The Dubai Data Manual

Overview

Version 3.0
(November 2016)
Contents

Summary .................................................................................................................................................................. 3

1. Introduction .................................................................................................................................................. 5

2. Background ................................................................................................................................................ 5

3. Definitions .................................................................................................................................................. 7

4. The operating model for Dubai Data ............................................................................................................. 9

5. Roles and responsibilities .............................................................................................................................. 9

Summary

This document is the Overview module of the Dubai Data Manual – a modularised, interlinked suite of standards and best practices that describes how Government Entities should manage their data in accordance with the Dubai Data Law.

The fifteen modules in the current version of the Dubai Data Manual are illustrated below – in the order in which they will typically be deployed by a Government Entity during the initiation and implementation of its Dubai Data programme. Click on each box to go directly to that module, or read on further in this Overview module.
The diagram below depicts the process for opening and sharing data with the Smart Dubai Platform and references the relevant modules of the Dubai Data Manual.
1. Introduction

This Dubai Data Manual sets out the guidance to be followed by Dubai Government Entities in applying the approach to management of data that is mandated by the Dubai Data Law. It is published by the Dubai Data Establishment under the powers conferred upon it by Article 6 of the Dubai Data Law, and Government Entities are required to comply with it by Article 11 of the Law.

This is Version 3 of the Dubai Data Manual, published in November 2016, and follows initial publication of the Manual in October 2015 and a second version in June 2016. The latest version:

- Reflects feedback from Government Entities on their experience in implementing earlier versions of the Manual
- Has been expanded, web-enabled and modularised.

This module itself is an overview of the Manual. It provides an introduction and guide to the full set of inter-linked modules that now comprise the Manual as a whole. Each module is referred to in purple underlined text, with a hyperlink to the relevant text for that module.

The Manual will be kept under regular review as a living, evolving set of guidance that is updated iteratively with Dubai Government Entities to reflect their experience of using it. The process for updating the Manual is described in How we manage Dubai Data Standards.

The primary audience for the Dubai Data Manual consists of Chief Data Officers, Data Management Administrators, Data Stewards, Data Specialists and Data Experts in Government Entities.

This Overview of the Dubai Data Manual is structured as follows.

- **Section 2** describes the background to Dubai Data
- **Section 3** sets out key definitions used in the Manual
- **Section 4** gives an overview of the new Operating Model for Dubai Data that is required in order to deliver the Dubai Data Law and that is supported by the standards set out in the Dubai Data Manual.
- **Section 5** summarises the roles and responsibilities of Government Entities and the Dubai Data Establishment in delivering that new Operating Model.
- **Section 6** introduces the detailed set of Dubai Data Standards that together make up the full suite of modules of the Dubai Data Manual, and gives advice on how and when to use each module

2. Background

2.1 Context

The Government of the Emirate of Dubai (“Dubai Government”) has embarked upon a programme to transform Dubai into the Smartest, Happiest City in the world. Dubai’s vision is contingent upon the free flow of information. Data and information will be the "new currency" by which its citizens, residents, businesses and Government will exchange value and develop new and innovative ways to live, learn and do business in a culture of data sharing.
Accordingly, on 17 October 2015 His Highness Sheikh Hamdan Bin Mohammad Bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of Dubai Executive Council, published Law No. (26) of 2015 Regulating Data Dissemination and Exchange in the Emirate of Dubai – henceforth referred to as the Dubai Data Law. This Law sets a new framework for ensuring that all government data is either open to the public or shared as a collective asset across the Government of Dubai – and empowers the Dubai Data Establishment to support Government Entities in complying with the law through the publication of standards in the Dubai Data Manual.

2.2 Applying international standards and best practices to implementation of the Dubai Data Law

The development of this Manual has been informed by relevant international standards and best practices – and in particular by:

- **International open standards for data governance and data-led service transformation:** In particular, the Manual draws on the best practice approaches to data governance, business processes and benefit realisation that are set out in the global open standard “The Transformational Government Framework”\(^1\), and in the tailored Smart City version of this framework that has been published by the British Standards Institute and is now set to be adopted as an ISO standard\(^2\).

- **International open standards for data interoperability and metadata:** at the more technical level, the Manual draws on:
  - The guidance on how to use open standards to drive data interoperability that is set out in the European Interoperability Framework\(^3\)
  - Relevant open standards, including those developed by ISO and W3C

- **International best practice use cases:** in particular, the Manual has been informed by similar guidance published by:
  - The US Federal Government, including White House guidance on open data\(^4\) and the National Information Exchange Model\(^5\)
  - The City of New York\(^6\)
  - The UK Government\(^7\)

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1 Published by international open standards consortium OASIS, this standard is “A managed process of ICT-enabled change in the public sector, which puts the needs of citizens and businesses at the heart of that process and which achieves significant and transformational impacts on the efficiency and effectiveness of government.” References are to version 2 of the standard published in 2014.

