the National Office of University Services:

- Create an official register of amendments to the operating rules (date, reason, effect) and circulate it to the Directorates as an organisational learning tool.
- Publish the criteria for ranking housing applications and the reason for rejection in a standard format inside WebONOU.
- Create an internal audit and data analysis unit working under the Global Internal Audit Standards, with continuous auditing of catering and transport data as its first engagement.
- Adapt the booking rules to the size of the restaurant (the day cap, the closing hour) instead of a single national rule, while keeping the system unified.

For the Ministry of Higher Education and Scientific Research:

- Issue a declared policy on the retention of and access to PROGRES data in the university services component, in compliance with Law 18-07, and publish it for students.
- Integrate university services governance indicators (not only installation indicators) into the evaluation of the digitalisation master plan.
- Tie the expansion of digitalisation to the training of Directorate staff in reading and analysing data, not only in using the platform.

6.3 Limits of the study

The study rests on a single case, its field material consists of vignettes that test the framework in situations constructed from documents and the literature, and its financial figures are national rather than local. The researcher had no access to data from inside the system, so the daily experience of the user remains analysed through the profiles rather than described through direct testimony. The findings are offered as analytical generalisation to the theoretical model, not as generalisation to the other Directorates, and they are expected to be tested through field interviews once the system has stabilised.

6.4 Future research

The article opens three research paths. The first is continuous auditing of PROGRES data, by designing automated analytical tests that run on daily data and produce alerts for internal audit. The second is artificial intelligence in the internal control of the university service, in particular forecasting the number of meals and detecting abnormal patterns, together with an examination of its legal constraints. The third is a comparative study between Directorates of different sizes, to test the hypothesis that the gap scales with the size of the restaurant rather than with the quality of the system.

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