COSTA RICA

UN-ECLAC

OVERVIEW OF THE PILOT PROJECT
October 2014 to June 2016
Alberto Chehebar, consultant

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* **1) BACKGROUND**

* 2) GAP ANALYSIS (2014)

* 3) TRAINING WORKSHOP CENTRAL AMERICA (June 2015)

* 4) TECHNICAL ASISTANCE ON BUSINESS INTELLIGENCE AND ELECTRONIC INVOICE (2015/16)

* 5) PILOT IMPLEMENTATION (2016)

BACKGROUND

* **Official name: Republic of Costa Rica**

* **Area: 51.100 Km2**

* **Population: 4,800,000**

* **GDP (PPP) per capita: $15,482 USD (IMF, 2015).**

* **Frontiers: 516 Km**

* **Coastline: 1412 Km**

* **Official language: Spanish**

* **No army**

COSTA RICA'S TRADE HAS GROWN QUICKLY

Costa Rica: Trade flows

1980 - 2014
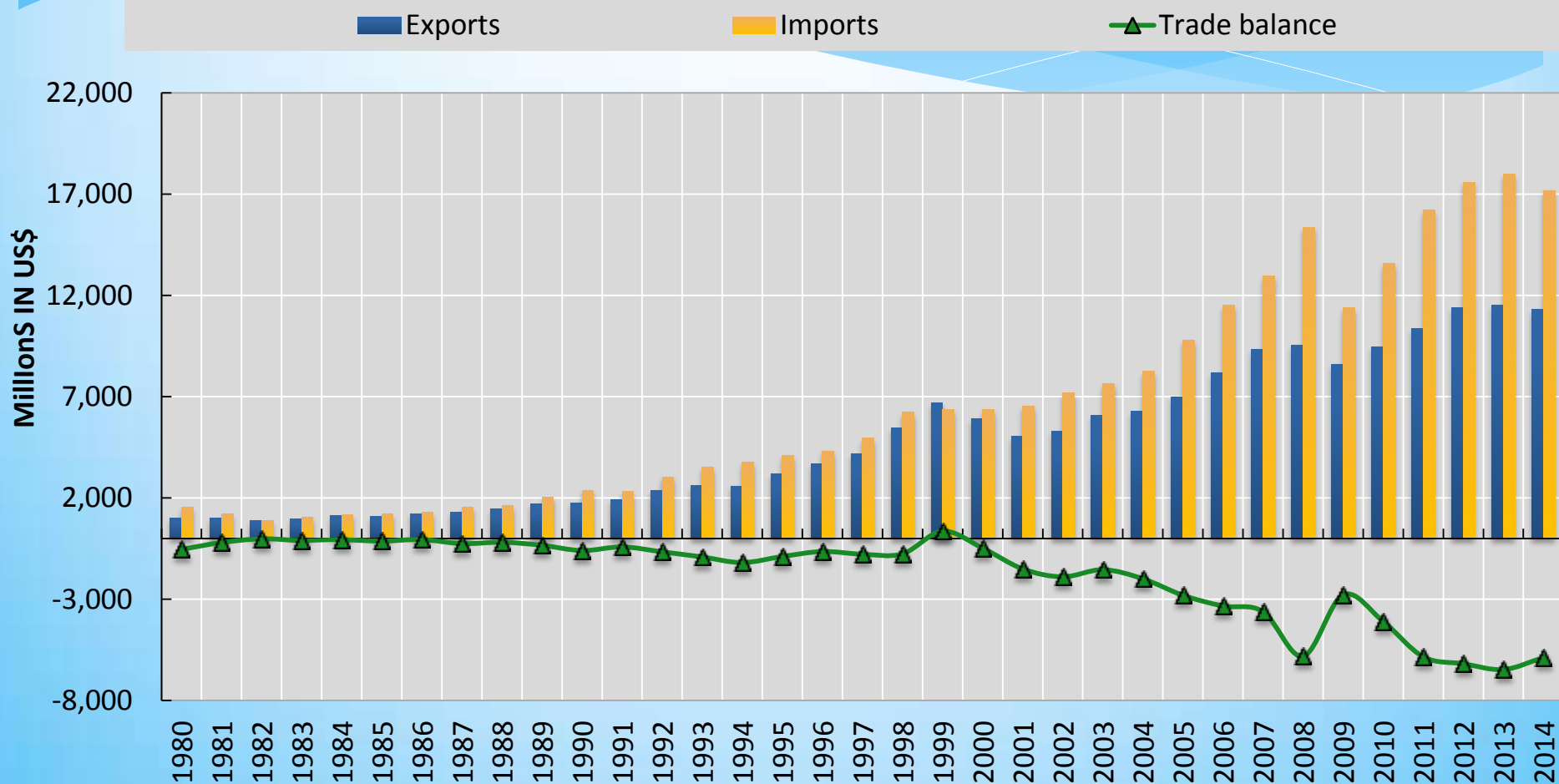
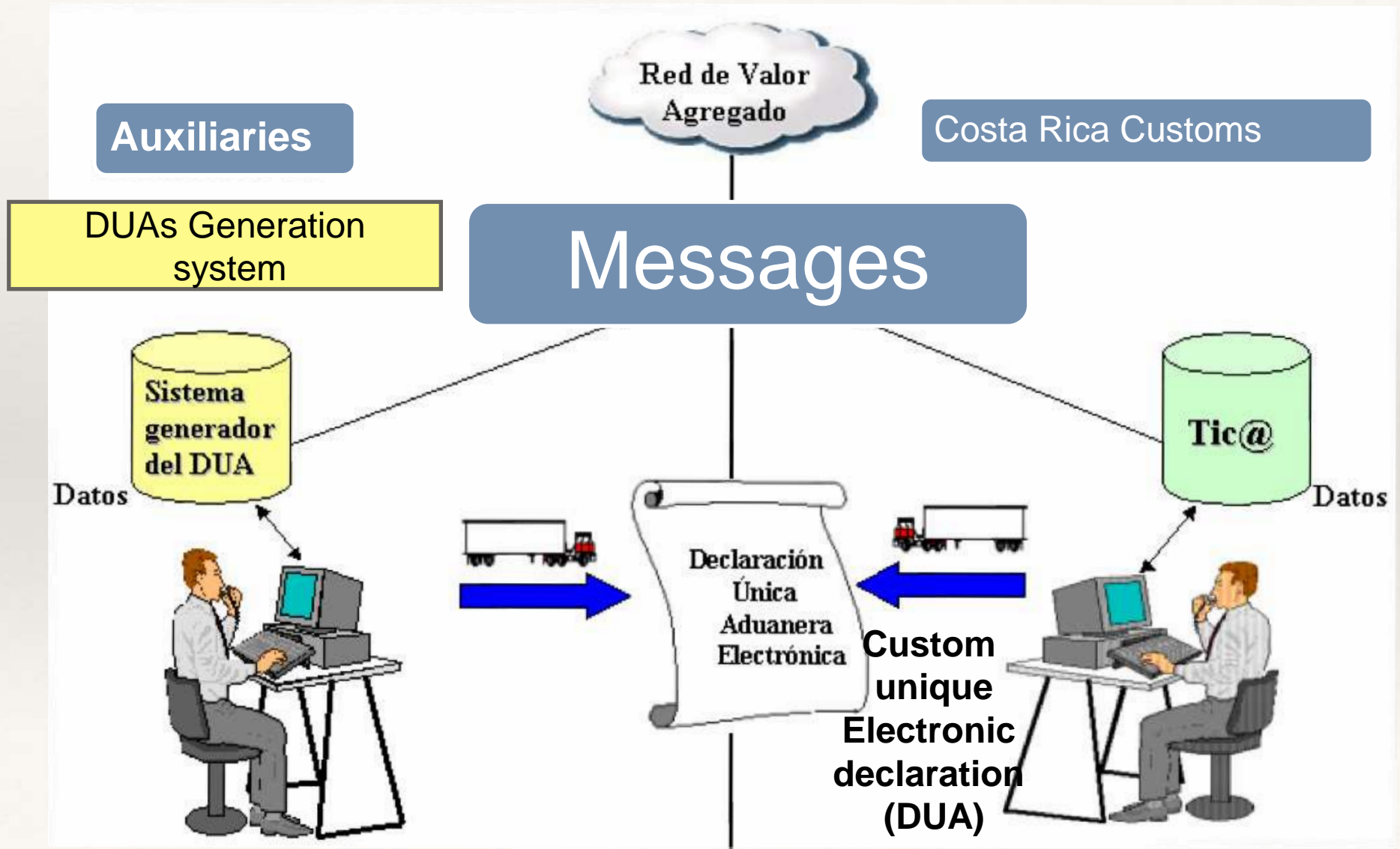*Fuente:* COMEX, con base en cifras de PROCOMER y BCCR. Datos preliminares sujetos a revisión para 2014.

