

# FLEXIBLE APPOINTMENT BASED SYSTEM

Adaptive Response to Traffic and  
Processing Delays



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# Introduction



Delivers advanced operational decision-making systems in trade and transportation, and other verticals

## Example Programs:

- PREDICT – U.S. Food & Drug Administration
- Global Trader – U.S. DoD
- Aqaba Truck Control System (Jordan)
- Karachi Port Access Workflow System (Pakistan)



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# Understanding Transportation Delays..

- Processing Delays/Delays due to visibility
- Delays due to congestion
- Delays due to security



■ Visibility

■ Congestion

■ Security

# Eliminating Delays

...one component at a time

## Cargo Community System

- Port Community System, PortMonitor
- Single Window for Trade Processing

Improve Visibility

## Freight Traffic Management System

- Truck Control System
- Freight Corridor Management System

Eliminate  
Congestion

## Risk Assessment System

- Customs Screening System
- Transit Access Screening System

Expedite Trade and  
Improved Security

# 3 Approaches to Freight Traffic Management

## Capacity Management

- Dynamic, and easy to understand
- Does not easily allow scheduling of operations in facilities
- May depend upon mandatory participation

## Appointment / Scheduling

- Allows scheduling of specialized operations in facilities
- May lead to under utilization of resources

## Variable Tariff / Incentive

- Uses forces of demand and supply
- Does not depend on mandatory participation
- May be ineffective if too static, or hard to comprehend if too dynamic

# Our Focus (this presentation)

- Scheduling/Appointment Based
- Risks with Appointment Based Systems
  - Underutilization if too conservative
  - Handle no shows
  - Ensure appointments cannot be “sold”

# Our Approach

- Develop models for predicting arrival times
- Be adaptive – Adjust appointments if necessary
  
- MultiCurveGA – Develop models
- AdjustAppointments

# Predictive Modeling for Arrivals

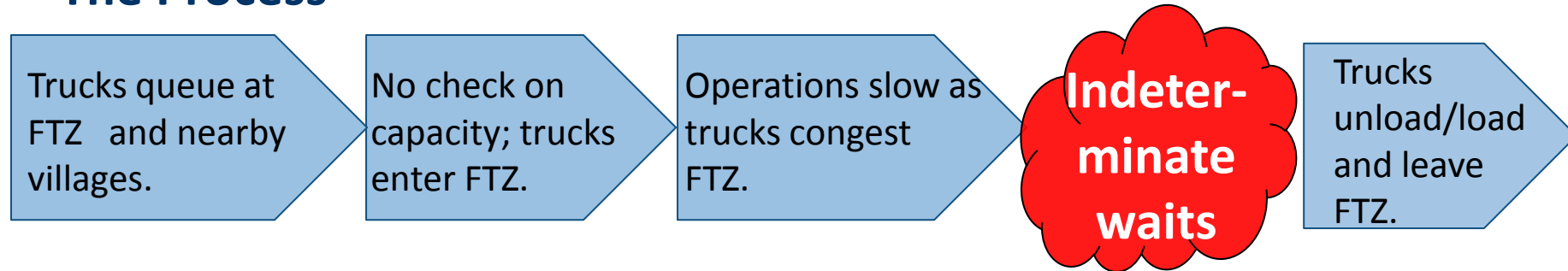
- Vessel data
- Terminal processing times and delays
- Real-time traffic delays and vehicle speeds on access roads
- Location from participating trucks
- Road closures and detours

# Application 1 – Syria-Jordan FTZ



# Syria-Jordan FTZ – Before FTZCS

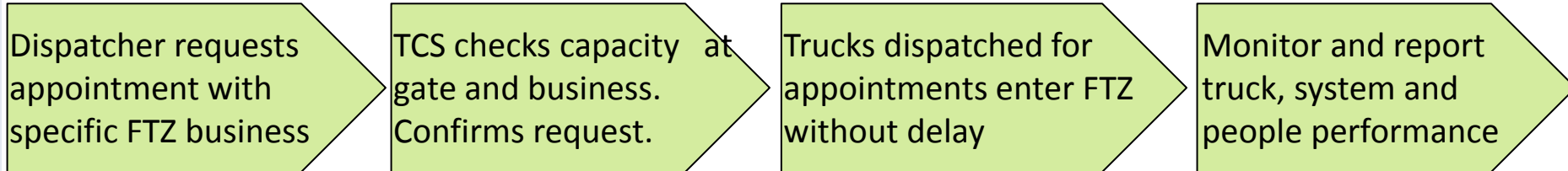
## The Process



## The Problems

- Sense of disorder and chaos concerns FTZ and Customs officials
- Long, indeterminate trip times due to truck/load/docs problems
- Poor coordination between trucks and businesses within FTZ
- Frequent altercations between truck drivers and villagers
- FTZ unable to keep up with demand
- No performance measurements

