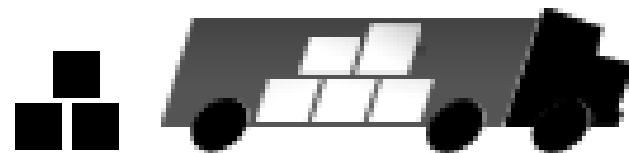


IPRO 305: Trailer Loading Optimization Group

Advisor: Herb Shields

Sponsor: DSC Logistics



DSC Logistics

- Founded 1960 in Chicago
- Current CEO: Ann Drake
- Logistics and Supply Chain Management
- About 2000 Employees
- Warehouses Nationwide



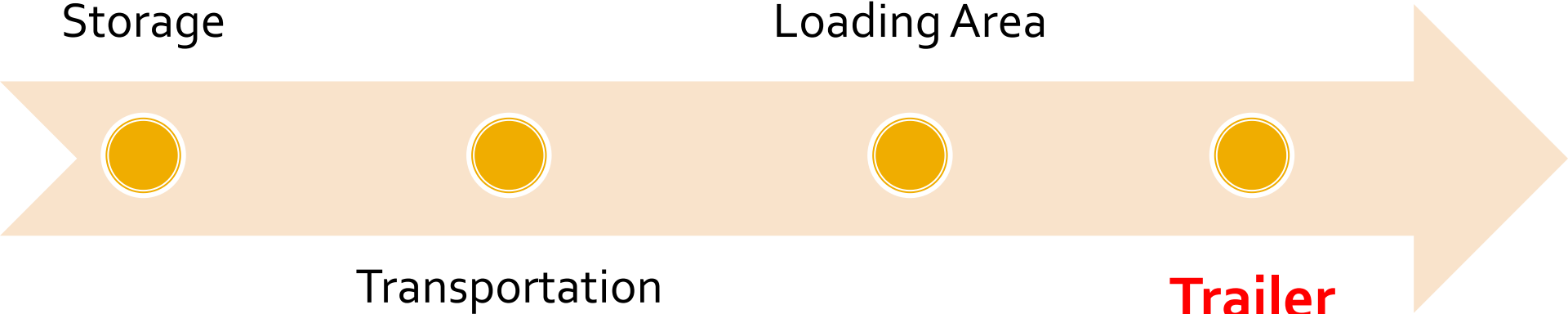
Problem Statement

Incoming
Inventory
Storage

Staging the
Loading Area

Transportation
Planning

Trailer
Loading



Our Goal

- To provide an efficient software solution for DSC Logistics.

Main Factors:



- ▶ Order Stops
- ▶ Weight Distribution
- ▶ Orientation/ Stack-ability

Team Structure

Research Team

- Xingshuo Liu (Sub Team Leader)
- Nixalkumar Patel
- Nuntana Buakong
- Parth Shah
- Tom Pekalski

Technical Team

- Donald Taylor (Sub Team Leader)
- Robert Veitch (Team Leader)
- Benjamin Hinshaw
- Prashanthan Surendran
- Sean McKeever

Documentation

- Team minutes
- Igroups
- Conference calls
- Regular meeting
- Sub-team meeting



Ethical Issues

- Privacy of the Company
- Non-Disclosure Agreement
- Legal Legislation vs. Customer Satisfaction



Obstacles & Challenges

- Converting intuition into rules
- Adaptability of the software
- Constant upcoming problems
- Time constraint



Initial Research

- Reviewing existing technologies.
 - How they operate
 - Their functions/features
- Built software from ground up
 - Requirements/specifications
 - Easy user interface
 - Cost-efficient
 - Customization
 - Integrate with DSC's WMS and TMS systems

