Commerce

- 10.00 – 10.40 Fremtidens eCommerce løsninger, Hosein Moghaddas, IBM
- 10.50 – 11.30 Den personlige kunde dialog, Erin Jaeger, IBM
- 11.30 – 12.10 Frokost
- 12.10 – 12.55 Roundtable: Fremtidens eCommerce løsninger
  Speakers' Corner: - Hvordan skaber *du* relevant kommunikation med dine kunder online?
  - Optimér dine kunders købsoplevelse online
- 13.05 – 13.45: Optimering af pris, kampagne og produktmix, Kent Bredahl, Coop Danmark A/S
- **14.10 – 14.50 Den forretningsmæssige effekt af supply chain optimering, Stephen Hall, IBM, Eddie Griffiths Lafarge & Peter Jensen, Mærsk Oil Trading**
- **15.00 – 15:45 Roundtables: - Optimér dine kunders online oplevelse og øg dit salg.**
  - Rethink Marketing – hvad gør de bedste marketingorganisationer bedre

Optimization & Business impact

Stephen Hall – IBM optimization

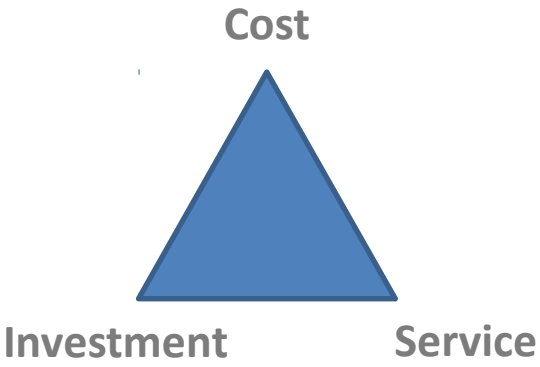
Peter Jensen – Maersk Oil Trading

Eddie Griffiths – Optimisation for Everyone

What is Optimization?

Choose the best option

to take most advantage of **limited resources** with **competing objectives**



- Discover unknown options
- Automate and streamline decisions
- Explore more alternatives

Sucess stories with IBM Optimization

€20 mil

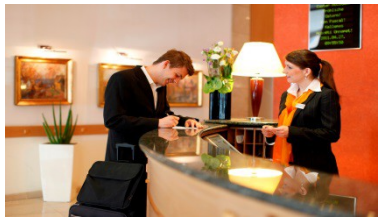
Amount a major transportation company reduced operating costs annually through better allocation of rolling stock*.

$240 mil

Amount a central securities depository saved financial institutions in 18 months by faster clearing of securities transactions*.

€50 thou

Amount a power system operator reduced daily costs to consumers through better dispatch of generators*.



$226 mil

Amount a major hotel chain increased annual revenue by offering the right product to the right customer at the right price.

Speakers

Eddie Griffiths

Lafarge
Aggregates until 2013

Supply Chain Performance Manager

30+ experience

Supply from the right place

Peter Jensen

Maersk Oil Trading since 2007

Optimization expert

Master in Computer science

Fuel up at the right amount, at place and time

IBM Smarter Business 2013
BusinessConnect

Optimization applied to bunker purchasing

Peter Neergaard Jensen

MAERSK OIL TRADING

MAERSK OIL TRADING

Optimization applied to bunker purchasing

IBM Smart Business 2013, Bella Center

Key value and saving

- The purpose is to buy the right quantity fuel at the right place and time
- The application has run since 2009
- Estimated direct saving of ½-1% compared to previous process
- 12,000 transaction per year

900
800
700
600
500
400
300
200
100
0
Los Angeles 380
Rotterdam 380
39765
39820
39875
39930
39983
40038
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41513

