ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jul412

Modernizing Ethiopian Customs: A Quantitative Analysis of Organizational Efficiency, Digital Transformation, Human Capital Development and Stakeholder Collaboration on Trade Facilitation and Economic Growth

Dr. Debele Kabeta Hursa[1]; Dr. Amath Sarr[2]

[1]DBA, [2]DBA, MBA, PSM II, PSM I

[1,2]Ethiopian Customs Commission

Publication Date: 2026/07/25

Abstract: Modernizing customs administrations is essential for improving trade facilitation and economic growth in developing economies. Guided by Business Process Reengineering Theory, the Technology Acceptance Model, Human Capital Theory, Stakeholder Theory, and Institutional Theory, this quantitative explanatory study examined the relationships among organizational efficiency, digital transformation, human capital development, stakeholder collaboration, trade facilitation, and trade-related economic performance within the Ethiopian Customs Commission (ECC). Using a cross-sectional survey design, data was collected from 775 respondents and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings revealed that organizational efficiency, digital transformation, human capital development, and stakeholder collaboration each have a positive and statistically significant influence on trade facilitation. Additionally, trade facilitation demonstrated a significant positive effect on trade-related economic performance. Mediation analysis confirmed that trade facilitation serves as a critical mechanism through which customs modernization initiatives contribute to improved economic outcomes. The results indicate that successful customs modernization requires not only technological advancement but also organizational reform, workforce development, and effective stakeholder collaboration. The study provides empirical evidence supporting a multidimensional approach to customs modernization and offers practical recommendations for strengthening digital infrastructure, enhancing employee capabilities, streamlining customs procedures, and improving interagency coordination to promote trade competitiveness and sustainable economic growth in Ethiopia.

How to Cite: Dr. Debele Kabeta Hursa; Dr. Amath Sarr (2026) Modernizing Ethiopian Customs: A Quantitative Analysis of Organizational Efficiency, Digital Transformation, Human Capital Development and Stakeholder Collaboration on Trade Facilitation and Economic Growth. *International Journal of Innovative Science and Research Technology,* 11(7), 1028-1035. https://doi.org/10.38124/ijisrt/26jul412

I. INTRODUCTION

The purpose of this quantitative explanatory study was to examine the relationship among organizational efficiency, digital transformation, human capital development, and stakeholder collaboration in shaping trade facilitation outcomes within the Ethiopian Customs Commission (ECC). The ECC serves as a critical gateway between national economies and global markets (Mohammed, 2022). Montagnat-Rentier and Bremeersch (2022) and the WTO (2024) shared that in developing countries, efficient customs systems contribute to revenue collection, regulatory compliance, border security, and the reduction of trade barriers. Indeed, Ethiopia has pursued several customs modernization programs over the past decade, including automation, digital platforms, risk-based inspection systems, and workforce development programs (Desiderio, 2025). However, despite these efforts, persistent operational inefficiencies, fragmented stakeholder coordination, and uneven technology adoption continue to affect trade performance.

The Ethiopian economy increasingly depends on international trade to support industrialization, export diversification, and regional integration (Endris ET AL., 2025; Fetene & Mengistu, 2026). Montagnat-Rentier et al. (2025) and Rajasree and Ragini (2025) shared that as trade volumes increase, customs administrations face growing pressure to process transactions efficiently while maintaining compliance and security standards. Modern customs

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jul412

administrations must control functions with facilitation objectives. Achieving this balance requires coordinated improvements in organizational efficiency, digital transformation, human capital development, and stakeholder collaboration.

Many researchers stated that customs modernization produces significant economic benefits when implemented effectively (Abouelela, 2025; Montagnat-Rentier et al, 2025). Rbehat and Marafi (2024) confirmed that improvements in customs efficiency contribute to reducing clearance times, lower transaction costs, increase transparency, and enhance predictability for traders. However, many customs modernization programs fail to achieve desired outcomes because reforms focus excessively on technology while neglecting organizational processes, workforce competencies, and institutional collaboration.

