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Business Analysis and Digital Process Transformation in a TMS Implementation: An Internship-Based Study at CargoFL

Amey Kokre[1], Dr. Ashish Shrivastava[2]

[1] MBA Student (Batch 2025–27), School of Business, Indira University, Tathwade, Pune – 411033, India
[2] Faculty and OJT Mentor, School of Business, Indira University, Tathwade, Pune – 411033, India

A B S T R A C T :

A Business Analyst (BA) sits between a client's business processes and the technical team that configures and delivers software, yet student accounts of this role in live SaaS implementations are rare. This paper presents a qualitative, internship-based study of a Transportation Management System (TMS) implementation delivered by CargoFL, a Pune-based logistics-technology company, for a manufacturing client in the construction and road-building equipment sector. Between 1 June and 1 September 2026 the author served as Secondary BA on the Domestic (Full Truck Load/Part Truck Load) module through User Acceptance Testing (UAT) and go-live, and was then assigned as Lead BA for the International (EXIM) import workstream. Data were drawn from the author's activity log, permitted non-confidential project material and direct observation, and analysed through AS-IS/TO-BE comparison and gap analysis. The findings indicate that structured UAT surfaced issues before go-live, that many reported issues were training, configuration or requirement matters rather than defects, and that role-specific training was as important to adoption as technical verification. No quantitative gains are claimed because no verified baseline existed. The paper recommends standard UAT issue-logging, a BA coordination checklist, reusable role-specific training and structured onboarding for the EXIM role.

Keywords: Business Analysis; Transportation Management System; User Acceptance Testing; SaaS Implementation; Change Management; Logistics Technology; EXIM

1. Introduction

On-the-Job Training (OJT) is an eight-credit component of the MBA (Business Analytics) programme at the School of Business, Indira University. This paper is based on the author's OJT as a Business Analyst Intern at CargoFL, a Pune-based logistics-technology company, from 1 June to 1 September 2026, within an engagement that continues to 30 November 2026. It is therefore a snapshot of ongoing work, not a post-mortem of a finished project.

The placement was on a live implementation of CargoFL's Transportation Management System (TMS) for a manufacturing client. The Domestic module covers Full Truck Load (FTL) and Part Truck Load (PTL) movements within India; the International (EXIM) module covers sea and air imports involving forwarders, shipping lines or airlines, ports and container freight stations, customs brokers and the client's warehouse. During the reporting period the Domestic module moved through UAT to go-live, while EXIM entered requirement scoping, at which point the author became Lead BA. The Domestic module is therefore treated as the evidenced body of work and EXIM as defined, forward-looking scope.

A BA works at the interface between the client's processes and the delivery team: eliciting and documenting requirements, validating delivered behaviour and managing the gaps that appear once real users test. Before the implementation the client relied on manual coordination, spreadsheets, and email and phone communication. The difficulty was structural rather than chaotic: information lived in individual mailboxes and files, so even a routine question such as which transporter was allocated to a dispatch depended on someone remembering or being asked. The paper documents the BA activities that supported go-live, reports observations on training, developer coordination and issue classification, outlines the EXIM scope and derives recommendations. Section 2 reviews context and concepts, Section 3 states objectives and method, Section 4 describes the work, Section 5 presents findings, Section 6 covers challenges and limitations, and Sections 7 and 8 give recommendations and conclusions.

2. Review of Literature

2.1 Sector and regulatory context

NASSCOM estimates India's technology industry revenue (including hardware) at about USD 282.6 billion in FY2025, with the domestic market (USD 58.2 billion) growing at 7.0% against 5.1% for the industry as a whole [8]. Estimates of the Indian SaaS market vary with methodology but converge on strong double-digit growth driven by enterprise cloud adoption and AI-led differentiation [2], [5]. Logistics costs are commonly put at 13–14% of GDP against roughly 8–10% in developed economies, a gap the National Logistics Policy (NLP) targets [7]; software addresses the coordination layer of this

gap, not its structural causes such as modal mix and fragmented trucking capacity. By August 2025 the NLP's Unified Logistics Interface Platform (ULIP) had enabled API integration across more than 30 systems and over 160 crore digital transactions [10]. Regulation also shapes the process itself: a container cannot leave a port before the Bill of Entry is assessed and duty is paid, and a domestic consignment above a threshold value cannot legally move without an e-way bill. Reliable India-specific market sizing for the TMS segment alone was not identified, so these figures are directional context only.

