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CASE STUDY: STORA ENSO, FINLAND

Abstract

Development, adoption and use of papiNet® collaborative messages, combined with FENIX ERP and PartnerWeb, are presented as the major steps and achievements in the Stora Enso overall European world-class supply chain integration strategy. The Packaging Boards Division is also leading the way in intelligent packaging as demonstrated in the summary of PackAgent, currently a pilot software project using RFID to track and trace pharmaceutical products and protect against the growing problem of counterfeit drugs.

Case study fact sheet

■ Full name of the company:	Stora Enso Oyj
■ Location:	Helsinki, Finland
■ Main business activity:	Integrated paper, packaging and forest products
■ Year of foundation:	1998 (date of the Stora and Enso merger)
■ Number of employees:	Over 46000 in more than 40 countries on 5 continents
■ Turnover in last financial year:	€13.2 billion
■ Primary customers:	Publishers, printing houses, merchants, as well as the packaging, joinery and construction industries
■ Most significant geographic market:	Western Europe, North America, and Asia
■ Main e-business applications studied:	Use of e-standards, ERP use
■ Key words:	papiNet® standard; ERP; Intelligent packaging

Background and objectives

Stora Enso is an integrated paper, packaging, and forest products company, with four global divisions: Publication Paper, Fine Paper, Packaging Boards and Forest Products. The group is among the global market leaders in all areas. Stora Enso serves its mainly business-to-business customers through its own global sales and marketing network. A global presence provides local customer service. Customers include publishers, printing houses, and merchants, as well as the packaging, joinery, and construction industries – and are mainly concentrated in Western Europe, North America, and Asia. As Stora Enso moves into the future, the Group is focusing on expanding its operations in new growth markets in China, South America, and Russia.

Packaging Boards produces materials for packaging applications: consumer packaging boards, graphical boards, containerboards and corrugated boxes, industrial papers for laminating industry, coreboards and cores. It comprises three business areas: Consumer Boards, Speciality Papers, and Industrial Packaging. The Packaging Boards Division achieves and maintains its leading position, in selected markets and product segments, through growth based on innovation, development and improved competitiveness.

e-Business activities

The Packaging Boards Divisional IT is responsible for the IT business support and technology development and implementations to enhance business competitiveness and business integration opportunities. The Corporate IT Group is responsible for all enterprise wide applications, infrastructure services and messaging services.

Stora Enso uses papiNet® extensively in external and internal communications. In this respect Mr Seppo Korhonen, VP of IT, observes that *“it is very important to have technical and business process standards. A good standards framework provides a half-way house to business integration. papiNet® is an excellent e-business standards framework. Adoption and use of papiNet® collaborative messages, combined with ERP, is a major step in our overall supply chain integration strategy”*.

Primacy of ERP

FENIX is the European Stora Enso ERP system. It was tailor-made by Enso prior to the Enso and Stora merge, and prior to the “Y2000” changeover. Stora Enso then further developed FENIX as their common cross-divisional ERP system in Europe and applied it to their products/services and logistics. This later version of FENIX was created specifically for Stora Enso by Tietoerator.

In 2000 Stora Enso acquired US Consolidated Papers, which operates throughout North America with a principal focus on magazine and coated fine paper. They were already in the middle of a JD Edwards (JDE) ERP solution implementation. Thus for ERP today, Stora Enso uses FENIX in Europe and Oracle’s JDE in US. Both are XML capable. In addition, Stora Enso uses SAP¹ in Europe for management and administrative tasks, such as credit control, financial reporting, Human Resources, materials management, machine maintenance and reporting. These SAP systems and FENIX are cross-linked to enable internal information access. Stora Enso staff can thereby access detailed up-to-date information in accordance with their specific personal authorization levels.

Mr. Seppo Korhonen summarised the strategic importance and benefits of the FENIX system for Stora Enso business units and partners. *“FENIX is used by all Stora Enso European Paper, Board and Pulp mills. It supports a range of different business practises, using the same fundamentals and basic data, in many production and logistics chains across Europe. This is a big bonus. FENIX also allows us to make further strategic technology investments and harmonisation of business practises between and within different businesses in our worldwide systems that would not otherwise be feasible”*.

