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RESEARCH NOTE

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SUBJECT: **Supply Chain Management SaaS Market Map**

MARKET OVERVIEW

Supply chain management ("SCM") is a broad term that describes the management of the flow of goods, including the movement and storage of raw materials, work-in-process inventory, and finished goods from point of origin to point of consumption. Interconnected networks, channels and node businesses are involved in the delivery of products and services through the supply chain and finally to end customers. The objectives of SCM are to create net value, build a competitive infrastructure, leverage worldwide logistics, synchronize supply with demand and measure performance globally.

As outlined below, these objectives are realized through a continuum of SCM functions, including (i) demand planning, (ii) procurement & sourcing, (iii) warehouse management, (iv) order fulfillment and (v) transportation management. Many companies offer services across the SCM spectrum, and vendors primarily consist of software providers. For the purposes of this paper, we will focus on software providers with a particular emphasis on SaaS providers.

SCM Continuum

Demand Planning – Demand planning is a multi-step operational process used to create reliable forecasts. Effective demand planning can guide users to improve the accuracy of revenue forecasts, align inventory levels with peaks and troughs in demand, and enhance profitability for a given channel or product. The approach begins with a statistical forecast. Data sources for the forecast include planned sales orders, customer contracts and intercompany standing orders. The final forecast is shared with key stakeholders, such as suppliers. Although part of the supply chain spectrum, demand planning is more closely aligned with enterprise resource planning ("ERP") solutions and will be deemphasized for our purposes.

Procurement & Sourcing – Procurement applications automate sourcing activities (e.g., market research, vendor evaluation, negotiation of contracts) which inform the purchase of goods and services, as well as the actual purchasing activities required to order and receive goods. Activities related to obtaining products and materials from outside suppliers involve resource planning, supply sourcing, negotiation, order placement, inbound transportation, storage, handling and quality assurance, many of which include the responsibility to coordinate with suppliers on matters of scheduling, supply continuity, hedging and research into new sources or programs.

Recently, the procurement function has been expanded to Web-based solutions which connect the various procurement activities to create a single view of the spending levels at a company. As a result, purchasing activities are integrated into a supplier community that can be easily tracked, benchmarked and analyzed by both buyers and suppliers.

Warehouse Management – Warehouse management systems ("WMS") provide a set of procedures for management of warehouse inventory with the goal of minimizing cost and fulfillment times. The functions of WMS include:

- Standardize receiving process for stock and returns
- Model and manage logical representation of physical facility
- Enable seamless link to order processing and logistics management in order to pick, pack, and ship product out of facility
- Control inventory levels through tracking where products are stocked, which suppliers they come from and the length of time they are stored

Order Fulfillment – Order fulfillment applications are designed to automate sales order processing from capture to invoice and settlement. Item lookup and order placement are the prerequisites of order fulfillment applications, followed by issuance of receipts, advance shipping notices and payment processing functions. Increasingly, web-based order fulfillment applications are replacing legacy systems for faster and more accurate order processing. Order and product configurations, as well as pricing options, freight calculation, and credit checking, are being combined to form an integrated order fulfillment application across all sales channels. Other features include price history, profit management, multiple order types (including quotes and credit orders), blanket and release orders, direct ship and transfer orders, kit processing, and product returns processing.

Transportation Management – Transportation management systems ("TMS") are focused on transport logistics and facilitate interactions between order fulfillment systems and the warehouse or distribution center. The functions of TMS include:

- Define the most efficient transport schemes according to given parameters (e.g., transport cost, lead-time, number of stops), which have a lower or higher importance according to the user policy
- Execute transportation (e.g., carrier rate acceptance, carrier dispatching, EDI)
- Track physical and administrative operations (e.g., traceability, reception editing, custom clearance, invoicing and booking documents, transport alerts)
- Measure KPI reporting functions

MARKET SIZE AND GROWTH

According to Gartner research, the market for SCM software, maintenance and services continued its upward trajectory, generating $8.3 billion of revenue in 2012. That figure represents a 7.1% increase over 2011 revenue. Gartner forecasts a CAGR of 9.9% for SCM software, excluding procurement, for the next five years**.**

SaaS SCM offerings showed above-market growth (13% in 2012), while perpetual new licenses experienced slower growth of 3.5%, as organizations sought cloud-based solutions with faster implementation times at a lower upfront cost. Gartner forecasts that organizations will spend $2.3 billion on supply chain execution software in 2013, with 18% of that spending on cloud-based solutions.