The current study enabled us to examine relationships among organizational efficiency, digital transformation, human capital development, and stakeholder collaboration in shaping trade facilitation outcomes within the ECC. Although the ECC has implemented several modernization initiatives, persistent inefficiencies such as prolonged clearance times, redundant procedures, and uneven adoption of digital systems continue to limit effective trade facilitation and weaken Ethiopia’s overall trade competitiveness. By exploring the experiences and perspectives of senior managers and departmental leaders, the study sought to understand how these organizational factors collectively influence measurable outcomes, including clearance time reduction, revenue collection performance, and the reliability of national trade processes. The findings aim to support evidence-based strategies that enhance customs modernization and strengthen the ECC’s contribution to Ethiopia’s economic development.

II. LITERATURE REVIEW

Customs modernization has emerged as a major policy priority in response to increasing globalization, growing trade volumes, and demands for more efficient border management systems (Abouelela , 2025; Montagnat-Rentier et al, 2025; Smith, 2025). However, many customs administrations, particularly in developing countries, continue to face systemic inefficiencies that impede trade facilitation and economic growth. The purpose of this quantitative study was to examine the relationship between organizational efficiency, digital transformation, human capital development, and stakeholder collaboration, and their collective impact on trade facilitation and economic performance within the ECC.

The literature review provided a critical synthesis of scholarly research on customs modernization and its core dimensions. The review drew primarily from peer-reviewed journal articles, scholarly books, and institutional reports published between 2020 and 2025. Sources were identified using academic databases such as Scopus, ProQuest Central, EBSCOhost, ScienceDirect, and Google Scholar. Key search terms included *customs modernization, trade facilitation, digital transformation in public administration, organizational efficiency, human capital development, stakeholder collaboration, and economic growth.* Consistent with best practices, the review integrates findings across disciplines, including public administration, operations management, information systems, and development economics rather than summarizing studies in isolation.

➢ *Theoretical Frameworks Grounding the Study*

Business process reengineering (BPR) theory provided a foundation for analyzing how organizational efficiency, digital transformation, human capital development, and stakeholder collaboration collectively influence trade facilitation outcomes within the ECC. Emphasizing radical redesign of workflows to achieve measurable performance improvements, BPR links modernization efforts to quantifiable indicators such as reduced clearance times, lower costs, and process standardization (Hammer & Champy, 1993; Fetais et al., 2022). BPR supports the study’s multi-variable framework by highlighting the importance of aligning internal processes with governance structures and stakeholder needs, enabling a more comprehensive assessment of how digital and organizational reforms jointly enhance efficiency.

The technology acceptance model (TAM) provided a useful framework for understanding how digital transformation contributes to organizational efficiency and trade facilitation outcomes within the Ethiopian Customs Commission (ECC) as it emphasizes perceived usefulness and perceived ease of use as primary determinants of technology adoption (Davis, 1989; Marikyan et al., 2026). Davis (1989) and Marikyan et al. (2026) shared that TAM supports the assessment of digital initiatives such as electronic documentation and automated customs systems by linking user acceptance of technology to improvements in clearance times, procedural efficiency, and overall organizational performance. Additionally, some researchers stated that TAM emphasize the importance of organizational support, training, leadership engagement, and institutional backing in shaping employees’ perceptions and adoption of digital systems (Venkatesh et al., 2003; Venkatesh & Bala, 2008). Moreover, MariKyan et al. (2026) and Venkatesh et al. (2003) noted that collaboration with external stakeholders, including logistics providers and border agencies, contributes to enhancing the perceived legitimacy and utility of digital platforms, thereby increasing adoption and improving trade facilitation outcomes. Consequently, TAM provides a foundation for examining how digital transformation, human capital development, organizational efficiency, and stakeholder collaboration collectively influence trade facilitation performance within the ECC.

Human capital theory (HCT) provides a valuable framework for understanding how investments in education, training, skills development, and digital literacy enhance employee productivity and organizational performance, particularly within customs administrations where operations require specialized technical and regulatory expertise (Becker, 1993). In the Ethiopian Customs Commission (ECC), HCT explains how workforce capabilities strengthen the relationship between digital transformation and

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jul412

organizational efficiency, thereby improving trade facilitation outcomes. Ajibade (2018) and Li and Freeborn (2025) stated that digital transformation initiatives are more successful when supported by skilled personnel capable of adopting and optimizing new technologies. Furthermore, some researchers stated that training programs, professional certifications, and continuous learning initiatives contribute to greater clearance efficiency, regulatory compliance, stakeholder coordination, and institutional effectiveness (Karklina-Admine et al., 2024; Wassie et al., 2025; World Customs Organization, 2019). By incorporating human capital indicators such as training intensity and digital literacy, this study captures how workforce development enhances both internal operations and collaboration with external stakeholders while contributing to broader economic benefits through reduced trade barriers and improved market access (Yeshineh & Woldeyes, 2025).

