

## **Introduction**

An organization needs to rely on a system that will help improve their efficiency, whether in production or services, and maximize their profits. It is an advantage for an organization to adopt an information system where it can be considered as an asset in improving efficiency, cost effective, waste eliminating, and can gain more profits. Information systems are the means by which people and organisations, utilising technologies, gather, process, store, use and disseminate information. This paper will suggest technologies for Aalsmeer Flower Auction to help them achieve competitive advantage in the flower industry.

### **Present Situation Analysis**

Aalsmeer Flower Auction is located in the Netherlands and offers global growers, wholesalers and exporters in a central market place where flowers and plants are traded. The auction plays a mediation role, in that it brings together suppliers and buyers and so determine prices. Aalsmeer Flower Auction has the largest trade building in the entire world, but this is the only advantage when it comes to attracting customers. An information system will be useful and will also be another advantage when implemented in the organisation. Information systems can help companies extend their reach to faraway places, offer new products and services, reshape jobs and workflow and profoundly change the way the conduct business (Laudon, 2004).

Due to the changing market developments it is necessary for Aalsmeer Flower Auction to rethink their strategic plan which should include using electronic networks and reinventing the value chain to enable change in the organisation. They need to use electronic channels to support its business processes to connect them with suppliers and buyers. The initial objectives of Aalsmeer Flower Auction are to enable innovation, redefine the value chain, to reduce transaction costs, to strengthen the link with wholesalers and retailers and to increase market share.

## **Tools for Strategic Analysis**

### **Porter's Five Forces Analysis**

Competitive advantage occurs when a product's value chain generates superior product features, quality, service, availability, lower cost or other things customers care about.

Porter and Millar five forces model analyses the following competitive forces which impact on and organisation: rivalry between existing competitors, threat of new entrants, threat of substitutes, the power of buyers and the power of suppliers. This model is used to assess the current competitive position in relation to a number of external factors.

### **Buyers**

Information systems can be used to reduce the bargaining power of buyers and increasing the switching costs by making it more expensive for a buyer to go to another supplier. Additionally, IS can be used to categorise and differentiate buyer groups so that it is possible to reduce, or increase, cost of supply to certain groups.

### **Suppliers**

IS automation can reduce the power of suppliers; CAD robotics could reduce the need for human labour. Alternatively, IS can identify potentially new products etc.

### **New Entrants**

Naturally when the industry is attractive, others seek to move in. IS can be used to defend a market position or to penetrate the barriers others have erected around an attractive industry.

### **Substitutes**

The determinants of the substitution threat are the relative price performance, switching costs, and the inclination of buyers to use substitutes. When suppliers have alienated

their customers they increase the readiness of those customers to use an alternative product whenever it becomes available.

### Rivalry

The intensity of rivalry between competitors is usually greater in mature or declining industries. IS determinants are industry growth, fixed assets/value added, intermittent over-capacity, etc. It is possible to use IS to support collaborative efforts to lower cost.

### SWOT ANALYSIS

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| <p style="text-align: center;"><b>Strength</b></p> <ul style="list-style-type: none"> <li>• Aalsmeer offers global growers, wholesalers and exporters a central marketplace in which they can trade flowers and plants.</li> </ul>  | <p style="text-align: center;"><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Absence of required technology to gain competitive advantage among its rivals.</li> </ul>  |
| <p style="text-align: center;"><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Information systems will help Aalsmeer fulfil their much needed business processes to be ahead of the game.</li> <li>• Information systems aid in enabling innovation and will also aid in the communication of growers and buyers.</li> </ul> | <p style="text-align: center;"><b>Threats</b></p> <ul style="list-style-type: none"> <li>• The emergence of alternative, electronically driven flower markets.</li> <li>• The auction meets the needs of growers but not those of retailers which is much needed.</li> </ul> |



The value chain model is a useful analysis tool for defining a firm's core competencies and the activities in which it can pursue a competitive advantage.

### **Cost Leadership**

An organization always aims to be the low-cost producer in its industry, if an organization can maintain overall cost leadership then it will reach superior performance.

### **Differentiation**

This strategy would demand an organization in offering something unique to target its customers. The uniqueness can be concerned to products, the way it delivers its goods and services, the way it markets its products or anything that shapes a customer's perception in relation to differentiation. At Aalsmeer, this strategy will be used. Floral decoration will be an option with every delivery, but at no extra cost. These decoration options will be up to the customer, they will be the ones who will choose what they want and how they want it. This will also increase customer relationships.

