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Urban Knowledge Management

Solutions for the Addis Ababa City Administration

A Technical Report commissioned by the Addis Ababa Urban Age Task Force



URBAN AGE

Addis Ababa Urban Age Task Force

The purpose of the Addis Ababa Urban Age Task Force (AAUATF) is to support the City of Addis Ababa in advancing its strategic development agenda. The Task Force's work builds upon the Addis Ababa City Structure Plan (2017–2027), exploring opportunities for compact and well-connected urban growth that can be delivered through integrated city governance.

In addition to advisory activities and capacity building, it identifies strategic pilot projects to address complex urban challenges around housing, urban accessibility, green and blue infrastructure, and urban governance.

The AAUATF is a partnership between the Addis Ababa City Plan and Development Commission (AACPDC), LSE Cities at the London School of Economics and Political Science, the Alfred Herrhausen Gesellschaft, and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

urbanagetaskforce.net/addisababa

Addis Ababa Plan and Development Commission
Halle Gebresilasie Avenue
Addis Ababa
Ethiopia

LSE Cities
London School of Economics
and Political Science
Houghton Street
London
WC2A 2AE
United Kingdom

lse.cities@lse.ac.uk
lse.ac.uk/cities

 @LSECities
 LSE Cities
 LSE Cities

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Report Authors

Bersisa Berri, Founder and Managing Director,
Digital Merkato International (DMI), London, UK

Supervision

Philipp Rode, Executive Director, LSE Cities and
Urban Age, LSE, London, UK

AAUATF Working Group

Urban Governance and Planning

Dereje Fekadu (Chair), Special Chief of Staff,
Mayor's Office, Addis Ababa City Administration,
Addis Ababa, Ethiopia

Anka Derichs, Senior Strategic Urban Development
Advisor, Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH, Eschborn, Germany

Elisabeth Mansfeld, Cities Project Area, Alfred
Herrhausen Gesellschaft, Berlin, Germany

Michael von der Muehlen, Former State Secretary
and Participant of International Building Exhibition
(IBA) "Emscher Park", Dortmund, Germany

Philipp Rode, Executive Director, LSE Cities and
Urban Age, LSE, London, UK

Jennifer Semakula Musisi, City Leader in
Residence, Bloomberg Harvard City Leadership
Initiative, Harvard Kennedy School, Kampala,
Uganda and Cambridge, USA

Jagan Shah, Senior Infrastructure Adviser,
Department for International Development (DFID),
British High Commission, New Delhi, India

Marc Steinlin, Managing Partner,
IngeniousPeoplesKnowledge Consultants, Cape
Town, South Africa

Production and Design

Elaine Beebe, Copy Editor

Emily Cruz, Project Manager, LSE Cities

Lizzy Garlan, Publication Coordinator, LSE Cities

Yasmin Lennon-Chong, Graphic Design

Atelier Works, Template Design

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Executive summary

Purpose and scope of document

The aim of this policy paper is to propose knowledge sharing platforms for Addis Ababa City Administration that help as a fundamental starting point for the urban knowledge management approach. In this paper urban knowledge refers to a dynamic multi-dimensional understanding gained from analysis, interpretation, absorption, and application of data (Crane, 2013). In the current urban development context, we observe fast diffusion of knowledge, but data are disjointed and fragmented in most cities. Systematic knowledge management (KM) became a vital part of cities administration and governance, and city managers must give due attention to systematically managing their knowledge resources if they want their cities to develop and thrive. Systematic KM is core to evidence-based structural planning and implementation and cities administration. In the context of Addis Ababa, where the city administration operates under a data-scarce environment, systematic KM is exceptionally vital. Various assessments indicate that the separation of entities and working in silos force the city administration to operate in a data-scarce environment leading to a lack of evidence-based decision-making across the city. This report provides an essential platform for the city's KM and provides a fundamental starting point to reduce the problem of data scarcity.

The overall objective of this policy paper is to give strategic direction for city governors and policy makers to address the issues of data and information management for the effective governance and competitiveness of Addis Ababa as a 21st century knowledge city. The specific objective of this policy paper is to develop a portfolio of Urban Knowledge Dataset comprising knowledge sharing (KS) platforms and networks in the context of strategic urban development and to pilot the consolidated knowledge use and promote the municipality-wide coordination. This policy paper is the first phase of the KM intervention project.

Methods

In this policy paper the approach of synthesising research and practices has been used. I have reviewed recent knowledge-based urban development literatures and assessed multi-faceted documents related to Addis Ababa City Administration data. This includes existing initiatives of data sharing, data sharing regulations, working ethics and people's perceptions and motivations related to knowledge sharing, power and political motives related to knowledge sharing, IT facilities and capabilities, and leadership and managerial views of KM in Addis Ababa City Administration. Although I planned to integrate qualitative and quantitative data to provide strong evidence for conclusions, and triangulating the data from different methods, the quantitative data analysis was not carried out due to the COVID-19 pandemic.

Findings

The result of the data analysis shows that various factors impacted the effectiveness of KM in AA City Administration. From the careful analysis of available data, five major factors that significantly impacted KM have emerged:

1. *Inadequate existing initiatives*: Organised data gathering systems, recording, analysis, and sharing techniques and procedures are inadequate, with a lack of identifying the gaps in practice and data management, and no significant attention given to systematising data management
2. *Hampering work ethics*: Bureaucracy, corruption, and superior/subordinate relationships have hindered communications/knowledge sharing, leading to scarcity of data/knowledge for evidence-based planning, policy formulation, decision-making, and implementation. Most communication and knowledge flows are restricted to certain directions only (eg, top-down)
3. *Motives and interference of politicians*: The political motives and interference of politicians in the city managers' profession have affected the respect for urban plans and strategies, sometimes giving priority to political interest over city development. This is attributed to lack of democracy, lack of trust, and the desire for political dominance
4. *Lack of adequate IT, internet connections and poor infrastructure*: Shortage of enough IT equipment, facilities, and software to support knowledge sharing, as well as lack of technical support and immediate IT maintenance systems. There is also lack of integration of IT systems into plans and strategies. Also, weak/slow internet connection, occasional internet shutdown due to political unrest and inadequate internet infrastructure and poor connection, and lack of skilled manpower have a negative impact on KS
5. *Lack of leadership / managerial commitment*: There is no KM strategic direction and commitment from leaders is low; no priority is given to systemic knowledge management

Proposed recommendation

To address these issues, I have developed an integrated Knowledge Management Model for Addis Ababa City Administration. The model is relating to the specific context of the structural plan priorities of housing, transport, and green infrastructural activities. The model consists of a sequence of activities through which systematic KM intervention could be developed in the city administration to achieve improved administration and governance outcomes in structural plan priorities. The model considered the integrated approach for Knowledge Sharing and Application in AA governance, including assessment of the roles of decision makers, the influences

of various stakeholders and identified the challenges and proposed remedies.

