TRANSPORTATION INFRASTRUCTURE AND CARGO LOGISTICS MASTER PLAN FOR THE INTEROCEANIC ZONE OF THE PANAMA CANAL (PM-ZIC)

Prepared for:

PANAMA CANAL AUTHORITY

CANAL DE PANAMÁ

Executive Summary

May 2017

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① Objectives, scope and methodology

Objectives

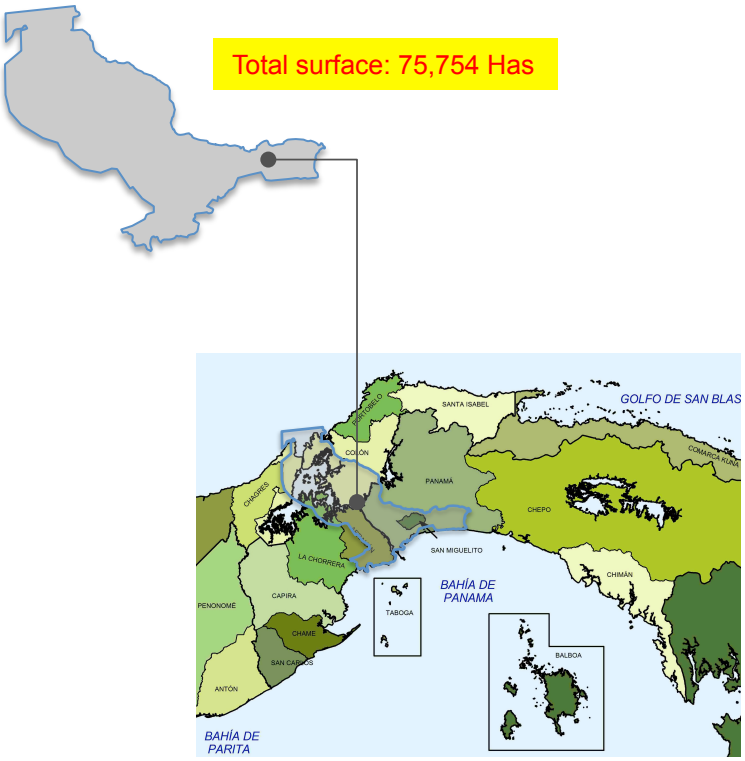
Consolidate Panama as an international Value-Added Logistics Hub

During the formulation, the study was continuously validated through workshops aiming at the appropriation of the plan by relevant stakeholders

Study area

The study area has considered the interoceanic zone and encompasses Vacamonte in Panama West and Tocumen. Administrative units are the following

- Three provinces: Panama, Panama West and Colon
- 6 Districts: Panama, Colon, San Miguelito, Arraijan, Balbo and La Chorrera



Activities

May 2016 – May 2017

- 1: Project launching &work plan
- 2: Background and Benchmarking of VALS hubs
- 3: Inventory of land uses and available space, infrastructure and logistic services
- 4: Consolidated database of cargo flows
- 5: Workshop 1
- 6: Current situation of transport infrastructure and land use
- 7: Current situation of VALS
- 8: Time and cost model
- 9: Prospective analysis and Potential VALS
- 10: Projected demand for VALS
- 11: Workshop 2
- 12: Cargo Generation Model
- 13: Multimodal transport and logistics model
- 14: Analysis of gaps and future infrastructure needs
- 15: Workshop 3
- 16: Action Plan
- 17: Analysis of cooperation schemes with other institutions
- 18: Workshop 4
- 19: Final presentation 20: Land use logistic plan
- 21: PM-ZIC
- 22: Final Presentation
- 23: Final report (Spanish)

① Objectives, scope and methodology

Objectives

Consolidate Panama as an international Value-Added Logistics Hub

During the formulation, the study was continuously validated through workshops aiming at the appropriation of the plan by relevant stakeholders

Methodology

Four main blocks of analysis composed the PM-ZIC. **Current situation assessment** was based on the analysis of information gathered through physical and digital inventories, interviews to relevant stakeholders, secondary information and databases, namely customs and ports'. **Future situation modeling** comprised the definition of forecasting scenarios – probable, status quo and achievable –, modeling future trends of existing segments, and the identification of new segments and modeling future demand. A modular excel model comprised of a time&cost, market demand, assignment sub-models was the tool utilized in this case. The **action plan** was formulated based on five strategies, and projects for all components of the logistics system – infrastructure, services, processes – were organized in an immediate, medium and long term action plans. Finally **interinstitutional cooperation schemes** identified the main elements of the implementation strategy.

Workshops

Workshop 1:

- October 6th to 7th 2016. October 11th, 2016 Focus Group

Workshop 2:

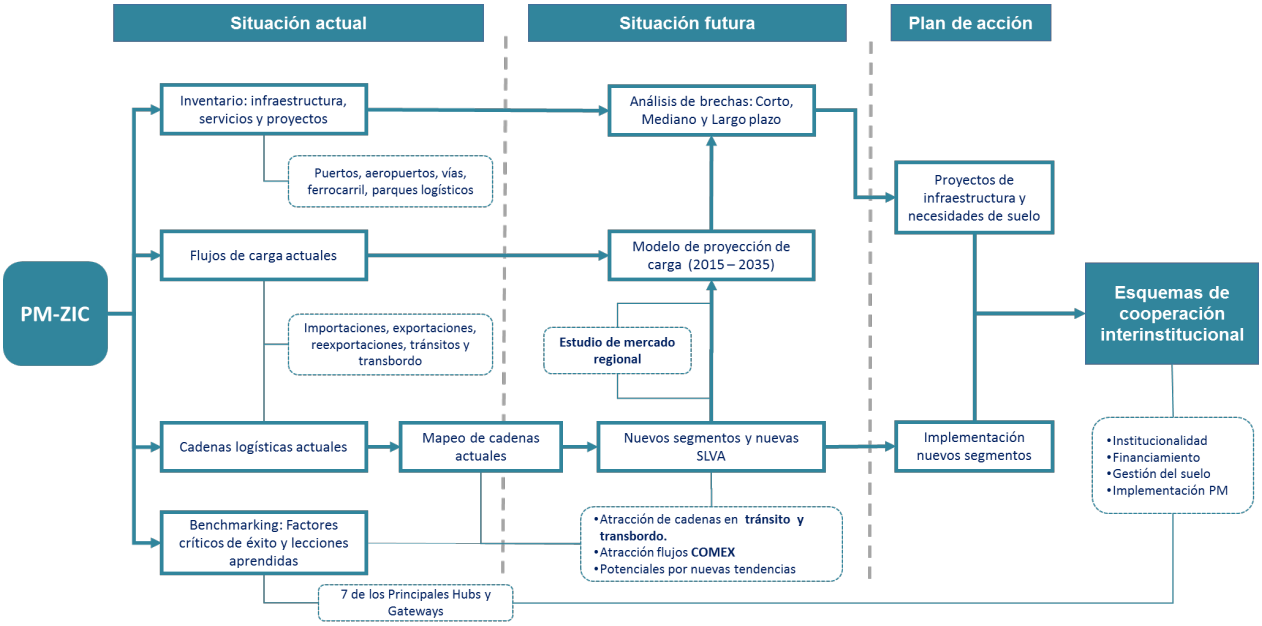
- December 6th, 2016

Workshop 3

- January 31st to February 2nd, 2017

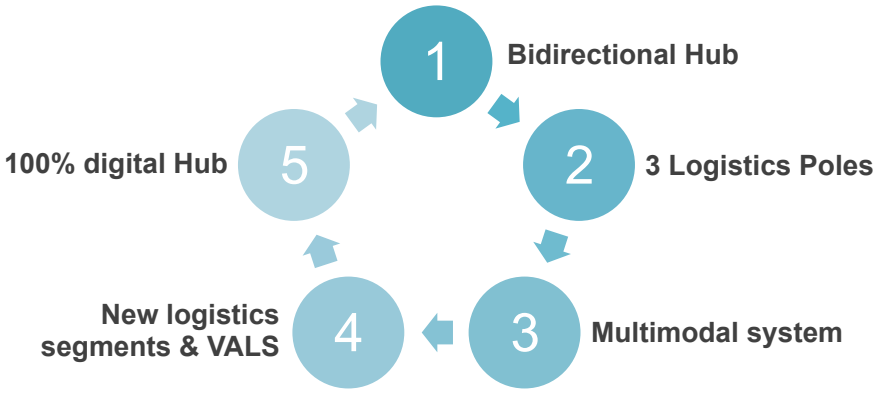
Workshop 4

- April 7th, 2016



Louis Berger

② Five Strategies for the development of the Hub



5 Strategies

Five strategies based on best international practices provide the guidelines for the development of the Panamaniam VALS Hub during the following 20 years

① Bidirectional Hub

- Create a bidirectional hub-and-spoke system by expanding current regional distribution of extra-regional goods with consolidation of intraregional and extra-regional exportations
- Functionally expand the hinterland

② 3 Logistics Poles

- Consolidate 3 poles to generate economies of scale and agglomeration
- Progressively upgrade logistics infrastructure and control process for re-exportations
- Homogenize special economic regimes

③ Multimodal system

- Highly effective multimodal system linking the 3 poles through high-capacity networks and nodal elements
- Optimal utilization of existing assets
- High design and operation standards for core transport and logistics infrastructure

④ New logistic segments & VALS

- Capture new market segments and develop a relevant value proposition for these new segments
- Expand the current offer of VALS to existing market segments

⑤ 100% digital Hub

- Streamline control procedures and fully digitalize the system
- Fully digitalize logistics flows and implement real-time optimization of physical and process control flows

Benchmarking

7 global logistics hubs assessed:

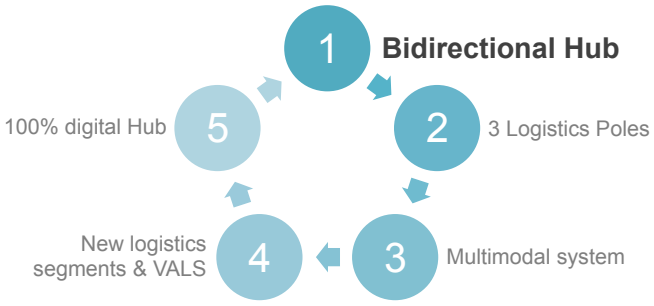
- Shanghai
- Hong Kong
- Singapore
- Dubai – Jebel Ali
- Rotterdam
- Philadelphia
- Houston

The assessment allowed identifying exogenous factors as well as strategic capabilities critical to develop a VALS hub: Threshold resources, critical success factors and unique resources. The later is represented in Panama by the Canal

Lessons learned from the review:

- Invest to expand the hinterland
- Generate a bidirectional hub-and-spoke system
- Generate world-class logistics infrastructure
- Generate an integrated multimodal system
- Decrease OPEX
- Generate value proposition tailored to the needs of customers
- Streamline processes and fully digitalize the logistics system

② Five Strategies for the development of the Hub



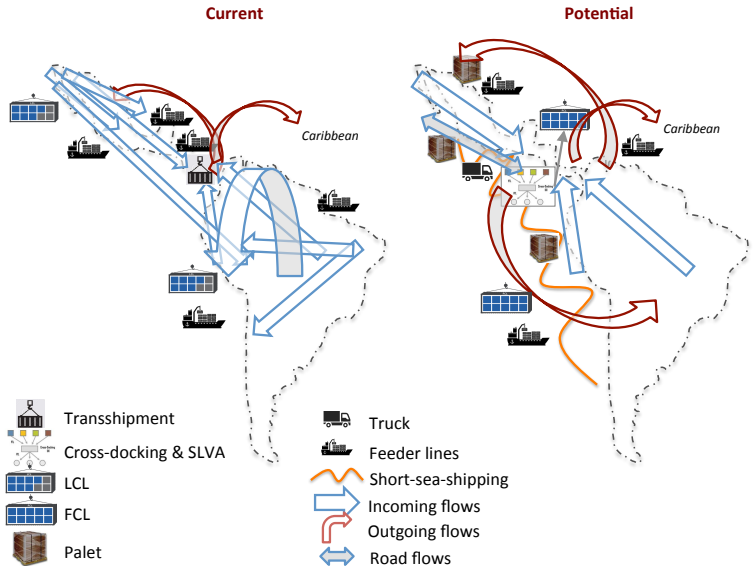
Objectives

Complement current regional distribution flows of extra-regional goods, with concentration of exportations flows from the Region and provide them consolidation, multimodal access and VALS

Panama potential to optimize regional chains

Panama can play a role in the optimization of current logistics patterns for several chains in the Region.

Pharmaceuticals, Home Appliances, and Automobiles & Spare Parts



Regional needs

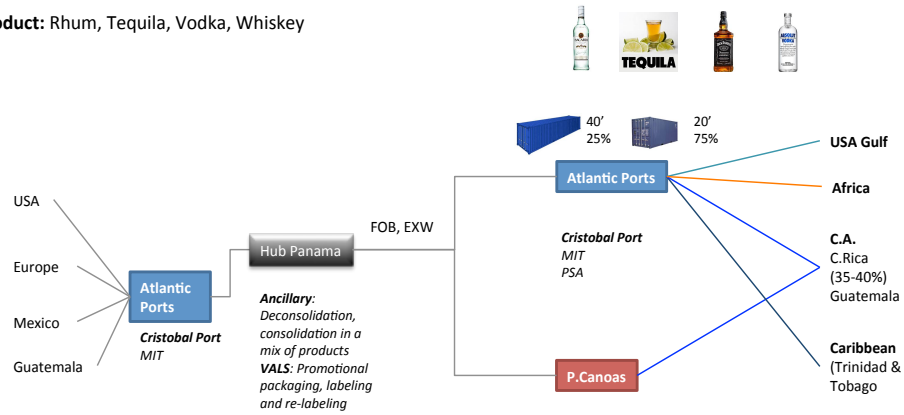
- For perishable goods there is the need to count on short-sea-shipping services in order to sent goods to Panama to be consolidated. This is particularly applicable for non traditional, highly perishable exports.
- Intermodal sea-air and sea-sea transshipment is also required for perishables aiming at reaching new markets, in particular Asian.
- For consumer goods, Panama could play a more important role in optimizing intraregional flows North-South and to the Caribbean. The existence and increase of short-sea-shipping and short-distance air services and frequencies is a critical success factor.

