Georgia Tech Panama
Logistics Innovation & Research Center

Regional hub for
Medical Devices

Panama as a Strategic Supply Link for Medical Devices

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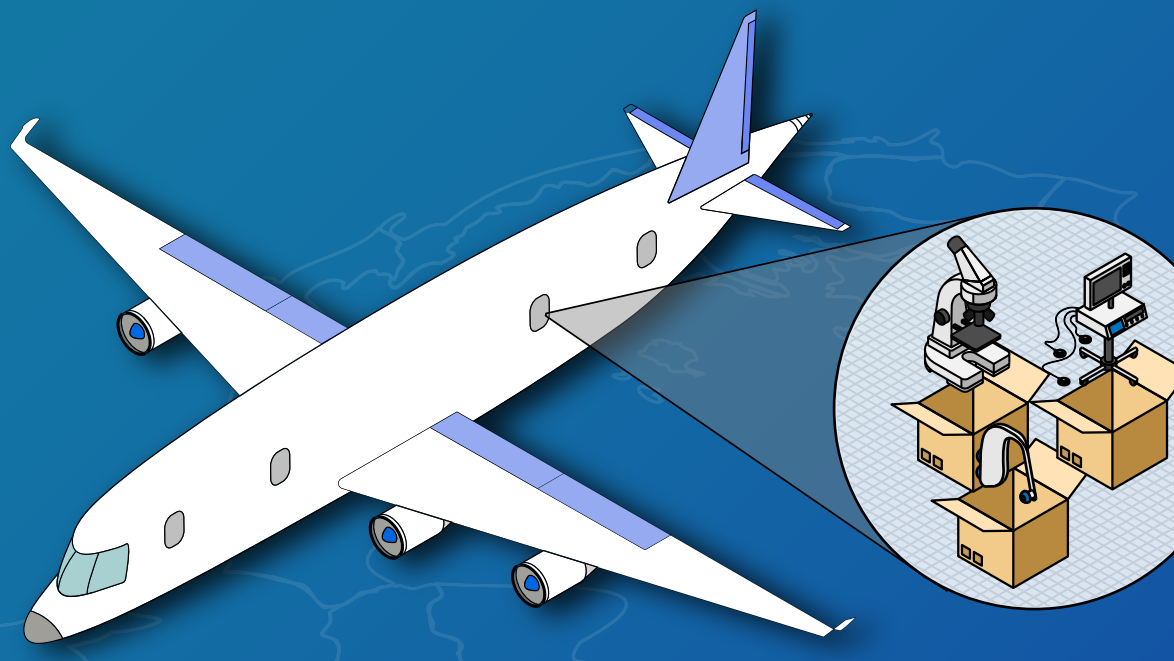

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I. Why Panama

Logistics connectivity is a critical aspect of global trade and economic development as it empowers supply chains worldwide, facilitates the expedited movement of goods across borders and also fosters collaboration between markets. The evolving global markets place ever greater demands on the necessity of diverse transportation options that not only provide speed of delivery but also flexibility and responsiveness.

In this interconnected landscape, Panama stands out as a prime example of a point of connection that can leverage its strategic geographical advantages to further enhance its role as a global transportation hub. Positioned at the crossroads of North and South America, Panama is home to the Panama Canal, a crucial link that facilitates maritime trade between the Atlantic and Pacific Oceans. This unique positioning, coupled with a favorable business environment, special economic zones, and robust infrastructure, makes Panama an attractive hub for logistics and supply chain operations. Historically, the isthmus has served as a natural center for logistics, functioning as a vital commercial and transportation link in the global supply chain. Its privileged location has allowed it to also flourish not only as a regional logistics hub, but also as a center of operations for multinational companies. [1][2][3]

Unique in its access to two oceans, Panama plays a significant role in global trade. Approximately 5% of global maritime traffic passes through the Panama Canal and it serves more than 144 maritime routes connecting 160 countries and reaches more than 1,700 ports globally. [4] The Panama Canal has also played an important role in driving the development and enhancement of Panama's ports and logistics infrastructure.[5]

Nearly 60% of the population is located around the interoceanic Canal zone, in which the provinces of Panama, Panama Oeste and Colon are located, and contains most of Panama's logistics assets. These

provinces also account for about 80% of the country's GDP. The second region with the highest population concentration is the province of Chiriqui, in the western region of the country, which accounts for 11.6% of the total population and 6% of GDP. [6][7][8] Panama is ranked among the countries with high human development, with a score of 0.820 (2022), which places it 58th out of 193 countries, being the country with the best human development in Central America and the fourth in Latin America.[9]

The strong performance of Panama's logistics sector has led it to become one of the logistical frontrunners in the region. The World Bank develops the Logistics Performance Index, where it takes different factors into account, such as customs, infrastructure, international shipments, logistics competence and quality, timeliness and tracking and tracing. In the 2023 edition of the LPI report Panama came forward as the second best performing Latin American country, behind Brazil [5][10].

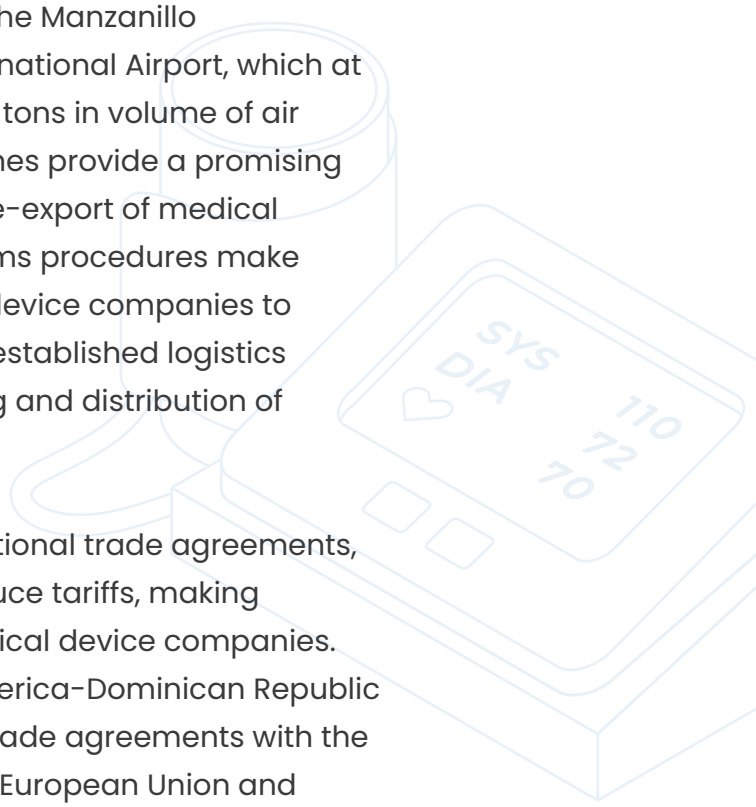
Panama has an open-dollarized economy, a relatively stable socio-economic and political environment, a low incidence of natural disasters, and tax incentives for the establishment of regional operations which facilitates investments and the establishment of regional operations. [11]