¹ SAP is a company founded in 1972 as Systems Applications and Products in Data Processing, which provides collaborative business solutions (www.sap.com).

Impact

The central focus on ERP has several important effects. Three specific business development enablers are presented in this study:

- PartnerWeb
- papiNet, and other standards
- Intelligent packaging, and the PackAgent Pilot

PartnerWeb

PartnerWeb is the customer self-service web interface to the FENIX ERP. PartnerWeb is a harmonised back-end system, which works directly off the master FENIX databases, not from copies. Therefore the information is always up-to-date. The extensive PartnerWeb functionality is built on several different levels of / functions / structures / authorizations, and designed to ensure that operations on FENIX within Stora Enso are not disrupted or placed at risk. Security features ensure that only information that individual partners need to see, and is entitled to see, is accessible to them. Partnerweb is built on BEA WebLogic Server 8.1, which provides the foundation for web access, user identification and monitoring.

PartnerWeb access from any location is a business privilege sought by customers and partners. The size of the order record is not the critical issue in granting access. The important consideration is the presence of a mutual partnership expectation. Each implementation can be tailored to suit the particular requirements of the partner and how they plan to use the system access and for what. Currently, over 100 customers and SME partners can access PartnerWeb for vital information on an order delivery or status. They can place an order, view inventory and print documents that were previously only accessible via special request. Tailored functions are also provided for VMI (Vendor Managed Inventory) customers. Further functional enhancements are envisaged, such as Automatic Order Confirmation. This is required by some, most especially small volume, customers who need immediate assurances that an order has been confirmed and an acceptable delivery date scheduled.

papiNet

Mr Seppo Korhonen explains the pragmatic attitude towards papiNet® in terms of the Stora Enso over-riding commitment to customer service: *“papiNet® is useful and efficient when automating lots and lots of transactions, when an interface or service provider handles the messages, and when data is captured, e.g. as part of a valid bar code scan. Our partners and customers are from many sectors, and some already use standards other than papiNet® such as EDIFACT, and iDoc². There is no pressure applied to these partners to change. StoraEnsoConnectivity, our webMethods system operating from a central hub, translates all of these internally to and from papiNet”.*

Stora Enso uses papiNet® internally between FENIX and the corporate European SAP administration system. FENIX and the JDE system are also linked via exchange of papiNet® messages and kept in sync for certain business transactions, e.g. order and related information in North America for European products, and vice versa.

² A standard for electronic data interchange between application programmes written for the SAP business system or between an SAP application and an external programme.

Stora Enso exchanges papiNet® messages with 60 suppliers and customers i.e. those with high level of applications and communication software that are well positioned to handle the messages. Approximately 300 thousand messages are handled monthly by the StoraEnsoConnectivity hub. Over 80% of these deal with suppliers, mainly port and inland terminal operators, and the bulk of these are papiNet® messages.

The level of external utilization of papiNet® messages varies considerably depending on the business needs of individual divisions and their business segments. For example, Packaging Boards customers seem to prefer delivery note and weight list messages and not so much order messages. On the other hand, the Fine Paper division has an extensive range of merchant customers and thus the main messages in use deal with order receipt and sending.

Other standards

In implementation pilots with key customers, the first major factor is the willingness of the customer to implement an integration project. Secondly, customers depending on their in-house legacy systems and business domains may wish to implement other message based business standards e.g. iDoc, RosettaNet. In general, when establishing e-business links with its partners, Stora Enso recommends using papiNet® standards but the final decision depends on a mutual analysis of solutions best suited for the individual partner's own systems and for their stock management requirements and strategies.

Intelligent packaging

Intelligent packaging, and associated e-business impacts, are critical for the future of the Packaging Board division. Packaging has evolved from non-descript brown paper basic container technology to multi-functional graphic print and display functionality. The evolution from printed information on the package to electronic information in the package represents an even bigger opportunity for the packaging industry. One likely scenario is that the industry will expand into value-added markets by developing entirely new packaging services using electronic sensors and/or chemicals to gather and store information, and management instructions. For this to happen, the industry companies must work in collaboration with partners and customers to increase the demand for, and the value of intelligent packaging.