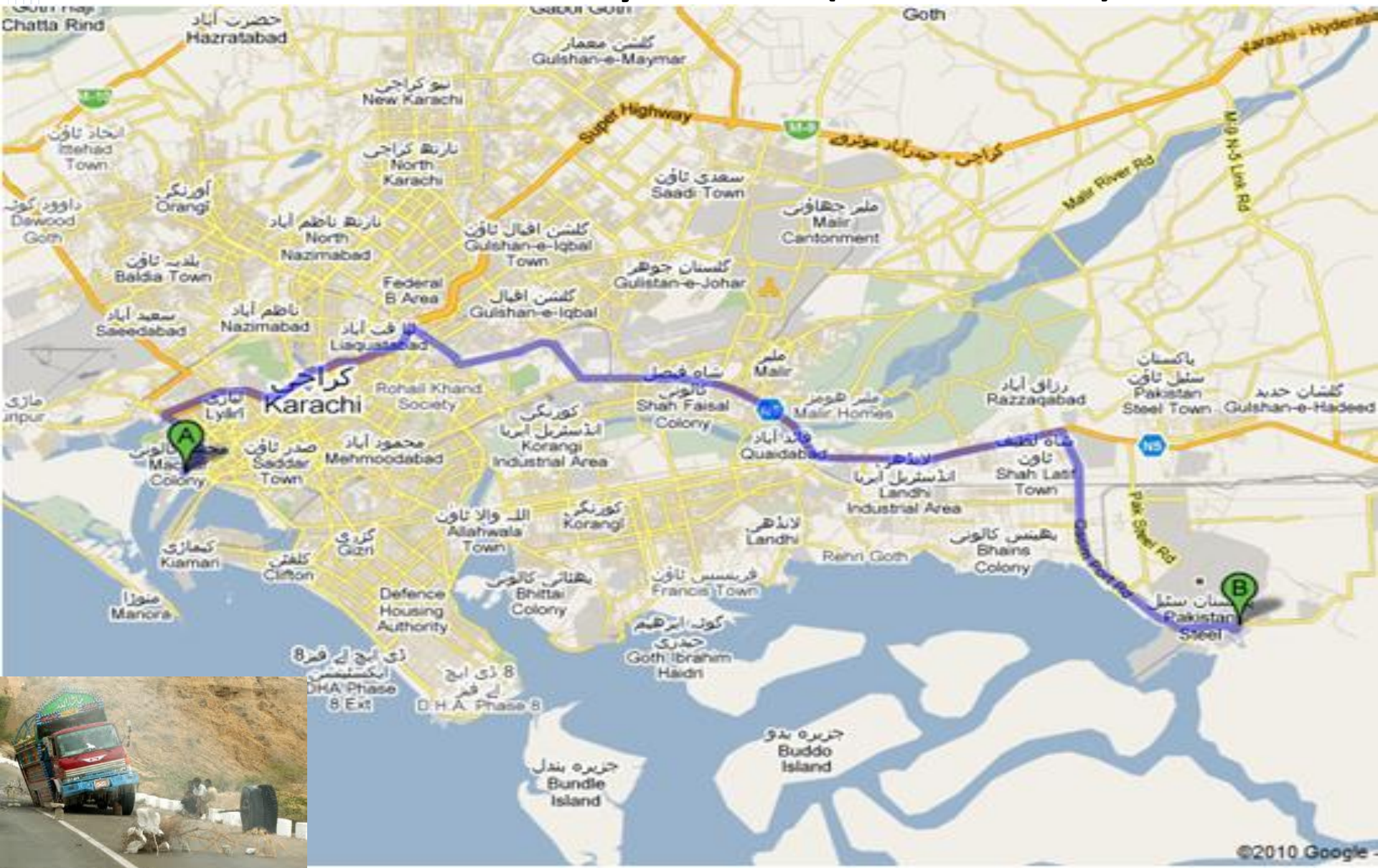
# The New Process



## Results

- ✓ FTZ and Customs have greater comfort with orderliness of FTZ operations
- ✓ Less variable processing times for trucks
- ✓ Village councils have confirmed reduction in incidents between truck drivers and villagers
- ✓ Greater volumes handled by FTZ
- ✓ Total time requirement for truck operation at FTZ reduced

# Application 2 – Karachi Port Access Workflow System (Pakistan)



Seaports, logistics centers, dry ports and industrial areas are all candidates for better freight traffic management



- Need to place as much focus **outside** the terminal gates for efficiency, as **inside**
- Evaluate all options – capacity based, appointment based, variable tariff based – they are not mutually exclusive



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