



INSTITUTE FOR TRADE AND TRANSPORTATION STUDIES

PROMOTING REGIONAL AWARENESS FOR IMPROVING FREIGHT TRANSPORTATION

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NEWS UPDATE

🌐 In October, I visited the remodeled offices at Arkansas State Highway and Transportation Department and met with the staff to discuss freight data and the research work plan.

🌐 During the same trip, I spoke on connecting inland regions to global markets in the Council of Mayors' Metro Ports and Exports Summit. The presentation is available on the ITTS website. (There is a set of slides for export growth from the MSA's in the ITTS region.) Growth from exports from Southeastern MSA's, and their share of the contribution to the region's economic growth indicate the importance of linking global markets through transportation may remain a critical regional driver.

Continued on page 4



INSIDE THIS ISSUE

Lambert's Lagniappe	2
Trade in the Southeast	3
Regional Calendar	4
Trade Profile – Russian Trade Embargo ...	4

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2014 Automated Vehicles Summit, Dec. 15-16, 2014

Over the past few years I have been hearing more about autonomous vehicles, as driverless technology promises safer roads and better capacity utilization. What was once a novelty has slowly transformed into a reality, based on Florida's session at the SASHTO annual meeting.



Culturally, people are willing to be uncoupled from their dependence upon the car. (I jokingly refer that millennials spent their childhood in the back of a minivan but now as adults they want to be chauffeured so they can caress their smart phones.) The question is how will that occur? Will people still drive their cars, but depend upon the actual bulk of the driving to be undertaken by the car? (And we have all complained about the accuracy of Geographical Positioning Services (GPS) maps on our smart phones!)

While the focus has been on passenger travel, there may actually be a greater effort to put this into the trucking industry to improve system efficiencies. There may be some benefits if such trucks were deployed on the nation's highways:

- Generate data concerning roadway conditions, time of day, commodity information, routing, weight, etc.
- Information on system use, bottlenecks, and the ability to respond real-time to alternative routing suggestions
- Assist with regulatory oversight and inspections (This is partially done through Weight in Motion stations but may include tracking vehicles miles travelled, distance, etc., for other compliance issues)
- Improve scheduling and operational efficiencies.

However, challenges do exist:

- The Smart Road has to be redeveloped, including readers, transmitters, etc., as the full benefit may not be captured unless the roadway and other cars are also automated
- The public sector investment in upgrading the roadway, especially given the limited funds for new capacity expansion
- Adopting standards for information exchanges
- Question of what is autonomous, i.e., must a driver be in the car at all times
- Safety concerns

Continued on page 3

>>> SAVE THE DATE <<<

ITTS is working with the Mississippi Department of Transportation to hold the **Annual ITTS Freight in the Southeast Conference** in Biloxi Mississippi, **March 16-19, 2015**. More information will be posted soon, but I hope you will begin making plans to join us in Biloxi.

FREIGHT IN THE SOUTHEAST

Moving Our Region's Business





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The Institute for Trade and Transportation Studies provides research data and expert opinions to its members concerning the effects of commercial freight movements on domestic and international activities, with reference to infrastructure and transportation needs, and safety implications.

The ITTS members include the:

Arkansas State Highway and Transportation Department

Florida Department of Transportation

Georgia Department of Transportation

Kentucky Transportation Cabinet

Louisiana Department of Transportation and Development

Mississippi Department of Transportation

Missouri Department of Transportation

Virginia Department of Transportation

West Virginia Department of Transportation

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▶ LAMBERT'S LAGNIAPPE

*la-gniappe |lan'yap|:
something given as a bonus or extra gift.*

I enjoy walking in the woods behind my house but I always seem to run into a spider's web strung across the path. We often talk about the strength of the spider's fibers, but what makes the web strong is its networked structure. The spider's web, as a whole, remains strong even if some of the strands are removed or damaged. One could say the spider only appreciates the web's intricate design when the network functions as expected, i.e., dinner is served, or when it can withstand some damage.

And we may say the same about America's transportation network. We only appreciate what the network provides, not necessarily the network itself. For example in aggregate, the United States remains one of the world's largest freight markets. Based on statistics from the "Goods Transport" in the OECD Factbook 2014, the U.S. handled 5,299.4 billion metric tons-kilometers of all modes of inland freight on in 2009. While the U.S. ranks below the Chinese total of 8,248.3 billion metric tons-kilometers, the U.S. handled more internal freight as Russia and the European Union combined (2,159.2 and 2,643.3 billion metric tons – kilometers respectively).

Like a web, the transportation system

occasionally cannot handle all the pressures thrown at it. Port congestion in Southern California has caused ripples throughout retailers' inventory levels as they prepare for the Holiday shopping season. The large harvest has grain shippers struggling with finding equipment even as rail and water handle increased petroleum shipments. There remains the perpetual debate concerning rates, workforce development, structurally deficient bridges, aging locks and dams, aviation needs, and other elements that are needed to keep the system moving. These arguments serve to highlight the vulnerability of our transportation system and our dependence upon it functioning properly. (No one reports on traffic conditions when there are none to report!) Yet while inefficiencies exist, the system works despite our inability to financially or operationally address every issue or need in the immediate future.

