



Digital Transformation in Oman: A Comprehensive Review

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Abstract: Oman's digital transformation is an ambitious initiative aimed at propelling the nation toward a knowledge-based economy by 2025. This transformation emphasizes the digitization of government services, the enhancement of digital infrastructure, the empowerment of local talent, and the active participation of the community. It is an integral component of the broader national strategy designed to establish a sustainable digital society and improve the efficiency and effectiveness of the public sector through technological advancements. The significance of digital transformation extends beyond mere technological upgrades; it represents a fundamental reshaping of the nation's socio-economic fabric. By integrating digital technologies, Oman seeks to enhance service delivery, foster innovation, and ensure that its economy remains competitive in the global arena. This transformation is also critical in addressing key challenges such as improving public sector productivity, reducing bureaucratic inefficiencies, and creating a more inclusive society where all citizens can benefit from the opportunities provided by the digital economy.

Existing literature on digital transformation underscores its importance as a strategic process that reshapes organizations through the integration of digital technologies. The literature also highlights the crucial role of skilled personnel in driving this change, the necessity of adapting business models and organizational structures, and the impact of external factors such as the COVID-19 pandemic, which has accelerated the adoption of digital practices. However, significant research gaps remain, particularly in understanding the cultural and managerial dimensions of this transition. These gaps present opportunities for future research to explore how digital transformation can be effectively managed and sustained in different contexts, ensuring that the benefits of digital technologies are fully realized across various sectors of the economy.

Keywords: Digital Transformation, Oman Vision 2040, E-Governance, Knowledge-Based Economy, Technological Innovation

1. INTRODUCTION

Digital transformation is the comprehensive integration of digital technologies into all aspects of business and society, leading to fundamental changes in operations and value delivery. It also involves a cultural shift that encourages continuous innovation and a willingness to embrace failure.

In Oman, digital transformation is integral to the nation's Vision 2040, which aims to diversify the economy and enhance public services through digitalization. Research indicates that Oman's digital transformation initiatives, particularly in higher education, have been accelerated by the COVID-19 pandemic, with a focus on adopting video communication technologies for student engagement [1]. Additionally, the digital transformation market in Oman is projected to grow significantly, reflecting the country's commitment to leveraging digital technologies for economic growth and innovation [2], [3].

Adding to the previous discussion, the Government Transformation Programme in Oman is aligned with the na-

tional Vision 2040, focusing on enhancing government performance through digital transformation. The programme emphasizes the simplification of procedures, data standardization, and the integration of digital solutions across various sectors. Key pillars include the advancement of e-services, efficient digital infrastructure, and fostering community participation. Strategic partnerships with the private sector and the empowerment of national competencies are crucial enablers. The ultimate goal is to create an innovative, agile government apparatus that delivers smart services and fosters economic growth [4].

The digital transformation in Oman represents a pivotal shift towards a knowledge-based economy, leveraging technology to enhance public services and stimulate economic growth. This research paper provides a comprehensive review of Oman's digital transformation initiatives, drawing on recent scholarly work to analyze the progress and impact of these efforts. Recent studies, including [2] and [5], have highlighted the pivotal role of digitization in sectors such as education, especially as the COVID-19 pandemic has

accelerated the adoption of digital technologies. Artificial Intelligence (AI) is playing an increasingly vital role in transforming education in Oman [6]. Government initiatives and investments in AI are accelerating the development of smart learning environments, which align with the broader goals of IR4.0 [7] and IR5.0 [8]. These technologies are being integrated into higher education to enhance personalized learning, optimize administrative processes, and support research and development. Oman's Vision 2040 prioritizes AI as a key enabler for modernizing the education sector and ensuring its alignment with global standards

These studies stress the importance of digital transformation in improving the quality of education and ensuring alignment with international standards. Furthermore, this paper will explore the broader implications of digital transformation for Oman's economy and society, referencing the findings of academic research that examines the integration of digital technologies across various sectors. The review will synthesize insights from the literature to present a nuanced understanding of the challenges and opportunities that Oman faces in its journey toward a digitally empowered future. This paper seeks to contribute to the ongoing discourse on digital transformation in Oman by offering a scholarly perspective on the nation's strategic initiatives to leverage technology for sustainable development.