Assessment of current chains

Current chains using Panama share a similar pattern. Goods come to Panama for the distribution in the Region. Export concentration patterns were only seen in perishable goods and beverages. Perishables do not receive VALS but only air-air and road-air transshipment. Beverages go to the Region, however a very small volume goes to the US and Africa

Alcoholic drinks' logistics chain

Product: Rhum, Tequila, Vodka, Whiskey



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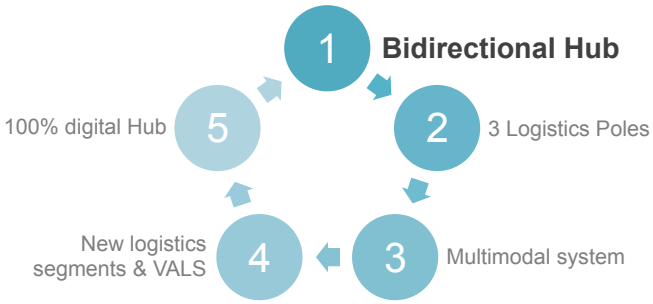


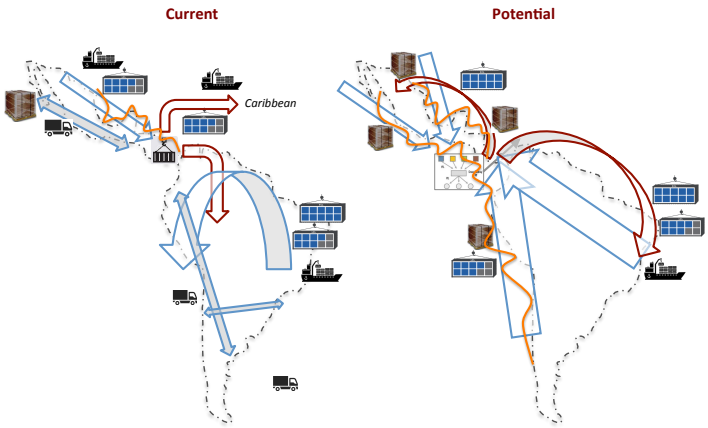
Objectives

To provide services to:

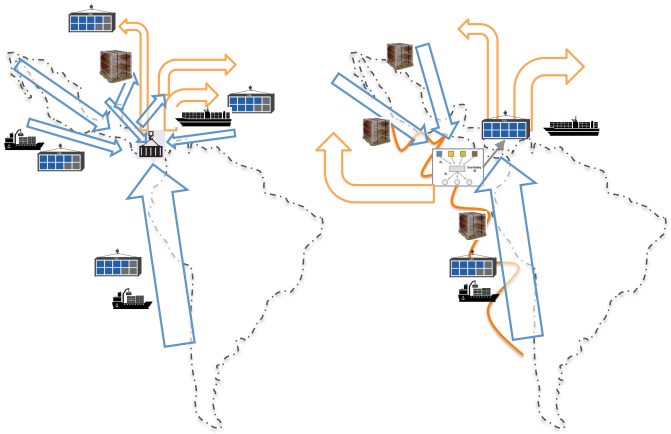
- Extra-regional chains aiming at expanding markets
- Traditional distribution chains
- Intraregional chains expanding coverage

Panama potential to optimize regional chains

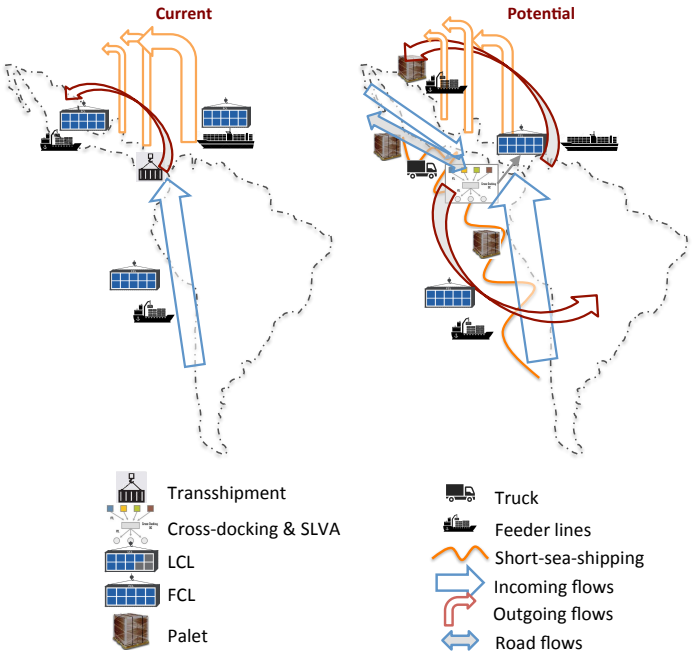
Perishables – Intraregional



Perishables – Extra-regional

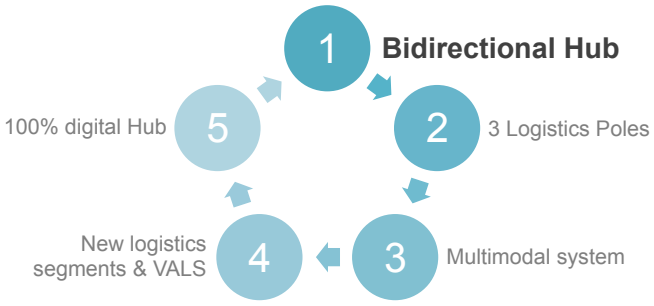


Textiles, clothing and shoes



- **Perishables – Intraregional**. Flows are circumscribed to the sub-region. Low volumes could be brought by short-sea-shipping and consolidated in Panama
- **Perishables – Extra-regional.** Consolidation in containers for small producers would allow reaching markets at a lower tariff, in particular the Asian market
- **Textiles, clothing & shoes.** Distribution and VALS can be offered to goods produced in LAC for the internal market and extra-regional as well by reducing entry barriers to new markets.
- **Pharmaceuticals, Home Appliances, and Automobiles & Spare Parts.** Goods produced mainly in MX, BR, CO could be redistributed to LAC

② Five Strategies for the development of the Hub

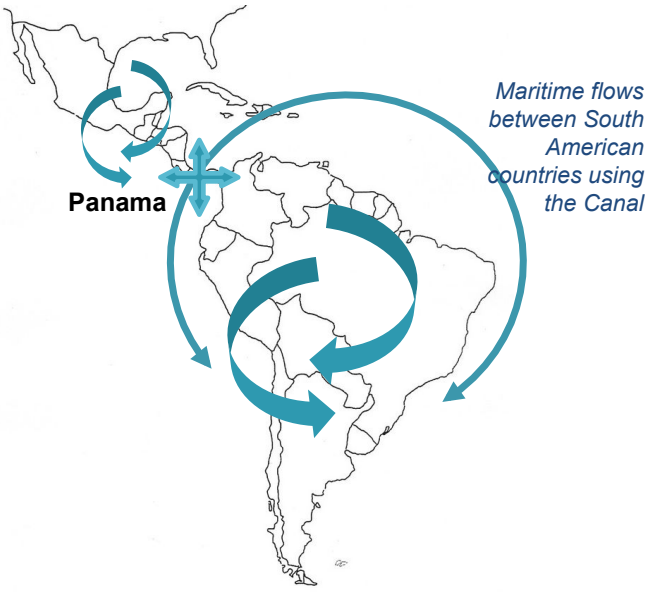


Current intraregional trade flows

Intraregional trade flows in the Region are divided in two main blocks: Central America and South America. Trade between these blocks is very limited and only Panama and to a minor extent Colombia go beyond their geographic block

South American trade flows between the countries located in the Atlantic and the Pacific usually cross the Panama Canal given the scarce land connectivity between them. However, no VALS are provided to these flows, only transshipment services.

LAC's intrarregional trade flows



Current chains

- Perishables: vegetables, fruits, fish, shrimps
- Pharmaceuticals
- Clothing & shoes
- Vehicles and heavy duties
- Alcoholic beverages
- Electric & electronic

Transshipment flows

- Dominant transshipment flows come mostly from SE Asia, namely China. North-South and East-West flows transship in Panama for the redistribution in the Region and the US.
- Europe is an important destination for refrigerated goods – vegetables, fruits, fish and shrimps – coming from Latin America as a whole.
- South America relies on the transshipment in Panama to feeders to receive dry containers.
- The Caribbean relies on transshipment to feeders in Panama to receive goods.
- South America and Central America generate an important flow of reefers with destination to Europe, in particular from smaller countries not enjoying from direct services (namely Costa Rica and Ecuador)

In year 2015 of almost 7 Million TEU that went through the port system in the interoceanic zone. 89% of this amount were goods transshipping at the canal, opening the potential for capturing this logistics chains and add logistics value

② Five Strategies for the development of the Hub

Objectives

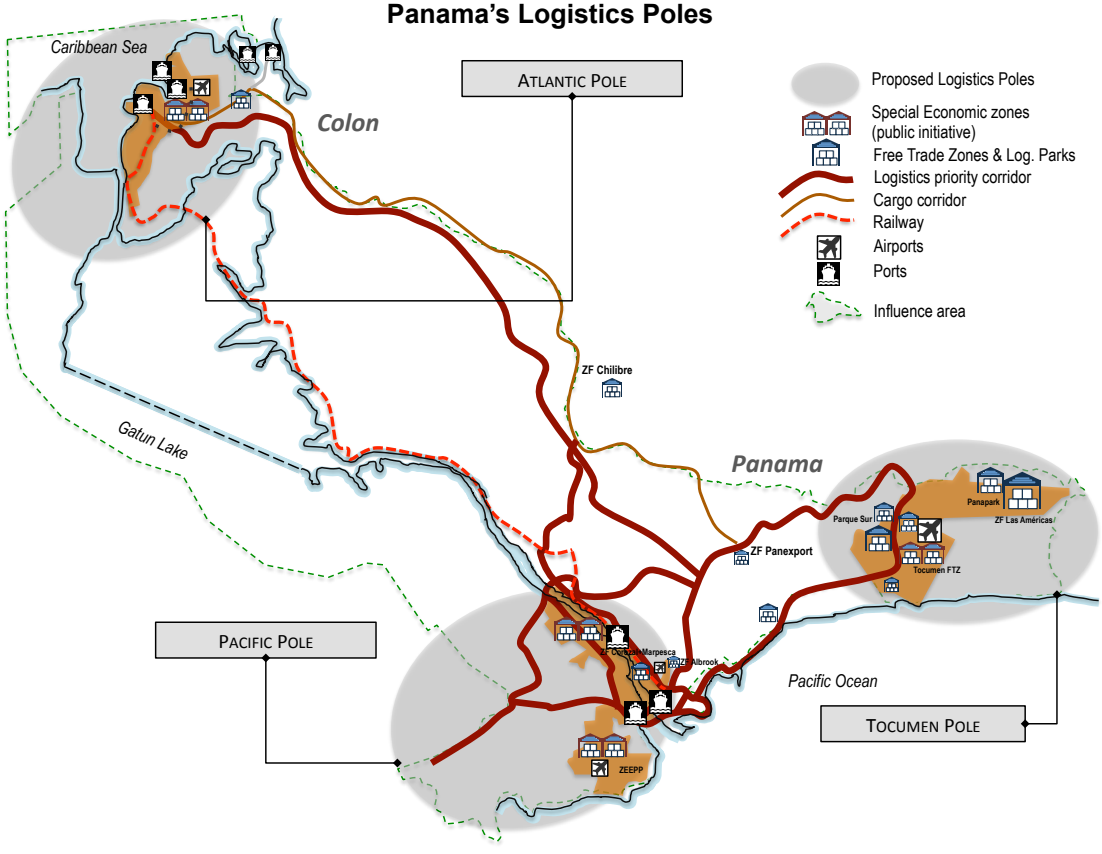
- Consolidate 3 existing agglomeration areas
- Harmonize land uses
- Establish a coherent and homogeneous special economic regime
- Promote economies of scale & agglomeration

Location of Logistics Poles

Logistics poles encircle the surrounding area of main transport and logistics existing assets:

- Pole: Cristobal, MIT and Colon Container terminal and Colon Free Zone
- Pacific Pole: Balboa and PPC Ports, and Special Economic Zone Panama-Pacifico
- Tocumen Pole: Tocumen International Airport (and its future Free Trade Zone), and existing logistics parks and FTZ

Panama's Logistics Poles



Panama counts with 3 different Special Economic Regime: Free Zone, Special Economic Zones and Free Trade Zones. These areas still have space available to cover the short-term needs of VALS of new segments.

② Five Strategies for the development of the Hub

Land uses

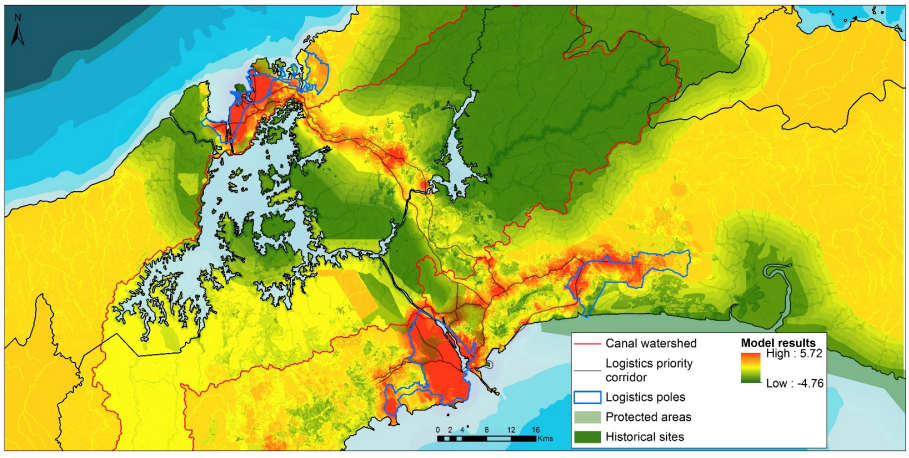
- The assessment of land use vocation ratified the location of the poles and its perimeter
- Reserve areas were included in order to protect one of Panama's strategy logistics asset: its land

Land use mode and Logistics Poles

Heat maps ratify the three poles as the best for logistics activities and show their expansion potential. Consolidating the existing poles, and developing them to their full potential, will contribute to the system in taking advantage of the economies of scale, spill over effect and concentrated management. The results of the restriction factors sub-model show that the poles' consolidation will contribute to the sustainable development of the logistics system minimizing impacts on the environmental system, cultural heritage and sensitive land use.

There are clear restrictions for location in the Panama Canal watershed, Protected Areas connectivity corridors through buffer zones, strategic ecosystems and vulnerable areas in coastal areas (Mangroves, Wetlands, Coral Reefs, Flooding Zones), the Historic Center of Colon and the existing urban footprint, as well as the cultivated areas in the adequate agrological classification.

Vocation for logistics activities



Land use model

- The land use plan identifies land with logistics vocation
- A Digital Evaluation Model was used in order to assess the potential by combining attraction and restriction factors.
  - Attraction factors: existence of logistics nodes, connectivity and compatible land uses
  - Restriction factors: environmental system (topography, hydric resources, and strategic ecosystems), cultural heritage and restrictive land uses.
- Modeling phases :
  - GIS database with attraction and restriction factors.
  - Attraction/restriction scales to the most representative attribute of each variable
  - Heat maps for each variable.
  - Pondering weights
  - Modeling composite maps.
  - Modeling results with logistics suitability levels

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Poles perimeter

Atlantic Pole:

- 6,006 Has

Pacific Pole:

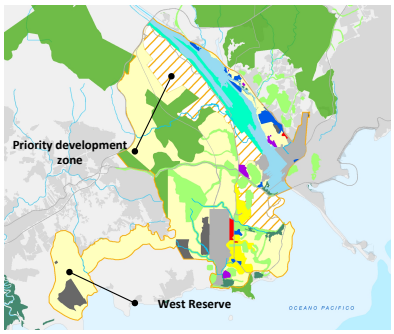
- 11,308 Has

Tocumen Pole:

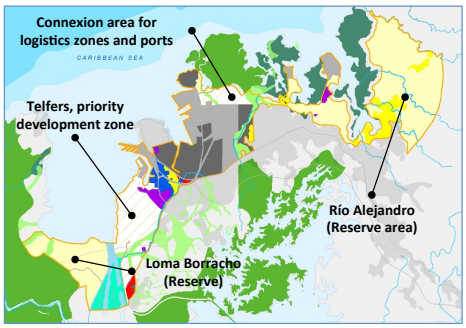
- 8,110 Has

Pacific Pole

In 2036, the balance between demand and availability shows that the Pacific Pole will register a relatively small deficit



Atlantic Pole



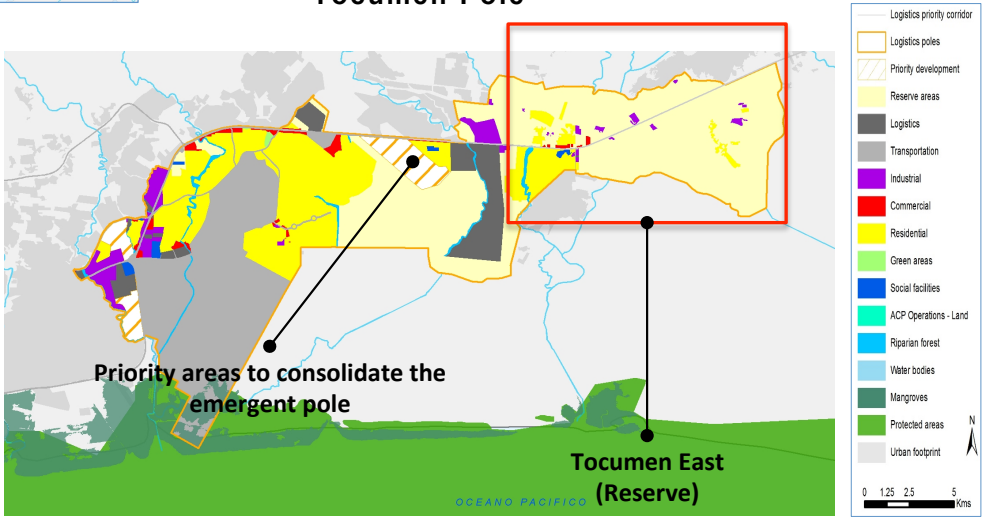
The Atlantic pole will require to be expanded in order to allocate new areas for the optimistic scenario

Poles extension

- **Atlantic**. Existing logistics assets, and Telfers, Mindi and Davis; to the east, the areas south of Isla Galeta, Largo Remo, Samba Bonita and Bahía Las Minas. Loma Borracho and Rio Alejandro as reserve areas.
- **Pacific**. ZEEPP, Cocoli from the Centenario Bridge to ZEEPP, Reserve areas at Vacamonte opposite to Cerro Cabra, and W
- **Tocumen**. The existing urban footprint limits the potential growth to the N and W of the Airport. Reserve areas at the east of Parque Industrial Las Americas.

