

128th

# IARW-WFLO Convention

April 7–10, 2019

Santa Ana Pueblo, New Mexico

## Warehouse AGVs in Operation

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# Oxford Cold Storage – The History

- The Fleiszig and Stern families established Oxford Cold Storage in 1975 to serve their neighbouring meat producers.
- The first freezer was erected adjacent to the poultry processing plant. Over the years the business has evolved by offering services to processed food manufactures, food importers & exporters and pharmaceutical companies. Management has developed systems and invested heavily in technology in order to provide the best service possible.
- Oxford Cold Storage is still a family owned and operated company. At present there are three generations of the family actively involved in the management of the business.

# The Stats

- 175,000 pallet spaces
- 1,068,784 Cubic metres
- 60 Acres
- 400+ Staff
- 100+ docks
- 500+ truck movements per day

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## Store 10

- Store 10 was built in 1996 with a capacity of 10,000 pallet spaces.
- It is a -22C /-8F freezer
- Seven tier high
- Double deep racking
- 5 AGVs
- No Operators
- 2 office staff
- 2 floor staff
- Allowing for 24/7 operation
- Replacing 5 reach trucks/5 operators



# The Journey

- Nine Months to thaw
- 3 months to level the floor
- Approx 3 months to map all locations
- Interfacing between OCS WMS, the AGV WMS, the AGV management software and the conveyor software
- Resolving many challenges including put away and picking from back locations (i.e. double deep locations). The clearances were minimal and the flexing of the tines caused issues with the load clashing with the racking – used the tilt to overcome the problem.

# The Benefits

- Long term savings on utilities (electricity)
- Reduction in Occupational Health and Safety Concerns
- Elimination of Human Error
- Reduction of Wages and associated costs
- By innovation we have replicated the flexibility of a manual warehouse with automation
- Extremely clean and easily maintained store

# The Operation

- Pallets are offloaded by manual forklift
- Taken to conveyor to be scanned and profiled
- Pallets need to be undamaged with no overhang of rubbish, nails or product
- Once accepted pallets are labelled, then go from the dock into the freezer chamber
- The AGVs collect them and take them to place into the racking

# Productivity of Units

- Put away about 60 pallets per hour (all front locations).
- Pick about 60 pallets per hour (all front locations)
- Note: The movement number is higher when both putting away and picking are done at the same time, the highest amount of movements recorded was 72 per hour (in & out).

# Most Common “Fault Stop”

- Currently the most common ‘fault stop’ is called a ‘Butt Bumper’ stop. There are left & right pedals at the base of the mast and tines,. If these pedals are pressed before entering a location the vehicle will stop, this is to ensure the pallets are not making contact with objects it is not suppose to. Typical reason is the slip sheets in between the pallet and product are protruding, pushing the butt bumper. This fault stop would reduce significantly if we received product that fit nicely within the normal pallet dimensions.

# Some Issues

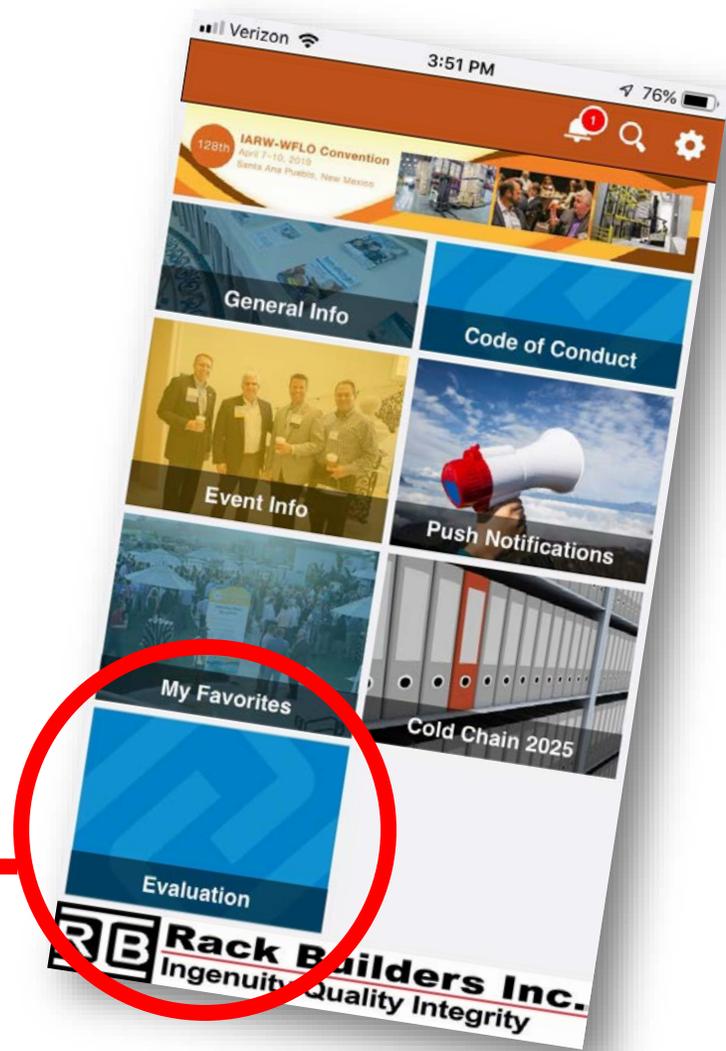
- Most incidents happen due to human intervention, operating manually. There are some issues that happen due to programming.
- Everything needs to be freezer graded. We've found over time a few components were not and had to be replaced. E.g. Hydraulic hoses
- Currently they do not operate in the dark however it is suggested it is highly probable.