2.2 CargoFL and the TMS platform

A TMS covers order and shipment management, carrier selection, load and route planning, tracking, proof of delivery, freight billing and, for imports, integration with customs systems. CargoFL is headquartered in Pune; a third-party profile reports that it was founded in 2017 and received seed funding from Hindustan Petroleum Corporation Limited in 2019 [12], and its own materials describe a cloud-based, AI-powered TMS serving more than 75 businesses (self-reported) [1]. These details come from a profile aggregator and company marketing, not audited disclosures, and are indicative only. From a user's viewpoint the platform is organised around a shipment record to which the transporter, vehicle, milestones, documents, exception notes and freight charges attach. Most functional requirements are statements about that record: what may create it, what must exist before it advances, and who may edit which field at which stage.

2.3 Business Analysis concepts

The International Institute of Business Analysis defines Business Analysis as enabling change in an organisational context by defining needs and recommending solutions that deliver value to stakeholders [6]; Paul and Cadle frame it similarly across strategy, process and technology [9]. Its test is value in the stakeholder's terms: a feature built to specification and then not used meets the specification yet fails the definition. Hass describes the BA as manager of the requirements life cycle and liaison between business and technical teams [4], and Gobov and Huchenko distinguish requirement engineering, which specifies and manages requirements, from Business Analysis, which spans the wider life cycle of a business need [3]. AS-IS analysis documents how a process currently runs, TO-BE analysis defines the target state, and gap analysis compares the two [11]. A gap need not be closed by development; it may be closed by configuration, process change, training or acceptance of a manual path. UAT differs from system testing: it asks whether the software does what the business needs, and is carried out by people who know the business rather than the specification. Master data (vendor codes, locations, rate cards) must be accurate for a TMS to work, and cleaning it needs business knowledge as well as spreadsheet skill. Change management matters because resistance to a new system is often rational: a skilled operator becomes a beginner on go-live day, so the effective response is to reduce the cost of transition rather than add persuasion.

3. Objectives and Research Methodology

3.1 Objectives

The study had four objectives: (i) to analyse the Domestic (FTL/PTL) transport process at the client and the BA's role in supporting its UAT and go-live; (ii) to document the BA activities performed, including requirement clarification, UAT execution, developer and QA coordination and client training; (iii) to assess how BA practice contributed to stakeholder coordination, issue resolution and go-live; and (iv) to outline the defined scope of the EXIM workstream and the transition from Secondary to Lead BA. Objectives (i)–(iii) are retrospective; objective (iv) is prospective and reports scope assumed, not an outcome achieved. The objectives were rewritten from an earlier EXIM-centred framing because the Domestic module reached its critical phase within the window while EXIM began only at its close.

3.2 Research design and data

A qualitative, project-based, participant-observer design was adopted. Data came from the author's activity log, permitted non-confidential project material, the structure of the EXIM solution-design material (phases, actors and integration touchpoints) and direct observation of client and delivery teams. Analysis used AS-IS/TO-BE comparison, gap analysis and classification of UAT issues, with observation-based interpretation. Tools used were Jira (issue tracking), Excel and Google Sheets (data cleaning and UAT tracking), Power BI (reporting support), Google Docs, MS Word and PowerPoint (documentation and training) and Google Meet, MS Teams and email (communication). The author joined at the UAT stage, after requirement definition and build, so his work was weighted towards validation, coordination and adoption rather than elicitation.

3.3 Scope, confidentiality and evidence

The study is limited to what the author worked on between 1 June and 1 September 2026 and what can be disclosed without breaching client confidentiality. Freight rates, contract terms, shipment volumes, credentials, platform screenshots and the client's process documentation are excluded, and processes are described generically. No quantitative performance figures are presented: no measured baseline of the manual process was captured before go-live, and the period closed too soon after it for post-implementation measurement, so any figures would be estimates presented as evidence. The comparisons and examples in Section 5 are generic reconstructions, not client records.

