SMART DUBAI
TURNS 5!

COMPREHENSIVE BOOKLET
January 2021

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1. Introduction

The Smart Dubai Initiative was launched in 2013 by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE, Ruler of Dubai, with an ambitious vision to make Dubai the happiest and smartest city on Earth.

The Smart Dubai Office was formed in 2015 and tasked with overseeing Dubai's smart transformation and accomplish the leadership's vision. The Office's mandate consists of a series of objectives to fulfil, from smart-city planning, improving user experience, and digital enablement, to enhancing tech literacy in government entities, data governance, participating in the global agenda, and leading the global smart-city sector.

Since its establishment, Smart Dubai has launched a series of initiatives and strategies to achieve its vision and help Dubai become a global benchmark for smart city development. Key initiatives launched by Smart Dubai include the Dubai Data Initiative, Dubai Blockchain Strategy, Dubai AI Roadmap, Digital Wealth Initiative and most recently the Dubai Paperless Strategy.

Smart Dubai's mission revolves around six key dimensions: Economy, Mobility, People, Governance, Environment, and Living.

As of January 2020, the Smart Dubai Office was officially renamed to Smart Dubai Department.

H.E. Younus Al Nasser,
Assistant Director General of Smart Dubai,
CEO of the Dubai Data Establishment

Foreword

Guided by the forward-thinking vision of its wise leadership, the UAE has powered forward on an ambitious journey of widespread digital transformation as a means to develop and enhance all key sectors and government services to the benefit of the country's citizens, residents, and even visitors.

In Dubai, on a more particular note, this vision laid the groundwork for strategies and initiatives that aim to embrace advanced technologies and utilize them to transform every sector that affects people's lives, with the end goal being to establish a world-leading smart city – and the happiest one at that.

As the entity created to spearhead that transformation and bring the public and private sectors on board, Smart Dubai has launched a series of initiatives, programs, and services. Its overarching mandate is to implement Dubai's Smart Transformation Agenda, a five-year strategy covering the 2017-2021 period that outlines an ambitious roadmap for all components of the city: government, companies, society, individuals, resources and infrastructure.

With an extensive portfolio of strategies and initiatives, Smart Dubai is making strides in its mission to make Dubai a global benchmark for the smart transformation of cities, providing advanced infrastructure and connecting it to city-management systems across high-speed networks. Most notable among these projects are the ambitious Dubai Paperless Strategy with its newly introduced '100% Digital Stamp', the DubaiNow platform and application, and the game changing UAE PASS. Moreover, Smart Dubai launched a full bundle of initiatives that center around data, namely, Data Champions; Data First, The City's Data Challenge; Dubai Pulse; Dubai Data Private Sector Engagement Strategy and Policy; Data Science Lab; Data Decentralization; and the Dubai Registers Initiative.

Another area of focus has been Artificial Intelligence, where Smart Dubai launched the AI Lab, Ethical AI Toolkit, AI Ethics Board, and the AI Self-Assessment Tool. Meanwhile, Blockchain technology forms another pillar for Smart Dubai, which has introduced the Blockchain Strategy and the Global Blockchain Challenge.

As the entity entrusted with spearheading smart transformation efforts across the emirate, Smart Dubai sought to transform internal operations and procedures at various leading government entities, in a bid to ultimately digitize their services. This included various services under the Government Resource Planning umbrella, such as Smart Employee, Dubai Careers, Smart Supplier, and Smart Inventory

Above all, Smart Dubai aims to use technology to spread happiness among the population and has registered many achievements over the past three years, which raised the city's score on the happiness index to 90% in 2016. Smart Dubai is now aiming for an ambitious 95% by 2021. We also strive to play a leading role in the global smart-city sector, and with that in mind,

have unveiled the Smart Dubai Global Network, conceived with the aim of bringing together smart-city stakeholders from around the world to exchange knowledge with Smart Dubai.

As technology continues to power forward at an unstoppable pace, so too must cities and services. Dubai and the UAE have so far measured up to this challenge, meeting and very much exceeding all requirements and expectations. We can now confidently say that our goal of becoming the world's happiest and smartest city is within reach.

H.E. Wesam Lootah,
CEO of the Smart Dubai Government Establishment

Foreword

The UAE – and Dubai, in particular – has been blessed with a leadership and government that firmly believe in people as the core, the purpose, and the driving force behind any policies, investments, services, or development plans. With that in mind, any project or initiative launched in the emirate have always had a leading objective to ensure people's happiness and wellbeing. And Smart Dubai is one such initiative; our end goal has always been to make people happy, with technology being a powerful means to that end.

Our wise leadership has set an ambitious goal for Dubai to become a world-leading smart city, and the happiest one at that, setting the stage for the emirate to become the success that it is today, and an example for likeminded cities to emulate, with its commitment to embracing cutting-edge technologies and tailoring them to the benefit of its citizens, residents, and visitors.

As the Fourth Industrial Revolution continues to transform our world, unhindered – and, at times, accelerated – by the recent challenges that the worldwide COVID-19 pandemic brought along, we can only look forward to bigger and increasingly rapid transformations to change the very concept of a city as we know it. Nevertheless, as we move forward on our journey towards digital transformation, ever advancing technology, and more widespread and transformational smart city initiatives, we can confidently say that Dubai will steadily move closer and closer to its goals, and placing itself on the map as the world's smartest, happiest, and most advanced city.

SMART DUBAI 2021 STRATEGY

2. Smart Dubai 2021 Strategy

Guided by His Highness Sheikh Mohammed bin Rashid AI Maktoum, Smart Dubai has continually pursued a revolutionary new vision for a smart city: to be the happiest city on Earth.

Led by Smart Dubai, the city has transformed itself into a model smart city, revolutionizing the way government services are delivered to its people by launching over 100 smart initiatives and more than 1,000 smart services with government departments and private-sector partners in less than three years (2015 – 2018).

Smart Dubai has announced an ambitious roadmap to prepare Dubai to embrace the future and emerge as a world-leading city by 2021, in celebration of the nation's golden jubilee, by promoting technological advances that benefit the city's people, its economy, and its resources. Smart Dubai 2021 is the city's roadmap to achieving the future of Dubai, now.