The model consists of the process through which KM strategy would be developed, including raising awareness of KS; identifying the roles and responsibilities of employees in KS; the participation of city managers and leaders in KS; and techniques of formalising and linking KS to the AA city goals. It also addresses how IT facilities, financial constraints, and political motives influence KS and proposes the ways to resolve them. The proposed output was the development of four practical knowledge sharing platforms (Knowledge Datasets) in order of their priorities:

1. *Priority One:* cross departmental KS platform — establishing cross-border KS platforms where departments access government's internal data store and other essential and relevant knowledge for planning, decision making and implementation.
2. *Priority Two:* multi-sectoral KS network — developing multi-functional knowledge centres that document relevant research reports and policy documents from various tiers and knowledge clusters that can be accessed through a joint platform. Developing and maintaining research and practice synergy.
3. *Priority Three:* local-global knowledge transfer platform — establishing and maintaining best practice knowledge management from selective global cities and making data linkage with specific initiatives of Addis Ababa; piloting knowledge-sharing between developed and developing cities.
4. *Priority Four:* vertical KS platform — developing various knowledge datasets at city administration levels (bureaus, subordinate offices, sub-cities, woredas) to reduce information hierarchies, break silos, and foster the free flow of knowledge among municipality team members.

The systematic KM intervention portrayed through these KS platforms enhances evidence-based Planning and Strategy for the city's structural plan and leads to improved governance through better coordination of housing, transport, and green infrastructural functions; improved project implementations; improved accessibility of data and information and reducing knowledge scarcity; improved knowledge flow between city administration and research institutions and improved coordination and best practice sharing with international knowledge cities and knowledge networks at the global level.

Conclusions and Implications

The overall implication of this finding is to highlight the importance of systematic KM in Addis Ababa City Administration and to design an initial KM framework in the context of the current data-scarce operation of the city. Systematic data collection, analysis, and integration

are particularly critical in enabling informed and robust decision making for sustainable city development. AA policy makers need to give attention to designing systematic urban KM practices that develop a common approach of incorporating KM into city development strategy and practice and sharing these initiatives with other individuals and institutions locally, nationally, and globally. Also, it is essential that decision makers give special attention to narrowing the existing gap between designing elaborate data systems and connecting these data to actual decision making. Establishing such connections requires forming knowledge sharing platforms that foster collaboration and enhance knowledge accessibility.

In the environment of modern cities the knowledge base is expanding both vertically and horizontally. City managers need to pull together and utilise various kinds of knowledge in different sectors, including city administrations, academia, industry, and civil society, so that they will be prepared to understand and cope with multifaceted complexities involving city administration. It is obvious that AA City Administration is far behind other developed cities in terms of data collection, analysis, sharing, and developing best practices. The impact of this is observable from day-to-day activities where decision makers struggle to get reliable data on time to deliver much needed public services at the lowest possible cost.

It will be difficult for Addis Ababa City Administration to strive to be a competitive city unless systematic KM and best practices sharing platforms are established. Given the booming urban dynamics and complex city administration, the role of systematic KM is particularly important for Addis Ababa. Urban KM should be a "central structuring element" of city administration and included in the core activities of city governance. In this respect, little efforts made by decision makers to improve knowledge management effectiveness could result in better outcomes in terms of coordinating knowledge for informed decision making, project implementation, coordinated governance, reducing time and cost for searching data, and providing improved public services.

I recommend that the next immediate stage would be to promote this policy proposal by developing further details of the KM intervention model and preparing implementation guidelines at various levels. Also, I suggest that the AA City Administration and subsequent Urban Age AA programmes put this KM initiative as their main priority.

1. Introduction

In the current urban development context, diffusion of knowledge is faster, especially in big cities. First and foremost, what is knowledge? Several philosophers and knowledge management scholars have written about the concept of knowledge. However, there is no consensus about the characteristics of knowledge and the way this resource should be used in an organisation. Knowledge is seen as a justified true belief (Nonaka, 1994; Pailthorp, 1969) which is a dynamic human process of justifying personal belief towards the truth (Nonaka and Takeuchi, 1995). Knowledge Based View (KBV) scholars tend to perceive knowledge as a fixed resource that can be captured, stored and disseminated (Barney, 1991; Conner, 1996; Grant, 1996a; Grant, 1996b). Some scholars view knowledge as a dynamic resource that interacts and interchanges continuously (Davenport and Prusak, 1998; Nonaka and Takeuchi, 1995). Knowledge is a multi-dimensional resource which can be personal, situated, and socially constructed (Crane, 2013; Davenport and Prusak, 1998). Dretske (1981) sees knowledge in a hierarchical view (Data, Information, and Knowledge) and states that data is raw numbers and facts, information is processed data and knowledge is authenticated information. The common understanding is that there exists interchangeability and dynamism between data, information, and knowledge. In this paper urban knowledge is seen as a dynamic multi-dimensional understanding gained from analysis, interpretation, absorption and application of data (Crane, 2013).

Urban knowledge is disconnected and hugely scattered: significant amounts of information is isolated or exists in pockets, unrecognised for its value to urban managers. The growing role of knowledge in wealth creation and the concentration of knowledge-based activities in cities present new challenges and opportunities for cities and especially for city planners. The city, the quality of its built environment and its infrastructures, its knowledge base, its cultural and natural resources, and its image are becoming more and more important, especially to activities which are knowledge-based, demanding that urban planners are better informed.

In relation to this issue, at the start of 1995, the cities' development approach has been changed to focus on knowledge-based development (KBD). The essence of KBD is the transformation of knowledge resources into cities development (Knight 1995). In the context of Addis Ababa City Administration, this approach can help policy makers in designing systematic urban knowledge management practices that develop the common approach of incorporating KM into any development strategy and practice and sharing these initiatives with other individuals and institutions locally, nationally, and globally. In the context of the Urban Age Task Force, the KBD approach improves the level of emphasis given to the data and information management in any task force governance focus and to highlight the central role urban KM plays in cities' development and sustainability initiatives.

In modern cities the knowledge base is expanding both vertically and horizontally (Knight, 1995). Cities incur large costs due to lack of knowledge coordination (ibid). For example, recent studies in Finland, Netherlands and Norway show that knowledge workers spend about 2.5 hours/day (~30% of the workday) searching for information to do their job; and 40% of workers even do not find the information to do their job (Feldman & Sherman, 2003 and Russell-Rose & Gooch, 2018). To tackle urban sustainability challenges, city managers need to pull together and utilise various kinds of knowledge in different sectors, including city administrations, academia, industry, and civil society, so that they will be prepared to comprehend and cope with multifaceted complexities involving governance and city administration (Yarime, 2017). Systematic data collection, analysis and integration are particularly critical in enabling informed and robust decision making for sustainable city development.

The major challenges related to data and information management with regards to Addis Ababa City are hampering the performance of its structural plan and the city administration. We observe separation of the city entities and lack of evidence-based decision-making structure across the city. The Addis Ababa Plan Commission and Urban Task Force pre-assessment report produced in March 2019 demonstrates that there is a lack of coordination between city administration departments; between federal entities and the city government; among the centre, sub-city and woreda level administrations; between planning and implementing entities; and among infrastructure and utility agencies.

A key challenge in establishing a knowledge-based approach in sustainable cities is to facilitate the sharing of various kinds of data, while properly protecting intellectual property in stakeholder collaboration (Yarime 2017). Although in this context data refers to organisational data, not data in the public domain, we still find difficulty in increasing openness and transparency in government by means of information access and dissemination (Dawes, 2010). Research suggests that two fundamental information policy principles, stewardship and usefulness, can help guide and evaluate efforts to achieve information-based transparency (Dawes, 2010). In the context of Addis Ababa City Administration, this requires institutional arrangements aligned with incentives to stakeholders for promoting organisational data sharing while intellectual property is protected. The large gap, however, is between designing elaborate data systems and connecting these data to actual decision making (Clark et al. 2016). Establishing such connections will require forming a knowledge sharing platform that fosters collaboration and knowledge accessibility.