4. Business Analyst Activities on the Domestic Module

4.1 UAT execution and issue resolution

Work followed an iterative test-fix-retest cycle (Fig. 1). The author executed UAT scenarios, logged issues in Jira, confirmed the appropriate resolution with the client and coordinated with developers so that what the client needed was communicated; a fix addressing the symptom but not the operational need would be closed by the developer and reopened by the user. The cycle was not uniform: a configuration change might be verified the same afternoon, while an issue touching shared platform behaviour could take days because it was assessed against other clients. Client availability, not issue complexity, was the binding constraint, since the best testers were also running the operation being replaced. Coverage therefore skewed towards routine scenarios, and asking users to attempt awkward cases (a short delivery, a cancelled dispatch, a last-minute vehicle substitution) produced a disproportionate share of findings. Issues reported within a day were easier to resolve than those reported a week later.

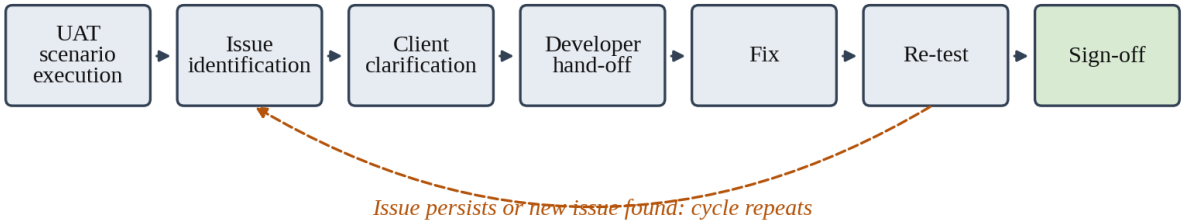


Fig. 1. Iterative UAT test-fix-retest cycle on the Domestic module

4.2 Requirement clarification and developer/QA coordination

Client issues arrived in operational terms (consequences), whereas developers need conditions: which field was empty, at which step, under which user role. Converting one into the other, several times a day, was the most repeated activity of the period. A questioning sequence emerged: what the user was trying to accomplish, a demonstration rather than a description, what they did before the system existed, and the consequence of the problem. The first three establish the requirement and the fourth its priority. Coordination worked when the author arrived with reproducible steps, the user role, the expected result and the observed result. Developers also challenged requirements, and a question of the form "why does the client need it that way" sometimes exposed an unexamined assumption and led to a simpler solution. The author also joined API and integration discussions to ensure that client needs from integrations were understood by the build team.

4.3 Role-specific on-site training

The author delivered on-site training to the client's logistics, commercial and warehouse teams at the Pune plant using PowerPoint material and the live platform. An initial screen-by-screen tour drew little engagement. Sessions restructured around each team's routine work, starting with a task the person performs daily, produced specific operational questions that exposed expectations which would otherwise have surfaced as complaints in the first live week. A one-page reference for each role in the team's own vocabulary and a named contact for the first live week accompanied the sessions, since a user who reverts to the spreadsheet once finds it easier to revert again.

4.4 Reporting, master data, documentation and post-go-live support

The author attended the daily internal stand-up (9:30–10:30 AM) and sent the reporting manager a Friday update, which feedback shifted from an activity list towards what changed, what is blocked and by whom, and what decision is needed. He cleaned and validated client master data in Excel; defects included one organisation under several spellings, inconsistent code formats and long-unused vendors, and since resolving them needs business knowledge the method was to return a cleaned file with ambiguous cases flagged to the client. Documentation covered Minutes of Meeting (MoM), inputs to Business Requirement Document (BRD), Statement of Work (SOW) and Standard Operating Procedure (SOP) material, and user stories and acceptance criteria, mainly for EXIM; MoM circulated within a day was the most valuable artefact for its cost. After go-live the author triaged residual issues. Unlike UAT issues, these arose from real situations nobody had chosen (a partly received consignment, a vehicle changed after allocation), and distinguishing defects from training gaps quickly mattered because routing a training gap to development wastes engineering time and leaves the user unanswered.