2. HISTORICAL CONTEXT

The evolution of digital initiatives in Oman has been marked by significant developments aimed at transforming the country into a knowledge-based economy and achieving a digital society and e-governance. This transformation has been a comprehensive effort, impacting various sectors across the country. Some of these sectors are the following:

- **Health:** Digital development initiatives have been focusing on improving healthcare services.
- **Tourism:** Efforts are being made to enhance the tourist experience through digital means.
- **Banking and Finance:** The banking sector is adopting digital technologies to offer better services.
- **Mining:** The mining industry is leveraging digital tools for more efficient operations.
- **Education:** There's a significant push towards digitizing educational services and content.

The digital initiatives in Oman have evolved significantly over the years, with a clear progression from foundational steps to the current strategic approaches that align with the country's Vision 2040 and the e.Oman 2030 strategy. The following milestones are a brief description of the digital transformation roadmap in Oman:

- **Early 2000s:** The foundation for digital transformation was laid with the establishment of the In-

formation Technology Authority (ITA), which later became the Ministry of Transport, Communications and Information Technology [9]. This period saw the initial steps towards e-governance and the digitization of government services.

- **2010s:** Oman's focus on digital infrastructure intensified, with significant investments in broadband connectivity and the launch of various e-services platforms. The eOman strategy was a pivotal initiative during this decade, aiming to enhance the efficiency of government services and promote ICT in the business sector [9].
- **2020:** The National Digital Economy Program was launched, emphasizing the adoption of Fourth Industrial Revolution (4IR) technologies, improving data center and cloud service infrastructure, and boosting the cybersecurity industry [10].
- **2021:** The Comex 2021 forum highlighted the acceleration of digital transformation, showcasing initiatives in health, tourism, banking, finance, mining, and education. It also emphasized the role of Artificial Intelligence and related technologies in Oman's digital journey [11].
- **2023:** The state of digital adoption in Oman is reflected by a high internet penetration rate of 96.4% and a social media usage rate of 90.5% of the population. This indicates a mature digital landscape, well-positioned for further innovation and integration into daily life [12].

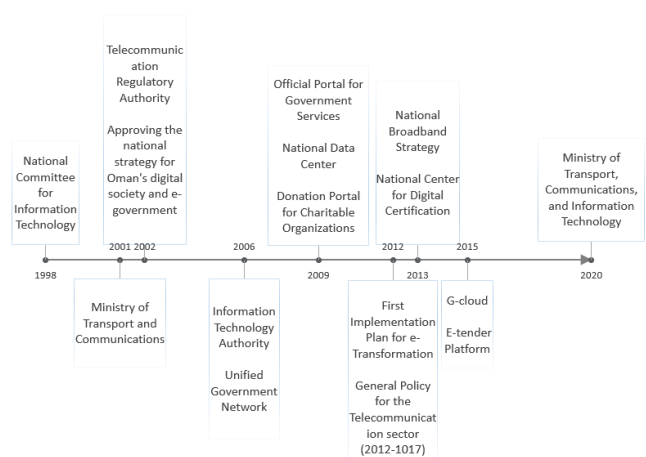


Figure 1. Digital Transformation in Oman-Timeline

These stages reflect a strategic and methodical approach to digital transformation in Oman, with a strong emphasis on building a sustainable and inclusive digital society. The progression from early initiatives to current strategies demonstrates Oman's commitment to becoming a knowledge-based economy and a leader in digital inno-

vation. The figure 1 illustrates the digital transformation timeline in Oman [13].

