

Walk Before You Run: Starting the Climb up the Analytics Ladder

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What You Won't See or Hear Today...

- Math
- Models
- \$M impact of OR/MS initiatives

So, what will we see and hear today?

Agenda

- My background
- Leviton company overview
- Analytics at Leviton
 - Framework: Analytical Competition
 - Current state & challenges
 - Approach to date
 - Examples
 - Future opportunities
- Questions & discussion

My Background

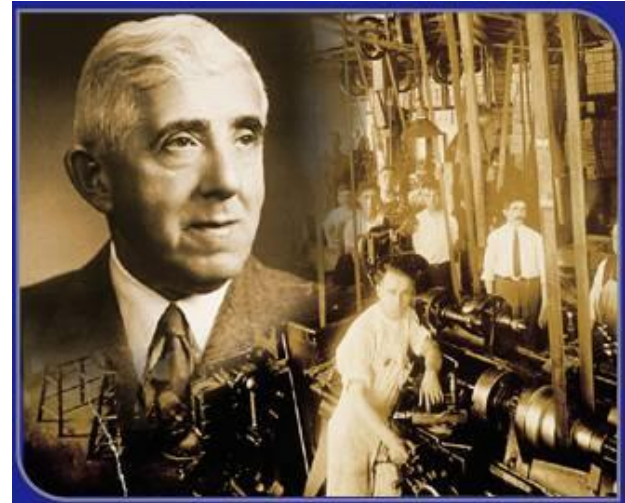
- B.S. in Aerospace Engineering at Penn State
- M.S. in Aeronautics and Astronautics at Stanford
- Grumman Aerospace Corporation – Aerodynamics Engineer
- MBA (and “Cohort Geek”) at Wharton
- Boston Consulting Group
- Arrow Electronics
 - Supply Chain Analysis & Optimization group
 - INFORMS Roundtable
 - INFORMS Practice Conference presentation 2006
- Leviton Manufacturing Company since 2008

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Leviton Company Background

- Founded in 1906 in Brooklyn, NY
- Family owned and operated
- Corporate HQ moved from Little Neck, NY to Melville, NY in June 2009
- Leading supplier of electrical wiring devices, lighting controls, power quality, and voice/data products
 - Nearly 30,000 SKUs
- Serve residential, commercial, industrial, and OEM markets
- Over 90% of business in North America, but rapidly expanding overseas
- The average American home contains more than 100 Leviton devices



History of innovation

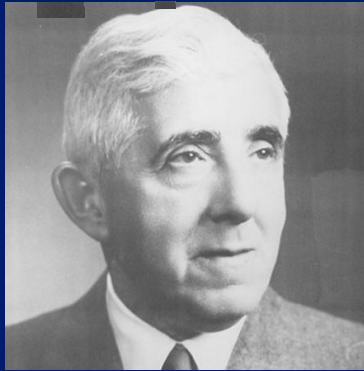
- Over 600 patents

History of industry firsts

- First touch dimmer
- First GFCI
- First triplex receptacle

Leviton's Continuity of Leadership

1906



Isidor Leviton founds
LEVITON

1965



Harold Leviton
becomes LEVITON's
President and CEO

2005



Donald Hendler
becomes LEVITON's
3rd President

Business Units

Residential Products

- Wiring Devices
- Lighting Controls
- Home Automation
- Integrated Networks
- Home Entertainment



Leviton Business Units

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Leviton Business Units

Residential Products

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- **Integrated Networks**
- Home Entertainment



Leviton Business Units

Residential Products

- Wiring Devices
- Lighting Controls
- Home Automation
- Integrated Networks
- Home Entertainment

Leviton Architectural Edition.
HOME ENTERTAINMENT SYSTEMS
powered by



Leviton Business Units

Commercial/Industrial



Leviton Business Units

OEM Lampholders and Appliance Devices



Leviton Business Units

Lighting Management Systems



Leviton Business Units

Network Solutions



Leviton's Global Supply Chain Network

Distribution

USA

- Sparks, NV
- Nashville, TN

Pointe Claire, Quebec

Mexico City

Dubai

China

- Hong Kong
- Shenzhen



Manufacturing

USA

- Morganton, NC
- W. Jefferson, NC
- El Paso, TX
- Bothell, WA
- Portland, OR
- Lake Forest, IL

