UN-Habitat Information and Communication
Technology (ICT) Strategy
(2017 – 2021)

Revision History

Version Number	Author / Reviewer	Status	Date
V1	Kamal Naim, Head ICT	Drafted for review and comments	16 June 2016
V1.1	Andrew Cox , Director MOD	Initial review	24 October 2016
V2	Kamal Naim, Head ICT	Circulated for SMB comments	December 7, 2016
V3	Andrew Cox , Director MOD	Approved	February 10, 2017

Contents

1 Executive Summary

The overall objective of this strategy (henceforth named "Strategy") is to strengthen the delivery of Information and Communication Technology (ICT) within UN-Habitat through enhanced governance, infrastructure modernization, and ICT Innovation to ensure that ICT is efficiently and effectively harnessed to support UN-Habitat Strategic Plan.

The Strategy for 2017 – 2021 period is guided by UN-Habitat Strategic Plan, UN-Habitat's decentralized business model, UN Secretariat ICT strategy, Office of Internal Oversight Services (OIOS) ICT audit recommendations, and new technological trends and innovations. It identifies organizational ICT requirements and challenges which need to be addressed and lists opportunities and new technical trends which need to exploited to allow effective execution of business projects.

The strategy proposes key strategic initiatives to achieve the overall goal and through the following expected accomplishments: Coordination mechanism that governs ICT initiatives at organizational level; Modern, secure, and agile ICT infrastructure; Community of practice supported by ICT Knowledge Management tools and systems to inform management decisions; Innovative advisory and technical support to the adoption of ICT as a tool for sustainable urban development.

Finally, the document proposes an implementation road map and budget for the next biennium that covers key deliverables during this period.

2 Background and Context

ICT plays a fundamental role in facilitating the delivery of UN-Habitat programme of work through supporting Knowledge Management systems, facilitating collaboration and communication, supporting advocacy events and activities, and streamlining workflows and business processes. Beyond this, there is considerable opportunity to leverage ICT towards the implementation of the New Urban Agenda.

UN-Habitat operates in a dispersed geographical structure with HQ in Nairobi, 4 main regional offices in Fukuoka, Rio, Cairo, and Brussels and project and liaison offices distributed around 45 countries would wide. Most corporate systems and applications that support business processes and internal collaboration systems are centralized within Habitat headquarters in Nairobi or within the UN Secretariat in New York, Valencia or Bangkok. UN-Habitat headquarters outsource most of its ICT services from United Nations Office in Nairobi (UNON) as part of common services provided to UNON Complex. In addition, UN-Habitat maintains its own infrastructure and applications at HQ, regional offices, and project offices.

In the last few years, UN-Habitat has made great improvement in identifying ICT needs and making available the infrastructure requirements to support them. Key ICT Initiatives were focused on improving connectivity to the field to support decentralization, implementation of IP telephony and video conferencing tools to reduce cost of travel and communication, standardizing email system across the agency, developing of central repository knowledge and information systems to support decision making and collaboration, and supporting substantive and advocacy activities of the organization.

The implementation of Umoja has temporarily retarded the effectiveness of the ICT infrastructure and information system.

The full implementation of ICT solutions and efficient adoption of ICT to address in organization's emerging business needs have faced organizational and operational challenges. This strategy aims at addressing these challenges, and aims to build on new ICT innovations and development to support the delivery of the organization work programme in the next five years.

The strategy is guided by:

a) Approved UN ICT Strategy A/69/517, emphasizing the need for modernization, information security, Enterprise Delivery Framework, Regional Technological Centers (RTCs), innovation, and optimal use of information and communication technology resources. This strategy will have impact on type and priorities of ICT Investments at UN-Habitat, change ICT support model for Headquarters and field offices, and shape a new role of ICT human resources in the organization.

b) UN-Habitat's decentralized model where more than 80% of agency's operations are in out-posted offices and the need to support this structure efficiently. ICT should support and empower delegation of authority and decision making where operational work takes place.

c) OIOS Audit recommendations on Information and Communication Technologies to UN-Habitat, OIOS report 2014/085 and the need for an ICT operational plan aligned with the organization strategic goals.

d) New technological innovations and trends in the field of communication, social media, and cloud computing that provide new possibilities for delivering business solutions in more efficient way and at lower cost.

e) United Nations Chief Executive Board (CEB) Data Revolution initiatives to promote the inter-operability of UN systems by encouraging the harmonization and standardization of methodologies and to measure progress towards the achievement of Sustainable Development Goals (SDG)1

3   Situation Analysis

ICT current status can be best described through the analysis of ICT challenges being faced, business requirement which need to be supported, and opportunities and trends which need to be harnessed ;

3.1   ICT Governance

With the expansion of UN-HABITAT activities and with the new organization structure, the demand for *ICT services* and *knowledge management systems* has drastically increased. ICT functions in UNON and UN-Habitat have not been upgraded to match the tasks required.

