Using Analytics beyond Price Optimisation

Francisco Gómez-Alvado, Towers Perrin

Marcus Looft, Earnix

Agenda

- **Introduction**

- **Using PO techniques for improved business analytics**

- **Some business cases**

- **Discussion**

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Price Optimization ingredients

- Insurers and brokers who invested in price optimization have built impressive analytical infrastructures

- This infrastructure will evolve and be reused in new ways to solve important problems

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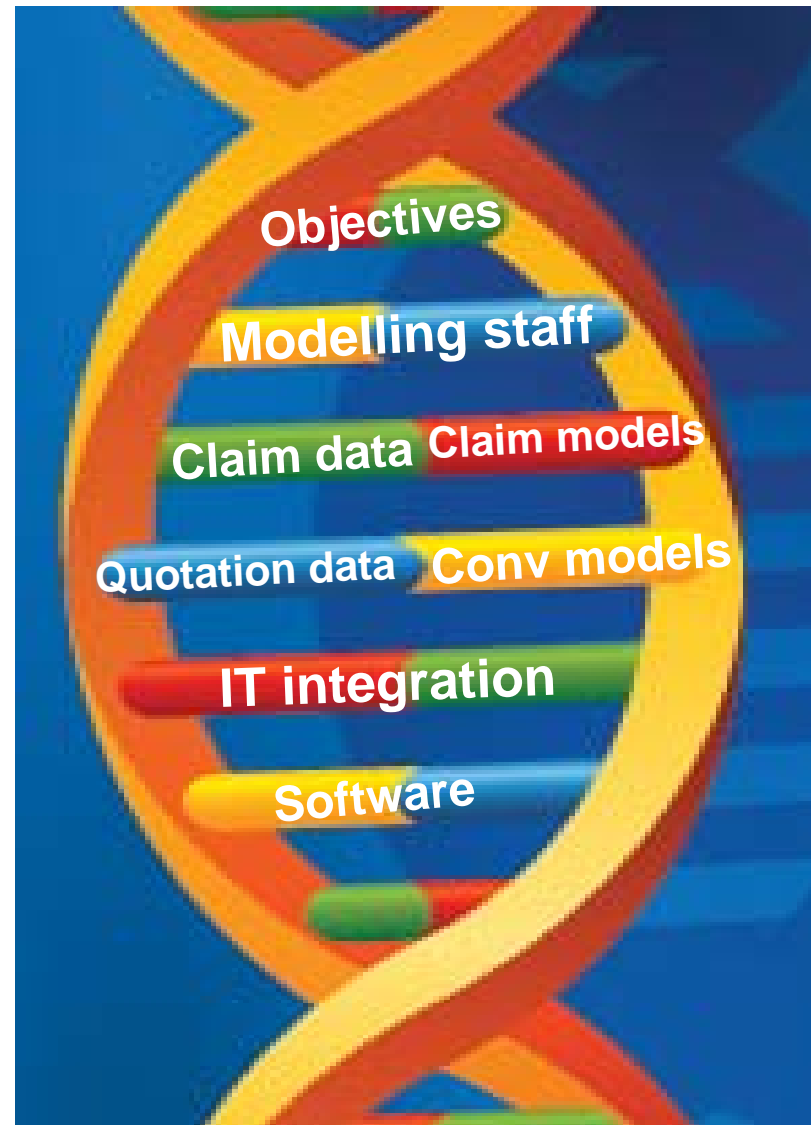
Having the least regulated pricing environment, UK is leading the innovation