The new technologies which will be implemented at Aalsmeer Flower Auction was identified in the value chain. The new technology includes, in order of the value chain, are:

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| <p>Business &amp; Administration</p> | <p>An electronic environment for employees, which will aid in the communication, will be created where communication can take place between all members of staff. This will be done by creating individual e-mail accounts for each employee. Apart from communication an office automation system will be implemented , this system will include accounting systems</p>            |
| <p>Human Resources</p>               | <p>Aalsmeer flower auction will in an online recruitment system, which will enable managers to view potential employees with just one click. This will be implemented into the website which will be created to strengthen the link between growers and buyers.</p>   |
| <p>Technology Development</p>        | <p>A website will be created, <a href="http://www.see-aalsmeerworld.com">www.see-aalsmeerworld.com</a> which will allow vast communication, not only between growers and buyers but customers as well. This technology will incorporate other various activities in the value chain, this includes human resource, sales and marketing, service and outbound logistics. In more</p> |

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|                    | <p>detail, the website will include, recruitment services (Human Resources), promotion of products produced by Aalsmeer (Sales &amp; Marketing), customer service (Service) as well as ordering and tracking systems (Outbound Logistics). These all relate and support activities in the value chain.</p>  |
| <p>Procurement</p> | <p>Supply chain management (SCM) systems will be implemented at Aalsmeer Flower Auction. This will be implemented because it has gained significance as one of the 21<sup>st</sup> century's manufacturing technology and innovative paradigm for improving organizational competitiveness. This will fulfil Aalsmeer's goal of enabling innovation. The ultimate objective of supply chain management is to get the right amount of their products from their source to their point of consumption with the least amount of time and with the lowest cost.</p> |

**Supply Chain Management at Aalsmeer**

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Supply chain management systems will help Aalsmeer Flower Auction to :

1. Decide when and what to produce, store and move. This will work in accordance with the inbound logistics, Warehouse Management System as mentioned earlier.
2. Rapidly communicate orders, which will in turn strengthen the link between wholesalers and retailers and well as suppliers and buyer. How? By being able to rapidly communicate orders, the system will be able to place customer's orders efficiently and the products will be able to be produced effectively and delivered on time, thus promoting customer satisfaction.
3. Track the status of orders
4. Check inventory availability and monitor inventory levels
5. Reduce inventory, transportation, and warehousing costs, by limiting the amount of flowers produced based in what is to be sold to customers, be it wholesalers or retailers.
6. Track shipments.
7. Plan production based on actual customer demand, which was mentioned in 5, to reduce costs.
8. Rapidly communicate changes in product design.

## **Systems Development**



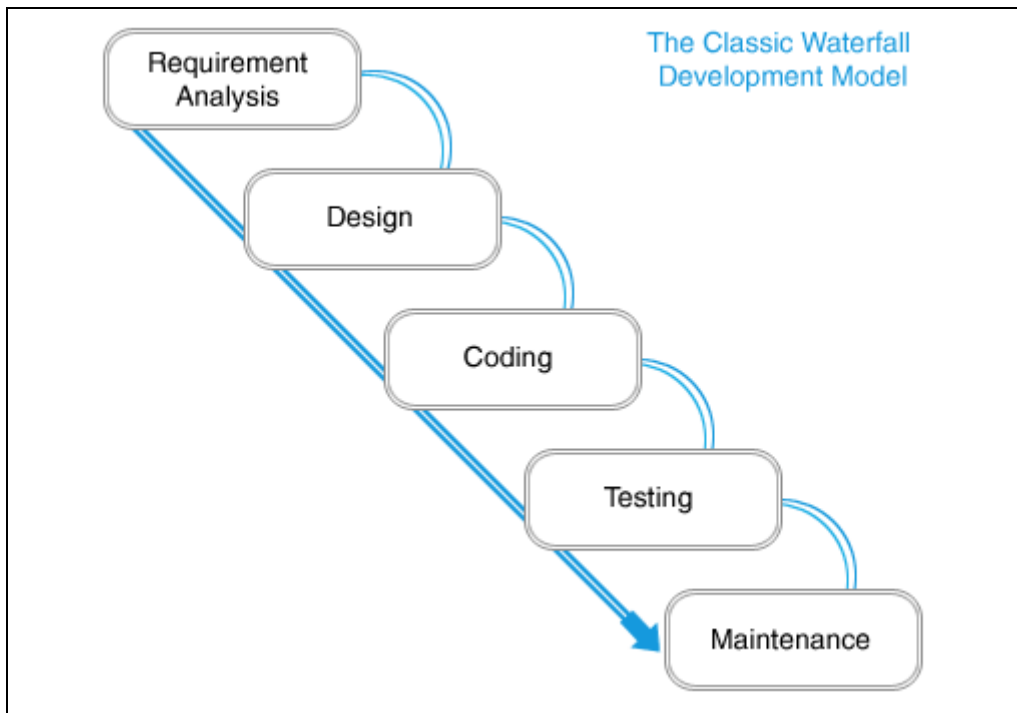
The activities that go into producing an information system solution to an organizational problem or opportunity are called systems development. Systems development is a structured kind of problem solving with distinct activities. Such activities consist of systems analysis, programming testing, conversion, and production and maintenance. There are many different types of SDLC's which will be explained in the form of a table.