Background

- Size matters ☺
- Maersk Line
  - 460 vessels
  - Schedules around the globe.
- Container vessels
  - Capacity 14.000 MT
  - Where, when and how much bunker fuel to buy?
- Reality
  - 12,000 trades
  - 12 mio tons of fuel
  - 7-8 bio USD at today's rates

x 560 =

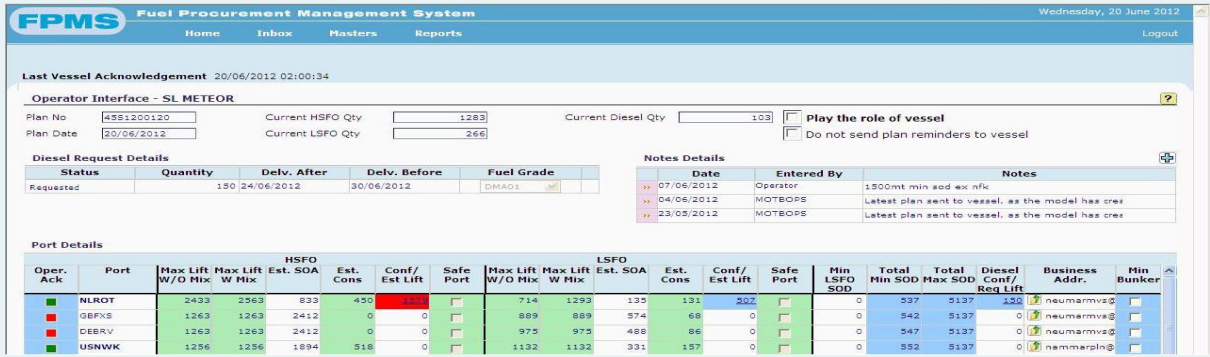
2007 research project

- Transform the world into a mixed integer problem
  - Post graduate research project
- Feed the model – gather and massage data
  - Actually huge task
- Calculate and analyse
  - Room for improvement

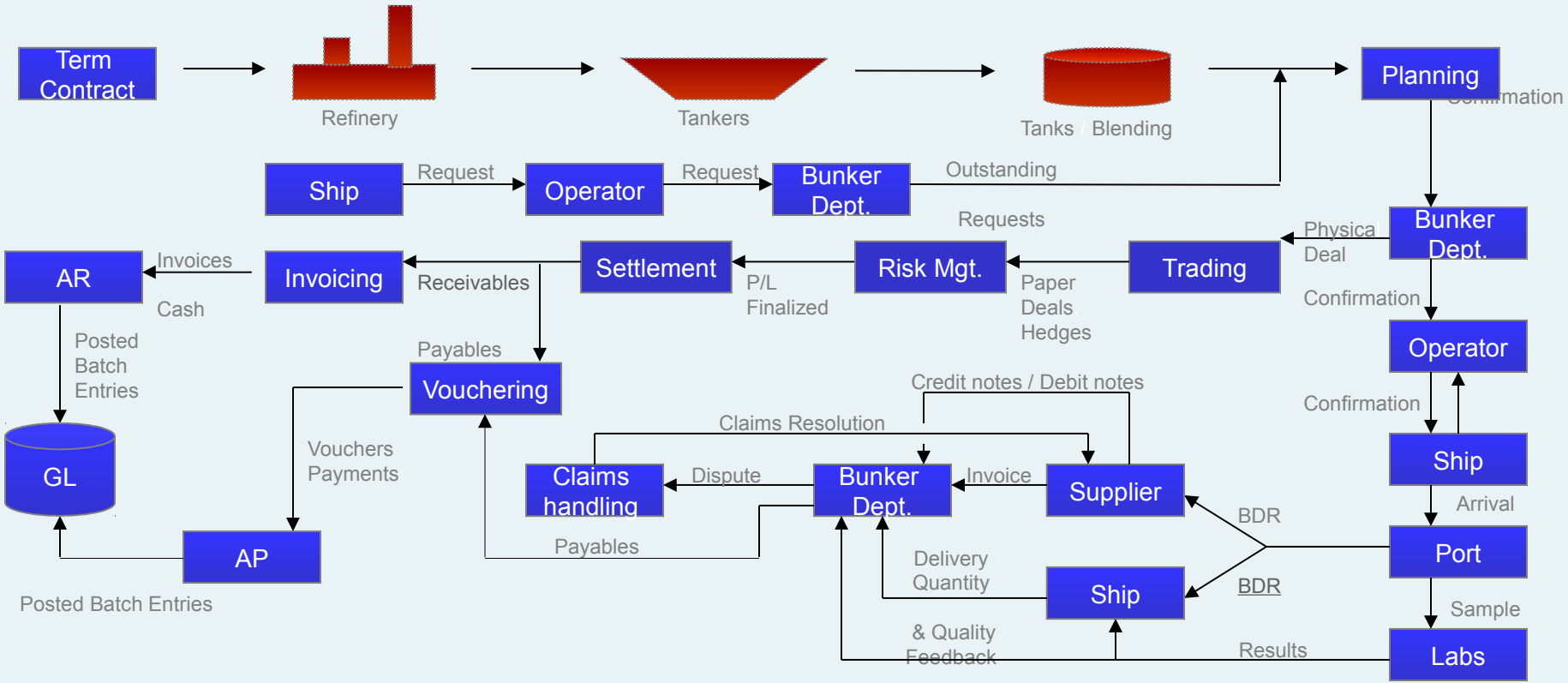
- The project showed significant saving potential and even with a saving of just ½% the business case was straight forward