3. RELATED WORK

The review of related work across various sectors, including health, tourism, banking and finance, mining, education, and other industries, highlights the extensive efforts and diverse strategies Oman has employed in its digital transformation journey. These studies collectively emphasize the importance of a multi-faceted approach that integrates technological advancements with strategic planning and cultural adaptation. As Oman continues to evolve as a digitally-driven nation, the insights gained from these sectors provide a foundation for identifying best practices, overcoming challenges, and exploring new opportunities for innovation. Building on this foundation, the following sections will delve into specific case studies and propose future directions to further enhance digital transformation efforts in Oman, ensuring alignment with national objectives and global trends.

A. Digital Transformation in Health

Although the health sector has undergone significant digital transformation, there is a comparatively limited number of research publications on the topic. Most of the available insights are derived from official reports, such as the one published by UNICEF in May 2022 titled 'Mapping of Digital Health Tools and Technologies: Oman Country Brief' [14]. The report aims to provide a joint regional mapping of digital health tools and technologies in Oman. This brief serves as an overview of Oman's efforts and progress in integrating digital health technologies to improve health outcomes. Oman began developing its health management information system (HMIS) in the 1990s. The system, now known as 'Al-Shifa,' has been continuously updated and integrated across the healthcare system. The report details various systems, such as the e-Referral system, the Centers for Disease Control Information System, the Incident Reporting System, the Oracle Health Management System, and others. It discusses the infrastructure, leadership, governance, and legal frameworks for data protection and security in Oman's digital health landscape. The report also outlines mechanisms to monitor and measure the implementation of digital solutions.

The Ministry of Health's official website [15] offers a wealth of information on the digital transformation within Oman's health sector as shown in figure 2. The published documents highlight the remarkable achievements and ongoing progress of the Directorate General of Information Technology over the years. The most recent reports, published in 2019, provide detailed insights into completed projects, enhancements in IT infrastructure, and advancements in digital services across the Ministry of Health. Additionally, these reports outline current and future plans, addressing potential challenges and offering recommendations for solutions. Notably, the statistics reveal that by 2019, 92.7% of the ministry's institutions had been

digitized, with the ministry managing 61 systems and apps.

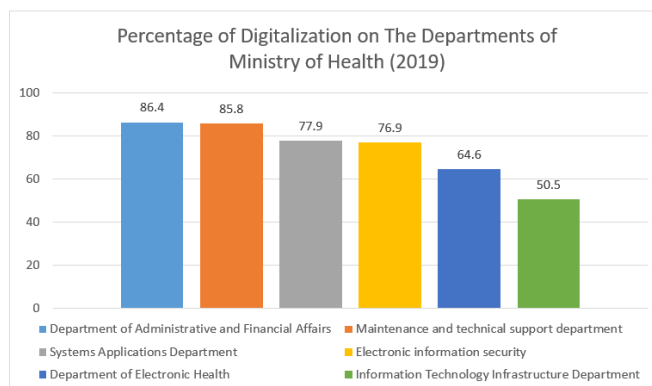


Figure 2. Percentage of Digitization on The Departments of Ministry of Health [15]

B. Digital Transformation in Tourism

Tourism is one of the sectors in Oman that has been making significant efforts to undergo digital transformation, aiming to position the country as a smart tourism destination. Several papers have been published on this topic, providing a comprehensive view of the intersection between technology and tourism in Oman. Abdelfattah et al. [16] discuss how technological advancements, particularly those associated with the Fourth Industrial Revolution, can significantly impact tourism development in Oman. , explores how technological advancements, particularly those associated with the Fourth Industrial Revolution, can significantly impact tourism development in Oman. The study highlights the crucial role of community participation and smart tourism infrastructure in enhancing government policies related to tourism. Using Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze the data, the research finds that government policies serve as a mediating factor between community participation, smart tourism infrastructure, and the overall development of the tourism sector.

