Common Data Framework for Cities

Business Plan

South African Cities Network

Final Document

28 July 2017

Table of Contents

Figures and Tables

1. Introduction

The South African Cities Network (SACN) is an established network of South African cities and partners that encourages the exchange of information, experiences and best practices on urban development and city management under the four thematic areas of

- Inclusive cities;
- Sustainable cities;
- Well governed cities; and
- Productive cities.

The SACN was established in 2002 as an initiative of the Minister for Cooperative Governance and Traditional Affairs (CoGTA) and city municipalities, in partnership with the South African Local Government Association (SALGA). The SACN's primary sources of funding are grant funding (mostly, CoGTA) and the SACN's member city subscription fees (Buffalo City, eThekwini, City of Johannesburg, Ekurhuleni, Mangaung, City of Tshwane, Nelson Mandela Bay and Msunduzi).

The goals of the SACN are to:

- Promote good governance and management of South African cities;
- Analyse strategic challenges facing South African cities, particularly in the context of global economic integration and national development;
- Collect, collate, analyse, disseminate and apply the experience of large city government in a South African context; and
- Promote a shared-learning partnership between different spheres of government to support the governance of South African cities.

At the heart of the SACN's mission is the State of Cities Report, which is compiled and released every five years. The State of Cities Report assesses the progress and challenges of cities through collating and presenting city data, best practice and thought leadership under SACN's four core themes, within one report. Through this flagship project and others, the SACN has gained both an understanding of city data challenges, and expertise around city data flows and knowledge management. SACN was instructed by the Parliamentary Portfolio Committee on Local Government to intervene into data challenges at a city level, and to address the monopoly of data vendors over public data. It is this request to intervene, and SACN understanding of city data that has led to the initiation of the 'Common Data Framework for Cities'.

The Common Data Framework for Cities (CDFC) aims to provide a comprehensive solution to the data challenges facing cities through the development of a reference list of city indicators and definitions, an online platform for city indicators, working groups for peer learning, templates for reporting requirements, and through the facilitation of capacity building[1]. Research towards the establishment of the CDFC started in 2013 when Afriscope was appointed to consult with cities on their data requirements, and collate a list of indicators on which cities were required to report. Indicators from cities were consolidated with indicators that were necessary for progress reporting under SACN's four thematic areas, and indicators that allowed cities to benchmark themselves against international cities through the World Council on City Data (WCCD) (previously known as the Global Cities Indicators Facility). This list of indicators was then put through an internal minimisation and rationalisation process, which resulted in 217 indicators. In 2015, KPMG undertook a pilot project with 103 of those indicators and with 4 cities to determine which of the indicators could be populated and how; during this process cities were again asked to validate and add indicators. Both Afriscope and KPMG put forward recommendations for how a CDFC could be structured to meet the needs of cities. Currently, SACN are further refining the city indicators by comparing and consolidating:

- Compliance indicators e.g. Built Environment Performance indicators (Treasury);
- Sustainable development goals (StatsSA);
- International indicators and standards (WCCD/ISO);
- New emerging policy measures e.g. Integrated Urban Development Framework (IUDF) and New Urban Agenda (NUA); and
- SACN indicators, which include those necessary for state of cities reporting **and** data requirements that cities feel are important and need research.

In addition to the previous research undertaken and the consolidation of indicators, both the working groups and the online platform as well as the definition of the components of the CDFC have already been defined. This business plan does not aim to prescribe new interventions but aims to build on previous research and planning to solidify the structure and mission of the CDFC.

[1] A distinction should be made between city indicators, which are used as a *measure* of the state of something (in this case, city progress), and city data, which are statistics that can be analysed to create an indicator.

2. Defining the Need

2.1. The City Data Eco-system

The existing approach to city-related data collection, extraction and reporting is complicated and uncoordinated between the different stakeholders. Figure 1, below, describes the stakeholders in the system of city data and how they might interact with city data. The figure describes how municipal officials are required to report internally within and between departments but there is no mutual focus, resulting in duplication of efforts and different data being used. Furthermore, officials must report to city leadership, however, performance data is influenced by leadership who are under pressure to show progress.

Cities must also report on 2,572 indicators per year to national and provincial departments, regulators and other entities as part of their monitoring and evaluation (National Treasury, 2017). Each of these government bodies have their own focus which could be project or sector specific, or compliance focussed. Simultaneously, government is harvesting raw data in cities through the national census and other methods to inform national strategy, however, few government bodies are considering the needs or resources of cities in data collection or reporting.

Public reporting takes place over and above requests for data from the private sector, civil society and citizens via the Public Access to Information Act (PAIA, 2000). The Promotion of Access to Information Act requires that municipalities appoint information offices; voluntarily and automatically generate specific reports that can be accessed at any time by the Minister; and respond to information requests from the public, free of charge. During the KPMG study in 2015, only the City of Cape Town and Msunduzi were complying with PAIA, 2000 regulations to publish voluntary disclosures as per the legal requirement. Fulfilling this obligation is complex, requires regular expenditure on human resources and the repeated competent execution of time-bound legal processes.

Data requests of local government from both the private and public sector are often made for the same information that is being used for a similar purpose; furthermore, data requests are often built on the presumption that municipalities produce and hold all city data, which is not the case. These requests place pressure on the flow of data as cities must request data from custodians (such as StatsSA), package it as required and send it to the stakeholder (repeatedly), as opposed to the stakeholder (be it public or private) requesting the data directly from the custodian or accessing the information freely online.

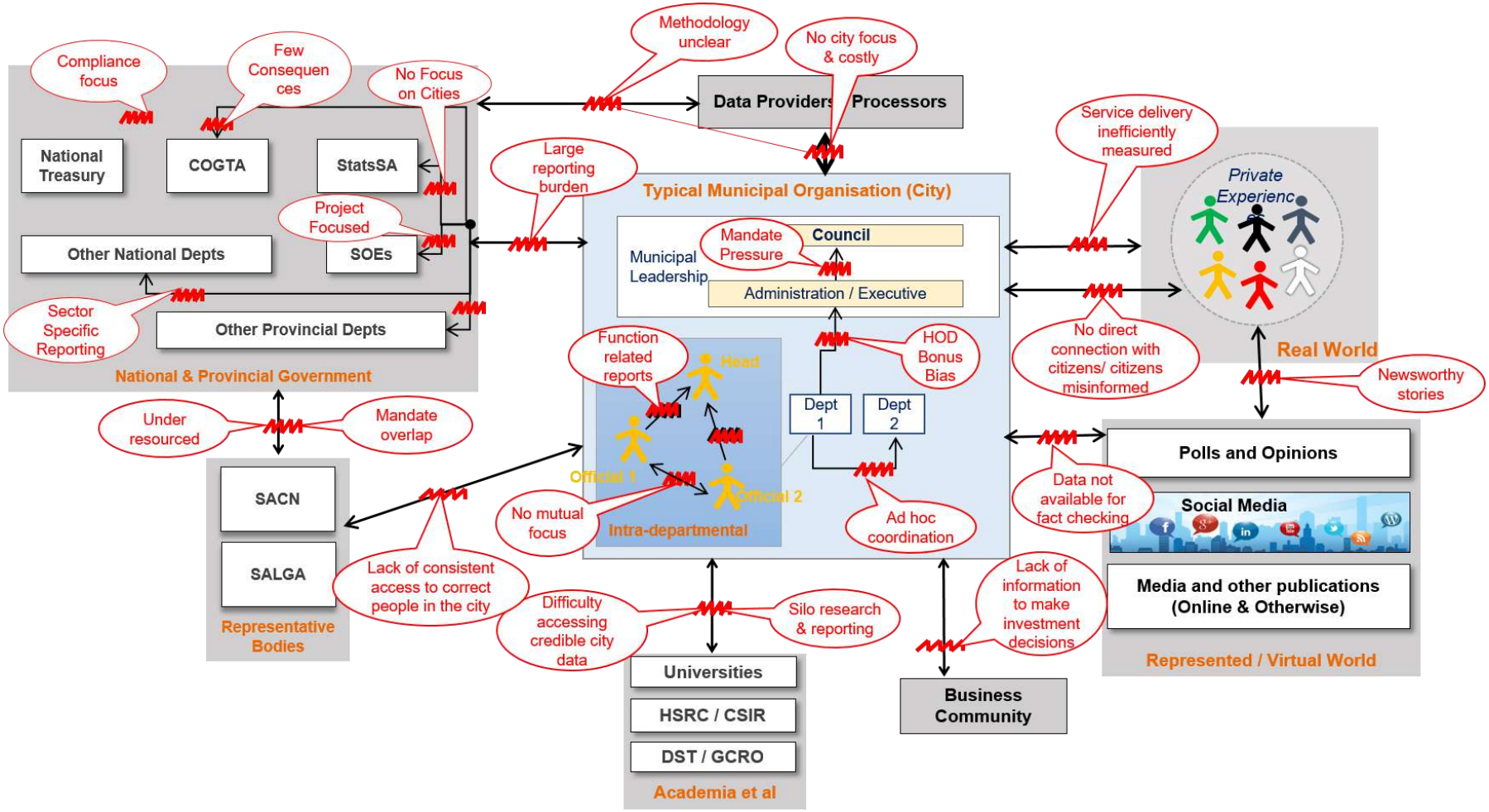

Figure 1 City data eco-system
Source: Amended from KPMG (2015)

This significant reporting burden results in cities having insufficient capacity to generate and analyse data – they therefore rely on data providers, consultants and associations to populate city indicators, resulting in further information breakdowns and compromised data credibility.