# Effect on truck turnaround

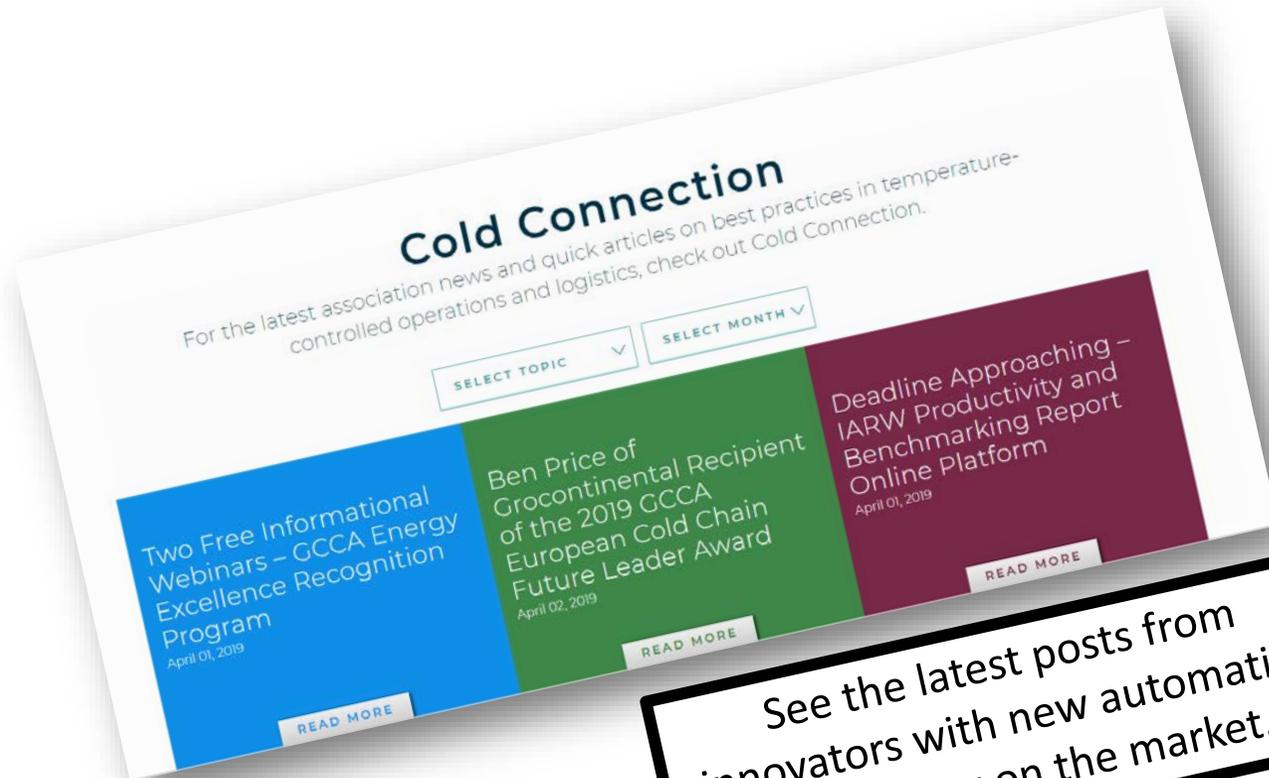
- We are unable to pick multiple orders at the same time and have multiple orders ready within the same timeframe, instead we pick multiple orders over a longer period of time, for example, hypothetically 2 reach trucks can pick 30 pallets each in 30mins, total = 60plts in 30mins whereas AGVS can pick 30plts in 30mins and to pick 60plts this would take 60mins. Add more reach trucks and the separation is more. I believe this is due to the one way in, one way out concept we currently have, this is likely to change with multiple in & out paths in future AGV projects.

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