Tocumen Pole

In Tocumen, the available land at the present clearly surpasses the demand estimated for year 2036



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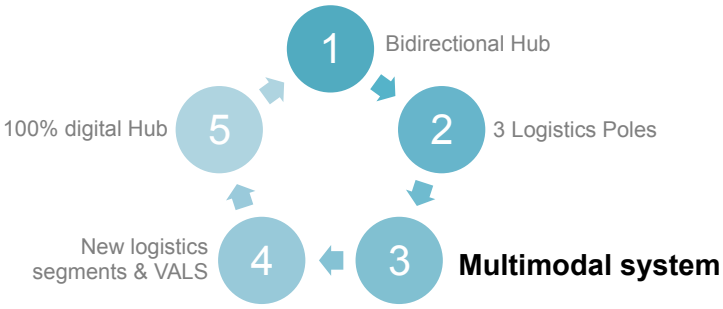


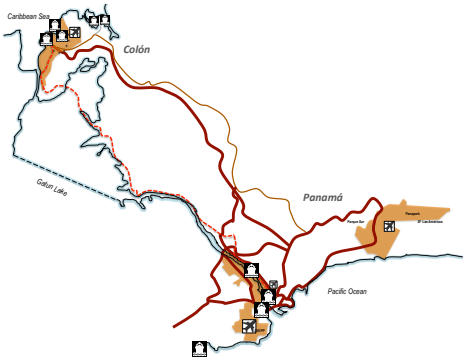
Objectives

- Consolidate an efficient intermodal system connecting the 3 poles
- Create a network of logistics priority corridors
- Generate high-standard logistics infrastructure
- Create an Integrated port zone

Efficient Intermodal system

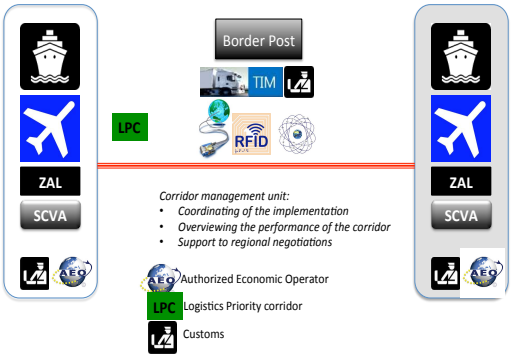
The core elements of the Panama Logistics System will be optimized to operate a a truly intermodal system. The upgrade and capacity increase of transport networks – roads and railway – and nodal infrastructure – ports and airports –will be accompanied by the definition of a trunk system. New specialized terminals are part of the new offer

The improvement of local accesses as well as the implementation of truck centers and parking lots are minor but not less important elements of the intermodal system.



Network of logistics priority corridors

Logistics priority corridors are not just roads. They are functional corridors fully equipped to ensure the real-time tracking of vehicles in order to integrate them to the digital optimization platforms. They will therefore function as fiscal corridors and also will optimize cargo flows in the whole system.

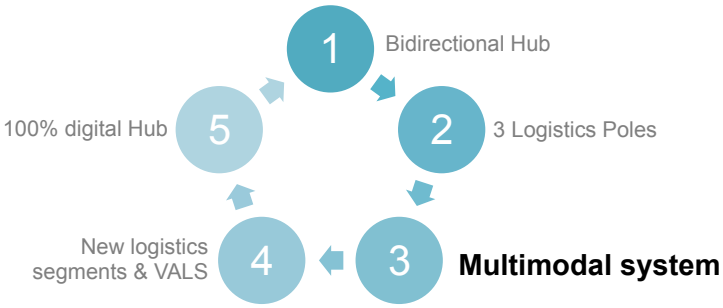


High-standard logistics infrastructure

New specialized logistics activities zones for perishables and dry bulks, as well as the new Tocumen Free Trade Zone are the new core components of the logistics supply. The definition of standards for all logistics assets will be an essential part of the actions.

The new logistics zone in the area belonging to the Panama Canal Authority, located in the Panama Canal West Bank, will be an important asset in the near future.

② Five Strategies for the development of the Hub



Objectives

- Consolidate an efficient intermodal system connecting the 3 poles
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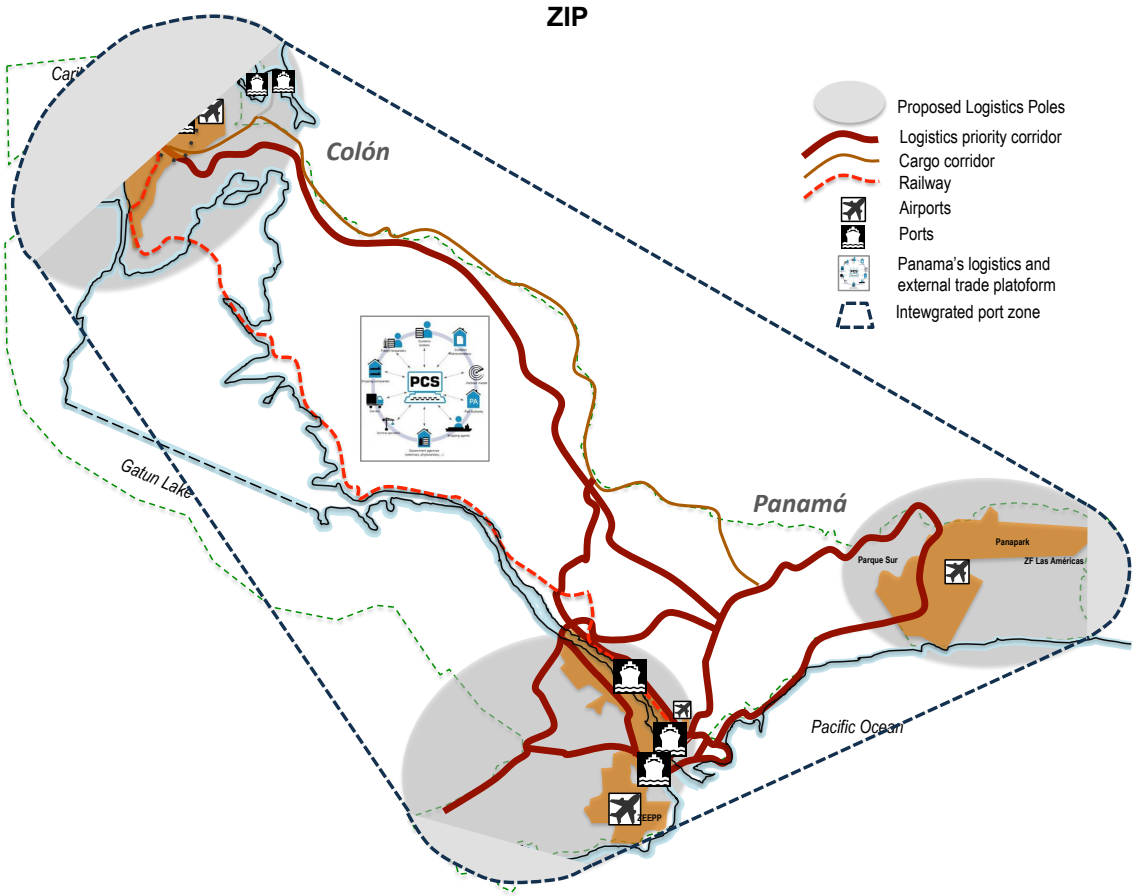
- Generate high-standard logistics infrastructure

Integrated Port Zone (ZIP)

The ZIP consists in the operational integration of the ports located at the ZIC in order to optimize existing assets. It looks after strengthening Panama's unique resources: its inter-ocean access and the inter-terminal transshipment,

An unique booking system will be linked to the Panama Logistics and External Trade Platform and its PCS (Port Community System) functionalities.



② Five Strategies for the development of the Hub

Objectives

- Expand the existing market by targeting new market segments and develop a relevant value proposition of VALS
- Deepening existing markets and generate loyalty by developing new VALS

New logistics segments

Three new segments compose the target market: Perishable goods, B2C (business to consumer segments) and Dry bulks. Logistics chains to be served differ depending on the logistics family.

The perishables segments looks after capturing traditional exports aiming at reaching new extra-regional markets (namely Asian countries), and non-traditional goods usually highly-perishable goods with highly diversified requirements of controlled atmosphere. VALS to B2C segments look after deepening the current offer to more value-added VALS and to develop the e-market channel. Bulks are solid and liquid. VALS target mainly dry bulks, namely agriculture related bulks (grains and fertilizers)

Perishable	Highly perishable	Extra-regional intermodal
		Extra-regional air
		Intraregional air
	Semi-perishables	Extra-regional sea
B2C	B2B segments	Medical equipment
	Vehicles, spare parts & accessories and heavy duties	Impo/re-expo sea and sea-air
	Phamaceuticals	Impo/re-expo air-air y sea-air
	Durable goods (clothing, shoes, furniture, cosmetics, leather), electric & electronics, home appliances	Impo/re-expo e-market channel
		Impo/re-expo traditional channels
Bulks	Liquid bulks (LPG/LNG)	Sea-sea
	Dry bulks (agriculture, others)	Sea-sea & sea-land
		Intermodal sea-road

② Five Strategies for the development of the Hub

Value proposition

The value for all target segments include

- Relevant VALS/segment
- Services aiming at supporting access to new markets and their exigencies: market information, certification, quality, tracking…

VALS & logistics segments

Proposed VALS depend on segments, families and logistics chains. Transport and ancillary services are part of the proposal when deemed relevant.

Logistics Segment/Family		Market	VALS
Perishable goods	Semi-perishable goods		4PL, transport in RoRo or general cargo short-sea shipping lines, consolidation in Panama, cold chain traceability, cross-docking and shipping to international destinations either by sea or by air
	Highly-perishable		Transportation to Panama, consolidation, cross-docking, shipping by sea and air, cold storage, cold chain traceability
B2C	Clothing, textiles, and shoes		Diversification of current VALS including tracking, door-to-door, inventories management using e-commerce channel
			Regional distribution, tracking, door-to-door, inventories management, return logistics, customer service
	Electric and electronic products		Diversification of current VALS including assembling, tracking, packaging, return logistics, disposal in traditional channels
			Customer service, storage, tracking, customer packaging, picking, return logistics in and e-market channel
	Cosmetics		Storage, tracking, customer packaging, return logistics, picking, customer service, consolidation in e-commerce channel
	Furniture		Consolidation, storage, distribution, assembling, tracking, picking, customer service, return logistics, disposal in traditional and e-commerce channel
	Home appliances		Consolidation, storage, consolidation, distribution, tracking, customer service, return logistics, picking, disposal in traditional and e-commerce channel
	Toys		Storage, tracking, customer packaging, picking, return logistics, customer service, consolidation in e-commerce channel
	Vehicles and machineries, spare parts & accessories		Diversification of current VALS including Customer Service, return logistics, tracking, disposal
	Pharmaceuticals		Diversification of current VALS including postponement (primary packaging, return logistics, disposal), repackaging, distribution, quality control, cold chain, traceability and tracking of shipments, international shipping (air, road, maritime)
	B2B segment (Medical Equipment and supplies)		Consolidation, distribution, tracking, customer service, inventory management, picking, return logistics in traditional and e-market channels
Bulks	Dry bulks		Packaging (bags), storage, unitarization, consolidation and distribution from Panama in containers

Legend: Extra regional Importations Intraregional

② Five Strategies for the development of the Hub

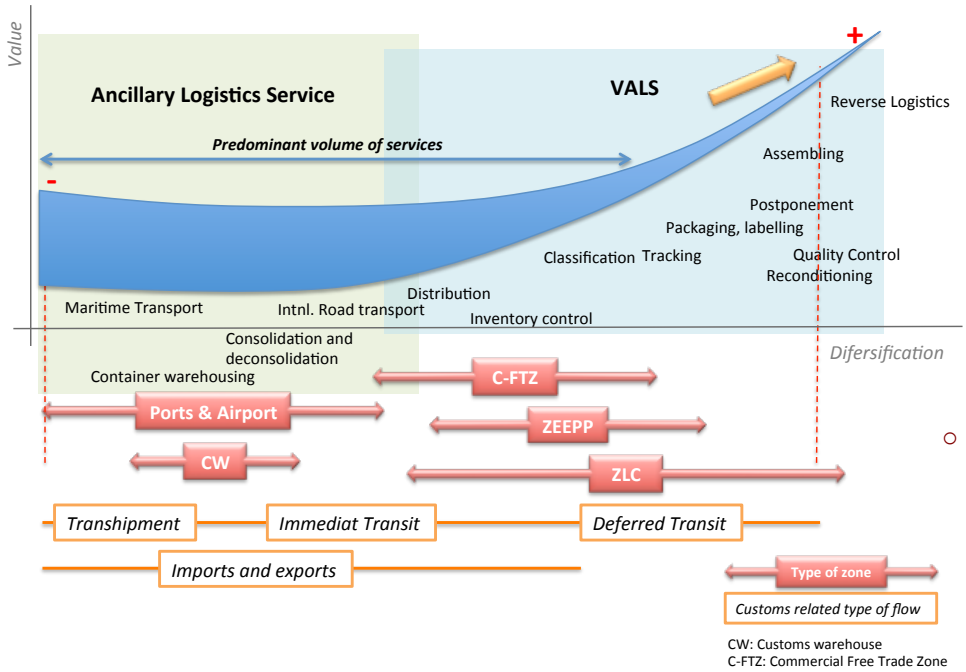
Objectives

- Expand the existing market by targeting new market segments and develop a relevant value proposition of VALS
- Deepening existing markets and generate loyalty by developing new VALS

Existing segments & VALS

The current Panamanian logistics supply of services is mostly composed of ancillary services – or support services related to transshipment and consolidation flows. These are mostly provided in ports and airports.