PackAgent

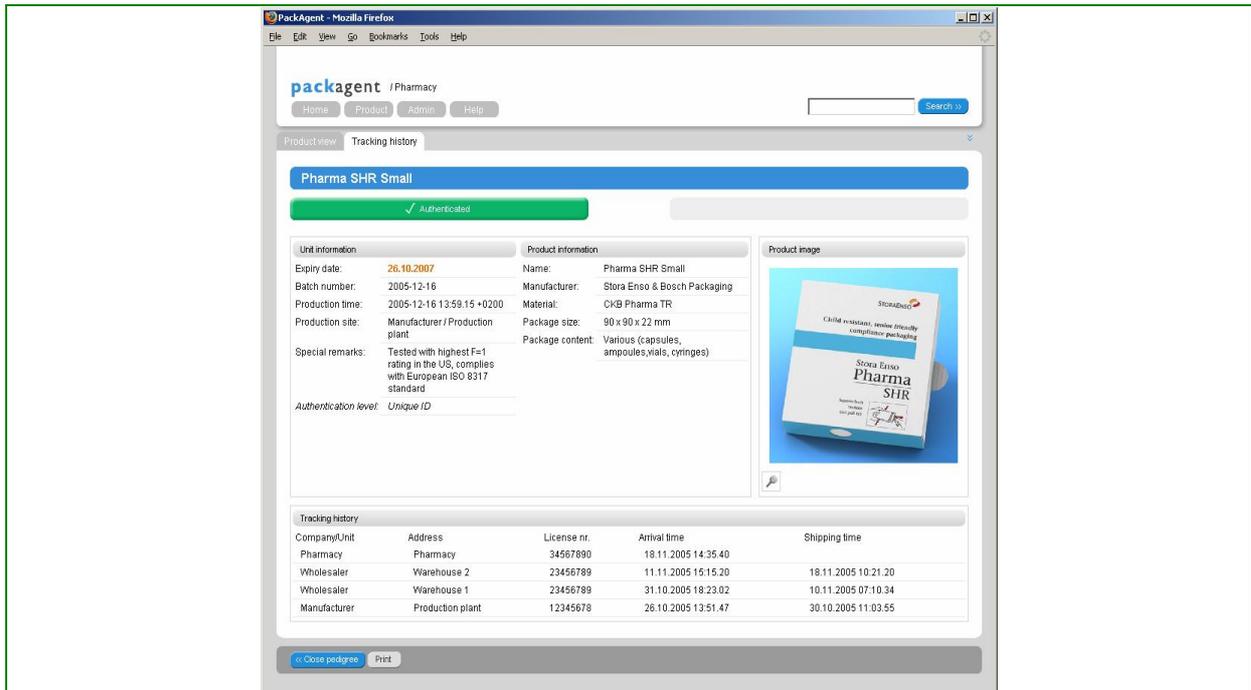
Stora Enso's PackAgent is one such solution. The pilot implementation with Orion Pharma is unique in that it involves all of the parties in the supply chain in their real operational environment. RFID tags are inserted into the packaging at the source.

PackAgent is designed to be decentralised, it does not have one centralised database. This enables information to be shared and accessed without traditional integration methods. To see how the packages move, all that is required is to open a browser and key in a batch number or code into a web interface. The system can track any package and is able to simultaneously serve and accommodate many different companies independently of their own internal systems.

PackAgent is moving in the direction of packaging as a solution. This intelligent solution can be applied to any form or level of packaging and is not tied to RFID only. Other security marking technologies are equally possible. These include, for example, 2-D symbologies such as Data Matrix, which can contain more than 100 bytes, i.e. much more data than regular bar codes.