II. Panama's role in connecting the global medical devices supply chain

Building on its logistical advantages, Panama is strategically positioned to facilitate the global medical devices supply chain. Panama offers attractive connectivity between North and South America, as well as access to European and Asian markets. This allows Panama to serve as an important transshipment hub, facilitating the efficient movement and storage of medical devices and other high-value goods across global markets.

The country's logistics infrastructure is well-developed, featuring

world-class ports such as the Port of Balboa, the Manzanillo International Terminal, and the Tocumen International Airport, which at the end of 2023 handled 208 thousand metric tons in volume of air cargo. [13] Additionally, its special economic zones provide a promising environment for the import, processing, and re-export of medical devices. Tax exemptions and simplified customs procedures make these attractive locations for global medical device companies to establish distribution centers. Panama's well-established logistics infrastructure also ensures efficient packaging and distribution of medical devices. [14][15]



Panama benefits from a wide array of international trade agreements, which facilitate seamless trade flows and reduce tariffs, making Panama an attractive location for global medical device companies. Among these agreements are the Central America-Dominican Republic Free Trade Agreement (CAFTA-DR), bilateral trade agreements with the United States, and trade agreements with the European Union and numerous Latin American countries. [12]

With no export limitations in place, Panama's degree of trade openness is one of the highest in Latin America at 81.5% [16]. The country ranks eighth globally in terms of business openness according to US News. The open and competitive services sector leads to a large surplus in the balance of trade in services which counterbalances Panama’s deficit in the balance of trade of goods.

Moreover, Panama has developed capabilities in expert packaging and in-house sterilization through its robust logistics providers. These services are crucial for maintaining the integrity and safety of medical devices during transit. The country's focus on career paths and education in fields relevant to the medical devices industry further strengthens its position. There are programs dedicated to engineering and biomedical sciences, supported by experimental centers and research facilities that foster innovation and development [17][18]. Such educational infrastructure ensures a steady supply of skilled professionals who can contribute to the industry's growth and

sustainability.

However, there are areas where Panama can further enhance its capabilities to become an even more formidable player in the global medical devices supply chain. While **subassembly outsourcing** is not yet prevalent, there is significant potential for development. By **fostering an environment** that supports this aspect of the manufacturing process, Panama could attract more companies to set up operations.

Panama's existing development in laser marking, ink pad printing, and wire EDM cutting, though not currently targeted specifically at medical devices, presents another growth opportunity.[19] Leveraging these capabilities and redirecting them towards the medical devices sector can enhance the range of services offered. **Inventory management and logistics services are already well-established services in Panama** and can be seamlessly adapted to meet the specific needs of the medical devices industry. Furthermore, with the presence of the **National Directorate of Medical Devices** [20] in the Ministry of Health, there is an **opportunity for collaboration to offer technical support and guidance to companies that want to locate activities in Panama.** This partnership could provide valuable insights and guidance to companies navigating regulatory requirements and best practices.

The country enjoys advantages that are attractive for nearshoring, such as proximity, similar time zones with some U.S. states, efficient cargo movement through ports, cultural and linguistic affinity with Latin American markets, and a highly qualified and adaptable workforce. Panama also benefits from low inflation rates and a well-regulated banking sector.

Panama's combination of existing strengths and potential for development positions it as a prime candidate for becoming a leading center for medical devices distribution. Its robust trade agreements, logistics infrastructure, and skilled workforce provide a strong foundation to leverage **opportunities for expanding sub assembly**

outsourcing, testing facilities, and existing technical expertise. With strategic investments and continued focus on enhancing its capabilities, Panama can significantly bolster its role in the global medical devices supply chain.

III. Regulatory and compliance considerations in Panama's logistics hub regarding medical devices

The National Directorate of Medical Devices is in charge of regulating the imports, exports, re-exports, and distribution of medical devices, including in-vitro diagnostic devices. [20] These regulations are established under Executive Decree No.616, dated May 13, 2020, which modifies and adds articles to Executive Decree No. 490 of October 4, 2019, where it regulates Law 90 of December 26, 2017, on Medical Devices and related products as amended by Law 92 of September 12, 2019. [21][22]

Law 90 emphasizes that the validity of the Sanitary Registration of Medical Devices will be elaborated based on the risk classification of such devices and the manufacturer's recommendations, having as a reference the most updated version of the risk classification of the Global Harmonization Task Force/International Medical Device Regulators Forum (GHTF/IMDRF) or the regulatory entity that replaces it will be used. [23]

This regulation details the obligation that all commercial establishments that store medical devices and related products must have their warehouse and adapted administrative offices, in order to avoid any condition that affects the quality of these and the safety of personnel. It also highlights the minimum requirements regarding storage areas, and the conditions that vehicles used to transport medical devices and/or related products must have. [24]

It is important to highlight that **medical devices covered by the law on medical devices and related products, are exempt from all import duties**. Also, establishments or individuals engaged in the manufacture,

import, export or distribution of medical devices must have an Operating License, issued by the National Directorate of Medical Devices. This license only guarantees the commercialization of medical devices and cannot be used for the commercialization of pharmacological products [23].

