

DRIVING OPERATIONAL EXCELLENCE IN FINISHED VEHICLE LOGISTICS



How RFID/RTLS solutions create productivity and efficiency gains, reduce lead-times and save cost

THE PRESENTATION

“The presentation tells the story of the world’s largest RTLS (Real Time Locating System) at Vehnet’s customer, Broekman Group, Rotterdam, where more than 40,000 cars and vehicles are stored at any one time ...”

Steve Jones, Founder, Vehnet

Steve.jones@vehnet.co.uk

SEQUENCE

- Industry Context
 - The Global Finished Vehicle Market
- Case Study
 - The Parties
 - The Business Issues
 - Technology
 - Selection
 - Implementation
 - Results
 - Lessons Learned
- Wider Issues, Conclusions and Questions

THE LIFE OF A VEHICLE



INTRODUCTION AND OVERVIEW

- ◉ The Finished Vehicle Delivery Chain is Global
- ◉ The dynamics of international car production and distribution are moving at the fastest rate ever. Volumes increase each year.
 - Production of small & mid-range vehicles moving to Central & Eastern Europe
 - Large internal demand for China, Russia, India and South America
 - ◉ Exports will follow
 - Exports of luxury and specialist vehicles from USA and Europe
- ◉ 2006, 67m new automobiles and light vehicles manufactured
- ◉ 25%+ exported from country of origin
- ◉ Generating approximately 5+ location movements per vehicles (handoffs)
- ◉ Generating approximately 20+ yard movements
- ◉ But also generating

GENERATING

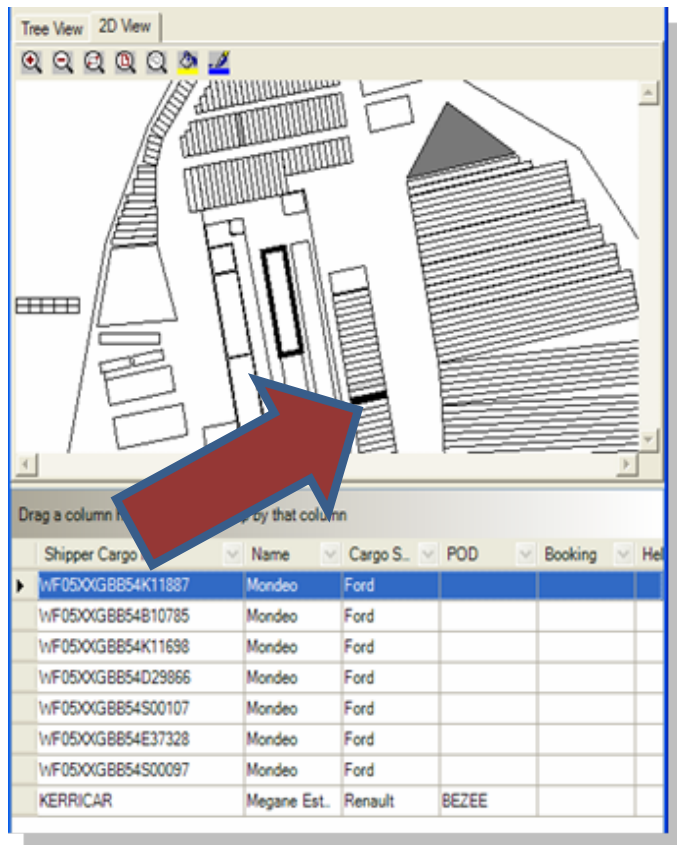
- ⦿ 6,700,000,000 opportunities for 'losing' a vehicle
- ⦿ 6,700,000,000 opportunities for damages
- ⦿ 6,700,000,000 x 'X' for CO2 and pollution
- ⦿ A lot of cost
- ⦿ A lot of re-entered data at every hand-off point
- ⦿ A lot of data to communicate
- ⦿ Very low uptake of standard data formats
- ⦿ All data is communicated 'point-to-point' (silos)
- ⦿ Overall there is a lot of wasted time, wasted resources and wasted money.

GLOBAL VISIBILITY



IS RFID/RTLS The Answer?