CUSTOMS IT SYSTEM (TICA)
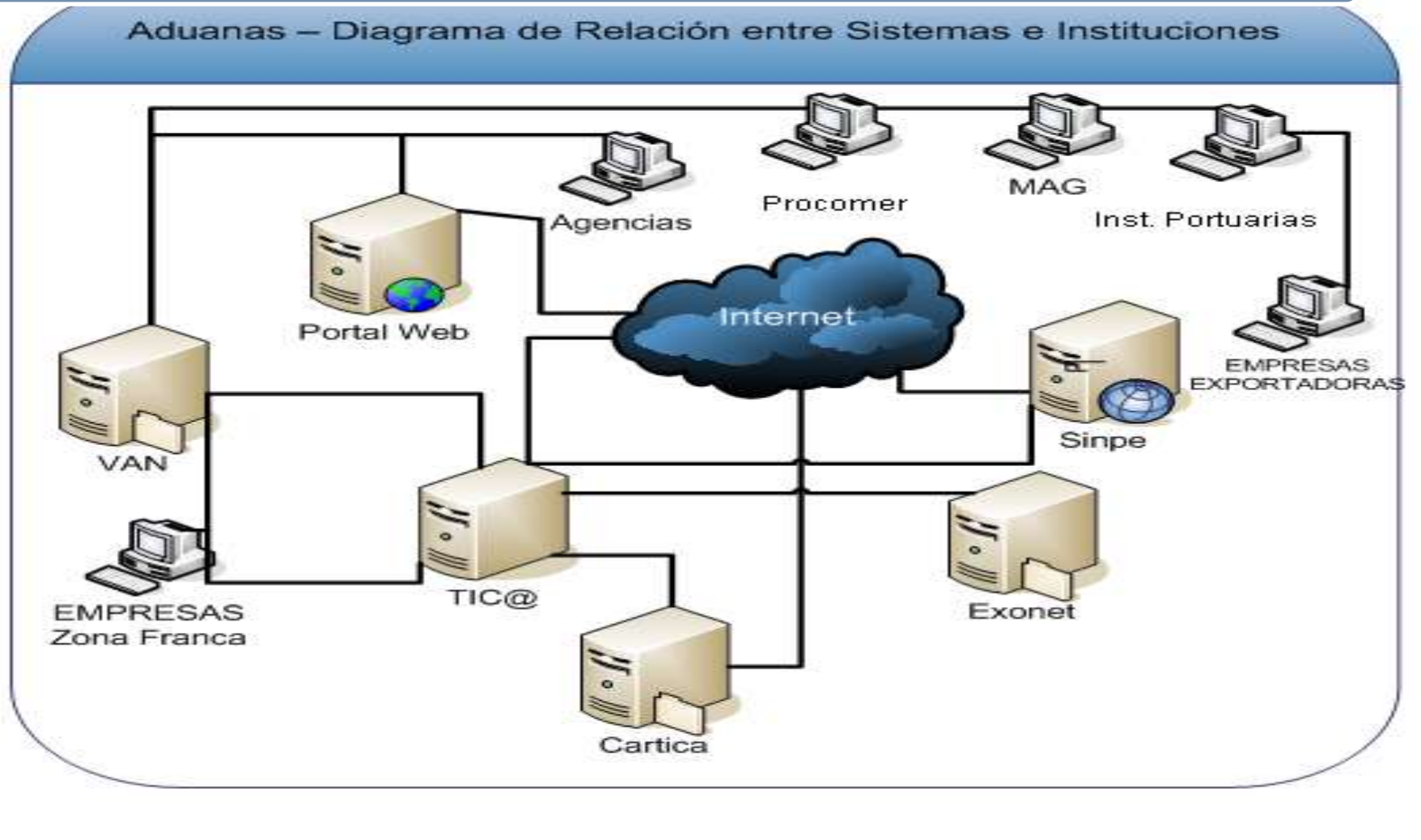
* **Standardized Electronic Customs Declaration Form ("Declaración única aduanera - DUA).**

* **Automated customs processes.**

* **Declaration decided by the user.**

* **Electronic payments.**

* **Centralized database with registered operations.**

* **Integrated risk analysis module.**

* **Electronic connectivity with public and private institutions.**

* **Paperless custom.**

CUSTOMS DECLARATIONS MESSAGING

Red de Valor Agregado

Auxiliaries

Costa Rica Customs

DUAs Generation system

Messages

Sistema generador del DUA

Datos

Tic@

Datos

Declaración Única Aduanera Electrónica

Custom unique Electronic declaration (DUA)

