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جامعة الأعمال و التكنولوجيا
UNIVERSITY OF BUSINESS AND TECHNOLOGY

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UBT ECONOMIC REVIEW

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التعليـم من أجل العمـل وريـادة الأعمـال
Education for Job Opportunities and Entrepreneurship

We're excited to share a new project at the University of Business and Technology – the launch of an Economic Review. As members of the Board of Trustees, we believe this initiative will greatly enhance our institution's academic excellence.

UBT Economic Review is a platform for in-depth analysis and discussions on economic issues that impact our society, both locally and globally. Additionally, this publication aims to enhance our academic community's knowledge and encourage collaboration among scholars and researchers from different fields.

We want to express our appreciation to the editorial committee for their hard work in making this project a reality. Their expertise and dedication will ensure that the Economic Review maintains high standards of academic quality and relevance.

Finally, we're thrilled to launch UBT Economic Review, and we look forward to its growth and influence in the coming years. Let's embrace this important initiative and continue our commitment to sharing knowledge, fostering intellectual excellence, and making a positive impact on society.

Sincerely,

Dr. Abdullah Dahlan

The Chairman of Board of Trustees

The University of Business and Technology

Table of Content

Section 1: Total Real Estate Index (TREIX)

The Total Real Estate Index (TREIX) for the Kingdom of Saudi Arabia (KSA) and Madinah reveals contrasting market trends during Q4 2024. The TREIX, which covers residential, commercial, and agricultural sectors, continues to highlight the dominance of residential properties, which account for 65% of the index's weight. While the Kingdom overall demonstrated strong upward momentum, Madinah showed a moderating trend in its market activity. In August 2024, the total real estate transactions across the Kingdom stood at SAR 21.73 billion, with the TREIX at 104.79 points. The market showed continued strength in September 2024, with total transactions rising to SAR 23.50 billion, pushing the TREIX to 106.84 points. By October 2024, market activity showed substantial acceleration, with transaction values reaching SAR 28.18 billion and the TREIX climbing to 113.57 points. In Madinah, the real estate market experienced a gradual decline during early Q4 2024. The Residential Real Estate Index (RRIX) and Commercial Real Estate Index (RCIX) both showed downward trends, reflecting local market conditions and regional economic factors impacting transaction volumes and values.

Section 2: Total Point of Sales Values, Foods and Cafes Sales Values, and Food and Drink Sales Values (SALEINDEX, FCAINDEX, FDINDEX)

The analysis of consumption trends across KSA for Q4 2024, using the SALEINDEX, FCAINDEX, and FDINDEX, indicates dynamic consumer spending patterns. The SALEINDEX, which measures total point of sales values, stood at SAR 50.92 billion in September 2024, decreased to SAR 48.47 billion in October, before rising significantly to SAR 53.34 billion in November 2024.

The Foods and Cafes Sales Index (FCAINDEX) followed a similar pattern, starting at SAR 15.27 billion in September 2024, declining to SAR 14.86 billion in October, and then increasing substantially to SAR 15.92 billion in November. The Food and Drink Sales Index (FDINDEX) also showed comparable trends, with sales of SAR 7.78 billion in September, decreasing to SAR 7.59 billion in October, before climbing to SAR 8.06 billion in November 2024. These indices reflect dynamic consumer behavior influenced by seasonal trends and economic conditions.

Key Findings

1.**Contrasting Sector Performance:** The consumer spending indices experienced a temporary dip in the same month, with SALEINDEX dropping to SAR 48.47 billion before rebounding in November to SAR 53.34 billion.

2.**Regional and Sector Variations:** National consumer spending indices which demonstrated resilience, particularly in the food service sector where the FCAINDEX reached SAR 15.92 billion in November 2024.

3.**Market Recovery Patterns:** The consumer spending indices all showed strong recovery in November 2024 (SALEINDEX 101.99, FCAINDEX 102.07, FDINDEX 102.14 points), while real estate activity demonstrated earlier strength in October, highlighting different cyclical patterns between real estate and consumer markets.

"UBT Economic Review" (UBTER) Real Estate Index section examines the influence of the Saudi real estate market on the economy by analyzing trends, market dynamics, and socioeconomic consequences. It focuses on residential and commercial properties, identifying growth factors, trends, and investment opportunities.