RFID/RTLS



- RTLS (Real Time Locating System) is based on RFID chips. The distinguishing features are:
- **Locating:** graphical display of the location of each vehicle on site at slot level
- **Identification:** read Vehicle Identification Number or internal identification numbers without line of sight or close proximity
- more on the technology later



THE PARTIES

Mieloo and Alexander (RTL)

Vehnet (Intelligent Software)

Broekman Group (The Customer)

latest news

January 2007 - Mieloo & Alexander Business Integrators selects Whizpr for PR. [Read more](#)

September 2006 - Mieloo & Alexander recently moved from their office in Rotterdam to a "top notch" building in Hoofddorp, "de Zuidtoren". [Read more](#)

August 2006 - Mieloo & Alexander has been selected by KPN to realize the RFID solution for Dutch Water Dreams. [Read more](#)

June 2006 - Mieloo & Alexander started a performance improvement project with Selektvracht.

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Don't be afraid to make mistakes,
nor to admit them.
Only he who does nothing makes none.

- Vehnet specialise in software to manage vehicles and other rolling assets from production through to the end user. We are active on more than 70 sites in the world.
- Vehicles have a very complex life. They are unpackaged, self-mobile, expensive, fragile, individually identified units which travel great distances, and are handed-over many times.
- Our software is used by companies in the supply chain to manage Yards, Production Facilities and Transportation.



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- Vehnet software is unique in that it is PROCESS DRIVEN.
- We provide a rich set of functions which are used in any combination to deliver a perfect-fit for each flow of vehicles.
- This approach reduces waste and duplication to a minimum.
- Our customers pay on a 'per vehicle' basis, which entitles them to software, support, upgrades, unlimited users and unlimited sites. In most cases they will never pay for software again.



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Broekman Group



SHIPPING



LOGISTICS



AUTOMOTIVE



CORPORATE





BROEKMAN AUTOMOTIVE FACTS

- ◉ Storage capacity of 40,000 cars of which 21,000 cars in parking warehouses
- ◉ Annual throughput capacity of 350,000 cars
- ◉ Handling of 240,000 cars in 2006
- ◉ 15 brands from Asia, Europe and USA
 - Stevedoring,
 - Storage
 - Value adding services
 - Distribution





Practical Challenges

- A Large Open Area
- Metal and reinforced concrete construction Car Parks .
- Enclosed Car Park Floors
- Many movements of vehicles through the various preparation and workshop areas
- Real-time monitoring required as vehicle passes in and out of each workshop.

Practical Challenges

- An ISPS Site - Terrorist Security is Vital.
- International Ship and Port Facility Security Code (ISPS Code).
- Truck Drivers pick up their own cars. Theft Security is vital.
- Site is Open Long Hours.
- Site Security.
- Ships, Truck, Barges and Trains come and go all day.