The Smart Dubai initiative structures its end-goals across a carefully crafted set of guiding principles. These are Efficient, Seamless, Safe, and Personalized. The pillars provide a distinct view of the impact the city needs to create, in tandem with all

public and private stakeholders. Smart Dubai envisions a city where all its resources are optimized for maximum efficiency, where services are integrated seamlessly into daily life, where it protects both people and information – creating the most enriched life and business experience possible for all.

In essence, the SD2021 is a blueprint intended to answer the question: what makes Dubai a smart city? To achieve that, Smart Dubai 2021 has established strategic objectives, mapping six city dimensions, identifying ambitious targets to fundamentally transform the way people live, work and interact with the city, and these are:

1. Smart Livable & Resilient City
2. Globally Competitive Economy Powered by Disruptive Technologies
3. Interconnected Society with Easily Accessible Social Services
4. Smooth Transport Driven by Autonomous & Shared Mobility Solutions
5. Clean Environment Enabled by Cutting-Edge ICT Innovations
6. Digital, Lean Connected Government

International Presence

Smart Dubai has a strong ambition to become a Global Smart City Leader. This requires the exchange of knowledge and understanding of the global smart city landscape in terms of best practices, standards, cutting-edge technologies and other aspects of city management and services. Hence, Smart Dubai engages with the most credible and the most influential international organizations not only to enable this exchange but also to shape and impact their work by bringing Smart Dubai's local knowledge and expertise to them. Smart Dubai holds leadership roles in all of its engagements, such as chairmanship, management team membership, etc.

Smart Dubai strategically engages with the ICT specialized United Nations agency, ITU, to develop commonly agreed smart city global standards by member states' participation and also participate in their various focus groups to explore emerging topics to preserve Dubai's leading position globally.

Smart Dubai co-led the creation of the 'Key Performance Indicators for Smart Sustainable Cities', the first-ever benchmark for smart city implementation across the globe built in cooperation with the UN's International Telecommunication Union.

Similarly, Smart Dubai has engaged with the United for Smart Sustainable Cities (U4SSC) initiative – the only global smart and sustainable cities initiative supported by 17 United Nations agencies – and has participated participated as leader of various thematic groups contributing significantly to knowledge creation around topics like circular cities, city science, guiding principles for AI and innovation in smart cities.

Smart Dubai is chairing the SDG11 Global Council, which is an initiative launched by the UAE Federal Government and overseen by Federal Competitiveness and Statistics Authority (FCSA). This Council has global members from the private sector, academia and NGOs and is formed to help other cities through targeted programs and action items. This Council is a perfect example where Smart Dubai contributes globally to the UN agenda of sustainable development in cities and communities.

Another global initiative Smart Dubai contributes to is the Global Happiness Council (GHC), which is a global Council of leading specialists in happiness and key practitioners in diverse areas. The Global Happiness Council identifies best practices at the national and local levels to encourage advancement of the causes of happiness and well-being. As part of the GHC, Smart Dubai is the Chair for the Happy Cities Agenda.

Smart Dubai is also a member of the Global Future Council on Cities and Urbanization in the World Economic Forum. Global Future Councils are interdisciplinary knowledge networks dedicated to promoting innovative thinking to shape a sustainable and inclusive future for all and are administered globally by the World Economic Forum.

Last but not the least, Smart Dubai launched its own Smart Cities Global Network with more than 500 members to share knowledge and expertise in smart cities with its members.

These select engagements and participations in international bodies allow us to jointly develop and use international standards, share best practices and plan for upcoming technologies. In a globalized world, it is very important to keep channels open when it comes to information and knowledge, to enable free flow of information which will in turn help maintain Dubai's global leadership role in building smart cities.

DUBAI PAPERLESS STRATEGY

3. Dubai Paperless Strategy

Reducing paper consumption in collaboration with Dubai Government entities

• The Dubai Paperless Strategy was launched in February 2018 by H.H. Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Executive Council of Dubai to digitize internal and external government transactions, rendering them completely paper-free.

• The Strategy's primary objectives are:

1. Global Competitiveness: Position Dubai as the world's leading digital city

2. Government Efficiency: Save operational costs and ensure better utilization of government resources through streamlining and digitizing processes and services provided to individuals and the business sector

3. Citizens' Happiness: Meet and satisfy customers' needs and provide seamless, integrated, and proactive services

• The Dubai Paperless Strategy revolves around three main axes: Technology; Legislation; and Culture (Overcoming cultural barriers to promote paperless transactions).

• The Strategy is set to be implemented across all Dubai Government entities and will help digitize key Government services, offering them all on one unified platform – DubaiNow.

• The strategy identifies two types of paper: first, paper used in processes and services, which can be eliminated through digital alternatives and second, paper printed selectively that is not process related, but printed and used due to current habits and culture.

• The strategy focuses on enhancing and improving services and internal processes, through digitization or elimination of unnecessary documents and further utilization of intra-governmental shared services provided by Smart Dubai.

• The Strategy was rolled out over several phases, covering a total of 42 Dubai Government entities.

• Phases One and Two of the Strategy brought together 14 government entities that have made tremendous progress in their digital transition in alignment with the Dubai Paperless Strategy. These are: Roads and Transport Authority (RTA), Dubai Police, Dubai Electricity and Water Authority (DEWA), Department of Economic Development, Department of Tourism and Commerce Marketing, Dubai Land Department, Dubai Courts, Dubai Municipality, Dubai Public Prosecution, Knowledge and Human Resources Authority, Dubai Health Authority, Community Development Authority, Dubai Customs, and the General Directorate of Residency and Foreigners Affairs (GDRFA).

• Phases Three of the Strategy brought together 9 government entities that have made a great progress in their digital transition in alignment with the Dubai Paperless Strategy These are: The Dubai Corporation for Ambulance Services, Islamic Affairs & Charitable Activities Department, Dubai Media Inc., Department of Finance, Dubai Government Human Resources Department, Dubai Culture and Arts Authority, Dubai Civil Aviation Authority, Al Jalila Cultural Centre for Children, and the Government of Dubai Legal Affairs Department.

• Certain entities registered a completion rate of more than 60% for the Strategy. These include the Dubai Electricity and Water Authority (DEWA), Dubai Police General Headquarters, the Roads and Transport Authority (RTA), the General Directorate of Residency and Foreigners Affairs in Dubai, the Department of Economic Development, Knowledge and Human Development Authority, Department of Tourism and Commerce Marketing, and the Community Development Authority.