Researchers can use the stakeholder theory posits to create value by balancing the interests of multiple stakeholders, including employees, customers, suppliers, regulators, and other actors involved in organizational processes (Freeman, 1984). In the context of customs modernization, the theory highlights the importance of collaboration among customs authorities, border agencies, logistics providers, and traders to improve trade facilitation outcomes. Ndonga and Laryea (2025) and Shumba (2025) indicated that effective stakeholder collaboration enhances transparency, reduces delays, improves compliance, and supports coordinated border management, resulting in faster clearance times and greater predictability in trade operations. Accordingly, this study incorporated stakeholder collaboration through indicators, including inter-agency data sharing and joint risk management initiatives, recognizing that successful modernization depends on cooperative relationships, trust, legitimacy, and inclusive decision-making processes.

Institutional theory is a powerful lever researchers can use to explain how organizational behavior is shaped by formal regulations, norms, and cultural expectations within institutional environments (Pirrolas & Correia, 2025). This perspective is particularly relevant to Ethiopian Customs, where modernization efforts are influenced by international agreements, including the WTO Trade Facilitation Agreement, and domestic governance structures. Aksom and Vakulenko (2024) and Suddaby and Zakaria (2026) stated that institutional pressures encourage customs agencies to adopt globally recognized modernization practices to maintain legitimacy and competitiveness, yet they may also face challenges stemming from bureaucratic inertia, resource limitations, and entrenched organizational routines. The institutional theory supports the study's focus on organizational efficiency, digital transformation, human capital development, and stakeholder collaboration, while emphasizing that sustainable reform requires both compliance with formal structures and cultural adaptation within the organization. Together, these theoretical perspectives provided a comprehensive framework for understanding how modernization drivers contribute to trade facilitation and economic growth as illustrated in figure 1.

Fig 1 Theoretical Framework Guiding the Study. Adapted from Hammer & Champy (1993), Davis (1989), Becker (1993), Freeman (1984), and DiMaggio & Powell (1983), Integrated with Recent Applications in Customs Modernization (OECD, 2023; UNCTAD, 2024; World Bank, 2023).

➢ *Organizational Efficiency*

Organizational efficiency is a foundational component of modern customization (De Wulf & Sokol, 2005) and is central to this research study. For instance, Cantens et al. (2024) defined customs organizational efficiency as the ability to balance revenue collection, border security, and trade facilitation with minimal regulatory intervention. The researchers highlighted major pillars for optimizing

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jul412

performance in customs administration, including digitalization, reduced clearance times, lower transaction costs, risk-based inspection, performance management, greater predictability, and cooperation across government agencies (Cantens et al., 2024). The UNCTAD (2025) noted that organizations can strengthen through business process reengineering, digital technologies, skilled personnel, performance management systems, and collaborative border management practices, which in turn contribute to reducing duplication and improve coordination among customs authorities, border agencies, and private-sector stakeholders. For the ECC, improving organizational efficiency through risk-based processes, human capital development, digital transformation, and stakeholder collaboration could contribute to enhancing trade facilitation outcomes, reduce trade costs, improve supply chain reliability, and ultimately contribute to economic growth and competitiveness.