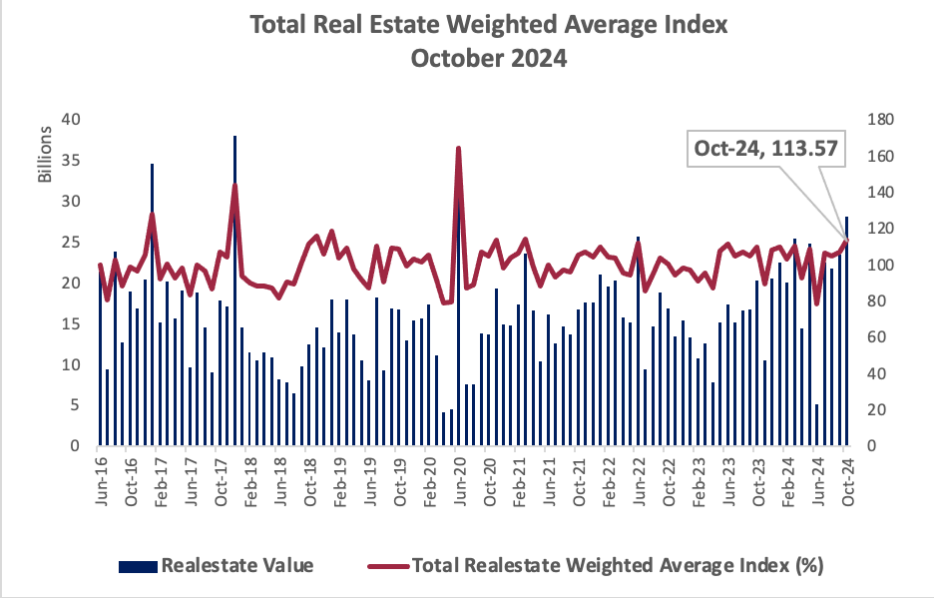
01

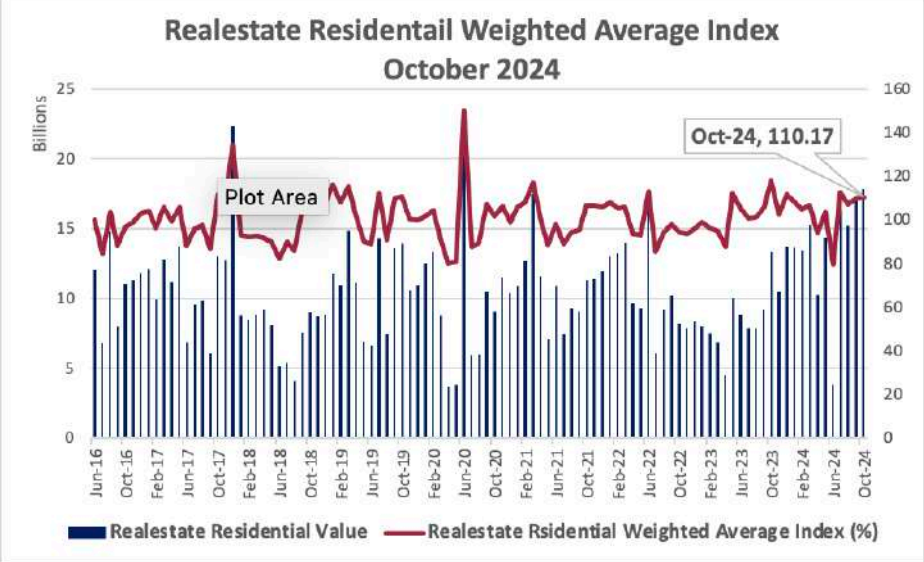
Real Estate Index

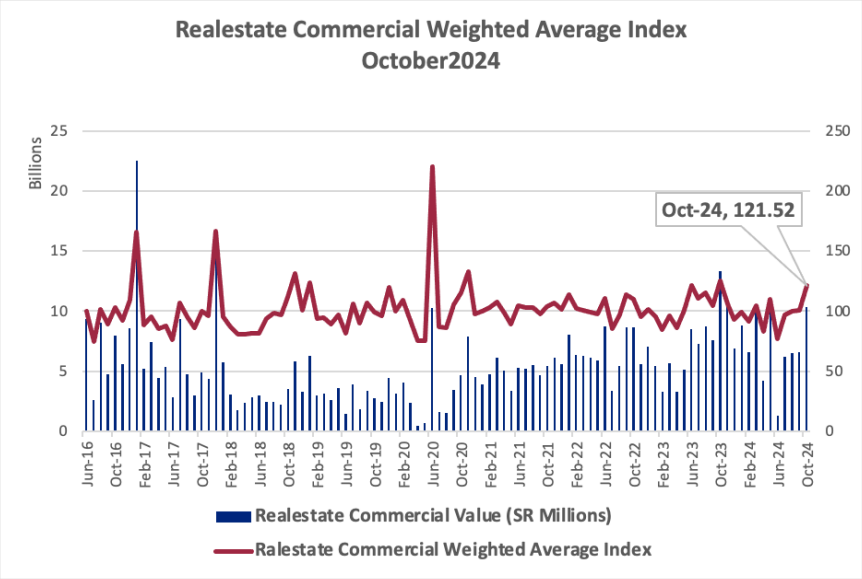
Total Real Estate Index (TREIX)

Overview

The Total Real Estate Index (TREIX) serves as a comprehensive measure of real estate performance across the Kingdom of Saudi Arabia (KSA), including detailed insights into Madinah. This index quantifies the total value of transactions by incorporating three key sectors: residential (65% weightage), commercial (31%), and agricultural (3%). Despite considering various real estate outputs like plots, villas, and apartments, plots of land are transacted among the investors, carrying the greatest weightage.







KSA Real Estate Market Analysis

The Kingdom of Saudi Arabia's real estate market demonstrated strong performance and growth throughout early Q4 2024. The Total Real Estate Index (TREIX) showed notable upward momentum, with significant increases in transaction values across residential, commercial, and agricultural sectors.

•In **August 2024**, the total real estate transactions across the Kingdom stood at SAR 21.73 billion, with the TREIX at 104.79 points.
•The market showed continued strength in **September 2024,** with total transactions rising to SAR 23.50 billion, pushing the TREIX to 106.84 points.
•By **October 2024,** market activity showed substantial acceleration, with transaction values reaching SAR 28.18 billion and the TREIX climbing to 113.57 points.

This analysis of early Q4 2024 demonstrates the market's robust growth and positive momentum. The strong performance aligns with the Kingdom's broader urban development goals and Vision 2030 initiatives aimed at meeting housing demand driven by population growth and economic reforms. Further supporting the market's momentum, Saudi banks issued SAR 55.7 billion in residential mortgage loans during the first eight months of the year, marking a 3 percent increase from the previous year. This growth occurred even as the Saudi Central Bank gradually reduced its policy rate (repo rate) from 6% to 5.25% between August and November 2024, reflecting a more accommodative monetary stance. These factors, combined with supportive economic conditions and effective policy measures, continue to drive the real estate sector's expansion across the Kingdom.

Madinah Real Estate Market Analysis

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Madinah Real Estate Market Analysis

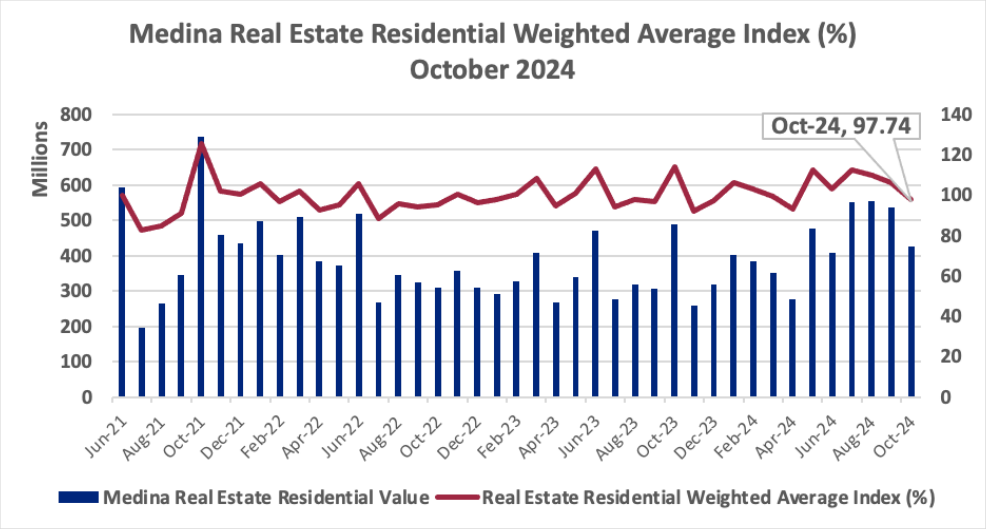
The real estate market in Madinah showed a gradual decline in early Q4 2024.
•**August 2024** saw transactions valued at SAR 661.10 million, resulting in a TREIX of 105.54 points.

•In **September 2024**, the market slightly decreased with transactions of SAR 648.70 million, with the TREIX at 103.62 points, a -1.82% change from August.

•By **October 2024**, market activity showed further moderation, with transactions totaling SAR 503.26 million, and the TREIX declining to 95.70 points, a -7.64% decrease from September.