These challenges can be summarised as follows:

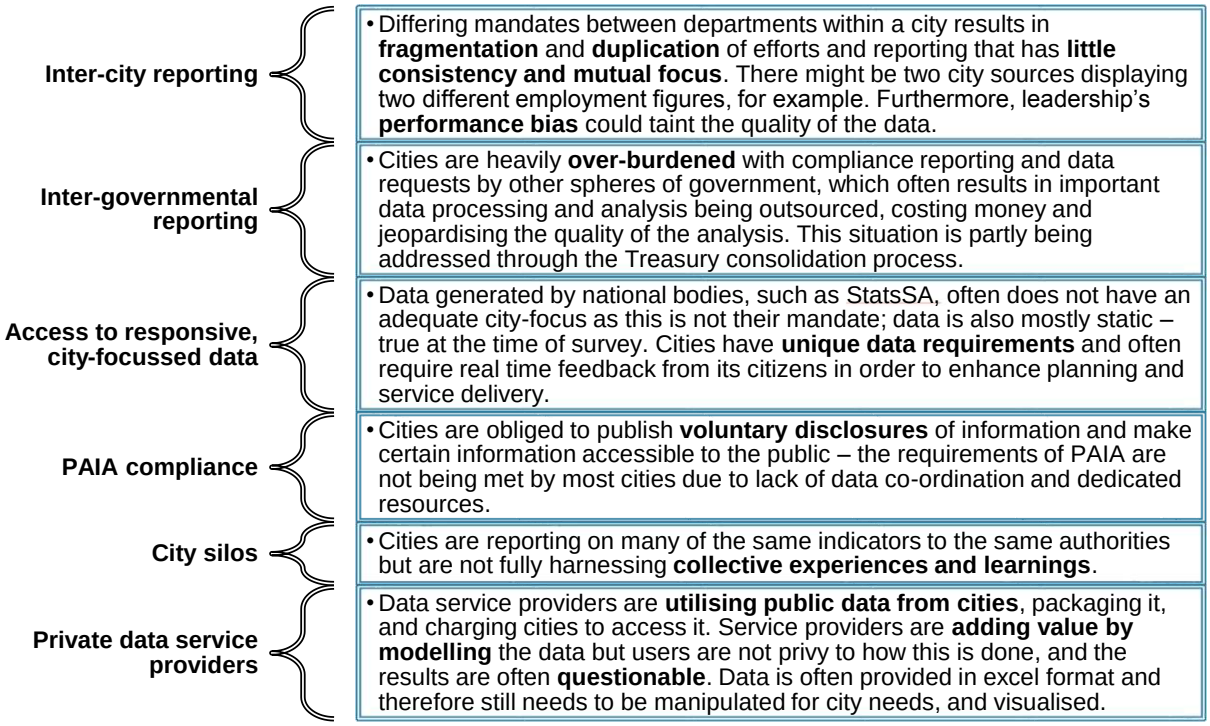

Figure 2 City Data Challenges
Source: Resource Consultants

The burden on cities is also felt by external stakeholders who experience frustrations waiting for their data request to be met. The impact of the lack of accessible city data is felt most by city residents. Without data, city leadership cannot be held accountable by national government or the media (for example, if data does not exist to measure service delivery, then there is little evidence to hold cities accountable for poor service delivery). There is a risk that the business community doesn't invest in the city, or that companies make misinformed investment decisions due to the lack of local, credible data. New data produced through civil society and academia may not reach the right people within the city, therefore, the benefit of this new data is limited. Finally, the extent to which society can partake in democracy is limited by the data they have access to.

2.2. City Data Needs

City data needs vary, depending on the job description of the person within the city, for example an economic development official will have different data needs and require different competencies to someone within planning or waste removal. Data needs also vary according to data maturity, for example, a smaller city or newer official might need a list of essential reporting requirements and definitions of indicators, whereas a data mature city or official would be proficient in essential reporting and would require more sophisticated data tools. Furthermore, smaller cities or newer officials would require more assistance with basic data analytics, and the complexity of analytics would increase with experience. Therefore, city needs are constantly evolving. In addition, city's collect and use data in different ways (see Figure 2). Cities collect raw data through monitoring and implementation of procedure (e.g. water meter readings). In turn, the data is interpreted and displayed in terms of statistics (e.g. water use by customer by administrative area), measured as a set indicator over time (e.g. City-wide water use), or expressed as a composite value (e.g. blue drop accreditation) to provide a sense of how the complex system is operating overall. In a city environment the collection, interpretation and analysis of the information does occur in the same place, and significant coordination is required between the different data related functions.

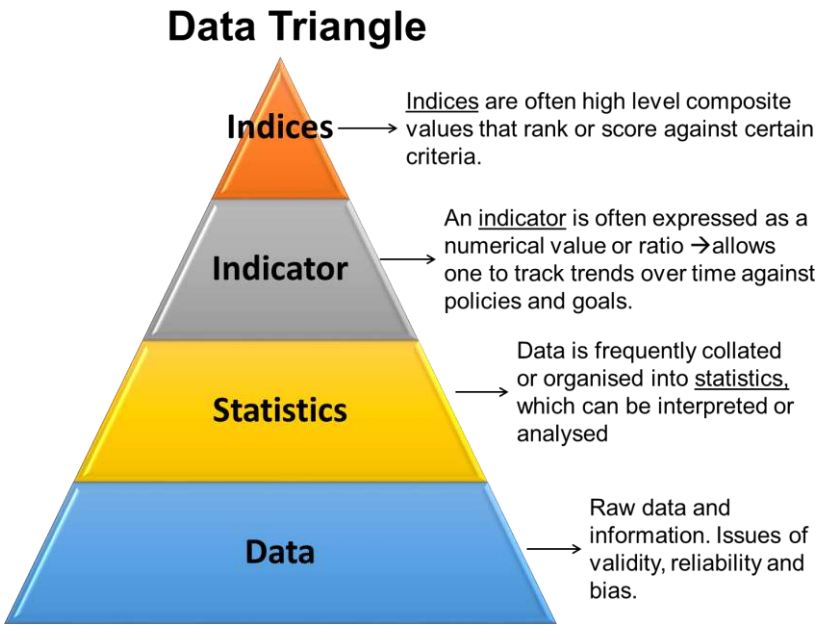

Figure 3 Data Triangle
Source: South African Cities Network

Lower-capacity cities requested that larger cities share Key Performance Indicators (KPIs) and minimum-data guidelines and requested that SACN create a platform for this knowledge sharing. The knowledge sharing would include the software system being used, the information stored on

the system, how the information is loaded and what procedures are being followed, especially with regards to performance management. In addition, any indicators produced by the SACN should be quality approved, in accordance with the South African Statistical Quality Assessment Framework criteria (SASQAF).

Cities requested that no additional reporting burden be placed on them, rather, they requested that it would be useful to streamline national reporting requirements, create a central data repository, develop reporting templates, and post schedules of data deliverables, which would assist cities to upload standardised data and allow national bodies to download the various reports they need without having to put in a personal request. Through understanding the data that is currently being generated and collected on cities, SACN could start to identify data gaps on behalf of cities, and feedback to national bodies such as StatsSA for inclusion in the national census.

The following chapter describes the current processes and solutions that have been put in place by SACN partners such as the City Support Programme and SALGA to directly address the needs of cities, described above. The chapter further describes other data platforms in place, albeit not specifically tailored to cities.

3. Current City Data Solutions

Various bodies have acknowledged the challenges within the current data eco-system and the consequences this has for cities and have initiated processes to address the needs of municipalities, including cities. The figure below shows the various actors providing a service to cities concerning data, indicators and reporting.

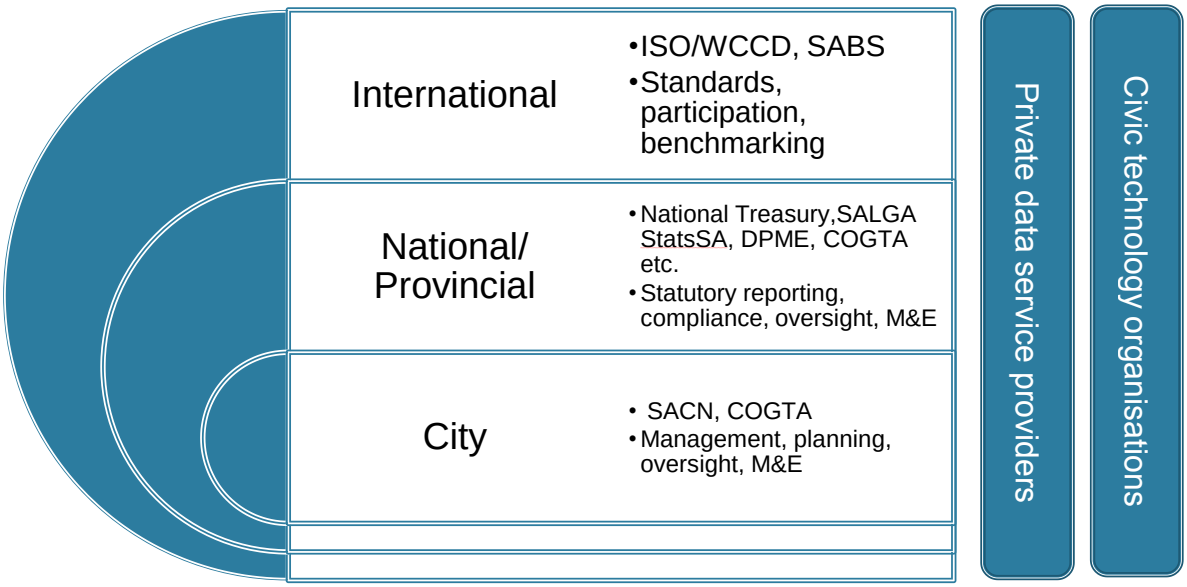

Figure 4 Actors assisting cities with data, indicators and reporting
Source: Resource Consultants

Both the City Support Programme of National Treasury and the South African Local Government Association's (SALGA) Municipal Barometer have undertaken initiatives in this regard and are coordinating efforts with SACN. This chapter describes the efforts of the CSP and SALGA to address city challenges, and lists the public and private data platforms that already exist (e.g. StatsSA's 'Nesstar' and Quantec's 'EasyData'(KPMG.2015)) to develop a unique value proposition for the Common Data Framework for Cities. When addressing the needs of cities, it is important that the CDFC does not duplicate data management solutions and data platforms that already exist, but rather complements them.