UN-Habitat till now does not have a formal mechanism for identifying and consolidating ICT requirements across the organization in order to address them in approved ICT strategy and operational work plan. This has eventually resulted in fragmented and duplicated investments on ICT investments across

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a) [1] *Data Revolution: Proposed UN System Initiatives*, CEB, 2015

multiple divisions, branches, and country offices. In many cases, it resulted in non-fit for purpose applications and led to missed opportunities on corporate ICT initiatives.

The governance mechanism that existed to drive ICT investment and strategic objectives between UNON, the sole provider of UN-Habitat ICT services at Headquarters, on one side and UN-Habitat and UNEP on the other side, namely the Information and Communication Technology Committee (ICTC), has been considered defunct by the chair. A re-establishment of this governance mechanism is required to drive ICT investment and strategic objectives.

3.2   ICT budgeting framework, infrastructure and capacity building

Contrary to many UN agencies, UN-Habitat lacks a clear operational ICT budget to support its business requirements and operations. Most ICT recruitments and investments in ICT are done on defragmented and ad-hoc basis and in some cases are based on firefighting or post crisis actions.

The ICT budget is not well integrated in the project delivery framework. There is ambiguity in inclusiveness and estimation of ICT services within project cost to support the project operation. In many cases, project managers just include computers, telephones, and direct related charges and exclude the more important and expensive part of the supporting infrastructure which include helpdesk support, servers and networking , Data storage and information management, data protection and security etc.

Clear and well-coordinated ICT operational budget is necessary and critical indeed to enable the organization to maintain its existing ICT systems, implement new ICT strategies and service improvements, as well as knowledge management delivery and enhance the efficiency of the organization business processes by tapping on new technologies and investing on them.

Investments in ICT infrastructure have a time lag of about 5 to 7 years. This should be considered in solving the connection and communication challenges between HQ and offices away from Headquarters, limited server infrastructure and human resources to support corporate applications, poor sound quality of online meetings and the inability to establish successful video conferences, and limited support to regional and field offices.

3.3   ICT Support to field staff

One of the main challenges we are facing in regards to ICT is lack of local ICT support in the field. This has been either due to lack of resources or to the fact that hosting agreement with the government is very restrictive and does not allow efficient ICT support. For example, the regional office in Japan, which has the biggest profile of UN-Habitat project, does not have a local ICT support staff. This has practically led to many technical challenges at this location.

Moreover, UN-Habitat regional offices, project offices, and offices away from headquarters until recently were not part of the UNON ICT support framework. Support was ad-hoc for limited users and for limited services such as IMIS. Given the limitations of our support model with UNON, which in effect is a serious challenge in itself when 24/7 support and delivery is needed, in many cases, this has historically led to serious delays in business delivery at these offices especially the ones which belong to a different time zones than Nairobi .

With the implementation of UMOJA and other enterprise applications such as Inspira, IP Telephony and office 365, dependency on HQ support, i.e. UNON ICT support, has grown substantially as well as the impact of not getting the required related service in time. This support issue must be addressed in order to achieve optimal operationally productivity.

3.4 Streamlined Business Processes, Reporting, and Analytics

During UMOJA deployment in 2015, the agency has facilitated the layout of proper ICT infrastructure in field offices to use UMOJA, actively provided business requirements, and made good progress on integrating UN-Habitat knowledge management systems and tools with UMOJA. However, extensive development work is required on the Business Intelligence (BI) and reporting module of the system in order to produce the statuary, project, and donor reports required for programme monitoring and decision making.

Moreover, additional system integration between UMOJA and PAAS and enhancements on PAAS are required to support UN-Habitat Transparency initiatives such as IATI and improved approach towards results and the adoption of result-based Management (RBM).