Problem Solving

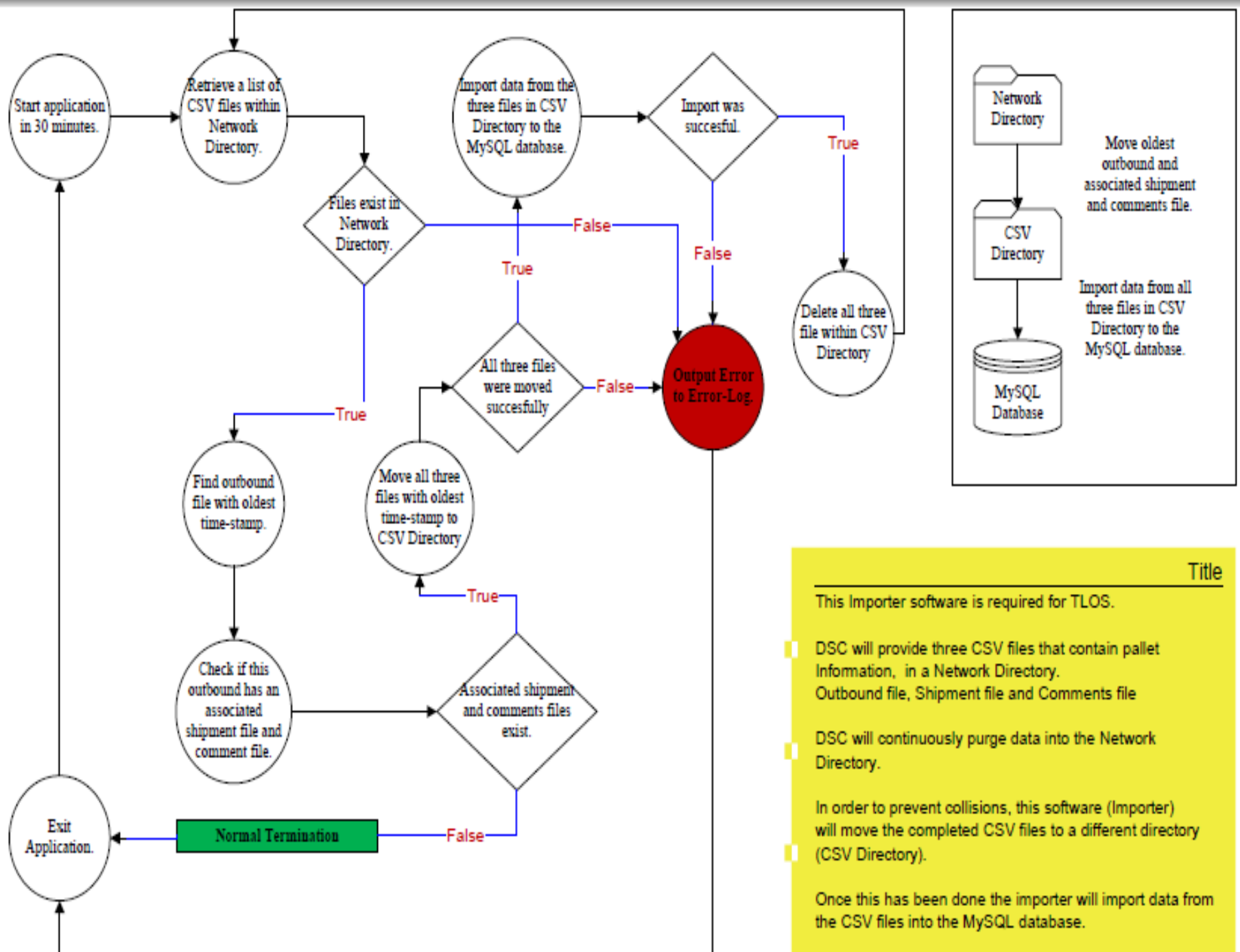


- Conference calls
- Sub-group meetings
- Online Resources

Warehouse Visit

- Visiting DSC
- Start working on the algorithm





Title

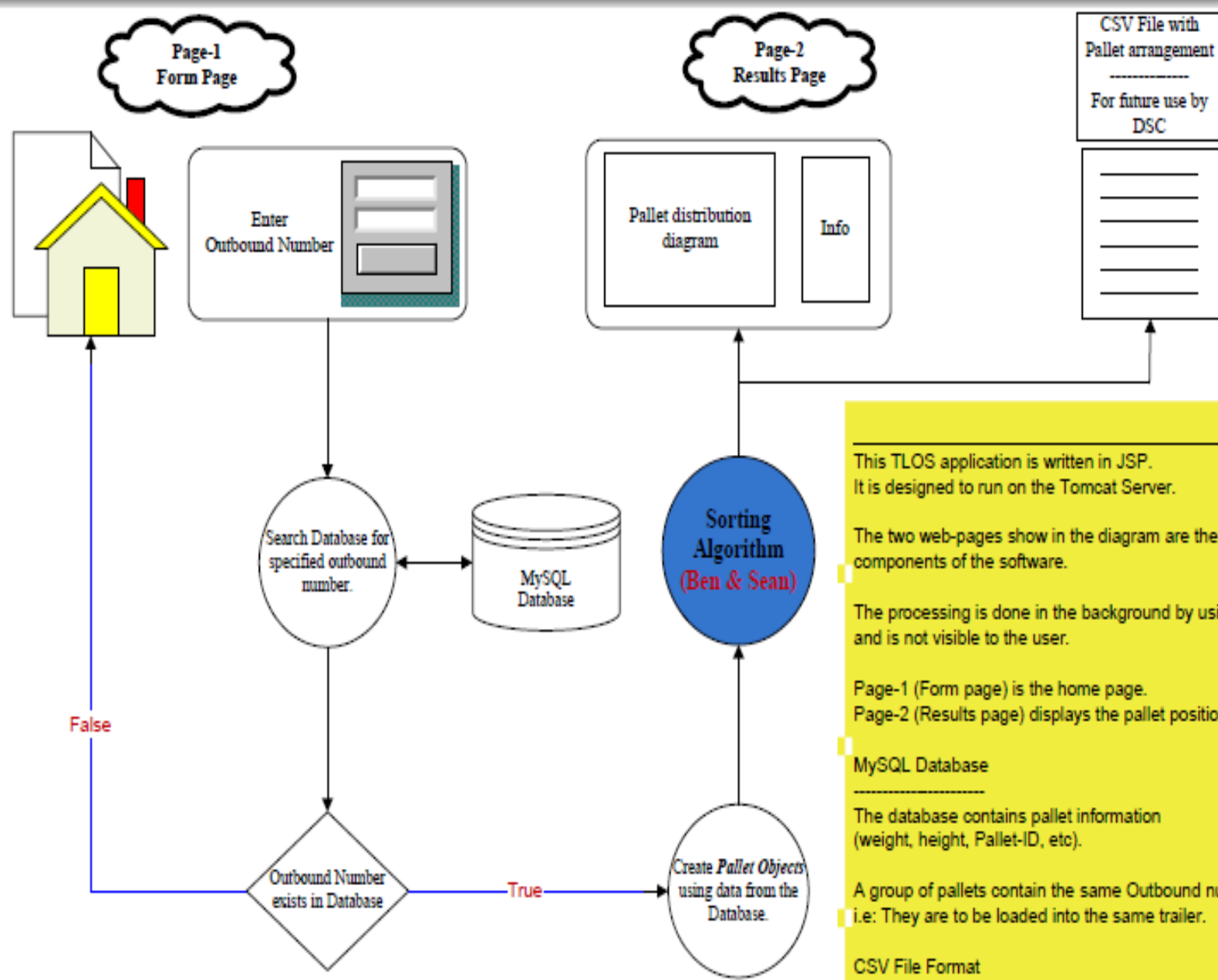
This Importer software is required for TLOS.

DSC will provide three CSV files that contain pallet Information, in a Network Directory. Outbound file, Shipment file and Comments file

DSC will continuously purge data into the Network Directory.

In order to prevent collisions, this software (Importer) will move the completed CSV files to a different directory (CSV Directory).