• Meanwhile, phase Four has been launched with ten more entities, namely, Dubai Airport the Dubai Statistics Centre; Awqaf and Minors Affairs Foundation; Dubai Women Establishment; Security Industry Regulatory Agency; Mohammed bin Rashid Housing Establishment; Dubai Sports Council; Ports, Customs, and Free Zone Corporation (PCFC)/Trakhees; Dubai Maritime City Authority (DMCA), Dubai Air Navigation Services.

• Finally, phase Five is launched to include nine new entities to be part of the Dubai Paperless Strategy: Mohammed Bin Rashid Space Centre; Dubai Aviation Engineering Projects; Dubai Future Foundation; The Supreme Legislation Committee in the Emirate of

Dubai (SLC); Professional Communication Corporation (NEDAA); The Executive Council in the Emirate of Dubai (TEC); Mohammed bin Rashid Al Maktoum Knowledge Foundation (MBRF); Dubai Government Workshop (DGW), and Dubai Civil Defense (DCD).

• By reducing paper consumption; Dubai Paperless Strategy is saving millions of dirhams and millions of working hours across government entities. This, in turn, creates a positive impact on the environment by saving thousands of trees.

• The reduction in use of paper till date has led to savings of more than AED725 million, while also saving 7.7 million hours of labor across government sector. This, in turn, has also had a positive impact on the environment, saving 20,325 trees from being cut down to make paper.

100% Digital Stamp

• Smart Dubai launched the 100% Digital Stamp initiative as part of its contribution to the Government Development Track – one of the six tracks announced by the Dubai Council, which was

inaugurated at the beginning of 2020 by H.H. Sheikh Mohammed bin Rashid AI Maktoum, Vice President and Prime Minister of the UAE, Ruler of Dubai.

• The Stamp is awarded every six months to government entities that have fully implemented the Dubai Paperless Strategy as a symbol reflecting their complete transition into entities that offer digital, paperless services.

• The initiative recognizes entities that made outstanding efforts to implement the strategy, offering their services via fully digital mediums backed by an efficient internal digital infrastructure.

• It classifies government entities by order of their paper consumption into three categories: Large, Medium, and Small Entities.

• The objective is to expedite the Dubai Government's digital transformation and achieve the objectives of the Dubai Paperless Strategy.

UAE PASS

4. UAE PASS

• The UAE PASS initiative is the first secure national digital identity platform allowing citizens and residents to access online services across various sectors in the UAE, as well as to digitally sign and authenticate documents and transactions.

•It also enables users to request a digital version of official documents to share with service providers when required.

• UAE PASS was launched during GITEX Technology Week in October 2018 as a joint initiative between the Telecommunications Regulatory Authority (TRA) and the Abu Dhabi Digital Authority (ADDA).

• UAE PASS is supported by key strategic partners: Federal Identity & Citizenship & the Dubai Electronic & Security Centre and all the Digital Authorities across the UAE.

• In September 2019, the UAE Central Bank adopted the UAE PASS initiative allowing banks around the UAE to use it in processing banking transactions.

• UAE PASS allows UAE citizens and residents to access more than 5,000 services from government, semi-government and private entities through their websites and apps.

• Services from 103 entity can be accessed online, and they include:

30
Federal Entities

25
Entities in Dubai

7
Entities in Abu Dhabi

13
Entities in Sharjah

5
Entities in Fujairah

8
Entities in Ajman

2
Entities in Ras Al Khaimah

1
Entity in Umm Al Quwain

12
Private entities (5 financial institutions, 2 telco services providers, and 5 e-Government companies).

• Some of the government entities that have already enrolled in UAE PASS include: Dubai Department of Economic Development, Dubai Police, Dubai Electricity and Water Authority (DEWA), Knowledge and Human Development Authority (KHDA), General Directorate of Civil Defence in Dubai, Dubai Land Department, Dubai Health Authority (DHA), Dubai Courts, Roads and Transport Authority (RTA), Mohammed Bin Rashid Housing Establishment (MBRHE), Dubai Municipality, Dubai Civil Aviation Authority, Dubai Culture, National Bonds Corporation, Dubai Asset Management, Dubai Sports Council, and Dubai Maritime City Authority, among others.

• The list of government entities outside of Dubai whose services can be accessed through UAE PASS include, but are not limited to, Fujairah Police, Fujairah Municipality, Sharjah Department of Economic Development, Sheikh Zayed Housing Programme, Ministry of Infrastructure Development, the Emirates Authority for Standardization and Metrology, and many more.

• Users can register for UAE PASS by downloading and registering on the app, then proceeding to their nearest kiosk to verify their registration securely. There are more than 300 service providers across the country, and their locations can be found on uaepass.ae as well as on the UAE PASS app.

DUBAINOW

5. DUBAINOW

• DubaiNow is the comprehensive go-to app for all smart city services.

• DubaiNow is the first and only Dubai Government application that provides users access to more than 120 government and private sector services from over 34 entities (26 government departments and 8 non-government institutions).

• The objective is to offer citizens and residents a one-stop-shop experience for all government interactions, available seamlessly and safely at their fingertips. Smart Dubai is always adding more services to allow users to save time to do the things they love.

• The city services on DubaiNow can be classified into 12 different categories, namely: Bills, Mobile, Driving, Housing, Residency, Health, Education, Police, Travel, Islam, Donations and General.

• Users can save time and access contactless city services on DubaiNow, such as bill and fine payments, Salik and Nol top-ups, car registration renewals, mParking and ENOC fuel top-ups, residency management for a spouse and child, academic history

requests, travel and dependents report requests, flight tracking, digital business cards, and much more.

• We also recently enhanced the user experience on DubaiNow by introducing a sleeker design, better performance and improved login authentication. We also released 14 new services to make citizens and residents' lives easier, most notably recharging of du Prepaid accounts, DEWA account management, DLD Title Deed Verification, GDRFA Travel and Dependent Reports, Dubai Sports Council Calendar, DHA visiting doctors directory, Patient services, Salik account services, official COVID-19 Information and updates, IACAD COVID-19 Solidarity Fund donations, and many more.

• These contactless city services reduce the number of times individuals need to visit customer service centers annually from 23 to 9 times, saving every person 28 hours.