Customs-System & Institutions Relationship

Aduanas – Diagrama de Relación entre Sistemas e Instituciones

TECHNOLOGICAL INFRASTRUCTURE

Source: TICA Presentation. C.R. Custom
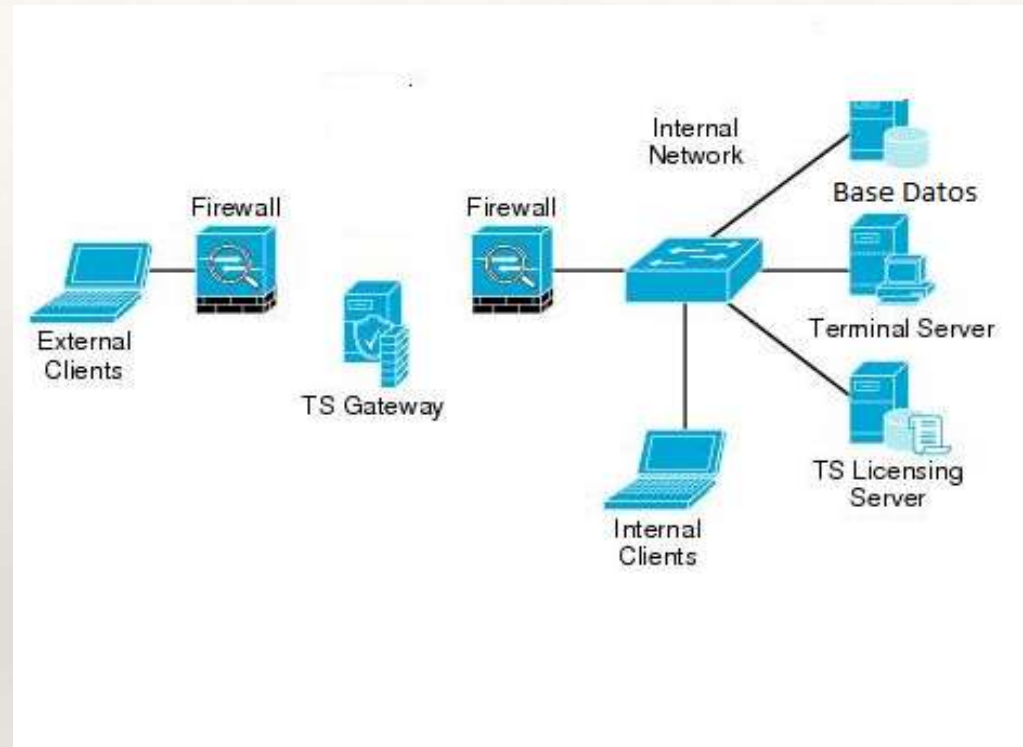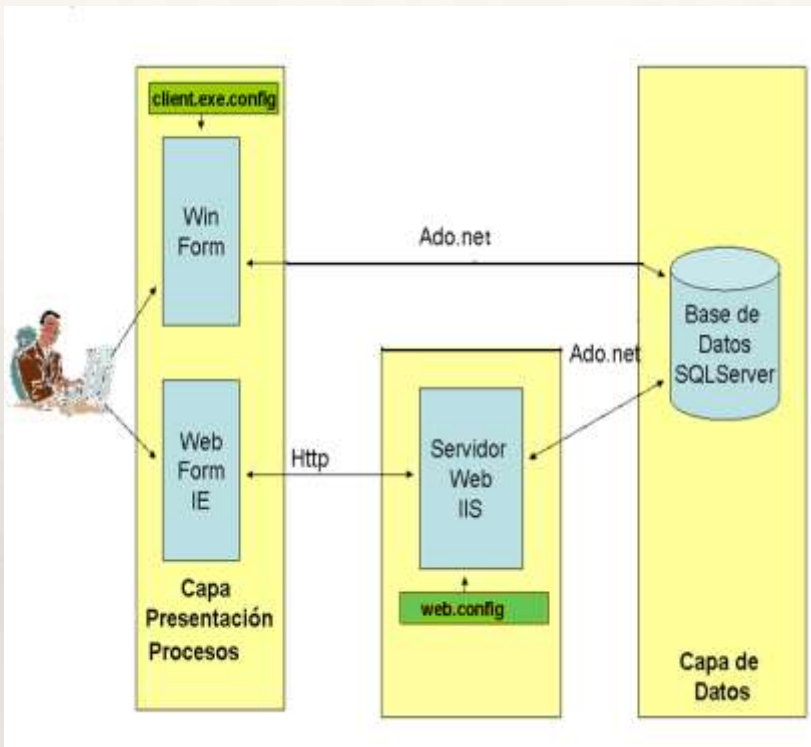
TIM Procedure - Traceability