PAAS system has incorporated many modules and workflows to support UN-Habitat knowledge management, information workflows, and business processes. Additional development, however, will be needed to address technical and user challenges faced while using these modules and to support arising new business workflows such as activities to streamline the selection and monitoring of implementing partners, integrating the cross cutting issues within the project formulation process, and monitoring project delivery and overall work programme outputs. In the short term, urgent work is required to update PAAS functionality to take into account business and user requirement.

On the other hand, the data revolution is fundamentally transforming how data is produced and used. For UN-Habitat, data visualization presents an exceptional opportunity to improve how decisions are made, progress is monitored, and outcomes are evaluated. Data visualizing of certain indictors such as urban indicators and other community collected data related data pre- and post- UN-Habitat intervention can help showcase the impact of Habitat work.
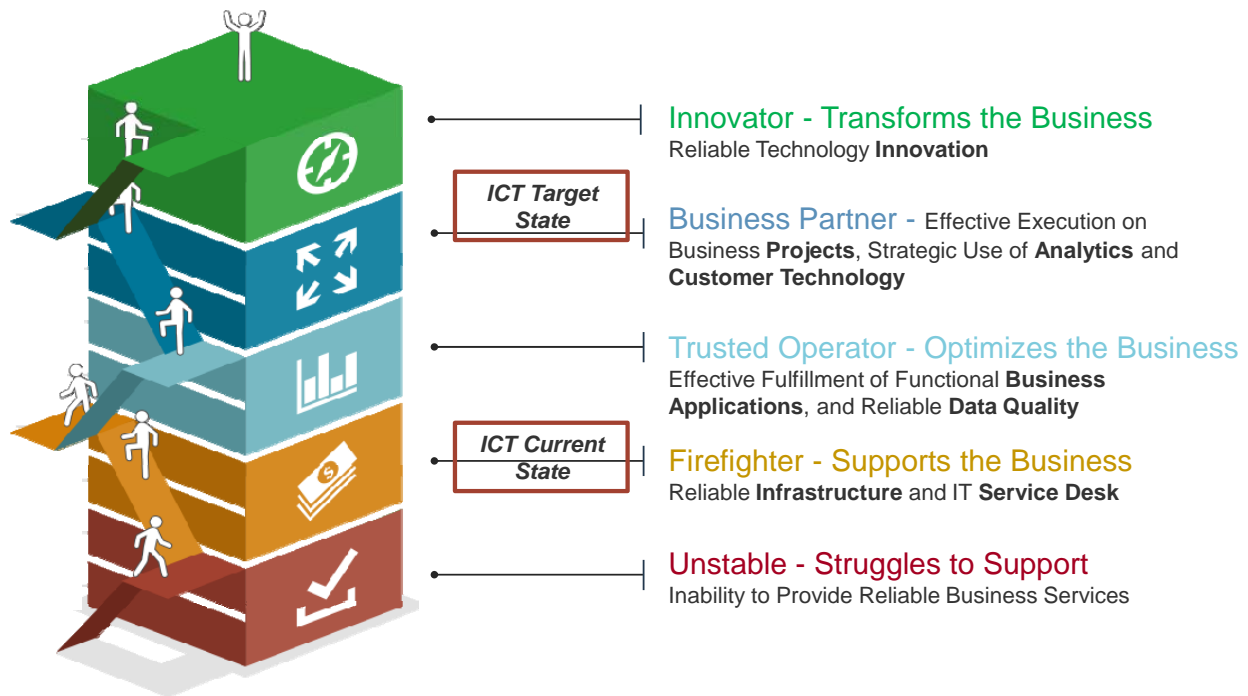
3.5 ICTs for Sustainable Development

Provisioning of ICT services to programmes and initiatives at the United Nations is no longer just about operational support, such as infrastructure support and automation. The General Assembly has, in its resolution 69/262 section II, stressed " ….the need to harness the potential of information and communications technology to support the work of the United Nations in the areas of peace and security, development, human rights and international law".

The United Nations community has recognized the need to harness the power of new technologies in promoting sustainable development. In April 2006, the Chief Executives Board (CEB) established the United Nations Group on the Information Society (UNGIS) as the inter-agency mechanism to promote programme coordination across the UN system to provide guidance on strategic use of information and communications technologies (ICTs) in support of internationally agreed development targets.