Sameer et al. [17] focus on digital participatory planning (DPP) in Oman, outlining the crucial role of involving citizens in the planning process to achieve social sustainability in smart cities. Their paper provides a framework for evaluating the readiness for DPP and emphasizes the need for clear action plans and systematic efforts to advance toward sustainable smart cities. Similarly, Muthuraman et al. [18] explore the concept of smart tourism destinations in Oman and their potential contribution to sustainable development. This study highlights the importance of integrating technologies such as IoT, mobile communication, cloud computing, and artificial intelligence to enhance the tourist experience. Additionally, it introduces the 6As of tourism destinations—Attractions, Accessibility, Amenities, Available Packages, Activities, and Ancillary Services—and discusses how these elements can be leveraged to increase



destination competitiveness. On the other hand, Al-Harmali et al. [19] introduce Dalili, a mobile application designed to enhance the tourist experience in Oman. The paper discusses the potential of such applications to contribute to the modern tourism industry by providing tourists with easy access to information, hotel bookings, and important contact numbers, aligning with Oman's digital transformation initiatives and smart city goals.

In summary, these studies collectively indicate that Oman is strategically advancing its smart tourism agenda by integrating technology, community participation, and supportive government policies. The findings offer valuable guidance for policymakers and stakeholders as they work towards establishing Oman as a leading smart tourism destination, contributing to the country's sustainable development goals.

C. Banking and Finance

Another sector that has shown a great advancement in digital transformation is banking and finance. Fortunately, several studies have been done to highlight the efforts in this sector. Here are some papers that provide a comprehensive overview of the financial technology landscape in Oman, particularly in relation to Islamic banking, e-banking, Industry 4.0, and the current and future state of Fintech.

The authors in [20] highlight the significant growth potential for Islamic banking in Oman through the adoption of financial technology (Fintech). Despite challenges such as a lack of economies of scale and low market penetration, Fintech presents opportunities for Islamic banks to enhance competitiveness and efficiency. The collaboration between Fintech firms and Islamic banks could lead to more innovative financial services and attract a younger demographic to the industry. Following the discussion on the growth potential of Islamic banking through Fintech, Khalfan et al. [21] explore the challenges associated with the adoption and implementation of E-banking in Oman. Their study identifies several critical barriers, including a lack of top management support, concerns over information privacy and security, as well as internal conflicts and inadequate investment in electronic commerce applications. These insights are vital for understanding the managerial obstacles that must be overcome to ensure the successful implementation of E-banking in the region.

Another significant contribution is by Palanisamy [22], which addresses the unique challenges posed by Industry 4.0 in the financial sector of Oman. The paper reviews these challenges, including the integration of cyber-physical systems, big data, and the Internet of Things into existing financial services. The transition to Industry 4.0 necessitates a rethinking of banking products and services to cater to a technologically advanced customer base. Furthermore, Kukreja et al. [23] discuss the transformative impact of Fintech on the Omani banking and finance industry. The authors note that the rapid adoption of Fintech in Oman, particularly accelerated by the need for touchless financial

services during the COVID-19 pandemic, is likely to continue revolutionizing the industry. They predict that Fintech will not only introduce new digital financial products but also enhance transaction flows, ultimately blurring the lines between various financial services to offer more integrated and seamless customer experiences.

In summary, these papers collectively suggest that while challenges exist, the integration of Fintech into Oman's banking and financial sectors holds promising potential for growth, efficiency, and innovation. Success will depend on overcoming managerial and technological barriers while embracing the opportunities Fintech offers to meet the evolving needs of the market.

D. Mining

Mining is one of the vital sectors of the country's economy. It is very important for this sector to be digitally transformed to catch up with the international market. Companies like Petroleum Development Oman (PDO) have been making great efforts to achieve this goal. Several papers have been published that focus on the significant strides made by these companies in adopting digital transformation and its impact on various aspects of the oil and gas industry.

The paper by Al-Riyami et al. [24] highlights PDO's initiative to enhance digital competencies among its staff. The in-house developed program, created during the COVID-19 pandemic, provided a comprehensive digital learning ecosystem. This initiative empowered PDO staff to become digital ambassadors, enabling them to support their department's digital plans and optimize daily operations. In a related study, Al-Rashdi et al. [25] discuss the second phase of PDO's digital transformation journey with Hexagon PPM, which involved the implementation of document management systems. This phase was crucial for smooth data and document handover, contributing to seamless workflow and operational efficiency as part of PDO's broader strategy to centralize and integrate asset information—a prerequisite for successful digitalization.