The central aim of this policy paper is to propose a knowledge sharing platform for Addis Ababa City Administration as a fundamental starting point for the knowledge management approach. Further details and implementation guidelines at various levels would be carried out in a subsequent Urban Age AA programmes or other related initiatives. The capacities to establish knowledge sharing platforms require comprehensive understanding of various dimensions of data collection, analysis, ownership, accessibility, work ethics, trust and security and the whole range of issues related to Addis Ababa knowledge management practices.

2. Identifying AA urban knowledge management issues and setting objectives

The major problem with knowledge management in Addis Ababa is that the existing data are not necessarily put into use in making decisions. As a result, Addis Ababa city is operating in a data-scarce environment. The data are not available across policy sectors; there are issues of data reliability and some data are outdated. This data scarcity is mainly due to the fact that data management is highly scattered, and knowledge resides in pockets of various departments and locating, sharing, and effectively using them is the major challenge for the city administration. According to a study carried out on inter-organisational geospatial data-sharing challenges in Ethiopia, data often remain scattered and locked within various economic sectors; this means that datasets are not maintained or updated regularly, efforts are duplicated, finding available datasets is difficult and there is no single reliable version of the data (Gelagay, 2017).

In addition to the disjointed nature of data and information, work ethics, knowledge sharing culture, power issues and political contestation of data sharing have had a significant influence on knowledge management across the sectors of the AA City Administration. Data management is unsystematised in most of the sectors and IT connectivity is rare. Lack of coordinated KM costs Addis Ababa city in terms of high wastage of time, low productivity and ineffective planning, decision-making and implementations. As a result, we observe less-informed decisions and ineffective development interventions. Also, lack of institutional memory due to high turnover of managerial staffing and professionals contributes to ineffective planning and implementations. High turnover is sometimes attributed to political motivation in the sense that individuals are evaluated based on their political view and how they fit into the political and bureaucratic system and accommodate political interests of higher officials in government. Sometimes priority is given to political fitness rather than the technical and professional expertise of an individual. This may lead to someone leaving the job or being sacked. There is no systematic exit interview for capturing an individual's experience upon leaving the organisation. Also, we observe a shortage of trained staff; failures in record-keeping and lack of cooperation between different departments and working units have contributed to ineffective planning and implementations.

Effective management of data and information is relevant to the UA Addis Ababa Task Force which started its work in 2019 and has high-level importance to the programme. The Task Force's pre-assessment has pointed out that there are no up-to-date, reliable, and systematic data available in most of the sectors in the city. This demonstrates the essentiality of systematic management of knowledge for improving governance and implementation of structural plan priorities. Significant work has been done by the LSE Cities urban analytics and strategic governance reports for the Taskforce to address the issue of data and information management for Addis Ababa city governance including

the LSE data analytics and stakeholders' network. This policy paper adds to these works by specifically focusing on knowledge integration and application to facilitate access and usability of data and information.

The overall objective of this policy paper is to give strategic direction for AA city governors and policy makers to address the issues of data and information management for effective governance and competitiveness of Addis Ababa as a 21st century knowledge city. In other words, systematic KM is seen as a "central structuring element" of the city development strategy. The specific objective of this policy paper is to develop a portfolio of Urban Knowledge Datasets comprising knowledge sharing platforms and networks in the context of strategic urban development and piloting to consolidate knowledge use and promote municipality-wide coordination.

3. Assessment of existing KM practices, resources and KS behaviours

3.1 Assessing the present status of knowledge sharing and application

The assessment of data and information management issues related to Addis Ababa is categorised into five major areas:

3.1.1 Existing initiatives in KS

Reviewing the current initiatives, including AA Integrated Infrastructure Development Bureau, Central Statistical Agency, AA Branch Statistical Agency.

3.1.2 Work ethics

Work ethics refers to people's daily routines, perceptions and motivations related to knowledge sharing. This includes reviewing communication methods, documentation systems, data sharing practices and behaviours in all directions: vertical, lateral and across departments with universities and research institutes, private businesses and civil society organisations.

3.1.3 Power motives

This includes looking at the political motives related to knowledge sharing relating to considering knowledge as a source of power and withholding knowledge for political interest, understanding people's concerns, and the politics of knowledge sharing.

3.1.4 IT facilities and capabilities

This includes assessment of IT equipment, facilities and software, technical support, and immediate IT maintenance systems, also how the IT systems are integrated into plans and strategies of the city governance, and the impact of general weak/slow internet connections.

3.1.5 Leadership and managerial direction of managing knowledge

Key areas reviewed under this category are the extent to which leaders and managers put knowledge management at the heart of city administration, or how they realise the value of effective knowledge management to the city administration including understanding knowledge as important resource; the strategy for KM and organisational commitment related to knowledge sharing.

3.2 Data collection and analysis method

The paper synthesises the Addis Ababa city's existing data management practices, including knowledge scarcity issues due to lack of knowledge sharing, politics of data sharing; and work ethics, IT facilities and managerial views of KS. Based on a review of recent knowledge-based urban development literature, the methods used a multi-faceted approach that includes the mix of quantitative and qualitative methods. The overall goal of mixed

method research is combining qualitative and quantitative research components to expand and strengthen the policy paper's conclusions and recommendations. Such approaches are appropriate in investigating complex Knowledge Management problems that involve different motives, work ethics, political views and various factors of knowledge sharing in the context of Addis Ababa City Administration. In such an environment the policy research should address the concrete issues and incorporate diverse views of staff and managers of the city administration and relevant stakeholders to enhance the implementation of the policy paper. Applying the mixed-method approach also improves insights into an understanding of the data, which might be missed when using a single approach.

Although integrating qualitative and quantitative data was planned to provide strong evidence for conclusions, and triangulating the data from different methods to increase the validity of the results, quantitative data analysis was not carried out due to the COVID-19 pandemic. I recommend this policy brief be refined and updated with fresh qualitative and quantitative data analysis in the next stage of the policy implementation. The specific research method sought is depicted in Figure 1 below:

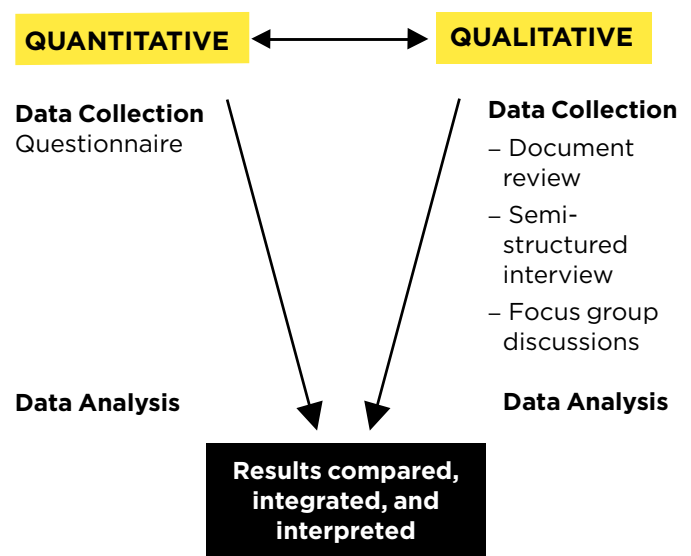


Figure 1: Mixed-Method Research Mode

Source: Adapted from: Atif et al. 2013

3.2.1 Quantitative method: gathering data from existing documents and through survey

1. Document review: Data were gathered from existing knowledge management and sharing practices, such as selected internal and external communication methods, documentation systems, internal standards of knowledge sharing; data protection regulations and guidelines, existing resources and facilities for data sharing, and formal and informal networks existing between and among departments and groups. Table 1 below shows the list of major documents reviewed.