This quarter highlighted the moderating trends in Madinah's real estate market, with transaction values showing a consistent downward adjustment across the three months.

Residential Real Estate Index (RRIX)



The Residential Real Estate Index (RRIX) for Madinah highlights the residential sector's response to market dynamics in early Q4 2024.

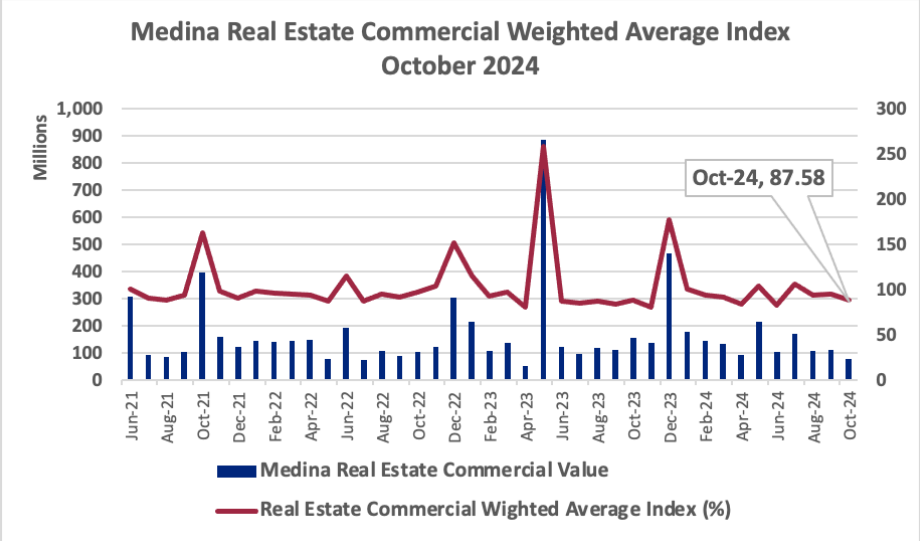
•In **August 2024**, the RRIX recorded transaction values of SAR 554.91 million and an index score of 109.68 points.

•**September 2024** saw the RRIX decline to 106.07 points, with transactions worth SAR 537.50 million, representing a -3.29% decrease.

•In **October 2024**, the RRIX continued to moderate, falling to 97.74 points, with residential transactions totaling SAR 427.02 million, showing a further decline of -7.85% from September.

These trends reveal that the residential market in Madinah experienced a consistent downward trajectory during this period, reflecting broader market adjustments and changing demand patterns.

Commercial Real Estate Index (RCIX)



The Commercial Real Estate Index (RCIX) for Madinah illustrates the commercial sector's performance during early Q4 2024.

•In **August 2024**, the RCIX recorded transaction values at SAR 106.19 million and an index score of 93.07 points.

•**September 2024** saw the RCIX slightly improve to 94.93 points, corresponding to commercial transactions worth SAR 111.21 million, representing a 2.00% increase from August.

•In **October 2024**, the RCIX declined to 87.58 points, with commercial transactions falling to SAR 76.24 million, indicating a decrease of -7.74% from September.

These trends reveal fluctuating patterns within the commercial real estate market in Madinah during early Q4 2024. While the market showed initial improvement in September, October witnessed a notable downturn in both transaction values and index performance.

"UBT Economic Review" (UBTER) conducts an analysis of the Point-of-Sales Index in order to gain insights into the Saudi retail industry, including consumer behavior, sales patterns, and the overall health of the sector. The analysis emphasizes Total Point of Sales Values and Foods and Cafes Sales Values, aiming to uncover consumer preferences and market sentiments. In essence, UBTER acts as a platform for exploring the implications of the Point-of-Sales Index, fostering discussions that contribute to the growth and development of the retail industry in Saudi Arabia.

02

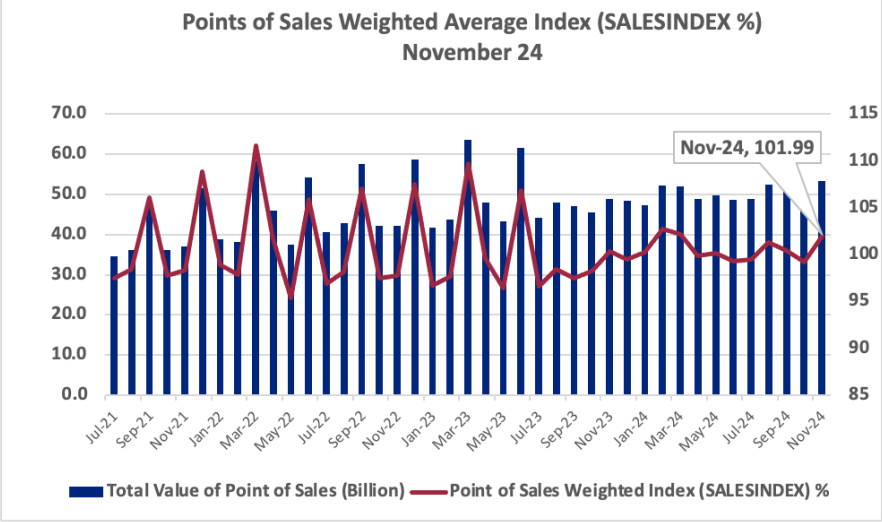
Point of Sales Index

Total Point of Sales Values, Foods and Cafes Sales Values, and Food and Drink Sales Values (SALEINDEX, FCAINDEX, FDINDEX)

Overview

This section analyzes consumption trends in KSA using three main indicators: Total Point of Sales Values (SALEINDEX), Foods and Cafes Sales Values (FCAINDEX), and Food and Drink Sales Values (FDINDEX). These indicators reflect public and private sector expenditure on goods and services during the September-November 2024 period.

Total Point of Sales Values (SALEINDEX)



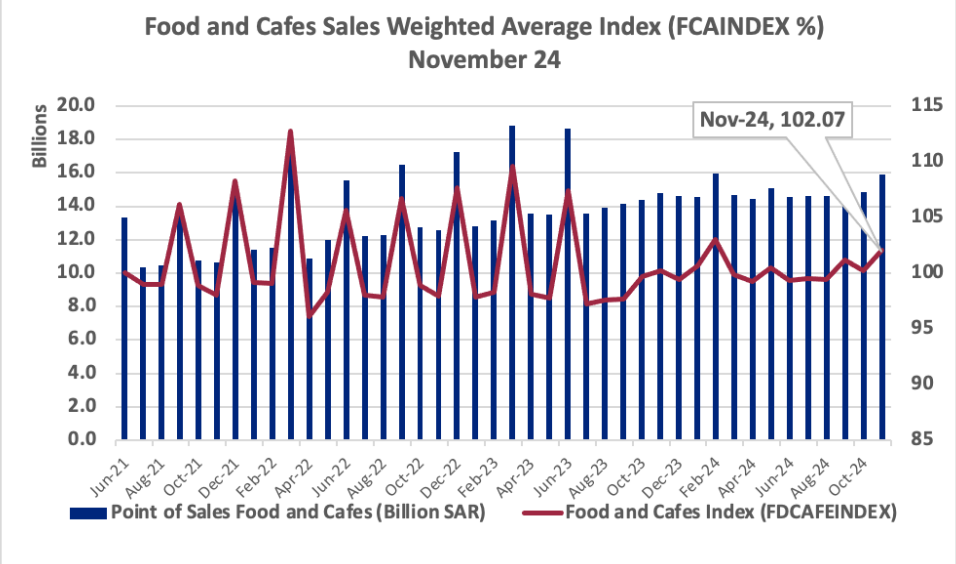
The Total Point of Sales Index (SALESINDEX) for KSA showed notable variations during the early portion of Q4 2024:

