

# Ict developments in supply chain management



Incorporating product development through to store operations and everything in-between, the supply chain and it's information systems have become increasingly important in fashion retail as "fast fashion" become the dominant business model. Starting with a brief introduction of the fashion industry the goal of this paper is to outline the role of CIT in supply chain management within the fashion industry exemplified by the retail brand Ezra and the growth of "fast fashion".

Examining the transferal of information both up and down-stream we will observe the implemented and potential use of CIT in supply chain from product research and development through to marketing and sales. With particular attention on logistics ND distribution and the continued increasing speed of production we will examine what exists and the potential for improvements paying particular to the growth of Radio Frequency Identification (RIFF) and its impact on the retail and clothing industry.

In the mid-19th century the first major change in the production of clothing took place as technology facilitated the movement away from home made fashion. Often referred to as the father of fashion', Charles Worth was a successful, independent designer known best for his great contributions to dressmaking in the fashion world. Early dressmakers like Worth saw big opportunities in the design and production of fashion on a much larger scale which was greatly enhanced with technological innovations like the sewing machine, global capitalism and the first appearances of department stores.

The change in production during the 19th century saw clothing being mass produced in standard sizes and sold at fixed prices and from its humble

beginnings as a domestic necessity, fashion expanded into a major enterprise. The fashion industry is now truly global with clothes often designed in one country, manufactured in another, and sold worldwide. This international nature of the industry has produced four distinct levels with cost and time efficiencies appearing through the timely management of the stages worldwide.

The first level is the production of the raw materials needed to make the clothes, principally textiles, leather and furs. Then these raw materials are made into clothing by designers, manufactures and contractors. After, the clothes are then distributed and sold to retailers who, in the final stage, use various forms of advertising and promotion to market the fashions. These levels consist of many separate but interdependent sectors, all of which aim to profit from the consumer demand for apparel.

Supply chain activities can be broken down into two key interrelated systems; Physical flow and Information flow. Starting with the raw materials and ending with a customer purchase the continual flow of physical product at different stages is easily identifiable. In contrast the flow of information must start with the end use consumer and then flows up-stream and the ability to turn this information source into profit is where true competitive advantage can be achieved. (See fig. ) Since the sass's and he information revolution, man's ability to transfer information has continued to grow not only more efficient but also more important. With the growth of e-commerce and electronic data interchange supplying a constantly updated information supply, being able to profit from information has been key to successful business practice. Originally exemplified by Wall-Mart's ability to send and <https://assignbuster.com/ict-developments-in-supply-chain-management/>

receive sales and supply information automatically, communication development, facilitated by services like the internet, has gone on to open up a worldwide market for many industries.

This ability to transfer information instantaneously has given birth to a new generation of supply chain management systems where producers, suppliers, distributors, and increasingly even customers are all connected. In the high-street retail market, fast fashion is the current key to success where the speed of fashion trends meaner a more disposable clothing culture is emerging where low cost and a quick product lifestyle are vital to successful sales. With such demands from the end use consumer and with instantaneous information at hand, an increasingly important emphasis is being placed on supply chain management efficiencies.

Fig: 1 Supply Chain Management and Ezra undergone one of the most rapid global expansions the fashion world has ever seen. The first store was opened in Spain in 1975 and by 1980 the chain began to expand internationally, opening stores in the US and France by 1989. The sass saw an increase in its international expansion, and the store is set to enter the Australian market this year. This fast fashion' concept at Ezra contrasts the sass in which many retailers sought to maintain competitive advantage by focusing on price, and as a result outsourced to low cost places like the Middle East.

This required extensive ND complex supply chains and longer lead times were necessary due to geographical distances, operational differences and import/export procedures. Typically designs of new fashions would begin 12

months in advance of a season, with large quantities of garments ordered. Although this results in cost benefits, clothes may not represent the latest trends, and large orders increases the likelihood of costly mistakes being made. Sara's success stems from their ability to respond to continuous changes in consumer demand. They compete not only on price, but on their ability to deliver new, fresh products.

They serve to react rather than predict. A short lead time is enabled by a blend of CIT and internet, which allows garments to be designed and distributed within 15 days. This is approximately 12 times faster than their competitor Gap, despite the fact that Ezra offer roughly 10 times more unique products. A deliberate underproduction meaner that demand is often not fulfilled; however this fuels a sense of urgency amongst consumers and reduces the quantity of stock that is required to be marked down. Refreshing inventory on a regular basis also draws consumers into the store.

