Cubic Transportation Systems

Scot Love – Director of Business Development for ITS
Cubic is a global provider of integrated systems that *increase situational awareness and understanding* for defense and transportation customers worldwide.

- Founded in 1951; Public since 1959
- Approximately 8,000 employees
- FY14 sales $1.398 billion
- Record Backlog FYE14 $3.18 billion
- Diversified systems and services company
- Presence in nearly 60 countries worldwide

**Business Units**

**CUBIC TRANSPORTATION SYSTEMS**

**CUBIC GLOBAL DEFENSE**
# The Future of Transportation

<table>
<thead>
<tr>
<th>AFC / Open Payment Solutions / Mobile</th>
<th>Analytics</th>
<th>Real-Time Passenger Information</th>
<th>Integrated Transport Management</th>
<th>Tolling</th>
<th>Parking &amp; Shared Services</th>
</tr>
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<tbody>
<tr>
<td>Public transport ticketing, revenue management &amp; services</td>
<td>Big data tools, deep analytics techniques</td>
<td>Enables bus operators, customers to monitor bus status</td>
<td>Systems for traffic and transportation management and information</td>
<td>Road user charging</td>
<td>Availability, reservations, fare payment for parking, taxis, ride sharing</td>
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INTELLIGENT TRAVEL MADE REAL®

World’s leading integrator of transport information technology and services for intelligent travel solutions.

Long History

- Traffic Scotland Systems Provider for over 20 years
- England – support all 7 Highways Agency RCCs, Traffic Wales, Northern Ireland Roads Service
- Designed, Delivered and Operated England’s National Traffic Control Centre
- Stockholm Central Technical System, Shenzhen Western Corridor
- Integrated Urban and Inter-urban Traffic Management Control System across New South Wales
- Implemented ATMS for Hong Kong

38 m people every day use Cubic technology

10,000 km of road network managed

Over 450 operators serviced through 20 regional back-offices

Over 130,000 devices installed:
  - Over 350 VMS in Scotland
  - Over 500 CCTV cameras in Scotland
  - Over 1,000 intersections managed in London

Journey Time systems deployed on the entire UK road network

Technology lead on the development/deployment of Transport Scotland TMC

Driver Information (Websites, Social Media, Virtual VMS)

We monitor the health of transportation networks around the world

We provide relevant information to millions of people every day
Cubic has developed an innovative next-generation traffic and transport management and control platform enabling new business models that integrate our clients multiple systems together expanding their capabilities while improving the overall network efficiency through improved collaboration and interoperability.
A MULTI-MODAL SYSTEM OF SYSTEMS

Surface Transport Management Data Integration Platform

**Primary Applications**

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<th>Traffic Signal Management</th>
<th>CCTV</th>
<th>Detectors</th>
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<th>Video Management</th>
<th>Asset Management/ Maintenance Dispatch</th>
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*Automated Incident Management*

**Secondary Applications**

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<th>Variable Speed Control</th>
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<th>Weather Sensor</th>
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**Connected Vehicle Portal**
PROVIDES THE SOLUTION

Provide the vision of the future… with the most advanced Traffic and Incident Management System.

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<th>Architectural Considerations</th>
<th>Key Elements</th>
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<td>• Software as a Service (SaaS) solution or central server based solution</td>
<td>• Integration of multiple agencies</td>
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<td>• Full Virtual ATMS and TMC Operations</td>
<td>• Integration with best-in-class systems and services</td>
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<td>• Integration of 3rd party applications and data</td>
<td>• Active Transportation and Demand Management (ATDM) Strategies</td>
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<td>• Connected Vehicle portal</td>
<td>• One Graphical User Interface (GUI)</td>
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OUR DIFFERENTIATORS

- Provided advanced traffic systems and solutions for over 25 years

- CTS has large International deployments with long standing customers:
  - UK Highways Agency
  - Transport Scotland
  - Transport for London
  - Welsh Assembly Government
  - Northern Ireland Roads Service
  - Transport for NSW Sydney
  - Hong Kong Traffic Department

- Key Active Transportation and Demand Management (ATDM) strategies already deployed in Scotland and England
  - Variable speed limits control
  - Dynamic lane control
  - Dynamic queue management
  - Dynamic hard shoulder running
  - Adaptive ramp metering
  - Incident Management

All trends in FHWA TMC Operation Updates
BENEFITS OF ATDM STRATEGIES

- Allow for the change of advisory speeds based on road, traffic and weather conditions which harmonizes vehicle speeds.
  - *Improves Safety*
  - *Improves Throughput*
- Allows for the detection of vehicles in a queue.
- Optimize system throughput.
- Warns motorists of downstream queues.
- Reduces the risk of rear-end collisions.
**Queue Warning:** In an ATDM approach, as the traffic conditions are monitored continuously, the warning messages are dynamic based on the location and severity of the queues and slowdowns.

**Dynamic Speed Control:** In an ATDM approach, real-time and anticipated traffic conditions are used to adjust the speed limits dynamically.

**Dynamic Merge Control:** In an ATDM approach, conditions on the mainline lanes and ramps approaching merge areas are continuously monitored and the dynamic merge system will be activated dynamically based on real-time and anticipated congestion conditions.
CASE STUDY: M62 J25-30 (ENGLAND, UK)

• 15 miles corridor opened October 2013 with
  1. Controlled 4-lane with permanent shoulder
  2. Controlled Dynamic Shoulder Running (DSR)
  3. Controlled All Lanes Running (ALR)

• Results:
  o Improved travel time reliability during peak periods in both directions
  o The worst 10% of travel times achieved 7 mins (58%) saving.

Changes to delay for worst 10% of travel times in peak periods
CASE STUDY: M25 J23-27 (ENGLAND, UK)

• 20 mile corridor opened May 2014 with full length of controlled on all lanes.
An integrated system that is scalable to include other agencies

Offers a new range of convenience for MTA customers

Contactless bankcards and mobile ticketing

Available for all modes of transportation

Thank You!

Scot Love

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