Al-Aufi et al. [26] explore how digital transformation can reduce drilling costs. Their study presents a case where the implementation of digital technologies significantly improved well delivery time and drilling performance. The use of real-time digitalization tools based on automated rig activities detection technology was particularly noteworthy, leading to considerable savings and a reduction in Invisible Lost Time (ILT). Meanwhile, Al-Fahdi et al. [27] propose a novel approach to prioritizing unplanned maintenance work orders using an Artificial Neural Network (ANN). This method classifies work orders based on factors like failure severity, asset criticality, and reliability, providing valuable insights for prioritizing resources and scheduling activities, ultimately saving costs and preventing system failures.

In summary, these papers collectively highlight the transformative power of digital technologies in the oil and gas sector. From competency development and document

TABLE I. Summary of the Tourism papers

Paper	Methodology	Main Findings	Outcome Measured	Limitations	Study Design	Study Objectives
[16]	Quantitative research design with a questionnaire survey validated by experts; analyzed using SEM with PLS.	Technology advancements impact Oman's tourism; community engagement and governance are crucial.	Relationships between community participation, smart tourism infrastructure, government policies, and advanced tourism development.	Lack of research, pandemic disruptions, limited scope, reliance on questionnaires.	Quantitative, cross-sectional survey using convenience sampling.	Examine the impact of technology on Oman's tourism, focusing on community engagement, infrastructure, and government policies.
[17]	Systematic literature review using a 5-step model, focusing on smart cities.	Oman government committed to SSCs but lacks a plan for DPP; proposes a readiness framework.	Not mentioned.	Generic framework needs customization; lack of validation; no exploration of alternative participation modes.	Systematic review of digital participatory planning in smart cities.	Assess local policies on smart cities; develop a framework for digital participatory planning.
[18]	Not mentioned	Smart tourism is new; needs exploration; enhances tourism and supports sustainable development.	Not mentioned.	Not mentioned.	Not mentioned.	Understand smart tourism in Oman; provide recommendations for implementing smart technologies.
[19]	Use of a questionnaire on SurveyMonkey focusing on stakeholder expectations.	Main issues include lack of information; respondents favor tourism apps; positive impact on tourism.	Not mentioned.	Not mentioned.	Not mentioned.	Explore feasibility of a tourism mobile app in Oman and its impact on tourism.

management to cost-saving measures and maintenance optimization, PDO's journey reflects a comprehensive and forward-thinking approach to digitalization that could serve as a benchmark for the industry.

E. Education

The digital transformation of education is a pivotal shift in how educational services are delivered and received. It encompasses the integration of digital technologies into all aspects of teaching, learning, and administrative processes. In Oman, this transformation is particularly significant due to its potential to enhance the quality of education and improve employability skills among graduates.

The study by Al Hasani and Husin [28] highlights the challenges faced by traditional education methods and emphasizes the importance of environmental, human, financial resources, and educational knowledge in accelerating the digital transformation process. Their findings suggest

that these factors significantly influence the performance of digital transformation initiatives in Oman. Complementing this, Matriano [29] discusses the necessity of aligning digital skills with employability requirements. The paper examines how digital transformation has impacted teaching methods and student learning experiences, underscoring the importance of collaboration and personalized learning enabled by digital technologies. Matriano also recommends continuous support for students facing challenges and the assessment of educators' technology skills to ensure their readiness for digital transformation.

In related research, Almarhri [5] investigate how Omani students have adopted video communication tools as a primary learning resource during the pandemic. Their study, using the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), found that social influence, facilitating conditions, hedonic motivation, and habit positively influ-



ence students' intentions to use video communication services. Additionally, the authors in [2] analyze the necessity for Higher Education Institutions in Oman to adopt digital technologies for teaching, learning, and academic services. They highlight the government's commitment to enhancing the quality of higher education through digitization, particularly in response to the COVID-19 pandemic.