Each VIN "Tagged" at EOL



VIN tracked through site



System monitors / verifies VIN meets all process steps



Dwell captured & measured for each process or zone



Rule-Based Processing Plan generated continuously



Tag removed & recycled at ship point



THE BUSINESS ISSUES

THE CLAIMED BENEFITS OF RTLS

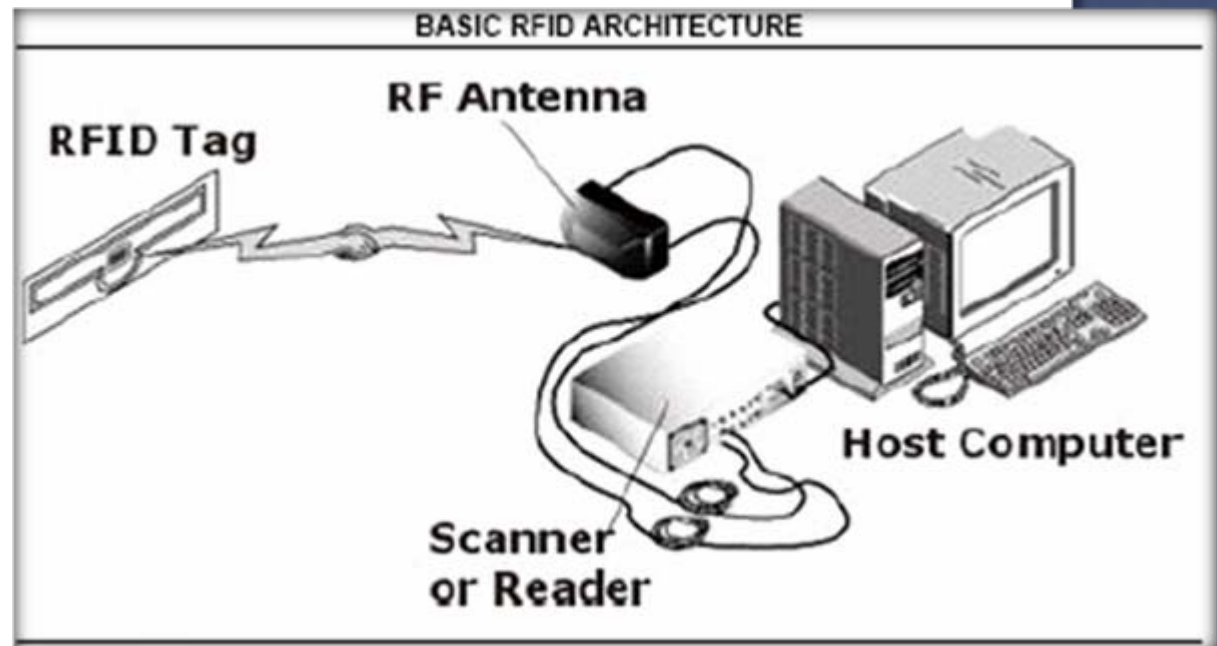
- ◉ Productivity improvements and labour savings resulting from reduced search time from hours to seconds
- ◉ Improved accuracy of operational planning and scheduling
- ◉ Improved goods flow, reduced lead-times and reduced claim on working capital
- ◉ Reduced damage control and rework
- ◉ Reduced possibility for human error, improved data accuracy and improved customer service
- ◉ Broekman understood that their customers would be impressed and pleased to see innovation, investment and superior customer service.
- ◉ The Broekman reputation would be further enhanced.

THE B.R.A.I.N.S. PROJECT

- ◉ In mid-2005 Broekman Automotive initiated the BRAINS project (*Broekman Automotive Identification Networking System*)
- ◉ Initially as a replacement project for the existing bar-coding system.

- ◉ BRAINS Project Roadmap
- ◉ Extensive Research of RFID Technology and Business Case
- ◉ Investigation conducted as a joint effort between ICT department and Operations, resulting in a snowball effect of identified business benefits;
- ◉ Reference Site Visit
- ◉ Finalised Business Case and Selection of Partners:
 - RTLS Technology Solution (WhereNet)
 - Decision on Business System (Vehnet iTracks)
- ◉ Based on the results of the investigation the business case is finalised;
- ◉ Business case described by defining and quantifying every operational advantage and every cost impact.
- ◉ This exercise identified a **payback-period of 36 months**;