•In **September 2024,** the SALESINDEX registered 100.48 points, with total point of sales values reaching SAR 50.92 billion, indicating robust consumer spending activity.

•In **October 2024**, the market experienced a slight decline, with sales values dropping to SAR 48.47 billion and the SALESINDEX decreasing to 99.18 points, marking a -1.29% decline from September.

•By **November 2024**, consumer spending showed strong recovery, with sales values rising to SAR 53.34 billion and the SALESINDEX improving to 101.99 points, representing a 2.83% increase from October.

Foods and Cafes Sales Values (FCAINDEX)

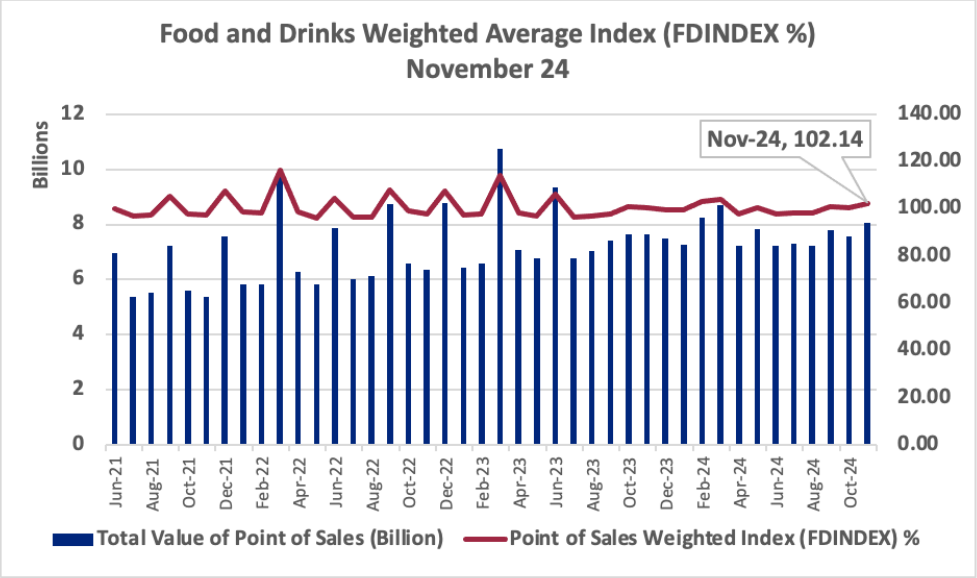


The FCAINDEX in the first half of 2024 exhibited interesting trends:

The Foods and Cafes Sales Index (FCAINDEX) for KSA demonstrated interesting dynamics during this period:

•In **September 2024**, the FCAINDEX stood at 101.17 points, with total sales amounting to SAR 15.27 billion, showing strong performance in the food service sector.
•In **October 2024**, the sector experienced a modest decline, with sales decreasing to SAR 14.86 billion and the FCAINDEX dropping to 100.18 points, marking a -0.98% decrease from September.
•By **November 2024**, the sector showed remarkable improvement, with the FCAINDEX rising to 102.07 points and sales reaching SAR 15.92 billion, reflecting a 1.89% increase from October.

Food and Drink Sales Values (FDINDEX)



The Food and Drink Sales Index (FDINDEX) for KSA showed consistent patterns with other indices:

•In **September 2024**, the FDINDEX registered 100.75 points, with total sales in the food and drink sector reaching SAR 7.78 billion, indicating strong consumer demand.

•In **October 2024**, the sector saw a slight decline, with sales dropping to SAR 7.59 billion and the FDINDEX decreasing to 100.60 points, showing a minor -0.15% reduction from September.

•By **November 2024**, the sector demonstrated significant recovery, with the FDINDEX rising to 102.14 points and sales increasing to SAR 8.06 billion, marking a 1.54% increase from October.

These trends suggest a consistent pattern across all three indices, with a slight dip in October followed by strong recovery in November, indicating robust overall consumer spending despite monthly fluctuations.

UBT Economic Review (UBTER) functions as a platform for in-depth examination of global issues, with a focus on understanding their complexities and providing room for diverse perspectives, research findings, and innovative ideas. It aims to gain deeper insights into the root causes, dimensions and of these issues while also connecting this analysis to Saudi Arabia's Vision 2030, making global issues relevant to national goals. Essentially, this section offers space for reflecting on global issues and exploring emerging topics.

03

Reflecting on Current Issues

How Smart Cities create Economic value: An Analysis of Urban Digital Transformation

This report examines the economic transformation driven by smart city initiatives, focusing on how continuous data flows reshape urban economies. By analyzing implementation frameworks, economic outcomes, and risk management strategies across smart city projects, it provides detailed insights into the economic value creation mechanisms of digital urban transformation. The research reveals that successful smart city implementations generate multifaceted economic benefits through improved resource allocation, enhanced market efficiency, and the creation of new business opportunities.

Figure 1: Smart Cities as the New Technological Revolution in Urban Spaces [18]

Introduction

Current urban landscape is undergoing a profound transformation through smart city initiatives, with the global market reaching $599.67 billion and projected to grow at a compound annual growth rate of 25.4% [1]. This remarkable growth reflects a fundamental shift in urban development, where continuous data flows and digital integration create new economic paradigms and value streams. The transformation extends beyond mere technological implementation, encompassing economic ecosystem development that reshapes how cities create and distribute value.

Figure 2: Smart Cities Market Share, Forecast | Growth Analysis & Opportunities [1]

Recent analyses indicate that smart city initiatives are generating economic benefits that significantly exceed initial investment costs, with multiplier effects reaching across various sectors of urban economies [2]. Studies from the World Economic Forum suggest that cities implementing smart city strategies have experienced average GDP growth rates 2.3 percentage points higher than comparable cities maintaining traditional development approaches [3].

