

---

# CROWLEY HAZARDOUS SHIPMENT HANDLING

ALLISON MOOTHART, KYLE NEFF, JOHANNA ROBINSON



## TEAM ORGANIZATION

### FSU Student Team

Allison Moothart, Phase Leader  
Kyle Neff, Process Engineer  
Johanna Robinson, Process Engineer

### Crowley Team

Dorinda Geans-Jay, Project Contact  
Coleman Cosgrove, Project Sponsor

### Additional Stakeholders

Dr. Okoli, Senior Design Professor  
Ryan Adams, PhD Candidate  
Margaret Scheiner, PhD Candidate

## BACKGROUND

- Maritime shipping and transport
- Massive fleet of vessels
- International



# MIAMI BARGE FIRE



## SCOPE AND CONSTRAINTS

### Scope

- Just Jacksonville port
- Only hazardous material shipments

### Constraints

Change in processes cannot negatively affect:

- Alpha or Beta errors
- Adherence to the shipping schedule
- Administrative burden

## THREATS AND OPPORTUNITIES

	Threat	Opportunity
Short Term	<ul style="list-style-type: none"><li>• Increased regulations</li><li>• Increased fines</li></ul>	<ul style="list-style-type: none"><li>• Decreased regulations</li><li>• Decreased fines</li><li>• Decrease in shipping delays</li></ul>
Long Term	<ul style="list-style-type: none"><li>• Increased premiums for insurance</li><li>• Increased safety risks</li><li>• Potential loss of business</li></ul>	<ul style="list-style-type: none"><li>• Decreased premiums for insurance</li></ul>



# CURRENT SHIPPING PROCESS



## CURRENT PROCESS FOR HANDLING HAZARDOUS SHIPMENTS

Documentation

Bill of Lading  
(BOL)

Placards

Load List



# CURRENT PROCESS FOR HANDLING HAZARDOUS SHIPMENTS

Booking

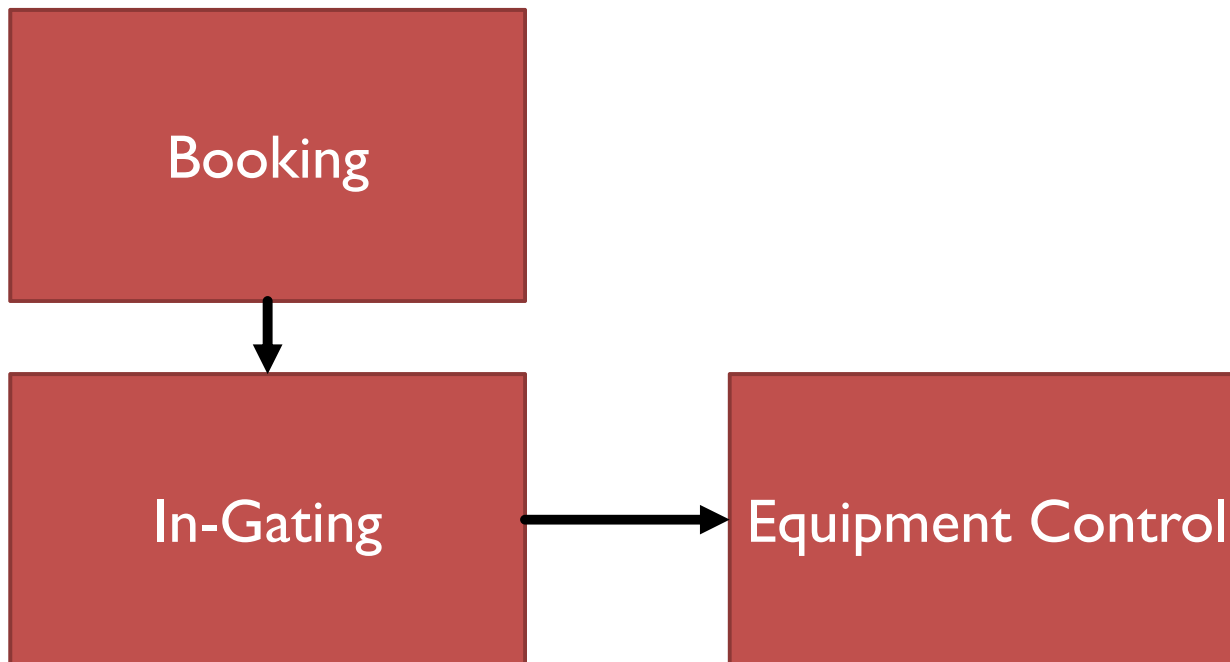
## CURRENT PROCESS FOR HANDLING HAZARDOUS SHIPMENTS