IV. Panama's outlook on the Medical Devices supply chain.

This following section explores Panama's current role in the global medical devices supply chain by analyzing trade statistics and providing an in-depth look at key import and export trends from 2018 to 2023. We measure both the national trade flows and those inbound to and outbound from Panama's special economic zones to gain a deeper understanding of Panama's current trade of medical devices. We also analyze origin and destination countries to detect current regional redistribution and potential growth opportunities.

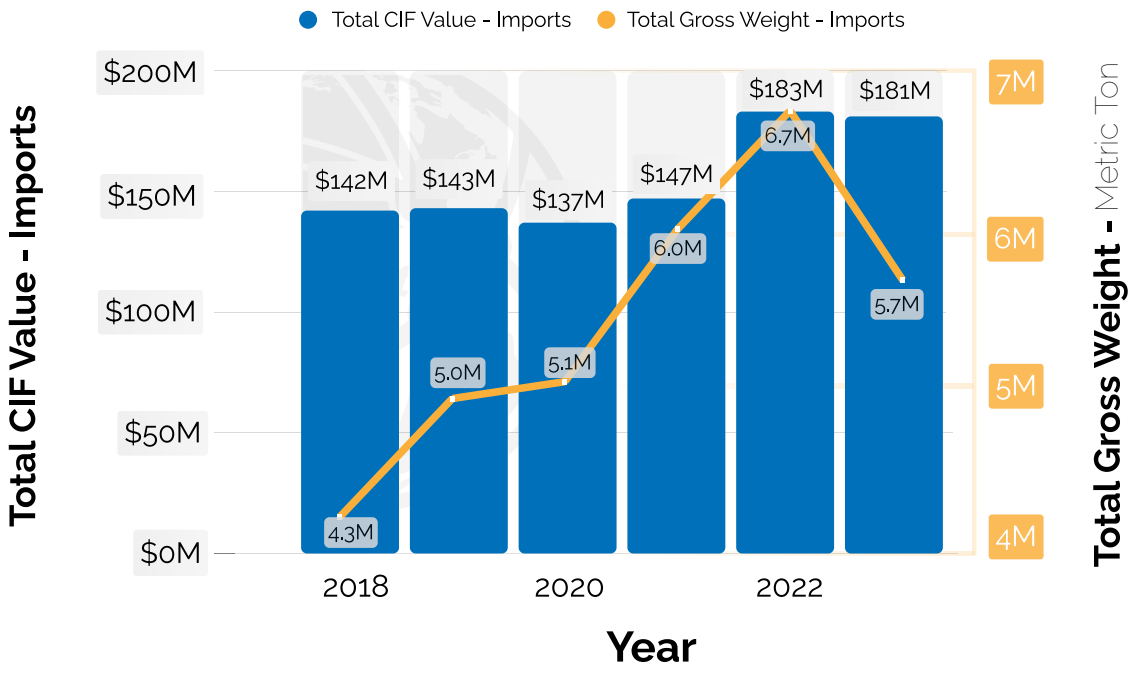
V. National Goods

Regarding national goods imports, data shows that from 2018 to 2023 Panama registered approximately US$ 933.6 million in imports of medical devices. A look at the density of value over gross weight suggests that towards 2023 there were imports that are similar in value but weigh less that those in 2022 which suggests a greater flow of items that are higher in value and smaller in volume and/or weight.

[1]All of the graphs in this section were built by the authors utilizing trade data made available by the National Institute of Statistics and Census of Panama (INEC).

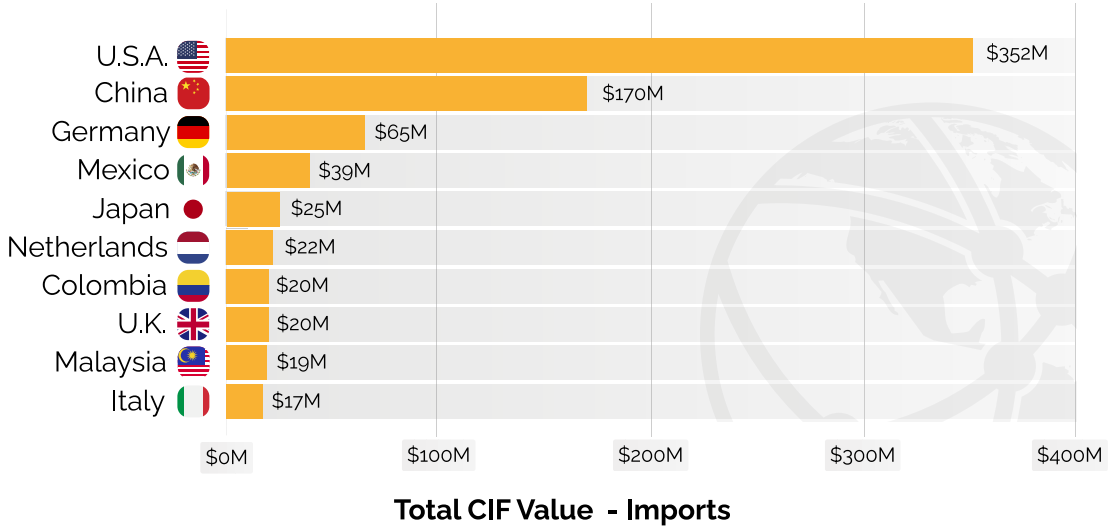
[2]All National Goods Imports of Medical devices graphs in this section exclude those inbound from Special Economic Zones into Panama.

