

## CRITICAL ANALYSIS OF CUSTOMS DIGITALIZATION-CUSTOMS BROKER PERSPECTIVE

*JOHN PIUS\**, *SEKAR MURUGAN*

\*Corresponding author: [johnpiusnedumkallel@gmail.com](mailto:johnpiusnedumkallel@gmail.com)

**Abstract.** Customs digitalization has significantly transformed clearance procedures in international trade, moving from manual, paper-based processes to streamlined, risk-based, and digital systems. In India, this transformation has directly impacted the role of Customs House Agents (CHAs), who continue to play a vital intermediary role. This study examines two central aspects: (1) how digital customs initiatives—such as electronic filing, Risk Management Systems (RMS), single-window systems, and the Authorized Economic Operator (AEO) program—have influenced clearance efficiency, and (2) how the professional role of CHAs is evolving in response to these changes. Through qualitative research involving in-depth interviews with experienced, licensed CHAs, the study captures nuanced insights into the operational impact of digital systems and brokers' adaptive strategies. Data were coded and thematically analysed using MAXQDA software, allowing for the systematic identification of key patterns and themes emerging from expert perspectives. Findings reveal that digitalization has led to a substantial reduction in physical intervention, simplified documentation requirements, and improved procedural transparency. However, CHAs remain indispensable due to their expertise in error-free digital document filing, coordinating during physical examinations, and providing export-import clearance guidance in compliance with customs regulations. These functions highlight the sustained strategic relevance of CHAs, especially in ensuring trade flow continuity and regulatory adherence. The paper recommends capacity-building initiatives and digital training programs for CHAs to strengthen their evolving role in a technology-driven customs environment. It also calls for policy frameworks that recognize and integrate the expertise of CHAs in shaping resilient and adaptive trade facilitation ecosystems.

**Keywords:** Customs digitalization, customs house agents, customs clearance process, risk management system.

**JEL Classification:** F13, O33

### 1. INTRODUCTION

Customs clearance is a crucial step in international trade, enabling the movement of goods while ensuring compliance with regulatory frameworks. The World Customs Organization (WCO) defines customs clearance as a process controlled by national customs authorities to manage the import, export, and transit of goods, ensuring adherence to customs regulations while facilitating trade (WCO, 1990; WCO, 2001). Historically, Customs clearance processes involved myriad requirements that were manually operated, complex, sequential and time-consuming. (CBIC, 2020b) However, Customs digitalization has revolutionized clearance processes, transitioning Customs administrations from rigid, manual, and sequential systems to streamlined, risk-based, and facilitation-oriented practices (Mikuriya,

2006). In the rapidly evolving landscape shaped by digitalization, the role of Customs House Agents (CHAs) has undergone significant transformation. Digital initiatives such as electronic filing, risk-based assessments, single-window systems, and faceless clearances have transformed traditional customs operations. These advancements have shifted CHAs from manual, sequential processes to a more streamlined and automated approach. In this context, it is essential to examine the impact of customs digitalization from the perspective of key stakeholders—particularly CHAs—and explore their evolving role within the digitalized trade ecosystem.

## 2. LITERATURE REVIEW

In the Government-to-Business (G2B) context, customs clearance remains a complex and critical area involving various stakeholders, including customs officials, freight forwarders, and CHAs. Despite efforts at streamlining, customs operations often suffer from inefficiencies and fragmentation, resulting in shipment delays and increased costs. With millions of cargo containers crossing international borders each week, efficient customs procedures are vital to sustaining global trade flows (Granqvist, Hintsa, & Männistö, 2011). However, customs are frequently viewed as logistical bottlenecks, given the administrative burdens and compliance costs that may account for up to 15% of a product's value (Verwaal & Donkers, 2002). As a result, scholars emphasize the need for procedural simplification and greater transparency to enhance trade facilitation (Grainger, 2011). Simplified customs systems are known to reduce transaction costs, improve delivery reliability, attract investments, and contribute to economic growth (Appeals & Swielande, 1998).

Digitalization, particularly through e-Customs platforms like ICEGATE (Indian Customs Electronic Interchange Gateway), has reshaped the customs landscape. These systems enhance efficiency, cut trade-related costs, and reduce corruption and bureaucratic delays (Grainger, 2011). By enabling paperless trade, digital systems centralize documentation, automate cargo tracking, and improve transparency (Roy & Xiaoling, 2020). In developing economies, digital platforms reduce transaction costs and enhance competitiveness, contributing positively to export performance (Rezende de Castro & Kornher, 2023).