Booking

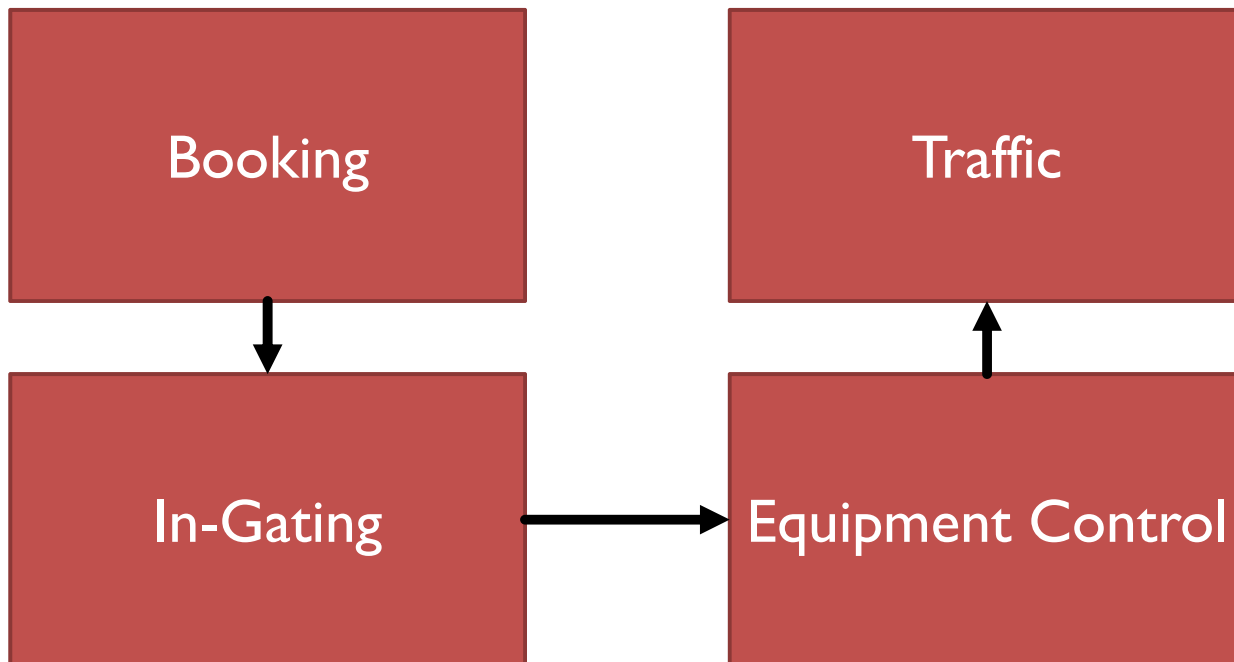


In-Gating

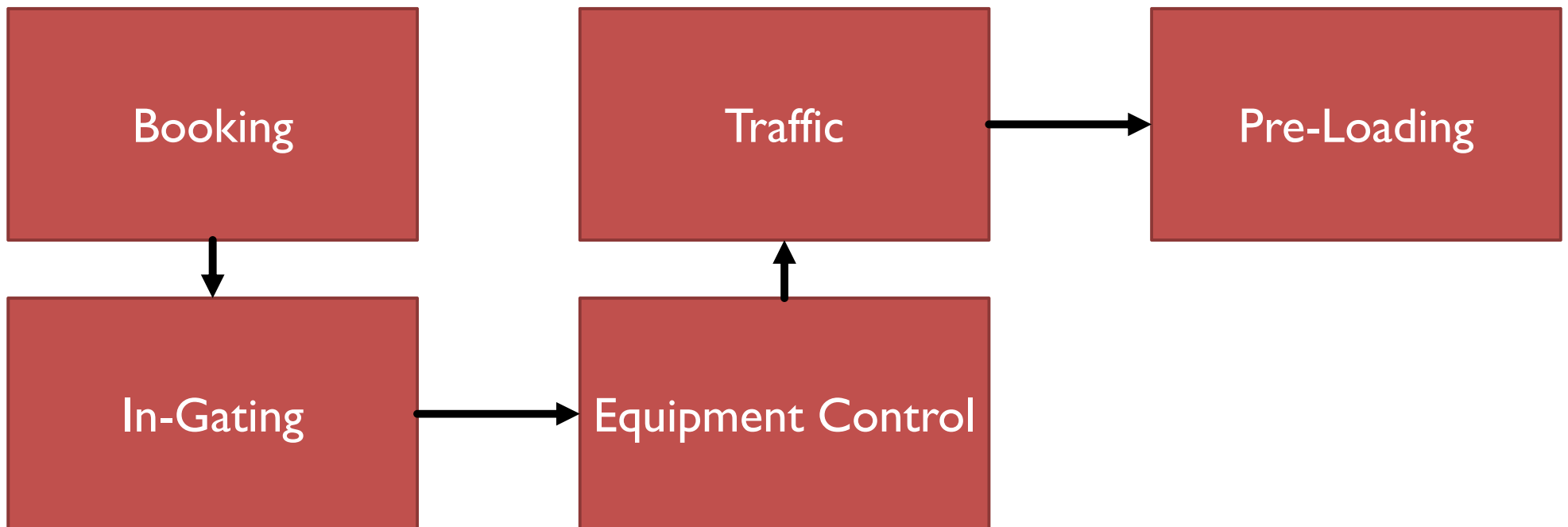
## CURRENT PROCESS FOR HANDLING HAZARDOUS SHIPMENTS



