

Transport Terminals: New Perspectives

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Introduction

Three articles in this issue of the *Journal of Transport Geography* are from a special session on transport terminals sponsored by the Transportation Geography Specialty Group of the Association of American Geographers at its 1998 annual meeting in Boston, Massachusetts.

The first impression most geographers may have about the study of transport terminals is that their relevance outside of the transportation field would be very limited. To the contrary, transport terminals are at the very center of critical issues in economic, political, urban, and other geographic subfields, and deserve much more attention. One cannot fully appreciate how globalization works without understanding how seaports, airports, rail terminals, and truck terminals operate as the linchpins of the global economy. Transport terminals represent some of the most critical parts of the physical infrastructure that makes possible the increased volume of passenger and freight movements around the world. As such, funding for new and expanded infrastructure is a central concern for local, regional, national, and supranational authorities. Since much of this infrastructure must be in or near major urban areas, issues involving the positive and negative externalities of port and terminal location can come to dominate public discourse at the local level.

Context: Globalization and Intermodalism

The articles in this issue represent new perspectives in transport geography that attempt to integrate theories, concepts, and developments in subfields such as economic, political, and urban geography more directly into the realm of transport geography. There is much to be gained through greater cooperation between geographic subfields, and this body of research illustrates the tremendous potential for increased interaction. As a group, these articles confront two of the most important aspects of contemporary transportation: globalization and intermodalism.

Terminals and Globalization

The role of transportation in globalization processes is critical, and much work in this area needs to be done. Transportation, like telecommunications, is in an interesting position in being both subject to general globalization processes, as

well as being a catalyst that enables globalization to occur. Examples of how transportation has been influenced by globalization processes include:

- How global strategic alliances result in better network system connectivity.
- How the volume of trade flow and freight transport increase as a result of global and regional free trade agreements.
- How air passenger traffic increases as a result of more liberalized bilateral air service agreements.

Some of the ways in which transport has enabled globalization include:

- The increasing efficiency of freight and passenger movements over time has resulted in increased time/space convergence, and thus greater economic integration over space.
- Transportation and logistics systems that facilitate huge volume flows of goods and people which allow innovative practices, such as just-in-time production systems, to be utilized.
- Fixed and better infrastructure that has an influence on directing flows to and through certain places, which in turn has an economic effect on those places.

Being able to separate cause and effect can be somewhat difficult, but it is clear that the interplay between transport and globalization is absolutely essential to a contemporary understanding of either.

Terminals and Intermodalism

Intermodalism represents the other critical aspect that these articles address. Intermodalism can mean different things to different people, but most definitions involve the integration of two or more modes of transportation in moving passengers or freight through seamless connections from origin to destination. Former U.S. Federal Railroad Administrator Gil Carmichael has a vision of intermodalism in which people and goods move seamlessly from one mode to another, using each mode for what it is best suited. Intermodal practices should result in the development of a sustainable and ethical transportation system that is accessible to all members of society, does not harm the natural environment, and does not kill people (Carmichael 1998). Current U.S. Department of Transportation Secretary Rodney Slater identifies intermodalism as one of the most critical policy initiatives facing the transportation industry. Bringing together highways, transit, rail, airports, and seaports will result in greater efficiency through the concept of providing customers with door-to-door transportation (Slater 1998).

The articles in this issue refer to intermodalism by emphasizing the importance of terminals and ports as collection and connection points between modes of service. Previous progress in improving the speed of line-haul operations has resulted in increasingly rapid movements at the inter-urban scale. The real potential time savings are now at terminals and ports, and at the intra-urban scale. Better synchronization of operations at terminals is part of the solution, while extended and better use of satellite facilities can help with the urban congestion problem.

The Papers

Each article contributes to the dialogue on geography, transportation, globalization, and intermodalism, through a focus on particular aspects of terminals and ports. Robert McCalla's article on global change and local pain underscores the importance of globalization by analyzing how alliances are transforming the shipping industry and resulting in concentration at key points in networks. The local impacts are embodied largely in the critical question of whether authorities should expand terminal infrastructure. On the one hand, the substantial regional economic impacts of ports, issues of port competition, and demands for larger ports to handle ever-larger ships militate for infrastructure improvement. On the other hand, the impacts of globalization in terms of a volatile maritime industry structure and changing patterns of service ultimately lead to the question of "if you build it, will they come?" In a global environment where flexibility and adaptability are critical, the decision to build fixed and expensive infrastructure represents a considerable risk.

In McCalla's discussion on port hinterlands, references to other studies suggest the hinterland concept may be "a redundant term without meaning, or at least, a changing concept because of intermodality". While provocative, it may be premature to declare the death of the hinterland concept. Even if the concept has become more fuzzy, it is still a useful heuristic device, much like the hub or gateway concepts. In fact, Brian Slack uses the hinterland concept to good effect in his paper in this issue discussing hinterland piracy in Virginia.

McCalla's presentation on port competition between Halifax and Vancouver is particularly intriguing, especially Halifax's increased role in handling shipments from Asia. Analyses involving basic time and cost comparisons, the advantages and disadvantages of alternative routes, and other factors that are important in port competition would be fruitful areas of further study.