Several theoretical lenses have been used to understand e-Customs adoption. Raus, Flügge, and Boutellier (2009) utilized Rogers' Innovation Diffusion Theory to explain adoption patterns, though Lyytinen and Damsgaard (2001) critiqued its inadequacy in multi-stakeholder environments like customs, advocating for models that better address regulatory complexity and interoperability. (Rukanova, Henriksen, van Stijn, & Tan, 2007) supported a broader approach to include varied stakeholder needs and legal constraints.

In parallel, scholars have acknowledged the important role of intermediaries like CHAs in facilitating trade. Intermediaries help firms manage the complexities of cross-border regulations, thus lowering trade costs (Ahn, Khandelwal, & Wei, 2011; Akerman, 2018). Their relevance is pronounced among SMEs in developing countries, where they contribute to profitability (Abel-Koch, 2013; Grazzi & Tomasi, 2016). Smaller firms especially depend on CHAs for customs declarations (Medin, 2021). Intermediaries also reduce fixed costs and facilitate compliance through specialization (Grainger, 2008; Maurseth & Medin, 2019). CHAs perform critical tasks like filing entries, coordinating inspections, and warehousing (Subrahmanyam & Subhashini, 2018), and their efficiency influences CFS (Container Freight Station) selection.

Despite digitalization, CHAs are not obsolete. The theory of reintermediation offers a lens to explore how they adapt and maintain relevance within new digital workflows. Studies on e-Government emphasize both barriers—like complexity, resistance, and inter-agency issues (Grainger, 2011) — and enablers, such as process standardization, regulatory clarity, and procedural improvements that foster an environment conducive to innovation (Raus et al., 2009). However, organizational and inter-organizational dynamics in B2G settings remain underexplored (Lyytinen & Damsgaard, 2001).

### 3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA

This study aims to explore the dual dimensions of customs digitalization and its influence on customs brokers, with a specific focus on the Indian context. The primary objective is to assess how digital customs initiatives—such as electronic documentation, risk management systems, single-window clearance, and the AEO program—have impacted the operational efficiency and procedural role of CHAs. By examining the extent of physical intervention reduction and improvements in workflow, Part A of the study evaluates how digital platforms have enhanced the overall clearance process from the perspective of customs brokers. Part B focuses on understanding the evolving role of CHAs amidst increasing digitalization. It investigates the continued reliance of exporters on brokers, changes in client interaction patterns, increased document handling responsibilities, and the brokers' shifting value proposition in a digital-first environment. The study also aims to identify and prioritize critical functions that CHAs must perform in the digital era, assessing their adaptability and strategic importance in maintaining trade flow efficiency.

Tab. 1

*Research Objectives and Corresponding Measurable Indicators*

Part	Research Objective	Measurable Indicators
Part A	To evaluate the effectiveness of ICEGATE in customs clearance	<ul style="list-style-type: none"> <li>• Extend of Electronic Documentation</li> <li>• Reduction in physical intervention</li> <li>• Impact of Risk Management System</li> <li>• Extend of Single Window Clearing</li> <li>• Reduction in number of clearance Documents</li> </ul>
Part B	To Evaluate the evolving role of customs Brokers	<ul style="list-style-type: none"> <li>• Extend of Reliance on Customs Brokers</li> <li>• Shift in Nature of Work Post Digitalisation</li> <li>• Extend of Reliance during physical Examination</li> <li>• Critical Roles of Customs Brokers</li> </ul>

Source: By Author

RQ1: How has customs digitalization influenced the efficiency and operational processes of customs brokers, particularly in documentation, physical intervention, risk management, and clearance procedures?

RQ2: How is the role of customs brokers evolving in the digitalized trade environment, and what key functions must they perform to enhance their relevance and strategic value in the future?

A qualitative research approach was employed for this study, as previous research on customs clearance efficiency and digitalization has primarily focused on quantitative analyses. However, a qualitative study that captures the perspectives of CHAs on digitalization remains limited. Given the need for an in-depth understanding of how digital transformation is perceived and experienced by industry professionals, an exploratory qualitative study was conducted using expert interviews and an unstructured questionnaire. This approach provided a holistic view of the topic by capturing real-time experiences and industry insights.

The interview questionnaire was developed based on insights gained from a literature review and a pilot study conducted with an experienced CHA. The pilot study helped refine key themes and ensured that the questions captured relevant industry challenges and perspectives.

To obtain first hand industry experiences, the researcher conducted in-person interviews by visiting CHA offices.

Sample Profile of Interview Participants

Participant Type	Number of Interviews	Designation	Experience Level
CHA with Licensed F card	5	Director, Managing Partner	More than 15 years

Source: By Author

After the first interview, an open coding process was initiated to identify emerging themes. A codebook was then developed to systematically document the evolving codes, categories, and overarching themes. As subsequent interviews were conducted, additional codes were identified through continuous analysis, allowing for refinement and expansion of the code structure. Data collection continued until no new codes or significant patterns emerged, indicating thematic saturation.