2. Questionnaire: It was planned that data were to be gathered from a certain sample of employees and managers of the city administration, and related bureaus and agencies. The research population sought were managers and experts who have some experiences about data and knowledge management in the context of Addis Ababa. This was to identify boundaries, guidelines, and best practices for acceptable behaviour in knowledge sharing and to establish workable knowledge datasets for Addis Ababa city governance. However, the questionnaire was not carried out due to the Covid-19 pandemic and related interruptions.

3.2.2 Qualitative method

The original plan was to interview deliberately selected decision-makers and key personnel to obtain information that does not reside in documents (database) and to obtain their KM practices and views in more detail. Two data collection techniques were planned in this respect:

1. Semi-structured interviews: The original plan was to carry out individual interviews to allow the informants the freedom to express their views in their own terms. I had planned to interview select city administration officials from relevant bureau offices and agencies, primarily Housing Development, Road and Transport, Environmental Agency and the Planning and Development Commission. However, this was not possible due to the COVID-19 pandemic and lockdowns. Also, depending on the availability of time and resources, data could have been gathered from other departments of the city administration and external knowledge clusters such as universities, research institutions, civil society organisations and firms. Again, this was impossible due to the pandemic.
2. Focus group discussions: Based on time and resources,

I had planned to organise focus group discussions with key players to explore the opinions, practices, perceptions, and concerns of individuals regarding knowledge sharing. However, due to the pandemic it did not happen.

Consequently this policy paper depends on document reviews, analysis, and interpretation as well as and my own personal observations and experiences of knowledge management in the context of Addis Ababa City Administration. Also, my personal experience and understanding of Ethiopian work ethics and political motives and its impacts on information sharing and knowledge management have been included to provide general insight.

3.3 Data analysis

The relevant data collected from various sources have been systematically analysed and interpreted to determine key trends in urban KM that aims to deliver relevant knowledge dataset to meet the information needs of various functions of the AA City Administration for enhancing knowledge accessibility and fostering effective use of knowledge to improve Addis Ababa governance. The procedure of the data analysis included exploring background information (eg, tone, style, purpose of the documents) and the documents' agenda and biases. Also, I have assessed the authenticity of documents by carefully exploring the content of the documents including overall evaluation of the contents in such a way that empirical knowledge is produced, and understanding is developed. Also, I carried out thematic analysis to recognise the form and categories within the data and identify the emerging themes.

Table 1: Documents reviewed

	Name /Title of Document	Date Published	Source
1.	Survey of ICT Access and Usage in Ethiopia: Policy Implications	January 2008	Microsoft Word - Ethiopia ICT Policy Brief I.doc (researchictafrica.net)
2.	Population and housing census of Ethiopia	2014	Addis Ababa Statistics-opendataforafrica.org
3.	Population and households of Ethiopia 2007	February 2013	Central Statistical Agency of Ethiopia
4	Third International Conference on Financing for Development (Addis Ababa, Ethiopia)	13-16 July 2015	United Nations, New York
5.	Use of technologies for data collection, capturing, archiving and dissemination-the Ethiopian experience	2010	Central Statistical Agency of Ethiopia
6.	Building Ethiopia's Capacity for Collecting Data	November 2017	World Bank
7.	Addis Ababa Urban Age Task Force pre-assessment report	4 March 2019	LSE Cities, London School of Economics and Political Science, London, UK
8.	Addis Ababa, Ethiopia enhancing urban resilience	July 2015	2015 Global Practice on Social, Urban, Rural and Resilience, The World Bank Group
9.	Directive to Establish Procedures for Accessing Raw Data to Users	April 2012	Central Statistical Authority of Ethiopia

4. Findings: Results of the assessment

The summary of the results of the data analysis in relation to specific categories of data collected is depicted in Table 1. Table 2 (below) provides detailed analysis of each

category of the data reviewed, the interpretation and results of the reviews, and possible reasons for the results.

Table 2: Summary of the results of categories of data analysed

Categories of data: existing KS practices, management, initiatives, and behaviours	Results of the data analysis	Possible reasons
Overall data and information management practices <ul style="list-style-type: none"> – Documentation – Data capture and data update – Data reliability – Data access 	<ul style="list-style-type: none"> – Lack of systematic documentation both electronically and in hard copies – Difficult to access and share data when needed – Data update and reliability is not to sufficient standard. – No systematic mechanism for capturing institutional memory – Lack of real time data capture and sharing mechanism in transport, road conditions and traffic flows 	Unsystematic KM practice <p>Lack of systematic data gathering, recording, analysis, and sharing</p>
Existing initiatives in KS <ul style="list-style-type: none"> – Initiatives of Addis Ababa Integrated Infrastructure Development Bureau – Practices of Addis Ababa Branch of the Central Statistical Agency 	<ul style="list-style-type: none"> – Lack of identifying the gaps in practice and in the data and information management – Lack of assessment and resource limitation of the bureau – Lack of capacities, cooperation, and IT supports 	Inadequate existing initiatives <p>No significant attention given to data and knowledge management</p>
Working ethics <ul style="list-style-type: none"> – Working in silos – Supportive practice for knowledge sharing – Bureaucratic culture - hierarchy/ position-based status – Role of KS in the city administration 	<ul style="list-style-type: none"> – Communication flows are restricted to certain directions (eg, top-down) – Knowledge tied up in pockets of departments – Information flow is sometimes obstructed work routines and daily practices – Impedes the way people do things effectively and efficiently – Scarcity of data for evidence-based planning, decision making and implementation – Inhibits or slows down KS practices 	Hindering working ethics <p>Working in silos, bureaucracy, corruption and superior/subordinate relationship</p>
Political motives <ul style="list-style-type: none"> – Viewing knowledge as a source of power – Withholding knowledge for political interest – Openness and trust in knowledge sharing 	<ul style="list-style-type: none"> – Lack of openness /lack of trust – Filtering or cascading information/ knowledge to be shared – Not using knowledge in an appropriate manner – Interference of politicians in city managers' roles by giving orders influenced by their political motives – Lack of respecting urban plans and priorities and giving priority to political interests 	Interference of politicians <p>Lack of democracy, lack of trust and motives for political dominance</p>
Technology availability <ul style="list-style-type: none"> – IT equipment, facilities, and software to support knowledge sharing – Availability of technical support for IT – Coordination of the IT systems with plans and strategies – Speed, general internet connection 	<ul style="list-style-type: none"> – Lack of enough IT equipment, facilities, and software to support knowledge sharing – Lack of technical support and immediate IT maintenance system – Lack of integration of IT systems into plans and strategies – Weak/slow internet connection and sometimes internet shutdown due to political unrest 	Resources constraints <p>Financial constraints, lack of skilled manpower, poor internet connection, lack of communication infrastructure</p>
Leadership and managerial direction of knowledge <ul style="list-style-type: none"> – Knowledge management strategy – Organisational commitment to KS 	<ul style="list-style-type: none"> – Unclear role of KM in the city administration – Lack of clear strategy for knowledge management – Lack of clear communication of the benefits and values of knowledge sharing practices – Barrier in knowledge sharing and transfer in the organisation 	Lack of KM strategy <p>No priority is given to systemic knowledge management system</p>

5. Developing proposals

Based on the findings, the following Knowledge Management Model has been proposed (Figure 2). The model was developed in the context of the structural plan priorities of housing, transport, and green infrastructural activities. The proposed model would be implemented in the next step where an integrated knowledge management system and guiding principles would be developed for Addis Ababa City Administration based on this fundamental model.