4 Strategic Areas

Following the above analysis, ICT current status at UN-Habitat can be identified at a stage of firefighter according to INFO~TECH Research Group ICT maturity model. Numerous efforts have been made to upgrade ICT to a stable service that supports the business in the last couple of years. Yet, the target state intended by this strategy is allowing strategic use of analytics and customer technology for effective execution of Business Projects.

Innovator - Transforms the Business
Reliable Technology **Innovation**

ICT Target State

Business Partner - Effective Execution on Business **Projects**, Strategic Use of **Analytics** and **Customer Technology**

Trusted Operator - Optimizes the Business
Effective Fulfillment of Functional **Business Applications**, and Reliable **Data Quality**

ICT Current State

Firefighter - Supports the Business
Reliable **Infrastructure** and IT **Service Desk**

Unstable - Struggles to Support
Inability to Provide Reliable Business Services

INFO~TECH Research Group Maturity Model

In order to achieve this maturity state, UN-Habitat will undertake the below strategic initiatives which particularly address identified challenges, new business requirements, global ICT trends, and emerging business opportunities;

a) Establish a coordination mechanism and institutionally recognize ICT unit within the Management and Operations Division as responsible and accountable for the coordination of ICT initiatives at organization level and promotes efficient use of ICT resources across the agency.

b) Provide and modern, secure, and innovative ICT infrastructure that supports the implementation of the agency's programme of work and its business delivery model.

c) Establish a community of practice that is led by ICT unit and supported by ICT systems and knowledge management tools to inform and support management decisions and assist in programme management and reporting.

d) Provide Innovative advisory and technical support to the Integration of ICT into UN-Habitat programme as a tool for sustainable urban development as part of the New Urban Agenda.

Proposed activities under these initiatives will be categorized under the following sections; Governance, Modernization, ICT Knowledge Management, Data Analysis and Reporting, and ICT Innovation.

4.1   Governance

4.1.1   ICT Advisory Committee

As part par of addressing ICT governance, UN-Habitat will establish an ICT Committee to act as an advisory body to the Director of Management and Operations, who acts on behalf of the UN-Habitat Senior Management Committee.

This committee should ensure that the organization has the appropriate ICT infrastructure and services to support the achievement of UN-HABITAT's strategic goals, provide leadership in consolidating requirements from all divisions and offices of UN-Habitat, provide corporate guidance in ensuring a coherent vision and approach for delivering ICT solutions, and recommend policies and procedures based on international best practices in fostering consistent ICT infrastructure and services throughout UN-Habitat.

4.1.2   Strengthening Governance with UNON

UN-Habitat management will ensure that ICTC Committee between UNON, UNEP, and UN-Habitat role is revived and convenes regularly to ensure that ICT emerging requirements of UN-Habitat and UNEP are taken integrated in UNON ICT strategy and work plan.

New ICT requirements and initiatives that affect the 3 agencies should be submitted as agenda items for ICTC where technical feasibility, solutions, and financial implications are analyzed and submitted to Nairobi Service Group (NSG) for approval. Financial decisions related to ICT under NSG will be tied and guided by recommendation of ICTC committee.

Service Level Agreements (SLAs) governing UNON provided ICT services will be revised to ensure value for money for the services provided. Key performance Indicators (KPIs) will be identified and monitored based on these SLAs to guarantee service availability.

4.1.3   ICT Guidelines and Polices

Key guidelines and policies are required to ensure that ICT is well integrated in the project delivery framework and to have wider involvement of all divisions, branches, regional offices, and project offices.

ICT policies and standards used across the organization must follow policies, standards, and guidelines established by UN-Habitat as well as the overarching UN Secretariat ICT Standards and guidelines. UN-Habitat however needs to develop set of policies and guidelines for UN-Habitat specific programme delivery and location requirements to complement those issued by the UN Secretariat.

Among the required guidelines to be delivery in the next coming year are ICT operating guidelines-focusing on ICT equipment and services required to support project operations, ICT Budgeting Framework

that can help branches and project budget for ICT services, ICT security assessment and risk management, and ICT Disaster recovery and Business Continuity Plan.

4.1.4 ICT Unit Terms of Reference (TOR)

The role of ICT Unit needs to be empowered within the new organizational structure for it to coordinate the overall ICT services at UN-Habitat and within the newly proposed Governance of ICT framework to be put in place.