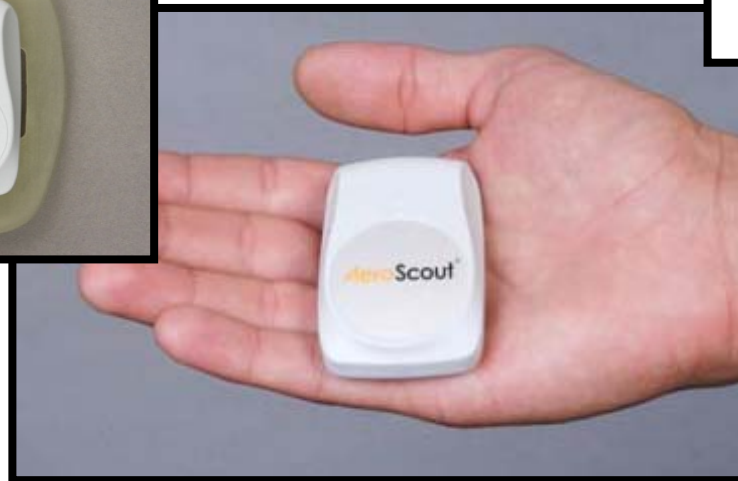
THE TECHNOLOGY



DIFFERENT APPROACHES

- ◎ Passive and Active Systems
 - Passive Range is too short for practical vehicles operation.
- ◎ Active Transponder
 - E.g. Identec. You scan, the vehicle responds.
 - Uses GPS for positioning plus signal variation.
- ◎ Active Tag-To-Tag
 - E.g. RFind. Asset tag 'talks' to Reference tag.
- ◎ Active RTLS
 - E.g. AeroScout, WhereNet
 - Tags 'blink' when static at pre-set intervals.
 - Tags are excited to 'blink' when passing a choke point.
 - Use different location algorithms (RSSI and TDOA respectively)

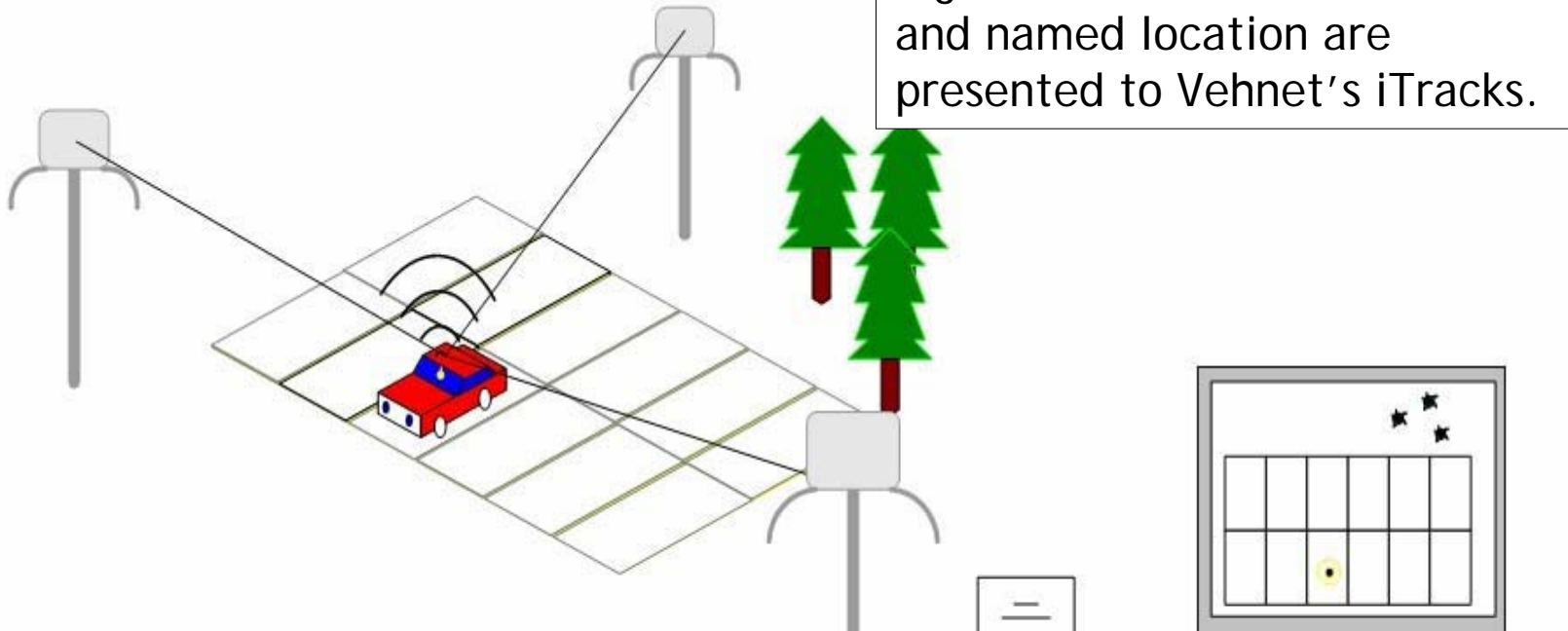
SOME TAGS AND EQUIPMENT



RTLS tags come in different packages, but the differences go much deeper. Not all tags solutions are the same.

was selected

The server calculates the exact geographical coordinates of the tag based on triangulation algorithms. •The coordinates and named location are presented to Vehnet's iTracks.