The model shows how knowledge sharing programme input, process, and output work together to achieve intended city administration and governance outcomes. The input is the reviews and analysis of the existing data and information management practices. The process is the integrated approach for Knowledge Sharing and Application that includes the analysis of functions, internal and external stakeholders, the possible challenges in the implementation of the policy and proposed solutions to the respective challenges and barriers. The output is the development of systematic KS platforms and mechanisms or the knowledge dataset and the outcomes are the improved governance and implementation of structural plan priorities.

In other words, the goals are to achieve improved city administration and governance outcomes through systematic KM intervention.

Description of the knowledge management model for Addis Ababa city governance

This proposed model will be used to establish systematic knowledge management system to improve data collection and management of the Addis Ababa City Administration. The model comprises four steps: input, process, output and outcome. The step-by-step process of using the model is described below.

5.1 Input (reviews and analysis)

This is a stage where the existing knowledge sharing practices, standards, views and perceptions of people are analysed. This will be provided in another version or the second phase of this policy paper, which will take place after this initial proposal is approved.

These include reviewing and analysing:

- The internal and external communication methods
- Documentation systems, both electronic and hard copies
- Data protection regulations, guidelines and internal standards of knowledge sharing
- Data sharing practices, including vertical, lateral, internal and external
- Work ethics: people's daily routines, perceptions, and motives on knowledge sharing
- Existing resources and facilities for data sharing, such as

technology supports

- Formal and informal networks existing between and among departments/groups
- Referring to UA Task Force papers on data analytics and governance social network analysis
- People's views, perceptions, power, politics, and concerns of individuals regarding knowledge sharing.

5.2 Process (Integrated approach for Knowledge Sharing and Application in AA governance system)

This is the KS process stage that involves analysing different functions, decision makers, various stakeholders and challenges and remedies. The major functions that influence KS are leadership and managerial direction in KS; influence of political motives; staff awareness about the roles, responsibilities, and commitments in sharing knowledge; enabling IT facilities and capabilities and financial resources and budget that are important for systems restructuring for KS; acquiring skilled manpower; and so on.

Addressing leadership and managerial direction

- Integrating KM into city administration's goals and strategies
- Formalising KS through the development of KM strategy and KS platforms
- Encouraging innovative ways of knowledge sharing initiatives to sustain the initiative.

Addressing political motives

- Raising awareness of politicians and promoting KS and realisation of value and benefit of KS. To accomplish this, a KM piloting team could be formed at the Addis Ababa City Administration level.
- Involvement of politicians and higher officials from outset
- Understanding the concerns of politicians and trying to address them
- Jointly identifying possible outcomes of the KS policy
- Jointly setting priorities and seeking solutions for city's KM
- Discussion and reaching consensus on future development
- Jointly developing alternative courses of actions for implementation.

Underlining KS roles and responsibilities

- Putting KS as part of the employees' important roles and responsibilities (eg, including sharing in job descriptions against which performance can be appraised)
- Introducing various networks and KS forums
- Continuously monitoring and evaluating the effectiveness of KS initiatives and systems

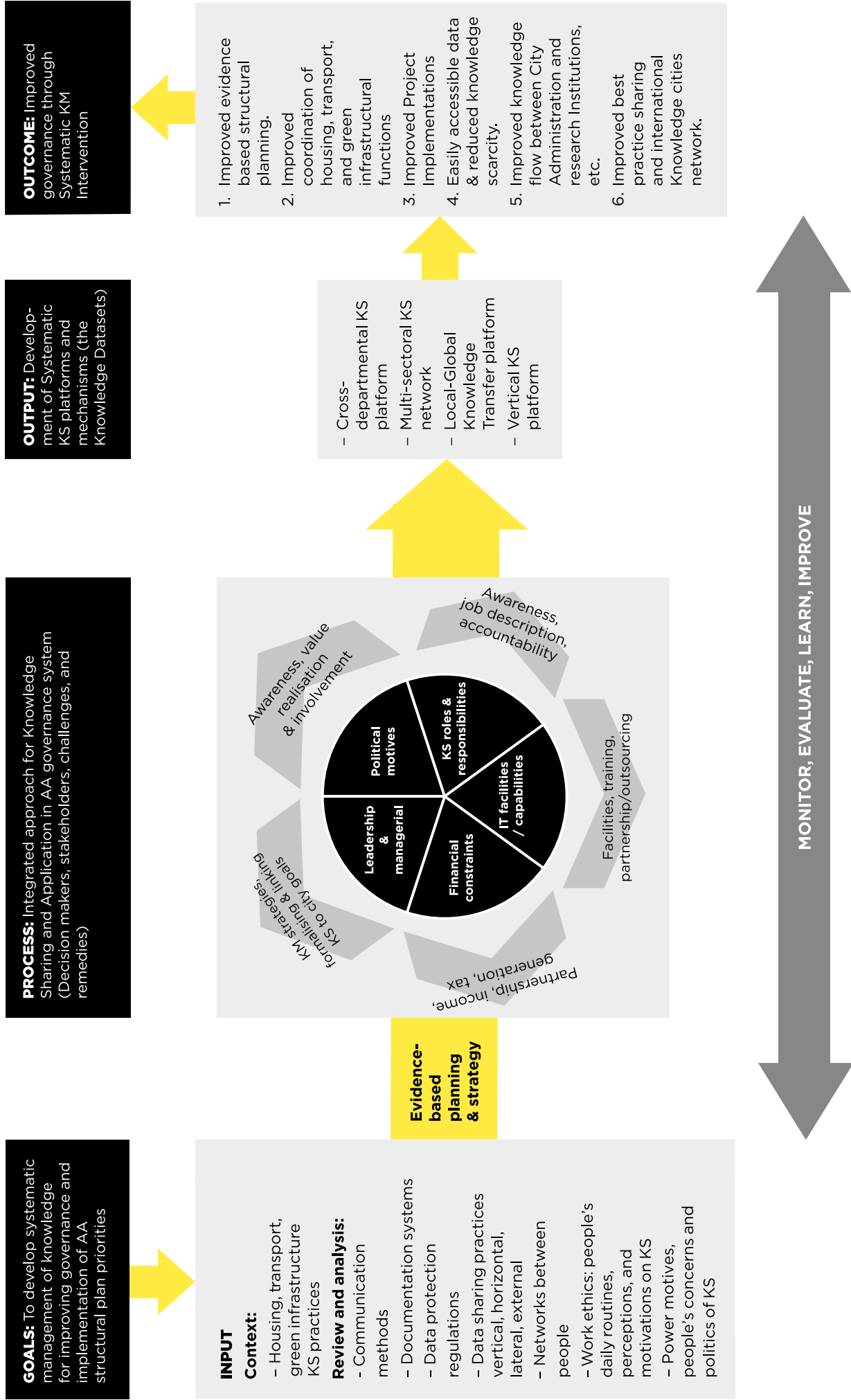


Figure 2: Knowledge Management Model for Addis Ababa City Governance

Addressing issues of IT facilities and capabilities

- Working with private and civil society organisations to obtain IT facilities to key departments and working units
- Work with wider stakeholders (both internal and external) to get IT training and skills
- Outsourcing IT support to specialist organisations
- Aligning IT initiative with KM strategies.