The new TOR should reflect the new roles and responsibilities of the Unit within an Information Management, Analytics, and Reporting Branch with the Division of Operation and Management. It should also define the relation of ICT unit to ICT resources in regional and project offices.

Fig1. Below shows the new proposed ICT structure to support streamlining of ICT budget and operations within the organization.

Fig1. Proposed ICT Governance
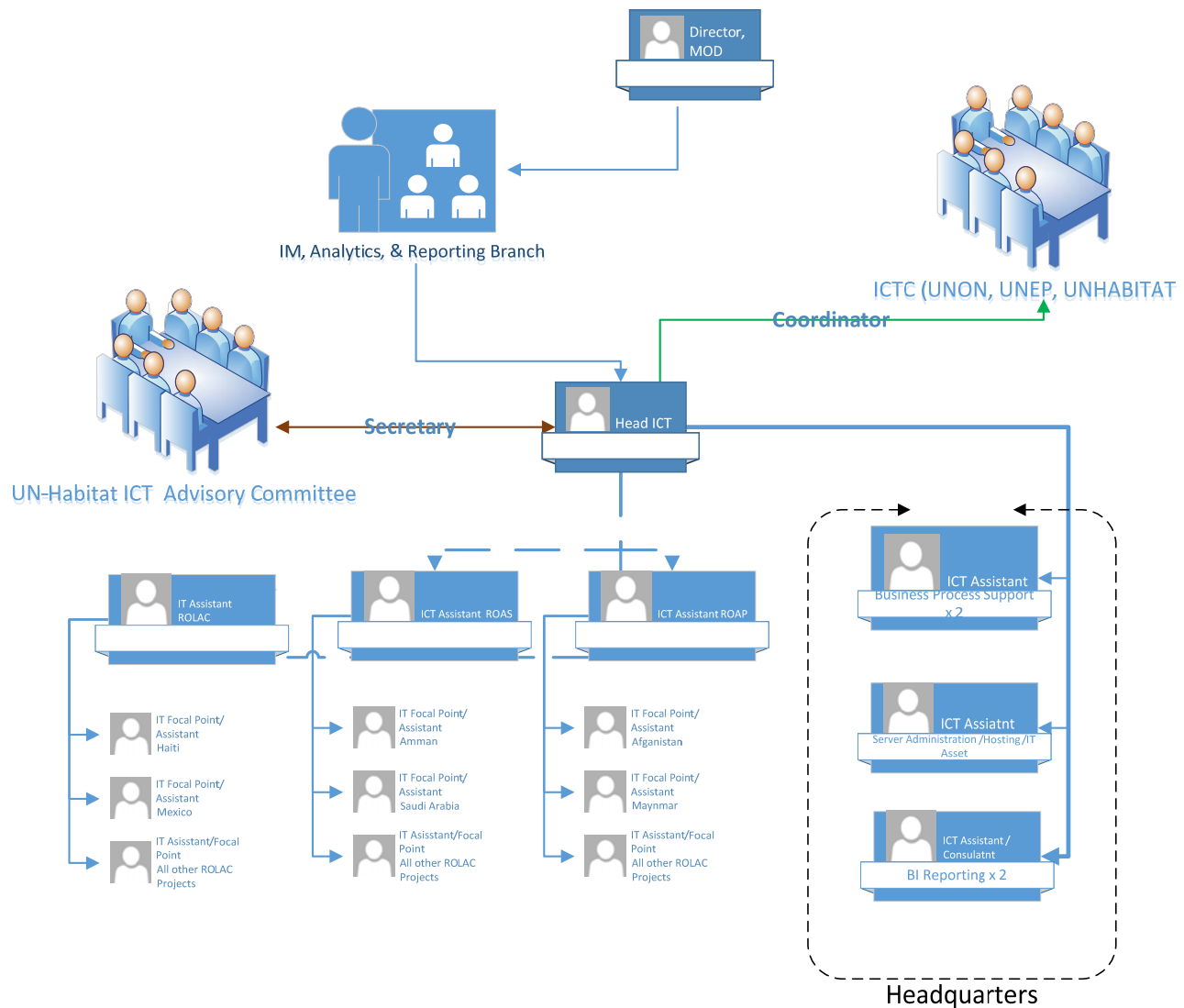
4.2   Modernization and Investment Plan

4.2.1   ICT Infrastructure

With the deployment of UMOJA and the current UN Secretariat direction to centralize business applications in a cloud environment, UN-Habitat, especially in regional and project offices, needs to modernize and revamp its infrastructure to support such type of business model. This new model requires shift of investment from local in-house infrastructure to fast and stable internet access, local Helpdesk support though support contracts or local ICT assistants, and enhanced communication platforms between UN-Habitat offices on hand and between Un-Habitat and other partners on the other hand.