Residency services include:

• Applying for, renewing, or cancelling residency sponsorship for a spouse and children
• Viewing dependents' residency visas and entry permits
• Tracking the status of visa applications and entry permits for residents and visitors
• Requesting official travel and dependent reports from GDRFA

The Travel feature allows users to:

• Check real-time flight information from Dubai International Airport and create a watchlist for flights of interest
• Submit lost and found claims to Dubai International Airport
• The Travel service also allows users to check arrival and departure times, the gates for each trip, and the landing and departure halls, in addition to data on seat booking on the plane, and flight tracking

Other services allow users to sign contracts and request important information, namely, DubaiNow boasts features to:

• Sign a tenancy contract and obtain Ejari certification
• View the status of Ejari contracts
• View and sign KHDA parent-school contract instantly
• Apply for KHDA academic history reports

• The DubaiNow platform was a central component of Smart Dubai's 'Stay 'Stay In, We've Got You Covered' campaign, launched as part of the national efforts to curb the spread of the novel Coronavirus (COVID-19)

• The campaign called on all individuals to stay home and make use of the services offered through the DubaiNow application, allowing them to avoid unnecessary direct contact with people, cash money, and payment terminals.

• In October 2020 alone, the DubaiNow application was downloaded 31,864 times.

• The application reported 10,939 new registered users that month.

• DubaiNow processed 266,843 transactions worth AED157.1 million in October 2020.

• Since its official launch, the application has processed 11.47 million transactions, valued at more than AED6.03 billion. It registered 84.24% on the Happiness Meter.

The latest services added to the platform include:

1. Title Deed Verification:
• A Dubai Land Department (DLD) service
• This service allows users to verify any title deed in Dubai with or without verifying the owner's name

2. Salik Accounts:
• A Roads and Transport Authority (RTA) service
• The service allows users to manage their Salik accounts, with features including viewing and managing vehicles, updating contact info, viewing violations, and raising disputes.

3. Patient Services:

• A Dubai Health Authority (DHA) service that allows users to view and manage past and upcoming appointments for themselves and their families, as well as to view lab results and current prescribed medication.

DUBAIPAY

6. DUBAIPAY

• Smart Dubai launched the DubaiPay service to allow residents to pay their utility bills, traffic fines, or Salik charges, using their smartphones. Customers can pay for more than 185 services from 59 government and private entities.

• A total of 61.74 million transactions have been processed through the DubaiPay service between 2015 and 2020, with a compound value of AED85.77 billion.

• The number of yearly transactions increased significantly from 8.16 million in 2016 to 13.33 million in 2019, while the total value of these transactions skyrocketed from AED11.52 billion in 2016 to AED18.96 billion in 2019

• DubaiPay is a highly secure service and has PCIDSS level 1 certification since 2014.
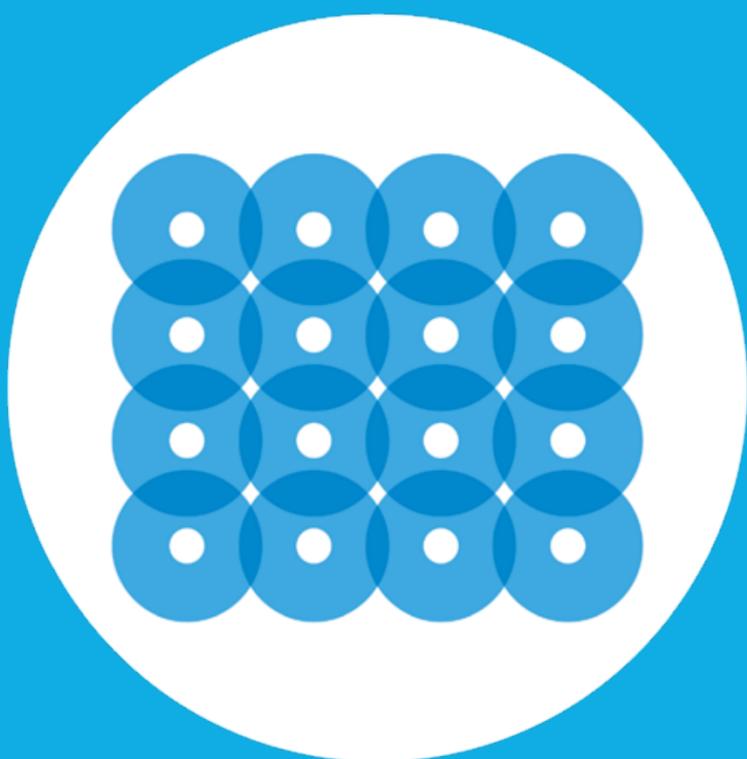
DATA
INITIATIVES

7. DATA INITIATIVES

• Dubai's data journey started with Dubai Data Law in 2015, which made Dubai the first city to mandate the sharing, use and reuse of data.

• Today, it is leading the world's most ambitious and comprehensive data initiative in the world.

• Smart Dubai's goal is to ensure Dubai benefits from data by creating a citywide data strategy, fueling the city's smart transformation, and leading a new approach in data management for cities.

• It started its journey with the public sector by setting a strategy and set of policies and standards covering elements of data use, data sharing and data governance.

• With the support of the Data Champions, it identifies, prioritizes, classifies and publishes datasets on Dubai Pulse.

Data Champions

- The Data Champions are a community of public sector organization change agents leading the implementation of Dubai Data initiatives within government entities and ensuring organizational compliance with the Dubai Data Law.

- Government entities compliance to the law is scored against nine criteria and is based on the mandate of the Dubai Data Law.

Data First, The City's Data Challenge

- Smart Dubai also launched Data First, The City's Data Challenge, a six-month-long competition that seeked to recognize the entities that have made the most contributions in terms of providing their respective entities' data to the Dubai Data Establishment.

- The 35 participating entities are being evaluated against five key criteria: compliance with the Dubai Data Law; attendance at Smart Dubai data events; collaboration on data requests from

other government and semi-government entities; increasing data availability on Dubai Pulse; and supporting for a data-driven culture through internal and external workshops and awareness programs.

Private Sector Engagement Strategy and Policy

• In 2019, Smart Dubai launched the private sector engagement strategy and policy, which aims to enable a data ecosystem, foster stronger collaboration between the public and private sectors, and drive Dubai's ambition toward becoming a data-driven city.

• And along the way, Smart Dubai identified potential use cases with strategic importance targeted towards the ecosystem and community development.

• Smart Dubai operates as an enabling regulator, engaging the private sector in developing and sustaining the Dubai Data ecosystem.