Once this has been done the importer will import data from the CSV files into the MySQL database.



Title

This TLOS application is written in JSP.
It is designed to run on the Tomcat Server.

The two web-pages show in the diagram are the only visible components of the software.

The processing is done in the background by using JAVA classes and is not visible to the user.

Page-1 (Form page) is the home page.
Page-2 (Results page) displays the pallet positions.

MySQL Database

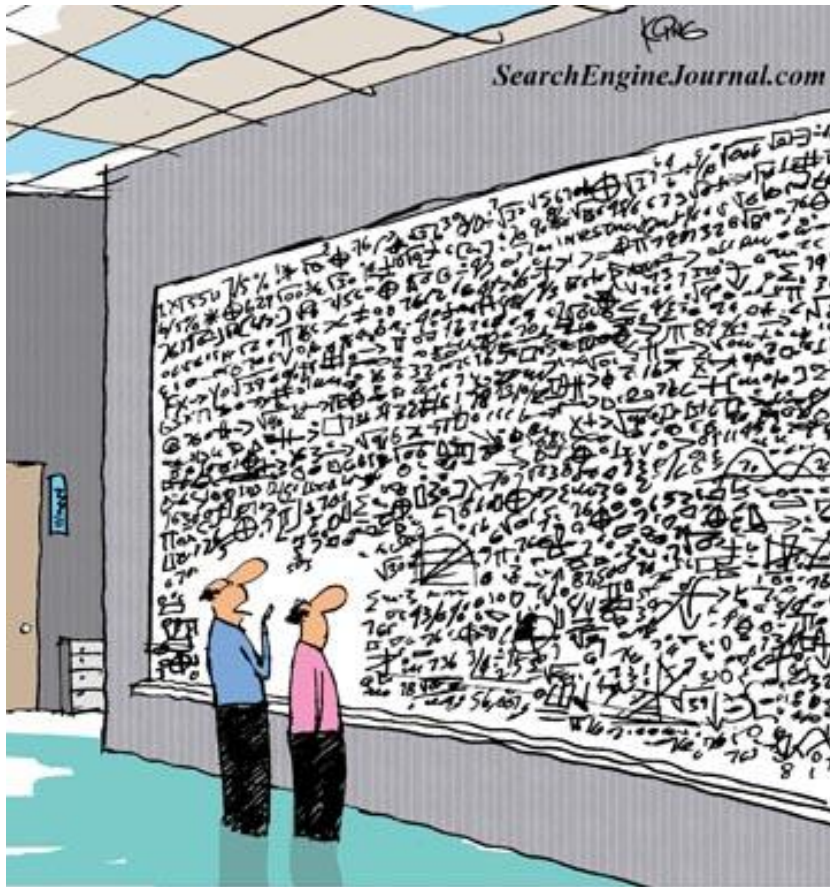
The database contains pallet information (weight, height, Pallet-ID, etc).