A purposive sampling method was employed to ensure the inclusion of only experienced industry professionals with substantial domain knowledge. The study focused on CHAs holding an F Card, representing independent license holders, and experienced employees working in CHA offices who hold a G Card and are actively involved in customs clearance operations. To maintain the depth and reliability of insights, only CHAs with over 15 years of industry experience were selected (Tab. 2). All interviews were recorded and subsequently transcribed for rigorous qualitative data analysis.

## Data Analysis

MAXQDA software was used for qualitative data analysis. Thematic analysis was conducted to identify key themes and visualize relationships between different codes. A hierarchical code-subcode model was used to represent the structure of emerging themes. Additionally, the code-subcode segment report was generated to systematically display qualitative responses, categories, and themes derived from the interviews.

### I. Thematic Analysis: Customs and Clearance Efficiency

#### A. The Extent of Electronic Documentation Adoption

The MAXQDA Coded Segment Report (Tab. 3) provides qualitative insights from expert agents, highlighting their views on Electronic Filing.

Code-Coded Segment Report-Electronic Documentation

Code	Coded Segment
Shift to Electronic Submission of Clearance Documents > Exceptional Visits for Query Resolution	We hardly visit the customs station anymore, except when queries arise
Shift to Electronic Submission of Clearance Documents > Past Challenges of Offline Filing	In the past, the offline filing desk at the customs house was often crowded with brokers queuing to file shipping bills, resembling a busy railway station
Shift to Electronic Submission of Clearance Documents > Reduction in Physical Interactions	With the introduction of the ICEGATE portal, the need for manual filing has gradually diminished. All clearance-related documents are now submitted electronically, streamlining the process and reducing physical interactions at customs offices

Shift to Electronic Submission of Clearance Documents > Role of ICEGATE in Streamlining Processes	All clearance-related documents are now submitted electronically
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Source: Analysis using MAXQDA

### B. Reduced Interactions with Customs Post-Digitalization

The MAXQDA Coded Segments Report (Tab. 4) highlights the sentiment-driven responses of expert brokers, emphasizing the benefits of reduced physical engagement.

Tab. 4

MAXQDA Code-Coded Segments Report-Reduced Interactions

Code	Coded Segments
Reduction in Physical Visits > Exceptions for Physical Visits	Only when discrepancies arise is there a need to meet the concerned officer
Reduction in Physical Visits > shift in customs officers' attitudes	Even customs officers now discourage visiting for non-essential matters. Only when discrepancies arise is there a need to meet the concerned officer
Reduction in Physical Visits > shift in customs officers' attitudes > Customs Discouraging unnecessary Visit	Even customs officers now discourage visiting for non-essential matters.
Reduction in Physical Visits > Past Challenges in Physical Processes	Previously, we had to wait in long queues with bunch of papers in various departments, often dependent on the discretion of officer
Reduction in Physical Visits > Improved Work standard of Customs Brokers	Now, our work has gained a standard and value

Source: Analysis using MAXQDA

### C. Documentation Requirements Post-Digitalization

The Listed Coded Segments (Tab. 5) provide qualitative responses from expert brokers, reflecting their perspectives on documentation changes.

Tab. 5

MAXQDA Code-Coded Segments Report -Documents Requirement

Code	Coded Segments
Impact of Digitalization on Documentation Requirements > Streamlined Clearance Process	The system has become much more streamlined now
Impact of Digitalization on Documentation Requirements > Commodity-Specific Documentation Needs	Depends on the type of commodity being cleared

Impact of Digitalization on Documentation Requirements > Additional Documentation Requests	If further scrutiny is needed, appraisers may request additional supportive documents such as a technical data sheet or ingredient list.” Even when additional documents are required, it is usually based on the evaluation by the Risk Management System (RMS).”
Impact of Digitalization on Documentation Requirements > Standard Export Documents	For export customs clearance, a commercial invoice and packing list are sufficient in most cases.

Source: Analysis using MAXQDA

#### D. Impact of RMS facilitated Clearance

The Listed Coded Segments (Tab. 6) provide qualitative responses from expert brokers, illustrating their experiences with RMS implementation.

Tab. 6

MAXQDA Code-Coded Segments Report-Impact of RMS

Code	Coded Segments
Impact of RMS on Customs Clearance Efficiency > Pre-RMS Challenges	Before the implementation of RMS, most cargoes had to undergo physical examination.
Impact of RMS on Customs Clearance Efficiency > Focus on High Risk cargo	Now, only certain cargoes identified as high-risk require detailed scrutiny.
Impact of RMS on Customs Clearance Efficiency > Improved Broker Efficiency	This improvement has made the work of Customs Brokers more efficient and less burdensome.
Impact of RMS on Customs Clearance Efficiency > Streamlined Clearance for Low-Risk Cargo	RMS-facilitated clearance streamlines the process.
Impact of RMS on Customs Clearance Efficiency > Reduction in Physical Inspections	Reducing the need for physical inspections and allowing quicker clearance for low-risk shipments.