➢ *Digital Transformation*

Digital transformation is a key pillar of customs modernization (Abouelela, 2025; Cantens et al., 2024) and a critical construct in this study. Abouelela et al. (2025) and the WCO (2023) and defined digital transformation as the modernization of customs administration through the digitization of processes, systematic scaling of data utilization, and the establishment of a cohesive data-driven ecosystem across international trade systems. Some researchers and practitioners shared that the adoption of digital trade technologies, including electronic single windows, automated customs systems, and selectivity engines can contribute to reducing documentation steps by over 50%, accelerating cross-border clearance from weeks to days, lower transaction costs, and significantly decreasing corruption and administrative errors (Hamisi & Kileo, 2024; UNCTAD, 2025). Dang (n.d.) and Hussainey et al. (2025) shared that digital transformation enhances interoperability across customs authorities, border agencies, logistics providers, and other stakeholders by enabling integrated platforms and harmonized data standards, thereby improving overall trade facilitation performance. However, digital transformation's effectiveness depends on complementary investments in ICT infrastructure, process redesign, workforce capabilities, and stakeholder collaboration, as technology alone cannot achieve sustainable performance improvements (Sibupiwa, 2025; Heeks, 2006; Mohammed, 2022). The ECC (2021) and the UNCTAD (2024) shared that for the Ethiopian Customs Corporation, ongoing digital initiatives, including the electronic Single Window and automated risk management systems contributed to improving service delivery and clearance efficiency. However, some challenges related to infrastructure, user adoption, and interagency integration remain (ECC, 2021; UNCTAD, 2024). Therefore, digital transformation serves as both an operational and strategic enabler of trade facilitation, contributing to lower trade costs, improved supply chain reliability, enhanced revenue performance, and broader economic growth in Ethiopia.

➢ *Human Capital Development*

Human capital development is a critical internal capability that drives customs modernization, organizational efficiency, trade facilitation, and economic growth. Some researchers shared that customs officers' knowledge, technical skills, and competencies in areas such as risk management, valuation, classification, digital systems, and stakeholder coordination contribute to improving operational consistency, compliance, and service delivery, reducing clearance times, transaction costs, and procedural bottlenecks (Barhoom et al., 2025; Becker, 1993; WCO, 2021). Barhoom et al. (2025) and the WCO (2021) shared that effective training and continuous professional development also enhance the successful adoption of digital technologies and strengthen collaboration among border agencies and private-sector stakeholders, leading to more transparent and predictable trade processes. Some researchers showed that skilled customs personnel contribute to improved trade facilitation outcomes, revenue accuracy, and national competitiveness, ultimately supporting trade-related economic growth (Ketners & Pētersone, 2021; Mami & Tabatabaei, 2021). However, challenges, including limited training resources, uneven competency development, and staff turnover continue to hinder modernization efforts, particularly in developing countries. For the ECC, strengthening workforce capabilities remains essential for maximizing the benefits of digital transformation and achieving sustainable trade facilitation improvements (Mohammed, 2022; ECC, 2021; WCO, 2024).

➢ *Stakeholder Collaboration in Customs Modernization*

Stakeholder collaboration is a key construct of modern customs that enhances trade facilitation by improving coordination among government agencies, logistics providers, transport operators, customs brokers, and private-sector traders (Abouelela, 2025; WCO, 2023). According to Abouelela (2025), WCO (2024) and Raula (2023), effective collaboration reduces duplicative procedures, harmonizes regulatory requirements, and supports coordinated border management through joint inspections, shared risk management, and synchronized processes, leading to faster and more predictable cargo clearance. Strong public-private partnerships further improve compliance, identify operational bottlenecks, and facilitate the successful implementation of digital initiatives such as Single Window systems, which depend on interoperable data sharing and cross-agency integration (Clark & Bernard, 2022; UNCTAD, 2024). Many researchers stated that collaborative customs environments reduce trade costs, improve supply chain reliability, enhance transparency, and strengthen economic competitiveness, thereby contributing to trade-related economic growth (Abouelela, 2025; AfDB, 2025; UNCTAD, 2024). However, Mohammed (2022) and the WCO (2024) stated that fragmented institutional mandates, limited information sharing, technological disparities, and weak public-private trust continue to constrain collaboration in many developing countries. For the ECC, strengthening stakeholder collaboration is essential to maximizing the benefits of digital transformation, improving trade facilitation outcomes, and supporting broader economic performance (UNCTAD, 2024; WCO, 2024).