In adopting to the arrest place and the demands of the end use consumers Ezra has been able to implement a supply chain that " is so unique that no competitor has been able to completely imitate its superior production and delivery process". The other key influence on supply chain management that sets Ezra apart is their response systems which allows them to take live information from the sales floors worldwide to access current trends and consumer demands. This vertical integration of information back up-steam ensures that Ezra retain their speed advantage delivering the right products at the right time and to the right store.

Information and communication technology is at the heart of Sara's success in their product development. Customized handheld devices, known as Pads (personal digital assistants), provide a communication link between retail stores and the headquarters in La Corona, Spain. Store managers input data about customer opinion, trends and insights. As well as this, Pads are linked to the POS (point of sale) systems, showing how particular garments are ranked by sales. Thus, a combination of data captured at the cash register combined with customer insights is relayed back, via the internet, to headquarters.

This hybrid communication and information system provides Ezra with cost advantages to their operations and helps them to stick to their fundamental principle to rapidly responding to changes in consumer demands in the development process. Utilizing consumer demands to drive this backward vertical integration system, the speed of information transfer is key to Sara's success. Ezra pride themselves on using an effective merchandising strategy which has allowed them to develop a method of scarcity and opportunity as well as operating a fast fashion system.

Utilizing the speed of the internet has assisted them greatly in their success s they have adapted their infrastructure allowing them to communicate information rapidly in both directions of their supply chain. In order for this to be a success, Ezra have three elements which stand out in support of their strategy, - Effective use of market research -Proximity and control - Communication and Information Technology Ezra re-creates trends rather than creating them through massive market research.

However, they do not use any advertising but instead focus their attention on high- street store location, the store layout and the product life cycle. A large design team ammunition frequently to identify the current fashion trends and divert their attention to designing styles that match these trends. Their market research team are trained to observe trends both on the street and the catwalks who then communicate their findings to product development who take the trend and combine it with direct sales information to design the styles that fit the look consumers want.

Ezra have created a major communication culture that allows them to pass information effectively along the supply chain. Various business functions are based in close proximity to one another meaning that they are in tighter control of business recordings. This meaner that the people who are receiving trend information are not wasting anytime meeting with designers and manufacturers, which speeds up the production process. All of this gives them the flexibility in the frequency, amount and variety of new trends they produce and minimizes misunderstandings and conflicts within the organization.

Ezra makes extensive use of CIT and the internet to enable clothes to be designed and manufactured at competitive prices. The rapid inventory production and replenishment system meaner it is essential that there is a steady information exchange between each cog in the supply chain. Ezra uses EDP (electronic data processing) and EDI (electronic data interchange) to gain a competitive advantage, and enable the rapid transfer of information within the supply chain. All of the stores are connected

electronically to the Group's design, manufacturing and distribution processes.

Real time information and feedback is therefore available when deciding on the fabric, cut and the price point of new garments, as opposed to estimations. This results in well managed inventories, linkages between demand and supply, and reduced costs from obsolete merchandise. As well as information being relayed from stores, Inedited fashion designers attend premier fashion events where they use digital imaging to send pictures, via the internet, to Sara's concept development centre.

The concepts are then compared with the electronically catalogued CAD portfolio of in-house designs and designers then refine color, material etc. Final designs, as well as quantity of garments required, are scanned and sent electronically to the factory computers, and to the computer controlled cutting equipment simultaneously. The fast fashion business model is enabled by the erotica integration of the supply chain, and there is a high percentage of in-house production as well as the use of a network of local specialized factories in Northern Spain, with about half of Sara's products being produced here.

Ezra supplies these small scale partnership operations with computerized production management systems, thus gaining visibility and increasing communications. Contract manufacturers, from places like Turkey and Asia, are only employed to produce stable or simple items with a longer shelf life, or for more labor intensive procedures like sewing. Finished goods are labeled, price tagged and packed at the striation centre in La Corona. CIT



and the internet facilitate the communication and the sharing of information that allows new designs to be manufactured and sent to stores in a very short period of time.

Ezra buy about 40 percent of their fabric from another Inedited firm Committal , mostly endued with dying occurring after assembly. It purchases dyestuffs from yet another subsidiary. CIT and the internet allow not only for close communication links, but also may result in lower purchasing administration costs, better purchasing deals, especially when dealing with outside rims, and a reduced inventory. The constant flow of updated data also mitigates the bullwhip effect; the tendency of supply chains to amplify small disturbances, thus mitigating costly overproduction.

Lacking Sara's high level of CIT enabled integration; competitors are only in a position to offer four or five seasonal ranges per year, in contrast to Ezra, who replace 70% of the fashion garments in store every 14 to 21 days. RIFF could reduce Sara's already short lead times even further, by decreasing manufacturing and order receiving times and could be used for inventory control ND management, to further reduce inventory levels and the bullwhip effect, and to maximize general efficiency and minimize costs.