Source: Analysis using MAXQDA

#### E. Extent of Single Window Clearance facility

The Coded Segments of the MAXQDA Report (Tab. 7, Tab. 8) below reflect various views of the respondents on the extent of single-window clearance.

Tab. 7

MAXQDA Code-Coded Segments Report -Single Window Integration

Code	Coded Segments
Challenges Single Window Integration > Import vs. Export Functionality Gaps	Import declarations are largely integrated under SWIFT; export clearances still require separate filings, indicating the absence of an integrated declaration process for exports.
Challenges Single Window Integration > PGA-Specific Clearance Requirements	However, not all Participatory Government Agencies currently provide an integrated declaration facility through SWIFT.

Source: Analysis using MAXQDA

MAXQDA Code-Coded Segments Report-Significance of AEO

Code	Coded Segments
AEO Certification for Customs Brokers > AEO's Primary Benefits for Shippers	While the AEO scheme primarily benefits shippers, it also positively impacts brokers by increasing their reliability and professional standing.
AEO Certification for Customs Brokers > Challenges in Obtaining AEO Certification	Obtaining AEO registration is a lengthy and time-consuming process.

Source: Analysis using MAXQDA

## II. Thematic Analysis: The Evolving Role of Customs Brokers in the Digital Landscape

### A. Shippers Reliance on Customs House Agents

The Coded Segments of the MAXQDA Report (Tab. 9) capture qualitative responses, highlighting the brokers' essential role in the clearance process.

MAXQDA Code-Coded Segments Report-Shippers Reliance

Code	Coded Segments
Shippers Reliance on Customs Brokers > Risks of Filing Errors	Any errors in filing can lead to shipment delays or, in the worst-case scenario, loss of the buyer
Shippers Reliance on Customs Brokers > Exporter Preferences for In-House Clearance	Customs Clearance is "always the CHA's cup of tea"
Shippers Reliance on Customs Brokers > Complexity in the clearance process	Customs clearance remains a highly complex and demanding process
Shippers Reliance on Customs Brokers > High Volume Shipper In house clearance	However, exporters with high shipment volumes sometimes prefer to handle clearance in-house to streamline their processes
Shippers Reliance on Customs Brokers > Cost of Clearance vs Invoice Value	The cost of clearance is negligible compared to the total invoice value, making it a non-issue for most exporters

Source: Analysis using MAXQDA

The Code-Subcode Hierarchical Model (Fig. 1) represents various respondent perspectives on shippers' reliance on CHAs. It indicates that shippers prefer working with CHAs to reduce complexities in customs clearance and ensure error-free filing. While companies with high cargo movement may have in-house clearance teams, many still find the process complex to manage independently. Additionally, the cost of hiring a CHA is negligible compared to the total shipping cost, making their services an essential part of the clearance process.

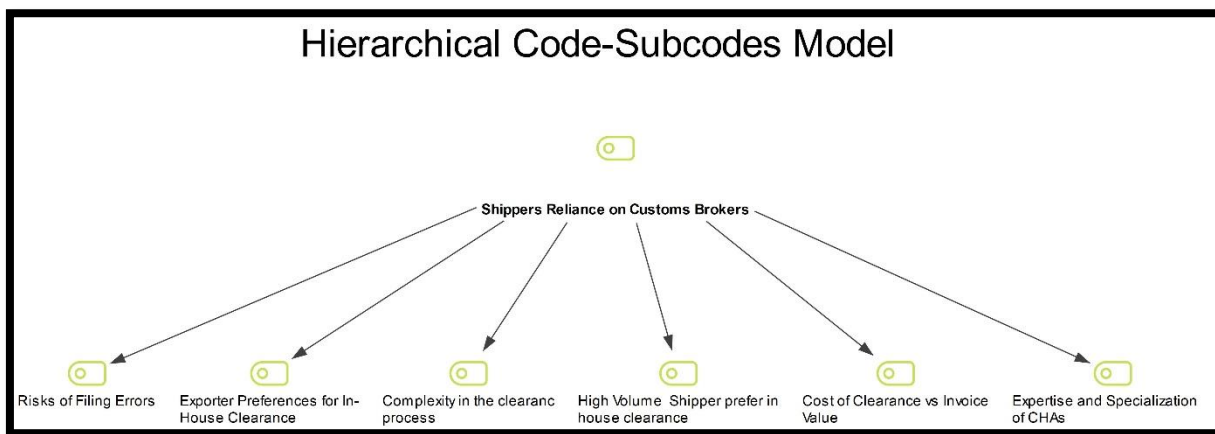


Fig. 1. Code Sub Code Model

Source: Thematic Mapping using MAXQDA

**B. Shifts in the Nature of Work Post-Digitalization**

The Coded Segments of the MAXQDA Report (Tab. 10) capture qualitative responses, reflecting expert insights on evolving job responsibilities.