Dealing with financial constraints

- Income generation — creative ways of generating income from local sources eg, organising fundraising events, engaging businesspeople, producing and selling handcrafts and arts, etc.
- Lobbying governments for knowledge management budget. Lobbying for budget can take place at the city governors' level. They can lobby central government officials including the Ministry of Finance and Ministry of Urban Development to get increased budget
- Improving tax collection for local development
- Partnership works with businesses, NGOs, etc.

5.3 Output (the proposition or development of systematic Knowledge Sharing platforms and mechanisms- the knowledge dataset)

The policy paper recommends that the KM should be linked to all propositional issues of structural planning and urban development. This means knowledge management needs to be aligned with different functions and involve various stakeholders in promoting knowledge sharing and integration. In other words, knowledge sharing as a “central structuring element” of the city development strategy should play a coordinating role in city governance. The proposal in this document highlights knowledge scarcity due to lack of sharing existing knowledge. This suggests that there is lack of integration and effective application of the existing knowledge.

This knowledge dataset supports the development of a wide range of scenarios on potential trajectories of sustainable development for Addis Ababa. By enabling improved integration of available data and information, it is possible to provide a platform for city governance and other stakeholders to apply a system approach for developing a knowledge dataset that provides relevant solutions to complex data management problems that the Addis Ababa City Administration faces.

However, in certain cases it is not possible to conduct primary data collection. In this case it is advisable to use aerial photography and remote sensing that will allow the city to build a database for the distribution of residential populations as conducted by the Urban Age Task Force analytics report.

The policy paper recommends the development of a portfolio of an Urban Knowledge Dataset comprising four knowledge sharing (KS) platforms, mechanisms and networks - Vertical, Cross Departmental, Multi-Sectoral and “Local-Global” - that consolidate knowledge use and promote the municipality-wide coordination. Central to this recommendation is developing and implementing a comprehensive and automated knowledge database management system that improves the effectiveness and efficiency of city governance and the management of the city's resources at all tiers of the city structure.

Although this knowledge management policy proposal is synchronised and presented as one package it has several dimensions (vertical, sectoral, technology, finance, leadership, etc.) Elaborating development recommendations and prioritising is essential in the implementation of the policy in the context of Addis Ababa. Therefore, we need to select the most appropriate option and extend it further into a detailed proposal. The most appropriate options and priorities set out in this policy paper are as follows:

Priority One: Cross-departmental KS platform

Establishing cross-border KS platforms where departments access essential and relevant knowledge for planning, decision making, and implementation. This includes sharing the government's internal data store, including policy documents, research reports, and annual and evaluation reports. This will be supported by KS awareness training to deal with issues of politics of data sharing, initiating a new way of working, KS agreement/ MoU and confidentiality protocols and reference to best practices of knowledge cities/smart cities around the world (Mora et al. 2019). Examples of Cross Departmental KS are:

- Designing a computer-based data sharing platform that integrates planning, housing, environmental policies, guidelines and essential information required to plan, implement and monitor projects
- Developing a real-time data sharing system supported by IT, integrating data and information on transport and green infrastructure using IT linkage and/or establishing a central database
- Establishing a networked information sharing platform that includes real-time information sharing on road conditions, traffic monitoring, green areas and the parks ecosystem, such as unwanted tree cutting, city waste management, pollution of rivers, etc.
- Establishing joint knowledge team from housing, transport and environmental agencies.

Priority Two: Multi-sectoral KS network

Creating a multi-functional knowledge centre that compiles, filters, categorises and documents relevant research reports and policy documents from various tiers and knowledge clusters such as universities, research

institutions, civil society organisations and firms, which can be accessed through a joint platform. Also, developing and maintaining research and practice synergy by recurrently feeding knowledge into each other. Examples of multi-sectoral KS mechanisms to be investigated are:

- Establishing a resource centre or virtual library that documents research and policy papers related to housing, transport and green infrastructure that are relevant to city development and governance
- Developing links to relevant departments for easy access.

Priority Three: Local-Global Knowledge Transfer platform

Establishing and maintaining best practice knowledge management from selective global cities, knowledge city associations/networks and making data linkage to specific initiatives of Addis Ababa; piloting the two-way flow of knowledge between developed and developing cities. Examples of Local-Global Knowledge Transfer platforms to be investigated are:

- Documenting best practices in housing, transport and green infrastructure from developed cities including pioneering knowledge cities such as Sydney, Melbourne, and Brisbane, Australia, as well as selected European, North American and Asian cities. Also, establishing networking partnership with C40 cities, United Cities and Local Governments (UCLG), UNESCO Global Network of Learning Cities (GNLC) and other associations of knowledge cities;
- Adapting best practices of developed cities mentioned above to the context of Addis Ababa City Administration.

Priority Four: Vertical KS platform

Developing various knowledge datasets at Addis Ababa City Administration levels — bureaus, subordinate offices, sub-cities, woredas — to reduce information hierarchies, break silos and foster a free flow of knowledge among municipality team members. The datasets will be developed according to categories and types of knowledge and can be accessed in a form of problem-solving groups, decision support groups, discussion for a knowledge notice board, etc. Examples of vertical KS aspects to be investigated and which are relevant for strategic planning in Addis Ababa city are stated below. These priorities are to be monitored, followed up and lessons learned from implementation tracked for further improvement of knowledge sharing practices.

- Developing proper documentation of written practices or procedures (both paper-based and electronic) that help people to adopt existing knowledge more effectively
- Developing guidelines and procedures of upward and downward information flows between bureaus,

subordinate offices, sub-cities, woredas (developing a platform that enhances the flow of information between sub-regions and city administration, planning and development)

- Developing a coordinated project data sharing system. Bridging the knowledge sharing gap between planning and implementing projects such as housing, transport, etc. projects by developing clear guidelines and procedures on project implementation per the details of the plan and improve the accessibility of planning details to project implementing bodies
- Developing guidelines and procedures for monitoring the project implementation progress
- Establishing institutional memory schemes to capture, document and share individual expert knowledge when individuals leave. For example, an exit interview could be proposed to ask individuals to share their experiences and/or individuals can be asked to write their memoirs/recollections when they leave the organisation.

Thematic issues

It is also necessary to check the implications of one proposal for another in terms of capacities, resources and financial constraints. For example, the knowledge sharing platform at the housing department may have an impact on transport and green infrastructure. There should be a platform where common strings are tied together, or the network patch of KS established. These could be through thematic knowledge sharing forums at certain periods in a year or when significant projects are in place. Such thematic knowledge sharing forums could be project working groups or task forces that may be at the strategic level.

Every project planning and implementation should incorporate the KS forum and facilities as major duties. Particularly, the implementation of projects at every stage should be shared to the relevant units and stakeholders.

5.4 Outcome (evaluating the improved governance through systematic KM intervention)

Work done by the UA Task Force on data and information management would have significant impact on decision making and practice, especially providing evidence-based planning at both planning and development commissions as well as the overall city administration. This knowledge management policy paper, an extension of LSE Cities data analytics, helps the AA administration understand the framework of knowledge-based city development so that this could be taken forward by the city administration stakeholders and implemented within the context of Addis Ababa city governance.