2 PAS181: The Smart City Framework – guide to establishing strategies for smart cities and communities. Published by the British Standards Institute in 2014, this applies the OASIS Transformational Government Framework to the specific circumstances of a city. In September 2015, the International Standards Organization voted to develop a new global smart city standard based on PAS181.

3 European Interoperability Framework for European Public Services

4 [https://project-open-data.cio.gov](https://project-open-data.cio.gov)

5 [https://www.niem.gov](https://www.niem.gov)

6 The New York City Open Data Policy and Technical Standards Manual

7 The Open Data Chapter of the UK Government Service Manual, and the National Information Infrastructure
Grateful acknowledgement is given to these sources. However, while these have served as a key starting point in order to avoid “re-inventing wheels”, at the same time the Manual has been tailored to the ambitious scope of the Dubai Data strategy. In particular:

- It deals not only with open data publication, but also data sharing among government entities
- It aims to facilitate involvement of the private sector from the outset in opening up its own data, rather than focusing primarily on government data.

2.3 Compliance with the Dubai Government’s Information Security Regulation

The Dubai Data Manual has been prepared in consultation with the Dubai Electronic Security Center (DESC) to ensure it is aligned with the Dubai Information Security Regulation. The Information Security Regulation focuses on minimizing information security related risks and on preserving an appropriate level of confidentiality, integrity and availability for information assets handled by Dubai Government Entities. In following the processes for opening and sharing Dubai Data that are set out in the Dubai Data Manual, Dubai Government Entities must ensure compliance to the Information Security Regulation.

3. Definitions

A full glossary of the terms used in this Manual, including the source for the definitions by which they are used is contained in the Dubai Data Manual Glossary. The following are key terms which are of particular importance in understanding the Manual:

- **Dubai Data**: Any data relating to any aspect of the Government, economy, culture and life within the Emirate of Dubai
- **Data Classification Framework**: The framework developed by the Dubai Data Establishment, as required by Article 7 of the Dubai Data Law, for the purposes of Data Providers and the Establishment categorising Dubai Data as being either Open or Shared. The current version of this framework is described in the Classification module of the Dubai Data Manual.
- **Open Data**: Data provided by the Government or private sector entities to individuals, to be freely or subject to a minimum limit, used or exchanged with third parties.
- **Shared Data**: Any data that does not qualify as Open Data under the Data Classification Framework. Shared Data managed by Government Entities should be made available for sharing and re-use by other Government Entities, with appropriate controls depending on whether it is further classified as Confidential, Sensitive or Secret.

The Dubai Data Law defines ‘data’ as “a collection of organised or unorganised information, facts, concepts, instructions, observations or measurements, in the form of numbers, alphabets, symbols, images or any other form, that are collected, produced, or processed by Data Providers”. This covers a lot of content which Entities may collect, manage and store.

The initial focus of the Dubai Data programme for publishing and sharing data on the Smart Dubai Platform is around structured data (e.g. data in a spreadsheet or database or geospatial map).
Therefore, the Dubai Data Manual modules are limited to guidance and standards around structured data. Further modules may be needed in future to help manage the publication of other data such as videos, transcripts, diagrams etc.

The relationships between the different categories of Dubai Data are illustrated in Figure 1 below.
4. The operating model for Dubai Data

In the past, data in Dubai – as in every city around the world - has not been managed as a strategic asset for the city in its own right, but has:

- Existed as an ‘after thought’, often unplanned way as a result of each Entity’s activities
- Been locked away within individual Entities - limiting the ability for collaboration and innovation with external stakeholders and organisations.

This traditional operating model makes it difficult to join-up services around city needs, and limits the potential to drive city-wide change at speed. And it is a model that will become increasingly unsustainable in future, as Dubai embraces the “Internet of Things”. As buildings, roads, places and a huge range of things and devices are becoming smart and internet-connected, the number of Dubai data sources will multiply exponentially – as will the potential for inefficiency, duplication and lack of “citizen-centricity” if that data is not effectively managed.