VALS are provided to goods in transit entering ZLC, ZEEPP and FTZ and destined to re-exportation. The broadest range of services corresponds to ZLC – also the main contributor to re-exportation flows. However, current VALS are the lowest in terms of value-addition. High-value VALS such as assembling and postponement are rather scarce, and reverse logistics, quality control and reconditioning almost inexistent



Existing segments and VALS

- Current segments using the Panamanian supply of VALS are mainly composed of durable goods' chain: electronics, electrics, pharmaceuticals, clothing, shoes, drinks, and vehicles, accessories & spare parts.
- Chains were selected taking into consideration the following criteria:
  - Volumes & values, based on 2015 custom's database
  - Value Addition, or changes in the density of value (USD/Ton) of re-exportations
  - Employment generation, qualitative assessment based on the nature of related VALS
  - Interest for future VALS development and potential for growth
- The assessment allowed identifying the convenience of assessing perishable goods segments since they are currently being used for re-exportation

! Pharmaceuticals is the logistics segment that most contributes to value-addition in Panama. In 2015 the average density of incoming goods was 66k USD/Ton vs. 107k USD/Ton, a 61% increase; beverages followed with a 24% increase. For the highest-volume segments the change range from 2 to 12%

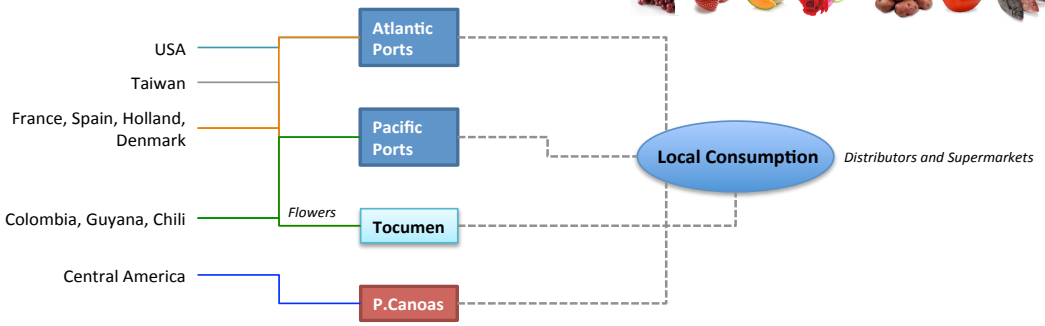
② Five Strategies for the development of the Hub

Chains assessed

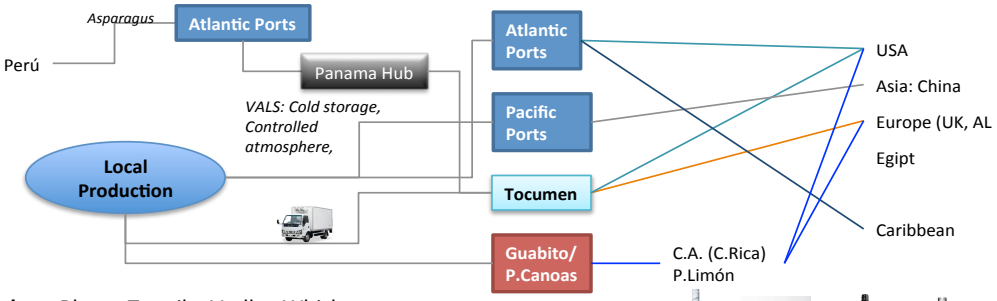
- Perishable goods; importations, exportations and re-exportations
- Alcoholic beverages
- Vehicles

Current logistics chains' map

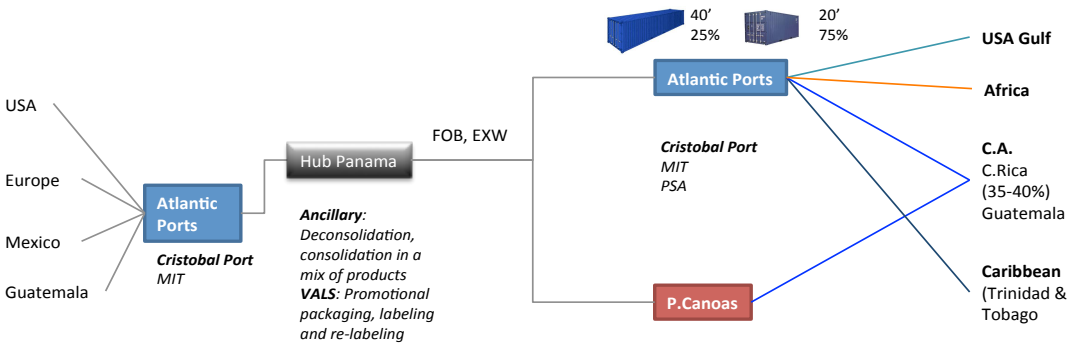
Product: Fruits, Vegetables, Fish, Flowers



Product: Fruits (banana), Asparagus, Fish (fresh and frozen), Shrimp



Product: Rhum, Tequila, Vodka, Whiskey



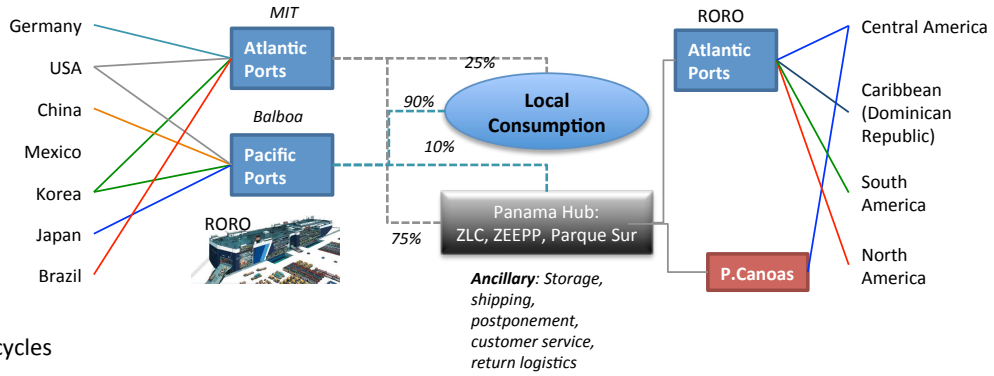
② Five Strategies for the development of the Hub

Chains assessed

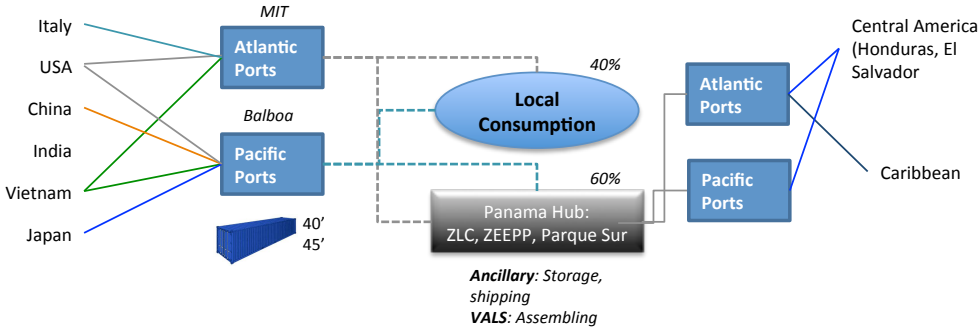
- Perishable goods, importations, exports and re-exportations
- Alcoholic beverages
- Vehicles
- Pharmaceuticals
- Clothing & shoes

Current logistics chains' map

Product: Vehicles and APE



Product: Motorcycles



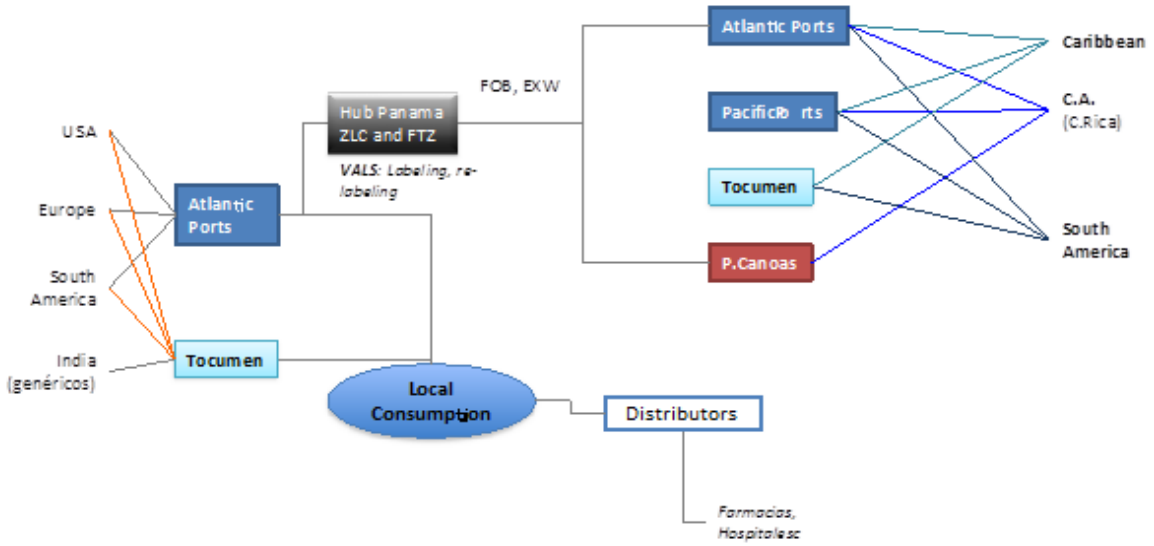
② Five Strategies for the development of the Hub

Chains assessed

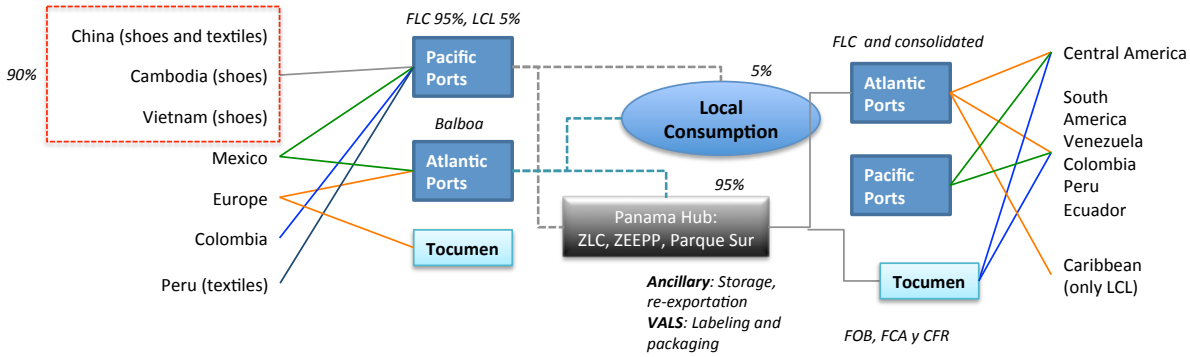
- Perishable goods, importations, exports and re-exportations
- Alcoholic beverages
- Vehicles
- Pharmaceuticals
- Clothing

Current logistics chains' map

Product: Medicines for human use, veterinary medicines, oncological, radioactive



Product: Clothing and sporting shoes



② Five Strategies for the development of the Hub

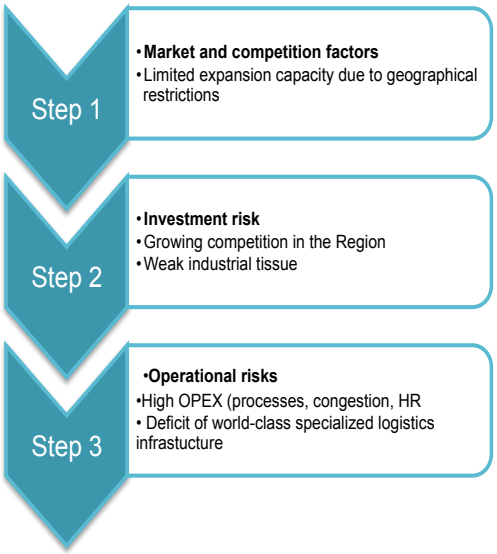
Main competitors

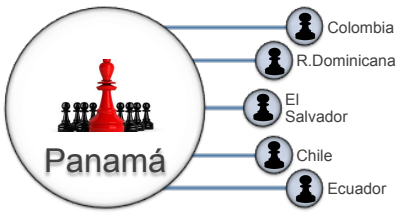
- Colombia: Transshipment & Perishables
- Dominican Republic, transshipment
- El Salvador, air hub
- Chile, perishables
- Ecuador, perishables

Investment risk

An overall investment risk's three-level assessment highlighted Panama's main weaknesses. At the market and competition level (investors' competition) the main factor derives from its reduced hinterland as well as the restricted access by land to the biggest sub-region, South America. At the Investment level, the growing competition (Panama's competitors) as well as the reduced industrial tissue were the most important factors.

The most important risks to address are operational risks, derived from the growing OPEX – process to be streamlined, human resources that need to be trained to address the new segments, and congestion. More world-class, specialized logistics infrastructure will be needed for the new segments. Belonging to the Pacific Alliance will be critical in the long run.





Panama has the leadership in the market and competitors position themselves as followers. However, the potential reduction of market share could threaten the potential to develop new market segments.

1ST ASPIRATION

Maintain transshipment and distribution markets

Avoid loss of market share

2ND ASPIRATION

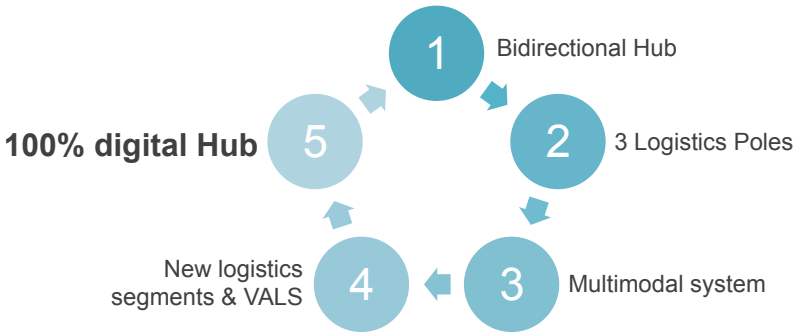
Expand markets to new segments and new VALS

Control threshold resources an develop a relevant value propositon

Assessment criteria

- The competition assessment was done at two level: a) Regional, namely Central America, the Caribbean and South America; b) at the country level for those positioning themselves as logistics hubs.
- Factors assessed:
  - Market & demand: Market size, proximity to markets, volumes of target segments, industrial tissue
  - LPI ranking
  - Transport & connectivity: air, sea, link to massive transport networks, transport services to the hinterland, quality of nodal infrastructure
  - Business climate: business risk, incentives, CAPEX and OPEX, institutional environment
  - Logistics supply: existence of World-Class logistics zones, diversification of logistics services, quality of HR
  - Technology & processes: utilities, ICT, external trade processes, degree of digitalization
  - Favorable Free Trade Agreements with destination countries

② Five Strategies for the development of the Hub



Objectives

- Streamline control procedures and fully digitalize the system
- Fully digitalize logistics flows and implement real-time optimization of physical and process control flows

Panama Logistics and External Trade Platform

The AIG (Government Innovation Agency), which leads the technological adaptation on e-government nationwide, along with the Logistics Cabinet, is currently developing the project “Technological Platform of Logistics and External Trade Integration”, a platform for logistics integration.

It will allow implementing an integrated single window for all administrative procedures and it is expected that the platform will link all stakeholders related to logistics processes so to optimize the flow of information.