UN-Habitat will still need to maintain and upgrade its own proprietary corporate Advocacy and Knowledge Management application systems in use such as PAAS and corporate websites, its own video conferencing and communication systems, and continue the implementation of the *One-Habitat* connectivity project to enhance internal communication between our offices.

A financing mechanism to develop this infrastructure will be developed according to the resources available to the organization.

4.2.2   Training and Capacity Building

ICT is fast changing domain where new upgrades and technologies are developed on regular basis. For the organization to ensure sufficient support of existing systems and drive the organization performance by harnessing new emerging technology, it should consider integrating ICT specialty training in its overall development and training programme and allocate the necessary resources for it.

An analysis of areas in need shows weaknesses in website development tools, data visualization, reporting , mobile application development, security , ICT infrastructure office deployment, and others. Organizational units should make sure that training plans for ICT staff members' are put in place based on areas of need and interest and are added to staff members' development plans in e-PAS. The implementation of ICT strategic plan requires training on new tools and systems.

4.2.3   ICT Support and Service Delivery Framework

On October 2014, the General Assembly approved the new UN Secretariat ICT strategy which governs the overall direction of ICT within United Nations. The strategy has set new pillars for delivering ICT services within ICT secretariat which includes Enterprise Delivery Framework and innovation in using ICT technologies to support substantive work of United Nations[2]. Under this service delivery frame work, UN-Habitat staff at regional and project offices will be receiving ICT services and support from UN Secretariat OAHs for the secretariat provided ICT infrastructure and corporate applications such as UMOJA, IP Telephony, and corporate email system.

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[2] A/69/517, Information and communication technology in the United Nations, report to the Secretary General

This model is expected to ensure UN-Habitat regional and field offices are provided with the required timely support within same time zone and in some cases remove language barriers between staff members and the support team. UN-Habitat Regional Office for Latin America and Caribbean (ROLAC) , for example, who are six hours behind Nairobi time will be supported by Economic Commission for Latin America and Caribbean (ECLAC) in Santiago and who are in the same time zone and mostly use Spanish as common language.

UN-Habitat will work with UN Secretariat for the best implementation of this model to ensure that regional and field staff the required and timely support needed. If properly aligned within our business processes, this model can provide good opportunities for UN-Habitat to enhance its ICT services in support of decentralization and cost reduction.

4.3   ICT Knowledge Management, Data Analysis and Reporting

4.3.1   Business Intelligence (BI) community of practice

UMOJA and PAAS systems present a significant opportunity to create holistic and instantaneous decision making financial, managerial, and partner reports. However, due to the technical complexity of UMOJA, incomplete integration of financial and qualitative data, and lack of sufficient training for all staff especially users who are required to generate these reports, this opportunity at least for the next few years, can only be utilized if the ICT unit leads and assist an Information Management and BI Center community of practice to assist with the reporting needs.

This community, in close collaboration with business process experts and substantive offices, will assist in laying the foundation of an Information Management and reporting framework and templates for the organization. It will also liaise closely with UMOJA deployment teams and CITO office in New York to make sure all required reporting data is provided and UN-Habitat reports are published on UMOJA for all staff of UN-Habitat to use.

4.3.2   Data Visualization and Analytics

There are increased demands on organizations for improved transparency and accountability from Member States, requiring the review of disclosure policies and related practices. In January 2013 the United Nations High Level Committee on Management (HLCM) fully agreed to improve the UN system's capacity and ability to present UN system data to the public, as well as align with current policies on open access to data and knowledge. UN-Habitat in turn has been one of lead agencies in adopting IATI standards and publishing its project information using open.unhabitat.org.

UN-Habitat will develop this initiative much further and build on related data visualization techniques to assist managers in an informative decision making process through the use of dashboards and comparative graphic indicators. Data Visualization will also be utilized to monitor SDGs, related to sustainable urban development, showcase the work of the organization, and support its advocacy and resource mobilization activities.