These papers collectively convey that the digital transformation of education in Oman is a dynamic and complex process requiring a strategic approach. It involves not only technological upgrades but also a cultural shift in teaching and learning practices, along with strategic planning to ensure educational outcomes align with the demands of the digital economy. The synergy between education and employability through digital transformation has the potential to lead to a more prosperous and sustainable future for the nation.

F. General Studies on Digital Transformation

In addition to sector-specific research, several studies have explored broader aspects of digital transformation in Oman, addressing various factors that influence the adoption and implementation of digital technologies across different domains. The following works provide valuable insights into these general trends and challenges.

Alraja et al. [30] investigate the factors influencing the digital transformation of Small and Medium-sized Enterprises (SMEs) in Oman. Utilizing the Technological, Organizational, and Environmental (TOE) model, the study analyzes SME leaders' perspectives on the key factors affecting digitalization. The research employs Structural Equation Modeling (SEM) to test the proposed hypotheses and concludes that TOE factors significantly impact SMEs' ability to digitalize their business processes. In a related study, Alzadjali and Elbanna [31] explore the role of institutional interventions in the successful adoption of cloud computing services within Omani government entities. Their study examines how different institutional forces, such as coercive and mimetic pressures, influence the migration to cloud services. The findings emphasize the importance of context-aware strategies for successful technology adoption.

Al Maamari and Bhuiyan [1] delve into the significant role of organizational, technological, environmental, and human resource factors in the digital transformation of Oman's public sector. Their study focuses on the adoption and use of e-services, highlighting the country's commitment to technology-enabled services and government-wide strategies. Additionally, Al Shkili et al. [32] investigate the effects of digital transformation on the performance of Omani institutions. Through a case study, the research highlights the continuous nature of digital transformation and its role in improving services and achieving milestones for the Sultanate.

On the topic of human resource management, Al Haziazi

et al. [33] explore the transformative effects of digital technology in Oman, particularly in the integration of cognitive technologies into HR practices. The study provides insights into the strategies employed by Omani organizations to leverage digital tools for HR functions, emphasizing the need for a digital-savvy workforce. Meanwhile, Al-Balushi [34] investigates how business culture influences digital transformation within Oman's logistics sector. The study discusses the stages of digital transformation and the impact of cultural differences on the effectiveness of cross-functional teams, highlighting the importance of aligning business culture with digital transformation efforts for successful technological integration.

4. GOVERNMENT INITIATIVES AND POLICIES

The Sultanate of Oman has been actively pursuing digital transformation as part of its vision to develop a knowledge-based economy. The Ministry of Transport, Communications and Information Technology (MTCIT) has outlined a comprehensive Government Digital Transformation Program for 2021-2025 [9]. This program aims to enhance the productivity and efficiency of the public sector by:

- Building national capacities
- Enhancing infrastructure
- Developing the IT industry
- Improving the quality of government services

The program is designed to simplify procedures for citizens, the business sector, and government institutions, ensuring that services are delivered effectively and efficiently. Additionally, the National Program for the Digital Economy under the umbrella of the Government Digital Transformation Program focuses on creating a digital government based on governance principles and emerging technologies [35]. This initiative is structured around four main tracks:

- Excellence in E-services: Digitizing government services to improve their quality.
- Efficiency of Digital Solutions and Infrastructure: Improving institutional efficiency and government entities' digital programs.
- Empowering National Capabilities and Managing Digital Change: Building national expertise in digital transformation.
- Community Participation and Awareness: Raising awareness about e-services provided by the government.

These efforts are part of Oman's broader strategy to transition into a digital society and e-governance, which

includes building trust and drafting the necessary frameworks and legislation. The MTCIT coordinates with all government entities to ensure a seamless and integrated digital experience for all stakeholders involved. The official websites of MTCIT and the Official E-Government Service Portal (Omanuna) provide comprehensive resources and updates on the progress of these transformative efforts. An example of these efforts is illustrated in the figure 3, which shows the percentage of Omani mobile applications published in each category. This information has been acquired from the open data published by Omanuna which was issued in 2023 [36].