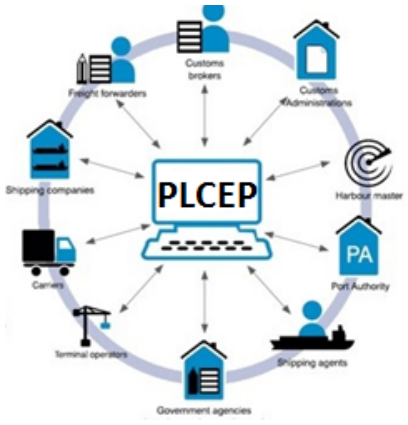
Panama Logistics and External Trade Platform (PLCEP)

Logistics optimization will rely on a national Cargo Community System (CCS) that will link all transport and logistics infrastructure. Logistics priority corridors will be also linked to the CCS in order to efficiently implement their fiscal corridor functions. This integration will benefit the private sector by providing them information on real-time flows that can be used to optimize existing assets.

Current situation

- Panama has a digital customs system (SIGA)
- SIGA provides the platform for the Single Window under development
- ACP and AMP are working on an integrated system for reception and dispatch of ships
- The Coordination of the Logistics Cabinet is about to begin the reengineering of external trade processes among all involved agencies
- Financial, legal and governance aspects will be an essential part of the proposal

CCS supporting the PLCEP



③ Action Plan

Step 1 Benchmarking
Lessons learned and critical success fators

Step 2: Definition of Strategies
5 Strategies for the development of the Hub

Step 3: Formulation of actions
Identification of key actions to implement each strategy

Step 4: Temporary priorities
Timeline and Inmediate, Medium an Long Term plan

Objectives

Propose an Immediate Action Plan with actions to be taken in the first two years, and a Medium and Long-Term Action plan with actions for the medium term (3 to 10 years), and long term (beyond 10 years)

Methodology

① Benchmarking

A recapitulation of lessons learned from global logistics hubs pertinent to Panama was the base for the strategic definition (See "5 Strategies for the Development of the Hub" – Methodology)

② Strategies

The 5 abovementioned strategies were the result of linking the benchmarking with the assessment of the current situation of the Panamanian logistics hub in all its components

③ Actions

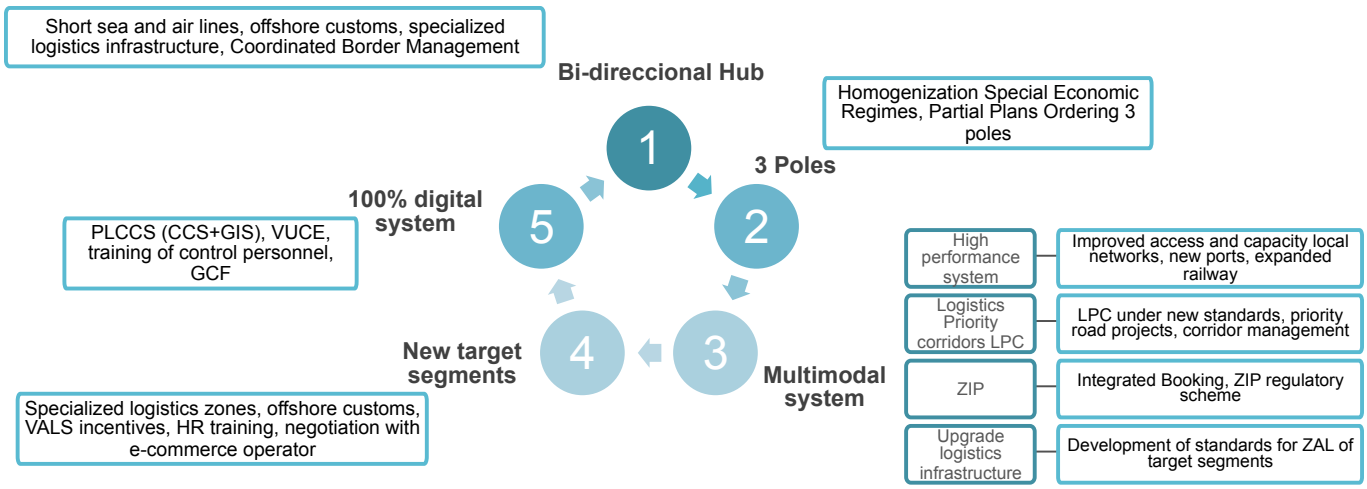
Core actions were linked to the 5 strategies and included infrastructure, services and processes reform

④ Temporary priorities

Actions were organized into a timeline taking into consideration the scenarios, current capacity constraints and a proposed sequence for the feasible emergence of new VALS

Components

- Transport infrastructure
  - Ports
  - Airports
  - Railway
  - Roads
- Logistics infrastructure
- VALS
- Land use estimation and reserve for 20 and 50 year timeframe



③ Action Plan

Infrastructure

- **Ports**
- Airports
- Roads
- Railways
- Logistics activities zones

VALS

Land Use

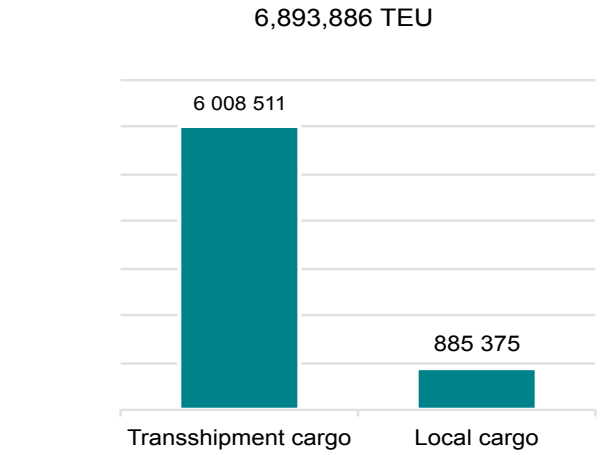
Objectives

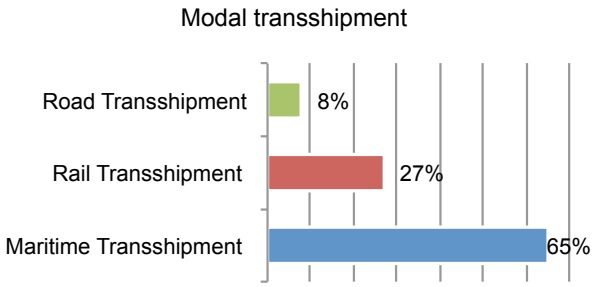
Overcome short-term capacity constraints and generate additional capacity to serve current demand growth and demand generated by new logistics segments under the optimal scenario

Demand

Transshipment flow represented 87% of the total port movement in 2015. Balboa port registered 52% of the total flows, followed by MIT, Cristobal, Colon Container Terminal and PSA.

Transshipment was dominated by maritime transshipment, followed by rail and road transshipment. FLC dry containers were predominant in transshipment, followed by empty dry containers, FLC reefer containers and finally empty reefer containers.

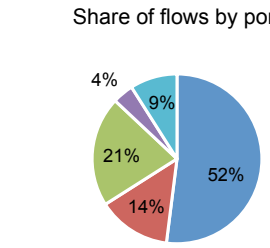


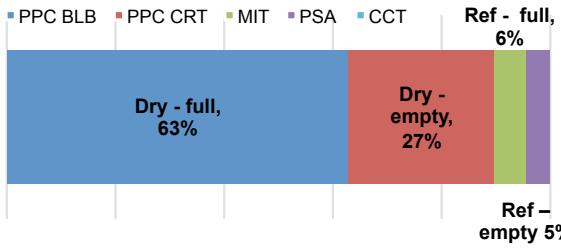


Current situation

- Port congestion
  - Shipyard capacity on the Atlanticside
  - Dock capacity on the Pacific
- Lack of specialized terminals, namely RoRo and dry bulks facilities
- New additional capacity for containers and general cargo is required in the future

Estimation	Balboa	Cristóbal	MIT
Freight 2015	3.1 MTEU	0.8 MTEU	2.0 MTEU
Dock capacity	**3.3 MTEU 94%**	1.7 MTEU 49%	4.7 MTEU 42%





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③ Action Plan

Infrastructure

- **Ports**
- Airports
- Roads
- Railways
- Logistics activities zones

VALS

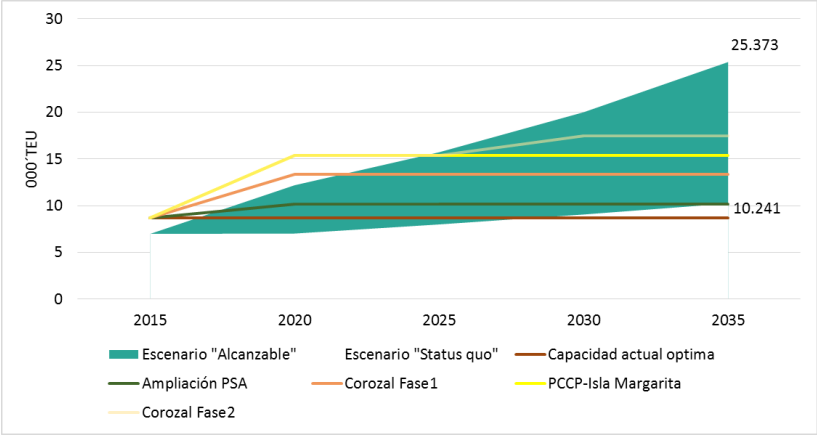
Land Use

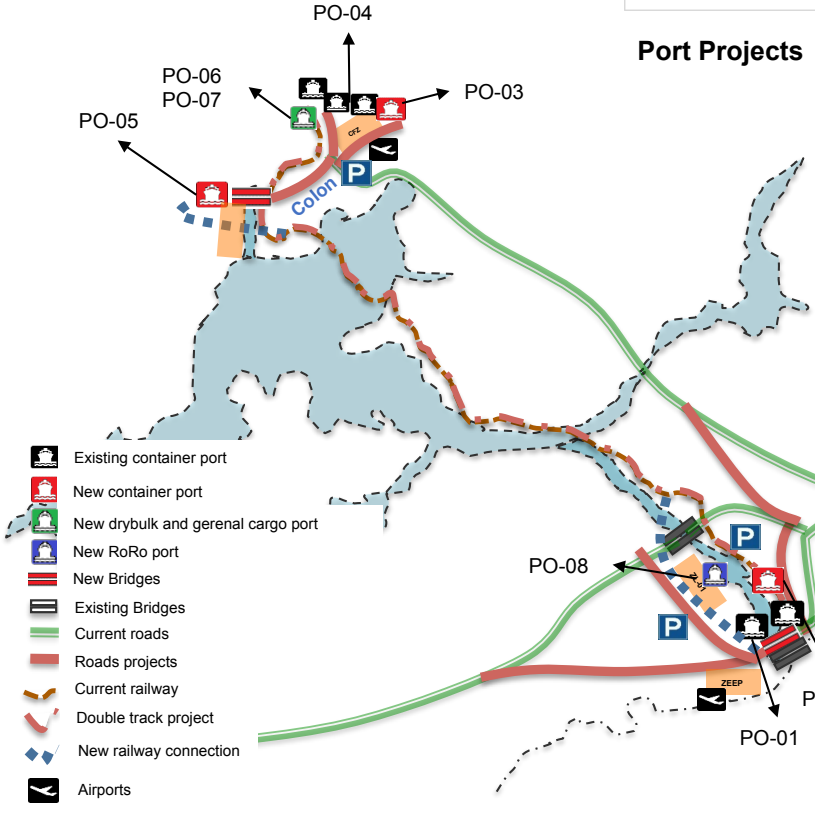
Objectives

Overcome short-term capacity constraints and generate additional capacity to serve current demand growth and demand generated by new logistics segments under the optimal scenario

Gap analysis

25.4 Million TEU of containerized cargo has been estimated for the “achievable” scenario, and 21,6 Million TEU of transshipment cargo in the same scenario





Port Projects

2020
- PSA Expansion (PO-01)
- Corozal Port Phase I (PO-02)
- Bulk terminal expansion Phase I (PO-06)
- General cargo terminal Phase I (PO-07)
- RoRo Terminal Phase I (PO-08)

2025
- PCCP – Isla Margarita (PO-03)
- Bulk terminal expansion Phase II (PO-06)
- General cargo terminal Phase II (PO-07)
- RoRo terminal Phase II (PO-08)

2030
- Corozal Port Phase II (PO-02)
- Bulk terminal Phase III (PO-06)
- Expansion CCT & MIT Phase I (PO-04)

2035
- Expansion CCT & MIT Phase II (PO-04)
- Gatun Container Terminal (PO-05)
- Bulk terminal Phase IV (PO-06)

③ Action Plan

Infrastructure

- Ports
- **Airports**
- Roads
- Railways
- Logistics activities zones

VALS

Land Use

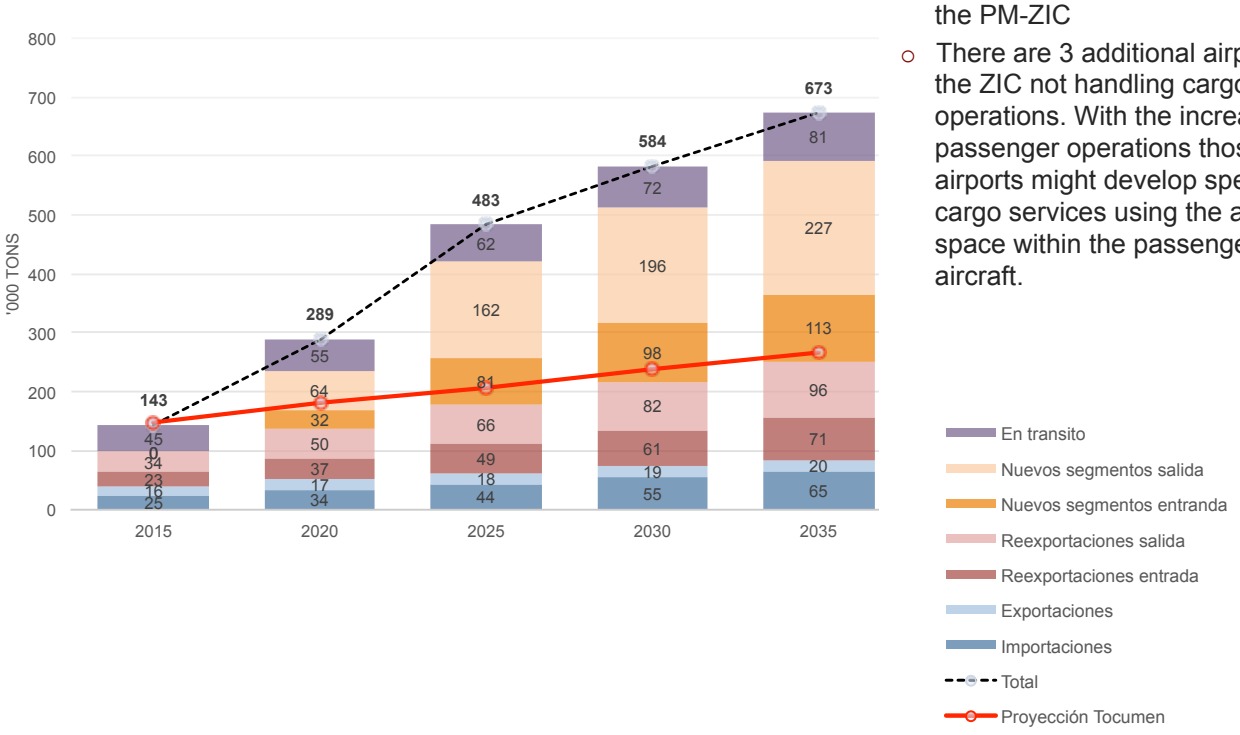
Objectives

- Provide additional capacity at Tocumen for cargo generated by new logistics segments
- Utilize bellies capacity in passengers' aircrafts moving through other ZIC's airports for short-distance cargo flows

Demand

Future demand estimations include growth trends for existing segments and new logistics segments as well

New logistics segments incoming and outgoing flows will more than double the future demand of existing segments thus implying that Tocumen's current estimates will fall far behind future estimated demand.