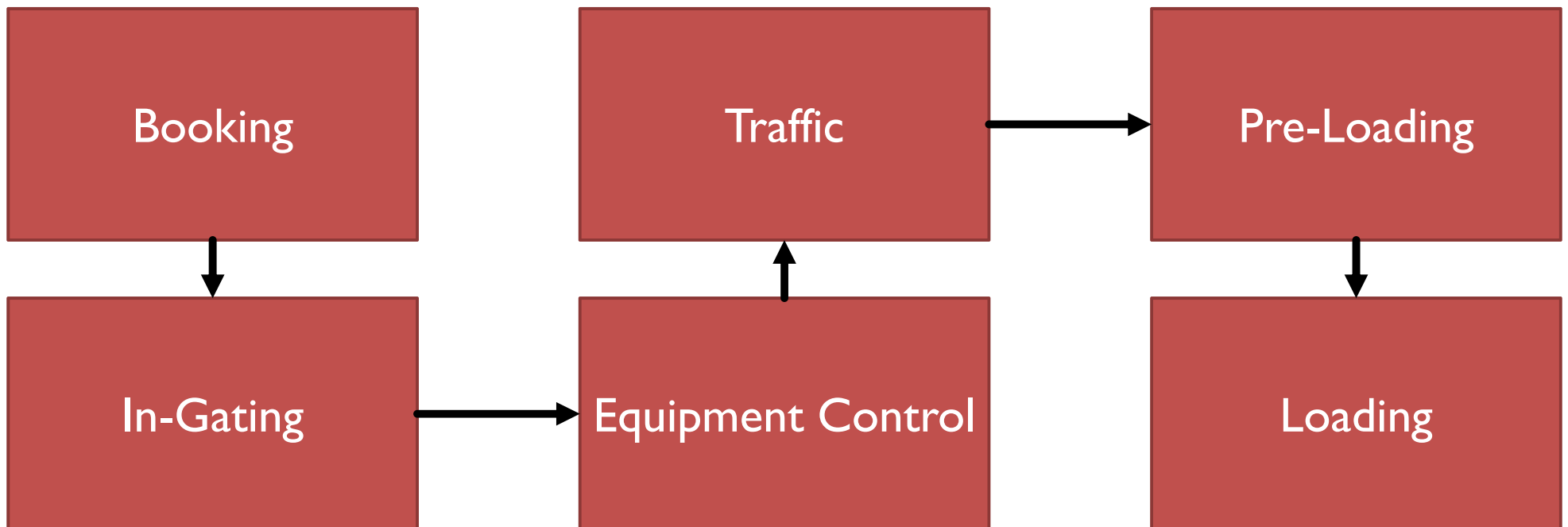
## CURRENT PROCESS FOR HANDLING HAZARDOUS SHIPMENTS