Data Science Lab

• The Data Science Lab initiative seeks to develop data science skills in the emirate and foster collaboration among Dubai's data science community to identify and explore use cases that will help deliver insights and foster the growth of a data ecosystem.

• The Dubai Data Science Lab is the production line for use cases, which engages with real-world problems solvable through data science to create economic and social benefits.

• The Data Science community extends Smart Dubai's reach outside the walls of the Dubai Data Science Lab to involve a wider community of data experts and stakeholders.

Retail Data Use Case

• Smart Dubai launched the Retail Sector Data Project in partnership with Dubai Economy in late 2019 to provide clear insight to enhance retail sector's offerings.

• In June 2020, Smart Dubai announced it had expanded the project to include new partners.

• Smart Dubai collaborates with several partners on the current project, namely, the Department of Economic Development; Majid Al Futtaim; du from the Emirates Integrated Telecommunications Company; and Network International, the largest enabler of digital commerce in the Middle East and Africa region.

• The project outlines a clear vision to decision makers about the changing consumer behavior and purchasing patterns of citizens and residents in times of emergency, which allows malls to provide safe experiences for people amid full safety measures.

• Smart Dubai is utilizing its available and ample data, which will be analyzed and optimized for value in an effort to enhance experiences and services in the retail sector and spread happiness among residents. Furthermore, the project seeks to guide the sector towards making the right investments.

• The retail sector is set to enjoy several benefits from the projects, such as the ability to identify shoppers' preferences and

tendencies, as well as key goods and services they would like to acquire from shopping malls in their vicinity. This, in turn, will make it easier for retailers to make sound decisions and mount air-tight marketing campaigns.

Data Decentralization

• Smart Dubai also ventured into Data Decentralization, launching a report titled Convergence of Smart Cities to explore the possibility of data exchange between the public and private sector using Fourth Industrial Revolution technologies, which asserted that open networks were vital for delivering the next stage of open data infrastructure.

• Eventually, Dubai Data wants to be an impartial market broker for citywide data, creating a decentralized market where data's true worth is realized and used to spark new opportunities.

Dubai Pulse

• Dubai Pulse is the digital backbone of Dubai, which facilitates the exchange of data to enable a safe, seamless, efficient and personalized experience.

• Smart Dubai's policies and strategy began with a focus on the public sector. However, a data ecosystem cannot function with the government alone. Therefore, these efforts were expanded to the private sector.

• The platform hosts more than 600 open and shared data sets, which act as a major resource for data scientists locally and internationally to develop use cases, and to create a data-stimulating environment in the city.

• Dubai Pulse is an integrated platform that hosts the city's most valuable and powerful datasets to help empower decision-making and solve challenges.

• The role of Dubai Pulse is to ease the exchange of data in order to enable a safe, seamless, efficient and personalized experience.
• The platform is accessible to the public, the business sector, and all decision makers.

• Dubai Pulse offers a window to Dubai's market forces and gives you exceptional insights when making decisions – whether you're choosing schools, investing in real estate or starting a new business.

• The platform identified more than 2,000 datasets from participating entities, and is now home to over 600 datasets.

• Dubai Pulse ingested 637 datasets on Dubai Pulse, 246 are open datasets and 391 are shared datasets.

Dubai Registers

• Smart Dubai has launched the Dubai Registers initiative to build a network of accurate, reliable, and interconnected data records for a sustainable and happy city.

• The project is part of the Government Development track – one of six development tracks announced by the Dubai Council in early 2020.

• The approach is to collect the latest and most accurate data and store it as digital registers to ensure effective interaction between the government and its citizens, residents, and visitors.

• Digital registers include information across several areas including individuals, the economy, land, and city assets.

• The initiative offers an effective tool for outlining the approach to prepare registers in general, setting standards and priorities. The project will include using reliable data available on the Dubai Pulse platform to identify potential registers, and then setting a plan to be implemented in 2020 and 2021, along with procedures for governance.

• Dubai Registers allows Smart Dubai to begin utilizing the vast amounts of data it has accumulated through other initiatives and classify and present them in the manner most accessible and useful to its various partners.

• It will also enhance the quality of data available, all the while enabling efficient and smooth government services for the community. The Registers allow Smart Dubai to regulate the collection, use, and exchange of data and optimize its use.

Data Sharing Toolkit

• Smart Dubai has launched a Data Sharing Toolkit, built in partnership with globally renowned innovation foundation Nesta.

• This Data Sharing Toolkit provides guidance and resources for individuals, as well as private and public organizations to prepare for and design a data-sharing initiative.

• This research was then translated into a flexible decision tool, which highlights two components as the core of all data sharing initiatives:

1 The Decision Matrix, which identifies six key decision points, prompting and guiding discussions about all key elements of a data-sharing arrangement

2. The Project Foundation, which identifies the conditions required to move forward with a data-sharing project, and provides the overarching legal, technical and relationship considerations

The Toolkit is available to be accessed by all on the Smart Dubai website.

ARTIFICIAL INTELLIGENCE

8. Artificial Intelligence

• Led by the vision of the UAE leadership, Dubai and the UAE were among the first to enter the AI arena with one bold initiative after the other.

AI Lab

• In 2017, Smart Dubai launched the AI Lab to identify and develop use cases for AI implementation across all industry sectors.

• The programme ran 20 workshops, identified over 100 possible use cases of AI development within the Dubai government, and shortlisted 43 cases that are being built into Proof of Concepts and Pilots.

Ethical AI Toolkit

• Seeing as the field is not mature enough to have laws drafted for it, Smart Dubai developed the Ethical AI Toolkit to set clear guidelines on the ethical use of the technology, and prevent having a fragmented, incoherent approach to ethics, where every entity sets its own rules.

• Earlier this year, Smart Dubai revealed the Ethical AI Guidelines had been implemented in 18 use cases in Dubai, including 15 initiatives by the Roads and Transport Authority (RTA) and three AI Lab use cases developed with the Knowledge and Human Development Authority (KHDA), the Dubai Health Authority (DHA), and Dubai Customs. Additionally, the Ethical AI Toolkit has also been used by the Dubai Electricity And Water Authority on 13 of the use cases they are building.

• As part of the Toolkit, Smart Dubai has outlined Dubai's AI Principles which are - Ethics, Security, Humanity and Inclusiveness.

• The first version of the toolkit focuses on the 'Ethics' of AI, ensuring all use cases being developed are Fair, Accountable, Transparent and Explainable.