•The tag assigned to the vehicle (hanging from the rear view mirror) emits a signal between every 4 seconds to 4 minutes. •The antenna, mounted on buildings or posts, receive the signal and send it to the RTLS server through the Local Area Network.

CHOKE POINTS

- The WherePort is always 'ON'.
- It transmits a radio signal which triggers any tag passing by to 'blink'.
- The blink is captured by the WhereNet receiver network.
- This is how we know that a vehicle has passed a certain point in the process.



IMPLEMENTATION

SUCCESS FACTORS FOR IT INVESTMENTS

Case Study of Successful Complex IT Projects

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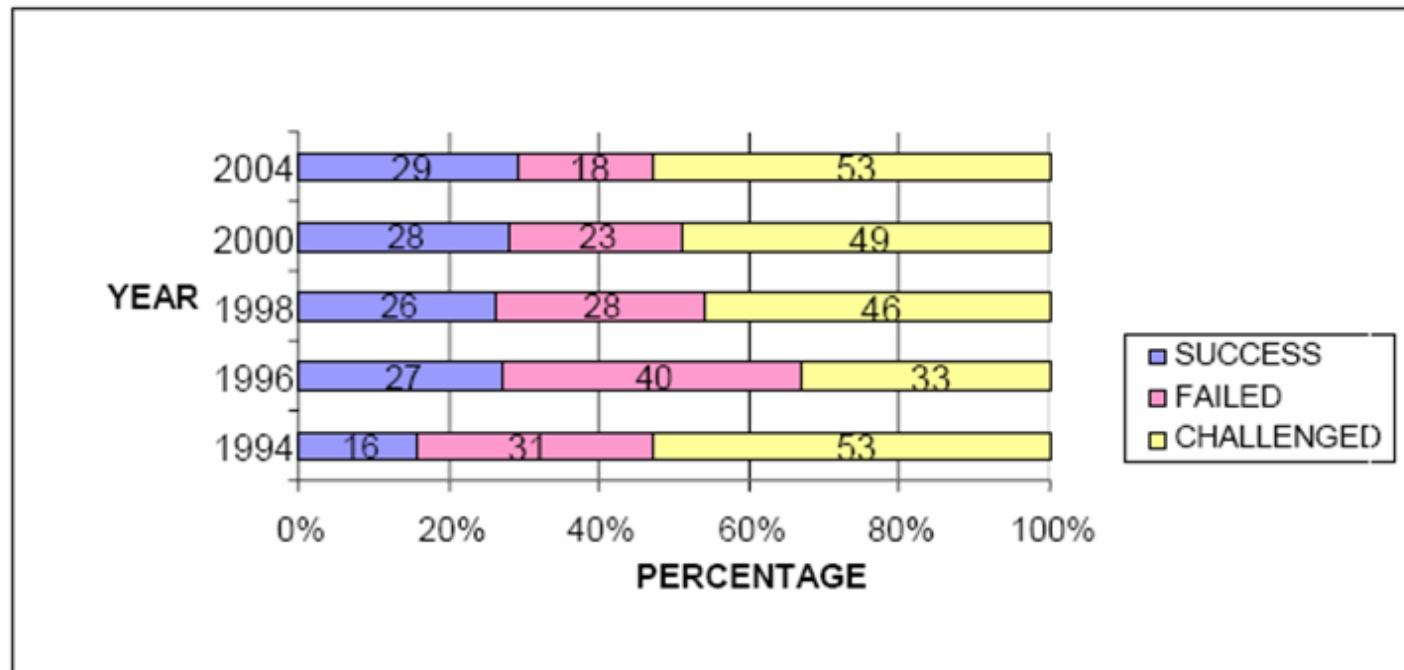


Figure 1 Success rates of IT projects 1994-2004

(Adopted from the 'Extreme Chaos' and '2004 Third Quarter Research Report', The Standish Group)