The Model

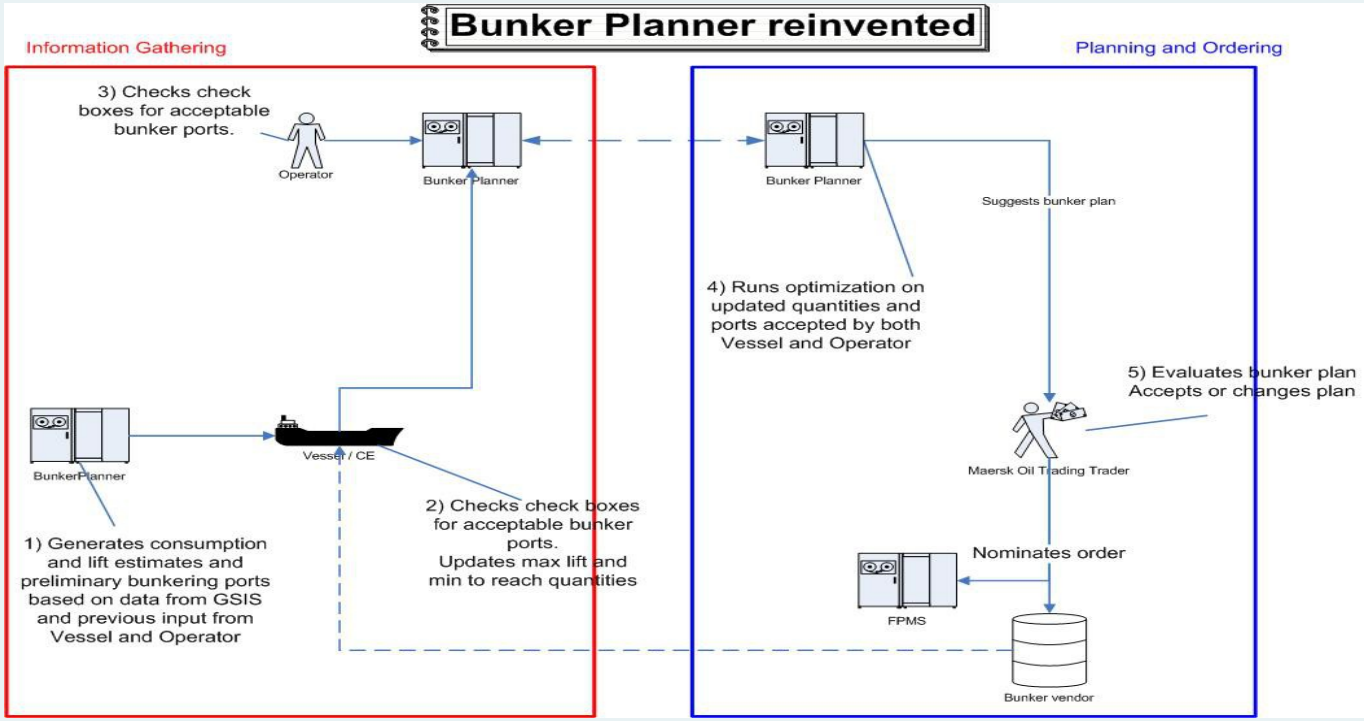
- **Input:**
- **”Static”**
  - Consumption tables
  - Vessel specifics
  - Port specifics
- **”Dynamic”**
  - Vessel schedules
  - Prices
  - Acknowledgement and Restrictions (draft, balance etc.) by central operations
  - Confirmation by vessels that calculated stock-on-board and capacity is valid



The Big Picture



The Big Picture



How did we get there?