This policy proposal is expected to have a significant impact on the effectiveness of wider city administration by addressing critical issues of data access and usability. The expected outcomes are:

1. Improved coordination of housing, transport and green infrastructural functions: knowledge sharing as a central structuring element of the city development strategy provides easy access to detailed information about the planning and implementation strategies of departments
2. Improved evidence based structural planning: Coordination of data and information on housing, transport and green infrastructural planning and implementations would provide clear evidence of what the city administration is doing
3. Improved implementation of projects: bridging the gap between planning and implementation by facilitating sharing of structural plan detailed data such as cost breakdown of prioritised projects and sources of finance, implementation tools including the necessary activities to be undertaken by the respective implementation agencies
4. Improved KS between the city administration and research institutions: networks and continuous consultation with the university community and research centres for the adaptation of new technologies and contemporary ideas in housing construction, transport, green area development, etc.
5. Easily accessible data and reduction of knowledge scarcity: effectively applying the existing knowledge avoiding data shortage and scarcity
6. Improved best practice sharing and international knowledge cities network: international exposure to developed knowledge cities to boost competitiveness.

6. Implementation of the proposal

6.1 Implementation phases

Once the proposed policy is agreed upon by the responsible stakeholders, the actual implementation process will be laid out properly. The proposal usually will be implemented in several phases. The duration of a phase is between one and two years in most cases, but can be flexible, depending on the situation. Although actual priorities, timescale and implementation schedule will be discussed and agreed with the stakeholders, the priorities are suggested in the following order: Priority One, Priority Two, Priority Three, and Priority Four. Accordingly, the implementation of the project would be developing: Cross Departmental KS platform, Multi-Sectoral KS network, Local-Global Knowledge, and Vertical KS platform, respectively. Based on the priority level of the four KS platforms, the implementation of each plan should be divided into several phases and action plans: Phase 1, Phase 2, Phase 3, etc.

6.2 Implementation action plans

Action planning is a result-oriented type of planning, limited in its scope, financially feasible, and easy to implement with the resources that are available. Actual activities are listed with information on who, what, and when (see Table 3). Table 3 is the template that can be used for implementation of action plans.

In most cases, the budgetary and technical capacities of districts and woredas are limited. Therefore, each action plan should be analysed and ranked according to priority, feasibility, necessity, etc. (see Implementation Matrix template: Table 4 can be used to summarise detail actions, responsible persons, time frame, budget amount, and sources of budget.)

Table 3: List of actual activities required for the implementation

	Phase 1	Phase 2	Phase 3
Input			
Indicators			
When (time frame)			
Actors (who)			
Objectives / outputs			
Activity			

Table 4: Implementation matrix

POLICY: What is the policy to be implemented?	ACTIONS: What actions must be completed to implement the policy?	RESPONSIBLE: Who is responsible for the action?	TIME FRAME: When must the action be completed by?	BUDGET: How much will it cost to implement the action?	BUDGET SOURCE: Where will the funding come from?
<i>Priority 1</i> Cross-departmental KS platform					
<i>Priority 2</i> Multi-sectoral KS network					
<i>Priority 3</i> Local Knowledge Transfer Platform					
<i>Priority 4</i> Vertical KS platform					

7. Monitoring, evaluation and impact

Monitoring and evaluation are essential planning processes that increase the quality, transparency, and accountability of knowledge management projects. After an annual evaluation, which results in recommendations, any necessary amendment of the programme or project can occur.

7.1 Monitoring and evaluation of impacts

This involves preparing criteria to observe the progress of the project; determining if the project has been carried out as scheduled and identifying any problems encountered during the implementation; recording all the observations and evaluation results; and establishing an impact reviewing system.

7.2 Adoption of criteria and indicators

Criteria and indicators are the verifiable targets that will be achieved within one year. Data resources such as project documents and surveys are the means of verification. The actual achievements of the year are compared with the objective. Whether there have been delays or the implementation has been successful, the reasons for this need to be explained and learned from. These items should be summarised in a project matrix (Table 5). Table 5 is a template that may be used for evaluating the project.

When the achievement level is extremely low, an additional evaluation of the project is necessary in order to determine whether it is still feasible, or to identify the factors that have caused the poor performance. The feasibility, relevance and impact of the original plan will be reviewed. When the results indicate a big gap between the plan and reality, amendment of the original plan should be considered.

Table 5: Summary Project Matrix

Evaluation Year: 20XX Prepared: January 20XX				
Project summary	Verifiable objectives	Means of verification	Achievement	Important assumption
Objectives / outputs				
Actors				
When (time frame)				
Activities (action plans)				

8. Summary and conclusion

This policy paper begins by noting the strategic importance of systematic knowledge management for Addis Ababa City Administration. In the current urban development context, we observe the fast diffusion of knowledge. Yet in most cities data are disjointed and fragmented. As a result, systematic knowledge management (KM) became a vital part of cities' administration and governance, and city managers are required to give due attention to systematically managing their knowledge resources. Systematic KM is key to evidence-based structural planning and implementation and cities administration.

The objectives of this policy paper are to give strategic direction for AA city governors and policy makers to address the issues of data scarcity for the effective governance and competitiveness of Addis Ababa as a 21st century knowledge city; also, to highlight that systematic data collection, analysis and integration are particularly critical in enabling informed and robust decision making for sustainable city development. AA policy makers need to give attention to designing systematic urban KM practices that develop the common approach of incorporating KM into city development strategy and practice, and sharing these initiatives with other individuals and institutions locally, nationally, and globally.

In the context of the Addis Ababa City Administration, various assessments indicate that inadequate data management, separation of entities and working in silos made the administration operate in a data scarce environment, leading to a lack of evidence-based decision making across the city.

To address these issues recent knowledge-based urban development literatures have been reviewed and assessment of different documents related to Addis Ababa City Administration data management carried out. This involved assessing existing initiatives, data sharing regulations, working ethics and people's perceptions and motivations, power and political motives, IT facilities and capabilities, and leadership and managerial views.

Based on this analysis, I have developed an integrated Knowledge Management model for Addis Ababa City Administration. The model is a portfolio of the Urban Knowledge Dataset comprising knowledge sharing (KS) platforms and networks in the context of strategic urban development and piloting consolidated knowledge use and promoting municipality-wide coordination. The model is relates to the specific context of the structural plan priorities of housing, transport, and green infrastructural activities. The Knowledge Management model is comprised of four generic knowledge sharing platforms: Cross Departmental KS platform, Multi-Sectoral KS network, Local-Global Knowledge Transfer platform and Vertical KS platform.

The Implementation Action Plans of the proposal including implementation phases, financial feasibility and availability of other facilities and resources for implementing the project were indicated. Also, a time frame and implementing bodies have been suggested, including a template that can be used for implementation action plans. However, the actual priorities, time scale, and implementation schedule will be discussed and agreed with the stakeholders.

Also, I have proposed monitoring and evaluation techniques in which the actual achievements compared with the objective and necessary judgment made if needed. The details of monitoring and evaluation criteria and procedure to ensure quality, transparency and accountability in the Addis Ababa knowledge management project have been identified.

Finally, as this KM model is a fundamental starting point for the overall Knowledge Management intervention, I recommend that the next immediate stage would be to promote this policy proposal to the next level by developing further details of the KM intervention model and preparing implementation guidelines at various levels of the city administration. Also, I suggest that the AA City Administration and subsequent Urban Age AA programmes focus on this KM initiative.