## CURRENT PROCESS FOR HANDLING HAZARDOUS SHIPMENTS



## CURRENT PROCESS FOR HANDLING HAZARDOUS SHIPMENTS

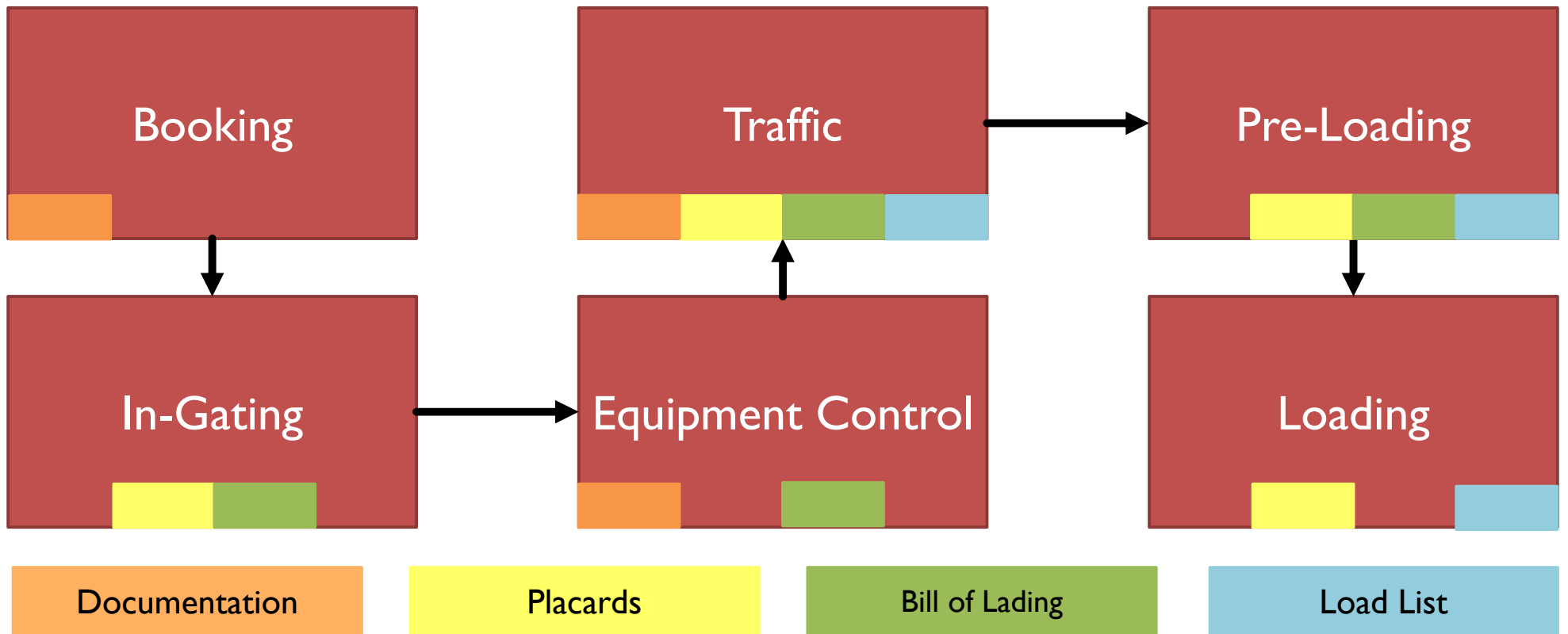




# POINTS OF ERRORS AND DELAYS



# POINTS OF ERRORS AND DELAYS





## POINTS OF ERROR AND DELAYS

Booking



In-Gating



### Booking

- Booking team is not clear on hazardous material rules and regulations
  - Must call HazMat expert
- Customer does not inform booking team of hazardous materials at initial booking
- Customer changes what will be packed in the shipment

## POINTS OF ERROR AND DELAYS

Booking

In-Gating

### In-Gating

- This team does not have access to see if all required documentation has been completed
- Allows containers to be dropped off as long as they have a BOL and matching placards

## POINTS OF ERROR AND DELAYS

### EC

- Errors are not caught until either EC or Traffic
- This could be shortly before the vessel is set to sail