Economic Foundations and Data-Driven Market Dynamics

Market Efficiency Through Digital Integration

The economic architecture of smart cities represents a sophisticated interplay between traditional urban infrastructure such as roads, bridges, power grids, water/sewage systems, public transportation, buildings, parks, and telecommunications networks and digital systems such as IoT sensors, data analytics platforms, AI-powered management tools, smart grids, digital payment systems, connected traffic signals, smart meters, mobile apps for city services, building automation systems, and cloud computing infrastructure. Through continuous data flows, smart cities create more efficient markets by reducing information asymmetries and enabling real-time resource allocation. This matching of supply and demand has transformed traditional urban services into responsive, data-driven systems.

Real-time data flows enable cities to optimize service delivery through timed pricing mechanisms and predictive resource allocation. For instance, smart grid systems adjust electricity pricing based on demand patterns, while intelligent transportation systems modify service frequency based on real-time passenger flows. Studies indicate that cities implementing such data-driven management systems achieve operational cost reductions of 15-25% while improving service delivery efficiency by 35-45% [4].

Table 1: Economic Impact of Smart City Data Systems

Sector	Cost Reduction	Efficiency Improvement	Annual Value Creation	Implementation Time
Energy	20-30%	35%	$12.5B	18-24 months
Transport	15-25%	42%	$18.7B	24-36 months
Water	25-30%	38%	$7.2B	12-18 months
Waste Management	35-45%	44%	$5.4B	12-24 months
Healthcare	22-28%	32%	$9.8B	24-30 months
Public Safety	18-24%	36%	$8.3B	18-24 months

Resource Optimization and Economic Efficiency

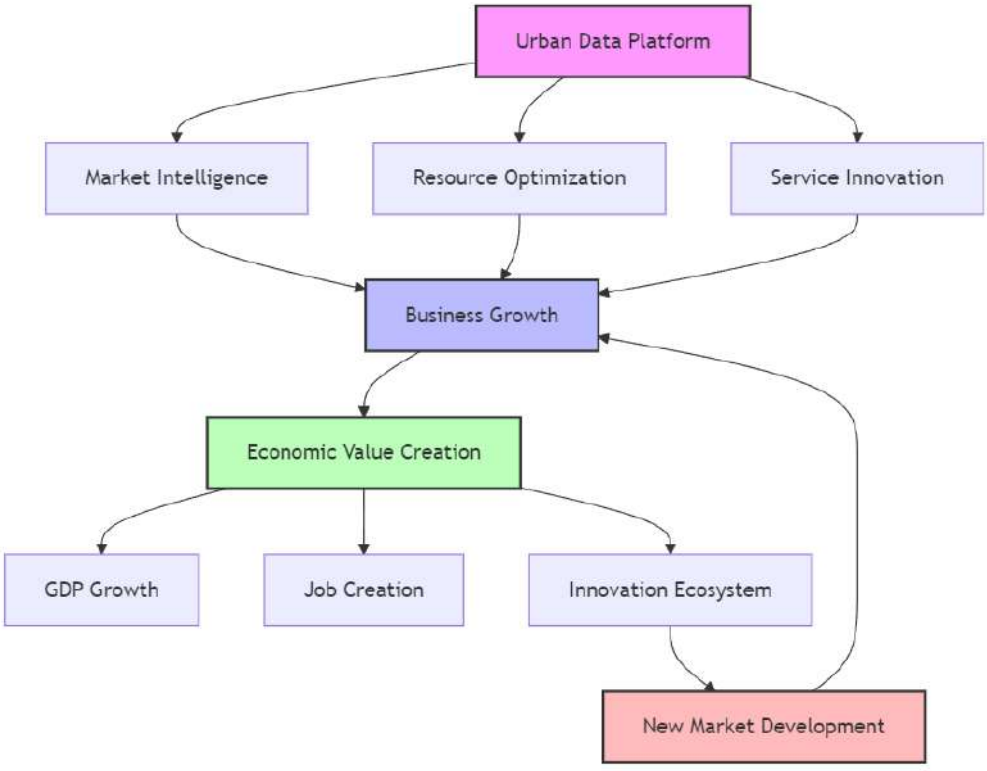
The market efficiency gains through integrated data platforms have been substantial. Research demonstrates that cities with comprehensive data-sharing platforms generate 35% higher economic returns compared to those maintaining packaged solutions [5]. This efficiency stems from improved resource allocation, reduced transaction costs, and enhanced market transparency.

Smart city infrastructure enables sophisticated demand forecasting and resource optimization across multiple sectors. For example, intelligent water management systems have reduced water losses by an average of 25% in implemented cities, while smart energy grids have decreased peak load requirements by 15-20% [6]. These improvements translate directly into economic benefits through reduced infrastructure costs and improved service delivery.

Business Growth and Innovation Ecosystems

Digital Infrastructure and Market Access

Smart city infrastructure creates ground for business growth through reduced market entry barriers and enhanced innovation opportunities. The continuous flow of urban data enables entrepreneurs to identify market gaps, optimize operations, and develop new service models. Analyses reveal that cities with established digital platforms generate 2.5 times more technology startups than comparable cities without such infrastructure [7].



Value Creation Mechanisms

Value creation in smart cities flows through multiple channels. Direct benefits include infrastructure optimization, reduced maintenance costs, and improved service delivery efficiency. Indirect benefits encompass increased business formation, enhanced R&D investment, and workforce digital transformation. The combination of these factors creates a self-reinforcing cycle of economic growth and innovation.

Table 2: Smart City Implementation ROI Analysis

Implementation Phase	Initial Investment	5-Year Returns	ROI	Job Creation	Innovation Impact
Digital Infrastructure	$100M	$245M	145%	1,200	45 new startups
Data Platform	$45M	$128M	184%	850	32 new startups
Smart Services	$75M	$195M	160%	1,500	28 new startups
Innovation Hub	$30M	$92M	207%	750	55 new startups
Sustainability Initiatives	$50M	$142M	184%	900	35 new startups

Innovation and Economic Transformation

Smart cities facilitate economic transformation through the creation of innovation ecosystems. These ecosystems combine physical infrastructure, digital platforms, and human capital to create environments conducive to innovation and business growth. Research indicates that cities with well-developed innovation ecosystems experience 45% higher rates of patent registration and attract 2.3 times more venture capital investment [8].

Risk Management and Implementation Framework

Comprehensive Risk Assessment

Successful smart city implementation requires careful attention to risk management and stakeholder integration. Technical risks include technology obsolescence and cybersecurity threats, while economic risks encompass investment uncertainty and revenue sustainability. Cities employing comprehensive risk mitigation frameworks, including performance guarantees and risk-sharing mechanisms, demonstrate superior economic outcomes.

