

# A GLOBAL TRANSPARK IN BRAZIL: LOGISTICAL INFRASTRUCTURE FOR COMPETITIVE ADVANTAGE

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The Global TransPark is an advanced multimodal industrial infrastructure that provides the logistical environment for successful 21st century manufacturing and distribution. Integrating just-in-time manufacturing with air cargo, surface transportation and advanced telecommunications systems, it is designed to improve supply-chain management, increase productivity, and boost exports in the new economy where speed and agility are becoming critical to competitive success. A Global TransPark holds the potential to make Brazil the hemispheric hub for industrial air commerce and catapult the country into a leadership position in JIT manufacturing and global distribution.

Dramatic changes are occurring in the way businesses are operating around the world. Underlying this is the emergence of a new competitive environment where price and quality are necessary but no longer sufficient for commercial success. Increasingly, speed-to-market and agile response are assuming essential roles, as well.

Customers from both advanced and emerging markets are demanding fast and reliable delivery of products with distinctive and personalized features. Competitive advantage is being gained by those firms that respond flexibly and rapidly to such opportunities and deliver lower-cost, quality products quickly and

efficiently to their domestic and global customers.

Staying at the competitive forefront is also requiring more efficient global supply-chain management. Manufacturers must be able to draw on an international network of suppliers of raw materials and sub-assemblers in

## Tecnologias de Gestão

order to assure the best quality product at the lowest possible price. At the same time, increased flows of information worldwide are leading to ever-faster changes in market demands. Goods-producing firms that can detect these changes, design and manufacture the desired products, and deliver them more quickly than other producers will capture these markets. Speed also reduces warehousing and inventory costs, stock-outs, and remaindered goods. So, the speed advantage becomes a cost advantage, as well.

Brazilian firms will not be able to meet the challenges of the new speed-driven, global economy without dramatic changes in how they organize their flows of information, component materials and finished products. The ability of Brazil's industries to respond to global competitors will increasingly depend not only on internal operational changes but also on the creation of the external infrastructure that makes new global supply-chain practices possible. It is becoming increasingly clear that these new

supply chain practices will require the development of new logistics infrastructures that synthesize information technology and multimodal transportation systems to facilitate the quick and efficient delivery of materials and goods from suppliers to manufacturers and from manufacturers to customers. The Global TransPark (GTP)<sup>1</sup> is one such infrastructure designed specifically to improve supply-chain management and boost the competitiveness of firms by making them faster and more agile.

### WHAT IS A GLOBAL TRANSPARK?

In many respects, the GTP utilizes proven elements of a modern industrial park. But what sets the Global TransPark apart is the fusion of just-in-time (JIT) manufacturing and distribution facilities with multimodal transportation, advanced telecommunications, and sophisticated materials handling systems to foster fast, flexible links of tenants to their suppliers and customers, domestically and worldwide.

Figure 1 - Global transpark physical layout



A well-equipped international cargo airport with runways capable of handling fully loaded wide-body air freighters lies at the heart of the GTP. Manufacturing and distribution facilities can be located directly along customized taxiways and ramps, allowing air freighters to come virtually to the "factory door" (see Figure 1).