- Two simple questions turning into a lot of hard work:
  - Can we do it?
  - Will it work?
- From stand alone hand held model to seamless integration in application environment
  - Requirement specification
  - Design specification
  - Vendor selection
  - Budgeting
- Trial runs and verification
  - Interim solution, run manual in parallel
  - Evaluate – and be happy.
  - 11 vessels in H2 2008 -> documented savings 2.8 mio USD
  - 10 other vessels in H1 2009 -> documented savings 1.8 mio USD
- Execute

Additional benefits and future projects

- Increased lead time on bunker requests helping the traders to achieve better prices
- Average bunker load has decreased thereby reducing the funding cost and tied up capital
- Forecasting, better decision basis for traders when negotiating contracts
- Increased transparency
- What-if analysis.
  - What if we can get a better price in some port
  - What if a vessel can use a cheaper bunker type
  - What if the reserve requirement is changed
  - What if new SECAs are introduced
  - Etc.

IBM

Optimization applied to traditional business

Eddie Griffiths

Bella Center, Copenhagen, 8th August 2013

Eddie Griffiths - How ILOG Optimisation impacted the Lafarge Aggregates business

- **The story of how an internal team delivered significant profit improvement using ILOG optimisation tools**
- **Not in the usual high tech sophisticated businesses – in the quarry industry!**

Eddie Griffiths, Optimisation for Everyone, 8th October 2013

Summary

- 2 days guidance from colleagues in Brazil
- 4 days ILOG training
- Developed supply plan optimisation models
- Saved more than £1m per year
- Provided optimised decision support for UK, Poland, Romania and France

Background

- OR with Computing - Nobody did it

- 20 years in IT - Chocolate, Glass, Meat & Dairy and Construction Materials industries

-

Aggregates UK
- 1998 - Delivery Scheduling **Optimisation** Project
- Supply Chain Performance Manager

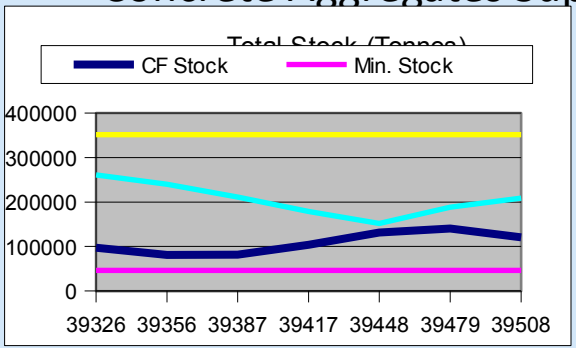
Brazil visit

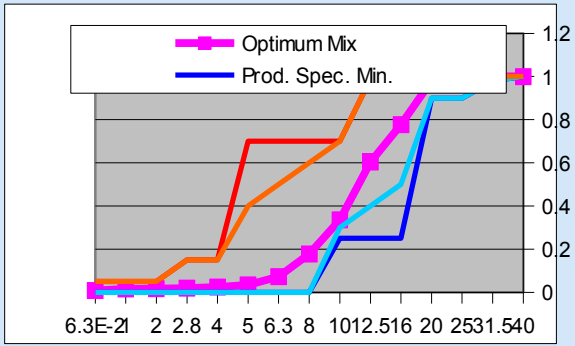
- 2007 – Lafarge Cement, Belo Horizonte, Brazil
- Antonio E Rezende - Flow Allocation Model
- Lots of useful lessons learned
- Back in the UK with - awareness, proof, examples & knowledge
- In-house optimisation

FAM

Small beginnings

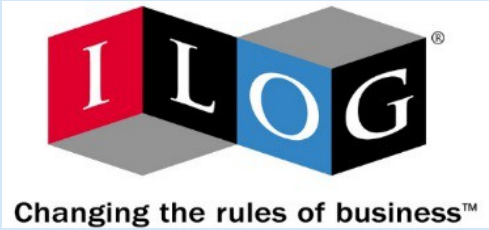
- Excel Solver:
  - Rail Stock Planning – Achieved year end working capital targets
  - Product Formulation – Released more 10MM for external sale
- Frontline Premium Solver Platform:
  - Concrete Aggregates Supply Model – Saved £300k annual costs