Current situation

- Tocumen is the main cargo airport handling over 98% of total air cargo. There is a need to improve facilities and better configuration to optimize cargo operations
- Tocumen is being expanded by current estimates did not include the demand of new logistics segments and VALS identified in the PM-ZIC
- There are 3 additional airports at the ZIC not handling cargo operations. With the increase of passenger operations those airports might develop specialized cargo services using the available space within the passenger's aircraft.

③ Action Plan

Infrastructure

- Ports
- **Airports**
- Roads
- Railways
- Logistics activities zones

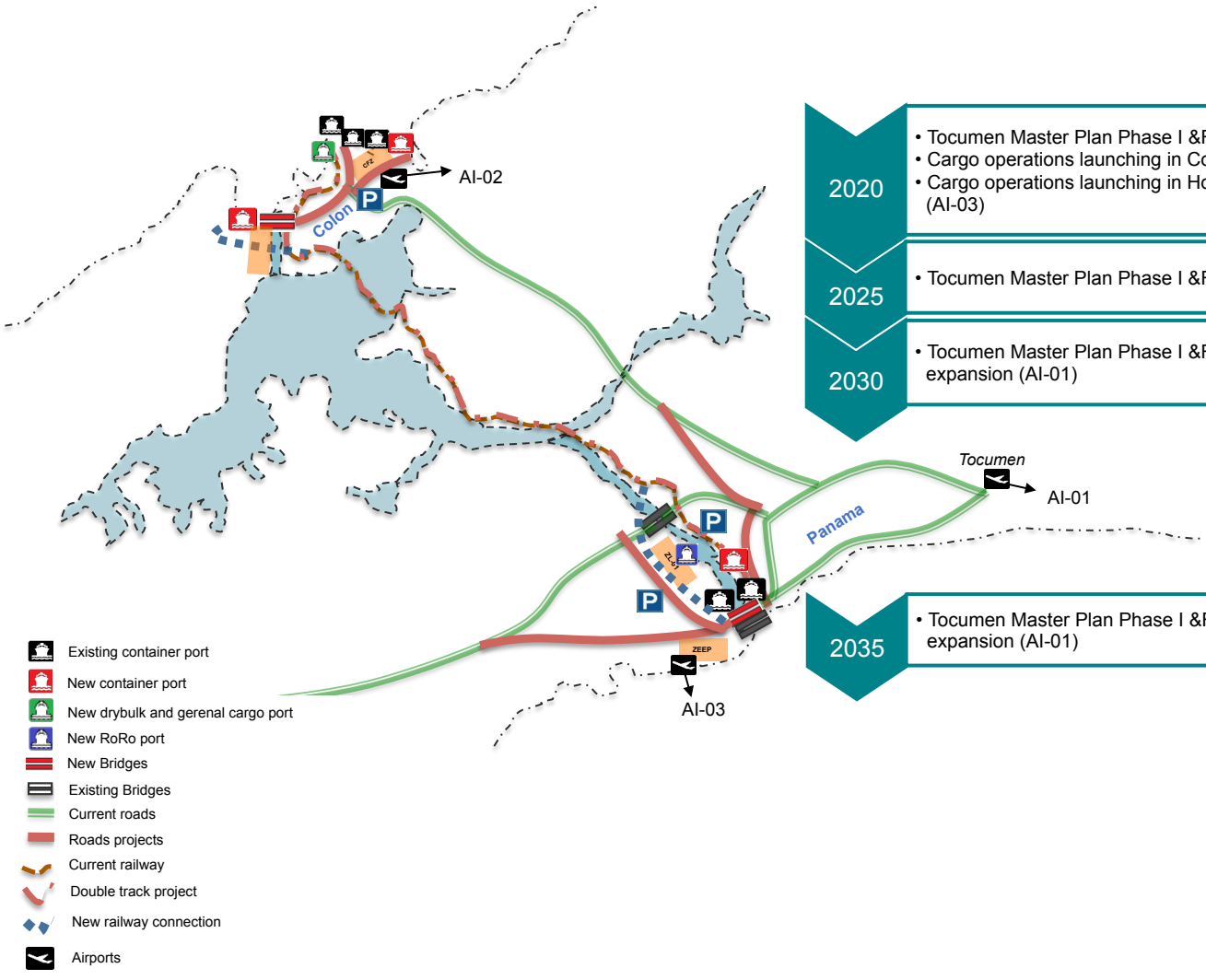
VALS

Land Use

Objectives

- Provide additional capacity at Tocumen for cargo generated by new logistics segments
- Utilize bellies capacity in passengers' aircrafts moving through other ZIC's airports for short-distance cargo flows

Aiport projects



2020
- Tocumen Master Plan Phase I &FII (AI-01)
- Cargo operations launching in Colón (AI-02)
- Cargo operations launching in Howard (AI-03)

2025
- Tocumen Master Plan Phase I &FII (AI-01)

2030
- Tocumen Master Plan Phase I &FII expansion (AI-01)

2035
- Tocumen Master Plan Phase I &FII expansion (AI-01)

③ Action Plan

Infrastructure

- Ports
- Airports
- **Roads**
- Railways
- Logistics activities zones

VALS

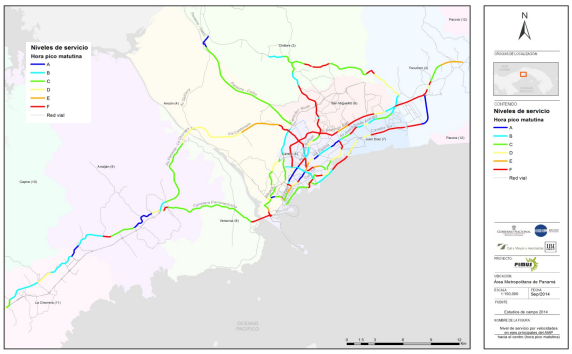
Land Use

Objectives

- Overcome capacity constraints and low service levels
- Upgrade design standards at local connections to implement and arterial network
- Complement with nodal facilities

Demand

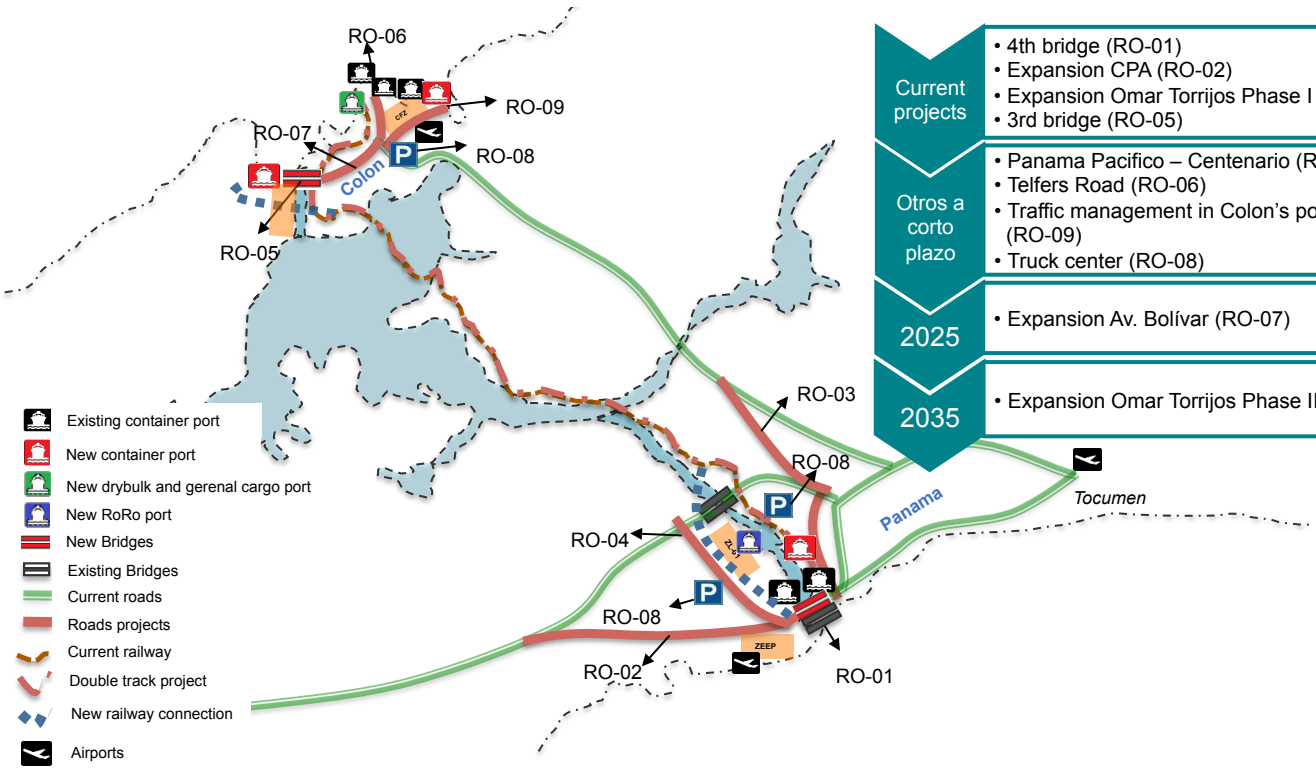
PIMUS Panama – Integral Plan of sustainable urban mobility – identified that most urban roads serving freight flows were operating at E (capacity) and F (congestion) service levels



Current situation

- The ZIC's arterial network is highly congested
- Local connectivity to ports and cargo generators needs also to be addressed since their design is not adapted to heavy cargo vehicles.
- Parking facilities and truck centers are inexistent thus generating congestion during peak hours

Proyectos Viales



Current projects
- 4th bridge (RO-01)
- Expansion CPA (RO-02)
- Expansion Omar Torrijos Phase I (RO-03)
- 3rd bridge (RO-05)

Otros a corto plazo
- Panama Pacifico – Centenario (RO-04)
- Telfers Road (RO-06)
- Traffic management in Colon's port accesses (RO-09)
- Truck center (RO-08)

2025
- Expansion Av. Bolívar (RO-07)

2035
- Expansion Omar Torrijos Phase II (RO-03)

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③ Action Plan

Infrastructure

- Ports
- Airports
- Roads
- **Railways**
- Logistics activities zones

VALS

Land Use

Objectives

- Enhance rail access and modal transfer facilities to address terminal operations issues
- Generate additional capacity to face future needs
- Provide access to the west bank

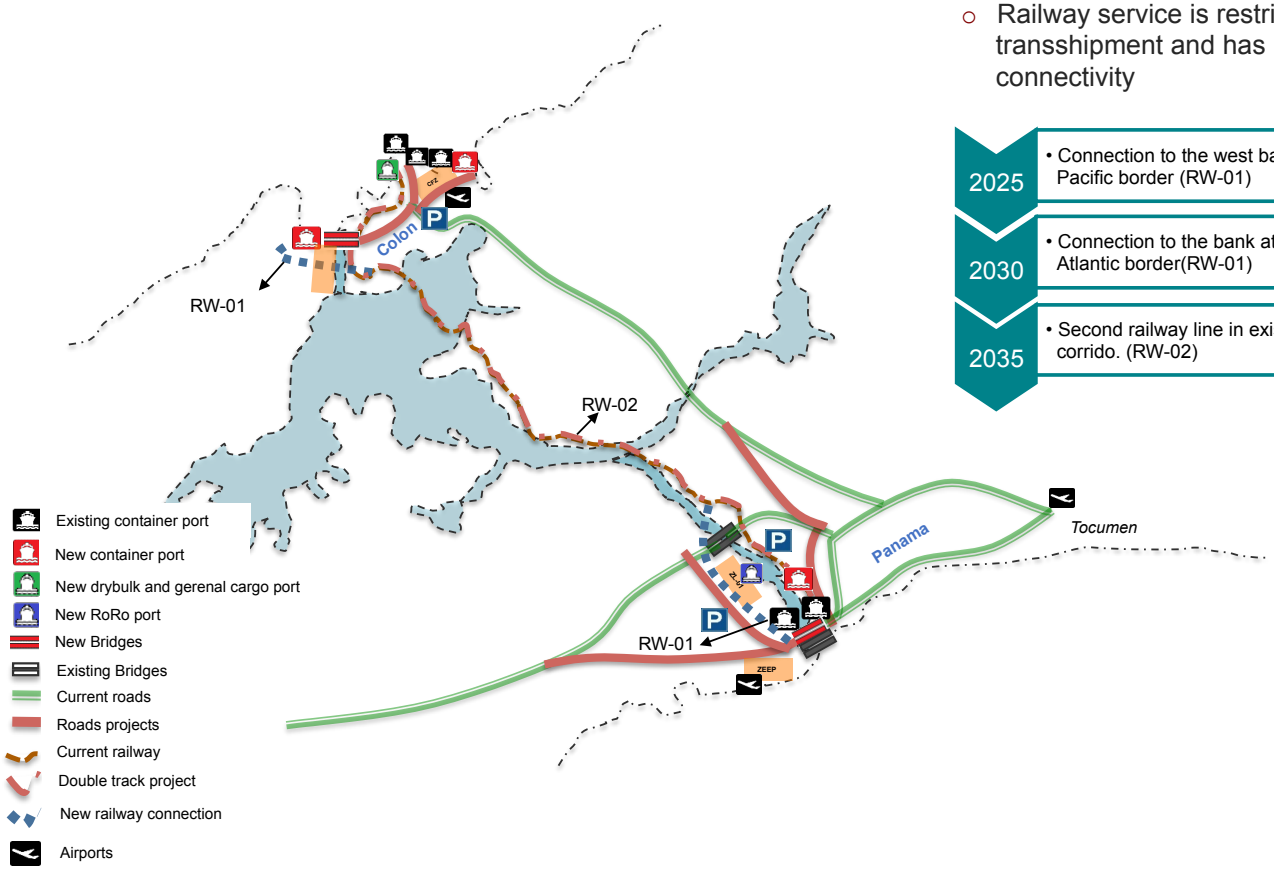
Demand

Current operations fully occupy current capacity. Investing in a double track is needed to handle future volumes of traffic, not restricted to transshipment but including re-export and local cargo

Current situation

- Because of the variability in vessel arrivals and the inefficiencies of ground operations, the railroad limits port capacity
- Design capacity is estimated at 1 Million Tons. However, actual capacity is 0,7 Million tons
- Railway service is restricted to transshipment and has limited connectivity

Railway projects



2025	• Connection to the west bank at the Pacific border (RW-01)
2030	• Connection to the bank at the Atlantic border(RW-01)
2035	• Second railway line in existing corrido. (RW-02)

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③ Action Plan

Infrastructure

- Ports
- Airports
- Roads
- Railways
- **Logistics activities zones**

VALS

Land Use

Objectives

- Generate specialized infrastructure for perishables and dry bulks
- Implement logistics zones at Tocumen and ACP zone (west bank)
- Promote world-class logistics zones thorugh new standards