3.1. Cities Support Programme

The Framework for Managing Programme Performance Information released in 2007 makes National Treasury the primary responsible institution for performance information collected from government institutions in the process of fulfilling their mandates and implementing policies (National Treasury, 2015). Performance indicators are set and reported on as part of the

Integrated Development Plan (IDP), the Service Delivery Budget Implementation Plan (SDBIP)[2] and the Built Environment Performance Plan (BEPP)[3], which is a unique policy requirement for metropolitan municipalities aimed at more effective expenditure of capital to realise better spatial outcomes. A review of metro reporting requirements found that two key issues existed – there are too many uncoordinated indicators and requests for data and indicators at the input, activity and output, and that indicators at the outcome level are underdeveloped (National Treasury, 2015).

As such, the Cities Support Programme of National Treasury has two projects that seek to reform city reporting, which are located within a conceptual framework called the Framework for Integrated Reporting for Built Environment Functions for Cities. The first project is Built Environment Performance Plan reporting, and the second is the rationalisation of city local government reporting into other entities. Figure 5, below, shows the focus areas of CSP's Framework and the intended outcomes.

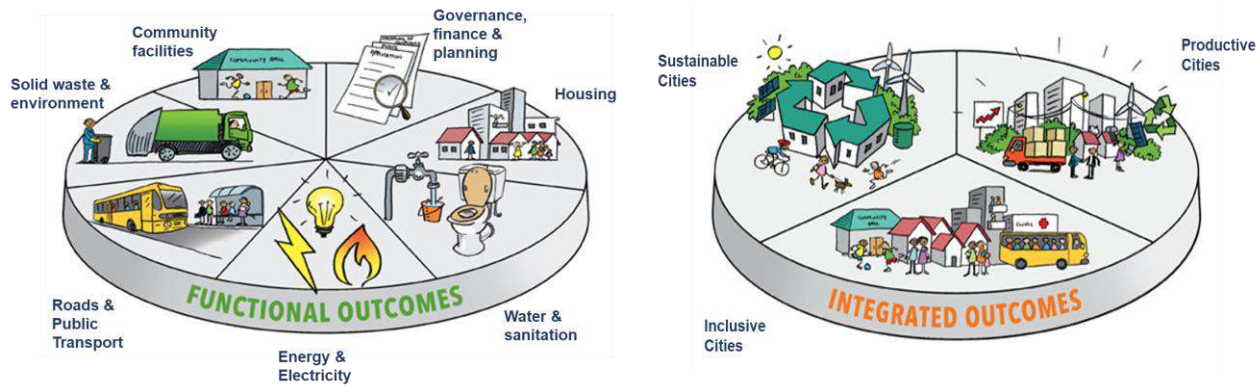

Figure 5 Functional and Integrated BEPP outcomes
National Treasury Cities Support Programme (2017)

1. Built Environment Performance Plan Reporting

The first project seeks to establish an acceptable set of indicators for cities to report on to measure change in built environments in terms of the Cities built environment performance plans that each metropolitan municipality must submit to National Treasury. These indicators are typically at the integrated outcome level (see Figure 5). As part of this process, indicators have been limited in number and synchronised across metros (National Treasury, 2015). Each indicator is presented in the form of a specification table that describes the definition, purpose

[2] IDP and SDBIP are stipulated within the Municipal Systems Act (32 of 2000)
[3] BEPP is stipulated within the Annual Division of Revenue Act

and technical requirements for the indicator. Critically, indicators are aligned to other reporting requirements of cities, such as IDP and SDBIP indicators, to streamline reporting.

2. Rationalisation of Reporting

The second reporting reforms project of the CSP relates to the rationalisation of indicators and reporting arrangements that cities, and by extension other municipalities, are required to give to national departments and associated agencies. The project focuses on indicators at the functional output and functional outcome levels. This process, begun in 2014, has involved a number engagement between Treasury, national sector departments and cities to identify duplication in reporting efforts and redefine reporting requirements. While it is expected that the indicator rationalisation process will, by its nature, be an ongoing process, this initial CSP-led initiative will come to an end in January 2018. Through this process, a single, shared reporting platform will be developed where departments have access to performance indicators that are fed into the platform by cities. The platform will have additional functions such as stakeholders being able to pull reports based on their unique requirements in various formats and can include charts, maps and pivot tables. It is further intended that performance data be publicly available where possible. A Council for Local Government Performance Information is proposed to maintain reporting principles and systems, and members would be nominated by sector departments SACN and SALGA (National Treasury, 2015).

3. Municipal Money

While separate to the Framework for Integrated Reporting for Built Environment Functions for Cities, Municipal Money (Muni-money) is one of National Treasury's flagship projects on open data and, therefore, is relevant to SACN's South African Cities Open Data Almanac (SCODA). Municipal Money is a data portal that provides stakeholders with comparable, verified information on municipal financial and non-financial performance for local government (National Treasury, 2017). Municipal Money will assist cities with a more transparent IDP/budget consultative process and will provide accountability for service delivery.

SCODA will draw data from the CSP reporting platform and Municipal Money, and add to these from several other data platforms (some of which are listed in sections **Error! Reference source not found.** and 3.4, below), to become a central repository for all city data. SCODA will also serve as a platform for data analysis and modelling, based on the data made available by National Treasury, CSP and others and will respond to the overall data needs of cities, and not simply those required by them for reporting purposes. This is also true for the codebook, the reporting services and the capacity building elements of the Common Data Framework for Cities (CDFC),

which will include indicators, services and capacity building outside of national reporting requirements.

3.2. SALGA's Municipal Barometer

SALGA's Municipal Barometer is an online platform of census-derived data for all municipalities. The website allows for the manipulation and display of data which can then be downloaded as a PDF report. The Barometer currently includes a data bank, benchmarking tool and a reporting function. SALGA is presently enhancing the current platform and is in communication with the SACN to avoid duplication of efforts.

3.3. Data platforms administered by public bodies

Table 1, below, provides a non-extensive list of data platforms that are administered by public bodies such as StatsSA. While not unique to cities or aimed at addressing city needs, these platforms benefit cities in that they generate city data, which would otherwise not exist, and provide stakeholders an avenue to access city data, other than directly via cities, thereby reducing the burden of creating city data and supplying city data via requests from the public. Data platforms that do not house city data and are not publicly available are also listed below for reference.

The table shows that 7 out of 15 data platforms have data for all cities, which are primarily open data platforms. These city open data platforms are administered by National Treasury, CoGTA, SALGA, SACN and StatsSA, SA Weather Services, with the Department of Higher Education providing school-level data. The SACN is cognisant that these sources of city data will mirror these sources on SCODA (i.e. show a reflection of the data on SCODA, and not produce the data independently) where possible and appropriate. This data will be enhanced through SACN and crowd-sourced analysis and respond to the unique data needs of cities.

Table 1 City Data Custodians and Systems

Name of Platform	Administrator	Function/ Data Available	Disaggregation	Access
Back2Basics Information System (B2BIS)	Cooperative Governance and Traditional Affairs	Service delivery	Municipality	Open
Distribution & Generation Forms	National Energy Regulator	Electricity generation and distribution	South Africa	Electricity suppliers & government officials
Environment Geographic Information System (EGIS)	Department of Environmental Affairs	Baseline geospatial data	Unknown	Open
Green Drop / Blue Drop	Department of Water & Sanitation	Availability and quality of water	South Africa	Open
Municipal Barometer	South African Local Government Association	Census data	Municipality	Open
Muni-money	National Treasury	Municipality budgets	Municipality	Open
n/a	South African Reserve Bank	Banking sector, finance, economics, debt, foreign exchange etc.	South Africa	Open
n/a	Gauteng City Region Observatory	Various city data	Gauteng wards	Open
South African Air Quality Information Systems	South African Weather Services	Air quality data	School level	Open for non-commercial use
South African Cities Open Data Almanac (SCODA)	South African Cities Network	Various comparable and trend city indicators	City level	Open
South African Data Archive	National Research Foundation (NRF)	Data from various custodians pulled into a single archive	Unknown	Open
South African Higher Learning Open Data	Department of Higher Education and Training	Pass rates, type of institution, degree type etc.	Municipal	Open
South Africa National Data Portal (data.gov.za)	Department of Public Service and Administration	To make national and government datasets available to the public	National and sub-national	Open
SPISys	Department of Rural Development and Land Reform	Land use in rural communities	Northern Cape and Free State municipalities	Open
Supercross, My Municipality, Nesstar	Statistics South Africa	Census, community and household survey data, as well as other data related to households and persons	Sub-place level	Open
Vulindlela	National Treasury	Expenditure, staffing, supply chain	SA and provinces	Officials only

Source: Various, 2017

3.4. Private Sector and Civil Society Data Platforms

Private data service providers consolidate and add-value to available municipal data and/or develop their own in-house statistics and models (e.g. population forecasting models). This data and information is generally sold to third parties, such as government and state-owned enterprises, industry players and associations, research companies or tertiary education institutions. Some of the leading private data service providers are listed below, along with a description of the databases they administer:

1. **IHS Global Insight** offers the Regional Explorer (district level economic information), EconoStat (global economic and financial industry data), EconoInsight (economic forecasts for SA and the world).[4]

2. **Quantec Research (Pty) Ltd** offers the EasyData Subscription which is a "comprehensive set of data collections covering macro and regional economic, industry and international trade data" for South Africa and its districts.[5] It also has an Economist Intelligence Unit offering global market analysis and forecasts.