| <b>Types</b>           | <b>Advantages</b>  | <b>Disadvantages</b>   |
|------------------------|--|--|
| Prototyping            | <ul style="list-style-type: none"> <li>-most useful when there is uncertainty about requirements</li> <li>-encourages intense end-user involvement throughout the entire systems development process.</li> </ul> | <ul style="list-style-type: none"> <li>-inappropriate for large, complex systems.</li> <li>-can gloss over steps in analysis, documentation, and testing.</li> </ul>   |
| Waterfall Model (SDLC) | <ul style="list-style-type: none"> <li>-necessary for large complex systems and projects</li> <li>-Testing is inherent to every stage in the model</li> </ul>  | <ul style="list-style-type: none"> <li>-It only incorporates iteration indirectly, thus changes may cause considerable confusion as the project progresses.</li> </ul>                                       |
| Spiral Model           | <ul style="list-style-type: none"> <li>-Risk reduction mechanisms are in place</li> <li>-Supports iteration and reflects real-world practices</li> <li>-Systematic approach</li> </ul>                           | <ul style="list-style-type: none"> <li>-Requires expertise in risk evaluation and reduction</li> <li>-Complex, relatively difficult to follow strictly</li> <li>-Applicable only to large systems</li> </ul> |

### **Justification of the Waterfall Methodology**

A prototype is a working model of some aspects of the project product. It can be constructed quickly and cheaply to be shown to end-users and clients to ascertain their requirements. This model was not chosen because it was time consuming. Aalsmeer needed a solution quickly. Developers can become too attached to their prototypes and this can cause systems to be left unfinished and/or implemented before they are ready. Sometimes leads to incomplete documentation, which leads to problems in the maintenance department.

The waterfall model was chosen because it encourages planning before designing, it broke the system up into sub components with milestones to be achieved before moving on to the next step. This ensures only the correct product that fulfills the users' requirement is built during the whole development process. Any mistakes can be rectified easier since all the activities will be documented at each stage completely. The quality of the product at each stage can be identified and maintained to meet the requirements. The specification, design, printed code and other documentations such as the user manual are essential tools for maintaining the system. Another main reason for choosing it is that it is a stable and reliable model. As it is widely used in the industry for a long time its reliability is tested and proven.



## **Methodologies**

### **Waterfall Model**

With the use of technology using computers and the internet, Aalsmeer Flower Auction would be reaping the benefits of e-business. A systems development lifecycle had to be implemented to facilitate this transition moving from the old manual system to an automated system. By using the Waterfall model it would identify and develop the new information system.

### **Systems Analysis**

This model begins with the first procedure, analysis of the problems and solutions. At Aalsmeer the problems are that their competitors possess the technology which results in being second best and a lack of efficiency. Aalsmeer wants to be able to strengthen the link with suppliers, as such, the implementation of an online environment will allow them to have conferences via built in webcams in the hardware. Interviews will be used to obtain information about the requirements of the system.

### **Design**

Developers begin to design the system, it is highly important to understand what we are going to create and what our final product should look like. It is necessary for bugs and issues to be sorted out before coding begins. Software should be user friendly. Our solutions should provide; improved speed of response within the communication department, cost savings and enhance information and knowledge sharing between retailers and growers. System design helps in specifying hardware and system requirements and also helps in defining overall system architecture. Finding the best equipment saves money and time in the long run. This is necessary as trade is conducted on a daily basis at Aalsmeer and downtime would be costly. A website displaying products, providing tracking for shipping and allowing retailers to shop online should be implemented. This design concept should portray what Aalsmeer represents.

System Design encompasses two major aspects of the new system:

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| <p>Logical System Designs<br/>(What will the system do?)</p>                     | <p>This will include the design of outputs, inputs processing, databases, telecommunications and IS jobs.</p> |
| <p>Physical Systems Designs<br/>(How will the system perform its functions?)</p> | <p>This will include the design hardware, software, databases and telecommunications and procedures.</p>      |

### **Programming**

At Aalsmeer, a custom software will be used. The software will be customised to suit the needs of Aalsmeer information system staff to meet the organizations needs.

Programming teams will be hired because constructing custom software is time consuming, but will be worth the time in the end.

### **Testing**

All the units from the respective departments are integrated and tested vigorously to see if all units communicate with each other. This step is essential as huge quantities of flowers will be traded at Aalsmeers'. Being new players in this e-business category, they will have to prove themselves to existing customers and entice new customers, but they must maintain a high standard.