BE CLEAR



How the customer explained it



How the Project Leader understood it



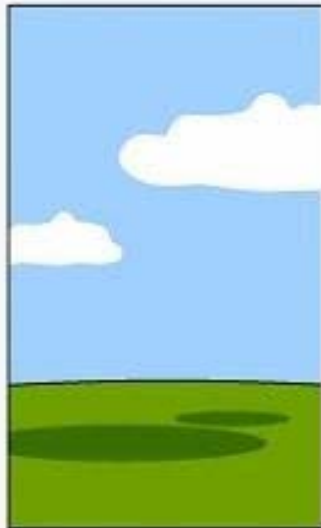
How the System Analyst designed it



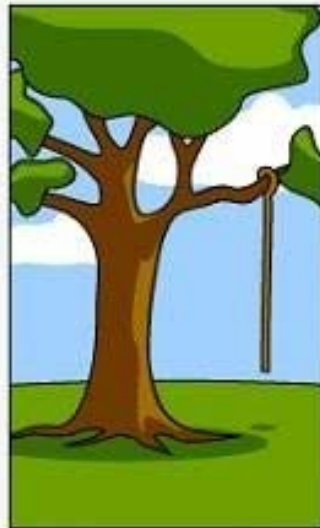
How the Programmer wrote it



How the Business Consultant described it



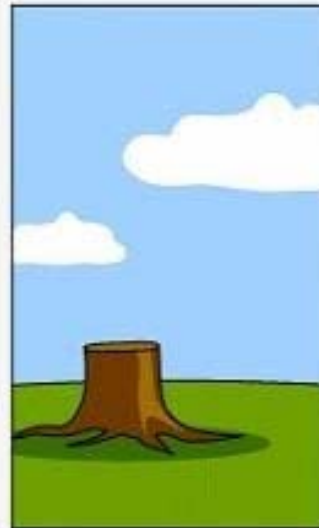
How the project was documented



What operations installed



How the customer was billed



How it was supported



What the customer really needed

SUCCESS FACTORS FOR IT INVESTMENTS

- ◉ Prepare the Organisation for Change
- ◉ Build Pilots
- ◉ Define the Scope - what is IN and what is OUT, but be flexible.
- ◉ Provide additional support for those who participate in the implementation.
- ◉ Do NOT let IT run the project alone
- ◉ Provide Feedback on the Plan - be Open
- ◉ Be Positive, Realistic and Ruthless

“PROCESS
AUTOMATION
SOFTWARE AND
RTLs ARE
INDIVISIBLE”

AUTOMATION OF THE PROCESS

- ◉ RTLS Opens Enormous Possibilities and Changes the Way of Thinking
- ◉ Real-Time
- ◉ Human Error is virtually eliminated
- ◉ 'Pull' not 'Push'
- ◉ Synchronisation of Work Plans
- ◉ Billing
 - Activities
 - Storage
- ◉ Status Messages to Customers
- ◉ Instant Alerts
- ◉ Impartial Performance Monitoring