A group of pallets contain the same Outbound number.
i.e: They are to be loaded into the same trailer.

CSV File Format

The application also outputs a CSV file as shown.
The CSV file includes the same pallet positions displayed on page-2 for future use by DSC.

Algorithm



...And that, in simple terms, is how you increase your ranking on search engines."

- HTML, Java script, CSS
- Background Script
- Processor Script
- Installer Script

Web Based User Interface



The screenshot shows a web-based user interface for a "Trailer Load-Optimization System". The interface is set against a yellow background with a red border. At the top, the title "Trailer Load-Optimization System" is displayed in a large, black, sans-serif font. Below the title, a smaller line of text reads: "Enter an outbound number, choose a trailer size, and click 'Optimize.'". In the center of the interface is a large, empty white rectangular input field for the outbound number. Below this input field is a dropdown menu currently showing "53' Trailer". The dropdown menu is open, revealing four options: "53' Trailer" (highlighted with a dark blue background), "48' Trailer", "40' Trailer", and an additional option that is partially obscured. Below the dropdown menu is a green rectangular button with the word "OPTIMIZE" written in white, uppercase letters.

Trailer Load-Optimization System

Enter an outbound number, choose a trailer size, and click "Optimize."

53' Trailer

53' Trailer

48' Trailer

40' Trailer

OPTIMIZE

Added Value

- Avoid overweight fines and associated costs
- Minimize labor time
- Axle weight calculation help minimize transient damage
- Minimize cargo damages
- Reduce transportation costs

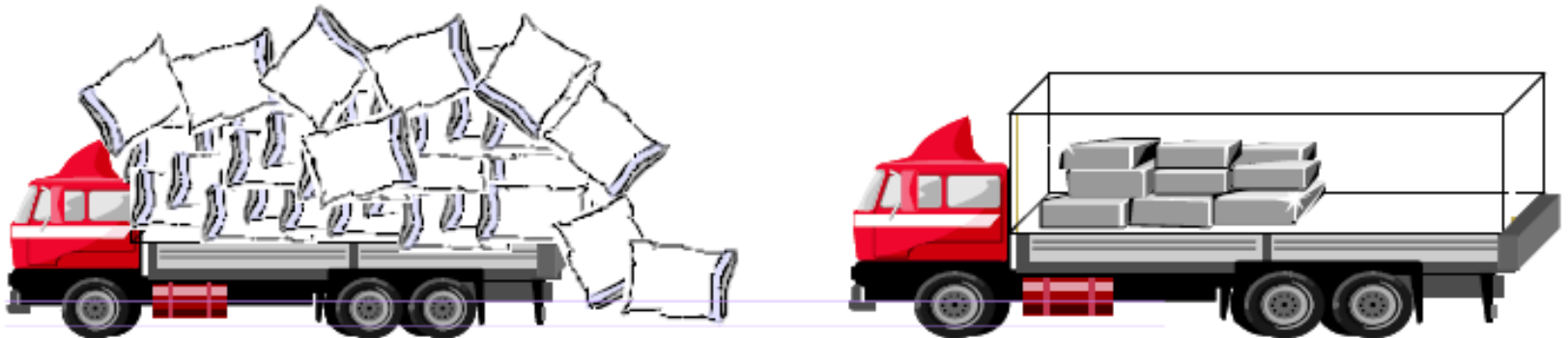
Future Applications

- Increase Adaptability
- Secure Login
- Dynamic Sorting Algorithm



Conclusion

- A more efficient way to operate
- Reduce waste
- Increase productivity and speed of delivery
- Provide a better working environment



Questions