Departure Custom

CENTRAL NODE
GUATEMALA

Destination custom

INTERNATIONAL TRANSIT OF MERCHANDISE (TIM)

Common IT system of all Central American countries to monitor international road transits

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GAP ANALYSIS, 2014

* **Determine legal and IT gaps for electronic data exchange between Costa Rica customs and peers from the rest of Central America**

* **Sources used:**

  * **General Customs Law (1996 + amendments)**

  * **General Customs Law Regulation (updated in 2009)**

  * **CAUCA III (Central American Uniform Customs Code, 2002)**

  * **RECAUCA (CAUCA Legal framework) (2002)**

  * **Digital signature Law (2005)**

  * **International regulation on land transport**

  * **Work plan (Jul-Dec 2014) Central American Economic integration Secretariat (SIECA)**

  * **Presentation on trade facilitation (SIECA)**

GAP ANALYSIS, 2014: (cont.)

* **Interviews conducted with:**

  * **Deputy Minister of Tax Revenues**

  * **General Director of Customs**

  * **Customs processes in Technical Management Department**

  * **Custom planning and control department**

  * **Risk administration and customs intelligence department**

  * **Control department**

  * **External affairs and International relations**

  * **Director of IT Strategic Projects**

  * **IT support and custom systems development department manager**

LEGAL SHORTCOMINGS

* Except for ad-hoc exchanges, Costa Rica has no formal agreements with other Central American countries for sharing risk data.

* After version III, Costa Rica did not sign version IV of the Central American Uniform Customs Code (CAUCA IV), which requires recognition of electronic documents.

* Only one authority (Central Bank of Costa Rica) can certify electronic customs documents.

* The token used as a digital signature by Agents using the Customs system (TICA) does not serve to authenticate.

IT SHORTCOMINGS

* The Central American International Transit of Merchandise System (TIM) , where each country registers land transits, is not supported on a 24x7 basis in the case of technical difficulties.

* Central American countries have not yet agreed on the improvements to be made to TIM.

* Data bases of Costa Rica Customs (TICA) have not been benchmarked against the WCO data model.

* Currently TICA does not accept electronic invoices, although it plans to do so in the future.

IT SHORTCOMINGS (cont.)

* **Infrastructure and operations risks have been identified. The IT area plans to mitigate these but requires support from authorities.**

* **The data center was being migrated from unsafe to a tier 3 data center.**

* **Costa Rica's Customs System (TICA) complies with 80% of requirements included in laws and regulations. IT is developing new functions to close the gap. TICA needs to be upgraded to a web enabled platform.**

* **The receipt of scanned images of import and export invoices does not prevent possible fraudulent alteration of original invoice values.**

* **Personnel in charge of risk analysis and audit has not been trained in applying techniques to analyze big amounts of data (data marts, data mining, business intelligence).**

GAP ANALYSIS (2014): CONCLUSIONS

* There are strong trade ties between countries in Central America.

* The current IT customs platform (TIM) of all Central American countries provides a sound base to increase information exchanges.

* Customs officials and operators have been using a centralized database accessed on line from all stations and offices for the last several years.

* Customs needs to improve its IT infrastructure to provide a service compatible with demands from increasing trade with acceptable risk levels.

* Observed legal gaps are not too difficult to solve. There is room to increase electronic data exchange between customs.

* The experienced small team of specialists on Customs Information systems needs to be expanded and trained in best practices of processes and technology to increase information exchange between customs.

* Coordinate actions with other agencies to avoid duplicating efforts.

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TRAINING WORKSHOP

* On June 16th and 17th 2015 a 'Regional workshop on Business Intelligence applied to risk analysis and custom valuation and introduction to WCO data Model' was held in San Jose, Costa Rica.

* 30 representatives from all customs in Central America participated in the training sessions.