Enterprise-level supply chain planning applications growth: ERP, supply chain planning ("SCP") and SCM grew from $2.8 billion to $3.0 billion between 2011 and 2012. The following are key trends in the space:

- Continued interest in inventory optimization (~6% YoY growth)
- Emphasis on sales and operations planning (i.e., integrating supply chain activities with marketing and sales analytics) (~20% YoY growth)
- Adoption of multi-business SCM software platforms, facilitating collaboration among trading partners
- Continued adoption of cloud computing, especially in emerging markets which do not have legacy on-premise installations

Warehouse management system growth: The market for WMS grew by 7% in 2012 to $1.1 billion. The following are key trends in the space:

- Growing dominance of ERP vendors in the WMS and supply chain execution space
  - ~250,000 warehouses in North America can benefit from WMS; of those, 25,000 to 50,000 require the functionality provided by the best-of-breed players (e.g., Manhattan Associates and JDA), with the remaining ~200,000 facilities served sufficiently by ERP solutions
- Continued adoption of cloud computing, especially in emerging markets which do not have legacy on-premise installations
- Expansion of mobile options (e.g., more iPads in the warehouse)

Transportation management system growth: The market for TMS grew by 14% in 2012, posting revenues of $735 million. The following are key trends in the space:

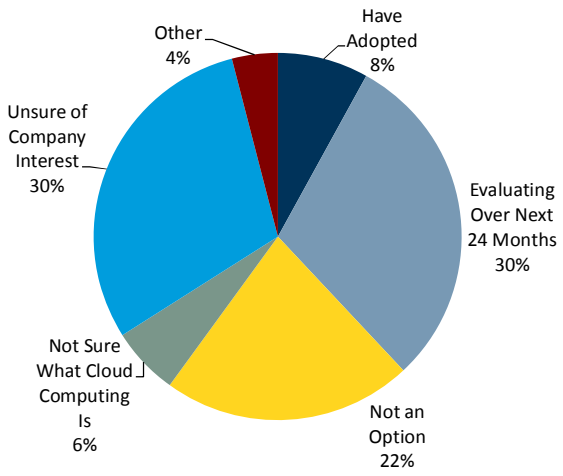
- Growth of the mid-market TMS, serving mid-size shippers ($25 million to $100 million annual freight spend)
- Convergence of supply chain execution in end-to-end processes rather than optimizing processes within silos, such as the warehouse or transportation department

Market penetration: According to the results of *Logistics Management*'s 2012 Annual Software Users Survey, 39% of respondents planned to buy SCM software for their company in the next 12 months, a decrease from 48% in 2011. Market penetration of select SCM software packages is as follows:

- **WMS:** 56% of respondents use a WMS; 24% of respondents plan to buy or upgrade their WMS in the next 12 months
- **TMS:** 37% of respondents use a TMS; 25% of respondents plan to buy or upgrade their TMS in the next 12 months
- **ERP systems:** 47% of respondents use an ERP system; 54% of respondents plan to buy an ERP system this year (54% of those planning to buy say their ERP system will include a WMS module)

The SCM software market is still nascent in terms of its cloud-based software adoption, as outlined in the chart below based on *Logistics Management*'s 2012 Annual Software Users Survey:

Adoption of SaaS Strategy



The primary issues cited as deterrents to SaaS adoption are security and privacy concerns, system reliability and performance, data integrity and lack of control. Of the companies that planned to invest in SCM software in 2012, 21% said SaaS was an option.

We believe there will continue to be strong SaaS adoption in the sector driven by (i) companies with existing SCM software replacing on-premise solutions and (ii) companies that did not previously have SCM software (insufficient product offering, prohibitively expensive) purchasing new SaaS solutions.