### **Implementation**

After the design concept is finalised, the development of the system begins. This system should cater every aspect of Aalsmeers' operations; spanning from the time the flowers arrive, going through sorting, pricing, storage and departure of the facility. Each department will use different programs relating to their activity and the development is divided up into units. Each unit is developed and tested to ensure it meets the specifications before being assembled as a package.

|                                    |  |
|------------------------------------|--|
| <p>Parallel Conversion Process</p> | <p>This is a <i>safe</i> strategy: since the old system continues to operate there will be no data loss if there are problems with the new system.</p> <p>This will be implemented at Aalsmeer as to prevent any risks associated with the new system, they can always fall back on the old system</p> |
| <p>Pilot Conversion Process</p>    | <p>This strategy is to convert part of the organization to the new system and solve any initial problems without having to disturb the rest of the organization. The new system is implemented at only one of many possible locations.</p>   |
| <p>Phased Conversion Process</p>   | <p>This introduces components of the new system such as individual modules, in stages/ Each module is assessed, and, when it works properly, other modules are introduced, until the entire system is operational.</p>   |
| <p>Direct Conversion Process</p>   | <p>This strategy involves cutting off the old system and the new system being turned on at a certain points in time. This type is the least expensive but most risky if the new system doesn't work as planned.</p>  |

## Operations and Maintenance

At Aalsmeer the implementation of the system should be phased in. Once established this step is never ending, due to the fact that the customer will realize the benefits of this system and keep it, but from time to time problems arise and solutions would be needed. A new type of flower may be put on the product line and adjustments would have to be made. A growing company will always need changes to suit their needs. By addressing strategy, technology, organisation, people and business processes as an integrated whole, Aalsmeer will experience benefits that are boundless.

Using systems development Aalsmeer should have the opportunity to increase sales by accessing new markets across the globe. The chance to target market segments more effectively by providing more accurate information and improving customer service experience. Improving the efficiency of the supply chain will help employee motivation through more flexible working methods. Allowing 24/7 access to the firm's products and service will provides convenience and comfort for customers.

### **Impact and Effectiveness of the New System**

## **People**

Information systems have affected the quality of personal and working lives. In the workplace, information systems can be deployed to eliminate tedious tasks and give workers greater autonomy, or they can be used to eliminate jobs and subject the remaining workforce to pervasive electronic surveillance. Consumers can use the Internet to comparison shop for everything from manufactured goods to financial services or even to participate in auctions—but at the cost of contending with spam (unsolicited e-mail), intercepted credit card numbers, and malicious computer viruses.

The system's ability to store information means that the organization does not have to rely solely on the fallibility of human error, which is subject to error and erosion (Dewett & Jones, 2001).

According to (Laudon 2009) the most important occupational disease today is repetitive stress injury (RSI). RSI occurs when muscle groups are forced through repetitive actions often with high impact loads, or tens of thousands repetitions under low-impact loads (such as working at a computer keyboard). This computer related RSI is carpal tunnel syndrome (CTS). In which pressure on the median nerve through the wrists bony structure, called the carpal tunnel, produces pain. Millions of workers worldwide have been diagnosed with CTS. This can be solved by designing workstations for a neutral wrist position, using wrist rest to support the wrist.

## **Management**

Information can be stored, retrieved and communicated far more easily and effectively. However, IT can often lead to information overload, meaning that managers have to sift through an insurmountable amount of stored data and thus hindering timely decision-making. Information overload is not an IT problem but more of a documentation problem. Furthermore, management tend to adapt to IT problems once it gets used to the idea of the new technologies.



## **Organisation**

Information technology provides several advantages to the organisation; one such advantage is the ability of IT to link and enable employees (Dewett & Jones,2001). At Aalsmeer the implementation of the new system has created opportunities in terms of employment and increased productivity. Employees will be trained in order to operate such a system. While it is true that computers eliminate the human element which was once present, it is also true that in order for a system to work, it needs to be controlled at times by humans. Electronic communication at Aalsmeer will increase the overall communication within the organisation.

To every problem there is a solution, and this new information system can prove to be a success as long as everything is carried out in efficiency and effectively and also in an orderly fashion.

## **Bibliography**

Applegate, L., McFarlan, F.W. & McKenney, J.L. (1999). *Corporate information systems management*. Boston: Irwin McGraw-Hill.

Bergeron, F. (1991). Identification of strategic information systems opportunities: Applying and comparing two methodologies. *MIS Quarterly* 15, Issue 1, 89-103

e-Enterprise : Business Models, Architecture, and Components - Faisal Hoque, Cambridge University Press; Copyright 2000

Porter, M. & Millar, V.E. (1985, July/August). How information gives you competitive advantage. *Harvard Business Review*.

Laudon, K.C. and Laudon, J.P. (2010). *Management Information Systems: Managing the Digital. Firm*, 11th edition. Saddle River, NJ: Pearson-Prentice Hall.