RESULTS

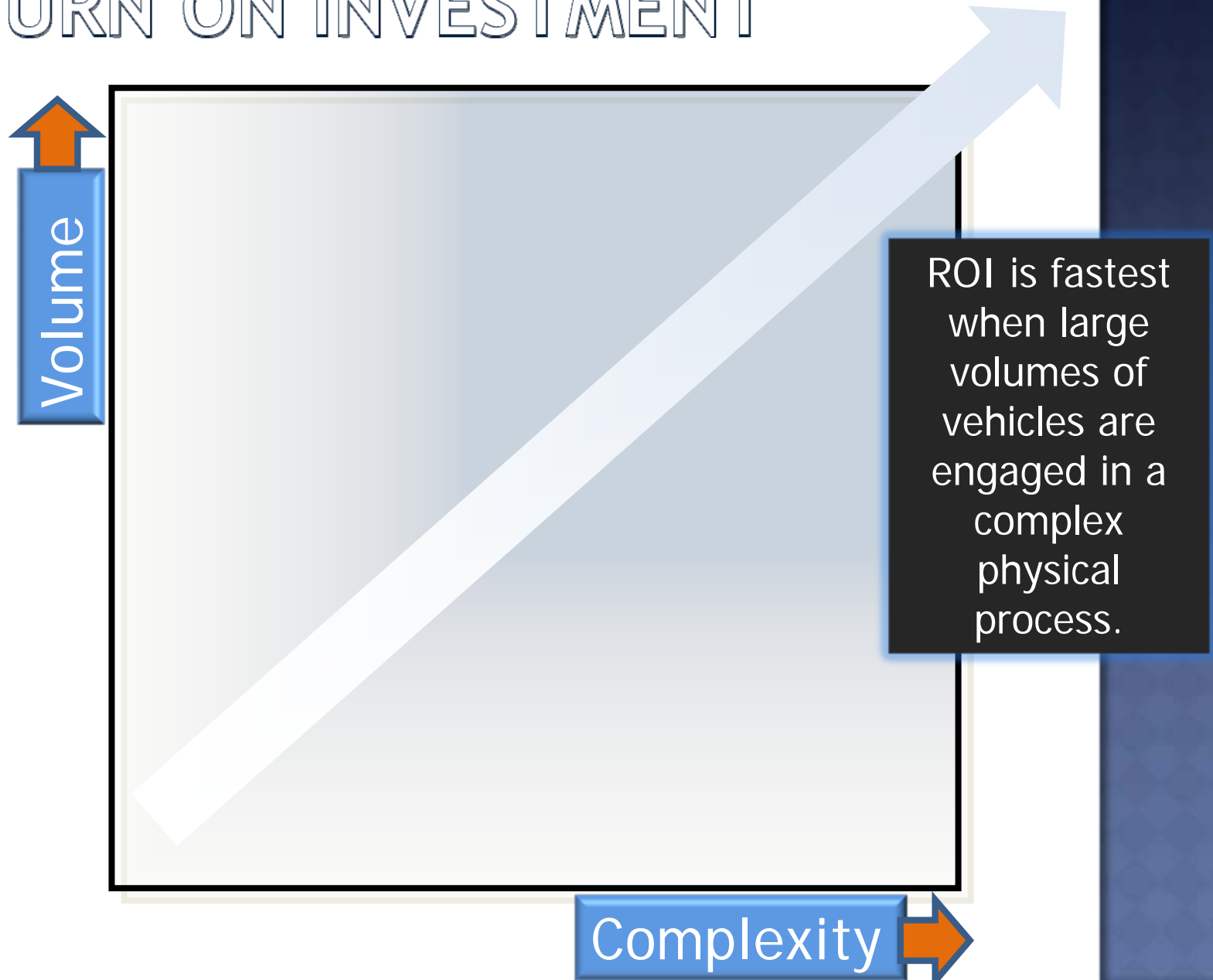
HOW DID BROEKMAN BENEFIT?

⊙ Immediate Proven Results:

- ⊙ Productivity improvements and labour savings
 - - 10 -15% on search and pick time
 - - 4 x FTE on scanning
 - - 1 x FTE on trouble shooting
 - - 2 x FTE on administration
- ⊙ Improved accuracy of operational planning
- ⊙ Improved goods flow, reducing lead-times
- ⊙ Reduced possibility for human error, improved
- ⊙ data accuracy and improved customer information
- ⊙ Improved customer satisfaction

LESSONS LEARNED

RETURN ON INVESTMENT



LESSONS LEARNED

- ◉ Insist on realistic tests from the shortlist before buying or visit a proven installation.
- ◉ Pilot your solution(s)
- ◉ Envision people with the potential of RTLS
- ◉ Encourage adoption of new processes
- ◉ Scope the project clearly
- ◉ Employ experts - RTLS technology is complex
- ◉ Install intelligence based software
- ◉ Measure before and after
- ◉ Share your achievements

WIDER ISSUES

WIDER ISSUES

- ⦿ The Vision: a collaborative supply chain
- ⦿ RTLS offers contactless, automated identification of vehicles.
- ⦿ Such a Vision requires Standards
 - Hardware
 - Data
- ⦿ Standards need Adoption
 - Pioneers, Customer Pressure, Legal Framework
- ⦿ The Need for “Co-Opetition”

ECG AND ODELETTE



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THANK
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