MARKET TRENDS

As outlined below, both macroeconomic and secular trends have contributed to the growth of the SCM market:

- Economic recovery
  - Release of the demand bottleneck created by the economic recession
  - Growth in emerging markets
  - Resurgence within the discrete manufacturing sector
- Offering retailers and e-commerce companies greater visibility and insight into demand variability
  - Proliferation of multiple sales channels and touchpoints
  - Need to support recent focus on consumer-facing omni-channel retail with improved fulfillment capabilities
  - Shifting the flow of inventory from a product push / predictive supply chain to a product pull / reactive supply chain
    - According to research firm IHL Group, the collective cost of inventory distortion in out-of-stocks and overstocks among retailers is $800B; if corrected, same-store sales could increase by 9%
    - Competitive advantages include endless aisle, competitive pricing and reduced costs

- Improving systems and deployment times to meet rising consumer expectations
  - Order processing
  - Same- or next-day delivery
  - Ecommerce returns
- Transitioning to SaaS to leverage the advantages of cloud-based SCM solutions
  - Simplified connection / collaboration with suppliers and trading partners
  - Real-time visibility
  - Integration with various accounting and ERP systems
  - Accessibility for SMBs (lower cost of ownership, easier supply chain application adoption)
- Continued adoption of SCM solutions
  - Cost of using B2B systems has fallen, allowing smaller firms to participate
  - Specializing global B2B systems for SCM processes to lower complexity and risk
  - Coordinated SCM solution adoption within industry verticals, reducing costs by integrating ERP systems

COMPETITIVE LANDSCAPE

We will break down the market between the top SCM software providers (including the broader ERP platforms) and cloud-based challengers.

Gartner top 20 SCM providers. Gartner annually compiles a top 20 list of SCM software providers based on its estimates of providers' annual sales. Gartner's estimates are based on revenues related to SCM software (excluding vendor-generated services and hardware) and not a company's total revenue.

Gartner Top 20 SCM Software Suppliers 2013

Rank	Company	Headquarters	2012 Revenue	SCP	WMS	TMS
1	SAP	Walldorf, Germany	$1,721	✓	✓	✓
2	Oracle	Redwood City, CA	1,453	✓	✓	✓
3	JDA Software	Scottsdale, AZ	426	✓		✓
4	Manhattan Associates	Atlanta, GA	160	✓	✓	✓
5	Epicor	Livermore, CA	138	✓	✓	✓
6	IBM	Armonk, NY	112	✓		
7	Infor Global Solutions	New York, NY	111	✓	✓	✓
8	RedPrairie (now part of JDA)	Waukesha, WI	105		✓	✓
9	Descartes Systems Group	Waterloo, Ontario	96			✓
10	Kewill Systems	Guildford, UK	62			✓
11	Unit4	Sliedrecht, Netherlands	62		✓	
12	GTNexus	Oakland, CA	54	✓		✓
13	IBS	Solna, Sweden	52	✓	✓	✓
14	Quintiq	Hertogenbosch, Netherlands	52	✓		✓
15	HighJump Software	Eden Prairie, MN	51		✓	✓
16	Logility	Atlanta, GA	50	✓	✓	✓
17	Totvs	Sao Paulo, Brazil	48	✓	✓	✓
18	IFS	Linköping, Sweden	47	✓	✓	✓
19	Inspur Genersoft	Kowloon, Hong Kong	46	✓		
20	Kinaxis	Ottawa, Ontario	39	✓		✓

All $ in millions.

SCP = Supply chain planning, includes demand planning and procurement
WMS = Warehouse management systems, includes order fulfillment
TMS = Transportation management systems

The SCM software market is dominated by the leading ERP companies, particularly SAP and Oracle. Together with best-of-breed provider JDA, the top three companies accounted for 49% of the total supply chain management software market in 2012. Other ERP companies such as Epicor, IBM and Infor Global Solutions are also in the mix, as well as dedicated SCM solutions such as Manhattan Associates, Descartes Systems Group and Kewill Systems. Although the top 20 companies' "DNA" is on-premise, most offer product suites that include cloud-based solutions.