* Trainers from ECLAC, Inter-American Development Bank, International Road Transport Union and Peru Customs

TRAINING WORKSHOP

* **SESSION I: Business Intelligence and Data Mining**
  * **Basic concepts of Business Intelligence.**
  * **Introduction to Control Charts and Indicators**
  * **Data Mining Tools**
  * **Application of Data Mining Tools (examples from Peru).**
  * **Trade facilitation: modernization of border stations in Central America**

TRAINING WORKSHOP

* **SESSION II: World Custom Organization Data Model**
  * **Introduction to WCO Data Model**
  * **Implementation concepts of the WCO Data Model**
  * **Electronic Invoices**
  * **Best practices on Information exchange (TIR)**
  * **SIECA support to trade facilitation and its relationship with WCO Data model**
  * **Regional project to promote economic integration in Central-America and implementation of the Association Agreement with the EU (PRAIAA)**

TRAINING WORKSHOP

* **Good feedback from participants. Request to continue this initiative to treat in more depth in these subjects.**

* **From May 2016 onwards, a joint effort between ECLAC, WCO and PRAIAA was started with 8 one week training sessions including all countries in Central America.**

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BUSINESS INTELLIGENCE AND ELECTRONIC IMPORT INVOICE (2015/16)

* **Based on the 2014 Gap Analysis, Costa Rica Customs asked for support to mitigate two detected gaps:**

    (1) **Electronic Import Invoices**
    (2) **Application of Business intelligence to risk and valuation to reduce under invoicing**

(1) Electronic Import Invoices

USE OF ELECTRONIC IMPORT INVOICE: ACTIVITIES

* **Analysis of existing process to enter Import Invoices to IT System (TICA).**

* **Interviews with professionals in different areas to identify priorities.**

* **Interviews with representatives to develop an Electronic Invoice that can be used in the domestic market.**

* **Meetings with vendors interested in using electronic import invoicing mechanism.**

* **Review of best practices around the world.**

ELECTRONIC IMPORT INVOICE: CURRENT PROCESS

Present process

Esquema Actual

Auxiliares de la Función Pública

Firma al Dorso

Escaneo de Factura

Signature

Firma al Dorso

TIFF Imágenes

XML Asociación

TICA

Agents

Signature   **Invoice Scan**   **Images**   **Link**

Source: TICA Presentation. C.R. Custom

WEAKNESSES

* **Agents enter Customs Declaration data through a system that produces a digitally signed XML message using a token (guaranteeing encryption and no rejections).**

* **They send a scanned image of both sides of the invoice with handwritten signatures**

* **There is no validation and guarantee that data sent through the XML message match those on the scanned image**

* **There are no records of handwritten signatures to validate scanned images.**
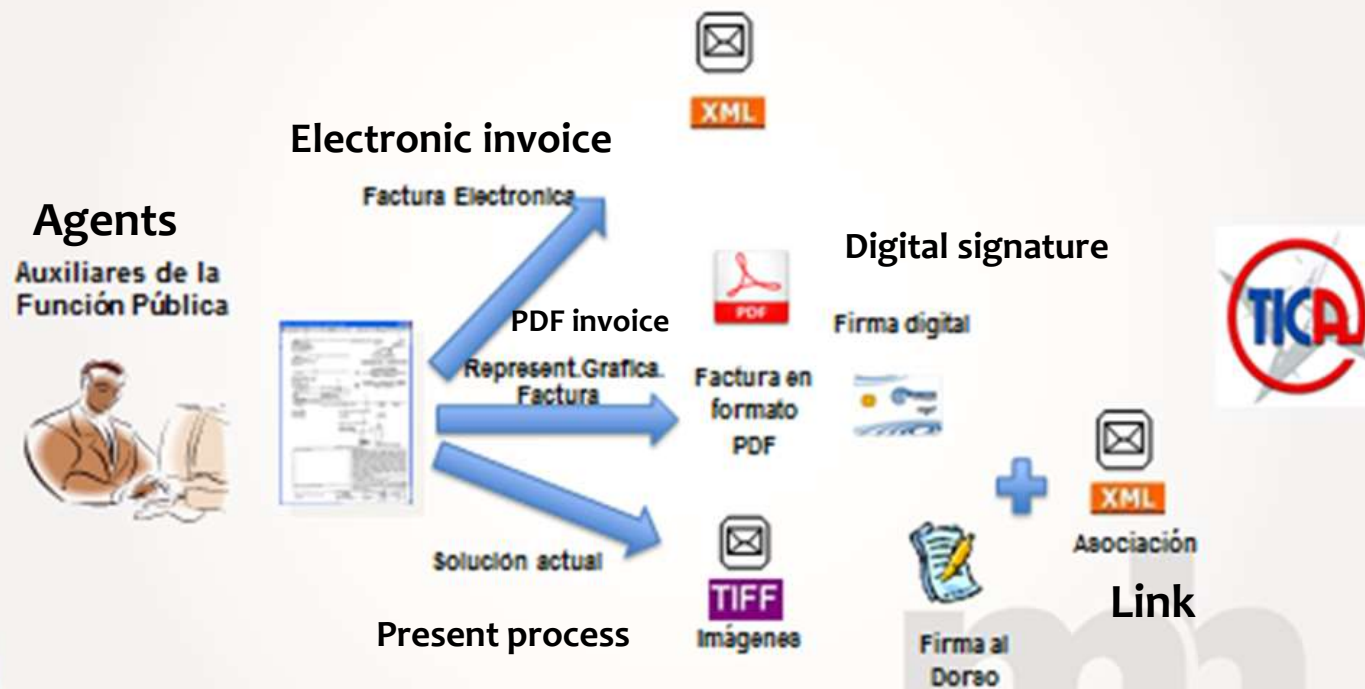
USE OF ELECTRONIC INVOICES: RECOMMENDATIONS