Demand

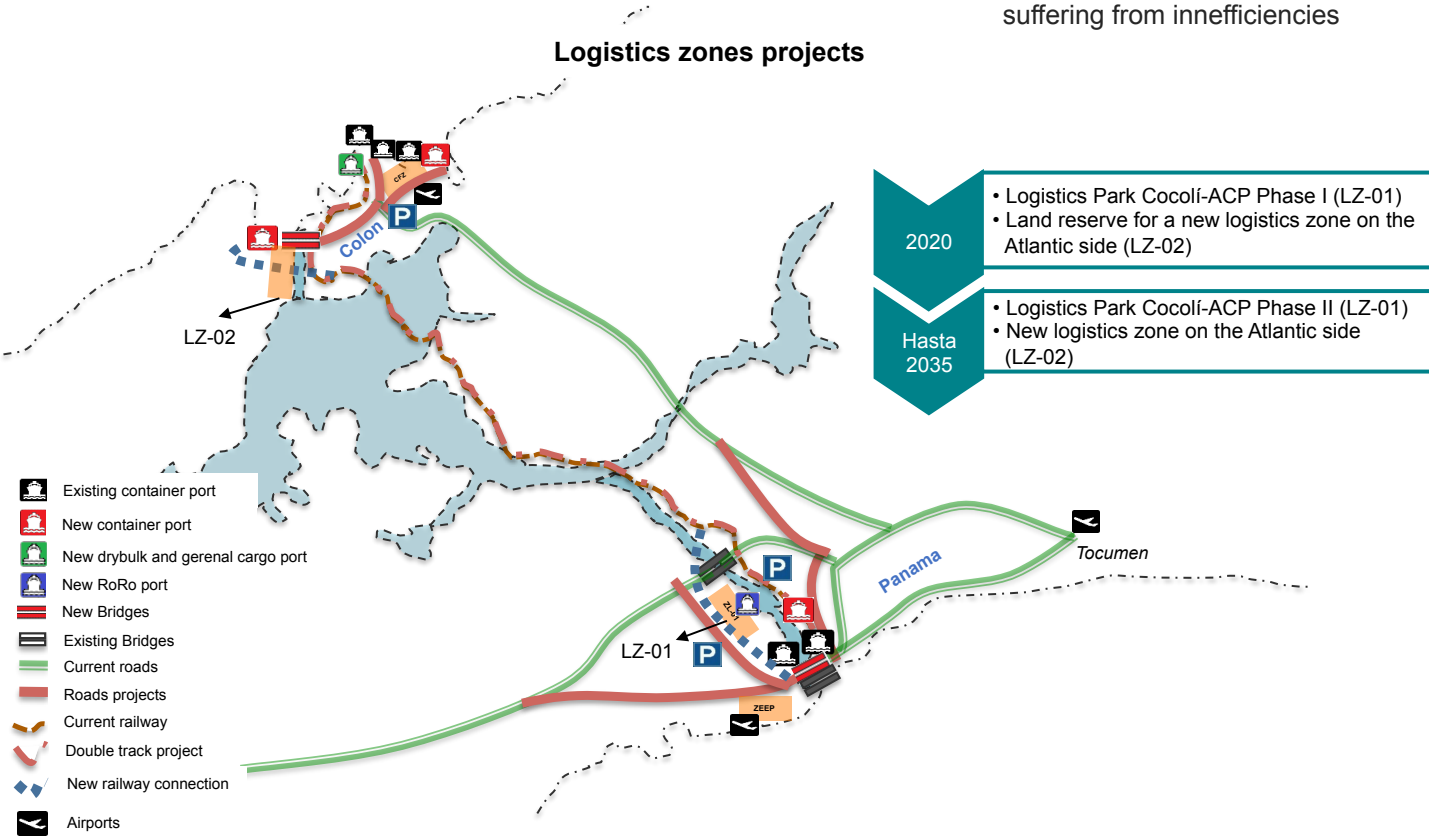
Estimates and functional requirements of future demand highlight the need for specialized logistics zones for the perishables and dry bulks segments. The zone belonging to ACP reserved for a ZAL can host VALS to different segments given its dimension, but in particular perishables goods.

The new Tocumen FTZ conceived for VALS to high-value cargo needs to include the needs of perishable goods' chains operating on intermodal patterns (air-air, road-air and sea-air).

Current situation

- Logistics supply is highly fragmented
- Existing infrastructure is adapted only to the traditional channel for durable goods' distribution segment
- Main offer at CFZ was conceived for a trade center, not for a world-class logistics activity zone thus suffering from innefficiencies

Logistics zones projects



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③ Action Plan

Infrastructure

- Ports
- Airports
- Roads
- Railways
- Logistics activities zones

VALS

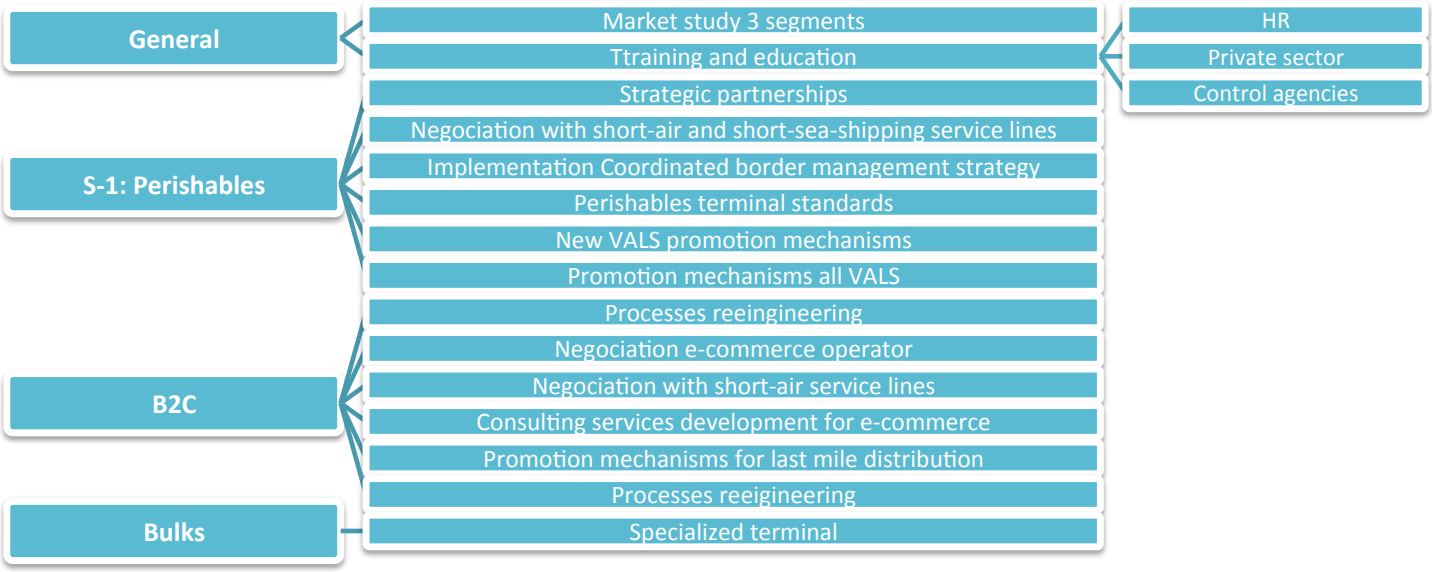
Land Use

Objectives

- Ensure the gradual development of an stable and sustainable supply of logistics services
- Generate a sound value proposition of VALS to new target segments

Actions on VALS

Actions on VALS comprise intervention on different elements that will leverage the emergence of VALS



③ Action Plan

Infrastructure

- Ports
- Airports
- Roads
- Railways
- Logistics activities zones

VALS

Land Use

Objectives

- Promote the harmonization of land uses at the 3 poles
- Reserve space to cover the needs up to a 50-year period and therefore preserve the strategic asset that represent the land at the ZIC

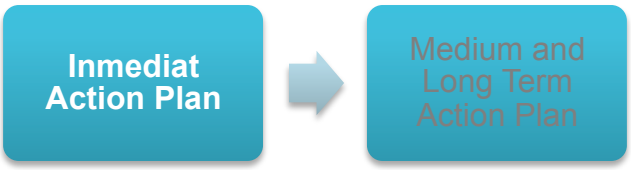
Land for logistics use

Estimates have been done for the 20-year timeframe of the PM-ZIC. However, land is one of the most important strategic asset at the ZIC along with the Canal and transport and logistics supply, therefore the PM-ZIC has considered a 50-year horizon to estimate land use requirements

Total land estimates at the 3 poles

Pole	Existente/Futuro	Existent and ongoing projects	Net projected (20 years)	Additional reserve (50 years)	Total logistics use	Total polygon
Atlantic Pole	Logistics special economic zones and logistics parks	831	649	2394	4836	6006 *81%*
	Transport infrastructure	677	285			
Pacific Pole	Logistics special economic zones and logistics parks	106	1064	4571	6776	11308 *60%*
	Transport infrastructure	795	240			
Tocumen Pole	ParLogistics special economic zones and logistics parks	465	160	3228	5698	8110 *70%*
	Transport infrastructure	1845	0			
Total		**4719**	**2398**	**10193**	**17310**	**25424**

③ Action Plan



Objectives

Propose a set of actions aimed at increasing logistic competitiveness of the ZIC and at boosting its development as an international value-added logistics hub

IAP total estimate

The total infrastructure represents approximately 7.5% of the total Action plan, and that of VALS 23%

Proyecto	Total, $
Inversiones en Puertos	
Implementaci[on ZIP (Estudios, asistencia técnica, software, implementación, etc)	2,000,000
Inversión en Fase I para desarrollo de carga general y terminal gránelero	100,000,000
Terminal RoRo Fase I	170,000,000
Inversiones en Aeropuertos	
Revisión del Plan Maestro de Carga de Tocumen	200,000
Desarrollo de FTZ Tocumen y terminales de carga Fase I y Fase II	750,000
Inversiones en ferrocarril	
Estudio de factibilidad de segunda línea ferrea y conexiones a lado oeste del Canal	2,000,000
Inversiones viales	
Implementación del corredor prioritario (Estudios, asistencia técnica, software, implementación, etc)	2,000,000
Ampliación y pavimentación de carretera Telfers	20,000,000
Mejoramiento de gestión de trafico en acceso a puertos en Coco Solo	1,000,000
Estudio de factibilidad e implementación de Truck Center.	10,000,000
Implementación de Zona Logística de la ACP a corto plazo	100,000,000
Inversiones estimadas Corto Plazo	**410,000,000**

③ Action Plan

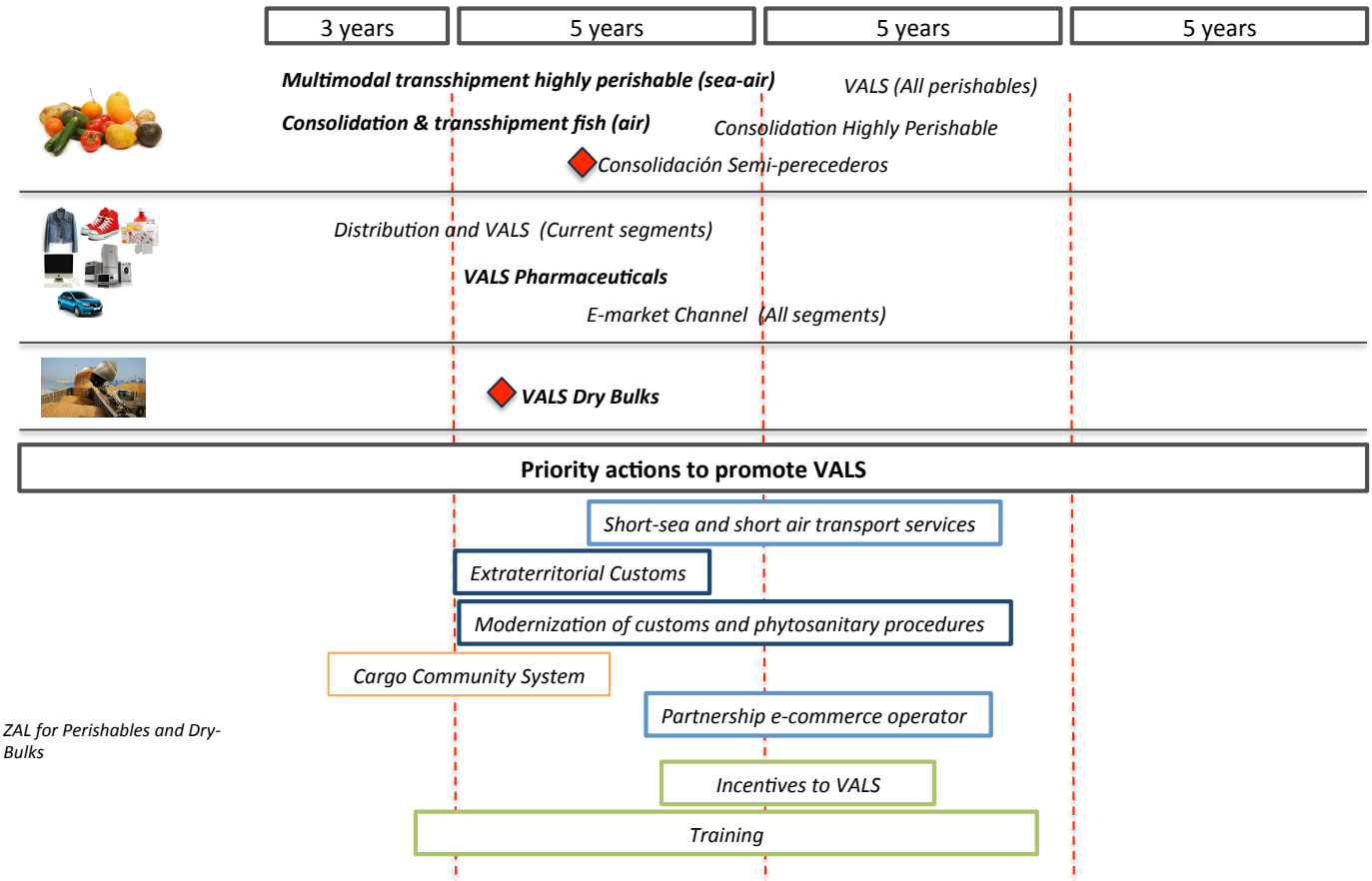
Inmediat Action Plan → Medium and Long Term Action Plan

Objectives

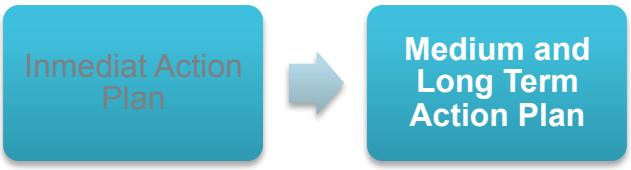
Propose a set of actions aimed at increasing logistic competitiveness of the ZIC and at boosting its development as an international value-added logistics hub

Timeline for VALS

The proposed sequence of actions takes into consideration the timeline for the feasible emergence of new VALS to be provided to target segments. This take into consideration the installed capacity and know-how, the existence of trained HR and process control personnel. Services that represent deepening the existing offer or low complexity have been prioritized accordingly.