Mexico

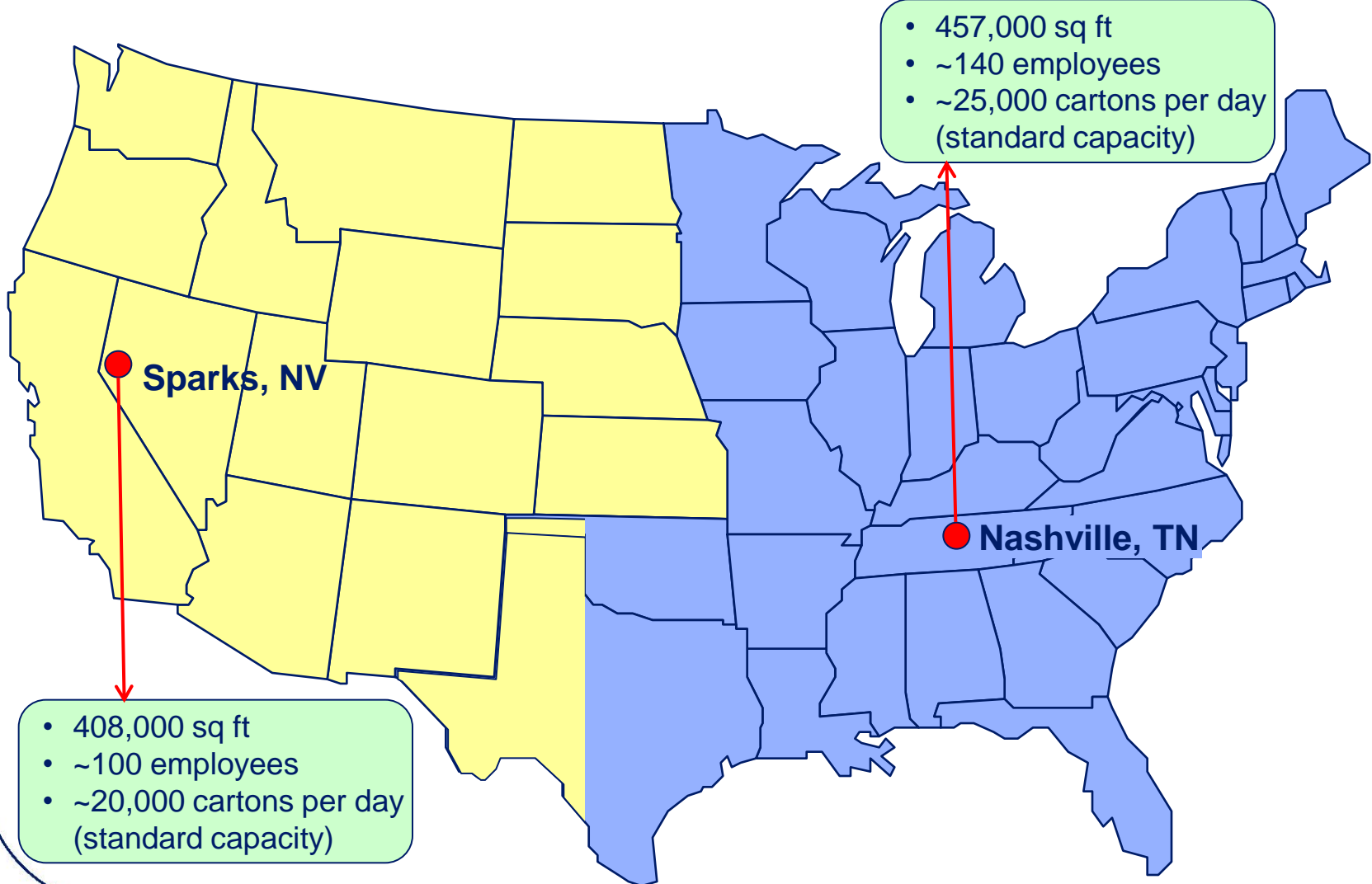
- Tijuana (2)
- Ensenada
- Camargo
- Jimenez