RIFF can also help ease some of the problems associated with the fast fashion industry in general, including data entry errors, forecasting discrepancies, outdated data communication, all caused by outdated technology and a lack of collaboration. Sara's product information is captured at the stores by the EPOSES (electronic point of sales system) at the moment the customer carries out the transaction. PUC (Universal Product

Code) Barbados in clothes labels provide an automatic and fast mechanism to capture sales evolution and stock level information at the stores.

Even though clothes could carry RIFF labels, and therefore be able to provide further information and increase the quality of it, it seems that the cost of tagging each item with an RIFF label is too high for most of the companies and does not justify the investment currently. While clothes are generally tagged with PUC Barbados, RIFF labels are being used on boxes to identify and track the merchandise in them. The benefits of using RIFF technology in logistics also come from improvements in internal and external handling operations.

It allows the organized distribution using advanced software programs, improving the speed and the quality of the inventory information, and the accuracy of the movements with automatic processes. Inside warehouses, employees use Pad's (Personal Digital Assistants) connected into a wireless system, these are small handheld devices that provide information about the merchandise, such as location, shipments and stock level. Staff can use them to locate boxes, track shipments and scan the RIFF tags on packages to easily recognize stock and check the deliveries. All the data processed goes back into the system.

In sum, all these advantages greatly improve logistics efficiency and reduce distribution costs. Companies that are vertically integrated, owning stores, managing logistics and producing the clothes use the information obtained from EPOSES to organize production and distribution. Distribution centers receive information from stores and the headquarters. CIT allow people in

charge of logistics to use the data on the system to plan on advance shipments and manage the level stocked of each item in the warehouse. When clothes are shipped from the workshops to the distribution centre, each box includes an advanced shipping notice (ASSN).

The ASSN is a document containing information about what specifically is being shipped, and when and where the clothes need to be delivered. In the distribution centre, the data from the ASSN is verified with the information received from the headquarters and the stores. Generally, warehouses have conveyor belts designed to fasten the flow of the cargo from the point of entrance to its outgoing loading dock according to its destiny store. Laser devices scan the garments to note its entrance so that a software program designed to implement a particular warehouse management system can transfer the apparels to its departure point.

When the ASSN is checked, the personnel proceed to re-identify and label the packages, and store the boxes ready to be shipped to the shops. Then the distribution centre prepares the plans to coordinate the shipment, either by land with trucks and/or via cargo flights to more distant stores. Sara's main logistics centre is located in Artesia, La Corona (Spain). The firm has other warehouses in Near, Saratoga, Madrid, Trader, Barcelona, Leon and Lech. The total area of its distribution facilities exceeds one million square meters.

All production, regardless of its origin, is received at the logistics centers of the many, from where it is distributed simultaneously to all the stores worldwide on a highly frequent and constant basis. In each distribution

centre exist three main areas, these are procurement, storage and shipment. Distribution takes place twice a week and each delivery always includes new models, so that the stores are constantly refreshing their offer. Garments leave the distribution centre and are delivered in European stores in 24 hours and US, Asian and rest of the world stores in 48 hours, on average.

In Artesia, more than 60, 000 trends are sorted per hour. In a short time the centre is able to receive the merchandise and dispatch it to the stores, no item stays in stock more than 72 hours. Inside its warehouses, optical reading devices scan the clothes while they are moved with ceiling-mounted racks before being packed. When boxes are filled, automated conveyor belts controlled by monitoring stations move the boxes, tagged with RIFF technology, inside the facilities with the assistance of logistic management software.

Clothes are allocated by country and then by store. Each of Sara's stores has its own belt assigned, and in some cases more than one. Boxes babbled with RIFF tags are scanned and the software is programmed to send each package to the pertinent belt. Because of its size, employees move inside the facilities using bikes and wear different colors depending on the zone they work. The Inedited group has created a new logistic company, " Fashion Logistics Forwarders", for the purpose of coordinate and optimize the shipments sent overseas of all the brands of the company.

This model can be sustained because of the high volume of product transported and the economies of scale obtained by the volume of the business, something unattainable by most of the companies. The

implementation of CIT especially RIFF systems has brought valuable improvements in the tracking and logistics of supply chain management. With reference to the apparel industry besides the changes noted above, Riff's beneficial qualities are still under used in the downstream consumer and retail end which are a key element in successful supply chain management.