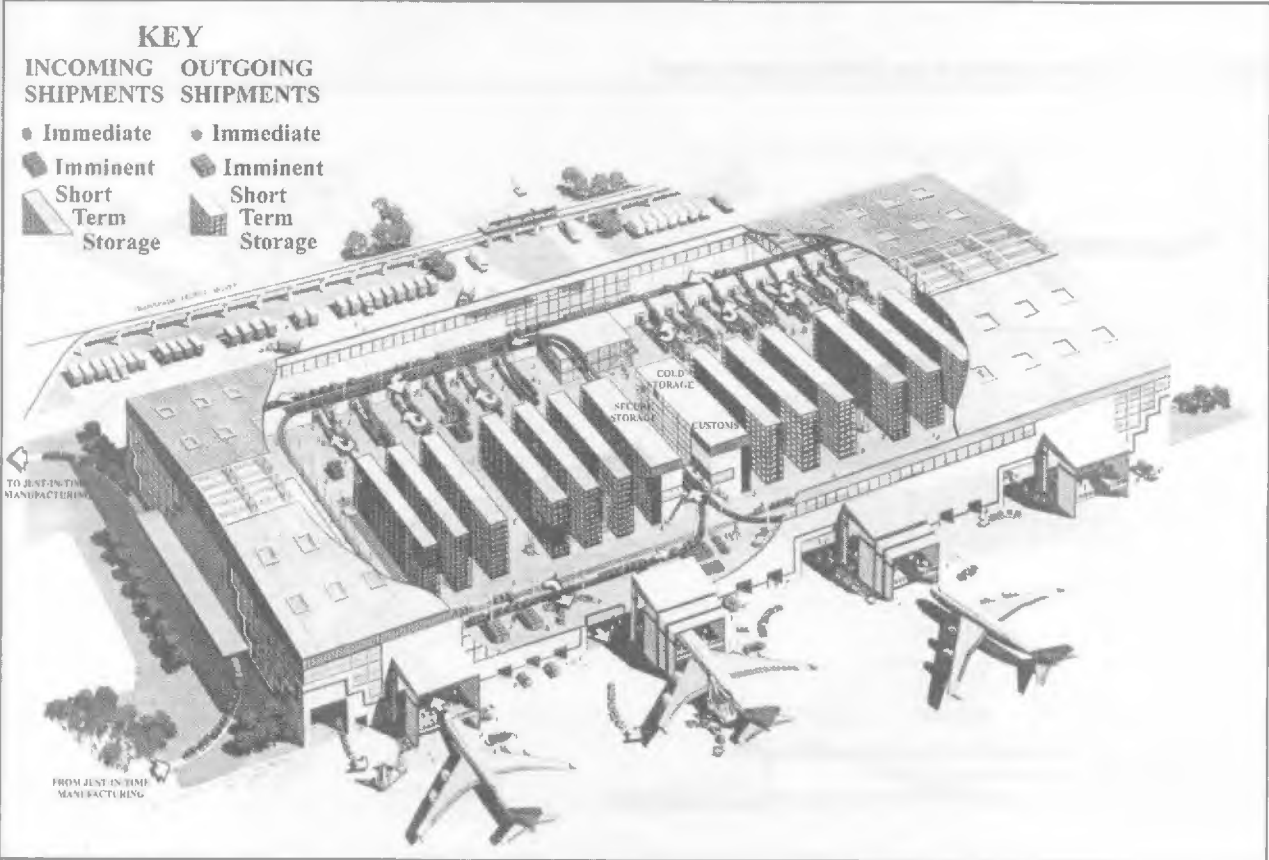
A computer-guided Cargo Transfer System (CTS) carries materials, components, and finished products throughout the GTP on an internal tram network of dedicated rights-of-way. This network links off-ramp industrial tenants to the Central Cargo Facility (CCF), a state-of-the-art intermodal complex located along the airfield's main taxiway, providing access to air freighters, trucks, and automated materials-handling systems. The CCF also provides off-ramp and off-site factories, warehouses, and distribution centers with automated sorting capability, customs clearance, and air freighter access. Since most GTP tenants will not have the cargo scale (load factors) to justify direct air-freighter docking,

the Central Cargo Facility offers them air access via the Cargo Transport System and/or direct truck cross-docking at the rear of the facility (see Figure 2).

In addition, the Cargo Transfer System connects both on- and off-ramp industrial tenants and the Central Cargo Facility to an Intermodal Rail Facility (IRF) containing multiple rail sidings, loading platforms, and truck cross-docking. The IRF will primarily handle bulk and heavy cargo, and will be a particularly valuable connection to river and sea port facilities (see Figure 3).