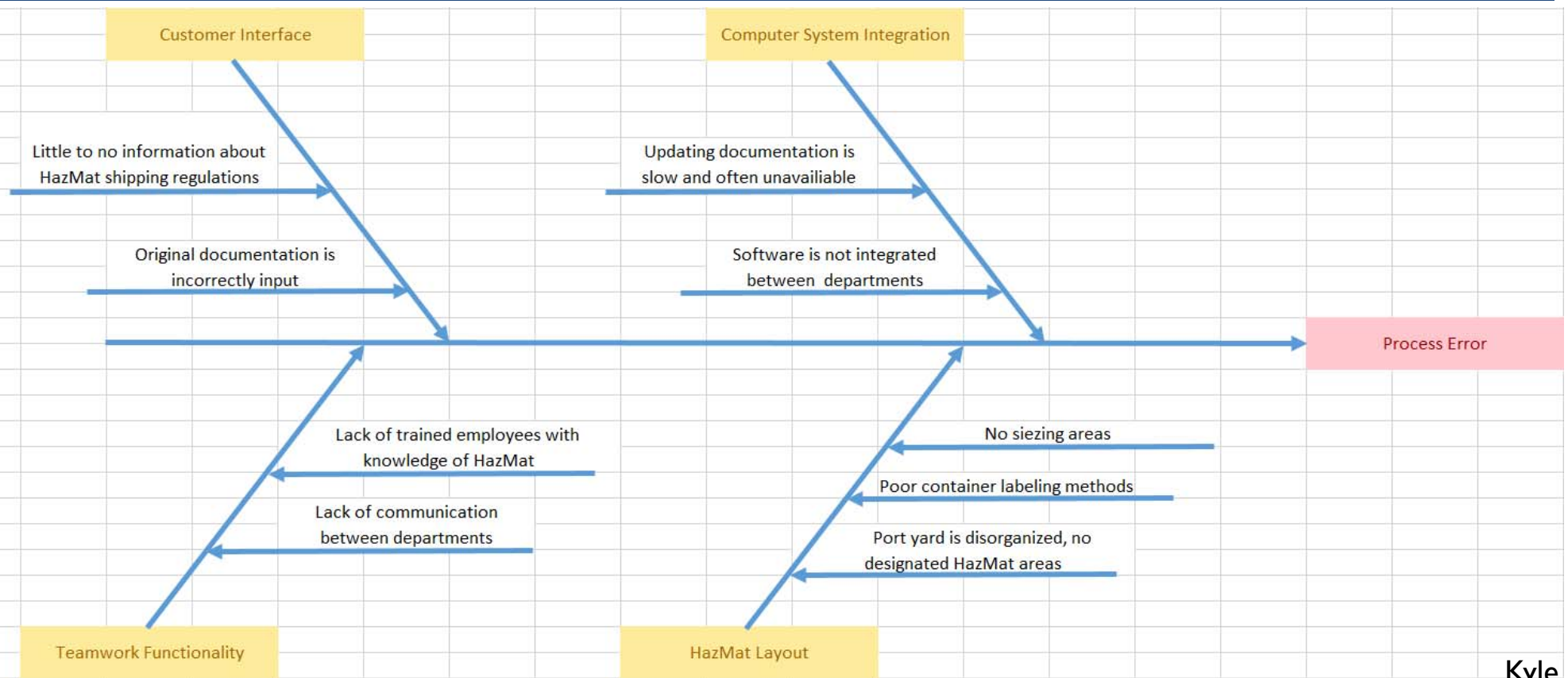
Traffic

Equipment Control

### Traffic

- The Traffic and EC systems do not always send and receive all updates and may contain different information

# FISHBONE





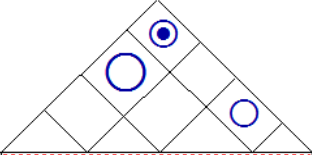
# HOUSE OF QUALITY



File: Crowley House of Quality.BIF  
Date: 10/19/2015 3:38

Weight

- Strong Relationship 9
- △ Weak Relationship 1
- Medium Relationship 3
- ↑ Maximum 0
- ↓ Minimize 0
- Hit Target Value 0
- ⊗ Strong Negative -3
- ⊗ Negative -1
- Strong Positive 9
- Positive 3



Crowley House of Quality Matrix		Customer Importance	Techinal Requirements			
			Improved communication method	Offer HazMat Training for all HazMat team members	Provide ease of access of shipment data	Prevent incorrect placarding
Direction of Improvement			↑	↓	○	○
Customer Requirements	Customer Interface	4.0	●	●	○	●
	Computer Systems Integration	5.0	○	△	●	○
	Team Functionality	3.0	●	○	○	△
	HazMat Container Labeling and Layout	1.0	○	△	●	●
Weighted Importance			81.0	51.0	75.0	63.0
Relative Importance			30%	19%	28%	23%

# PROJECT PLAN

	Plan	Plan	Actual	Actual	Week						
	Start	Duration	Start	Duration	6	7	8	9	10	11	12
Team Meeting	6	1			█						
Review Completed Measurement Documentation	6	1			█						
Meet with Sponsor	6	1			█						
Determine Additional Measurements Needed	6	2			█	█					
Meet with Sponsor	7	1				█					
Vist Facility	8	1					█				
Obtain Additional Measurements	8	1					█				
Review All Measurments	9	2					█	█			
Create Poster	11	2							█	█	
Present to Senior Design Class	12	1									█

## CONCLUSION

- Team visited port to observe processes
- Analyzed where the errors are occurring
- Determined four critical points
  - Customer Interface
  - Computer System Integration
  - Teamwork Functionality
  - HazMat container yard layout and placarding



# QUESTIONS?