Panama National Goods Imports of Medical Devices - 2018 to 2023

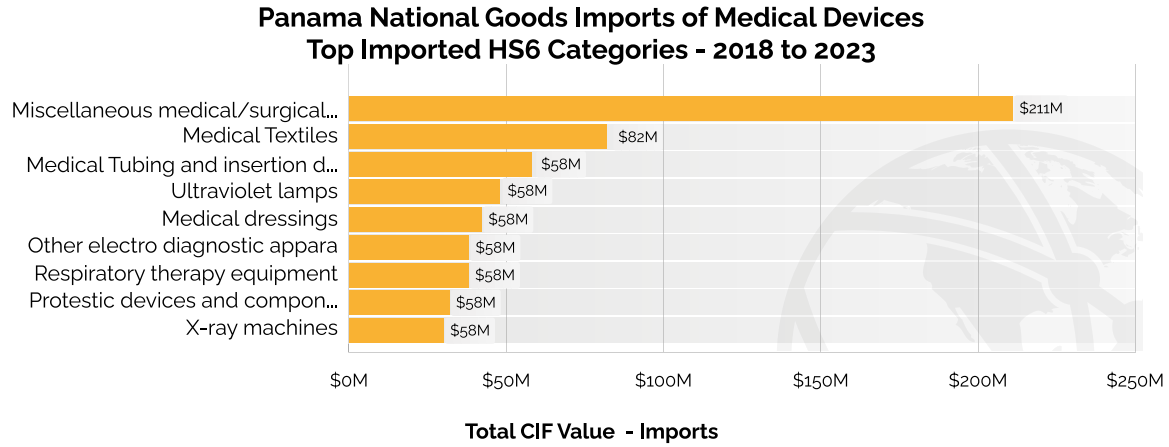


From 2018 to 2023 North America, led by the United States, has been Panama's primary source of medical device imports, followed by Asia, with China being the top import origin from this region. Other notable origins include Germany, Mexico, Japan, the Netherlands and Colombia.

Panama National Goods Imports of Medical Devices - Top Countries of Origin - 2018 to 2023

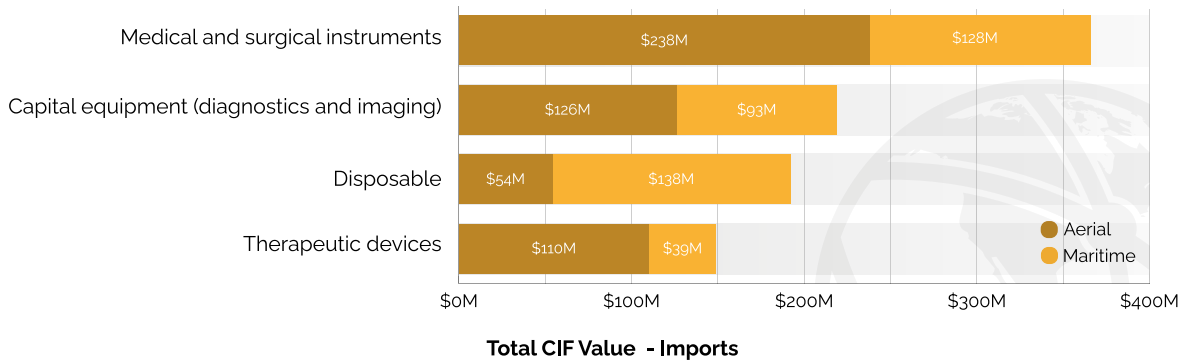


When looking at the classification of medical devices being imported, key imports include miscellaneous medical, surgical and veterinary equipment, medical textiles, medical tubing and insertion devices, ultraviolet lamps, medical dressings, and an assortment of capital equipment like x-ray machines, electrodiagnostic apparatus, CT scanners among others.



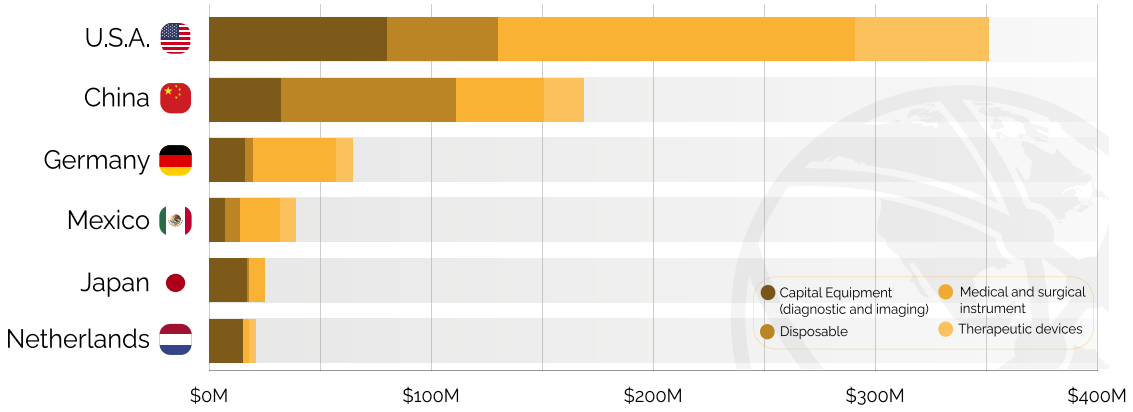
Using the same IDB classification that has been used on the other documents in these report series, it's evident that the greatest category is medical and surgical instruments, followed by capital equipment, disposables, and therapeutic devices last. Looking at the categories by mode of transport also highlights a characteristic of each category:, a relatively greater part of the value for instruments, capital equipment and therapeutic devices is moved in via air, while most of the value of disposables is imported via maritime means. This reinforces the concept that medical devices, due to their nature, their storage and transportation needs, and service level requirements by hospitals and end consumers are generally moved through air transportation.

Panama National Goods Imports of Medical Devices by IDB Categories and Mode of Transport - 2018 to 2023



Looking at these classifications from the perspective of country of origin also shows that the greater share of value of medical instruments are imported primarily from the United States, Germany and Mexico, while the greater share of value of disposables are imported primarily from China.