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jul412

➢ *Trade Facilitation*

Trade facilitation serves as the central mediating mechanism through which organizational efficiency, digital transformation, human capital development, and stakeholder collaboration influence trade-related economic performance in the modernization of the ECC. According to the WCO (2024) and UNCTAD (2024) trade facilitation encompasses measures that simplify, harmonize, and accelerate cross-border trade through streamlined procedures, risk-based inspections, electronic processing, coordinated border management, and inter-agency. While theories, including TAM and stakeholder theory suggest that technology adoption and collaboration improve performance, evidence indicates that their effects materialize only when they enhance procedural efficiency, regulatory compliance, transparency, and predictability within customs operations (Davis, 1989; Freeman, 1984; Grainger, 2008; Venkatesh & Bala, 2008; Sarturi et al., 2023). Many organizations, including OECD (2025) and WCO (2024) stated that digital integration, coordinated border management, and skilled personnel reduce delays and costs while boosting trade, compliance, revenue, and growth. However, the effectiveness of trade facilitation remains contingent upon institutional readiness, interoperability, stakeholder engagement, governance quality, and human capital capabilities, particularly in developing economies such as Ethiopia where infrastructure constraints, coordination gaps, and uneven digital adoption continue to limit reform outcomes (Mohammed, 2022; Koros, 2021; UNCTAD, 2024; WCO, 2024). Therefore, this research study conceptualized trade facilitation as a multidimensional latent construct and a critical mediator that explains how customs modernization initiatives translate into sustainable trade and economic performance within the Ethiopian context.

The literature consistently demonstrates that customs modernization is a multidimensional and integrated transformation process that extends beyond the adoption of technology to include improvements in organizational efficiency, digital transformation, human capital development, and stakeholder collaboration. Studies show that these interconnected capabilities collectively enhance trade facilitation by improving procedural efficiency, regulatory compliance, transparency, predictability, and cross-border coordination, which in turn contribute to increased trade competitiveness, revenue performance, and broader economic growth (Grainger, 2008; UNCTAD, 2024; WCO, 2024). However, evidence from developing countries indicated that modernization outcomes depend on the alignment of organizational structures, workforce competencies, technological systems, and collaborative governance mechanisms rather than on isolated reforms (Abouelela, 2025; AfDB, 2025; OECD, 2025). This integrated perspective provides the foundation for the current study which examined relationships among organizational efficiency, digital transformation, human capital development, and stakeholder collaboration in shaping trade facilitation outcomes within the ECC.

III. METHODOLOGY

The quantitative explanatory design was applied to examine the relationships among organizational efficiency, digital transformation, human capital development, stakeholder collaboration, trade facilitation, and trade-related economic performance within the Ethiopian Customs Commission (ECC). A positivist research philosophy guided the study. Data was collected through a cross-sectional survey administered to ECC managers, officers, partner agencies, and private-sector stakeholders. A stratified and purposive sampling strategy was used. Of 950 distributed questionnaires, 775 valid responses were retained (82% response rate).

PLS-SEM was used to test direct and mediating relationships among latent variables. Reliability and validity were assessed using Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). Ethical standards including informed consent, confidentiality, and voluntary participation were maintained throughout the study.

IV. RESULTS

The findings indicate that organizational efficiency, digital transformation, human capital development, and stakeholder collaboration significantly influence trade facilitation. Trade facilitation also demonstrated a significant positive relationship with trade-related economic performance. The mediation analysis confirmed that trade facilitation serves as a critical mechanism through which modernization initiatives contribute to economic outcomes.

➢ *Measurement Model Assessment*

Before testing the structural relationships among the constructs, the reliability and validity of the measurement model were evaluated. Cronbach's alpha, composite reliability, and average variance extracted (AVE) were used to assess internal consistency and convergent validity. The results indicate that all constructs exceeded the recommended threshold values of 0.70 for reliability and 0.50 for AVE, demonstrating satisfactory measurement properties.

Table 1 Reliability and Convergent Validity Assessment of Study Constructs

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Organizational Efficiency	0.89	0.92	0.68
Digital Transformation	0.91	0.93	0.71
Human Capital Development	0.88	0.91	0.66
Stakeholder Collaboration	0.90	0.92	0.69
Trade Facilitation	0.93	0.95	0.75

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jul412

The findings presented in Table 1 indicate that all constructs demonstrate strong reliability and convergent validity. Cronbach's alpha values ranged from 0.88 to 0.93, while composite reliability values exceeded the recommended threshold of 0.70. Similarly, AVE values ranged from 0.66 to 0.75, confirming adequate convergent validity. Following the validation of the measurement model, the structural model was assessed using the bootstrapping procedure in SmartPLS. Path coefficients, t-statistics, and significance levels were examined to evaluate the proposed hypotheses.