Along with its multimodal transportation and automated cargo-handling systems, the GTP will support its users with comprehensive electronic-commerce capabilities. Electronic data interchange (EDI) and other telecommunications systems utilizing the latest technologies, including fiber optics, multimedia networks, and on-site digitized satellite uplinks and downlinks, will offer tenants superior electronic access to the global commercial world. EDI will expedite customs clearance and

Figure 2 - Global transpark central cargo facility



## Tecnologias de Gestão

improve supply-chain management as it tracks, coordinates, and controls materials and product flows across transportation modes, both domestically and internationally. Plug-in software systems will allow tenants real-time access to suppliers', distributors', and customers' databases, worldwide.

### GTP OPERATIONAL AND NETWORK PRINCIPLES

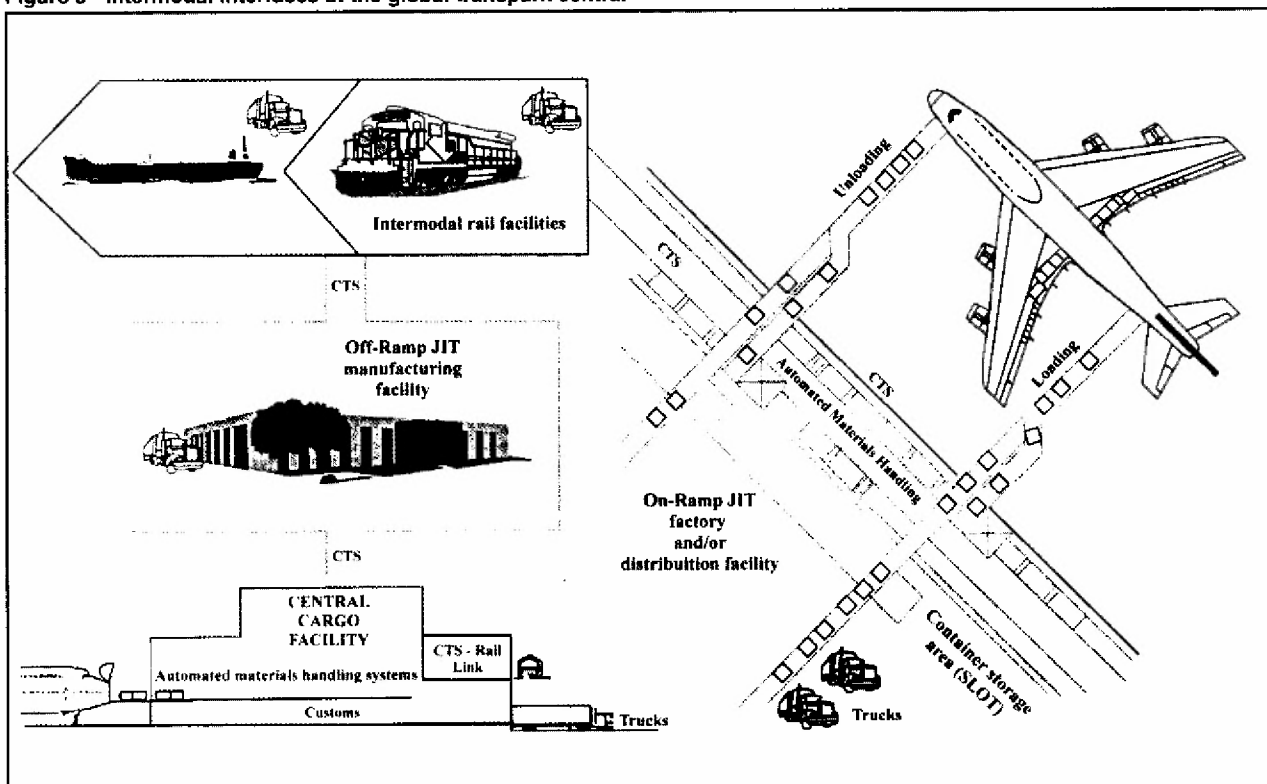
Cycle-time reduction and just-in-time sourcing and distribution practices underly GTP operational logistics with response replacing inventory and flows replacing stocks. Once orders are placed, raw materials or component parts will be acquired regionally via water or surface transportation and by cargo planes from more distant locations. Manufacturers will assemble products on site or near the TransPark and deliver them to regional and global markets, frequently via air freight.