③ Action Plan



Objectives

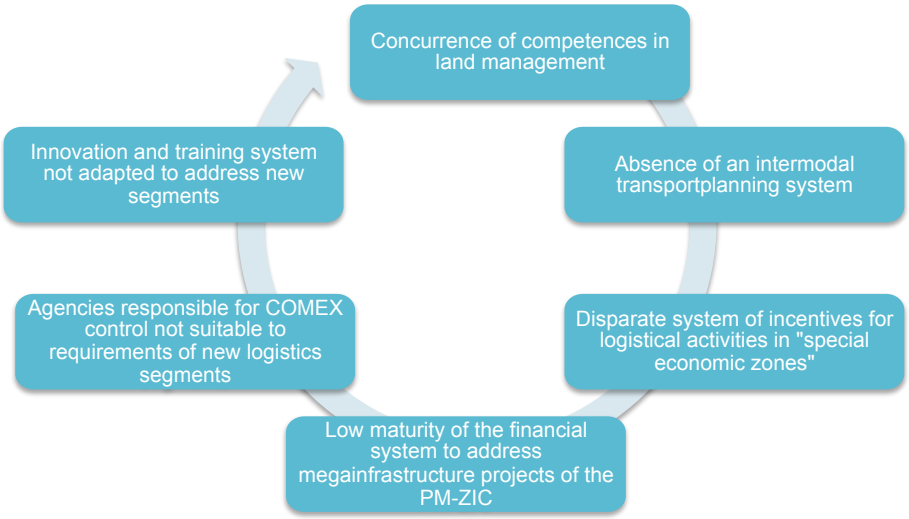
Develop an investment strategy to attract new logistic chains to Panama and consolidate Panama as an International Logistics Hub

M&L Term action plan total estimate

The total infrastructure represents approximately 7.5% of the total Action plan, and that of VALS 23%

		IAP: 2017-2020		MLAP		
MODE	PROJECT	*non capacity investment projects*	*capacity investment projects*	2020-2025	2025-2030	2030-2035
PORTS	PO-01 PSA EXTENSION	ZIP Implementation	Implementation			
	PO-02 COROZAL PORT		Phase 1 implementation		Phase 2 implementation	
	PO-03 PCCP - ISLA MARGARITA PORT			Implementation		
	PO-04 ADDITIONAL CONTAINER YARD				Phase 1 implementation	Phase 2 implementation
	PO-05 GATUN CONTAINER TERMINAL					Implementation
	PO-06 DRY-BULK TERMINAL IMPROVEMENT		Phase 1 implementation	Phase 2 implementation	Phase 3 implementation	Phase 4 implementation
	PO-07 GENERAL CARGO TERMINAL		Phase 1 implementation	Phase 2 implementation		
	PO-08 RORO TERMINAL		Phase 1 implementation	Phase 2 implementation		
AIRPORT	AI-01 TOCUMEN FTZ	Master Plan revision	Phases 1 & 2 implementation	Phase 3 implementation	Phase 1 Additional capacity	Phase 2 Additional Capacity
	AI-02 COLON AIRPORT		Implementation			
	AI-03 PANAMA PACIFICO AIRPORT		Implementation			
RAILWAY	RW-01 WEST BANK CONNECTIONS	Railway double track and west bank connection feasibility study		Phase 1 implementation	Phase 2 implementation	
	RW-02 DOUBLE TRACK IMPLEMENTATION					Implementation
ROAD	RO-01 FOURTH BRIDGE AND ACCESSES	Logistic Priority Corridor Implementation	Implementation			
	RO-02 PANAMERICANA WIDENING		Implementation			
	RO-03 WIDENING OMAR TORRIJOS / UPGRADE OMAR TORRIJOS		Widening			Upgrade
	RO-04 PANAMA PACIFICO TO CENTENNIAL		Implementation			
	RO-05 THIRD BRIDGE AND ACCESSES		Implementation			
	RO-06 WIDENING AND PAVING TELFERS ACCESS ROAD		Implementation			
	RO-07 AV BOLIVAR ACCESS TO THIRD BRIDGE			Implementation		
	RO-09 TRAFFIC MANAGEMENT FOR CRISTOBAL AND COCO SOLO		Implementation			
	RO-10 TRUCK LOGISTIC CENTER		Implementation			
Logistics areas	LZ-01 ACP LOGISTIC ZONE		Phase 1	Following Phases		
	LZ-02 NEW LOGISTIC ZONE IN ATLANTIC SIDE		Land reservation	implementation		
		Legend:	*On-going Projects*			
			Ajusted on-going projects			
			New projects			

④ Cooperation schemes



Main weakness to develop the Hub

A logistics Hub is mainly a development built upon its nodal logistics infrastructure developments, transport nodes and network infrastructures hosting logistics and transport services. These two main pillars – the **intermodal transport system** and **the land management system**- are the weakest parts of the legal and institutional framework in the ZIC.

A proper **multimodal transport system needs to be in place for a global hub,** but no institution plays the role of the governing body for the transport sector as a whole and no planning system is in place.

Special economic zones' regimes conceived for a different market situation have become confusing for the private investor and have not generated the benefits expected, in particular FTZ.

The lack of a PPP law allowing several types of **public-private financed projects** in an organized manner, the limited experience in the model of Project Finance, the scarce use of pre-investment resources, the lack of regular financing for capacity building activities, monitoring, etc. are all constraints that need to be solved.

Panama will need to fully strengthen all the institutions and reengineer processed linked to the **control of external trade operations**, not currently adapted to deal with new segments in high volumes.

Developing a strategic approach to speed up the **education, training and innovation system** is crucial for the development of the Hub. Panama has no experience in most of the new target segments and this needs to be addressed in the very short term.

Objectives

- Optimize the coordination among public entities and with the private sector
- Make the best use of overall resources
- Manage an externalities
- Ensure the continuity and sustainability of the effort

Premises

- The development of a VALS Hub is a national priority aimed at promoting the exportation of services, value capture, and therefore maximizing the opportunities for employment generation.
- The execution of the PM-ZIC should make an optimal use of existing institutional capabilities and support ongoing initiatives without putting in risk the implementation of the plan.
- The e PM-ZIC is a complex endeavor that implies public and private investments of around 10 digits USD in a relatively short period, thus demanding that the whole set of public and private resources be available accordingly in an optimal manner.
- The execution of the plan requires an active involvement of public and private institutions to finance, promote, and execute its diverse components.
- The expertise required for the development of the PM-ZIC is not fully available in the country and it is therefore necessary to make use of knowledge-transfer best practices

④ Cooperation schemes

Long-term oriented. Looks after guaranteeing the sustainability and optimizing the execution of the PM-ZIC as a whole

Short-term oriented. Looks after initiating the execution of most critical projects in an expedite and coordinated manner, and to preparing both the public and private sectors to fulfill their roles optimally

Cooperation schemes are at two level: strategic and operational. The first one is long term oriented and look after ensuring sustainability and optimizing the execution of the PM-ZIC as a whole, whereas the second points out at beginning the execution of the plan.

Strategid

Institutional, legal and financial components need to be adjusted in order to streamline the execution of megainfrastructure projects and effectively launch VALs to new logistics segments

Institutional

Coordination agency focused on financing and capacity building

The coordination instance needs to reinforce its capabilities to capture and assign financing resources on a long-term basis and provide technical assistance to all transversal institutions involved in the execution of the PM-ZIC in all its phases

Sponsoring undertaking for ZIC's megainfrastructure projects

A short-term promoting agency managing the complexities of executing megainfrastructure projects could speed-up the process of obtaining permits, expropriations launching biddings, supervising, etc.

Legal

Special ecoomic regimes for the 3 poles

Special economic regimes in the 3 poles should be homogenized in the medium term

Partial Plans in 3 poles and Executive Decree

Partial Plan should be immediately formulated for the 3 poles. An Executive Decree in the Short Term should delimit the pole's borders and order the elaboration of the land management plans.

Financial

Pre-investment resources

Pre-investment resources need to be allocated on a continuous basis

Investment resources basket and PPP mechanism

A solid PPP framework creating the basis for Project Finance mechanisms need to be complemented with public resources and loans.

Objectives

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Case study: FONTUR

One interesting best practice that could be applicable to this case is the Foundation National Urban Transport Fund of Venezuela, created in 1991 following the Decentralization Law, with the aim of implementing the National Strategies on Urban Transport, in particular strengthening the municipalities to plan and administer their urban transport systems, as well as to implement the fleet renewal program.

The fund gave intensive technical assistance to the entities in the process of preparing, formulating and executing plans and projects.

In order to transfer funds to municipalities to execute plans and projects, FONTUR created a Bank Trust (Fideicomiso) for every municipality that was beneficiary of the program. An annual budget was agreed with the municipalities and for those biddings awarded locally FONTUR paid directly to the contractor once obtained the non-objection from its own team and from the Municipality. The interests of the placements in the bank trust were reverted to FONTUR to cover its operating expenses.

④ Cooperation schemes

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Operational

Developing business plans, creating strategic partnerships, launching a massive training program of HR at all level, capacity building as well as implementing a regulatory scheme for the ZIP are all actions that should be faced inmediatly

Business and marketing strategy

A more refined definition need to be made on proposed target segments and generate a pertinent business strategy. Both public and private entities should be aligned accordingly

Institutional strengthening and capacity building

Based on the business strategy, institutional and capacity building are required for both public and private stakeholders and institutions

Facilitation mechanisms for new VALS and training

Facilitation mechanism should be put in place in order to attract logistics operators to new, risky segments. Training of HR is one of the aspects to be addressed. Partnerships with foreign training centers, training centers as part of concessions, e-training are some of the solutions

Objectives

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Capacity building

Public and private institutions need to organize themselves to execute a long-term plan such as the PM-ZIC. This includes not only the adaptation of organization to better respond to new market segments but to develop an intensive technical assistance program for both public and private sectors to speed up the learning process in areas in which it does not have prior experience.

The main three lines of action are: a) setting up a sustainable system of market intelligence, b) training public and private stakeholders in promotion and negotiation; and c) training the private sector in effective lobbying.

Strategic partnerships and extraterritorial customs

There are some logistics chains that are currently making intermodal transportation in Panama. Panama could have **partnerships with an institutional operator** – such as Frioaero in Peru – providing solutions for the lack of capacity of the exporter and speeding-up the learning curve

Establishing **extraterritorial customs, phytosanitary and zoo sanitary zones** in Panama could overcome the short-term challenge of having Panamanian officials trained and reduce the risk of customs discrepancies

ZIP regulation

The ZIP would not only optimize existing port supply but would create the conditions for ports regulation

④ Cooperation schemes

Timeline for proposed schemes

As for the VALS, the implementation of proposed cooperation schemes has been organized to respond in a progressive and timely manner to the development of new logistics segments

The principle is to put in place the recommended coordination schemes when the stage of development actually requires it. In that sense, the operational components come first in parallel with early stages of strategic components

Objectives

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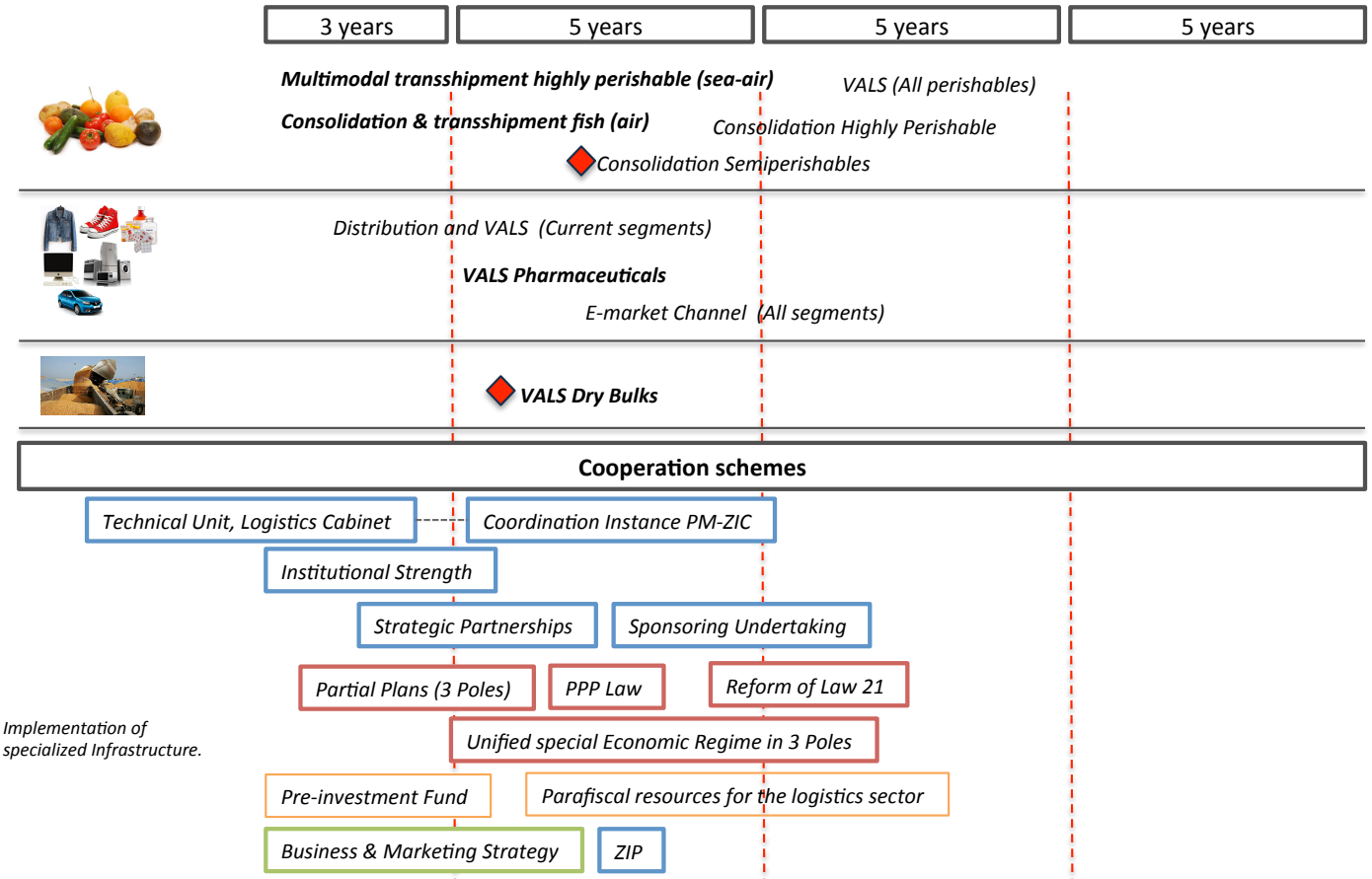

⑤ Accronyms

3PL: Third-Party Logistics Provider
AAC: Civil Aviation Authority (in Spanish Autoridad de Aeronáutica Civil)
ACP: Panama Canal Authority, in Spanish Autoridad del Canal de Panamá

ACS: Airport Community System
ADR: Carriage of Dangerous Goods by Road (in French, Accord européen relatif au
AEEPP: Panama Pacific Special Economic Agency

AIC: Industry and Commerce Authority

AIG: Authority of Governmental Innovation

ALADI: Latin American Integration Association

ALPS: Airport Logistics Park of Singapore

AMP: Panama Maritime Authority (in Spanish, Autoridad Marítima de Panamá)
ANA: National Customs Authority (in Spanish, Autoridad Nacional de Aduanas)
ANATI: National Authority of Lands

AOE: Authorized Economic Operator, in Spanish Operador Económico Autorizado (OEA)
AOG: Aircraft-on-ground

APE: Apecar Vehicle
ARAP: Panamanian Authority of Aquatic Resources (in Spanish, Autoridad de los Recursos Acuáticos de Panamá)
ARI: Authority of the Interoceanic Region
ASEP: National Authority of Public Utilities

ASC: Automatic Stacking Cranes
ATTT: Authority of Traffic and land Transport (in Spanish, Autoridad del Tránsito y Transporte Terrestre)
AUPSA: Panamanian Authority of food security, in Spanish Autoridad Panameña de seguridad de alimentos
AUZLC: Users Association of Colon Free Zone (in Spanish Asociación de Usuarios de Zona Libre de Colón)
B2C: Business-to-Consumer

BCM: Border Coordinated Management (or GCF for its name in Spanish)
BOR: Berth Occupancy Rate CCT: Colon Container Terminal
CA: Central America
CACM: Central American Common Market

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CAF: Development Bank of Latin America (in Spanish, Corporación Andina de Fomento)
CAFTA-DR: Central American-Dominican Republic Free Trade Agreement
CAN: Andean Community of Nations (in Spanish, Comunidad Andina de Naciones)