China

- Dongguan
- Nanjing

• Manufacturing • Distribution

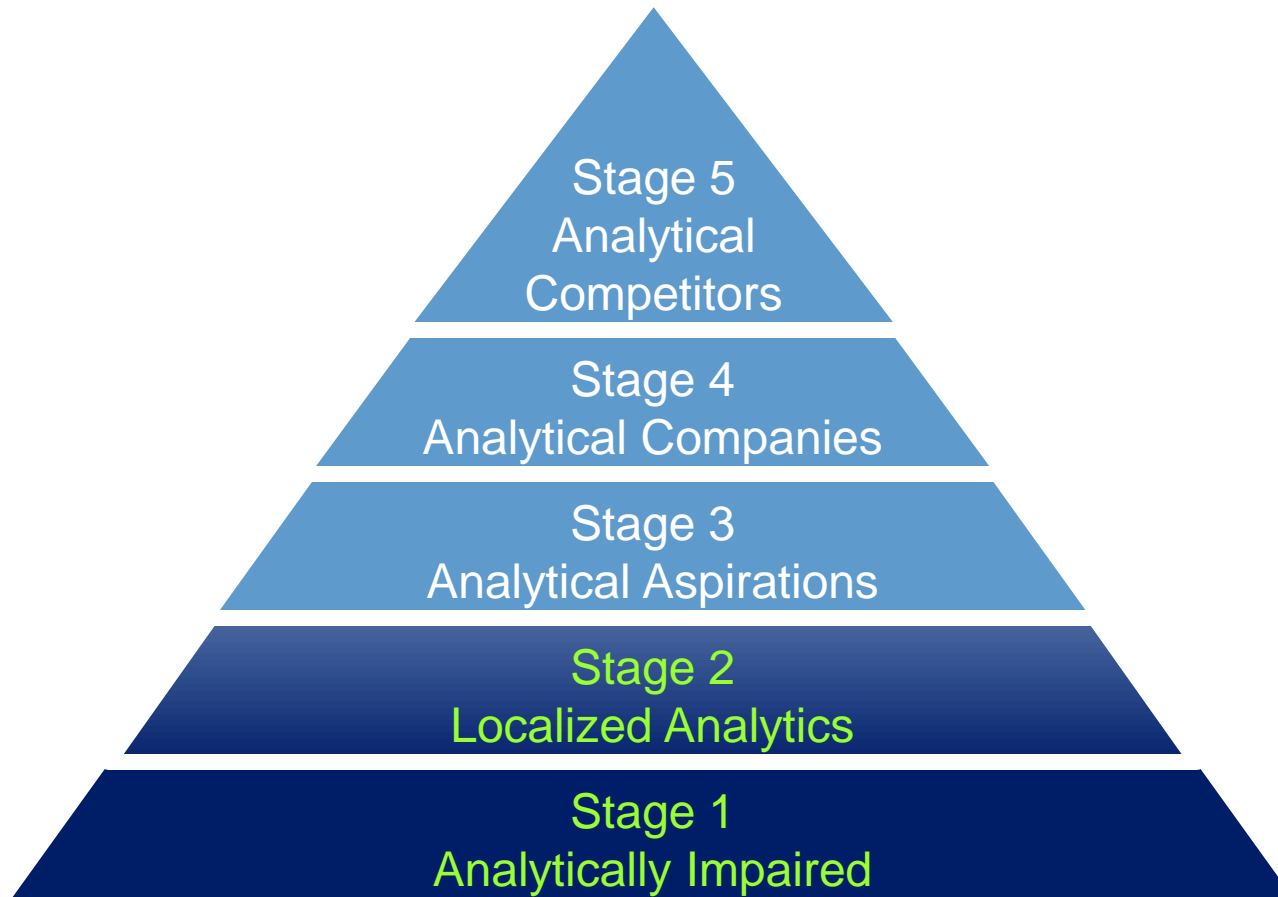
2 DC Network as of April 2009



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The Five Stages of Analytical Competition