Table 3: Smart City Risk Analysis and Mitigation Framework

Risk Category	Probability	Impact	Mitigation Strategy	Cost of Mitigation
Technology Obsolescence	High	Medium	Modular Architecture	8-12% of budget
Cybersecurity	High	High	Security Framework	12-15% of budget
Integration Failure	Medium	High	Phased Implementation	5-8% of budget
Investment Recovery	Medium	High	PPP Models	3-5% of budget
Stakeholder Resistance	Medium	Medium	Engagement Programs	4-6% of budget
Data Privacy	High	High	Governance Framework	10-12% of budget

Implementation Strategies

Implementation success depends heavily on structured approaches to development and stakeholder engagement. Cities following well-defined implementation frameworks achieve 45% higher returns on their investments [9]. These frameworks typically encompass phased development strategies, strong public-private partnerships, and robust citizen engagement platforms.

The implementation process requires careful coordination of multiple stakeholders and systems. Successful cities typically follow a staged approach:

1. Foundation Phase: Establishment of core digital infrastructure and data platforms
2. Integration Phase: Connection of various urban systems and data sources
3. Innovation Phase: Development of new services and business models
4. Transformation Phase: Comprehensive economic and social change

Regional Economic Impact and Market Evolution
Global Implementation Analysis

The economic impact of smart city initiatives varies significantly across regions. Singapore's Smart Nation initiative generates $4.3 billion annually through enhanced productivity and reduced operational costs [10]. Chinese smart cities report average GDP growth premiums of 1.7% compared to non-participating cities [11]. In Europe, Barcelona's program has created 47,000 jobs and generated €1.8 billion in economic benefits through improved resource management and operational efficiency [12]. Paris' investment of €970 million in smart lighting is expected to reduce energy consumption for traffic and streetlights by 30% over the next 10 years. The city allocated €100 million annually to citizen-led innovation projects, fostering grassroots economic development. The Paris model supports 105,000 researchers and funds over 200 start-ups each year through its incubator program, driving innovation and employment [19]. New York City's green stormwater management systems are anticipated to save $1 billion, costing about $0.15 less per gallon compared to traditional methods. The sustainability benefits over 20 years range

from $139 million to $418 million. Chattanooga's Electric Power Board (EPB) developed a smart grid with a 100% fiber-optic network, becoming the first U.S. city to offer 1 Gbps internet speed to over 175,000 homes and businesses. This infrastructure has attracted numerous companies and startups, boosting the local economy. Oklahoma City's The Metropolitan Area Projects Plan (MAPS) programs have generated nearly $5 billion in economic impact over 20 years, representing a nearly tenfold return on the city's original investment [20]. Glasgow's Future City project, initiated in 2013, reported an impressive return of £144 million on an initial investment of £24 million over four years, highlighting the economic benefits associated with smart cities [21].

Market Growth and Technology Evolution

The smart city market is expected to reach $1.38 trillion by 2030 [13], driven by emerging technologies including artificial intelligence, quantum computing, and blockchain integration. These technologies promise to further enhance economic value creation through improved optimization capabilities and reduced transaction costs.

Recent technological developments suggest even greater potential for economic value creation. Quantum computing applications in urban optimization could generate value exceeding $45 billion annually through improved resource allocation and system optimization [14]. Blockchain technology has demonstrated potential for reducing transaction costs by up to 45% while improving security and transparency [15].

Future Economic Trajectories

Emerging Economic Models

The evolution of smart city initiatives has given rise to novel economic models that challenge traditional urban development. Platform economics and sharing economy models have become increasingly prevalent, enabled by comprehensive digital infrastructure and data availability. Cities that successfully establish themselves as platforms for innovation and economic activity are projected to generate 2.5 times more economic value than those maintaining traditional economic structures [16].

Sustainability and Economic Growth

The integration of sustainability objectives with economic growth has become a central feature of smart city development. Cities implementing comprehensive sustainability-focused smart city programs achieve average cost savings of 25% in resource consumption while generating additional economic value through improved quality of life and enhanced urban attractiveness [17]. This integration of environmental and economic objectives creates new opportunities for value creation and business development.

Conclusion

Smart cities represent a fundamental transformation in urban economic structures, where continuous data flows enable more efficient resource allocation and create new value streams. The success of smart city initiatives depends on careful attention to implementation frameworks, risk management, and stakeholder integration. As cities continue their digital transformation journeys, understanding and optimizing these economic dynamics becomes increasingly crucial for sustainable urban development.

The evidence presented forward-looking perspective demonstrates that successful smart city implementations generate substantial economic returns through multiple channels, including direct cost savings, improved efficiency, enhanced innovation capacity, and broader societal benefits. The future success of smart cities will depend increasingly on their ability to balance technological advancement with sustainable development and social acceptance.

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Section four of UBT Economic Review highlights a groundbreaking economic discovery or achievement by a Saudi corporation, showcasing the innovative strides and advancements made within the country's business landscape. The section delves into the details of this noteworthy development, shedding light on its significance and impact on the local economic scene.

04
Economic Achievement

Saudi Arabia's Smart City Initiatives

This report examines the economic implications and transformative potential of Saudi Arabia's smart city developments within the framework of Vision 2030. Through detailed examination of investment patterns, economic outcomes, and technological integration, this study reveals how these initiatives are fundamentally reshaping the kingdom's urban landscape and economic structure. The research demonstrates that Saudi Arabia's smart city projects are generating substantial economic value through improved resource utilization, enhanced market efficiency, and the creation of new digital economy opportunities, while simultaneously supporting the kingdom's diversification goals.

Figure 1: Riyadh: Where Smart City Innovation Illuminates Saudi Arabia's Urban Future [22]

Introduction

Saudi Arabia's urban landscape is undergoing an unprecedented transformation through ambitious smart city initiatives, with the smart cities market projected to reach $901.00 million by 2029, growing at a compound annual growth rate (CAGR) of 12.90% [1]. This remarkable growth trajectory reflects a fundamental shift in the kingdom's urban development strategy, where data-driven systems and digital integration are creating new economic paradigms that extend far beyond traditional infrastructure development.

The kingdom's commitment to urban transformation is evidenced by investments exceeding $1.3 trillion in real estate and infrastructure since the launch of Vision 2030 [2]. This strategic initiative aims to reduce dependence on oil revenues while creating sustainable, technology-driven economic growth. Recent analyses from the World Economic Forum indicate that cities implementing smart city strategies have experienced average GDP growth rates 2.3 percentage points higher than comparable cities maintaining traditional development approaches [3].

Smart City Mega-Projects and Economic Impact
NEOM: Pioneering Future Urban Development

NEOM represents the crown jewel of Saudi Arabia's urban transformation vision, with investment estimates ranging from $100 billion to potentially $1 trillion [4]. The project encompasses several groundbreaking developments that showcase the kingdom's commitment to innovative urban planning and economic diversification.