Dubai therefore needs to establish a radically different operating model for its data. Drawing on the “transformational operating model for Smart Cities” recommended in the relevant international standards, the operating model for Dubai Data will in future be based on:

- **Clear governance frameworks to ensure that information is managed as an asset** – with clear accountabilities for maintaining and exploiting data sets, supported by clear, principle-based rules for promoting re-use and innovation with data sets
- **Use of open standards** to ensure that data sets can easily be leveraged by others inside and, where appropriate, outside the Dubai Government
- **Nurturing the development of a flourishing ‘information market place’ in Dubai**, in which Entities, private sector companies, voluntary sector and community organisations and individual citizens are enabled to use Dubai Data to create new sorts of social and economic value.

5. Roles and responsibilities

5.1 Overview

Dubai Data will be a shared effort, requiring significant deliverables from both the Dubai Data Establishment and individual Government Entities. As illustrated at Figure 2 below, the business process that sits at the heart of this shared effort is based on **stewardship, support and audit**:

- Entities will not retain ownership of their data, as ownership of Government data will be retained exclusively by the Dubai Government. Entities will be held to enhanced accountabilities for the effective **stewardship** of their data on behalf of the broader Dubai community. In line with the Dubai Data Law, this requires Entities to both:
  - Be accountable for applying the mandatory standards required by the Dubai Data Manual to their own datasets - and to publish and report on their detailed plans for progressively implementing the recommended best practice standards over time
  - Facilitate and encourage exploitation of their data by other users.
• Entities will be assisted in their stewardship role by the Dubai Data Establishment, that is charged with delivering two broad functions:
  
  − **Support** to Entities as they implement Dubai Data, through provision of practical guidance, standards, best practice and shared services
  
  − **Audit** of Entities performance: that is, documenting and publishing all support policies and procedures needed to operationalise the Dubai Data Law, and then acting as the overarching governance body to ensure compliance, effective decision-making and rapid dispute resolution.

Figure 2 also illustrates how both Entities and the Dubai Data Establishment have significant **deliverables** to produce in order to facilitate this process.

Figure 2: Responsibilities for Dubai Data

Further details on the respective responsibilities of the Dubai Data Establishment and Government Entities are set out in Sections 5.2 and 5.3 below.

5.2 Responsibilities of Dubai Data Establishment

The Dubai Data Establishment is the governing body that is charged with driving forward the strategy and implementation roadmap for Dubai Data. The Dubai Data Establishment is led by its Chief Executive Officer (CEO) who is in effect the Chief Data Officer (CDO) of Dubai.
The Dubai Data Establishment is the championing body that will drive forward the use of open standards by the Entities, developing updated legislation and overseeing the application of policies and procedures. They act as the ‘enabler’ that provides Entities with best practice procedures (drawing on international exemplars and case studies), support and tools to implement Dubai Data.

The Dubai Data Establishment is responsible for delivering the following key functions:

**Policy and Legal framework**
- Acting as stewards of the principles enshrined in the Dubai Data Law
- Providing leadership and programme management for the overall Strategy and Roadmap for Dubai Data, and ensuring that Entities align their individual implementation plans with associated Roadmap milestones
- Developing the licensing regime for Dubai Data, publishing and promoting standard licences under which data should be opened up and shared
- Developing and maintaining the Data Classification Framework and processes supporting its implementation
- Developing policies on individuals and companies’ data privacy protection
- Managing implementation regulations, and ensuring adherence to the legal framework by all parties
- Managing assessment and compliance activities, to ensure enforcement, act on breach of privacy/ confidentiality claims, and dispute resolution across entities

**Dubai Data Manual**
- Developing all required new and existing data policies and standards to Entities, along with the necessary support and guidance. This includes but is not limited to policies and standards on:
  - Data classification, disclosure, exchange and availability
  - Dubai Data dissemination and use
  - Technical standards governing the exchange and publication of data
  - Prioritisation criteria for the exchange and publication of data.

**Communications, engagement and reporting**
- Managing the communications strategy and awareness campaigns, stakeholder engagement planning and processes
- Reporting annually on progress with the Dubai Data Roadmap, including benchmarking the breadth and richness of each Entity’s data offering

**Shared Services**
- Supporting the Smart Dubai Platform team in delivery of a shared service platform for publishing open data and sharing data
- Managing a user-centric process of continuous improvement for the platform, progressively developing richer tools and services on the platform to make it easier for users to discover, explore and exploit data
• Establishing a user-centric trust model to underpin open and shared data on the platform (enabling citizens to have visibility of their personal data and manage their own privacy relationship with Dubai, and building strong cross-trust arrangements between data providers)

• Acting as an incubator for innovation with city data: leading the city’s efforts in data science, evidence-based decision making, and management of Smart Data infrastructure.