Source: Davenport & Harris, *Competing on Analytics*

Competing on Analytics Stages Model

Stage	Distinctive Capability / Level of Insights	Questions Asked	Objective	Metrics / Measure / Value
1 – Analytically Impaired	Negligible, “flying blind”	What happened in our business?	Get accurate data to improve operations	None
2 – Localized analytics	Local and opportunistic – may not be supporting company’s distinctive capabilities	What can we do to improve this activity? How can we understand our business better?	Use analytics to improve one or more functional activities	ROI of individual applications
3 – Analytical aspirations	Begin efforts for more integrated data and analytics	What’s happening now? Can we extrapolate existing trends?	Use analytics to improve a distinctive capability	Future performance and market value
4 – Analytical companies	Enterprise-wide perspective, able to use analytics for point advantage, know what to do to get to next level, but not quite there	How can we use analytics to innovate and differentiate?	Build broad analytic capability – analytics for differentiation	Analytics are an important driver of performance and value
5 – Analytical competitors	Enterprise-wide, big results, sustainable advantage	What’s next? What’s possible? How do we stay ahead?	Analytical master – fully competing on analytics	Analytics are the primary driver of performance and value



Why Analytics?

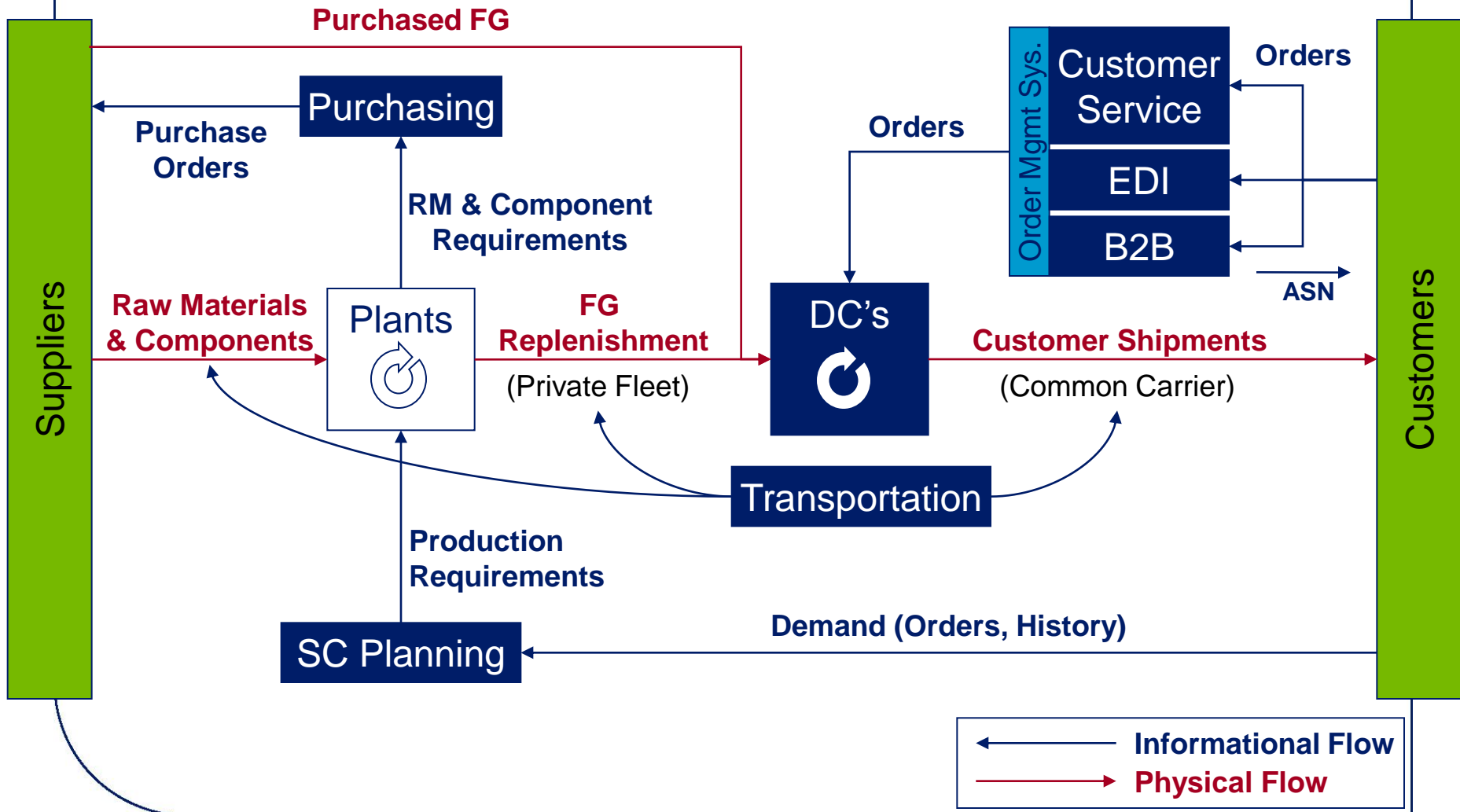
- Company has historically competed on:
 - Innovation
 - Quality
 - Customer service
- Leviton has been very successful for decades
 - Why change now?
- Customer service came at a high cost
 - People
 - Manufacturing capacity
 - Inventory
 - Supply chain redundancy