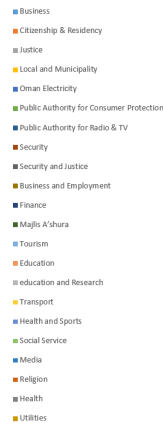


Figure 3. Omani Mobile Applications Percentage by Category

The portal statistics show the following numbers: 51 Entities, 3291 Available Services, 10,256 Government E-Tenders Through (Esnad)2022, and 2636 Online Services.

5. CHALLENGES AND SUCCESS STORIES

Oman's ambitious journey toward digital transformation is marked by both notable successes and significant challenges. While the nation has made commendable progress in several areas, the path to becoming a fully digital society involves overcoming various obstacles that can hinder the pace and effectiveness of this transformation. Understanding these challenges is crucial for crafting strategies that can mitigate their impact and propel Oman towards its digital goals. Despite these hurdles, there have been significant success stories that showcase the resilience and innovation driving Oman's digital evolution. Below, we explore some of the key challenges that have emerged in this process, followed by an examination of the successes that highlight the country's achievements in digital transformation.

A. Challenges

Digital transformation in Oman has been a key focus for the government, which aims to transition to a knowledge-based economy and enhance public services. However, this journey has encountered several challenges and barriers, as outlined below:

Infrastructure Barriers: Oman has made significant strides in improving its ICT infrastructure; however, chal-

lenges remain. The expansion of fixed broadband infrastructure, particularly fiber-optic networks, is ongoing under the National Broadband Strategy. Despite these efforts, there are still areas where network connectivity and the quality of broadband services need to be enhanced to fully support digital transformation [37].

Digital Literacy: While Oman has a youthful population ready for digital transformation, there is a need for specialized training beyond basic technology use [38]. The 2030 Digital Oman Strategy aims to develop IT skills and digital literacy, but the pace of technological change requires continuous education and skill development to keep up with new technologies.

Cultural Factors: Cultural differences, such as the pace of work, language, and behavioral norms, can impact the effectiveness of cross-functional teams and the overall digital transformation process [34]. Adapting business culture to embrace digital transformation is crucial for success.

B. Successful Projects and Outcomes

Oman has witnessed several successful digital transformation initiatives, documented on the official Omanuna website [39]. These initiatives span different sectors and serve various categories of people. The following examples highlight some of these success stories, though they are not exhaustive:



Figure 4. Dhofar Municipality Portal Interface

Dhofar Municipality Portal is an integrated digital platform that provides smooth access to Dhofar Municipality services, simplifying processes like lease contracts, municipal licenses, and building permits, as shown in Figure 4. The portal benefits from efficient resource planning, a reduced number of annual inquiries and observations, and improved service delivery and speed of execution. The official portal website provides updated statistics on the number of electronic transactions processed through the platform.

Bayanat is an open international standard for digital business reporting, facilitating consistent communication and exchange of information among entities, as shown in Figure 5. This platform offers benefits such as instant report

availability, sound planning, and quick decision-making. It also integrates digitally with the Muscat Stock Exchange and provides a comprehensive performance reference.

The National Platform of E-KYC is a digital platform that simplifies the verification of beneficiary data for financial transactions. It is designed to create innovative APIs that help financial institutions digitally integrate their systems. The system benefits society by reducing effort, time, and cost, while also providing an archived and updated reference for beneficiary records.

C. Case Studies

Several cases highlight significant advancements in Oman's digital transformation. For the purposes of this study, two examples are discussed.

Vodafone Oman digitized its retail value chain, consolidating and automating sales and distribution processes, resulting in a seamless integration of digital and physical aspects of operations [40].

Petroleum Development Oman (PDO) established a secure and agile infrastructure architecture, accelerating automation and enabling flexible working arrangements as part of its digital transformation [41].

These case studies illustrate the practical applications and benefits of digital transformation in Oman, showcasing improved service quality, efficiency, and the creation of a smart digital government. The ongoing efforts and achievements reflect Oman's commitment to overcoming challenges and leveraging technology for economic growth and societal prosperity.