In the case of Ezra, a few areas of the retail strategy could be strengthened with the use of RIFF technology including; window displays, stock refills, links with product advertising through magazines, and store area organization. First Ezra uses its focus on the consumer for window display management: the displays are managed in their Spanish headquarters and applied to each country's current trend in order to focus on the visual appeal, relevance and initial point of contact attracting the consumer and eventually leading them to an "impulse buy".

Adding RIFF to the display items would increase the process turnaround speed more in line with the collections which are being changed every "two weeks". Secondly, stock refills remain a considerable issue as the obsolete bar codes slow down the process of restocking successful items. With Ezra being "vertically integrated", its consumers become the most influential link within its supply chain. Although the brand aims to offer catwalk designs as fast as possible with their "live collections", the current use of bar codes slows down the process.

Items featured in "Garcia" for instance quickly run out and are not restocked fast enough, which could be solved within the "smart shelf" concept of RIFF.

Finally the store area could be implemented with an RIFF technology: available scanners on shelves to let the consumer know about sizes, origin of garment and yarn, smart mirrors and so on. The overall consumer experience of the retail environment could be implemented by managers with an RIFF system: with special instructions on the tags, the collections would be more attractively displayed, leading to the consumer spending more time in the shop and buying more than expected.

Also, RIFF is advantageous for all the above reasons because it does not require line-of-sight scanning. It acts to reduce labor levels, enhances visibility and improves inventory management. Negative sides of RIFF in apparel supply chain Technology Being a relatively new technology, several aspects of RIFF remain contentious. The first issue with RIFF tags is based on one of the main aspects of its technology, which is the fact makers use B« proprietary designs and technologies B»: B« this lack of standardization meaner that system scan on frequencies that vary from 125 kHz to about 915 MHz. ». Secondly, this new technology is not yet as reliable as the barcoded technology: B« If the information is not accurate, the rest of the supply chain will be affected B». Because of this issue, the information stored in the tags must be checked before being induced in the company's SCM. Third, the RIFF technology can be object to counterfeiting through B« sniffing B», where data can be intercepted through other Reader, and subsequently B« spoofing B» which is B« the process of creating counterfeit tags by writing properly formatted data on blank or rewritable RIFF transponders B».

Finally, the tags are unable to transmit information when stored in a packaging which contains aluminum. Cost The cost of tagging remains a

strong barrier to entry for the market, even though in the long term it can be more cost beneficial than Barbedos. " Radio Frequency Identification technology has opened the door to a new era in SCM, unachievable sing existing barded technology. Leading corporations have recognized the intrinsic advantages of RIFF but there is still reluctance in the business community to invest large amounts of capital in such new technology that is yet to prove itself ". « From the supplier perspective, the cost of required RIFF tags can eliminate already slim margins B» Consumer Privacy RIFF systems are largely used in every step of the supply chain apart from direct products not only for costing reasons, but also because of privacy issues. It is used directly on shelves in US companies such as Wall Mart while Europe is still a lot more elucidate to use them.

Negative publicity discouraged several apparel companies from using this technology: B« The privacy issues raised by RIFF tags have seen recent attention in the popular press, whose negative coverage forced the clothing retailer Benton to withdraw plans for embedding RIFF tags in its items for apparel B». Shop floor issues To tackle privacy issues, RIFF companies such as Checkpoint Metro have come up with new approaches. One of the results is the B« kill tag B» approach: B« To protect consumer privacy, checkout clerks would B« kill B» the tags of purchased good, no researched good would contain active RIFF tags B».

The device can also be used to show similar items to the ones a consumer is willing to purchase, as for example in the New York Pravda store.

Conclusions The continued desire to improve the speed and reliability of supply chain management is one of the key drivers of TIC in the fashion

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industry. With the transfer of information to the right people at the right time, Ezra are able to reduce their lead times from months to days. With end use consumers driving this fast fashion trend, a responsive supply chain management system is one of the most notable competitive advantages in the industry.

Like all industries, there is a continual drive for what is new and given the fickle nature and changeability of the fashion industry, a competitive advantage is only beneficial when it delivers what the customer wants. Fast fashion delivers choice and variety at a relative price replacing the extreme low costs that drove the market in the early ass's. Ezra are also quick to capitalism by vertically integrating their processes maximizing their economies of scale and given the current global economy, getting the most out of every cent is vital to remaining profitable.

As we look to the future of CIT in fashion we can already see the potential that RIFF tags will have on the industry while it negotiates itself around some of its remaining negative attributes. With the increased automation of warehouses highlighted by Ezra in northern Spain we can see the benefits of tagging down to the individual garment once it becomes financially viable. With advancements in automation and a continual desire to reduce costs throughout the supply chain, Act's future within the fast fashion industry looks secure but whether these speed orientated trends remain in style is another question. References