Self-Assessment Tool

• As part of the Toolkit is also a Self-Assessment Tool, which allows anyone implementing AI to self-assess their performance

against the guidelines to assure an ethical approach. The process uses the data from the Self- Assessment Tool to create a positive feedback loop for those developing AI. Dubai is the first city in the world to set out such a voluntary approach that will help businesses and governments create fair, accountable, transparent, explainable, and ultimately trusted AI systems that manage the tension between innovation potential and societal values.

AI Ethics Board

• Moreover, Smart Dubai launched the AI Ethics Board, bringing together leaders from the technology industry, academia, and government policy experts and practitioners to help the private sector develop AI systems that balance innovation with social service, as well as outline a future path for enabling AI regulation.

BLOCKCHAIN

9. Blockchain

Blockchain Strategy

• Smart Dubai launched the Dubai Blockchain Strategy in October 2016 with a goal to build a Blockchain Ecosystem in Dubai and execute as many applicable Dubai Government transactions on a Blockchain network.

The Dubai Blockchain Strategy was launched with three pillars in mind:

• **Government Efficiency:** This pillar is aimed at identifying and implementing Blockchain use cases in Dubai. Over the past four years, Smart Dubai worked with government and private sector partners to identify several use cases and Smart Dubai's public and private sector partners are currently implementing 24 use cases in the city across eight industry sectors.

Additionally, working in collaboration with all public and private sector entities, Smart Dubai launched the Dubai Blockchain Policy – the first comprehensive blockchain implementation policy globally – at the Smart City Expo in Barcelona last November. Furthermore, and in order to minimize investment from entities

who are just testing their use cases, Smart Dubai partnered with du to launch the Blockchain Platform as a Service (BPaas) which is a pay-as-you-go model for all users who do not wish to invest in Blockchain heavily at this time and are currently in the pilot or Proof Of Concept phase.

• **Industry Creation:** As part of the Industry Creation pillar, Smart Dubai hosted the Global Blockchain Challenge for three consecutive years from 2017 to 2019, inviting 20 Blockchain start-ups every year to the emirate to showcase their use cases and applications to a panel of judges.

Winners were awarded cash prizes and also introduced to potential government partners and venture capitalists. The 2019 challenge saw over 700 applications from 79 countries across the globe. Smart Dubai's openness to inviting and embracing Blockchain start-ups from across the globe led to over 100 Blockchain companies setting up shop and operating in Dubai today.

• **International Leadership**: Smart Dubai has been the official host of the Future Blockchain Summit in 2018 and 2020, inviting Blockchain experts from across the globe to Dubai, to share their experiences and stories on one platform.

In 2019, the Summit was the largest Blockchain conference globally with approximately 10,000 attendees.

Smart Dubai also shares knowledge and experience in building a Blockchain ecosystem through several workshops and reports published with the World Bank, United Nations, and the World Economic Forum.

Finally, Dubai has been crowned as the World Capital of Blockchain by CNBC, while Smart Dubai collected the 'Project City Award' for the Dubai Blockchain Strategy by the Smart City Expo World Congress in 2017.

Payment Reconciliation and Settlement System

• Smart Dubai launched the Payment Reconciliation and Settlement System, developed in collaboration with the Dubai Department of Finance as a Blockchain-powered upgrade to its financial system.

• The system allows transactions to be performed accurately and in real time, economizing time and effort. The DoF's current 'manual' procedures are time-consuming and could take up to 45 days.

Dubai Future Council for Blockchain

• In July 2019, Smart Dubai hosted the second meeting of the Dubai Future Council for Blockchain, which presented and approved plans to work on three initiatives for 2019-2021:

- The Dubai Cryptocurrency Positioning Report
- The Dubai Blockchain Policy which was launched at the Smart Cities Expo Barcelona in November 2019.
- The Future Landscape Report for Blockchain in Dubai

HAPPINESS

10. Happiness

Happiness Agenda

• Smart Dubai is implementing the Happiness Agenda, which was launched by H.H. Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE, Ruler of Dubai, in May 2016, and aims to unify the approach to measuring happiness and improve people's happiness across the city.

• Dubai's Happiness Agenda changed the equation from "what is the definition of happiness" to "what human needs are to be fulfilled to achieve happiness". Therefore, the Happiness Agenda team developed the ABCDE model of happiness needs. A = affective and emotional needs, B = basic needs, C = cognitive needs, D = deeper needs and E = enabling needs.

• The key team members in the Happiness Agenda are "Smart City Experience Specialists" and "Work Environment Specialists", who are Senior Managers from more than 40 government, semi-government, and private entities in Dubai, where they implement the Happiness Agenda and carry out new initiatives and projects.

Designing Cities Program

• The Designing Cities Program is a series of training programs that Smart Dubai develops, organizes and manages for the Happiness Agenda Specialists, which contributes to the 'Educate' portfolio of the Happiness Agenda initiatives. The 2019 edition of Designing Cities Program was held in Tokyo, Japan from November 24-29.

• The programme sheds light on policies and tools that help improve city experiences based on data-driven approaches that take into account different cultures while designing an experience or a service, highlighting factors that service providers should take into consideration when designing services in a multicultural city.

• The 'Designing Cities - Tokyo' training programme was conceived to promote and explore the quality of service design across different cultures, all while participants were immersed in an entirely different and unique culture like Japan's.

• The 35 participating Happiness Champions had the opportunity to learn about innovative designs that emphasize the role of data in decision-making, which results in increasing people's wellbeing and happiness.

• In 2018, Smart Dubai organized the 'Designing Cities' training program in Copenhagen in collaboration with Innovation Lab, Denmark's leading knowledge, technology, R&D, and business center. The training focused on how to embed trust in designing experiences and services. The 30 Happiness Agenda Specialists who participated in the programme explored different tools and methods to achieve these objectives.

• In 2017, Smart Dubai organized a 'Quality Services' course with Disney Institute in Florida, which brought together 30 Happiness Agenda Specialists at the Institute, introducing them to tried-and-tested methods to improve services offered to the community.

Digital Service Design Professional Diploma

• A joint professional diploma offered by the University of Dubai, Dubai Institute of Design and Innovation (DIDI), and Smart Dubai. The diploma is approved by KHDA.

• Provides Smart City Experience Specialists the knowledge and practice to improve current digital services, and to create new ones that are more relevant to digital transformation towards building smart cities.