3. **Municipal IQ** is a unique web-based data and intelligence service specialising in the monitoring and assessment of South Africa's 278 municipalities. Municipal IQ targets municipalities, specialist financial services and government regulators interested in the performance of South African municipalities and the policy terrain in which local government operates. Municipal IQ focus on indicators, not data provision.

Other consultants have further proprietary information and datasets that are accessed by cities on an ad hoc basis as part of consultancy services. Furthermore, private sector businesses and associations/organisations often have direct access to industry information and data, and are well placed to consolidate and analyse this data, e.g. the South African Property Owners Association (SAPOA) offer office and industrial vacancy surveys.

It is hoped that the Common Data Framework for Cities will provide cities with the tools necessary to verify data being purchased from private service providers, and generate maximum value from this data. In the long term, it may be that SCODA and other platforms provide a better service to

[4] IHS Global Insight – http://www.ihsglobalinsight.co.za/Products/ReX/
[5] Quantec EasyData – http://www.quantec.co.za/

cities than private service providers and that this cost will be saved, or that the competition will enhance the service being offered by the private sector, to the benefit of cities.

Open data portals are becoming increasingly important as countries and cities strive to provide easier access to publicly available information. The movement is being driven in South Africa by organisations such as 'Open Up' (formerly Code for SA) and 'Open Data Durban'. These organisations are mostly funded by donors and/or public clients and businesses who share their mission. Two examples of civic produced open data portals are Wazimap (Census 2011 data for all municipalities) and Open By-laws, however, there are many more. The SACN are already partnered with these organisations whose expertise, ethics and connections are being leveraged to create the most effective data solution for cities.

3.5. Conclusion

It is important that the SACN acknowledge the existence of the data platforms discussed, so as not to duplicate data and analysis that is already available. Custodians of these platforms either already are, or will become, partners of SACN and the platforms will be used to generate indicators for the 'codebook', to pull data into SCODA, in the development of reporting services, and as part of capacity development. Gaps in the data and services being provided by the City Support Programme and others will be attempted to be addressed by the Common Data Framework for Cities as it responds to the data needs of cities.

4. The Common Data Framework for Cities

In response to the data needs of cities, and the gaps in the current data system offerings, the SACN has conceptualised a **Common Data Framework for Cities (CDFC)**. The goal of the CDFC is to assist cities manage data, indicators and reporting requirements. An overview of the CDFC is provided below, followed by a detailed description of each of its five elements.

The Common Data Framework for Cities comprises of a Codebook, Capacity Building, Reporting Services, and an Open Data Almanac (see figure 6). The CDFC is driven through the South African Council on City Data, which is facilitated by the SACN.

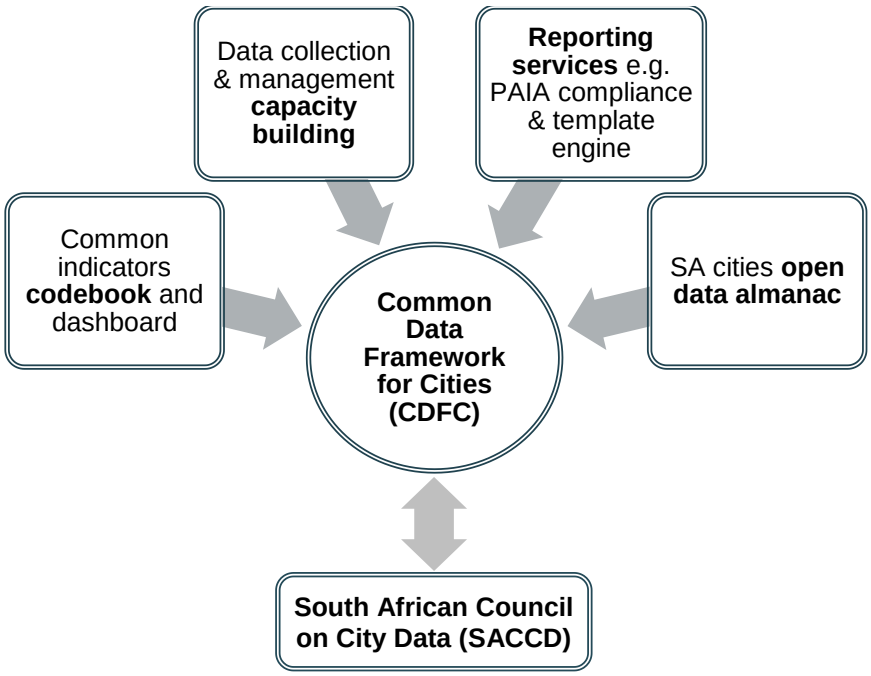

Figure 6 Common Data Framework for Cities

Table 2, below, describes each of the components that make up the Common Data Framework for Cities. Each element will constantly evolve to respond to the needs of cities.

Table 2 Elements of the Common Data Framework for Cities

The Codebook	A live list of **common city indicators with definitions and methodologies**. The list includes BEPP, SDGs, SACN, WCCD and other indicators requested by cities. A dashboard will be created which highlights which cities are able to populate which indicators in order to share best practice.
SCODA	An information system that acts as a **central repository for city data**, including the indicators stipulated in the Code Book. Data can be fed into SCODA and extracted from SCODA by all stakeholders. All indicators will be publicly available (except in unique cases).
Reporting Services	A **template engine** that allows cities to produce generic reports and forms to meet their reporting requirements; automatic generation of a **voluntary disclosure** in compliance with PAIA; assistance in becoming a **WCCD member** and meeting other city reporting requirements.
Capacity Building	A support function that aims to create **human systems** within cities that optimise data flows from collection, through analysis, to reporting, including technical assistance, peer learning, training and collective bargaining.
SACCD	The South African Council on City Data is critical to **feedback** challenges, ensuring the CDFC is kept **relevant** and promoting **peer learning**. It will include representatives from national bodies (e.g. National Treasury), city leadership, and city officials who work with data. The SACCD will drive the implementation of the Common Data Framework for Cities.

Each of these elements is described in more detail in the following sections.

4.1. Common indicators (“the Codebook”)

The codebook is a living list of **common city indicators with definitions and methodologies** (metadata). The aim of the Codebook is to assist cities with their reporting burden by collating all reporting requirements into one guideline. The SACN has been identifying and rationalising indicators since 2013 and therefore has a thorough understanding of the definitions of indicators and sources of data. Indicators included in the Codebook will be derived from:

- Output and outcome compliance indicators;
- Indicators required by SACN for the State of the Cities Report’s programmatic areas;
- Sustainable development goal indicators (SDGs);
- The World Council on City Data’s (WCCD) ISO 37120:2014 indicators;
- Emerging New Urban Agenda requirements;
- Indicators published by the Global City Indicators Facility; and
- Indicators requested by cities.

The indicators will be catalogued so users can search for indicators according to their use e.g. IDP, WCCD, BEPP. Additional reporting requests, outside of the Codebook, would need to be motivated for by those requesting them – the cities would be responsible for accepting requests. If requests are made often, or are important and accepted, they can be added to the Codebook. Indicators will continuously be added to by the designated custodian, based on data requirements

of cities, but could also be added by cities themselves. The Codebook will come with a dashboard that enables the highlighting of which cities has populated which indicators so that best practice can be shared between cities e.g. cities who are able to collect new data that allows them to develop a new indicator to meet the requirements of the WCCD, will highlight this indicator as 'green' on the dashboard, which will trigger a discussion between cities on how this was achieved. This Codebook will be a standing item at the SACCD and will not be compliance-focussed but rather a tool for peer learning. The SACN will liaise with StatsSA to explore whether the Codebook could be SASQAF approved.

4.2. South African Cities Open Data Almanac (SCODA)

SCODA is an **online repository for city data** that, in its current form, publishes the information contained in the State of Cities almanac on an open web platform, thereby improving ease of access to current and comparable information about South African cities. Importantly, SCODA is 'open', which means that data is freely available to all users, is responsive, accessible and re-usable, has low or no usage costs, methods and metadata is clear and available, and is regularly reviewed (see Annexure 4 Open Data Principles). Value is already being added through, for example, modelling population growth projections. Further functions to be added include:

- Reflecting city data from other sources (such as those described in Chapter 3) on SCODA;
- Linking SCODA with city data systems;
- Building environments for each city and/or department;
- Capturing live data, such as traffic or social media data;
- Developing and linking content from researchers and the SACN with indicators and data within themes (e.g. display environmental data together with links to SACN sustainability research and projects); and
- Developing online discussion groups/forums to encourage peer learning, and upgrade the products on the website and the functionality of the website.

SCODA must be able to respond to the needs of the metropolitan administrations, as the members of SACN who are the primary data user group, but should also be flexible enough in its planning and implementation to also serve the needs of citizens, data researchers and urban hackers[6]. Applications will be programmed into SCODA based on use cases that will be developed individually with relevant representatives from each metropolitan administration who

[6] Civil hacking for cities – creating eco-systems of participation and defining new ways for citizens to be involved. See https://www.theurbandeveloper.com/hacking-good-urban-hackers-changing-cities-better/

is interested in actively using SCODA for data processes – these applications will be replicated for all cities once developed. SCODA needs to show that it can contribute to reducing the data reporting burden on cities by providing legitimate, accurate data.