5. Data Analysis and Findings

5.1 AS-IS versus TO-BE analysis

Table 1 compares the Domestic process before and after implementation, represented generically from the author's direct exposure to UAT and go-live.

Table 1. AS-IS versus TO-BE comparison for the Domestic (FTL/PTL) transport process

AS-IS activity	Existing issue	TO-BE solution and expected benefit
Transporter allocation by phone or email	No single source of truth on allocation; delays and duplicated communication	System-based allocation; faster and auditable
Shipment status by manual follow-up calls	Limited real-time visibility; reactive issue handling	Digital milestone and tracking updates; proactive exception handling
Documents in scattered spreadsheets and emails	Inconsistent, hard to retrieve; time lost and audit risk	Centralised documentation; consistent, retrievable records
Freight billing reconciled manually	Error-prone matching of freight cost to invoices	System-supported billing and reconciliation; less manual effort

Read down the second column, the four issues are variations on one condition: the information needed to do the work existed somewhere in the organisation but was held by a person, file or mailbox rather than by the organisation. The TO-BE column is one intervention applied four times: move the information from the individual to the shared record. This also explains why resistance, where it appeared, was seldom about the software. The most visible qualitative improvement was in tracking and status visibility: logistics and commercial staff could see shipment and allocation status in the system rather than calling or emailing for it. No visibility metric (such as time saved per query) was measured, and none is claimed.

5.2 UAT issue classification and gap analysis

Reported issues fell into four kinds, illustrated here generically and not from client logs: functional (for example, dispatch confirmation allowed without a completed allocation step, or goods-receipt entry not linked to the shipment record); process or training (user discomfort with the new workflow); data quality (unreliable master data); and requirement gaps (the requirement was silent). Only functional issues required a software change; the other kinds would have presented as system problems to a busy team unless someone classified them. A diagnostic sequence emerged: establish what the user expected and where the expectation came from; establish whether the system contradicts the requirement or only the expectation; and, if the requirement is silent, resolve it by a decision rather than a fix. Applied consistently, this routed a meaningful share of issues away from the development queue towards training, configuration or a conversation with the process owner.

5.3 Stakeholder roles

Three client teams had different relationships with the system. Logistics were daily primary users concerned with speed per routine task, and for them the system replaced a coordination burden. Commercial used it less often but at higher stakes, because errors in freight cost or reconciliation carry financial consequence; the change formalised a reconciliation already performed. Warehouse interacted at one critical point, recording goods receipt, and their overriding concern was that the system should not delay a vehicle at the gate. It added a recording step at the moment of greatest time pressure, so their initial reluctance was an accurate reading of their incentives, not resistance to technology. What the change cost each team predicted its response better than technical confidence.

5.4 EXIM scope, integrations and exception handling

The EXIM solution design has six phases, 52 process steps, eight actor lanes and ten system integrations (Fig. 2). Where a domestic movement involves the client, a transporter, a consignee and one regulatory artefact, an import passes through eight actor lanes and depends on ten systems, most owned by other organisations; the step up lies in the number of handover points at which a process can stall unnoticed. Named touchpoints include ICEGATE/ULIP, e-Sanchit, port and container freight station systems and carrier booking systems. None can be altered to suit the project, so integration discussions concern what the system should do when data does not arrive: each integration has a defined manual fallback, degrading the process to a slower path instead of halting it. A manual path used often enough quietly becomes the process, so fallback frequency should itself be recorded. This is the author's Lead BA mandate and is defined scope, not completed analysis.