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Addis Ababa Urban Age Task Force Reports

Theme 1 | Urban Housing and Retrofitting

Policy Brief 1 | *The Addis Ababa City Block: a high-density, mixed-use and inclusive housing solution for the urban core*

Technical Report 1.1 | *The Addis Ababa City Block: inclusion and livelihood through the horizontal-above-vertical concept*, by Elias Yitbarek Alemayehu

Technical Report 1.2 | *Finding Housing Affordability: cost estimates and affordability paths for the Addis Ababa City Block*, by Jacus Pienaar

Technical Report 1.3 | *Sustainable Building Materials: exploring green construction options for new housing in Addis Ababa*, by Hannah Langmaack, Peter Scheibstock and Thomas Kraubitz (Buro Happold)

Theme 2 | Transport and Mobility Services

Policy Brief 2 | *Beyond Car Growth: digital van service as alternative to private car use in Addis Ababa*

Technical Report 2.1 | *Digital Van Service Demand: gauging interest in mobility alternatives among current and aspiring car owners in Addis Ababa*, by Philipp Rode, Bethany Mickleburgh, Jennifer Chan and Rebecca Flynn

Technical Report 2.2 | *Digital Van Service for Addis Ababa: understanding the transport landscape and the potential for digital bus aggregation in Ethiopia's capital* by Chris Kost and Gashaw Aberra (Institute for Transportation and Development Policy (ITDP))

Theme 3 | Green and Blue Infrastructure

Policy Brief 3 | *Working with Nature: next generation green and blue infrastructure for Addis Ababa*

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Theme 4 | Urban Governance and Planning

Policy Brief 4 | *Urban Governance and Strategic Planning: how Addis Ababa could benefit from human-centred, inclusive design, participatory pilot projects and improved data management*

Technical Report 4.1 | *Participatory City Making: polycentric governance and human-centred, inclusive urban design*, by Meinolf Spiekermann and Marc Steinlin

Technical Report 4.2 | *Urban Knowledge Management: solutions for the Addis Ababa City Administration*, by Bersisa Berri

Technical Report 4.3 | *International Building Exhibitions (IBA): an approach to innovative city making in Addis Ababa* by Efrem A. Tesfaunegn, Anka Derichs and Michael von der Mühlen

Technical Report 4.4 | *Addis Ababa Spatial Compendium: mapping and urban analytics for Ethiopia's capital*, by Alexandra Gomes and Philipp Rode (LSE Cities)

Addis Ababa Urban Age Task Force

Founding Partners

The Task Force is a partnership between the Addis Ababa City Administration Plan & Development Commission (AAPDCo), LSE Cities at the London School of Economics and Political Science, the Alfred Herrhausen Gesellschaft, and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

Members

Dereje Fekadu (Co-Chair), Commissioner, Plan and Development Commission (2018-2020), Special Chief of Staff, Mayor's Office, Addis Ababa City Administration, Addis Ababa, Ethiopia

Philipp Rode (Co-Chair), Executive Director, LSE Cities and Urban Age, LSE, London, UK

Elias Yitbarek Alemayehu, Architect and Associate Professor, EiABC, Addis Ababa University, Addis Ababa, Ethiopia

Eleni Ashebir, Cities and Urban Mobility Manager, Ross Centre for Sustainable Cities, WRI Africa, Addis Ababa, Ethiopia

Ricky Burdett, Director, LSE Cities and Urban Age, LSE, London, UK

Anka Derichs, Senior Strategic Urban Development Advisor, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Eschborn, Germany

Timnit Eshetu, CEO, Construction Enterprise, Addis Ababa City Administration (2019-2021), Addis Ababa, Ethiopia

Brett Herron, Former Member of the Mayoral Committee: Transport and Urban Development, Cape Town, South Africa

Olusola Ikuforiji, Environmental Specialist, African Development Bank, Abidjan, Côte d'Ivoire

Clarisse Linke, Country Director, Brazil, Institute for Transportation and Development Policy (ITDP), Rio de Janeiro, Brazil

Elisabeth Mansfeld, Cities Project Area, Alfred Herrhausen Gesellschaft, Berlin, Germany

Michael von der Muehlen, Former State Secretary and Participant of International Building Exhibition (IBA) "Emscher Park", Dortmund, Germany

Jennifer Semakula Musisi, First City Leader in Residence, Bloomberg Harvard City Leadership Initiative, Harvard Kennedy School, Cambridge, USA, Executive Director, Kampala Capital City Authority (2011-2018), Kampala, Uganda

Henk Ovink, Special Envoy for International Water Affairs, Kingdom of the Netherlands, and Sherpa to the High Level Panel on Water, United Nations, The Hague, Netherlands

Kecia Rust, Executive Director and Founder, Centre for Affordable Housing Finance in Africa, Johannesburg, South Africa

Semere Jelalu Shafi, Deputy General Director, Addis Ababa City Traffic Management Agency, Addis Ababa City Government, Addis Ababa, Ethiopia

Jagan Shah, Senior Infrastructure Adviser, Department for International Development (DFID), British High Commission, New Delhi, India

Marc Steinlin, Managing Director, Complex(c)ity Ltd., Helsinki, Finland and Basel, Switzerland

Zelege Teferi, Department Head, Catchment Management and Water Quality Control, Addis Ababa Water & Sewerage Authority, Addis Ababa, Ethiopia

Cecilia Vaca Jones, Executive Director, Bernard van Leer Foundation, The Hague, Netherlands and Quito, Ecuador

Hailu Worku, Chair of Environmental Planning and Landscape Design and Deputy Scientific Director of EiABC, Addis Ababa University, Addis Ababa, Ethiopia

Governing Board

Dereje Fekadu (Co-Chair), Commissioner, Plan and Development Commission (2018-2020), Special Chief of Staff, Mayor's Office, Addis Ababa City Administration, Addis Ababa, Ethiopia

Anna Herrhausen (Co-Chair), Executive Director, Alfred Herrhausen Gesellschaft, Berlin, Germany

Ricky Burdett, Director, LSE Cities and Urban Age, LSE, London, UK

Anka Derichs, Senior Strategic Urban Development Advisor, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Eschborn, Germany

Timnit Eshetu, CEO, Construction Enterprise, Addis Ababa City Administration, Addis Ababa, Ethiopia

Philipp Rode, Executive Director, LSE Cities and Urban Age, LSE, London, UK

Partner Co-ordinators

Emily Cruz, Outreach Manager, LSE Cities, London, UK

Anka Derichs, Senior Strategic Urban Development Advisor, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Eschborn, Germany

Elisabeth Mansfeld, Cities Project Area, Alfred Herrhausen Gesellschaft, Berlin, Germany

Moges Tadesse, Chief Resilience Officer, Addis Ababa City Resilience Project Office, Addis Ababa, Ethiopia

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Addis Ababa Plan Commission

Addis Ababa City Plan and Development Commission is committed and fully dedicated to preparing research-based city-wide short, medium and long term strategic development plans (both socio-economic and spatial) in order to transform the city to one among the middle-income cities in the world; create a liveable city for the citizen; and make Addis Ababa the best destination for investment in Africa. The commission is accountable to promote urban economy and jobs; deliver urban renewal and housing for citizens; improve urban environment and quality of life; and support policy decisions that will register accelerated, sustainable and equitable economic growth and a climate resilient green economy.

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LSE Cities

LSE Cities is an international centre at the London School of Economics and Political Science that carries out research, conferences, graduate and executive education and outreach activities in London and abroad. It studies how people and cities interact in a rapidly urbanising world, focusing on how the physical form and design of cities impacts on society, culture and the environment. Extending LSE's century-old commitment to the understanding of urban society, LSE Cities investigates how complex urban systems are responding to the pressures of growth, change and globalisation with new infrastructures of design and governance that both complement and threaten social and environmental equity.

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