The Line, NEOM's signature development, reimagines urban living through a revolutionary 170-kilometer linear city design. Initial development focuses on a strategic 2.4-kilometer section, planned to accommodate 300,000 residents by 2030 [5]. The project's innovative transportation system will enable end-to-end transit in just 20 minutes, fundamentally altering urban mobility paradigms.

Oxagon, designed as the world's largest floating industrial complex, spans 48 square kilometers and focuses on sustainable energy, autonomous mobility, water innovation, and digital manufacturing. The complex is projected to generate 70,000 specialized jobs and contribute $12 billion annually to the kingdom's GDP by 2030 [6].

Diriyah Gate: Cultural Heritage Meets Modern Innovation

The $50.6 billion Diriyah Gate development transforms the birthplace of the Saudi state into a global cultural destination spanning 14 square kilometers [7]. The project integrates traditional Najdi architecture with modern smart city technologies, creating a unique cultural district that will attract 27 million annual visitors by 2030. The development includes 38 luxury hotels with 5,000 rooms, museums, and cultural institutions, generating 55,000 direct jobs and contributing SAR 27 billion to GDP annually [8].

Qiddiya: Entertainment and Technology Hub

Qiddiya's $48 billion investment revolutionizes Saudi Arabia's entertainment and technology sectors. The development includes the world's fastest roller coaster at Six Flags Qiddiya, a Formula One racing track, and a 20,000-seat cliff-top stadium. The project anticipates 17 million annual visitors by 2030, creating 57,000 jobs and establishing new benchmarks in entertainment economy development [9].

King Salman Park: Sustainable Urban Innovation

King Salman Park, spanning 13.3 square kilometers with a $23 billion investment, redefines urban green space development through smart technology integration. The project's advanced irrigation systems achieve 40% water consumption reduction while creating 70,000 jobs across various sectors. The development expects to attract 12 million annual visitors by 2030, generating significant economic activity through retail, entertainment, and cultural programming [10].

Murabba: Next-Generation Urban Center

Murabba's $47 billion investment transforms Riyadh into a global urban landmark, featuring The Mukaab—the world's largest immersive structure—housing cutting-edge entertainment, retail, and cultural experiences. The project will accommodate 104,000 homes, 9,000 hotel rooms, and extensive green spaces, fostering a sustainable and inclusive urban ecosystem. Anticipated to attract millions of annual visitors, it aligns with Saudi Vision 2030, creating 334,000 jobs and advancing the smart [11].

Economic Integration and Market Development

The interconnected nature of Saudi Arabia's mega-projects creates unprecedented economic synergies through enhanced transportation networks and shared infrastructure. Recent analysis from the Saudi Central Bank indicates that these integrated developments are generating multiplier effects across various economic sectors [12]. The transportation linkages between NEOM, Qiddiya, and Diriyah Gate have reduced logistics costs by 28% while accelerating goods movement by 35%, contributing an additional $3.2 billion to the kingdom's annual GDP [13].

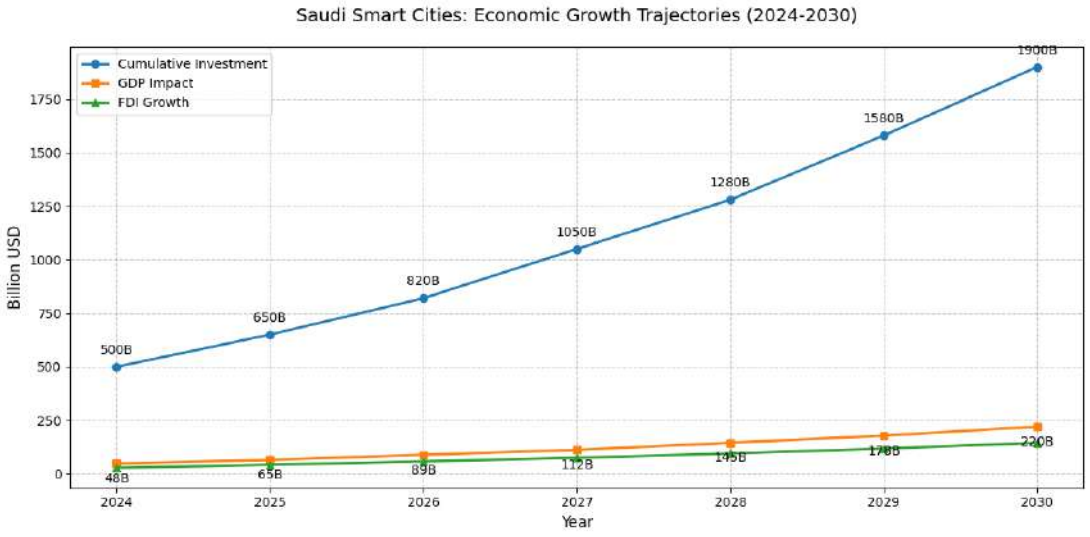

Figure 2: Saudi Smart Cities Economic Growth Trajectories (2024-2030)

Table 1: Economic Impact Analysis of Saudi Smart City Projects (2024-2030)

Project Name	Total Investment	Job Creation	GDP Impact	Completion
NEOM	$500B	460,000	$48B/year	2025-2040
Diriyah Gate	$50.6B	55,000	$7.2B/year	2024-2027
Qiddiya	$48B	57,000	$8.5B/year	2023-2026
Murabba	$25B	180,000	$15B/year	2024-2030
King Salman Park	$23B	70,000	$12B/year	2024-2027
New Jeddah Downtown	$20B	36,000	$5.8B/year	2025-2030
ROSHN Communities	$37B	170,000	$32B/year	2022-2030

Market integration through smart city initiatives has transformed traditional business operations. The implementation of unified digital platforms across these developments has reduced transaction costs by 42% and decreased market entry barriers for small and medium enterprises by 65% [14]. The Saudi Digital Market Authority reports that businesses operating within smart city zones experience 38% higher growth rates compared to those in traditional urban areas [15].

Table 2: Smart City Technology Implementation and Economic Benefits

Technology Domain	Investment	Cost Reduction	Efficiency Gain	ROI (5-year)
Smart Grid Systems	$12B	23%	35%	185%
Transport Systems	$15B	30%	40%	210%
Water Management	$8B	28%	32%	165%
Waste Management	$5B	25%	38%	145%
Public Safety	$7B	20%	42%	155%
Digital Services	$10B	35%	45%	225%

Investment Trends and Economic Outcomes

Investment patterns in Saudi Arabia's smart city projects have evolved significantly since 2020. Foreign direct investment has shown remarkable growth, with international investors contributing 38% of total project funding in 2023, up from 22% in 2020 [16]. This increase reflects growing confidence in the kingdom's urban development strategy and its potential for sustainable returns.