Table 2 Structural Model Results and Hypothesis Testing

Hypothesis	Structural Path	Path Coefficient (β)	*t* Value	Decision
H1	Organizational Efficiency → Trade Facilitation	0.34	6.12	Supported
H2	Digital Transformation → Trade Facilitation	0.29	5.41	Supported
H3	Human Capital Development → Trade Facilitation	0.25	4.87	Supported
H4	Stakeholder Collaboration → Trade Facilitation	0.31	5.76	Supported
H5	Trade Facilitation → Economic Performance	0.52	8.43	Supported

The results presented in Table 2 indicate that organizational efficiency, digital transformation, human capital development, and stakeholder collaboration each have a positive and statistically significant influence on trade facilitation. Furthermore, trade facilitation demonstrates a significant positive effect on economic performance. Therefore, hypotheses H1 through H5 are supported.

V. DISCUSSION

The findings support the theoretical framework, including (a) business process reengineering, (b) technology acceptance model, (c) human capital theory, (d) stakeholder theory, and (e) institutional theory. The results suggest that customs modernization requires an integrated approach combining process improvement, technology adoption, workforce development, and stakeholder engagement. Trade facilitation emerged as a critical mediator linking modernization inputs to economic performance.

VI. CONCLUSION AND RECOMMENDATIONS

The findings from the current research study showed that customs modernization positively affects trade facilitation and economic growth. ECC should continue investing in digital systems, workforce development, process optimization, and stakeholder collaboration. Recommendations include expanding interoperability across agencies, strengthening training programs, institutionalizing performance measurement, and increasing public-private engagement mechanisms.

REFERENCES

[1]. Abouelela, M. (2025). Toward a customs reform and modernization. In *digital transformation in customs and taxation* (pp. 20-36). Auerbach Publications.
[2]. African Development Bank Group (AfDB). (2025). Annual development effectiveness review 2025: Supporting Africa's resilience and driving transformation. https://www.afdb.org/en/documents/annual-development-effectiveness-review-2025
[3]. Ajibade, P. (2018). Technology acceptance model limitations and criticisms: Exploring the practical applications and use in technology-related studies, mixed-method, and qualitative researches. *Library Philosophy and Practice (e-journal)*.
[4]. Aksom, H., & Veronika V. (2023). Revisiting the scope and suggesting novel domains of institutional theory in the public administration research. *Teaching Public Administration, 42*(2), 230-250. doi:10.1177/01447394231191935.
[5]. Azcarraga, M. A. A. P., Matsudaira, M. T., Montagnat-Rentier, M. G., Nagy, M. J., & Clark, M. R. J. (2022). *Customs matters: strengthening customs administration in a changing world*. International Monetary Fund.
[6]. Barhoom, F. N., Wah, K. K., & Alnoor, A. (2025). Intellectual capital and customs service quality: A theoretical framework in the context of SDGS. *International Journal of Academic Reserach in Economics and Management Sciences*, *14*(3), 893-909. https://knowledgewords.com/index.php/ijarems/article/view/1630/1632
[7]. Cantens, T., Jadotte, E., MacWilliam, D. C., & Suarez, J. (2024). *Haiti: Strengthening customs administration in an insecure environment*. World Bank. https://documents.worldbank.org/en/publication/documents- reports/documentdetail/099051724102532865
[8]. Clark, J., & Bernard, D. (2022). Customs in a world of enhanced trade facilitation. In customs matters: Strengthening customs administration in a changing world.
[9]. Dang, H.-N. (n.d.). The impact of digital transformation on OTIF: A new era for the supply chain. Winddle. https://www.winddle.com/blog-and-news/impact-of-digital-transformation-on-otif-new-era-for-supply-chain
[10]. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340. https://doi.org/10.2307/249008
[11]. De Wulf, L., & Sokol, J. B. (Eds.). (2005). *Customs modernization handbook*. World Bank Publications.
[12]. Desiderio, D. (2025). Customs, Trade and Transport Policies in Landlocked Countries: Common Patterns and a Critical Reappraisal. *Available at SSRN 5397173*.
[13]. Ethiopian Customs Commission (ECC). (2021/2022). Performance report on the implementation of the