Meeting the needs of metropolitan administrations and citizens will need the cooperation and input of researchers and coders working in the open data space. It is envisaged that researchers, citizens etc. will collaborate on a project, a collective and on an ad hoc basis, to identify best practice data methodologies that would be adopted by cities as the standard used (e.g. demographers from around the country collaborate to determine the best methodology for projecting population growth). This collaboration would be administered by the SACN at first, but could start to grow organically as SCODA's functionality becomes more interactive.

The success of the SCODA data platform will depend on bringing a wide range of stakeholders on board, the constant upgrading of information and being able to keep the platform 'fresh'. To this end, training and awareness creation is essential. Awareness 'marketing' should be undertaken by SACN, and by the metro administration.

4.3. Reporting Services

This element aims to ease the burden of intergovernmental reporting and compliance for SACN member cities through programming standard reports or forms (a template engine) that allows cities to produce generic reports based on their own data or indicators to meet their own compliance requirements. Regarding PAIA compliance, SCODA can be listed as one of the ways of accessing public municipality records and will be able to assist municipalities to provide evidence of fulfilling citizens' constitutional right of access to a range of information held by the municipality. This arrangement allows a municipality to ensure that access to the bulk of its information is rendered within the prescribed periods and that the required annual reporting may be compiled for submission to the Justice Minister. This includes:

a. Voluntary disclosure of Automatically Available Records and Access to Such Records in terms of Section 15 of PAIA (Act no. 2 of 2000), and Regulation 5A;
b. Information Sheet Reports of Requests for Information in terms of section 32 of PAIA.
c. SACN can further assist member municipalities through digitising the PAIA forms of request for access to a record, contemplated in section 53(1) of the Act.

See Annexure 5: PAIA Obligations, for more information on PAIA services.

4.4. Data collection and management capacity building

This element aims to create human and digital systems within cities that optimise data flows from collection, through analysis, to reporting. The objective is to make the flow of information more efficient and credible, saving municipalities time and money. This optimisation will be achieved through:

- **Technical assistance**: SACN will assess whether the current resources, organisational structures and knowledge management processes within city departments are optimal for effective data collection, analysis and reporting. Once the requirements for optimal data management are determined, SACN will assist develop the tools necessary to optimise cities' data management systems, including but not limited to IT platforms, organisational structures and forums.
- **Peer learning:** SACN is in a unique position to share and facilitate the sharing of South African cities' data management experiences, which can be used to create optimal internal systems. Several tools will be developed to trigger and facilitate peer learning, including the Codebook's dashboard, the newly structured Urban Indicators Reference Group, the South African Council for City Data and online forums linked to SCODA.
- **Training:** Together with its partners, SACN will facilitate the training of city officials to effectively utilise the tools developed (e.g. the template engine). Cities will receive training on new types of data analysis, relevant to cities. Training will be tailored to respond to the needs of cities, and to respond to the needs of different officials within the city e.g. higher-level officials might need awareness training or training on how to best budget for data management systems, whereas officials responsible for reporting will receive more technical training.
- **Collective bargaining:** The collective of cities is in a stronger position than individual cities to lobby to reduce and streamline reporting requirements placed on them by government bodies, to receive discounts from data service providers, and achieve certifications e.g. ISO certification through WCCD membership.

Capacity development is critical to the success of the CDFC and, therefore, technical assistance, peer learning, training and collective bargaining are priorities for the SACN.

4.5. South African Council on City Data

In relation to the Common Data Framework for Cities, the South African Council on City Data (SACCD) represents the communication aspect. Good communication and cooperation is a key ingredient in ensuring the success of the CDFC. The SACCD and its associated meetings and

training workshops will play a key role in realising this eventuality – currently, the Urban Indicators Reference group (UIRG), which is jointly organised by the SACN and National Treasury's City Support Programme, plays this role. The UIRG includes all metros and SACN member cities, as well as, other organisations involved in city data including but not limited to: StatsSA, SALGA, COGTA, SABS, CSIR, national line departments, state-owned entities, private sector firms and non-governmental organisation. The current UIRG will be reimagined as the SACCD to realise the implementation of the Common Data Framework for Cities.

The SACCD can form a base to coordinate, report on and drive the implementation of the other aspects of the CDFC: the compilation and application of the Codebook; projects, interventions and events associated with SCODA and other city data platforms; reporting service planning, management and implementation; issues relating to data collection and management taking place within the cities; and capacity building initiatives.

The objectives of the SACCD should include:

1. Providing a voice for the city administrations in relation to urban data and indicators;
2. Coordinating projects projects, interventions and events related to the realisation of the Common Data Framework for Cities; and
3. Providing a platform to discuss other data and indicators initiatives that will impact on metropolitan administration systems and cities in general.

Presently the Urban Indicator Reference Group is being coordinated between SACN and National Treasury's City Support Programme. Under the SACCD the intention is to continue and possibly expand the existing arrangement. This will allow Cities to remain informed of other data initiatives that Treasury and SACN will require cities to be aware of, or attend

The SACCD will an assembly of relevant city official who are responsible for coordinating data collection, the development of statistics, the maintenance of indicators or city related indices. City representatives should be authoritative in relation to city data issues related to their jurisdiction. SACCD will include a secretariat on which National Treasury, SACN and the cities are represented and will have the mandate to develop sub-committees.

To enhance the benefit to cities, it is suggested that a virtual form of the SACCD forum possibly linked to SCODA to share updates and pose questions for the quarterly face–to-face meetings. The posting of updates by both cities and national bodies on the forum prior to meetings will allow the meetings to be freed up for directed discussions and planning. The possibility of virtually attending the quarterly meetings will also be investigated. City

representatives are encouraged to contact each other before and after the meetings should they want to further discuss a point of feedback.

5. Resources and Revenue

This chapter quantifies the resources required for each component of the CDFC and the possible revenue streams that could be used to acquire these resources.

5.1. Resources Required

Costs have been determined for two scenarios, one where all cost items for the CDFC are outsourced to partner organisations, and a second where as many cost items as possible are brought in-house through employing additional staff. A detailed costing is provided in Annexures 3 and 4.

5.1.1. Predominantly outsourced

Table 3 Cost of the CDFC if predominantly outsourced

Components	Year 1	Year 2	Year 3	Year 4	Year 5	Total
The Codebook	R 380,000	R 263,000	R 37,000	R 35,000	R 35,000	**R 750,000**
SCODA	R 2,800,000	R 2,200,000	R 2,000,000	R 2,000,000	R 1,700,000	**R 10,700,000**
Reporting Services	R 300,000	R 30,000	R 20,000	R 0	R 0	**R 350,000**
SACCD	R 20,000	R180,000	R100,000	R100,000	R100,000	**R 500,000**
Capacity Building	R 600,000	R 200,000	R 120,000	R 140,000	R 140,000	**R 1,200,000**
Human Resources	R 1,100,000	R 1,200,000	R 1,300,000	R 1,400,000	R 1,500,000	**R 6,500,000**
Total	**R 5,200,000**	**R 4,073,000**	**R 3,577,000**	**R 3,675,000**	**R 3,475,000**	**R20,000,000**

Source: Resource Consultants, SACN and Open Data Durban

The costing, above, is based on the following high-level assumptions.

- **The Codebook:**
  - The main cost item is research and development for 203 indicators, split over two years (103 indicators identified by KPMG, and 100 additional to be selected by SACN and cities), with additional indicators added or adjusted each year thereafter.
  - Other cost items include copywriting, software development (adding the Codebook as a module onto SCODA), consultation and training with cities, and consultation with StatsSA regarding SASQAF approval.
- **SCODA:** NPO rates were used to determine the costing (these would be 2 to 3 times higher if a consultant was used). Where a project is costed within a band/range (e.g. R80,000 to R120,000), then the higher number (e.g. R120,000) was used for the costing, so as not to undershoot the costs. The following cost items reflect for the first year and

reduce thereafter. It is noted that the number of projects chosen for each year can be reduced, which would reduce the overall cost of SCODA, e.g. if fewer APIs are connected, or fewer deep-dives are conducted, the costs could reduce by up to R500,000 per year. The cost items are:

- Confirming current content on SCODA and setting annual targets: R74,800
- Adding a section e.g. forums, environments, automatic content linking: 3 at R120,000 each
- Analytic deep dive/changing the engine e.g. demographic model or a new property data module: 2 at R 300,000 each
- Design audit: 3 at R 30,000 each
- Ad hoc iterative changes e.g. adding indicators and content, design, etc.: 100 at R 9,000 each
- Connecting a new API e.g. Muni-money: 4 at R 80,000 each
- City system link: 2 at R 90,000 each
- Training session per day: 20 at R 10,000 each
- Web hosting: R14,400
- Launch and marketing: R60,800

- **Reporting Services:**
  - The main cost is building the template engine and the PAIA compliance modules into SCODA, which costs R110,000 each.
  - R130,000.00 is set aside for city consultation and research and development.
- **SACCD:**
  - Catering and flights on an ad hoc basis for partners and researchers for 4 meetings a year including catering for 25 people per meeting (R100 per head) and an additional R10,000 should additional flights be required.
  - R20,000.00 has been put aside for Year 1 as this is envisaged as an initiation year for the Council
  - R200,000.00 has be set aside for Year 2 as this will be the year when the Council will be marketed more extensively.
- **Capacity building:**
  - The main cost is an intensive 5 month, full-time, process of providing technical assistance to cities by first understanding their data flows, organisational structures and costs, and, secondly, implementing tools to streamline their systems;
  - Further costs include additional training and technical assistance throughout the five years.

