Driving the Science Behind Traffic™

Actionable, Accurate Traffic Information

Northwestern Engineering

CCITT Center for the Commercialization of Innovative Transportation Technology

November 2010
Campbell Career Timeline and Experiences

1985
Bradley University
• BSEE – Electromagnetics
• Minor English Literature

1989-1992
Motorola Infrastructure Business
• Systems Engineering
  • KDDI (Motorola’s Top Customer)
  • IDO

1992-1996
• Expatriate to Japan
• Introduced CDMA
• Worlds largest and fastest growing network

1999-2000
• CDMA Product Operations
• Strategy – EVDO vs DV

2001
• Global Marketing
• Integrated Product Operations

2002-2005
• Mobile Devices
• Location - VIAMOTO™
• Predictive Text
• VP GSM Portfolio

2006-2008
• SVP Strategy and Next Gen
• Digital Cellular Filter

2008
• CEO

2008
TRAFFICAST

2006-2008
ISCO

2006-2008
Isco International

2001
Kellogg

1989
Motorola

2002-2005
TrafficCast

2008
CEO

2008
TrafficCast

2006-2008
Isco International

2001
Kellogg

1989
Motorola
we are staying focused
TrafficCast History and Background

1999: TrafficCast Incorporated

1999-2002: Research & Technology Development

2002-2005: Penetrate Commercial Sales Channels (Yahoo, Google, Westwood One)

2006-2007: Commercialization, Product Development

2008-2010: Growth, Expansion (TomTom, deCarta, xDOTs)

We are a leading provider of digital traffic information for consumption in mobile devices, online and broadcast media.

We aggregate & analyze all types of traffic related data: speed, incident, construction, weather.

We have changed the digital traffic content landscape by introducing patented software & scientific models for real-time and predictive traffic information.
Traffic Value Chain

- ROI
- Turnkey Solutions
- Showcase Applications (Web Services, Device)
- Digital Traffic Content (Traffic, Fuel, Weather)
- Data Input (Sensors, Probes, etc)
The TrafficCast Team

- Experience Across Traffic Engineering, Public Sector, Telecommunications, Mobile Devices, Media
  - Motorola
  - Econolite
  - Ericsson
  - Navteq
  - Dash
  - CBS
  - University of Wisconsin
- Headquartered in Madison, WI
  - Shanghai, Chicago, Atlanta, Philadelphia

Confidential and Proprietary
Traffic Data and Analysis Resources and Services are abstracted from the underlying infrastructure and provided “on-demand” and “at scale.”
- **Traffic Logic (Historical)**
  - > 2 Billion Points
- **Dynaflow 2.0 (Real-time)**
  - Updated every 60 seconds
- **Dynaflow 3.0 (Predictive)**
  - Up to 48 hours into the future
the market develops ...
“Real-Time Traffic Service Revenue to Boom Over the Next Five Years”
Real-time traffic information is emerging as a must-have feature in automotive navigation and telematics solutions, causing global revenue from service subscriptions to rise by nearly a factor of 18 during the period from 2008 to 2014”
- iSuppli (July 2009)

“The number of traffic information users globally is expected to grow to more than 370 million by 2015, up from 57 million this year, according to new data from ABI Research, which also found that traffic information remains the most important feature of mobile navigation services.... This will motivate independent traffic information vendors like INRIX, TrafficCast and ITIS to market themselves to the high margin automotive and government segments, ABI Research said. And the field is growing, as startups like Waze and Aha Mobile have entered the low end of the market with traffic information based on passive and/or active community feedback, the report noted.”
ABI Research July 2010
Travels Times – The right consumption model

Increasing consumer value due to personalization

Content Quality

Map Text SMS Voice

“Personalized Travel Times”

All traffic to all consumers

Route Personalization

I-94 = 45m
Metra = 65m
Rt 14= 90m
Traveler Information Applications; Everywhere ... which drives content

- iPhone
  - GPS Apps = 1040
  - Travel Apps = 2440

- BlackBerry
  - GPS Apps = 17
  - Travel Apps = 41

Samsung, LG, others have now ALL announced App Stores

Applications unlike anything you’ve seen on a phone before.

Applications designed for iPhone are nothing short of amazing. That’s because they leverage the groundbreaking technology in iPhone — like the Multi-Touch interface, the accelerometer, GPS, real-time 3D graphics, and 3D positional audio. Just tap into the App Store and choose from thousands of applications ready to download now.

Browse the App Store in iTunes

3 billion as of Jan 2010
100,000 Apps
Why has the model changed?