Panama National Goods Imports of Medical Devices by Top Countries of Origin and IDB Classification - 2018 to 2023



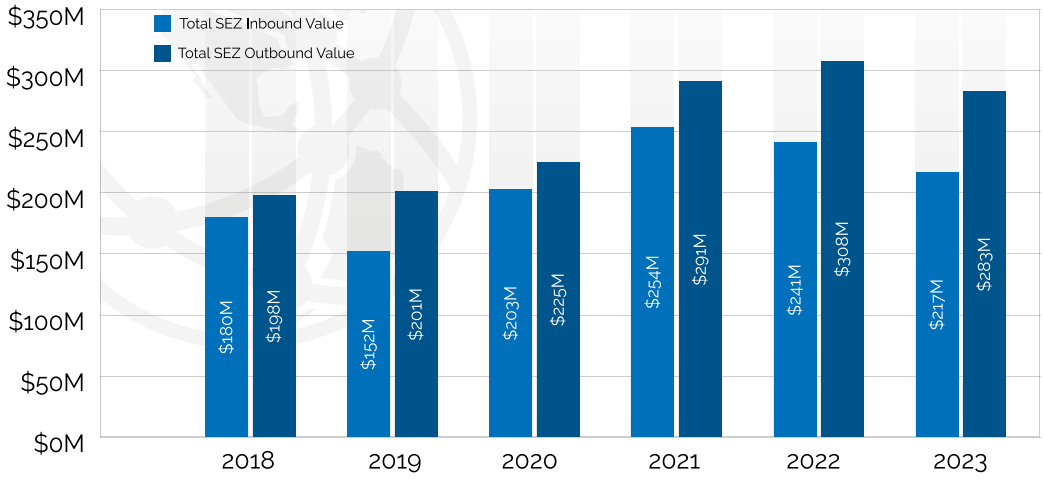
Regarding exports of national goods (goods originating in Panama), medical devices do not add up to a substantial amount according to the collected data. From 2018 to 2023 medical devices exports accounted for approximately US$ 213.1 thousand, which is a relatively small amount when compared to Panama's imports of medical devices. **This is already in general terms an indicator of the opportunity Panama has to increase its exports of medical devices,**

although it's clear that a large component of this opportunity will be in companies adopting Panama's favorable laws that incentivize manufacture and value-added activities in its special economic zones for distribution to regional and global clients.

VI. Special Economic Zones

Regarding Panama's special economic zones (including the Colon Free Zone, Panama Pacifico, and Free Trade Zones), there have also been increases in the volume of medical devices handled in from 2018 to 2023. On the inbound side, volume has been rising steadily from 2018 onwards to 2021, and then reduced from 2022 to 2023. On the outbound side, we also see a rising trend in outbound flows reaching US$308 million in 2022.

Panama Special Economic Zones trade of Medical Devices - 2018 to 2023

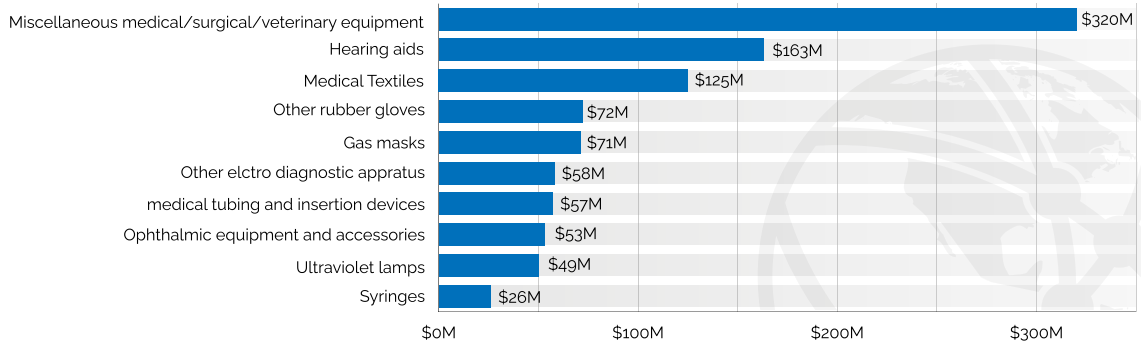


If we look at the categories of medical devices moved in special economic zones we see a similar picture to that of the case of national goods. Just like in national goods imports, the category with greater inbound value is the miscellaneous medical, surgical, veterinary equipment accounting for US$320 million,

[3]Panama Special Economic Zones statistics include the Colon Free Zone, Panama Pacifico, and Free Trade Zones under Law 32.

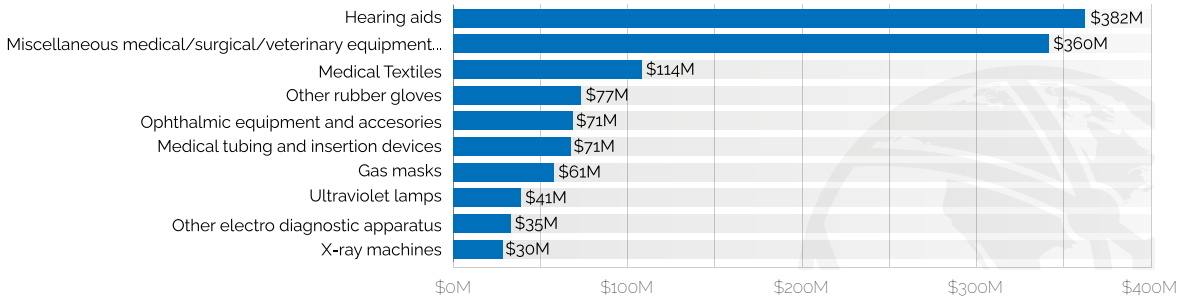
however hearing aids follows up with US$163.3 million. The next categories of interest include medical textiles, rubber gloves, gas masks, electrodiagnostic apparatus, tubing, ophthalmic equipment, ultraviolet lamps.