- **Human Resources:** It is critical that the following dedicated human resources are employed within SACN. If this does not occur, the costs of the above items will escalate as partners and service providers are forced to take on facilitation and consultation roles.
    - Project manager at R800,000 per year. This person must have strong technical abilities, an understanding software development, design, data and be able to co-ordinate with cities and report on the projects. Qualifications will need to be a post-graduate degree in business science, or similar.
    - Junior researcher/administrator/data scientist at R300,000 per year: This person will provide support to the project manager in his duties. Understanding and interest in data science, degree in business science or similar, and 1 year of experience is preferred.

Outsource Option 2 - Retainer: An alternative to the model above, which is project and activities based (i.e. costed per item), is to enter into a retainer agreement with the partner or service provider. The cost for this would be approximately R45,000 (10 days a month) for data science, data wrangling, web development and design support as needed, on a dedicated basis where there is direct reserved capacity for the project. Projects would fall outside of the retainer. The service provider would then develop a SCODA unit to develop the necessary capacity.

5.1.2. Predominantly in-house

Table 4 Cost of the CDFC if conducted predominantly in-house

Components	Year 1	Year 2	Year 3	Year 4	Year 5	Total
The Codebook	R 370,000	R 275,000	R 3,000	R 1,000	R 1,000	**R 650,000**
SCODA	R 2,800,000	R 550,000	R 410,000	R 380,000	R 360,000	**R 4,500,000**
Reporting Services	R 275,000	R 0	R 0	R 0	R 0	**R 275,000**
SACCD	R 20,000	R 109,000	R 22,000	R 24,000	R 25,000	**R 200,000**
Capacity Building	R 580,000	R 100,000	R 100,000	R 90,000	R 90,000	**R 960,000**
Human Resources	R 3,400,000	R 3,700,000	R 4,000,000	R 4,300,000	R 4,600,000	**R 20,000,000**
Total	**R 7,445,000**	**R 4,734,000**	**R 4,535,000**	**R 4,795,000**	**R 5,076,000**	**R 26,585,000**

Source: Resource Consultants, SACN and Open Data Durban

The additional human resources required to successfully implement the CDFC are:

- Data scientist/statistician at R720,000 per year;
- Developer at R960,000 per year (must be able to code in python or r (preferably python) and SQL); and
- Web designer at R620,000 per year (must be able to code in html, CSS, and javascript).

If these extra human resources are considered, the cost of the CDFC over five years is R13,500,000 more expensive than the cost if it were predominantly outsourced for various reasons:

- The bulk of the costs of the CDFC occur in year one and are present even if in-house capacity is brought on board in year two;
- While in-house capacity can overtake several costs such as iterative changes to SCODA, external resources will still be required for very large projects (deep dives) and specialised training;
- A project manager and junior assistant is required in both scenarios; and
- The costs for partners to conduct the bulk of the SCODA work, including training, is less than the commercial rates the SACN would need to pay to attract similar skills.

One could argue that the real benefits of developing in-house capacity will be felt significantly more in the outer years (i.e. year 5 onwards).

It is critical that the project manager contains sufficient skills to be able to oversee the project, if not, further in-house capacity will be necessary. The table below provides the pros and cons for the two scenarios:

Table 5 Pros and cons for outsourced and in-house cost options for CDFC

	Outsourcing	In house
Pros	• Less expensive overall; • More flexible (no sunken costs); • Higher level of expertise; • Responsibility can shift to cities in the long run; and • Cost sharing between partner organisation and SACN (i.e. channelling of funding shared).	• Dedicated resource; • Cities become familiar with consistent personnel that are readily available to deal with enquiries; • Reduces the risk of losing the capability to administer the CDFC if partner organisations drop out; • Reduces individual project costs.
Cons	The project is at the mercy of the implementation partner, opening SACN to the risk that the partner organisation pulls out or has capacity constraints etc.	• Inability to employ personnel with the capabilities required to implement the CDFC; • More expensive overall; and • Entrenched cost (less flexibility).

Source: Resource Consultants

In the ‘outsourcing’ scenario, various companies may be used (does not have to be one dedicated company), however, the pros and cons for this scenario are true only if a partner, NPO/funder, is used i.e. if private sector consultants are used, it will be more expensive.

5.2. Revenue Streams

The SACN, according to 2015/16 Annual Report, has two major revenue streams: grants and member subscriptions. In the 2015/16 financial year, the SACN received R23,403,190 in grant funding, and R13,200,000 in member subscription fees[7].

In terms of draft budget for the period 2017-2021, member cities have been requested to contribute a R750,000 premium (in total for all cities), specifically, for the development of the CDFC, which is dependent on Cities agreeing to this contribution in terms of the Memorandum of Agreement between the municipality and SACN.

The projection assumes that all municipalities will pay their grant allocations as projected. It is assumed that the CDFC project can harness 5% of SACN's total income, in addition to the R750,000 premium paid for by cities. The 5% could cover the additional human resources required. After adding the premium paid by cities for the CDFC and the 5% harnessed from SACN budget, there is a shortfall of approximately R3M in year 1, falling to approximately R1M in year 5. The following two sources of income, external to SACN, are proposed to make up that shortfall: partner funding, and sales of specialised services or reports.

1. Partner Funding: SCODA is currently being, in part, funded by the Japan International Cooperation Agency (JICA) via Open Data Durban, who are building SCODA, to the sum of approximately R1M per year. JICA needs to be pursued as an ongoing partner in funding the development of SCODA and the CDFC. A further option is that funding received by the SACN and ODD could be combined, which would not be the case if a private sector service provider was responsible for developing SCODA. A third option is to seek other external sources of funding for SCODA

There is significant funding being made available for research and development to do with cities and data, however, competition for this funding is steep and rising. It is important that fundraising happens consistently and in parallel with all other activities. Connection should be made with civic technology and impact donors working in the space to see if missions align and funding can be harnessed. Possible funders include:

- The Shuttleworth Foundation;

[7] Subscriptions are paid by eThekwini Metropolitan Municipality, Ekurhuleni Metropolitan Municipality, City of Johannesburg Metropolitan Municipality, Nelson Mandela Bay Metropolitan Municipality, City of Tshwane Metropolitan Municipality, Mangaung Metropolitan Municipality, Buffalo City Metropolitan Municipality, Msunduzi Local Municipality

- Bill and Melinda Gates Foundation;
- The World Bank;
- World Council on City Indicators; and
- The Web Foundation

Public sector funders should also be considered – these include National Treasury, StatsSA and SALGA.

2. Value-added services: Initially, services offered as part of the Codebook and SCODA, such as the template engine, will need to be included in the overall cost to cities, however, with time the complexity and number of reports will increase and cities could be charged for additional reports that include city-specific requests that require additional resources. In the same way, end users, such as private sector businesses, could be charged for specialised reporting. This option will have to be explored carefully as it may raise the cost of data acquisition for public sector and other users of data which may jeopardise the openness and relatively free access to city data that the CDFC hopes to encourage. A possible way around this is where commercially viable data is sold or subscriptions to it are sold, and it is opened once it is out of date. This works where the timeframe for data to become commercially useless is short.

It is anticipated that income from specialised services would start in year 2 at R50,000, and increase to R400,000 in year 5, however, this income could be significantly higher if these services adequately respond to demand by cities and end users.

If the shortfall is not able to be met through partner funding in the first year, costs can be shifted into the outer years through prioritisation of modules to be added onto SCODA and indicators to be added to the Codebook. It is suggested that SACN does not compromise on the SACCD, capacity building, awareness creation and human resource costs.

Further possibilities: Savings that accrue to cities because they no longer should subscribe to private service providers, or due to collective bargaining, has been considered as a possible source of revenue, however, without a proper understanding of which service providers cities use and what could be offered to service providers in return for discounts, a figure cannot be determined. Furthermore, it was suggested by KPMG that cities could use SACN as their Information Officer as part of their PAIA compliance and pay for this service, but this was not seen as practically implementable by SACN.

6. Conclusion

6.1. City Value Proposition

The CDFC's unique offering is that it provides cities with a holistic solution to optimise their data management throughout the data hierarchy, which includes:

- *A live list of common city indicators with definitions and methodologies (the Codebook);*
- *An information system that acts as a central repository for city data (SCODA);*
- *A template engine that allows cities to produce generic reports and forms to meet their reporting requirements;*
- *Capacity development that aims to create human systems within cities that optimise data flows from collection, through analysis, to reporting; and*
- *A Council on City Data which optimises communication flows between data custodians.*

Furthermore, through SCODA, the private sector, civic society and citizens have immediate access to a vast amount of free, comparable, city data, which will facilitate more informed decision-making and contribute to better planned and run cities.

The CDFC aims to create value for cities by reducing costs associated with inefficiencies in data management, such as having to purchase data from private service providers, and the time taken by officials to report on performance, gather data for reports and meet public data requests. The benefit of the Common Data Framework for Cities will be different in each city, depending on their data requirements and their data 'maturity', therefore, the CDFC aims to be responsive and ever-evolving. The benefits and costs of the CDFC to cities are described in the two figures below.