Brian Slack explores some of the dilemmas associated with transport terminal expansion, especially the relationships between terminals and the communities in which they are located. As freight operations increase at intermodal centers such as seaports, airports, and rail and truck terminals, many having locations in congested urban areas, impacts on the surrounding communities can be significant. Increased traffic, congestion, air and noise pollution, and other negative externalities will force communities and the operators of these terminal facilities to explore creative alternatives. These include ideas such as satellite hubs and inland load centers that can help divert some of the freight handling activity away from congested urban centers.

Each type of port or terminal (sea, air, rail, truck) will have its own set of locational requirements, which may be more or less suited to the satellite concept. For example, seaports, by necessity, are somewhat fixed in location, but a significant amount of freight can be diverted from a seaport directly to an inland

load center for bulk-breaking and sorting. Airports have somewhat more locational flexibility, but do require large tracts of open land far enough away from residential neighborhoods to limit negative externalities, but close enough to be convenient to urban activity centers. Rail and especially truck terminals have more flexibility, and with increasing suburbanization and decentralization of economic activity, peripheral sites have become much more prevalent.

The final article by Jean-Paul Rodrigue investigates the linkages between globalization processes and the potential time and efficiency savings of better synchronization at transport terminals. As greater volumes of transport flow characterize the current era of globalization, technological improvements in the speed of long-distance movement have generally not kept pace. We may have reached a plateau in the sheer physical dimension of space/time collapse. As a result, attention has shifted to consideration of improvements in local area movements as well as operations at transport terminals.

Synchronization of operations is obviously an important strategy in maximizing the efficiency of terminals. One of the challenges of better transport synchronization is the phenomenon of peak-period demand. In the airline industry, waves or banks of flights descend upon hub airports and result in maximum utilization of facilities at certain times of the day, while at other times, airports can be virtually empty. Spreading out demand through actions such as peak-period pricing or slot controls can help solve capacity problems, but at the expense of losing hub network efficiencies. On the freight side, the problems may be less severe due to increased schedule flexibility, but certain customer service requirements, such as just-in-time production and guaranteed delivery can result in peaks of demand.

Rodrigue presents some background on the concept of synchronization, as well as two intriguing lessons of synchronization. Lesson two states that “synchronization is more efficient when applied over saturated and complex systems”. While this lesson makes sense and would largely be true, there may be circumstances where systems become so complex that the sheer complexity of the operation could overwhelm synchronization efforts. This conforms to the relation between synchronization and instability presented in the conclusion of the article, where tightly synchronized systems can be thrown off completely by disruptions in upstream or downstream elements of the supply chain. Nevertheless, there is still much efficiency to be gained from more basic synchronization strategies.

The Research Agenda

All of the three articles in this issue have touched upon a topic of growing interest in transport geography, one that has direct relevance for several other subfields in geography. Through these efforts involving new perspectives on transport terminals, significant progress in further integrating transport geography with the rest of the field is being made. Contributions from other geographers on topics

such as these will be welcome and will contribute to an even greater appreciation of the role of transportation in the field of geography.

Establishing a research agenda is often a difficult undertaking as relevance, usefulness and priority change in time. This is equally true for transport terminals, since several of them have seen growth, stagnation, decline and finally, obsolescence. Even though terminals have a fixed location, which in some instances is almost impossible to change, they support a highly dynamic transport system. Transport terminals were considered in function of the modes they were servicing, such as ports and airports. Intermodal transportation has emphasized the need to consider terminals in a more comprehensive manner where several modes are used as well as several terminals. Among main research themes a comprehensive approach to the geography of transport terminals could consider are:

- *Terminals and economic / political change.* Considers the terminal within mechanisms of international trade, investment, privatization and policy formulation. Issues of particular relevance are terminals as multimodal / logistical platforms of their economic sphere. Globalization has obviously modified the economic and political environment in which terminals are evolving. Technological changes in modes and infrastructure, such as containerization, also had important impacts on transport terminals. What is the extent of these changes and how terminals are reacting / adapting?
- *Terminals and their users.* Considers the terminal as an interface of regional economies, conventionally investigated through the concepts of foreland and hinterland. This involves issues such as terminal competition for the convergence of traffic and the relationships with the terminal's customers / clients. Each type of terminal is interacting with a different set of users, mainly large corporations. Another issue involves the physical management of traffic, notably services to modes and the services to freight and passengers. How major commercial trends, such as strategic alliances, are changing the relationships between terminals and their users?
- *Terminals and land use.* Considers the terminal as a consumer of space and an element of the urban and peri-urban morphology. They generate and attract movements of passengers and freight that have definitive impact on the spatial organization of activities. This impact is increasingly regional in scope. Terminals, like any other economic function, are competing for the usage of space and desirable locations. Specific issues are related to land use, site planning and operation, traffic generation and environmental impacts. What are the land use attributes for different types of terminals and how terminals fit within the spatial organization of economic regions?

It is expected that new challenges and changing socio-economic conditions are likely to generate new issues for transport geography.

References

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