major plans and activities of the Ethiopian Customs Commission for the 2014 E.C. fiscal year. Addis Ababa, Ethiopia: Ethiopian Customs Commission
[14]. Endris, M. A., Alemu, A. E., & Kiberet, A. T. (2025). Ethiopian economic liberalization policy domains and international competitive priorities: Nexus of export performance of manufacturing firms after 1991 economic reforms. *World*, *6*(2), 2-26. https://doi.org/10.3390/world6020040
[15]. Fetais, A., Abdella, G.M., Al-Khalifa, K.N., & Hamouda, A.M. (2022). Business process re-engineering: A literature review-based analysis of implementation measures. *Information, 13*(185), 2-9. https://doi.org/10.3390/info13040185
[16]. Fetene, G. D., & Mengistu, Y. A. (2026). Effect of export diversification on economic growth in Ethiopia. https://doi.org/10.21203/rs.3.rs-8447625/v1
[17]. Freeman, R. E. (1984). *Strategic management: A stakeholder approach.* Pitman.
[18]. Grainger, A. (2008). Customs and trade facilitation: From concepts to implementation. *World Customs Journal*, *2*(1), 17-30. https://www.worldcustomsjournal.org/article/91315-customs-and-trade-facilitation-from-concepts-to-implementation
[19]. Hammer, M., & Champy, J. (1993). *Reengineering the corporation: A manifesto for business revolution.* Harper Business.
[20]. Hamisi, S. R., & Kileo, W. J. (2024). The effect of automated customs clearance systems on enhancing trade efficiency in Tanzania. *International Journal of Social Sciences and Management Research, 10*(8), 408-422. https://doi.org/10.56201/ijssmr.v10.no8.2024.pg408.422
[21]. Hussainey, K., Albaimani, N. S., & Al Qamashoui, A. A. (Eds.). (2025). *Digital transformation in customs and taxation: A catalyst for economic resilience*. CRC Press.
[22]. Karklina-Admine, S., Čevers, A., Kovalenko, A., & Auzins, A. (2024). Challenges for customs risk management today: A literature review. *Journal of Risk and Financial Management*, *17*(8), Article 321. https://doi.org/10.3390/jrfm1708032
[23]. Ketners, K., & Pētersone, M. (2021). The personalized model for the sustainable development of human resources in customs. *Intellectual Economics*, *15*(1), 5-14. https://www.ceeol.com/search/article-detail?id=971183
[24]. Koros, O. K. (2021). *Effects of Single Window System on Trade Facilitation in Kenya. A case of Clearing and Forwarding Companies in Nairobi CBD* (Doctoral dissertation, Kenya School of Revenue Administration_Moi University).
[25]. Li, C., & Freeborn, D. P. W. (2025). Exploring AI-powered digital innovations from a transnational governance perspective: Implications for market acceptance and digital accountability. arXiv. https://doi.org/10.48550/arXiv.2504.202
[26]. Mami, M., & Tabatabaei, S. A. N. (2021). Development of a human capital model for customs offices of western Iran. *Humanidades & Inovação*, *8*(31), 185-206. https://revista.unitins.br/index.php/humanidadeseinovacao/article/view/5290
[27]. Marikyan, D., Papagiannidis, S., & Stewart, G. (2026). Technology acceptance research: Meta-analysis. *Journal of Information Science, 52*(2), 429-450. https://doi.org/10.1177/01655515231191177
[28]. Mohammed, Y. O. (2022). Challenges and opportunities for export trade facilitation practices in Ethiopia. *African Journal of Business Management, 16*(11), 249-265. https://doi.org/10.5897/AJBM2019.8752
[29]. Montagnat-Rentier, G., & Bremeersch, C. (2022). The multifaceted role of customs and its importance for the economy and society. *Customs matters: Strengthening customs administration in a changing world*, *5*.
[30]. Montagnat-Rentier, M. G., Brimble, B., Dudouyt, G., & García-Sanjinés, J. M. (2025). *How to modernize customs procedures to successfully implement the African continental free trade area*. International Monetary Fund.
[31]. Ndonga, D., & Laryea, E. (2025). Customs issues in developing countries. In *Research Handbook on Trade Law and Development* (pp. 379-393). Edward Elgar Publishing.
[32]. Organisation for Economic Co-operation and Development (OECD). (2025). Trade facilitation indicators: Monitoring policies up to 2025. https://doi.org/10.1787/fd6f27dc-en
[33]. Pirrolas, O. A. C., & Correia, P. M. A. R. (2025). From isomorphism to institutional work: The advancement of institutional theory in public administration. *Encyclopedia*, *5*(4), 3-11. https://doi.org/10.3390/encyclopedia5040184
[34]. Rajasree, R., & Ragini, R. D. (2025). Optimizing logistics, customs and international payment. *Thiagarajar College of Preceptors Edu Spectra Учредители: Shanlax International Journals*, *7*(S1), 80-88. https://www.doi.org/10.34293/eduspectra.v7is1-feb25.010
[35]. Raula, K. (2023). Fostering stakeholder collaboration in a public sector context: Case Finnish Customs.
[36]. Rbehat, A. M., & Marafi, H. B. (2024). The role of customs process in facilitating international trade. *Saudi J Bus Manag Stud*, *9*(1), 7-14. doi:10.36348/sjbms.2024.v09i01.002
[37]. Shumba, W. (2025). Customs obligations under international law: Engagement with stakeholders. *Global Trade and Customs Journal*, *20*(7/8), 563-570. https://doi.org/10.54648/gtcj2025088
[38]. Sibupiwa, M., & Qutieshat, A. (2025). Trade facilitation and firms: A literature review. *Studies in Business and Economics*, *20*(1), 247-262. doi:10.2478/sbe-2025-0014
[39]. Smith, H. K. (2025). The role of customs modernization and logistics integration in enhancing Oman's global trade facilitation. *Journal of Global Commerce*.