Special Economic Zones Inbound Value by HS6 Category - 2018 to 2023



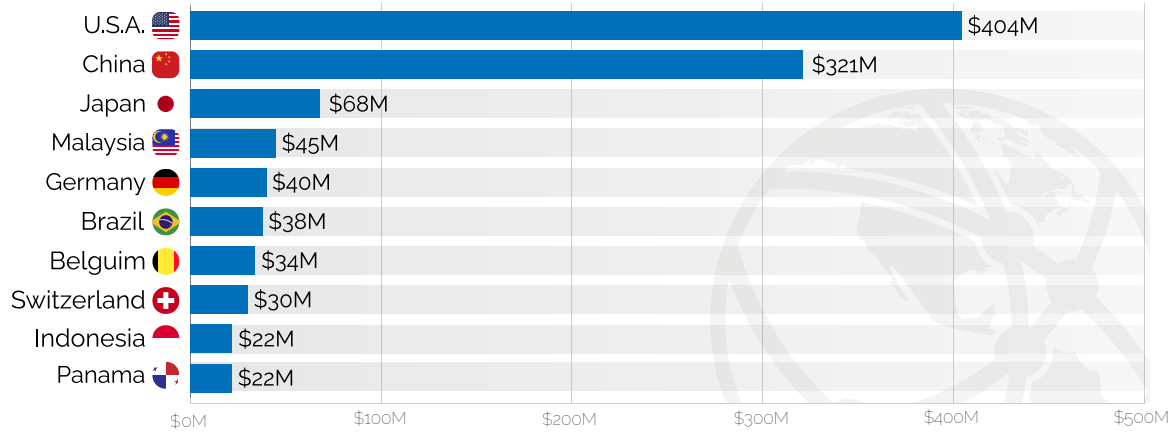
On the outbound side, **hearing aids** take the first spot as the category with most value being exported from special economic zones. Considering the difference in inbound and outbound values for this category ($163 million to $381 million) this could be due to **redistribution markups, but also due to added value within the special economic zones.** The other top categories which include miscellaneous equipment, medical textiles, and rubber gloves, have a narrower gap between inbound and outbound values potentially suggesting that those categories are primarily focused on redistribution.

Special Economic Zones Outbound Value by HS6 Category - 2018 to 2023



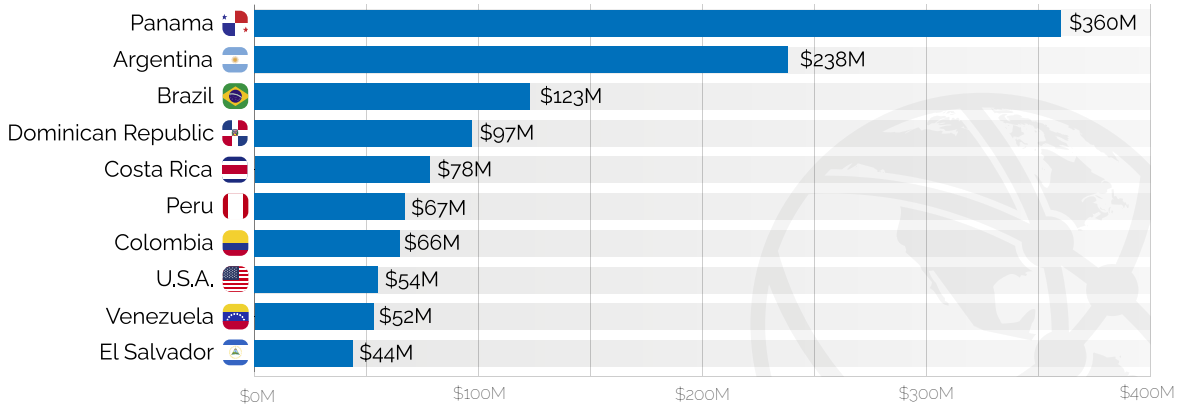
It's equally important to understand not only the top categories but also the top origins and destinations of medical devices trade flowing into and out of special economic zones.

Special Economic Zones Top origin Countries by Inbound Value - 2018 to 2023



On the inbound side, we see again the United States (US$404 million), and China ($320 million) as top players concerning the origins of trade flows into special economic zones, making up approximately 56% of inbound value. The other notable origins include Japan, Malaysia, Germany, Brazil, Belgium, Switzerland and Indonesia just to mention a few. As an interesting note, Panama is also an origin for special economic zones, which accounted for (US$21.7 million).

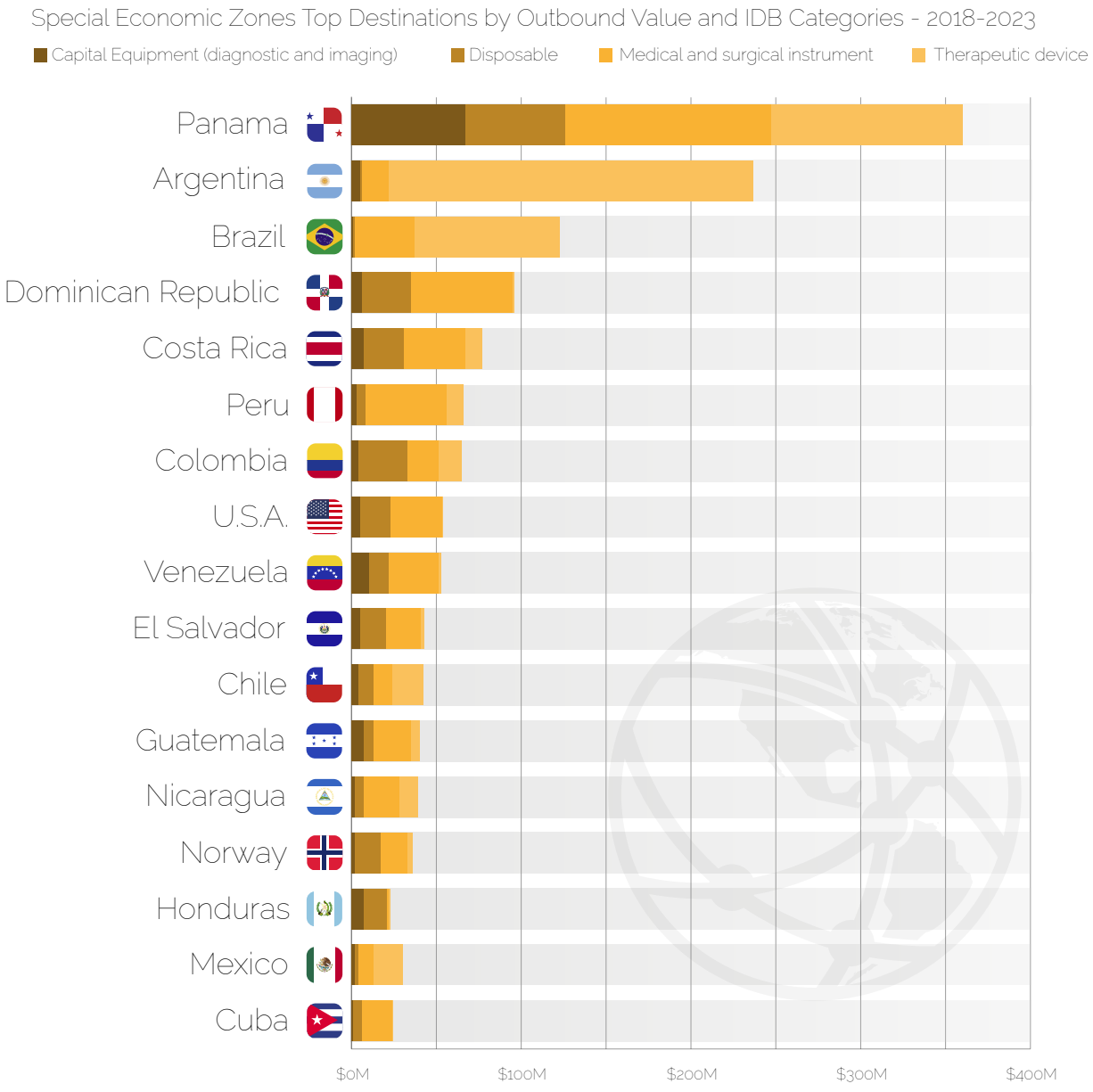
Special Economic Zones Top Destination Countries by Outbound Value 2018 - 2023