* **Define a standard for Import Invoices that can be implemented gradually**

* **Adopt standards defined by the «United Nations Centre for Trade Facilitation and Electronic Business" (UN/CEFACT)**

ELECTRONIC IMPORT INVOICE: PROPOSED IMPLEMENTATION

IMPLEMENTATION OF IMPROVED MESSAGING

* **A detailed XML message to receive import electronic invoice was developed using the CII (Cross Industry Invoice) Standard developed by UN/CEFACT (Centre for Trade Facilitation and Electronic Business)**

* **The message has three sections**
  * **1) Background information referred to the process corresponding to the transaction.**
  * **2) Basic header information such as invoice number and date.**
  * **3) Detailed invoice information.**

PRODUCTS PROVIDED

* **Detailed import invoice messages to be read with XML-Reader software.**

* **Cross reference table containing each message field and the corresponding TICA data when applicable**

* **Global design of new process**

(2) Business Intelligence Risk Analysis

BUSINESS INTELLIGENCE FOR RISK ANALYSIS

* **Customs use Risk analysis to determine when to inspect import and export cargos to distinguish legitimate and illegitimate transactions and optimize available human resources.**

* **This facilitates international trade without compromising security levels and government revenue**

* **BI techniques (information analysis, data mining and other disciplines) are increasingly used for risk analysis and valuation. This approach is enabled by sophisticated IT tools to analyze historic customs data**

BUSINESS INTELLIGENCE FOR RISK ANALYSIS: OPPORTUNITIES

* **Costa Rica Customs has more than 10 years of data. A data mart has been created with data from 2009 on and receives information on a daily basis from the operational TICA System. This data is not yet used for the generation of risk rules.**

* **There is an opportunity to generate rules based on statistics analysis of historic data available.**

* **There is an urgent need to include the value of goods in the analysis because under invoicing of imports there can be great economic losses to government.**

BUSINESS INTELLIGENCE FOR RISK ANALYSIS OPPORTUNITIES

* **Processes can be implemented to automatically generate risk rules oriented to detect value anomalies and incorrect declarations by importers**

* **As the risk module is integrated with the Customs System, it is easier to implement this type of method including more sophisticated statistical analysis as «outliers» determination related to weight and/or value of goods.**

# BUSINESS INTELLIGENCE FOR RISK ANALYSIS: RECOMMENDATIONS

* **On Data Marts**

* **On indicators and Control Charts regarding the indicators generating process automation and use of IT tools for Control Charts production.**

* **Recommendations on automated generation of risk rules based on statistical analysis of data**

BUSINESS INTELLIGENCE FOR RISK ANALYSIS: GENERATING RULES

* **Three types of rules**

  * **a) Rules to detect risk of value anomalies based on calculation of Statistical Mean over Data Mart**

  * **b) Rules to detect outliers**

  * **c) Other rules based in data obtained directly from the operational system.**

# BUSINESS INTELLIGENCE FOR RISK ANALYSIS GENERATING RULES USING A STATISTICAL MEAN

(Data mart) → **Rule Generator** → **Rules Engine (TICA)**
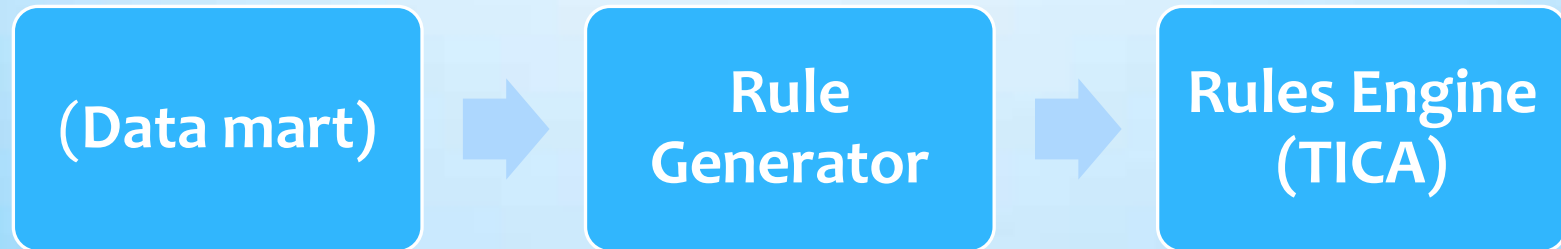
EXAMPLE