The TransPark will feature express customs clearance technologies and procedures to speed international sourcing and exporting processes. It will also have state-of-the-art intermodal and

cross-docking facilities that will substantially accelerate materials handling and transfers among factories, aircraft, trucks, rail cars, and ships, thereby providing speedy global access and other significant competitive advantages to industries located throughout Brazil.

Multimodal transportation and integrated telecommunications capabilities of the GTP should be complemented by commercial and knowledge support services providing a complete business environment for competitive advantage (see Figure 4). Commercial support would include export processing zone or free trade zone status enabling firms to bring in foreign parts, components, and other manufacturing inputs duty-free and to export with a minimum of bureaucratic or government red tape. GTP firms must have virtual access to financial institutions, marketing, sales and employment agencies, legal services, trade and exposition centers, and third-party logistics providers. One-stop government service centers are necessary to provide foreign direct investors with all required licences, permits, and investment promotional privileges without investors having to go to a half dozen or so

Figure 3 - Intermodal interfaces at the global transpark central



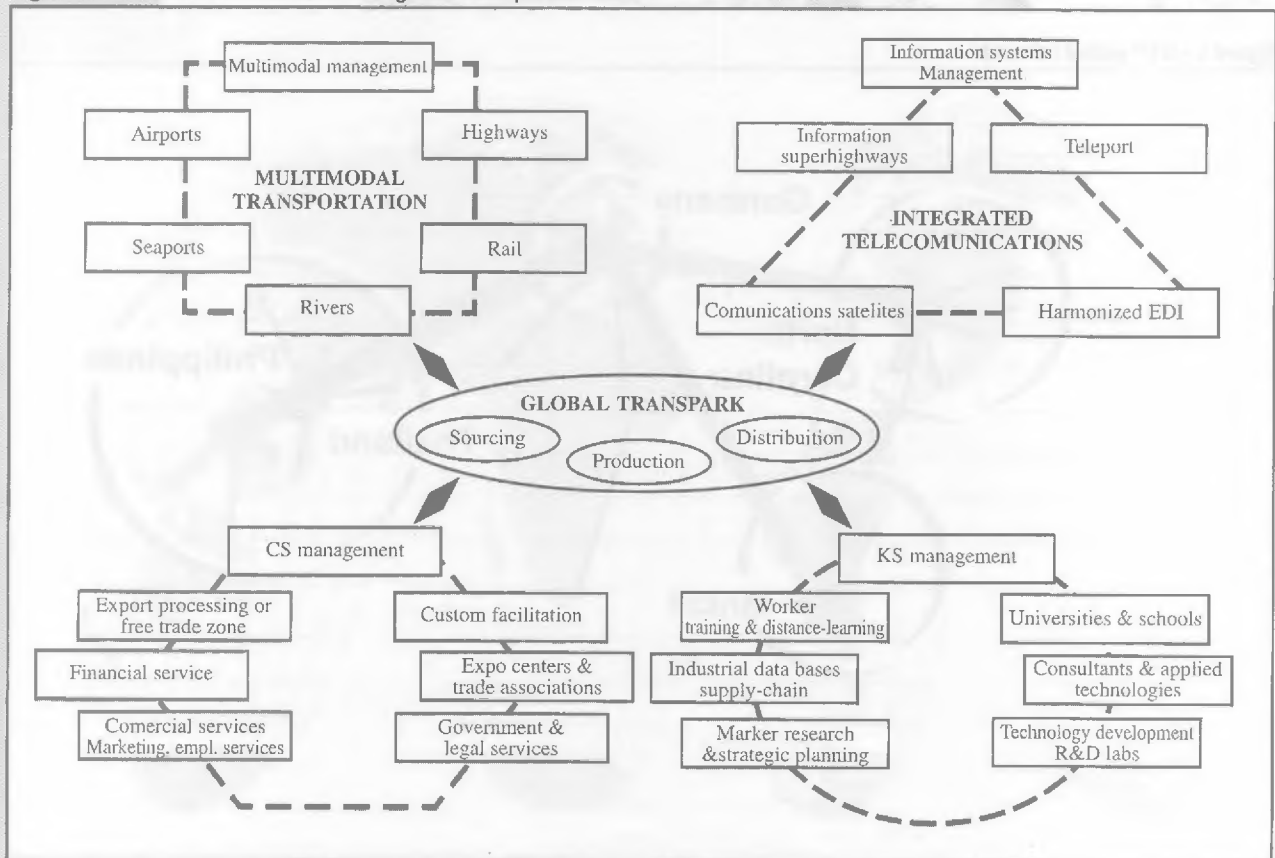
government agencies to receive these approvals. In addition, Brazilian and foreign investors' ability to attract professional managers and skilled workers to major industrial sites requires a full array of community amenities including international schools, shopping centers, restaurants, recreational and cultural facilities.