[40]. Suddaby, R., & Zakaria, R. (2026). Institutional theory. https://doi.org/10.4135/9798348850678
[41]. United Nations Conference on Trade and Development (UNCTD). (2025). *the new generation of ASYCUDA for efficient, secure and sustainable trade (2025 ASYCUDA report)*. United Nations.
[42]. United Nations Conference on Trade and Development (UNCTD). (2024). Digital economy report 2024: Shaping an environmentally sustainable and inclusive digital future. United Nations. https://unctad.org/publication/digital-economy-report-2024
[43]. Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, *39*(2), 273–315. https://doi.org/10.1111/j.1540- 5915.2008.00192.x
[44]. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425-478. https://doi.org/10.2307/30036540
[45]. Wassie, M. A., Kornher, L., & Zaki, C. (2025). Revisiting the impact of trade facilitation measures in Africa: A structural gravity approach. *The Journal of International Trade & Economic Development, 34*(7), 1604-1634. https://doi.org/10.1080/09638199.2025.2519105
[46]. World Customs Organization (WCO). (2023, November 29). Effective communication between TRA and stakeholders: Enhancing mutual trust and cooperation between the private sector and customs. https://www.wcoomd.org/en/media/newsroom/2023/november/effective-communication-between-tra-and-stakeholders.aspx
[47]. World Customs Organization (WCO). (2022, January 26). WCO dedicates 2022 to scaling up customs digital transformation by embracing a data culture and building a data ecosystem. https://www.wcoomd.org/en/media/newsroom/2022/january/wco-dedicates-2022-to-scaling-up-customs-digital-transformation.aspx
[48]. World Customs Organization. (2021). Managing customs' human capital through crises and beyond. World Customs Organization. https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/capacity-building/activities-and-programmes/people-development/guide-to-managing-customs-human-capital-through-crises-and-beyond.pdf
[49]. World Customs Organization (WCO). (2019). *Guide to implementing competency-based human resource management in a customs administration environment.* WCO.
[50]. Yeshineh, A. K., & Woldeyes, F. B. (2025). The economy-wide impact of harnessing human capital development and the case of Ethiopia: A dynamic computable general equilibrium model analysis. *Economies, 13*(5), Article 137. https://doi.org/10.3390/economies13050137.