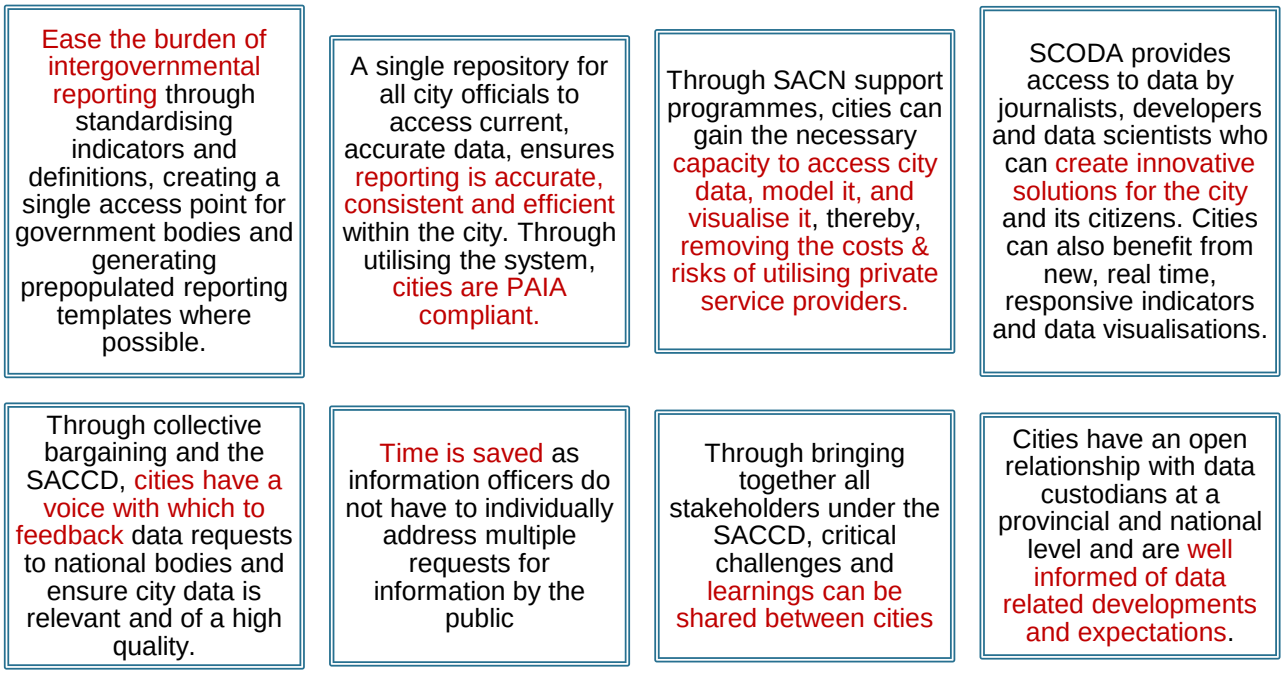

Figure 7 Outcomes/benefits of the CDFC

Cities are requested to commit a certain amount of time and money to assist implement the CDFC. The estimated first year costs are outlined below.

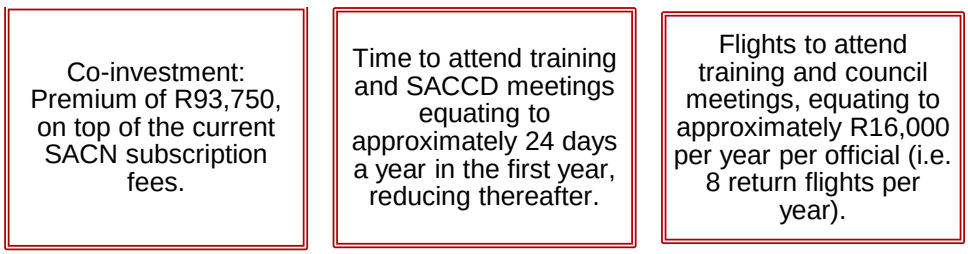

Figure 8 Costs to cities of the CDFC

The hope is that cities actively participate in developing and utilising the various elements, eventually taking ownership of the CDFC and its associated costs.

6.2. Critical Success Factors

Success will be achieved when: *SCODA is fully utilised by cities who are capacitated to extract maximum value from the functions it offers; are benchmarked internationally and are known for high quality reporting; cities are being monitored for the outcomes and impacts of the CDFC; cities are fully PAIA compliant and SCODA is recognised by cities as the first port of call for city data; the CDFC is fully integrated with NT, SALGA and StatsSA CDFCs and processes; all government bodies are working together to meet the data needs of cities; and peer learning is frequent and effective, and reporting and analysis across cities is harmonised, without hindering innovation.*

For this success to be realised, the following essential actions need to take place:

- Individual **consultation** with cities/city representatives needs to be initiated to gather use cases for SCODA. SCODA's unique offering is that it is not a top-down approach but rather it is responsive to the needs of cities;
- Ongoing **capacity development** with cities is critical to creating the enabling environment necessary to achieve the outcomes of the CDFC, this includes in-depth technical assistance and ongoing training at all levels of local government;
- The SACN should not be trapped into the **indicator selection process**, as this is an evolving and ever-changing process with the end goal being that all relevant indicators be included in the Codebook and on SCODA. A lot of work has already been done to create a list of indicators which should be used, as opposed to creating a 'perfect' list;
- **Dedicated in-house technically skilled human resources** is essential;
- Finally, proper **monitoring and evaluation** of the CDFC is critical to ensuring the sustainability of the CDFC and the SACN.

References

Afriscope (2013) 'Findings' and 'Business Plan'. Available from the South African Cities Network.

Department of Monitoring and Evaluation (2011) 'National Evaluation Policy Framework'. Available:http://www.gov.za/sites/www.gov.za/files/Evaluation_Policy_Framework%20approved%2011%2011%2023a.pdf Date Accessed: 9 April 2017.

Development Bank of South Africa (DBSA) (2017) 'Inception Report: Rationalisation of the reporting arrangements in eight metros'. Available from the South African Cities Network or National Treasury's CSP.

KPMG (2015) 'Cost Benefit Assessment Report', 'Concept Paper' and 'Status Quo Report'. Available from the South African Cities Network.

National Treasury: City Support Programme (2015) 'Reporting reforms framework: Emerging Framework for Integrated Reporting on Built Environment Functions for Cities'.

National Treasury: City Support Programme (2017) 'Reporting Reforms' Presentation given at the Urban Indicators Reference Group on the 24th of April 2017.

National Treasury (2017). 'Municipal Money and Financial Management Reforms'. Presentation available from SACN.

Annexure 1: Implementation Gantt

The SACN has already made significant progress since the previous business plan developed by KPMG. SCODA has been developed and is constantly evolving to meet the needs of cities and SACN has been regularly engaged with cities and other data role-players through the South African Council on City Data and other forums such as the WCCD, SABS ISO31720 process and the StatsSA Sustainable Development Goals localisation process.

The following implementation plan, seeks to build on this progress. This plan will and should evolve and is here as a guide only.

Activities	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
The Codebook																			
Initiate the Codebook project, determine TOR and service provider																			
Research, development and write-up for approximately 100 SACN identified indicators																			
Develop Codebook module for SCODA including the dashboard																			
Train and test the Codebook with cities																			
Liaise with StatsSA regarding SASQAF approval																			
Research, development and write-up for 2nd tranche of SACN identified indicators (approximately 100)																			
Continuous consultation with cities and revision of indicators																			
SCODA																			
Benchmarking the current state of SCODA and confirm targets for the year																			
Confirm the data and indicators that are currently on SCODA (large overlap with the R&D of the Codebook reduces the cost here)*																			
Develop end to end use cases for cities including consultation with cities and analytic deep dive (data sourcing, cleaning and coding)																			
Build data pipelines and environments unique to each city and/or department																			
Build ability to link/feed in content																			

Activities	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Build in new APIs (i.e. mirrors reflecting existing city data platforms)																			
Link/feed in data from existing city systems																			
Create discussion forums within SCODA																			
Design audit																			
Ad hoc/iterative																			
Launch and create awareness of SCODA																			
Training sessions on SCODA to be run on an ongoing basis																			
Reporting Services																			
Identify reporting processes within cities that would require the development of templates																			
Develop template engine for intergovernmental reporting																			
Research PAIA to determine the structure of the compliance module																			
Build module consisting of voluntary disclosures, PAIA request forms, reports of requests for information																			
SACCD																			
Re-define the format of the SACCD																			
Sign MOUs with each participant																			
SACCD meetings																			
Continuously refine SACCD and roles of participants																			
Capacity Building																			
Technical assistance (full time project of 5 months, with follow-ups throughout the year)																			
Peer learning																			
Training sessions excl. SCODA and technical assistance already accounted for																			
Collective bargaining																			
Fundraising																			
Identify and meet a target list of organisations working in the city and data space within South Africa																			
Identify donors in the city and data space and apply for funding																			
Consider a premium subscription for specialised services																			
Investigate private data providers providing discounts for bulk purchases																			

Activities	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
State of Cities Report																			
Select indicators for 2021 state of cities report																			
Establish a data collection plan and start feeding indicators into SCODA																			
Analysis and design for State of Cities report 2021																			
Ensure that indicators and data is consistent throughout State of the Cities Report 2021																			
Release State of Cities Report 2021 via SCODA																			
Obtain comprehensive feedback on State of Cities Report																			
Refine methodology for State of Cities Report 2026																			
Preparation and release of State of Cities Report 2026																			
M&E																			
Develop and M&E framework to monitor outcomes of the system																			
Annual reporting and cost benefit analysis of the system																			
Investigate whether the State of Cities Report has a place within DPME's national evaluation framework																			
Human Resources																			
Appoint project manager																			
Appoint junior researcher/administrator/data scientist																			

Annexure 2: M&E Framework

The table below is a possible framework with which to assess the implementation of the CDFC – it provides ideas of the measures that could be used to monitor progress.