Finally, knowledge support services are required to generate or stimulate innovation and provide a reliable source of trained workers and managers. Among the most important knowledge-based organizations on which Brazil's most competitive firms depend are laboratories engaged in technology development and vocational schools, community colleges, and universities providing well-trained workers, managers, and professionals. They also need consultancy organizations that help commercialize technology, develop new products, and help manage international activities more effectively and specialized training facilities. For example, a distance education and training facility drawing on the integrated telecommunications network could

provide real-time audio, video and tactile worker training on-site in Brazil from any industry located anywhere in the world, bringing specialized worker training resources from throughout the world, as needed, to the Global TransPark site.

The TransPark in Brazil will be linked to similar GTP facilities being developed in the United States, Asia, and Europe, providing a global air commerce network connecting Brazilian firms to major economic regions of the world (see Figure 5). Multiple TransParks are envisioned to ultimately form a global network for industrial air commerce. This network, which will also include multimodal regional webs of interconnected hubs, satellites and feeders, will offer integrated domestic and worldwide logistical infrastructures for manufacturing agility and supply-chain management (see Figure 6). Each TransPark hub will be linked to its sister hubs by dedicated cargo flights and all infrastructure and technology harmonized (e.g., intermodal connectors, containerization, EDI). Thus,

Figure 4 - Business environment of the global transpark central



## Tecnologias de Gestão

whether an air freighter lands at a GTP in Brazil, Asia, Europe or the United States, materials-handling conditions will be identical.

The international network of TransParks can be an important strategic tool for Brazilian firms requiring quick and efficient global reach. The synthesis of transportation and information technologies across the network will allow seamless, flexible and visible flows of goods and materials among suppliers and manufacturers, and, through distribution centers, to customers worldwide. The Global TransPark network will provide maximum 36-hour delivery time between any two points across the globe and, in most cases, considerably less.

### SUMMARY AND CONCLUSIONS

A Global TransPark holds the potential to make Brazil the hemispheric hub for 21st century industrial air commerce and catapult the country into a leadership position in JIT manufacturing and global distribution. With intermodal connections to highway, sea, rail, and river, all four modes of transportation (air,

water, rail, and highway) will be brought together to form a seamless and integrated system that will provide Brazil with logistical capabilities unmatched in Latin America. A GTP hub (preferred site to be determined) will be linked to satellite GTPs at strategic locations throughout Brazil fostering backward economic linkages and offering firms near these satellite locations far greater accessibility to regional and global markets. Such logistical capability will make Brazil's indigenous industries much more productive, serve to attract substantial foreign direct investment, and greatly increase export potential of firms throughout Brazil.