4.4 ICT Innovation for Urban Development

UN-Habitat will consider the use of ICT for sustainable urban development within its programme of work where ICTs stand prominent in the new urban agenda. ICTs present a significant opportunity to develop and nurture a Sustainable Cities. It can enhance local governance, facilitate collaboration at a local level, reduce energy and pollution, and increase quality of life within the city community. Given that of ICT for sustainable urban development represents a cross cutting initiative among UN-Habitat Branches, Programme Division should play a coordinating role with the technical support from Management and Operations Division.

Moreover, the global trend on the use of Big Data (extremely large data sets that may be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behavior and interactions) can be fully utilized as a tool for early warning on urban issues and assist Habitat in identifying the strategic direction and priorities for its interventions.

Un-Habitat will research opportunities made available by open access and big-data and data analytics to assist the organization in identifying areas where related UN-Habitat mandated intervention is required and monitor post intervention impact.

5 Draft Roadmap and priority activities for 2017-2018

Objective : The overall objective of this strategy is to strengthen the delivery of Information and Communication Technology (ICT) within UN-Habitat through enhanced governance, infrastructure modernization, and ICT Innovation to ensure that ICT is efficiently and effectively harnessed to support the organization programme of work								
Ref.	Activity & Output No.	Description		Priority	Resources		Funding	Expected Delivery date	Remarks
					2017	2018			
ICT Governance									
Outcome a) A Coordination mechanism is established, and ICT Unit is institutionally established as responsible and accountable for the governance of ICT initiatives at organization level and promotes efficient use of ICT resources across the agency									
5.1	1	Establish ICT Governance Structure (ICT Committee , Revised ICT TOR, ICT Organogram, ICT regional and county focal points)		High				March 31, 2017	
	2	ICT Operating Guidelines		High				January 31, 2017	
	3	ICT Budget Framework		High				January 31, 2017	
	4	ICT Risk Management		High				January 31, 2017	
	5	ICT Disaster Recovery and Business Continuity		Medium				May 31, 2017	
	6	ICT security Assessment and Recommendations		Medium		$30000.00		November 30, 2017	
Modernization									
Outcome b) Modern, secure, and innovative ICT infrastructure that supports the implementation of the agency's programme of work and its business delivery model is provided. Indicative budget									
5.2	1	Infrastructure Server and Software upgrade		Medium	$25000.00	$25000.00		December 31, 2017	
	2	Cloud hosting and mass mailing services		High	$10000.00	$10000.00		June 30, 2017	
	3	Video Conferencing Equipment for regional offices ROAP, ROLAC, and ROAS		High	$60000 .00			September 30, 2017	
	4	Online meeting tools subscription		High	$6000.00	$6000.00		March 31, 2017	
	5	Technical Training and meetings		Medium	$15000.00	$15000.00	Staff Funding Budget	December 31, 2017	
	6	IT Equipment - maintenance and upgrade		Medium	$40000.00	$40000.00	Staff Funding Budget	December 31, 2017	
	7	Project Office connectivity for Afghanistan,		Medium		$99000.00	Respective Project	December 31, 2018	

		Saudi Arabia , and Sir Lanka	High			$33000 each office		
	8	Microsoft Office 365 implementation	High		$120000.00	Charged back to projects as per email accounts used	December 30, 2017	

Knowledge Management, Data Analysis and Reporting

Outcome c) Community of practice that is led by ICT unit and supported by ICT systems and knowledge management tools to inform and support management decisions and assist in programme management and reporting.

Indicative budget

5.3	1	Updated PAAS , BI Data Integration, Analysis, and Reporting Platform – Phase 1	High	$100000			December 30, 2017	
	2	Updated PAAS , BI Data Integration, Analysis, and Reporting Platform – Phase 2	Medium		$72000		June 30, 2018	
	3	SDG Indicators Monitoring Platform	High		$100000	Substantive Funding	June 30, 2018	
	4	IATAI Transparency Reporting – Phase 1	High	$100000			June 30, 2017	
		IATAI Transparency Reporting – Phase 2	Medium		$100000		December 30, 2018	

ICT for sustainable development

Outcome d) ICT is integrated into UN-Habitat programme as a tool for sustainable urban development.

5.4	1	Establishment of Workgroup on ICT for Urban Development	Medium				January 31, 2018	