How can we achieve the same or better results at lower cost?

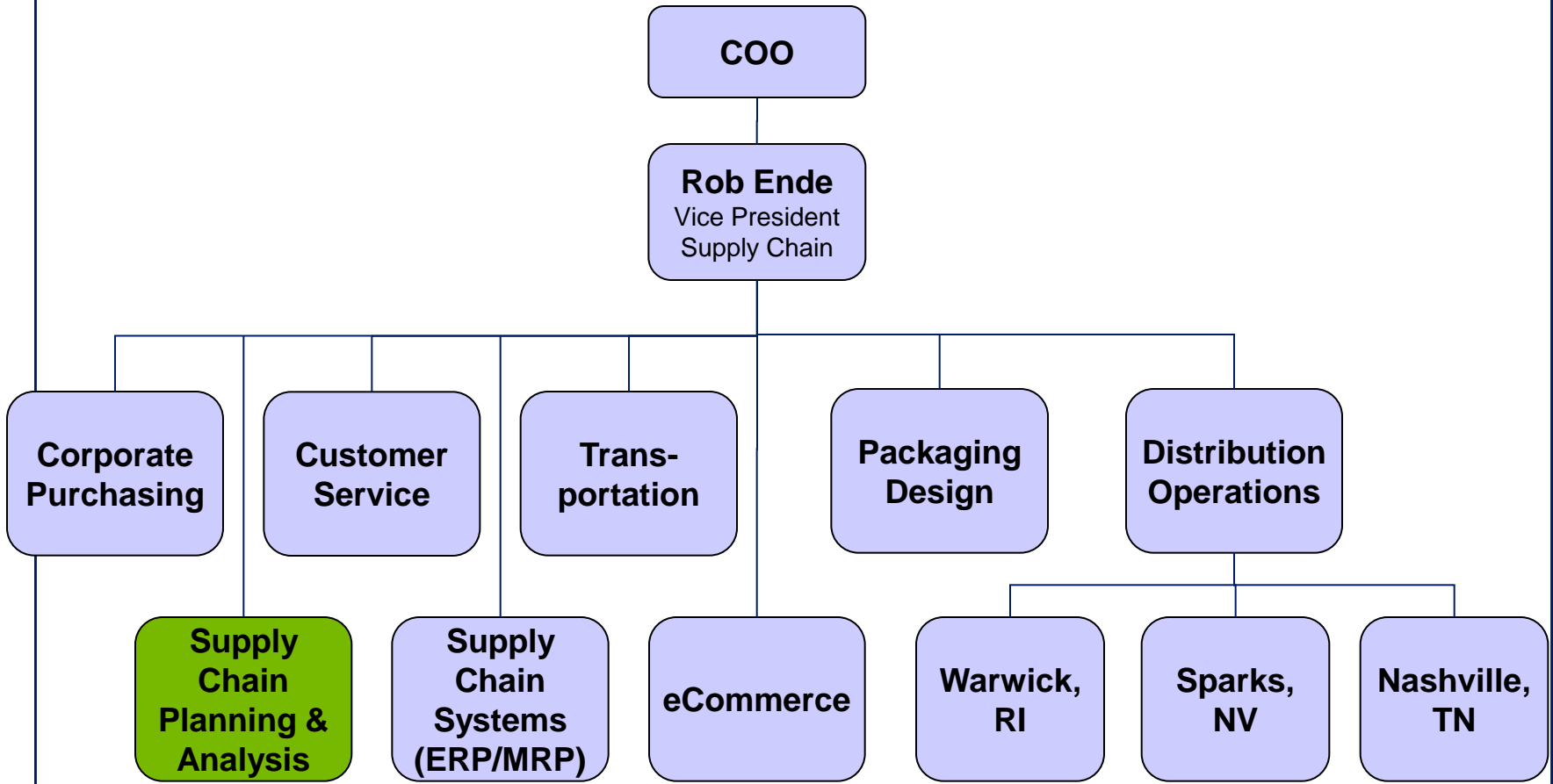
Challenge: No Legacy of Analytics

- Cultural bias toward action
 - How to achieve analysis without paralysis?
- No focal point in the organization
- Little or no application of advanced analytical techniques
 - Statistical analysis, simulation, optimization
- Lots of data and reports
 - Tribal knowledge; lack of shared insight
 - Lack of shared insight
- Localized viewpoints versus end-to-end process view
- Deterministic / point forecasts
- Limited exception management
 - Touch everything

High Level View of Leviton's Supply Chain



Supply Chain Organization



Meeting the Challenge

- New Roles
 - Director of Supply Chain Planning & Analysis
 - Manager of Demand Planning
 - Supply Chain Engineer
- Databases for Decision-Support
 - Planning & Inventory Management
 - Spend Analysis
 - Transportation
- On-Demand Reporting for Business Users

Example: Demand & Capacity Buildup for Tamper-Resistant Devices

- Challenges
 - Uncertain demand due to state-by-state code adoption
 - High cost of converting production lines
- Approach
 - Build probabilistic forecast with input from business teams
 - Analyze range of scenarios for impact on capacity, cost and inventory
- Results
 - Great internal collaboration and “buy-in”
 - Delayed capital investment while meeting customer demand

Example: Warehouse Consolidation & Inventory Disposition

- Challenges
 - Excess & obsolete inventory due to warehouse closure and customer returns
 - Identify alternatives for huge quantity of SKUs, e.g., resell, repack, rework, liquidate, scrap
