

Information and Communication Technologies (ICT) for Trade and Transport facilitation:

ICT related requirements and gaps
in implementing
Trade and Transport facilitation systems

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¹ <http://www.unescap.org/events/meeting-review-ict-related-gaps-trade-and-transport-facilitation-asia-pacific-region>.

Abbreviations

ACTS	ASEAN Customs Transit System
AEO	Authorized Economic Operator
ASEAN	Association of Southeast Asian Nations
ASEAN NTR	ASEAN National trade repository
ASYCER	Electronic Phytosanitary Certification System
ASYCUDA	Automated System for Customs Data
BCP	Border Crossing Point
BI	Business Intelligence
BPM	Business Process Management
CCL	Core Component Library
CDPS	Customs Declaration Processing System
CDS	Custom Developed Software
CoO	Certificates of Origin
COTS	Commercial-off-the-shelf
CPU	Central Processing Unit – processor
CUSCAR	UN/EDIFACT Message Type
DMZ	Demilitarized Zone (perimeter Network)
DR	Disaster Recovery
DTI	Direct Trader Input
ECM	Enterprise Content Management
e-CSD	e-Cargo Security Document
EDI	Electronic Data Interchange
EPZ	Export Processing Zones
ESB	Enterprise Service Bus
ETL	Extract, Transform and Load
FAL Convention	Convention of Facilitation of International Maritime Traffic
G2G	Government to government
HDD	Hard Disk Drive
HR	Human Resources
HSPA	High Speed Packet Access
IATA	International Air Transport Association
ICT	Information and Communications Technology - or Technologies
IDC	International Data Corporation
iOS	originally iPhone Operating System
IPsec	Internet Protocol Security
IRM	Integrated Risk Management
ISO	International Standards
ISP	Internet Service Provider
KPI	Key Performance Indicators
KRC	WCO Revised Kyoto Convention
LEITS	Law Enforcement IT System
MoU	Memorandum of Understanding
MPLS	Multiprotocol Label Switching
NCTS	New Computerized Transit System
NTM	Non-Tariff Measures

OGA	Other Government Agency
OSS	Open Source Software
PC	Personal Computer
PKI	Public Key Infrastructure
QR Code	Quick Response Code
RCP	Rich Client Platform
RM	Risk management
ROI	Return on Investment
RTAs	Regional trade agreements
SaaS	Software as a Service
SAN	Storage Area Network
SLA	Service-level Agreement
SMS	Short Message Service
SOA	Service Oriented Architecture
SSD	Solid State Drive
SSL	Secure Sockets Layer
SW	Single Window
TCO	Total Cost of Ownership
TF	Trade Facilitation
TIR	International Road Transport
TTF	Trade and Transport Facilitation
TTFS	Trade and Transport Facilitation System
UN	United Nations
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UN/EDIFACT	Electronic Data Interchange For Administration, Commerce and Transport
UNECE	United Nations Economic Commission for Europe
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
VAT	Value Added Tax
VOIP	Voice over Internet Protocol
VPN	Virtual Private Network
WAN	Wide Area Network
WCO	World Customs Organization
WEB	World Wide Web (WWW)
WSDL	Web Services Description Language
WSS	Web Services Security
WTO	World Trade Organization
XML	eXtensible Markup Language