In summary, the Global TransPark is an innovative logistical infrastructure that:

- targets global markets and time-based competition as the keys to business success;
- features full integration of air, sea, road, rail, and river transportation modes;
- utilizes state-of-the-art materials handling and information technology systems to improve supply chain management;

Figure 5 - GTP global network

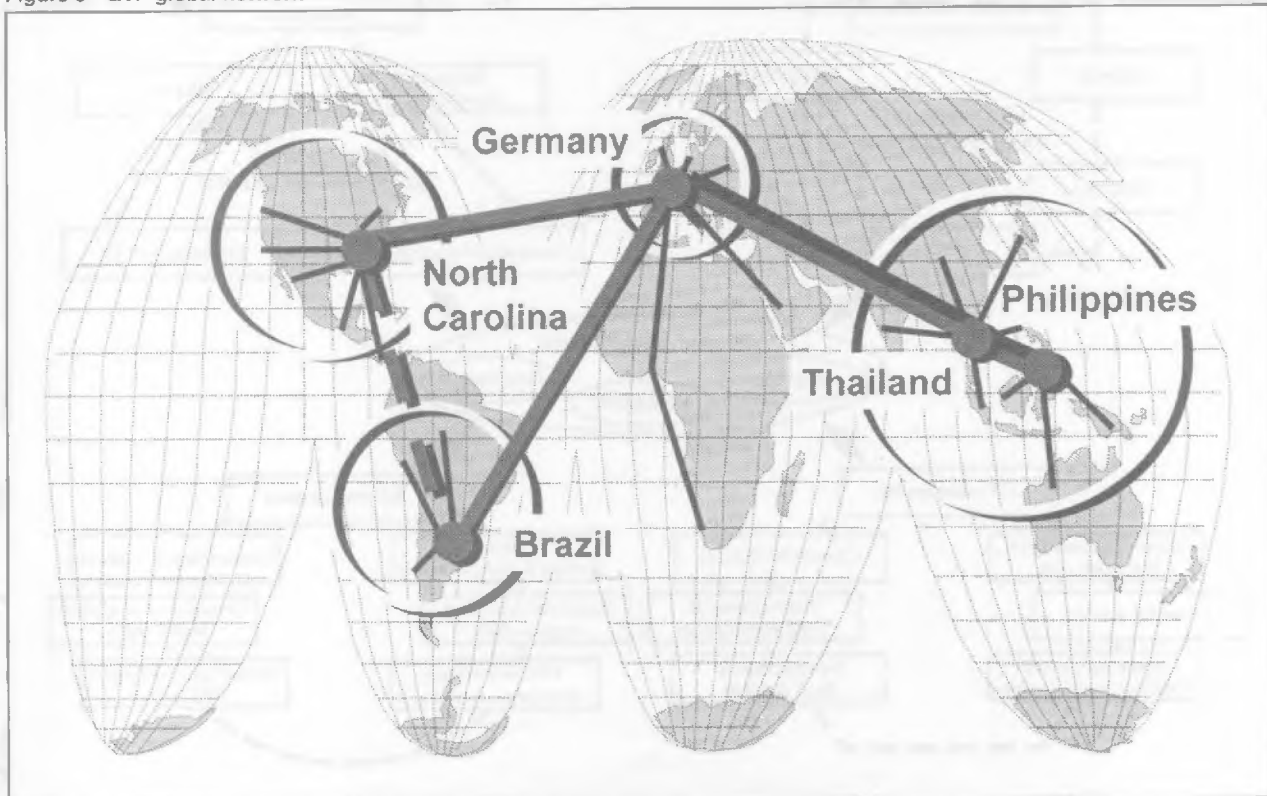
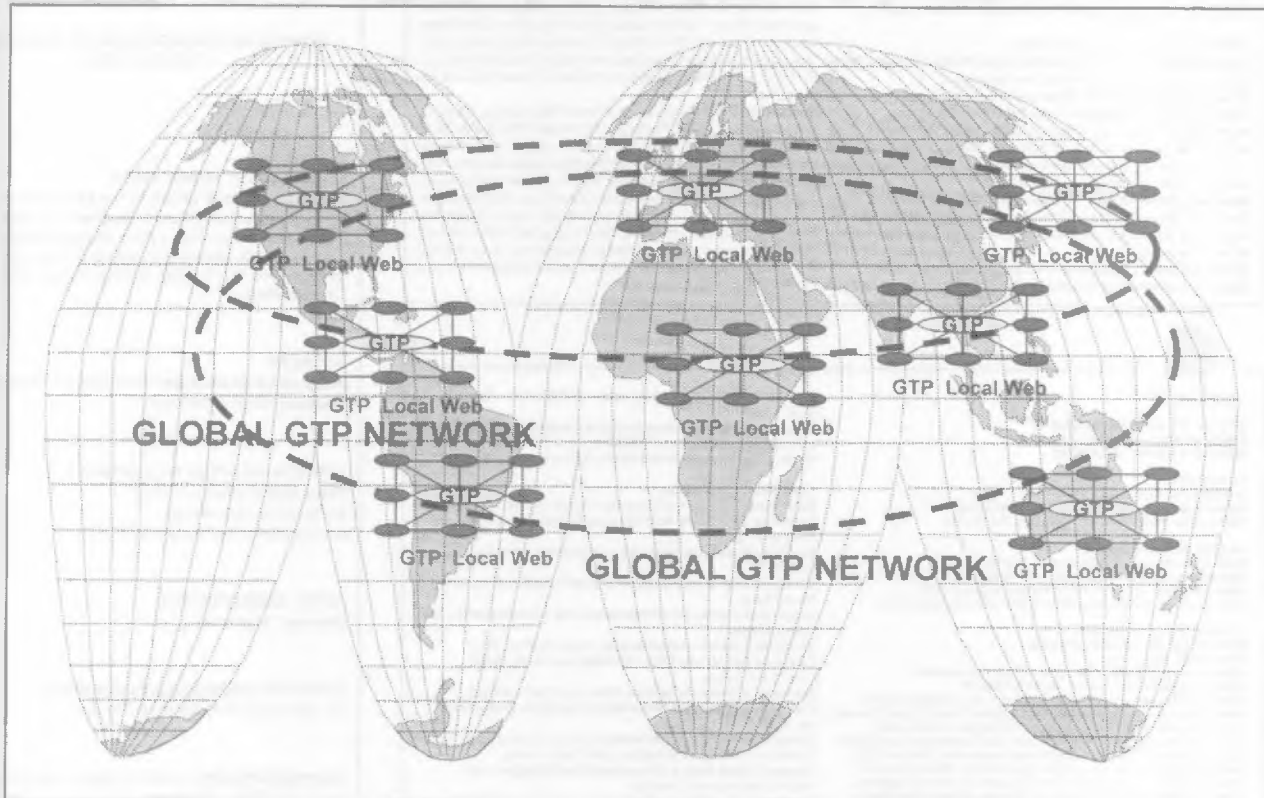


Figure 6 - Ultimate GTP Network



- recognizes that air cargo is the fastest growing mode for international trade and the need for multimodal air-industrial infrastructure and technologies to leverage that capability;
- achieves unprecedented integration of manufacturing and distribution activities with direct airfield access, allowing cargo aircraft to come virtually to the “factory door”;
- links Brazil into an emerging international GTP network that will give the country’s manufacturers quick and efficient access to suppliers and customers around the world.

Discussions are currently taking place with appropriate Federal and State transportation officials, government agencies, and private-sector leaders to explore the steps needed to implement a GTP hub and satellite system in Brazil. This involves, among others, assessing its (1) commercial, technological,

and financial feasibility, (2) likely economic, environmental, and social impacts, and (3) optimal sites in Brazil for the GTP hub and GTP satellites. □

1. Global TransPark®, TransPark® and GTP® are registered service marks of the North Carolina Global TransPark Authority. The concept and design were developed by Dr. John D. Kasarda, Director of the Kenan Institute of Private Enterprise of the University of North Carolina (USA).

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