Tab. 10

MAXQDA Code-Coded Segments Report -Shift in CHA Work

Code	Coded Segments
Shift in CHA Work Post-Digitalization > On going Importance of Operations	While documentation has taken precedence, operational roles remain important, especially during physical examinations and import clearances involving sampling and statutory approvals
Shift in CHA Work Post-Digitalization > Comparison of Pre- and Post-Digitization Workflows	Earlier, we had to visit Customs House and various government offices for cargo clearance. Now, with everything being electronic, most of the work has become system-based
Shift in CHA Work Post-Digitalization > System-Based Work Processes	Most of the work has become system-based. Greater need for staff specializing in documentation tasks
Shift in CHA Work Post-Digitalization > Staffing Adjustments Post-Digitalization	Previously, I managed three operations staff and one documentation staff. Now, I need three documentation staff and only one operations staff.

Source: Analysis using MAXQDA

**C. The Extent of Reliance during Physical Examination of cargo**

The Coded Segments of the MAXQDA Report (Tab. 11) capture qualitative responses, reflecting expert insights on their involvement in the process.



*MAXQDA Code-Coded Segments Report- Physical Examination*

Code	Coded Segments
Indispensable Role of CHAs in Physical Cargo Examination > Integral Role in Customs Operations	CHAs, as licensed agents, are integral to the customs system
Indispensable Role of CHAs in Physical Cargo Examination > Representation of Exporters	Customs officers often do not have the time to engage directly with each exporter, and brokers act as their representatives
Indispensable Role of CHAs in Physical Cargo Examination > Mandatory Presence During Examination	This is one area where their presence is crucial

Source: Analysis using MAXQDA

#### D. Significance of Customs Brokers in the Digital Era

The Coded Segments of the MAXQDA Report (Tab. 12) capture qualitative responses, reflecting diverse opinions.

*MAXQDA Code-Coded Segments Report-Broker Significance*

Code	Coded Segments
Significance of Customs Brokers in the Future > Knowledge Gap in Exporters	Rather than simply filing documents, brokers ensure that clearance is conducted in accordance with customs rules—knowledge that exporters often lack.
Significance of Customs Brokers in the Future > Licensed Agents as Crucial Links	As licensed agents, brokers act as a crucial link between exporters and custom Their expertise is essential in interpreting changing regulations and ensuring compliance with customs guidelines.
Significance of Customs Brokers in the Future > Simplification of Processes Reducing Dependency	Now, with faceless assessment and automated processes, much of the work that required brokers' direct involvement has been streamlined. Earlier, shippers relied heavily on brokers for tasks like registration, renewal, drawback claims. Now, many procedures have been simplified, reducing the dependency on brokers.
Significance of Customs Brokers in the Future > Elimination of Unethical Practices	In the past, some Customs Brokers with strong relationships with customs officers could influence outcomes, sometimes even by unethical means.
Significance of Customs Brokers in the Future > Diminished Operational Role Post-Digitalization	Earlier, shippers relied heavily on brokers for tasks like registration, renewal, drawback claims, and even the delivery of the shipping bill. Now, many procedures have been simplified, reducing the dependency on brokers.

Significance of Customs Brokers in the Future > Diminished Operational Role Post-Digitalization > System based work	With the shift to faceless and centralized assessment, such practices have largely been eliminated.
Significance of Customs Brokers in the Future > Expertise in Customs rule regulation	Their expertise is essential in interpreting changing regulations and ensuring compliance with customs guidelines. Rather than simply filing documents, brokers ensure that clearance is conducted in accordance with customs rules.
Significance of Customs Brokers in the Future > Role as Expert Consultants	Brokers remain vital as consultants and guides for exporters navigating customs regulations.

Source: Analysis using MAXQDA

Code-Subcode Hierarchical Model (Fig. 2) represents various respondent perspectives on the future role of Customs Brokers. It illustrates that as the system becomes more simplified, the operational workload of brokers has decreased, reducing their significance in day-to-day clearance processes. However, their role as licensed agents and a crucial link between customs and exporters remains indisputable. Their expertise is essential in guiding exporters through clearance procedures in compliance with government regulations.