Table of content

1	Introduction	1
2	Mapping of trade and transport facilitation ICT requirements.....	1
2.1	Changes in the TF regulatory and policy framework.....	2
2.1.1	Increased international cooperation	2
2.1.2	Customs Union and trade agreements	3
2.1.3	Cargo security requirements.....	3
2.1.4	Improving international transit and transport facilitation	4
2.1.5	Measures to promote export competitiveness	5
2.2	Key trends when implementing TF measures.....	5
2.2.1	Agency cooperation	5
2.2.2	Cross-border Cooperation	5
2.2.3	Paperless trade	6
2.2.4	Client orientation in Public Administration	7
2.3	New TTF ICT business needs.....	7
2.3.1	Changes of ICT requirements.....	8
2.3.2	Existing challenges	12
3	Integration and Modernization of Trade Facilitation ICT Systems	13
3.1	Evolution in ICT systems and technology trends	13
3.1.1	General TTF System architecture.....	13
3.1.2	Technology Trends.....	14
3.2	TTF Integration Framework.....	15
3.2.1	Integration	15
3.2.2	Modernization.....	17
3.3	TTFS Integration framework: Architecture Design.....	18
3.3.1	Business Architecture	18
3.3.2	Application and Service Architecture.....	18
3.3.3	Enterprise application integration	19
3.3.4	Data Architecture.....	19
3.3.5	TTFS Technical Infrastructure	20
3.4	Elements of an integrated and modernized TTFS Architecture.....	23
3.4.1	TTF Enterprise Portal Front-end integration.....	23
3.4.2	TTFS Gateway Back-end integration	25
3.4.3	Law Enforcement ICT System.....	26
3.4.4	Integrated Risk Management IT support	28
3.4.5	Business Intelligence.....	32
3.4.6	Enterprise Content Management (ECM)	33
4	Organizational implementation requirements	34
4.1	Organizational structure	34
4.1.1	ICT Organizational Model.....	34
4.2	IT Strategy applicable to TF business needs	35
4.2.1	Human resources and Knowledge	37
4.2.2	ICT cost elements.....	37
4.3	Legal, policy and procedural framework.....	38
4.3.1	Data protection and privacy.....	38
4.3.2	e-documents and e-signature	38
4.3.3	International Agreements, MoU, and Service Legal Agreements.....	39
5	Conclusion and recommendations.....	40
6	Annex.....	43

List of figures and tables

Figure 1: Silo oriented Architecture.....	13
Figure 2: TTFS Interoperability and Interconnectivity Logical Concept	17
Figure 3: TTFS Architecture Modernization	17
Figure 4: The TTFS Enterprise Architecture sub-sets	18
Figure 5: TTFS Architecture Design	19
Figure 6: TTFS Architecture (example with ESB as Connectivity Infrastructure)	24
Figure 7: TTFS Information Technology Topology	26
Figure 8: TF Integrated Risk Management System Architecture	31
Figure 9: Organization of Data Warehouse IRM Dimensional structure for Data mining (example) ...	32
Figure 10: TTFS Reporting and Analysis Infrastructure.....	33
Figure 11: Composite Structure –TF Business Strategy, TF IT Strategy and TF ICT Architecture.....	36
Table 1: TF IT business needs.....	9

1 Introduction

Trade and transport facilitation require governments, administrations and businesses to improve efficiency and effectiveness, to simplify, standardize and harmonize processes, documents and formalities, to foster partnership and cooperation, and to increase transparency. Information and Communications Technology (ICT) can support many trade and transport facilitation concepts and objectives. The value of ICT for trade and transport facilitation goes beyond concepts such as Single Windows. Automated business processes, digitalization of procedures, simpler interaction and transmission of data, and faster decision-making abilities deliver advantages in many trade and transport facilitation areas.

Taking an abstract generic perspective, this paper studies the linkage between trade and transport facilitation and ICT. It looks into the business needs of trade and transport facilitation (TTF) and how ICT can respond to these needs. Neither trade and transport facilitation, nor IT systems in public administration are new phenomena. But, so the paper argues, new policy and regulatory directions for trade and transport facilitation and new operational requirements have emerged in recent years. Thus the design of ICT architecture and its organizational underpinnings has to change to respond to these new requirements.

In recent years, many new ICT developments for trade and transport facilitation have been piloted. But in the overall, the approach to IT support in the area of trade and transport facilitation remains a piecemeal and silo approach that not only fails to deliver on efficiency and organizational re-design but also increases development and maintenance costs. This paper presents a broad perspective on TTF ICT business needs and describes the requirements of an architectural model to support TTF. Integration and modernization of ICT systems and architecture are the two essential directions for improvement so that ICT can deliver better service to its clients, the users in governments and private businesses, for trade and transport facilitation.

Based on an understanding that IT developments necessarily follows business, meaning operational, needs, this paper will talk about trade and transport facilitation business needs as well as ICT architecture and organizational requirements. IT architecture concepts are often difficult to understand for policy makers. This paper therefore is a description on a functional high level, which, we hope, will contribute to a better understanding from a business and technological point of view.

The paper will first present current trade and transport facilitation trends and the impact they have regarding ICT support. It will then present an architectural model for the integration and modernization of trade and transport facilitation systems and describe some of its features. A discussion of organizational and legal requirements supplements this discussion and completes the framework for Trade and Transport Facilitation ICT systems described in this paper. Some information on the state of preparedness of selected least and landlocked developing countries (Nepal, Kyrgyzstan, Mongolia and Myanmar) towards the implementation of a National Single

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