

Understanding RFID Adoption in China

Companies need to know the factors driving RFID adoption in the world's next major manufacturing center.

Feb. 7, 2005 –As 2005 begins, we are seeing signs of progress toward adoption of RFID in the United States and Europe, particularly in the warehouses and distribution centers of several hundred (and climbing) suppliers to Best Buy, Metro, Tesco, Target, Wal-Mart and the U.S. Department of Defense. The big question now is: When will manufacturers start to push RFID backward into their overseas manufacturing operations, specifically China?

Global manufacturers source products from many nations, but no nation plays a bigger role than China. Well over 70 percent of the more than \$200 billion worth of goods imported into the U.S. from the Pacific Rim each year comes from China. And the figure is growing. In the first six months of 2004, the United States imported more than \$120 billion worth of goods from China, a 23 percent increase over the same time period in 2003. It is important to understand the drivers of RFID adoption in China—the why—because these drivers will impact the rate and model of adoption—the how.

The Why

Aside from global manufacturers requiring their suppliers to put RFID tags on products shipped to the United States and Europe, two factors are primarily driving adoption of RFID in China. First, Chinese government officials and heads of Chinese companies are placing an increased emphasis on the country's logistics infrastructure, which has not kept pace with the growth in manufacturing during the past decade. Because growth of China's logistics infrastructure has lagged, China's supply chains are highly fragmented. Consider:

- China's supply chains are inefficient. Logistics accounts for an estimated 20 percent of gross domestic product compared with about 8 percent of GDP in the U.S.
- In China, 21 percent of large corporations (including multinational corporations) outsource logistics to third-party logistics providers; in the European Union and the United States, approximately 45 percent of corporations do so.
- For Chinese firms of all sizes, outsourcing accounts for only 5 percent of all logistics spending, leading to massive duplication and underutilization of supply chain assets, such as ocean shipping containers.

With this fragmentation, railway and trucking traffic in China now far exceeds the capacity the infrastructure was designed to handle, leading to shortages of key commodities and to logistics costs that are rocketing past the quarter-trillion-dollar mark annually.

Second, while China's low-cost labor pool has provided an extremely effective magnet for global manufacturing, the country's competitive advantage won't last forever. The dramatic rise in China's technological sophistication, the astronomical increases in the amount of goods that the nation exports globally and the increasing skills of Chinese workers, scientists, and entrepreneurs all argue for a sharp appreciation of the Chinese yuan versus the dollar in coming years, and a beginning of real competition with

other low-cost manufacturing centers. Chinese government and business officials know that when that day arrives, and it's not far off, their logistics system must be able to compete efficiently with the best in the world.

Thus, the Chinese government is closely watching the adoption of RFID by overseas companies, both to understand potential customer requirements and to learn best practices. The government is also acutely aware that Wal-Mart, with its RFID mandate, imports an estimated \$12 billion to \$20 billion (roughly 10 percent to 15 percent of overall U.S. imports from China) per year directly from China--more than China's total exports to Russia or United Kingdom.

There is visible evidence that the government is beginning to take action: China, along with 26 other countries, formed the Boao Forum for Asia, a nonprofit, nongovernment group focused on creating dialogue and making progress on issues concerning global trade, logistics and the environment. This group held the inaugural Boao World Logistics Conference in Shenzhen in December. Global leaders in manufacturing, logistics and government were in attendance--all with a singular focus on furthering Asia's efforts in the areas of supply chain and logistics.

Thus, though it will take time to catch up in terms of enterprise resource planning systems, data exchange systems and other technology infrastructure required to enable RFID, the adoption of RFID in China will likely see a rapid rise. The impetus for this may have less to do with standards or innovation (though both are critical), however, and more to do with Chinese government looking to leverage the technology to benefit the country's overall logistics infrastructure and support key customers.

The How

In the United States and Europe, large retailers, manufacturers and other players within integrated supply chains are driving adoption of RFID with little government intervention. The path in China will be quite different. To date, much of the buzz and awareness around RFID in China has been created by entrepreneurs and the media. Over the next few years, however, the government will be the overriding force behind the adoption of RFID, tied heavily into the country's overall efforts to improve supply chain infrastructure. Several efforts are underway to pilot the use of RFID in Chinese port and logistics operations, and officials from China have been talking with global logistics leaders about technology and infrastructure upgrades required to solve bottleneck and security issues. Two areas to watch in this arena are standards efforts and pilot programs (initial points of adoption).

Early Chinese efforts on RFID standards development have been widely publicized, with government-sponsored groups collaborating with technology leaders and global standards bodies such as EPCglobal. Though not as well publicized, there is much debate as to whether the Chinese government will opt to drive toward standards that provide a competitive advantage for Chinese manufacturers, as it has attempted to do in the past with other technologies. While this self-interest may play a role in China's RFID standards development, the increased emphasis on global supply chain competitiveness, the overwhelmingly collaborative nature of the technology, and the acute awareness of the relationships with key customers such as Wal-Mart, will likely balance out any push to adopt standards in China that give Chinese companies an advantage.

Conclusion

It's likely that adoption of RFID in China will be driven by the government in scenarios that support the "global competitive advantage" framework" instead of being driven primarily by Chinese entrepreneurs and supply chain participants. Watch for the Chinese government to play a significant role in the adoption of RFID, both in the promotion of standards and the launching of pilot programs. Because the government now sees logistics infrastructure as a focal point of the country's strategic position in the global economy, it will not leave RFID adoption solely to entrepreneurs, technology providers and end users. That means that it might

not be manufacturers in the United States and Europe that push RFID adoption in China; adoption could well be driven by pressure from the Chinese government.

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