With most processes becoming system-based, direct interaction between Customs Brokers and officers has minimized, indirectly curbing unethical practices like bribery. Previously, brokers with strong personal rapport with customs officers had an advantage, but in the digital era, this factor holds little significance.

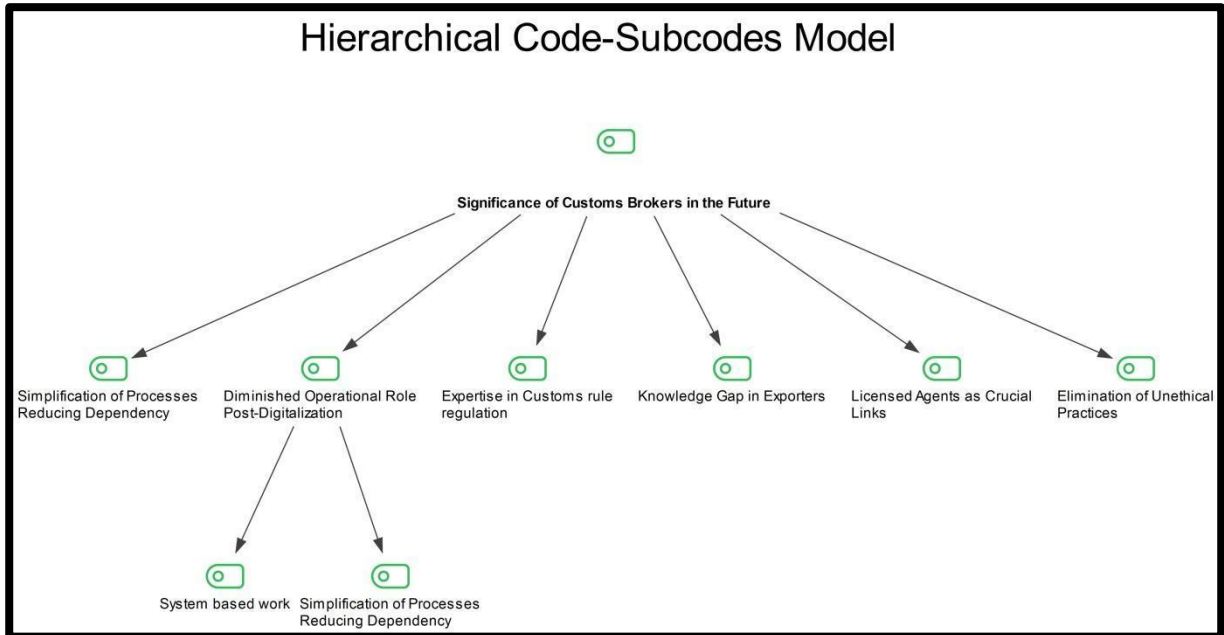


Fig. 2. Code-Sub coded Model

Source: Thematic Mapping using MAXQDA

**E. Key Roles of Customs Brokers in the Digital Era**

*MAXQDA Code-Coded Segments Report -Key Roles of Broker*

Key Roles of CHAs in the Future > Export-Import Consultation Services	Educating shippers on customs rules and regulations is another area where CHAs' roles will be relevant
Key Roles of CHAs in the Future > Export-Import Consultation Services > Customs License and Trustworthiness	Our license is granted by customs, and we work on their behalf to support exporters and importers during clearance. We charge based on the clearance services we provide, but seldom do we charge solely for consultation
Key Roles of CHAs in the Future > Export-Import Consultation Services > Value-Added Services by Large Firms	Larger brokerage firms, with diversified services and higher turnovers, may charge consultation fees, as their value-added offerings often justify these costs to shippers
Key Roles of CHAs in the Future > Export-Import Consultation Services > Market Competition and Pricing Constraints	Competition in the market and the thin profit margins small brokers operate under
Key Roles of CHAs in the Future > Export-Import Consultation Services > Educating Shippers on Customs Compliance	Educating shippers on customs rules and regulations is a paramount requirement
Key Roles of CHAs in the Future > Role in Physical Cargo Examination > On-Site Presence Requirement	Dedicated person will always be needed on-site.
Key Roles of CHAs in the Future > Role in Physical Cargo Examination > Delays and Risk Mitigation	We have been licensed to represent shippers during examination times to avoid delays.
Key Roles of CHAs in the Future > Role in Physical Cargo Examination > Role Persistence Despite Technological Advancements	While advancements such as AI-enabled non-intrusive scanning aim to reduce human intervention, brokers' expertise will still be essential during physical cargo examinations.
Key Roles of CHAs in the Future > Role in Physical Cargo Examination > Assistance to Customs Officers	We have been licensed to represent shippers during examination times to avoid delays and to assist customs officers with their work.
Key Roles of CHAs in the Future > Filing of Clearance Documents > Reliability in Complex Processes	Many still rely on CHAs for their expertise and dependable, error-free services. Exporters value reliable services and expert consultation on customs-related regulations.
Key Roles of CHAs in the Future > Filing of Clearance Documents > Minimal Impact of Cost Concerns	Compared to the total shipping cost, our charges are minimal.
Key Roles of CHAs in the Future > Filing of Clearance Documents > Trust and Long-Term Retention	The trust and reliability that CHAs provide ensure long-term client retention.