In some ways, a spider values what it has and maintains its web (network). And maybe that is the true lesson of the spider's web. Once built, the web can withstand the stresses placed upon it (well, maybe not from a fairly large man) which sustains the spider that simply enjoys the benefits of his previous handiwork. ■

What is ... Omnichannel Distribution

With the holiday shopping season in full force it is possible that one could easily stay at home and order gifts, meals, or even a tree, to be delivered to your front door. While this makes the life of the consumer easy, it complicates the distribution plans for retailers as consumers expect retailers to sell anything, anywhere, and at any time. Retailers must respond to changing consumer demands for more product information and availability. Retail planning cycles are often long, as shops must not only align the cargo to arrive on the shelves, but allocate time for merchandise displays, staffing and other activities to attract customers. As shoppers increase their dependence on e-commerce, retailers have to adjust their warehouse and distribution facilities to anticipate both in store and online purchases.

The concept of omnichannel supply chains seeks to make the customer's shopping experience appear seamless regardless of whether they are online, on a mobile device or in a store. This is more difficult to implement from an inventory management perspective than one may realize.

First, retailers must improve warehouse management system tracking and information about the product itself. As such, one of the first areas of improvement is the ability to pick from existing inventory, especially given the small and specialized nature of the pick itself. For example, someone may want a pair of blue suede shoes, size 11. A person, or a robot, has to find that pair of shoes, then pull it from the existing inventory to package and ship it out to the customer. If the order was heading to a store, that pair of shoes now has to be replaced in the pallet with another pair of shoes from either the same warehouse or a different location.

Continued on page 4

The Importance of Trade to the Southeast

To assist member states with freight/economic related materials, various datasets and charts are available for download for each state in the respective state summary pages. The 2013 Trade Statistics are now available online with ITTS updates to the state summaries which include the latest trade figures. (<http://www.ittsresearch.org/Latts2-State-Summaries.html>)

I hope that you will find these charts useful in framing how

your region ties into global markets. These charts are complemented by the other materials posted on each state website concerning jobs, markets and gateway flows, may be useful in discussing freight shipments. As always, any comments and suggestions are appreciated, including links to related data or studies related to freight studies.

Here are two examples of the material posted online:

Exports by State Shipment of Origin

The charts below display the growth of exporting from each ITTS member state based on the location of the export shipment's origin. It is possible that an inland state may be under-represented, as some cargos are actually shipped to gateway areas before heading overseas. These charts are based on dollar amounts and include total trends, exports by air and water, as well as major markets and commodities.

For example, the following chart for the region shows the relative importance of trade to each state. For more details concerning the on these patterns you can download the materials for each state. ■

Total Trade with ITTS States, 2013 with comparison to 2012				
State	Total Exports		Total Imports	
	\$Millions	%Change 2012-2013	\$Millions	%Change 2012-2013
Total ITTS States	246,618	-1.5	323,117	2.6
Arkansas	7,154	-6.1	7,607	1.3
Florida	61,344	-7.4	72,119	3.6
Georgia	37,517	4.0	75,072	9.0
Kentucky	25,366	14.6	37,839	-18.2
Louisiana	63,339	0.7	66,087	-3.3
Mississippi	12,391	5.1	19,983	13.5
Missouri	12,932	-7.0	18,315	2.3
Virginia	17,945	-1.9	22,373	-2.2
West Virginia	8,631	-24.3	3,722	2.6

2014 Automated Vehicles Summit – Continued from page 1

I suspect that smart trucks will make their first appearance in municipal fleets, such as in garbage or street cleaning fleets, or in drayage operations where trucks can move during off-peak hours and on fixed routes. Over time, one expects algorithms to capture the variances of these routes and thus make them more efficient and safer.

The technology exists and may soon be on a roadway near you as a handful of states have permitted autonomous vehicles to operate on public roads in certain situations. However, the public role needs to be considered, especially in permitting autonomous vehicles concerning regulatory

Trade and Economic Growth

These charts posted online show the total value of air and water traffic with figures for the top markets, commodities, and origin of shipments (for export traffic).

In 2013, trade continued to shape the region's economy. For most states, trade has been a dynamic part of the economy for the past ten years. Since 2007 exports have been an area of growth in the U.S. economy and a share of the total for U.S. economic growth over the past few years. With the exception of a few states, most of the ITTS states experience various degrees of export growth in their economy.

When discussing exports from the region, the majority of trade leaves the region by water, followed by air and mostly land trade with Canada and Mexico. In many ways, improving trade requires more commitment to the entire transportation network, not only in a state, but nationally as well.