- Approach
 - Create master database with all item information
 - Interactive Excel front end – sort, filter, drill-down
 - Work interactively with Product Managers
- Results (in process)
 - Greater collaboration and real-time decision making with business
 - Greater ability to roll up and report on results
 - More controlled process for financial control

Example: Transportation

- Challenges
 - Complex transportation network
 - Lack of effective decision support to identify opportunities for cost reduction
- Approach
 - Working with external consultants, build comprehensive shipments database and “what-if” queries
- Results (in process)
 - Identified several high value opportunities, e.g., shipment consolidation between west coast facilities and Sparks DC

Example: Inventory Policy for Sporadic Demand Items

- Challenges
 - Forecasting & safety stock approach designed for high volume products
 - Increasing level of “project based” demand
- Approach
 - Developing new ROP / ROQ approach based on sampling of demand history & monte-carlo simulation (“Smart-Willemain”)
- Results
 - TBD

Future Opportunities

- Planning / inventory simulation modeling
 - Predictive analysis
 - Risk assessment
- Multi-Echelon Inventory Optimization
- Logistics Network Modeling
 - Minimize cost while achieving service targets
- Simulation modeling of manufacturing & warehousing processes
 - Improve throughput and minimize cost
- Analysis of capital investments, e.g., molds
 - Real Options

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Thank You!

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