Concerning destinations of outbound flows it is clear that Panama is the main receptor of outbound values coming from Special Economic Zones, specifically almost **24% of the total outbound value had Panama as a destination.** This reality highlights the fact **that a large share of medical devices moved into Special Economic Zones stay in Panama**, presenting a growth opportunity to **increase the volumes of**

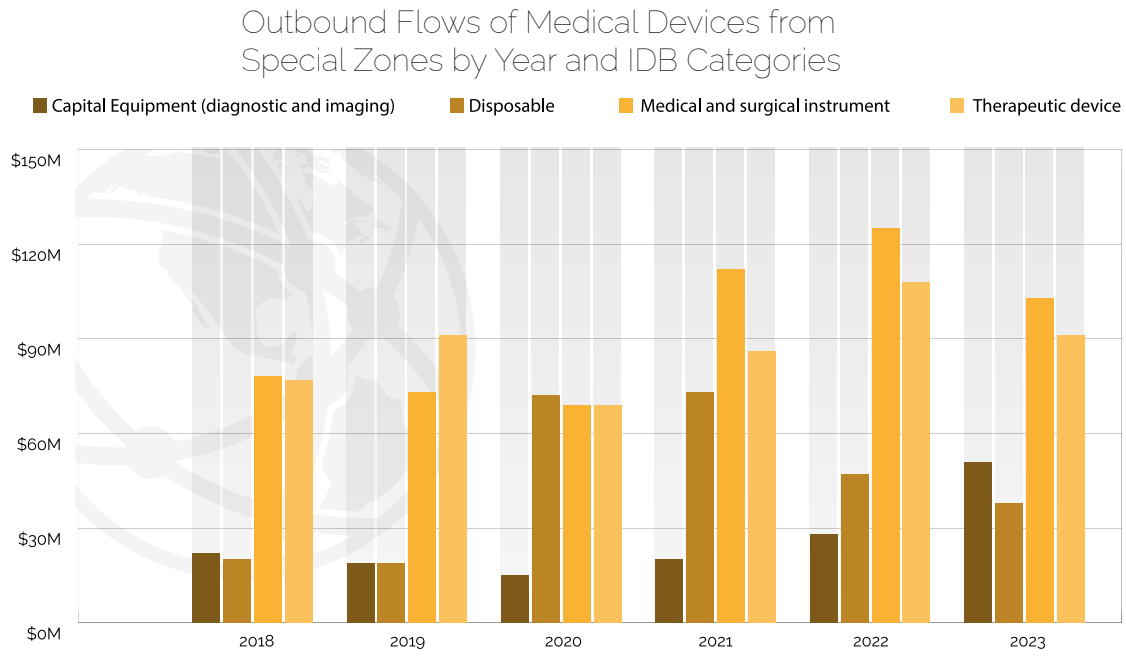
trade moved to other countries, by making use of Panama's favorable laws, and the logistics infrastructure of special economic zones.

Argentina follows closely then appears as one of the main commercial partners regarding the destination of the outbound flows of medical devices from special economic zones, capturing $237.6 million in value from 2018-2023 and accounting for almost 16% of value. Other notable players include Brazil (8% of value), Dominican Republic (6.5% of value), and Costa Rica (5% of value).



Now if we look at the categories of medical devices being exported to these countries we can see that Panama receives a mix of all types of categories, while most of what is sent to Argentina and Brazil are **therapeutic devices,** while Dominican Republic, Costa Rica and Peru receive mostly **medical and surgical instruments.** A large proportion of the value of capital equipment is Panama-bound, which highlights another opportunity: **make use of Panama's capabilities not only for capital equipment to stay in Panama, but for it to be redistributed to the region as well.**

VII. The window of opportunity for the Panama logistics hub



Outbound value flows from special economic zones show that there have been increases in the share of disposables, medical and surgical instruments, and capital equipment to a certain extent.

The data indicates a significant increase in medical and surgical instruments (from US$78 million in 2018 to US$120 million in 2022) and therapeutic devices (from US$77 million in 2018 to $US108 million in 2022), reflecting a shift towards higher-value products. Even though capital equipment also shows an increase towards 2023, this must also

be evaluated in the context of how much of this capital equipment stays in Panama as seen in the previous section.

Regardless, this change in the flow of medical devices through Panama for subsequent outbound flows from special economic zones demonstrates steady growth, suggesting that Panama is well-positioned to manage an increasing volume of medical devices.

Trade data from the special economic zones suggests that the distribution and types of medical devices exported are influenced by the infrastructure and specialization of each zone, thereby optimizing logistics and efficiency in the distribution of these products.