6 phases | 52 process steps | 8 actor lanes | 10 system integrations

A manual fallback path is defined wherever an external integration is unavailable

Fig. 2. Defined scope of the EXIM workstream (not completed analysis)

5.5 Summary of findings

Table 2. Contribution of BA activities to the implementation

Activity	Contribution observed
UAT execution	Issues surfaced and resolved before reaching live users; evidence for the go-live decision
Developer and QA coordination	Operational symptoms translated into conditions developers could act on
Role-specific on-site training	Adoption support; expectations surfaced before go-live
Issue classification	Training, data and requirement matters routed away from the development queue
Status reporting and stand-ups	Management visibility of delivery status and blockers
Master-data cleaning and validation	Reliable master data; ambiguous cases resolved with the client
Documentation (MoM, SOP inputs)	Shared, referenceable record of decisions and owned actions

The contribution is real but bounded. The author did not design or build the module, did not test it in the formal QA sense and did not decide that it was ready for go-live; he executed the acceptance testing that produced evidence for that decision, converted findings into a form developers could act on and prepared client staff to operate the result.

6. Challenges and Limitations

6.1 Challenges

Early on, the import/EXIM domain (Bill of Entry, IGM, customs clearance) was unfamiliar; reviewing the EXIM solution-design material and consulting experienced colleagues built a working vocabulary. Separating standard platform behaviour from client-specific configuration required direct engagement with client teams during UAT. External integration dependencies required joining API discussions and reviewing the fallback design. Translating AS-IS into TO-BE across client, developers and QA required clarifying ambiguous descriptions before hand-off. Master-data quality was handled through structured cleaning, and confidentiality required abstracted process descriptions and the exclusion of proprietary material. Two judgement challenges did not fit this pattern: calibrating confidence in front of the client (answer what is known, state what is not, and commit to a time for the rest), and being the most junior person in a room where time is expensive (batching non-urgent questions and separating those answerable by twenty minutes of reading from those needing someone's experience).

6.2 Limitations

Confidential client information and internal documents (BRDs, SOWs, detailed UAT logs) could not be reproduced, so processes are described generically. EXIM was at requirement scoping when the period closed, so no EXIM outcomes are presented. Quantitative metrics were unavailable in verified form. The study relies on the author's own account, without independent assessment of his contribution, and does not verify company-level facts beyond public sources. It covers one module, at one client, in one sector, observed by one person for three months, so observations are offered as true in this instance, not as findings expected to hold across implementations. The period closed shortly after go-live; whether master data stayed clean, whether trained users kept following the process and whether reconciliation benefits materialised over a full billing cycle remain open.

7. Recommendations and Future Scope

UAT issue-logging template. Adopt a structured Jira template capturing the business scenario, observed behaviour and expected behaviour, completed before an issue is routed to developers; it front-loads part of the translation described in Section 4.2 and eases classification as defect, training gap or requirement gap.

BA coordination checklist. A short, reusable checklist for issue triage, developer hand-off, status reporting and training scheduling, piloted on the next module and extendable into onboarding for BAs joining a live implementation mid-cycle.

Reusable role-specific training. Base templates for logistics, commercial and warehouse roles, organised around the tasks a role performs rather than platform screens, adaptable to clients with similar team structures and piloted on EXIM, which must train a broader set of roles.

Structured onboarding for the EXIM Lead BA role. Knowledge-transfer sessions on the ten integrations, customs terminology and the six-phase design, with the solution-design documentation as primary reference, to reduce ramp-up risk.

Baseline capture. Where a client's current process is to be replaced, a short baseline of the existing state (for example, typical time to establish a shipment's status, or manual touches per dispatch) should be captured before go-live; without it no honest claim about improvement can be made.

Future work. A follow-up study six months after go-live, using a captured baseline, could test whether the qualitative benefits reported here translate into measurable gains in visibility, reconciliation effort and data quality, and could assess the EXIM UAT cycle.

8. Conclusion

This paper documented a BA Intern's contribution to the UAT and go-live of a TMS Domestic module and the transition to Lead BA on the more complex EXIM workstream. The evidence supports a material but bounded BA contribution, concentrated on UAT execution, developer and QA coordination, on-site training and status reporting. Structured UAT surfaced issues before they reached live users and showed that many were training, configuration or requirement matters rather than defects; role-specific training was as important to adoption as technical verification; and the core of the BA's value lay in sustaining shared understanding between business, development and QA teams. The central lesson is that implementation risk lay less in whether the software worked than in whether the right people understood the same thing at the same time. EXIM remains defined future scope, and its outcomes are for later study.

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