I updated the slides on Metropolitan Statistical Area (MSA) from the region as well as a comparison of the growth of GDP with exports. ■

Exports as Share of Total State GDP		
	2007	2013
United States	8.2%	9.5%
Arkansas	5.0%	5.8%
Florida	5.9%	7.7%
Georgia	5.8%	8.3%
Kentucky	13.1%	13.8%
Louisiana	14.6%	25.0%
Mississippi	5.6%	11.8%
Missouri	5.8%	4.7%
Virginia	4.3%	4.0%
West Virginia	7.0%	11.7%

oversight functions. While Florida is the only ITTS member state that has authorization permitting operational tests, this does not suggest the regulatory question will only remain a local discussion. Eventually, regional discussions should be utilized to address how to identify vehicles that can cross state boundaries while maintaining regulatory oversight.

These and other topics will be addressed at the 2014 Automated Vehicles Summit, which will include demonstrations of the emerging technologies. For more information, please visit www.automatedFL.com. ■

What is ... Omnichannel Distribution

Continued from page 2

Multiply this by the hundreds, and quickly, you can see where inefficiencies within a supply chain can occur, especially as e-commerce shipments tend to be smaller, and with fewer items, than a traditional store pallet.

Second, the warehouse has to be able to physically mail that package to the consumer. Oftentimes, this function may be performed by a third party logistics firm or some other intermediary (such as the Post Office, FedEx, UPS, etc.) to arrange delivery of the product to the customer. This can also lead to physical constraints within the same warehouse, as the e-commerce goods need to be sorted, picked and packaged alongside loads handled in a more traditional cross-dock operation.

The march to more integrated channels is not ending anytime soon. In some cases, firms are experimenting with using the local store as a mini-warehouse, offering local services to satisfy consumer demand. Examples of localized deliveries from Amazon, Wal-Mart and other retailers suggest that more flexible warehousing will be key in the future of retail sales. The need for omnichannel supply chains only serves to highlight the flexibility that retailers require in order to satisfy an increasingly connected shopper. As such, businesses are increasingly dependent upon reliable and transparent supply chains, not only while in transit but in the warehouse also. ■

News Update

Continued from page 1

🌐 I also attended the Mississippi River Cities and Towns Initiative meeting to discuss the future of containerized barge operations. I found this and the Council of Mayor's meetings encouraging, as more people are recognizing that transportation infrastructure is somewhat perishable. If you can not access the markets needed to support your economy, there may be foregone benefits to your local community!

🌐 "A Review of Public and Private Intermodal Railroad Development in the Memphis region" was accepted for publication in Research in Transportation Business & Management. I co-authored this article discussing the growth of intermodal terminal development, while also outlining ways that the public and private sector participation can strengthen a region's transportation activities.

► Trade Profile – Russian Trade Embargo and the ITTS Region

In response to Russia's involvement in the Ukraine, President Obama imposed trade sanctions on Russia in March followed by additional sanctions this summer. Other nations have also imposed trade sanctions on Russia. In response, Russia imposed trade embargos on food products from the U.S. and other countries.

The U.S. and Russia have benefited from bilateral trade and foreign direct investment (there are over \$10 billion of U.S. foreign direct investment in Russia). In 2013, the U.S. exported over \$11 billion, having grown steadily over the past ten years from \$2.4 billion dollars in exports in 2003. And while imports have been declining over the past few years, largely due to reduced demand for Russian petroleum, imports from Russia still account for \$27 billion dollars in 2014.

The effect of the embargo on U.S. trade is reported in the accompanying table. Total U.S. exports to Russia actually grew at 1.3% on a year to date basis although exports from the ITTS declined sharply.

In 2014, the decline in exports from the ITTS States has been uneven. Poultry exports from Arkansas, Florida, Georgia, Louisiana and Mississippi declined sharply, however, net exports from Arkansas increased from strong growth in exports of pipeline equipment. Other sectors experienced

the same as vehicle exports from Georgia declined while shipments from Kentucky increased.

When discussing trade policy, often transportation patterns may be disproportionately affected as seen in declining agricultural shipments from the Southeast. Furthermore, there are questions that such policies may not be effective, especially if producers/suppliers can trade in other markets or if a nation has significant foreign exchange to weather the storm. Recent economic data suggests that the Russian economy is starting to feel the effects of

the sanctions, yet the Ukrainian conflict continues. For the Southeast, the effect has been fairly small although still noticeable in a few commodities. ■

Exports from The U.S. and the ITTS Member States, 2013 and Year to Date Changes

Exports from	Total Exports, 2013 (in millions of U.S. dollars)		% Change Year to Date, 2013-2014	
	Total	Russia	Total	Russia
Total U.S.	1,579,593	11,136	3.4%	1.33%
Total ITTS	246,618	1,541	1.4%	-20.2%
Arkansas	7,154	16	-9.0%	60.6%
Florida	61,344	281	-6.2%	-37.1%
Georgia	37,517	453	5.1%	-37.8%
Kentucky	25,366	91	8.8%	158.7%
Louisiana	63,339	281	7.1%	-32.9%
Mississippi	12,391	58	-7.4%	-20.1%
Missouri	12,932	77	1.2%	-1.5%
Virginia	17,945	279	8.5%	14.6%
West Virginia	8,631	5	-12.2%	-22.9%