• The use of current and emerging technologies is the foundation of the course, helping accelerate innovation, and directly contributing to continued improvements of the economy, the environment and the quality of life in Dubai.

• The curriculum is based on five modules; Digital Technologies, Design Basics, Research Methods, Service Design, and a Capstone project as the final module.

• Capstone projects use the curriculum material towards innovating new services or enhancing existing ones, where learnings are applied towards a real-life project.

Happiness Index

• Smart Dubai aims, above all, to use technology as an enabler and not the ultimate solution to spread happiness among the population; having raised the city's score on the Happiness Index to 90% in 2018, the objective now is an ambitious 95% by 2021.

• To that end, Smart Dubai deployed Happiness Meters across government and private entities and service centers to measure customers' happiness.

SMART CITIES GLOBAL NETWORK

11. Smart Cities Global Network

• The first network of its kind, the Smart Cities Global Network places Dubai on the global map in thought leadership on smart cities.

• The network includes more than 500 members from various sectors, including:

Government & Private Entities

Academic Institutes

Research Centers

Media Outlets

• The network gives these members the chance to collaborate and exchange knowledge around topics related to smart cities.

• The aim of the network is to position Dubai as a global hub for knowledge.

• After joining the network, and through the network's webinars, members can communicate with each other and voice their thoughts on the dynamic content page that hosts the latest news and hottest topics on building smart cities.

• Members can also become a front-runner by publishing their articles and engaging content on the platform
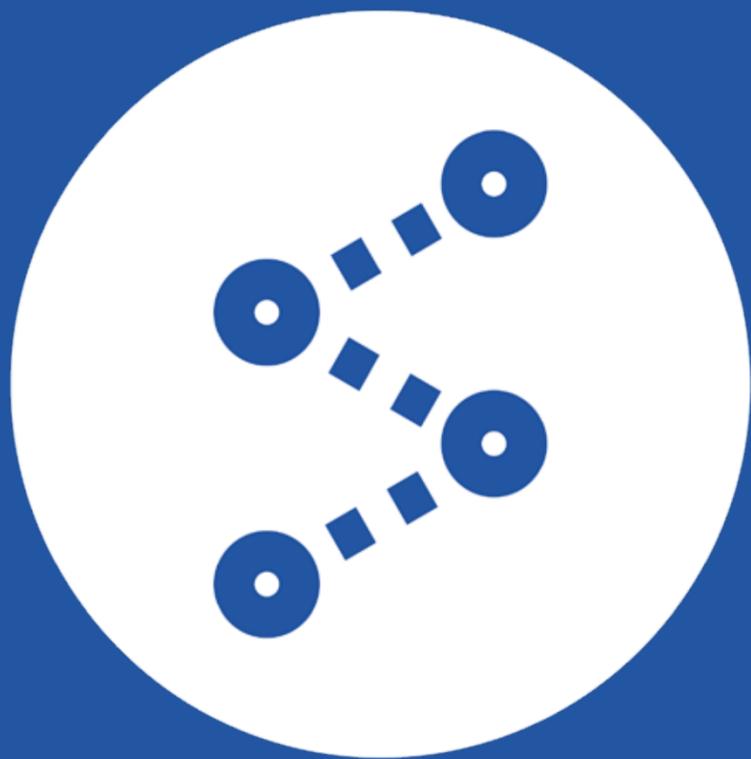
GOVERNMENT RESOURCES PLANNING SYSTEMS (GRPS)

12. Government Resources Planning Systems (GRPS)

• The Government Resources Planning Systems (GRPS) is an integrated, secure, and unified system of centralized back-office solutions offered by Smart Dubai and implemented by more than 70 government entities in the emirate.

• It allows them to handle all key internal government operations in the financial, logistics and human resources fields, including salaries, recruitment, financial truncations, supply chain and asset management.

• Over the past three years, Smart Dubai gradually rolled out 137 initiatives and 1,129 smart services centered around interconnected systems, including services that use the advanced GRPS.

• The GPRS consists of 40+ systems and over 71,000 employees. It manages 95% of the Government's budget and more than 45,000 resources. With 7,000 Core Users employing it on a daily basis for their everyday operations, the systems have saved the Government AED 4.3 billion from 2003 – 2015, and in the future savings of AED 100 Million are estimated every year.

Smart Employee

• The Smart Employee application is an innovative platform granting Dubai Government employees access to a list of automated services, including applying for leave, requesting authorizations, exploring procedures, looking up colleagues, and printing certificates, among others.

• The application allows users to access many personal services, whether in the office or remotely.

• The Smart Employee application supports happiness in the workplace with a host of features, including AI-powered chat and sending thank-you notes to colleagues. It brings together 65 government bodies and benefits more than 56,000 staff members

• The Smart Employee application supports efforts to establish a paperless government by 2021, providing virtual business cards, facilitating approval for procedures, obtaining approvals online, and issuing digital certificates

Dubai Careers

• Dubai Careers is your go-to destination for job opportunities in Dubai Government. Whether you're a working professional looking for an inspiring new role, or a recent graduate making your first career leap, it is your ultimate career catalyst.

• It provides the following functions: Easy Registration – via LinkedIn profile, Multiple Channel Access – via desktop and mobile, One Profile – that connects with all entities. Referrals – you can refer friends, 'Save Search' feature and Email Notifications."

• About the service:
-   One profile that connects job seeker with all participating entities
-   Faster and easier for candidates to complete their application using their LinkedIn profile
-   Apply, Track and share jobs through multiple channels
-   With the Saved Search feature and email notification setup, candidates will always be aware of new posts
-    Refer friends and family members easily

• This centralized platform has been designed to provide a smart mechanism to deal with employment applications. If you are interested and looking for a dream job, we encourage you to register on Dubai Careers because it is the most appropriate channel that gives you access to the world of amazing jobs with incentives, bonuses, job security and high-level work environment.

Smart Supplier

• The Smart Supplier service allows suppliers registered in the GRPS to seamlessly access data and contracts, tenders, and financials of over 40 government entities (i.e. create invoices, view tenders, pay fees, view order documents, and more).

• It simplifies working with the Dubai Government.

• Smart Supplier features include, bidding, receiving purchase orders, billing,tracking payments, profile management and much more.

• The Smart Supplier application presents a portal for the private sector to do business with the Dubai Government, allowing

suppliers to benefit from a wide range of services anywhere and at any time.