Outputs	Immediate Outcomes	Longer term outcomes
The Codebook		
Number of indicators in the Codebook Dashboard.	Number of cities frequently using the Codebook and the dashboard number of new indicators achieved by cities.	Increased accuracy in reporting, cities are on a par regarding the number and accuracy of indicators developed and reported on.
SCODA		
Number of end-to-end use cases; number of city or department environment/views; content linked (yes or no); SASQAF approval achieved (yes or no); number of APIs; number of city data systems linked; forum developed (yes or no); design audit conducted (yes or no); launch event occurred (yes or no); number of SCODA related city training sessions.	Number of registrations on SCODA from city officials; number of city officials using their own environment and forums; number of information downloads etc.	Cities can access data and are capacitated to analyse data themselves and are no longer exposed to the cost and risks associated with buying data and indicators from private service providers; cities are generating new data sources and indicators.
Reporting Services		
Number of reporting templates created; reports for voluntary disclosure, PAIA requests, and report of request for information created.	Number of cities using reporting templates; number of PIAI request forms; annual report of requests (yes or no), voluntary disclosure created (yes or no).	Reporting is efficient, accurate and standardised, saving officials time. Cities are PAIA compliant, reducing the risk associated with non-compliance.
SACCD		
Number of MOUs signed; number of SACCD meetings held.	Number of cities and stakeholders attending meetings; number of cities using the online forum to supplement the SACCD.	Cities have an open relationship with data custodians at a provincial and national level and cities are well informed of data-related developments and expectations; cities have the support of internal and external leadership structures.
Capacity Building		
Technical assistance major project completed (yes or no); number of training sessions, number of times collective bargaining was used.	New processes, tools and/or structures being utilised by cities.	The flow of data, indicators and reporting is efficient and effective; officials have the capacity to collect and analyse data.
Fundraising		
Number of contact points with local and international organisations in the space; number of applications for funding made; number of organisations approached for bulk discounts.	Income received in Rands and in kind.	CDFC can undertake all activities required due to funding received.

Outputs	Immediate Outcomes	Longer term outcomes
State of Cities Report		
State of Cities Report delivered.	Readership, feedback, requests for information etc.	Better informed cities.
M&E		
M&E framework designed (yes or no); annual assessments conducted (yes or no).	Number of targets met.	Improved successful implementation of CDFC.
Human Resources		
Project manager and junior research assistant or data scientist appointed (yes or no).	Performance targets met.	Successful implementation of CDFC.

Annexure 3: Short-listed Indicators

KPMG attempted to source 103 indicators on behalf of SACN, as part of the consolidation and development of the Almanac, after which, KPMG recommended selecting a smaller, more practicable and manageable number of indicators that are necessary and have valid data attached to them. Below is a proposed list of manageable indicators, devised by KPMG, divided into tier 1 and tier 2 recommended indicators. The criteria for recommendation is solely based on availability of data.

List of tier 1 recommended indicators (33 out of the 103)

Rated as good as it gets: informed by data already available and verifiable.

Demographic	Population size
	Households
	Population growth rate (1996 - 2001 and 2001 -2011)
	Poverty rate
	Gini Coefficient
Productive	Gross Value Add (GVA)
	Household income
	Cost of living
	Economically active population
	Human Development Index (HDI)
Sustainable	Risk Score - blue drop
	Risk score - green drop
	Energy supply
	Energy consumption (GJ)
	Greenhouse gas (GHG) emissions (carbon footprint)
Inclusive	Dwelling tenure
	Informal shelter growth
Well-governed	Municipal management vacancies
	Municipal posts
	Municipal staff vacancies
	Access to free basic services to all qualifying people in the municipality:
	Access to water
	Access to sanitation
	Access to electricity
	Access to refuse removal - weekly
	Debt collection
	Debtors
	Bad Debt
	Acid test ratio

	Debt to income ratio
	Current ratio
	Debt ratio
	Budget funding
	Wasteful expenditure

List of tier 2 indicators (19 out of the 103)

Rated as inconclusive –some data collected and captured; some trend data maybe missing or not available; methods used between data points have not be confirmed.

Demographic	Population density (persons per square km)
	Indigent
Productive	Employment Absorption Rate (EAR)
Sustainable	Waste recycling (tonnes)
	Residential fuel combustion
Inclusive	Learner enrolment- primary
	Learner enrolment- secondary
	Learner-educator ratio
	Learner-classroom ratio
	Completion rate - primary school
	Completion rate - secondary school
	Literacy rates
	Multiple deprivation index
	Housing Affordability Index
Well-governed	External audit
	Residential rates
	Business rates
	Services levy
	Capital grants & transfers

List of tier 3 recommended indicators (50 of 103)

Rated as inconclusive – no data collected and captured; missing data has not been located. Also, some data sets are available at a provincial level and not at local/ city level.

Demographic	Population projections
	Net migration rate
	International immigrants rate
	Indigent
	Poverty rate
	Gini Coefficient

	Life expectancy
Productive	Labour productivity
	Vulnerable population unemployment
	Number of Fixed-landline telephone connections per 100,000 population
	Number of mobile telephone connections per 100,000 population
	Number of internet connections per 100,000 population
Sustainable	Water availability
	Water losses
	River and wetland health
	Waste generation
	Landfill availability
	Waste to energy
	Ambient air quality
	Land transformation
	Coastal land transformation
Inclusive	Matric pass rate
	Mortality - under 5 years per 1 000 births
	New Housing delivery
	Household cost
	Service Account Arrears
	Housing market
	Sustainable Human Settlement (SHS) Land
	Passenger travel costs
	Transportation spend
	Transport passenger trips
	Transport passengers
	Private transport
	Public transport vehicles
	Motor vehicle ownership
	Transport operating costs
	Travel time to work
	Passenger waiting times
	Travel distance
Well governed	Electricity interruptions
	Water interruptions
	Voter registration - national & local
	Voter turnout - national & local
	Batho Pele principles
	Citizen satisfaction
	% allocated and spent of capital and maintenance budgets
	Capital and maintenance budgets
	Informal settlements
	Spending profile
	Capital expenditure

Annexure 4 Open Data Principles

Table 6 Principles of Open Data

Principle	Principle Described
Responsive	The growth, development and refinement of the CDFC will be driven by the public and municipalities who use the data.
Accessible and re-usable	Public data will be published in re-usable, machine-readable form e.g. file formats that easily lend themselves to machine processing (e.g. CSV, XML). Public data will be available and easy to find through a single, easy-to use, online access point that is also accessible via mobile devices. Public bodies should actively encourage the re-use of their public data.
Licensing	Public data will be released under the same open license which enables free re-use, including commercial re-use to increase openness and minimise restrictions on the use of the data.
Sense-check & evaluation	Public data will be published using open standards, and following relevant recommendations of the World Wide Web Consortium (W3C). The CDFC must be supported by known and rigorous processed for evaluation, prioritising and focusing the data being released.
Alignment and harmonisation	Public data from different departments about the same subject will be published in the same, standard formats and with the same definitions; this is in line with the PAIA Sections 15 requirement for cities to publish Form D: Automatically available records and access to such records.
Low or no usage costs	The Government of South Africa and SACN member cities should release the raw data on the Open Data Almanac site free of charge. This may not apply to specific reports and analyses that may require manipulation of data.
Non-discrimination	Public data will be available without application or registration, and without requiring details of the user.
Publish metadata	Public bodies should publish relevant metadata about their datasets and supporting descriptions of the format provenance and meaning of the data. Public bodies should maintain and publish inventories of their data holdings.
Regular reviews for relevance	Develop, test and continually refine data collection and display mechanisms for impact indicators. Data collection mechanisms for impact indicators such as the QoL/CSS need to be standardised to ensure that it can indeed be utilised and is comparable.
Permanence	The capability of finding information over time is referred to as permanence. Information released by the government online should be available online in archives in perpetuity. Information made available online should remain online, with appropriate version-tracking and archiving over time.

Annexure 5: PAIA Obligations

The South African premises for open data are rooted in section 32(1)(a) of the Constitution of South Africa (1996) that stipulates that "…everyone has the right of access to any information held by the State". This right of access may however be limited to the extent that the limitations are reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom as contemplated in section 36 of the Constitution (1996).

The Promotion of Access to Information Act (PAIA, 2000) gives effect to the constitutional right of access to any information held by the state, as well as information held by another person that is required for the exercise or protection of any right. The motivation for giving effect of the right to access to information is to foster a culture of transparency and accountability both in public and private bodies and to promote a society in which the people of South Africa have effective access to information, to enable them to more fully exercise and protect all their rights.

PAIA (2000) outlines some key obligations of organs of state relating to obligations on all public bodies to comply to Chapter 2 Publication and Availability of Certain Records. These obligations are surmised as follows:

1. The obligation to appoint an information officer as per Column 1 of Schedule 1 or 3 to the Public Service Act, 1994 (Proclamation 103 of 1994);
2. The obligations to appoint a deputy information officer that can be delegated (Sec 17);
3. The obligation to voluntarily disclose and make automatically available – at least annually to the Minister – certain categories of records (Sec 15) of the public body that are automatically available without a person having to request access in terms of PAIA;
4. Duty to assist requesters of public information (Sec 19), free of charge, especially in completing the Forms of Requests (Sec 18); and
5. For the purposes of PAIA, each public body must, subject to legislation governing the employment of personnel of the public body concerned, designate such number of persons as deputy information officers as are necessary to render the public body as accessible as reasonably possible for requesters of its records.

PREPARED FOR:

SOUTH AFRICAN CITIES NETWORK

Peter Magni

peter@sacities.net

+27 11 407 6266

PREPARED BY:

RESOURCE RESEARCH AND STRATEGY CONSULTANTS

Joanne Parker

joanne@resourcesconsultants.co.za

+27 84 387 3844