* **OBJECTIVE: Generate rules to detect imports of a product (at the 10 digit level) from a country and unit which differ substantially from the mean value.**

* **PROCEDURE: For each product, rules are generated on the basis of frequently calculated means with statistics from Data Marts**

* **Rules are generated for those tariff positions when one country of origin and unit have sufficient declarations and when tax income is relatively high**

EXAMPLE OF OUTLIERS

* Outliers are those values from a data set that are considered atypical because they are distinct from most data.
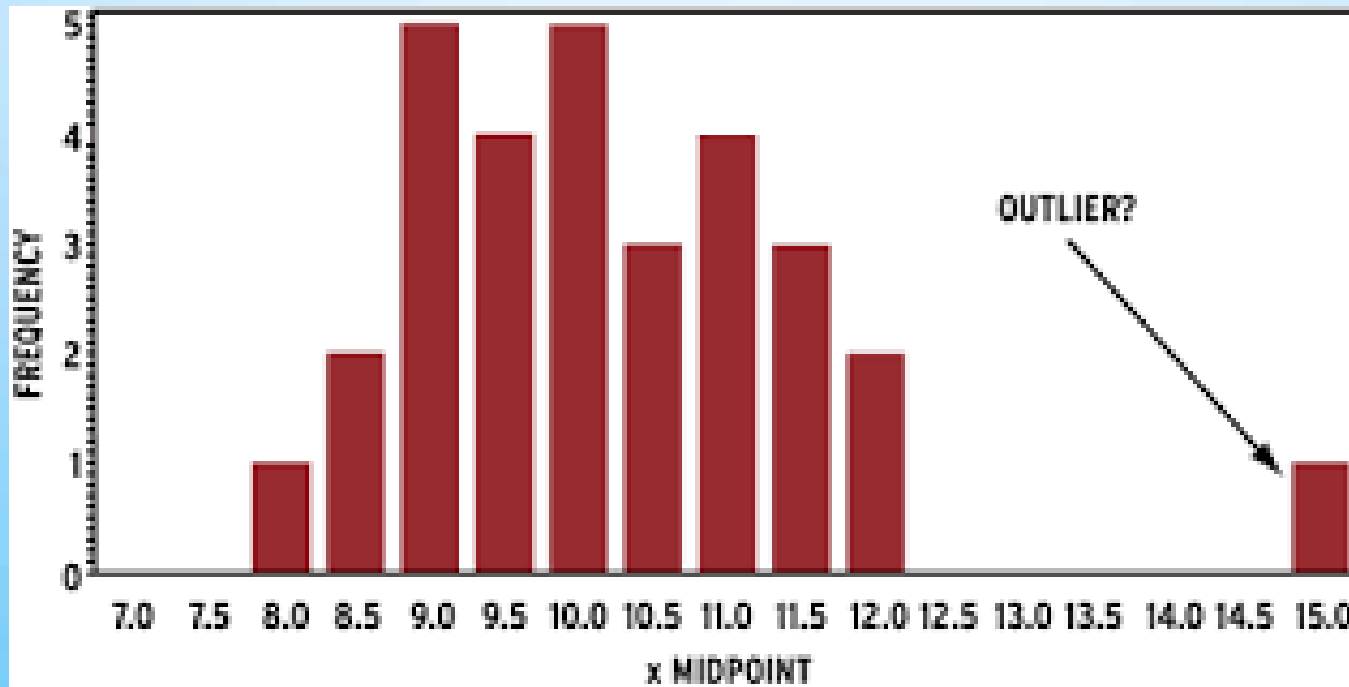
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PILOT IMPLEMENTATION

* **Assistance to the Divisions in charge of Risk and Value Assessment in the implementation of these techniques.**

* **Building a plan to implement statistical analysis and generation of Risk Rules based on average values.**

* **Procedures and documentation generation for the methodology usage in Costa Rica customs.**

* **A one week work session was held between June 4-10.**

* **A detailed implementation plan to be formulated before the end of June.**

THANK YOU

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