The long term vision is expressed by Kirsi Viskari, one of the main architects of e business applications in Stora Enso and now Manager, Intelligent Solutions, New Business Innovations in Stora Enso Packaging Boards: *“PackAgent is capable of other things than just authenticating and tracking of products. One of its most important long term strategic capabilities is that it will allow the manufacturer to put specific information into the supply chain, effectively co-packaged as an integral component of the physical product. PackAgent is like a metro system – much like a metro supports business and social life by the movement of people, the PackAgent system enables the emergence of new forms of business and social integration based on the concept of ‘data as a platform’, one of the key pre-requisites for the vaunted Web 2.0”.*

Exhibit 1: Screen shot from the PackAgent Pilot



Lessons learned

The PartnerWeb capabilities and the papiNet® implementations are designed, in conjunction with the ERP system, to enable fundamental changes in business dynamics. In practice, Stora Enso customers have two immediate complementary options for e-transactions: PartnerWeb and use of papiNet. Customers can avail of each or both depending on the circumstances and perceived benefits relative to the efforts to be invested by either partner. Initial decision in the case of working with SMEs may be to steer towards PartnerWeb, and aim for papiNet® messaging between the company systems in the longer term.

The main lesson summarised by Mr Seppo Korhonen is that *“e-Business adoption should be a natural choice, a natural and normal evolution of doing business well. It does not have to be anything fancy. In collaboration with partners, present the business tools, study the possibilities, focus particularly on business process integration, and only implement in those areas where there is real advantage. Then treat every implementation as a separate project important in its own right”.*

Another lesson is that the initial excitement of smaller partners for papiNet® implementation is often dampened when the magnitude of the task relative to their existing implementation of ERP is understood. Even though papiNet® is universally recognised as being a very good standard, specific implementations in particular market sub-sectors do not require all of the data elements in the standard papiNet® messages. For example having to process a full general papiNet® message would be perceived as an “overkill” by those whose "ERP system" may be an EXCEL spreadsheet. This is well understood and is being addressed via the Segment Implementation Groups in papiNet.

The PackAgent project was designed in anticipation of much tighter rules on recording and tracking the pedigree of pharmaceuticals. These mandatory rules have since been realised. The US Food and Drug Administration announced the end of their hold on the implementation date for e-pedigree legislation, originally enacted as the Prescription Drug Marketing Act in 1998. Prior to the 1st December 2006, it is expected that the FDA will issue a draft Compliance Policy Guide. From that date the FDA enforcement of the pedigree regulations will focus on products considered most susceptible to counterfeiting and diversion. At that time it must be possible for distributors to be able to track and trace specific drugs. Thus the expectations and statutory requirements for packaging traceability based on technology such as RFID are now clear and RFID technology will be used widely throughout the pharmaceutical industry from 2007 onwards to improve security and safety concerns in the tracking of medical drugs.

One lesson for policy consideration from the PackAgent Pilot is that the legal status and any timetable for implementation of mandatory e-pedigree in Europe needs to be clearly established to enable packaging companies and their partners to plan accordingly. The requirement is fairly self-evident. Products ship across borders, and companies sell in every country, therefore EU Member State national rules and requirements must be compatible. Significantly different practices between the Members States will render it very difficult to have a common approach across the European market.

Conclusions

The future of the packaging industry is an exciting one, especially if it can move from a commodity-oriented business to a packaging system industry. The path is full of possibilities for imaginative and creative ICT enabled products and services which meet the needs of the industry, the customers, their products and the regulators in ways we can hardly imagine today.

Kirsi Viskari's vision, however, is clear: *“PackAgent capabilities and design features indicate the way. The fundamental prerequisite is to move beyond supply chain efficiency to integrating supply and distributed management of information in products in line with demand and increasing expectations. In addition to the interoperability and associated standards challenges, above all else this requires the establishment and nurturing of alliances, research networks and commercial joint venture outside the traditional packaging sector”.*

References

Research for this case study was conducted by Henry J F Ryan, (henryryan@eircom.net) on behalf of e-Business W@tch. Sources and references:

- Interviews with Stora Enso Packaging Boards Division staff: Mr Seppo Korhonen, Vice-President for IT, and Mrs Kirsi Viskari, Manager, Intelligent Solutions, New Business Innovations, conducted in April 2006.
 - Desk research, press clippings and www.storaenso.com
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