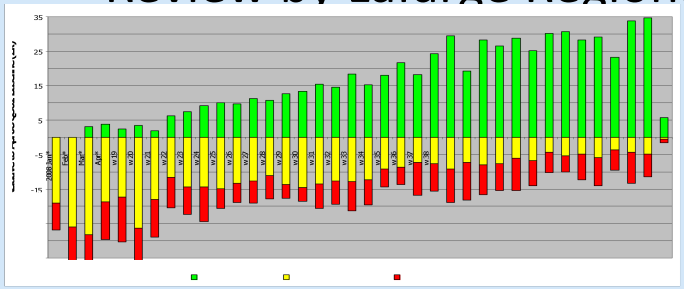
ILOG Optimisation tools

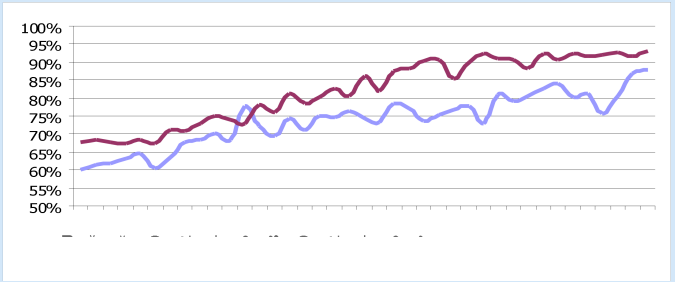
- Upgraded to ILOG CPLEX
  - Excel/Access
  - More complex rules
  - 20 minutes down to 20 seconds
- 4 days training
- Consultancy budget

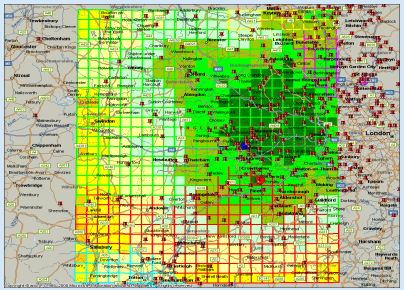


Development in stages

- Added quarry product mix optimisation – £300k
- Strategic closures & crushed rock fines – £200k
- Cash targets, more closure & fixed outlets – £500k
- Railhead footprint analysis, special sands, high PSV, regional closure plans, …
- Review by Lafarge Regional Vice President

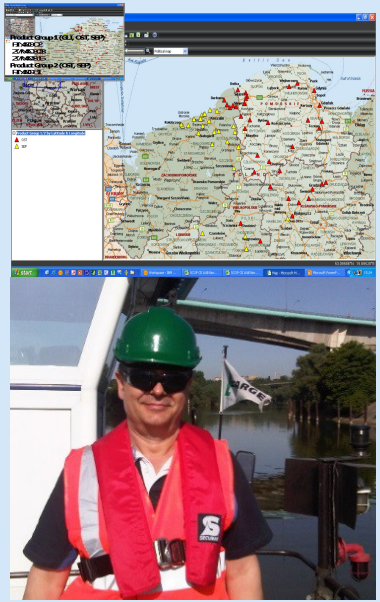






Beyond Lafarge UK

- Poland – S&G - €150k
- Romania - Bucharest concrete & railheads
- France - Seine Barges
- Lafarge Group Logistics Consultant - Brazil, South Africa, Portugal, Greece, Poland, Romania, Ukraine and Malaysia
- Lafarge Tarmac footprint



Summary of learnings

- Optimisation works
- The barriers to entry have all gone – data, computers, tools, knowledge & skills
- Options – Package, consultancy or in-house
- 90%-95% of the work is data (input & output)
- Produces both answers and questions
- Generic project issues
- Tools improving

ODME

Summary

- What do you need to start optimising? – awareness, proof, examples & knowledge
- Borrowed slogans

- Everyone can optimise – Even ‘Flintstones’
- Soon everyone will be doing it – When will you?

Optimisation for Everyone

Eddie Griffiths

I am so convinced that everyone will be using optimisation

– I staked my future on it

– I left Lafarge and started my own company

धन्यवाद
Hindi
多謝
Traditional Chinese
Grazie
Italian
ขอบคุณ
Thai
Gracias
Spanish
多谢
Simplified Chinese
Thank You
Спасибо
Russian
Tak
Danish
Merci
French
ありがとうございました
Japanese

Commerce

Din mening er guld værd – husk at udfylde evalueringsskemaerne efter hver session.

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