Key Roles of CHAs in the Future > Filing of Clearance Documents > Expertise in System-Based Filing	With customs processes becoming increasingly system-based, ensuring accurate and error-free submission of documents is a vital responsibility
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Source: Analysis using MAXQDA

The Code-Subcode Hierarchical Model (Fig. 3) represents various respondent perspectives on the evolving role of Customs Brokers. The model highlights export-import consultation, error-free filing of clearance documents, and their role during cargo examination as their key functions in the future. The first subcode emphasizes export-import consultation, where brokers, as licensed agents, have the credibility to guide exporters. However, due to high market competition, they rarely charge for standalone consultation. Larger CHA firms benefit more by offering value-added services alongside consultation. Additionally, educating shippers on customs compliance is seen as a crucial area of service. The second subcode highlights the importance of error-free and reliable filing of shipping documents. Brokers' expertise in handling various cargo types ensures smooth clearance. Many respondents believe exporters maintain long-term relationships with brokers due to their trustworthiness in handling critical documents. Furthermore, the cost of hiring a CHA is seen as negligible compared to their service value and total shipping costs.

The third subcode underscores the irreplaceable role of brokers during physical examination of cargo. They physically represent the exporter during customs inspection, helping avoid delays. Their expertise is crucial as the nature of examination varies by commodity, ensuring smooth clearance.

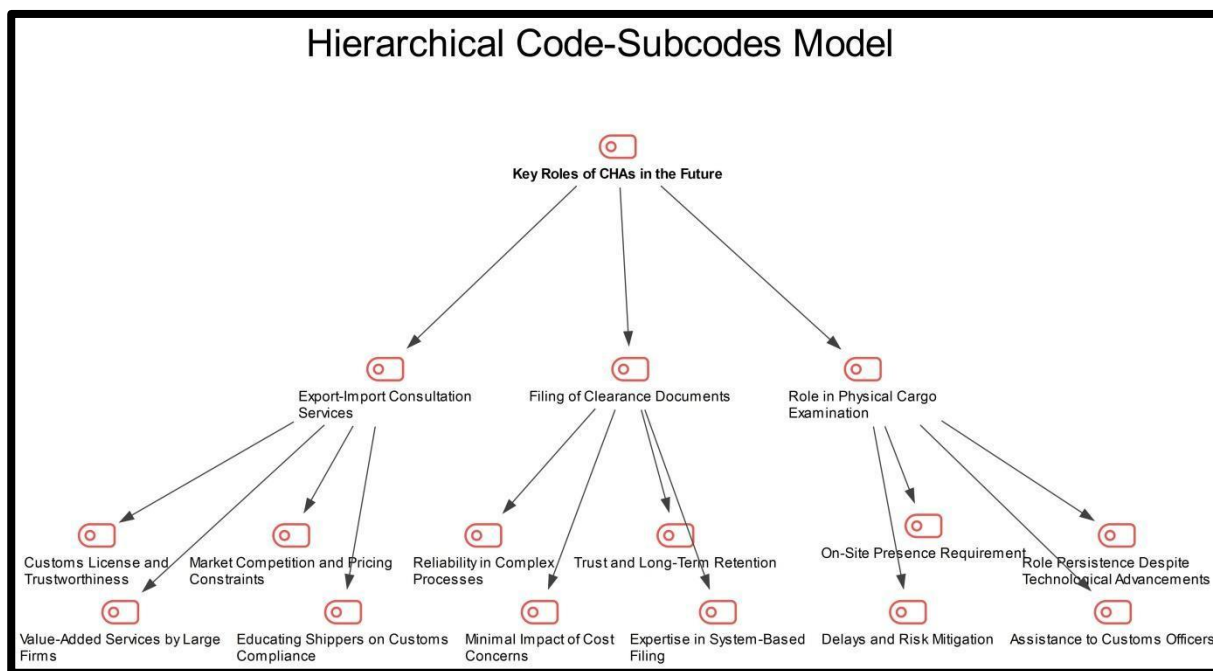


Fig. 3. Hierarchical Code-Sub codes Model

Source: Thematic Mapping using MAXQDA

#### 4. RESULTS AND DISCUSSIONS

Based on the coded segment reports generated through MAXQDA analysis, several key insights emerged regarding the impact of customs digitalization on clearance procedures and evolving role of customs Brokers. The implementation of ICEGATE has transformed customs clearance by enabling electronic filing of clearance-related documents, significantly reducing the need for physical visits and enhancing procedural efficiency. The digitization drive has minimized direct interactions with customs officials, promoting standardized, transparent, and largely faceless procedures. Additionally,

documentation requirements have been streamlined, with most cases needing only essential documents like the invoice and packing list, thereby reducing paperwork and simplifying compliance efforts.