- Smart Phone Connectivity
- Personalized Content
- User Interface
- The “Crackberry” Effect
our momentum continues
Great Market Momentum

**TomTom**
- TomTom is a world leader in Personal Navigation Devices
  - 740 and 340 moving in market
  - iPhone App is meeting forecast

**TeleAtlas**
- Contract Signed
- Dynaflow on all U.S. map content

**OnStar**
- Contract Signed

**Clear Channel**
- Working through data evaluations and testing

**Sirius Satellite Radio**
- Currently traffic.com customer

**MotionX GPS Drive**
- Earlier MotionX GPS reached 1M downloads in 9 months on iPhone
- CEO Philippe Kahn (Borland, StarFish, LightSurf)

**Rand McNally**
- Won business for PND, Web and Dispatch

Confidential and Proprietary
• Compare Current Onstar vs. TrafficCast Powered Traffic and Weather
B-There

- Android Widget for Travel Times
- Record Favorite Commute Routes
- Request Current/Future Travel Times by Route

Route A

Route B
TrafficCast has leveraged the mobile phone industry’s use of open hardware and software platforms to create BlueToad.

**Key Features**
- Local and Wireless Operation
- Zigbee mesh networking
- GPRS/EDGE/3G/4G

**Patent Applied for April 2009**
Positive Press for Roadside Technology

- **TrafficCast provides Accurate Travel Times thru Eisenhower Work Zone**
- **Expect Wide Work Zone & Arterial Coverage Exclusive to TrafficCast**
- **Click on link below:**
How did we do it?
1. Founded by traffic engineers with a very scientific model approach to traffic information systems
2. Ability to collect, process and filter data from a multitude of sources
3. State-of-the-art, patented analytic models to generate real-time and predictive traffic information
4. Real-time analysis to accurately predict how incidents impacts traffic flow “We see the future”
Dynaflow integrates 350+ sources of Traffic Impact Data, Including 20M+ moving GPS data points per day.
Severe Storm hit region around midnight on July 24; flooding effectively shut down the Eisenhower east of St. Charles from 6am to mid-afternoon.
How can you do it?
Creating Opportunities

**Opportunity (2-5 pages)**

**Tell Us:**
- State the problem; describe the pain.
- Why does the problem persist?
  - Define recent trends that make your solution possible.
  - How is it currently addressed?
  - Why are we at an inflection point now?
- Identify the market size.
- How does this market change and grow over time?

**Key Objective:**
Establish the need for your company's solution and convince us that solving the problem is worth the effort.

(Clear) Problem

+ (Large) Market

= (Great) Opportunity
Solving Problems

Solution (2-6 pages)

Tell Us:
- Demonstrate your solution.
- Validate your differentiation.
- Explain your technology/IP.
- How is the new solution better?

Key Objective:
Help us understand how you will solve the problem.
"Then a miracle occurs."

"I think you should be more explicit here in step two."
The “Miracle” is and isn’t….

Is …

• Hard Work
• Solving real problems
• Darwinian
• Relationships
• Evolving
• Differentiated

Isn’t

• Just a better mousetrap
• Always “Time to Market”
• Necessarily Complicated
• Niche
• Complimentary (focus on displacement)
Thank You

Neal Campbell
ncampbell@trafficcast.com
We have patented technology

- Patent No.: US 6,209,026 – Central Processing and Combined Central and Local Processing of Personalized Real-Time Traveler Information over Internet/Intranet
  - March 27, 2001 with 20 Year Term
  - This patent covers all internet and intranet, wired and wireless, collection and delivery of travel time information including all forms of personal transportation such as auto, air and train
  - This touches all major handset OEMs, Yahoo, Google, Expedia, Garmin, TomTom, BMW, Ford, Toyota, etc

- Patent No.: US 6,317,686 – Method of Providing Travel Time (TCI Fusion Model)
  - November 13, 2001 with 20 year term
  - Technical method for Patent # 6,209,026

- Patent Application – Method and System for a Traffic Management System Based on Multiple Classes (BlueTOAD)
  - Applied for April 3, 2009
  - Covers any Bluetooth sampling and resulting travel time calculations.

- Patent Application – Method and System for a Traffic Management Network
  - Applied For April 23, 2007
  - Covers dynamic assignment of traffic to a plurality of users
World-wide Traffic Information Subs by Device Type

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2011</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEM Imbedded</td>
<td>12.2</td>
<td>12.5</td>
<td>15</td>
<td>30.4</td>
</tr>
<tr>
<td>Personal Navigation Device</td>
<td>3.44</td>
<td>6.5</td>
<td>15.8</td>
<td>35</td>
</tr>
<tr>
<td>Smart Phone / PDA</td>
<td>1.59</td>
<td>3.35</td>
<td>13.1</td>
<td>59</td>
</tr>
<tr>
<td>Mobile Phone</td>
<td>1.34</td>
<td>3</td>
<td>13.2</td>
<td>60</td>
</tr>
</tbody>
</table>