• The application's features include the ability to register accounts for employees of suppliers, reviewing and applying for tenders, receiving purchase orders, issuing and viewing submitted invoices, and tracking payments, along with many other benefits.

• Smart Supplier allows companies to remain informed of registrations, bidding, purchase orders, invoicing, and payments, among other services.

Smart Inventory

• Smart Inventory is an intelligence inventory management solution tailored to address the operational challenges in inventory management. The solution helps automate inventory planning, purchasing and management based on data collected from multiple data sources.

• In July 2020, Smart Dubai upgraded the Smart Inventory platform in collaboration with the Dubai Health Authority (DHA) to enhance the current inventory management system, render them paperless and more efficient, and utilize advanced technologies and smart solutions to save time.

• The upgrade allows the Smart Inventory application to manage the stock of medicines in the Emirate of Dubai and prevent any shortages.

• The app allows users to process warehousing transactions and track the supply chain for medicines from anywhere using a smartphone, tablet, or any portable device. This, in turn, makes it easier for government entities in Dubai to access inventory in real time.

• Smart Inventory's advanced features allow health authorities to receive, inspect, and hand over medications for every purchase order, in addition to tracking these products and facilitating internal shipments.

• The application will help cut paper consumption by 1.2 million sheets every year, reducing transaction time by 30% for all supply operations involving medicines.

• Entities will also be able to cut costs and streamline operations, which, in turn, serves to enhance and regulate workflow at government entities, reduce human errors, and avoid disorder and confusion.

INFRASTRUCTURE

13. Infrastructure

Government Information Network (GIN)

• Smart Dubai's Government Information Network (GIN) forms the cornerstone of the Dubai Government's digital infrastructure.

• The unified network connects various entities, allowing them to securely transfer and exchange data and government transactions, protecting them from errors or outside interference.

• The network's role was evident during the COVID-19 pandemic, where it helped ensure seamless government operations, all while maintaining high performance levels.

• The GIN's capacity was expanded by 300% during the pandemic and ensuing lockdown, multiplying its speed by a factor of three to keep up with growing demand for digital services from 62 different government entities.

Messaging and Collaboration

• The digital and integrated Messaging and Collaboration system ensures all employees remain connected at all times through e-mail hosting services, the government correspondence system, team sites services, and many more.

AWARDS

14. Awards

• Smart Dubai has won 57 awards since its launch in 2015, of which 19 were local, 23 regional, and 15 were international.

• In 2020, Smart Dubai succeeded in snatching 4 international recognitions, as well as 1 regional award, by October, namely, CFI.co Awards, Stevie Awards, Seamless Awards 2020, and International CX Awards 2020.

• Locally, Smart Dubai managed to win 6 awards in its launch year in 2015, followed by 2 awards in 2016, 7 in 2017, 2 in 2018, and 2 in 2019.

• Most notable among international awards won were: SXSW Interactive Innovation Award: Mar 2019, World Smart City Awards – Barcelona: Nov 2017, Stevie Awards: Oct 2017, Oct 2018, Oct 2019, 2020, Sheikh Salem Al Sabah Informatics Award: Nov 2017, Nov 2018, Best m-gov Service Award – World Government Summit: 2016.

• On a regional level, Smart Dubai won its first prize in 2015, making an exponential leap to 6 regional awards in 2016, then 4 in 2017, a staggering 7 in 2018, another 4 in 2019, and 1 in 2020.

• Among the most noteworthy regional accolades Smart Dubai has earned are Seamless Awards 2019, IDC Smart City ME Awards, and .Gov Awards.

• 2017 was Dubai's most successful year with a total of 14 awards. It was also the year that Smart Dubai won its first set of international awards – 3 of them, namely, Stevie Awards, World Smart City Awards, Sheikh Salem Al Sabah Informatics Award. This was followed by 4 international awards in 2018, another 4 in 2019, and the 4 won in 2020 (by November).

AGREEMENTS & MOUS

15. Agreements & MoUs

• Smart Dubai signed a total of 191 agreements in the 2015-2020 period.

• 53 general agreements between Smart Dubai and various government and private entities to drive the emirate's digital transition and help fulfil Smart Dubai's vision.

• 66 MoUs with local and federal government entities, as well as semi-governmental and private institutions, to roll out the UAE PASS service.

• 53 MoUs with government and private entities to implement Dubai Pay.

• 11 sponsorship agreements with major private-sector entities, including SAP, Dell, du, Careem, IBM, and Network International.

• 8 service-level agreements (SLA) to secure support for Smart Dubai's services and assess their performance level.

BOILERPLATE

16. Boilerplate

Anchored in the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE, Ruler of Dubai, Smart Dubai is leveraging the power of technology to make Dubai the happiest city on Earth. It is the city government entity leading the digital transformation of Dubai to empower, deliver and promote efficient, seamless, safe, and impactful city experiences for residents and visitors.

Since 2000, Smart Dubai has unified the city's digital government efforts and is now responsible for the Dubai Government's central shared services and infrastructure platform known as the Government Resources Planning Systems (GRPS), which connects more than 30 systems and over 71,000 Dubai Government employees. Today, the digital transformation of Dubai is being accelerated by the implementation of the Dubai Paperless Strategy, which aims to digitize internal and external government transactions, rendering them completely paper-free by December 2021.

Landmark products and services launched by Smart Dubai over the past two decades include DubaiPay, Smart Employee, Smart Supplier, UAE PASS (the UAE's first secure national digital identity for citizens and residents), DubaiNow (the emirate's first unified smart services app combining over 120 smart-city services from more than 30 government and private sector entities), and many more.

Smart Dubai has acknowledged data as a key enabler to the city's ongoing smart transformation and therefore also oversees the Dubai Data initiative, a citywide data strategy to classify, collect, and open government and private sector data, in order to leverage the maximum value out of the city's data. Other key initiatives launched by Smart Dubai include the Dubai Blockchain Strategy and the Dubai AI Lab.

Over the years, Smart Dubai has been able to inspire new realities for people in Dubai and beyond, which helped establish Dubai as a world-recognized smart city, and is an active participant and contributor to various international forums and events. Key examples include the Smart City Expo in Barcelona, the World

Economic Forum, the World Bank Seminars, WebSummit, and the South by Southwest (SXSW) Conference & Festivals, where Smart Dubai won the prestigious SXSW Interactive Innovation Award for the Dubai Paperless Strategy.

For further information on Smart Dubai

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