The introduction of the Risk Management System (RMS) has played a pivotal role in reducing the frequency of physical inspections, thereby expediting clearance for low-risk consignments. However, while the SWIFT (Single Window Interface for Facilitating Trade) initiative has been partially implemented—mainly for imports with Participating Government Agencies (PGAs)—the export process the export process still requires separate filings to individual departments, such as sending the invoice copy to the Health Department for certification, rather than through a unified single-window system.

The role of Authorized Economic Operators (AEOs) has become increasingly relevant in this digital landscape. While obtaining AEO certification enhances credibility and operational efficiency, the process remains time-consuming and administratively demanding. Exporters, especially small and medium enterprises (SMEs), continue to rely extensively on CHAs for precise and compliant digital filings to avoid penalties and shipment delays, especially in complex cases.

With the shift toward digital systems, the role of CHAs has evolved from traditional field operations to a more documentation-focused role, requiring technical proficiency and regulatory knowledge. Despite digitalization, CHAs remain indispensable during physical inspections, facilitating smooth coordination between exporters and customs officials. Their function has extended beyond clerical support to that of compliance advisors and consultants, offering expert regulatory guidance and ensuring error-free documentation as system-based submissions make corrections costly and time-consuming. Thus, even in the era of automation and electronic interfaces, the relevance of CHAs endures—albeit in a transformed capacity.

## 5. CONCLUSIONS

The study highlights how customs digitalization has streamlined clearance processes for CHAs through electronic filing, reduced documentation, risk-based assessments, and partial SWIFT integration. While traditional roles have declined, CHAs remain vital for accurate filings, cargo inspections, and regulatory guidance. Shippers still rely on their expertise, especially during complex procedures. Despite reduced physical interactions, CHAs continue to play a key consulting role in the digital trade ecosystem.

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**John Pius**, Ph.D. Research Scholar, Indian Maritime University (IMU), Chennai, India;

**ORCID ID:** 0009-0002-4053-0578

**Sekar Murugan**, Assistant Professor, Indian Maritime University, School of Maritime Management, Chennai, India;

**ORCID ID:** 0000-0003-3661-9537

**Address:** John Pius, Sekar Murugan, Indian Maritime University, Chennai, East Coast Road, Uthandi, 600 119, Tamil Nadu, India

**E-mail:** johnpiusnedumkallel@gmail.com, msekar@imu.ac.in

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Цифровізація митних процедур суттєво трансформувала процеси митного оформлення в міжнародній торгівлі, перевівши їх із паперової, ручної форми до ефективних, ризикоорієнтованих цифрових систем. В Індії ці зміни безпосередньо вплинули на діяльність митних брокерів (Customs House Agents, CHAs), які залишаються важливою ланкою у ланцюгу зовнішньоекономічної діяльності. У дослідженні розглянуто два ключові аспекти: вплив цифрових ініціатив митних органів — таких як електронне декларування, система управління ризиками (RMS), єдине вікно та програма Уповноваженого економічного оператора — на ефективність оформлення; трансформацію професійної ролі CHAs у нових умовах. Методологія ґрунтується на якісному аналізі, зокрема глибинних інтерв'ю з досвідченими, ліцензованими митними

брокерами. Отримані дані було закодовано й тематично проаналізовано за допомогою програмного забезпечення MAXQDA, що дозволило виокремити ключові патерни та висновки з експертних оцінок. Результати свідчать про значне скорочення фізичного втручання, спрощення документальних процедур і підвищення прозорості. Попри це, роль CHAs залишається незамінною завдяки їхній компетентності у безпомилковому цифровому оформленні, супроводі фізичних перевірок та консультуванні з дотриманням митного законодавства. У роботі підкреслено стратегічну значущість CHAs у забезпеченні безперервності торговельних процесів і регуляторної відповідності. Запропоновано впровадження програм підвищення цифрової компетентності та нормативної інтеграції CHAs у сучасну систему торговельного адміністрування.

**Ключові слова:** Цифровізація митниці, митні брокери, процес митного оформлення, система управління ризиками.