5.3 Responsibilities of Entities

Government Entities have four key deliverables that are required in order to facilitate their compliance with the Dubai Data regulations. These deliverables are summarised below, with signposts given to the more detailed guidance that is set out in this Manual on how to deliver these.

Data inventory

• A key first step in enabling effective stewardship of data is the creation by each Entity of a Data inventory listing all of its data sets.

• The module of the Dubai Data Manual covering Data inventory provides guidance on the content of the Inventory, and the process required to produce it.

Effective governance

• Entities need to establish clear internal accountabilities and governance processes in order to deliver their responsibilities for Dubai Data.

• These do not have to be identical, and should reflect the business needs of each Entity.

• However, Entities must:
  
  - Establish the four roles mandated in the module of the Dubai Data Manual covering Governance roles and processes: one Chief Data Officer, one Data Management Administrator, named Data Stewards and Data Specialists responsible for each dataset recorded on the Data inventory.
  
  - Embed the Implementation Principles for Government Entities in the way the Entity works.

Prioritization, cataloguing and publication of open and shared data

• Entities must prioritise the data on their Data inventory, using the criteria and process set out in the module of the Dubai Data Manual dealing with Prioritisation.

• For prioritized datasets, Entities must follow the Cataloguing Process to ensure that their data is correctly classified as required by the Dubai Data Law, with additional cataloguing to facilitate the discovery and re-use of the data. Other key modules of the Dubai Data Manual that support the delivery of this process are Classification, Data Formats, Metadata and Data Quality.

Entity-level Roadmap for Dubai Data

As stated in the key international best practice standards, “Moving towards effective city-wide management of data sets will be an incremental process over time, not a one-off change.” ⁹ So introduction of the new operating model for Dubai Data described in Section 4 will not be accomplished overnight. Government Entities are therefore required to develop a phased, prioritised and user-centric roadmap for opening up and sharing their data:

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⁹ See Section 2.3 and Footnote 1 on the OASIS Transformational Government Framework and BSI Smart City Framework
• Each Entity must publish a roadmap showing how it will:
  − Publish initial high priority Open and Shared Data through the Smart Dubai Platform
  − Progressively extend and deepen its open data and shared, restricted data
  − Ensure regular maintenance, updating and quality control of the Entity’s open and shared data
  − Embed Dubai Data implementation principles in new procurements and new technology implementations
  − Proactively manage and drive forward the longer term benefits of data to end users
  − Encourage new service and product development by the public and private sectors to create new forms of social and economic value from the Entity’s data
  − Measure the impact of its data within the economy and society of Dubai.

• Further guidance on the process to be followed in developing and publishing these Roadmaps is set out in Building our Entity’s Roadmap for Dubai Data.


The Dubai Data Manual consists of:
  − This overview document
  − A suite of Dubai Data Standards - documents that form inter-related modules of the Manual.

The diagram below illustrates the full suite of Dubai Data Standards. At their apex is the Dubai Data Law. This establishes the legal basis for all work on Dubai Data, and empowers the Dubai Data Establishment to issue the more detailed policies, regulations and guidelines that form the Dubai Data Manual.

*Figure 3: Dubai Data Standards*
The Dubai Data Law is supported by a clear set of published policies, setting out the strategic objectives and strategic principles that drive work on Dubai Data.

The Dubai Data Manual supports the delivery of this legal and policy agenda through a set of modules that both:

- recommend best practices that Government Entities should seek to meet; and
- set out minimum mandatory standards that Government Entities must comply with.

These standards cover both governance and business processes within Entities, and the technical standards with which individual datasets should comply.

Each module of the Dubai Data Manual follows a common structure, giving clarity on:

- Who in a Government Entity is responsible for ensuring compliance with the relevant requirements
- Which elements of the module represent recommended but optional best practice, and which elements represent mandatory requirements under the Dubai Data Law
- The process that should be followed – and how this relates to the broader process of Dubai Data compliance.

The Dubai Data Establishment is responsible for updating and maintaining the Dubai Data Manual. For any questions about this document, please contact: support@dubaidata.ae

Guidance labelled ‘required’ is mandatory – it represents formal guidance from the Dubai Data Establishment on what Government Entities must do in order to comply with the Dubai Data Law. 'Recommended' guidance is considered best practice and should be used if possible, but the decision lies at the discretion of each Entity’s Chief Data Officer.

Version History

<table>
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<th>Date</th>
<th>Status</th>
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<td>1.</td>
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