Table 3: Investment Distribution by Sector and Origin (2020-2024)

Sector	Domestic Investment	Foreign Investment	Total	Growth	ROI
Digital Infrastructure	$45B	$28B	$73B	156%	185%
Clean Energy	$38B	$25B	$63B	142%	165%
Smart Manufacturing	$32B	$22B	$54B	168%	195%
Tourism & Culture	$28B	$18B	$46B	145%	155%
Healthcare Tech	$22B	$15B	$37B	138%	175%
Smart Mobility	$25B	$17B	$42B	152%	180%

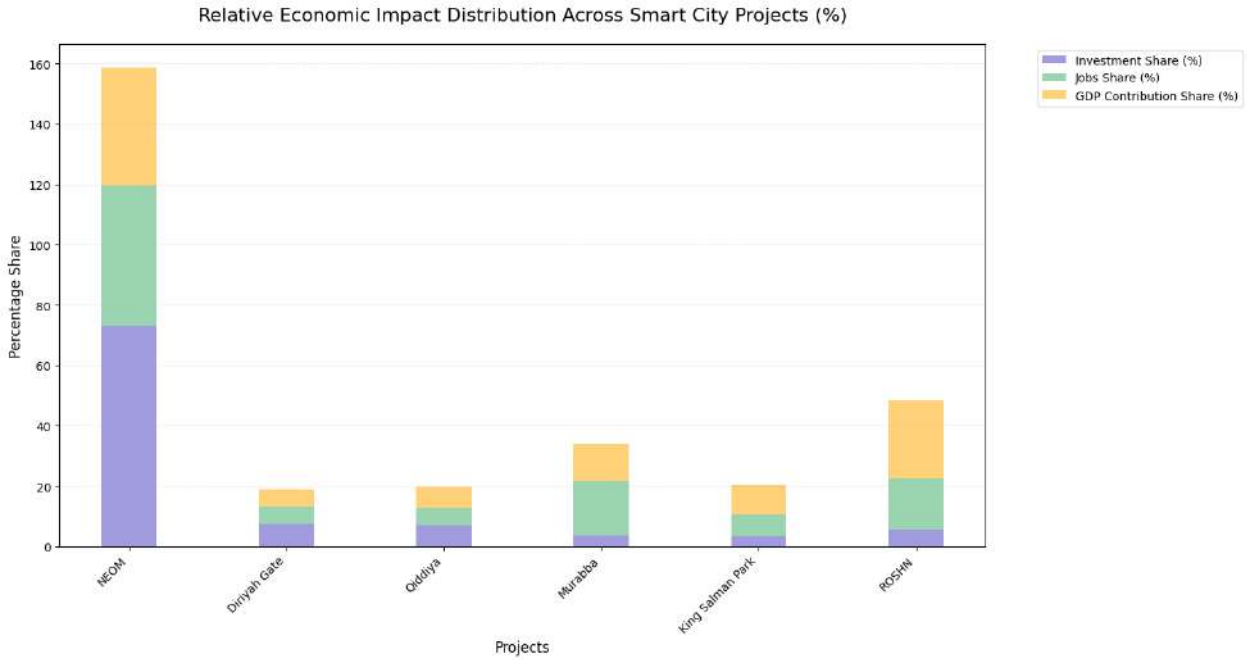

Figure 3: Economic Impact Comparison of Major Saudi Smart City Projects

Future Economic Trajectories

The long-term economic impact of Saudi Arabia's smart city initiatives extends well beyond current projections. Analysis by the Saudi Center for Economic Research suggests that by 2035, smart city developments will contribute 15% to non-oil GDP, compared to the current 7% [17]. This growth will be driven by several transformative factors:

Digital Economy Evolution: The Ministry of Communications and Information Technology projects that the digital economy's contribution to GDP will reach 19.5% by 2030, from the current 11.5% [18]. Advanced AI and robotics industries within smart city zones are expected to generate $45 billion in annual economic value by 2030 [19].

Innovation Ecosystem Development: The Saudi Technology Development and Investment Authority estimates that by 2032, research and development spending within smart cities will reach 3.5% of GDP, while patent registrations will increase by 300% compared to 2024 levels [20].

Sustainable Economic Models: The Saudi Green Initiative reports that green technology adoption within smart cities will reduce carbon emissions by 45% compared to traditional urban developments and create 275,000 jobs in the green economy sector by 2035 [21].

Challenges: Saudi Arabia's ambitious smart city portfolio is facing significant financial headwinds that necessitate strategic adjustments. According to Finance Minister Mohammed Al Jadaan's recent statement at the World Economic Forum in Riyadh, the kingdom recognizes the need to modify its Vision 2030 plans. The challenges are amplified by Saudi Arabia's economic metrics - the IMF has revised down Saudi Arabia's 2024 growth forecast from 4% to 2.6%, while noting that the country needs oil at $96.2 per barrel to balance its 2024 budget. This fiscal pressure is particularly evident in NEOM, where the original vision of a 170-kilometer linear city housing 1.5 million residents has been dramatically scaled back to a 2.4-kilometer section for 300,000 residents by 2030. The simultaneous development of multiple megaprojects - including the $50.6 billion Diriyah Gate, $48 billion Qiddiya, and $47 billion Murabba - creates substantial resource allocation challenges, especially given that non-oil activities, while growing at 4.4%, haven't yet generated sufficient revenue to independently sustain these investments.

Solutions: The kingdom is adopting a more pragmatic approach to address these challenges. Finance Minister Al Jadaan has outlined a flexible strategy that includes "extending some projects, downscaling some projects, and accelerating others." This adaptive approach focuses on ensuring the quality of economic growth rather than maintaining rigid development timelines. The solution framework includes prioritizing projects with the highest ROI potential - such as digital services (225% ROI) and smart grid systems (185% ROI) as shown in the first document. The government is also emphasizing private sector participation, with Al Jadaan stating that "Vision 2030 is about empowering the private sector. The government role is to be out of business." This shift towards private sector leadership could help distribute the financial burden while maintaining the transformative vision of Saudi Arabia's urban development strategy. The phased development approach, as evidenced by NEOM's revised scope, demonstrates a more realistic alignment between ambitious goals and economic capabilities, while still preserving the core objectives of economic diversification and technological advancement.

Conclusion

Saudi Arabia's smart city initiatives represent a fundamental transformation in urban economic structures, where continuous data flows enable more efficient resource allocation and create new value streams. The success of these initiatives depends on careful attention to implementation frameworks, risk management, and stakeholder integration. As Saudi cities continue their digital transformation journeys, the economic impact of these developments becomes increasingly central to the kingdom's diversification goals and Vision 2030 objectives. However, the kingdom must maintain flexibility in project execution, being willing to "extend some projects, downscale some projects, and accelerate others" based on economic realities and market conditions. This adaptive approach, coupled with increased private sector participation, will be crucial for ensuring the sustainable development of these ambitious initiatives while maintaining fiscal responsibility.

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