ERP vendors such as SAP and Oracle are integrating more comprehensive SCM solutions into their ERP offerings, as best-of-breed players such as JDA and Manhattan continually expand their solutions' functionalities to compete. Gartner analysts predict that ERP vendors will dominate SCM software for the typical shipper within the next five to ten years, although not at the highest, most sophisticated SCM level. As noted above in *Logistics Management*'s 2012 survey results, more than half of shippers consider ERP providers to be capable of offering satisfactory WMS applications. Additionally, ERP dominance will be driven in part by the rationale that if a shipper has an ERP in place which is already full of company data and ready to be leveraged across the supply chain, then it makes economic sense to utilize the larger system with the hope that the supply chain functionality is both broad and complete.

Cloud-based challengers. In many situations, SaaS has made it easier for shippers to decide between full-blown ERP implementations and the specific functionalities that they need from their SCM software. Both software providers and integrators alike are leveraging SaaS to sell more systems to those companies that do not want to go through an enterprise-wide rollout or upgrade. Shippers who are making the selection

between dedicated software providers and all-encompassing ERPs must consider whether they want to be tied to a single vendor, as cloud-based options provide a more flexible way for shippers to enhance their supply chain software suite without having to give up their ERP systems.

The cloud-based challengers subset includes a variety of smaller companies with revenues ranging from $2 million to $100 million. These companies tend to be focused on either (i) a specific segment of the SCM process (usually one of the broader segments such as warehouse management systems and transportation management systems) or (ii) a specific vertical for which they provide specialized or end-to-end solutions. Examples of WMS-focused SaaS challengers include DiCentral Corporation, Logfire (named a "Visionary" in the Gartner 2013 Magic Quadrant for WMS), Softeon, Foxfire and Snapfulfil. Examples of TMS-focused SaaS challengers include Llamasoft, M33 Integrated Solutions, Agistix, EFreightSolutions, Pedigree Technologies and CloudLogix. Vertically-focused end-to-end SaaS solutions include ArrowStream (restaurants), Apprise Software (consumer goods), AirClic (food, beverage, retail, healthcare), Elemica (chemicals, plastics, energy) and Simparel (apparel, footwear). We will revisit these challengers when we address Catalyst's opportunities (refer to our cloud-based challengers market map).

Market consolidation: There have been several recent acquisitions in the SCM SaaS space. They have come in three main forms:

(1) *Horizontal point solution acquisitions* – There have been a number of acquisitions of point solution providers by companies within the SCM space or those operating in adjacent markets. Examples include BasWare buying BravoSolution, Kewill buying Four Soft, Descartes Systems buying KSD Software, Trimble Navigation buying TMW Systems, Roper Industries buying iTradeNetwork, and CHEP buying LeanLogistics.
(2) *On-premise ERP software companies buying SaaS providers* – examples include RedPrairie Corporation buying JDA, SAP buying Ariba, QAD buying DynaSys, and American Software buying Logility.
(3) *Private equity buyouts* – examples include Greenbriar buying Transplace, Permira buying Intelligrated, Centerbridge Partners buying Cardinal Logistics Management, Francisco Partners buying Kewill and NexTraq, Tenex Capital Management buying LinkAmerica, Apax buying Epicor, CI Capital buying Transplace, and Battery Ventures buying HighJump.

<u>The current supply chain software market is highly fragmented with many players addressing different functions along the supply chain continuum</u> and ERP software vendors expanding their SCM capabilities. Gartner projects further consolidation in the market as buyers want a fully integrated ERP/SCM platform. A handful of ERP software vendors offering a fully integrated suite of SCM solutions will dominate the market, with the remaining niche players addressing very specialized industry features designed to work with full featured SCM software.

CATALYST OPPORTUNITY

SCM is a large and growing industry as businesses of all sizes need a software solution to manage the flow of goods in order to compete effectively in the global economy. Even though the market is dominated by a few large public companies with scale, we believe there is still an opportunity to invest in the space, especially in companies providing SCM SaaS solutions to SMBs.

CLOUD-BASED CHALLENGERS MARKET MAP

We identified a universe of ~170 companies operating in the SCM software market. Given Catalyst's investment strategy, we have distilled the universe to ~50 SaaS companies with revenue up to $100 million. The market map below is organized horizontally by product focus within the supply chain continuum and vertically by revenue estimate.