6. STRATEGIC DIRECTIONS FOR DIGITAL TRANSFORMATION IN OMAN

Digital transformation in Oman is a pivotal element in the nation's journey towards achieving its Vision 2040, which aims to foster a diversified and sustainable knowledge-based economy. The Government Digital Transformation Program 2021-2025, a cornerstone initiative under the National Program for the Digital Economy, outlines

a comprehensive roadmap for transitioning to a digital government. This program focuses on four main areas: excellence in e-services, efficiency of digital solutions and infrastructure, empowerment of national capabilities, and community participation and awareness. The literature on this subject highlights several key findings with significant implications for future policy and practice. Additionally, the recently concluded COMEX 2024 event further underscored Oman's commitment to digital transformation, aligning with global trends where technology is leveraged to drive growth and enhance productivity. The event emphasized both incremental improvements and fundamental shifts in the Production Possibilities Frontier (PPF), enabling more output with the same or fewer inputs, thanks to digital technologies.

As Oman continues its digital transformation journey, several strategic directions emerge as critical for future policy and practice. These key areas highlight the potential to drive significant progress across various sectors and align with the broader goals of Vision 2040:

Healthcare Revolution: The integration of Unified Medical Records (UMRs) can revolutionize healthcare in Oman. UMRs will streamline administrative processes, minimize errors, and improve care coordination, aligning with Vision 2040's emphasis on an efficient and accessible healthcare system.

Cashless Economy: Advancing towards a cashless economy will reduce transaction costs, accelerate economic activity, and enhance financial inclusion. This move will also aid in crime prevention, tax collection, and provide valuable data for policymaking, contributing to a more resilient and competitive economy.

One-Stop Government Hub: Establishing a digital platform for all government services will streamline processes, reduce bureaucracy, and offer 24/7 access. This hub is a significant step towards an efficient, transparent, and responsive government as envisioned by Oman Vision 2040.

In conclusion, Oman's digital transformation is well underway, with clear objectives and strategic initiatives that align with its Vision 2040. The implications for future policy and practice are profound, promising a more efficient, inclusive, and sustainable future for the nation. Policymakers must continue to prioritize digital literacy, infrastructure, and inclusive policies to ensure that the benefits of digital transformation are widely distributed across all sectors of society.

7. CONCLUSION

The exploration of digital transformation in Oman highlights a nation embracing technological advancements to fulfill its Vision 2040. Oman's digital transformation journey is a testament to its commitment to achieving Vision 2040, with significant strides made towards integrating digital technologies across various sectors. Key initiatives

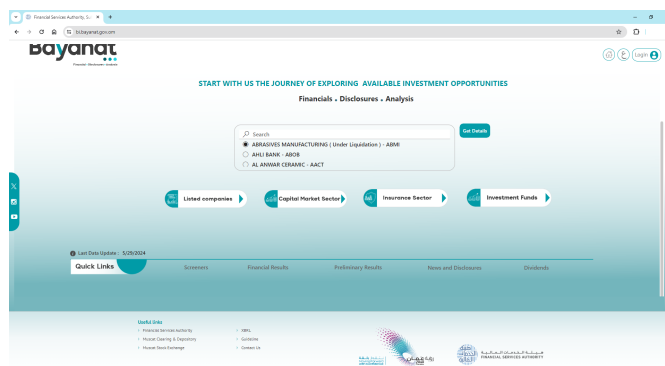


Figure 5. Bayanat User Interface

like the digital government program and COMEX 2024 have been instrumental in this progress, showcasing Oman's readiness to adapt to global digital trends. For future research and digital transformation efforts, it is recommended to focus on improving digital literacy and ensuring robust digital infrastructure. Policymaking should also consider the implications of digitalization on privacy, security, and ethics. Moreover, fostering cross-sector collaboration and establishing continuous evaluation mechanisms will be key to maintaining momentum in Oman's digital transformation endeavors. By addressing these areas, Oman can continue to harness the power of digital technologies, paving the way for a prosperous and sustainable future for its citizens.

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