Throughout this document we have seen how Panama already plays a part in the movement and logistics of medical devices. Its special economic zones handle relevant volumes of therapeutic devices, specifically those in the category of hearing aids, while also showing growth in the handling of medical instruments and disposables. Data suggests that Panama has the infrastructure and capabilities to grow in outbound flows of higher value equipment like x-ray machines, computer tomography scanners, ultrasound machines. diagnostic equipment because an increasing share of this category of devices is already moved into the country via special economic zones.

Panama presents significant opportunities for OEMs and other stakeholders in the medical device industry. Its ability to handle sophisticated, high-value, and high-margin medical devices provides a competitive edge. This advantage can be leveraged due to Panama's interconnectivity, intermodal access, favorable incentives, extensive geographic reach, and robust logistical capabilities.
Panama has the potential to grow in the management, handling, distribution, and even manufacturing of medical devices, positioning itself as a strategic node within the global medical device supply chain. Panama is already a world-class logistics hub, and we believe that it can also become a vital link and a key player in the broader medical device sector.

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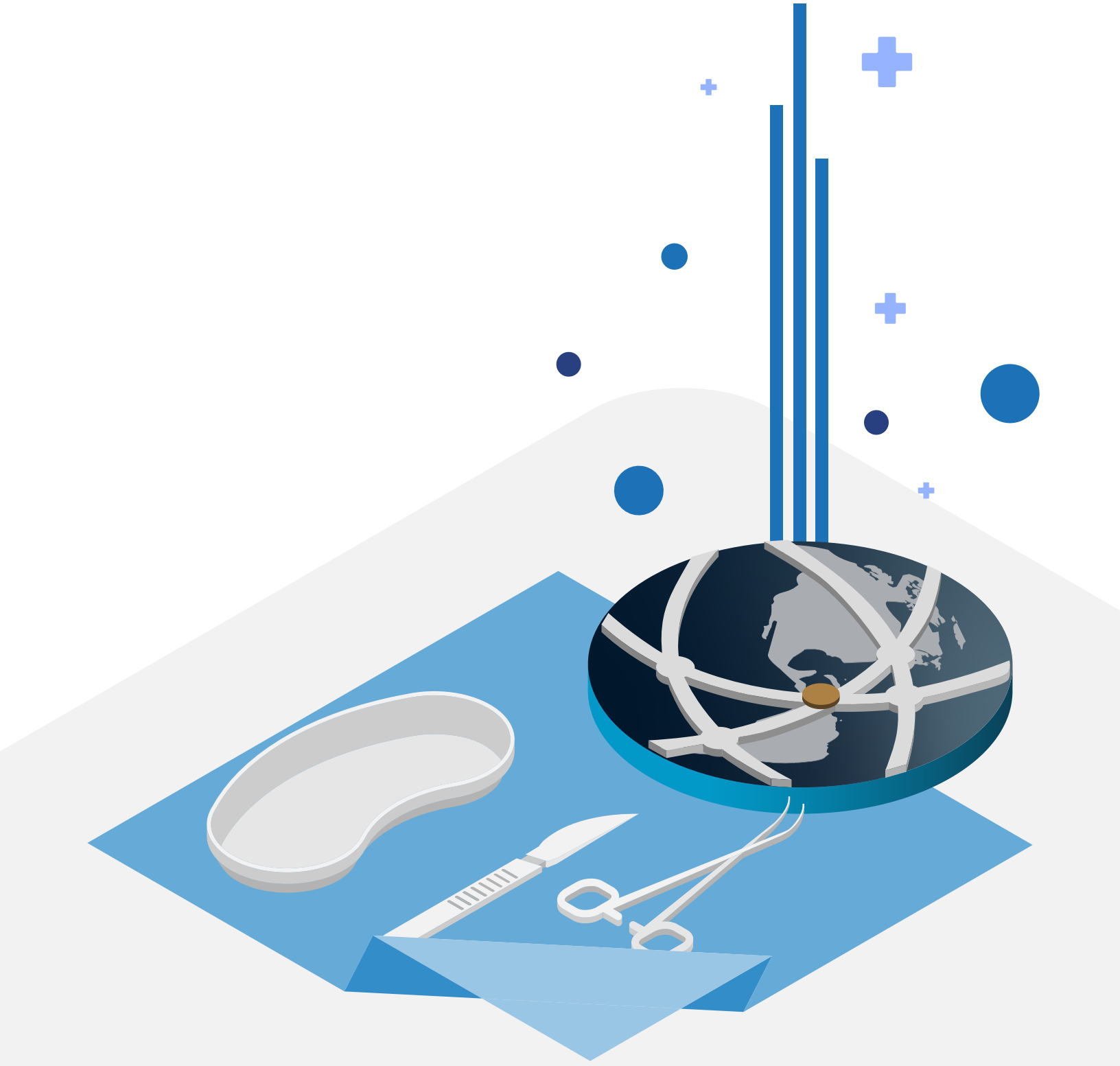

About the **Why Panama** Program

In the current dynamic global landscape, it is clear that having access to high-quality insights is crucial when determining the optimal location for regional distribution in order to take advantage on the present structure of global value chains.

Georgia Tech Panama Logistics Innovation & Research Center recognizes the importance of key insights in the decision-making process, and works closely with companies seeking to assess their supply chains and how Panama can become a key part of their global logistics network.

The "Why Panama" program utilizes quantitative data and analytics to assess key variables and compare the costs, investments, and service benefits of setting up a distribution center in Panama. By conducting a thorough analysis, the program aims to provide businesses with valuable insights into the advantages of establishing a hub in Panama.

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About Us

The Georgia Tech Panama Logistics Innovation and Research Center is located in Panama City, Panama. It was launched in 2010 by an agreement between the Georgia Institute of Technology and the Goverment of Panama through the National Secretariat of Science, Technology and Innovation (SENACYT).

Georgia Tech Panama
Logistics Innovation & Research Center

An Innovation Center of:
SENACYT
Secretaría Nacional de Ciencia, Tecnología e Innovación

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