PO has become standard in the UK and the majority of top insurers have completed some form of a price optimization project.
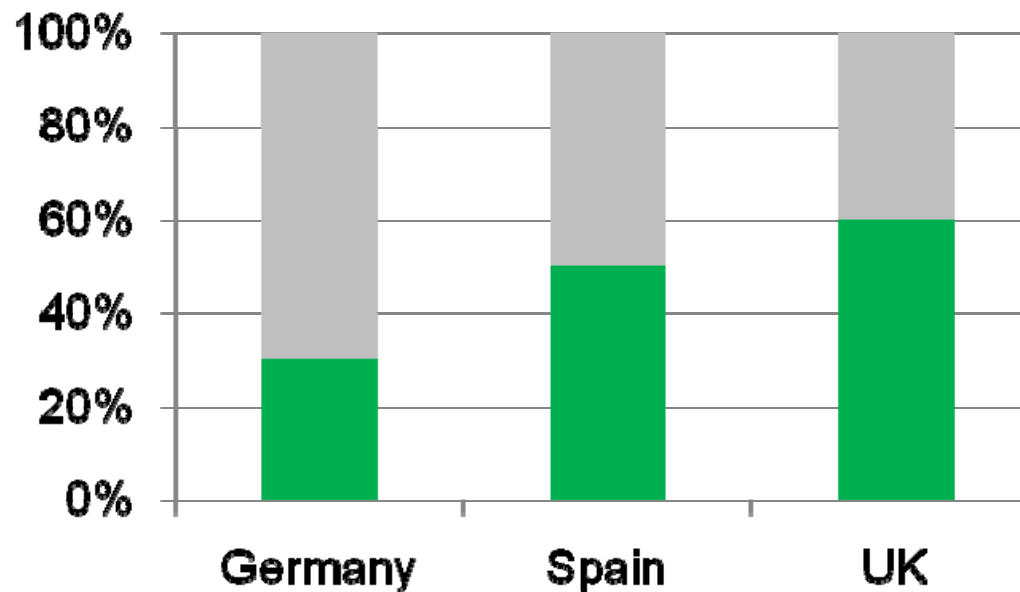
Leveraging data and analytics to improve profitability is top on Insurers priorities today
IBM market research, 2007

Insurance companies make money two ways: a relatively small bit on premiums and... what they earn by investing those premiums. With this second income stream tanking, insurers are now paying a lot more attention to the rates they charge...
Forrester Research, 2009

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Using PO techniques for improved business analytics

Using PO infrastructure to solve business problems other than pricing (examples):

- Save-the-sale interactions (discounts, negotiations)
- Proactive management of renewals
- Cross-sell / up-sell campaign management
- Migration between tariffs

- Channel development for insurers and brokers
- Assisting manual underwriting & sales for non-standard risks
- Calibration of real time pricing rules engines
- Management Information System

Opportunities
- Adjust processes for improved business performance
- Methodological approach guarantees operational feasibility

Limitations
- Data availability
- Definition of business processes

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Example 1: Save-the-sale Explaining the concept

- Are prices all that matters at renewal?

- Customers might be happy when offered something in the follow up. The right balance between giving discounts or offering other packages might make the difference.

Objectives

Modelling staff

Call costs Covers

Renewal data Discounts

IT integration

Software

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Example 1: Save-the-sale
Explaining the concept

Problem

▪More unhappy customers at renewal can become an operational cost issue as well as a driver for discounts bringing profits down.

▪Can the insurer do something better than giving sufficient discount?

Solution

▪Evaluate alternative offers like excess level increases, cover reductions or last but not least discounts w.r.t.

  ▪ Their attractiveness to the client (probability of acceptance)
  ▪ Their profit implications

▪Offer the different alternatives in the order of their expected success:

  ▪ Probability of acceptance * Profit implication

Example 1: Save-the-sale
Explaining the concept

Customer is unhappy with the policy and wants to cancel…

…and calls the call centre …

PO system provides best alternatives for each specific client, to save-the-sale

Customer

Call centre

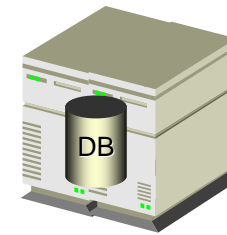• Customer and call info

PO System

DB

1. Excess change
2. Cover change
3. Discount
4. Add free cover
5. Etc

Example 1: Save-the-sale
Explaining the concept

Call center view:

System analysis

Steps to save the sale:

Customer saves:

Step 1:

| Change excess to £250 | £25 |

Step 2:
If the client does not accept "step 1" then offer:

| Remove cover "Contents" | £200 |

Step 3:
If the client does not accept "step 2" then offer:

| Discount of X% | £50 |

RANK

Prob. of sale	Loss	Weighted loss	Rank
75%	£4	£3	1
50%	£40	£20	2
45%	£50	£23	3

Example 1: Save-the-sale A practical example

- Unhappy calls for a Spanish Motor Renewal book have become a real operational issue besides the usual loss due to flat discounts

- What could be done before and after renewal to help it?

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Example 1: Save-the-sale
A practical example

Problem (Spanish Renewal Motor book)

- Message gets around: In a few months complaint call rate went from 6% up to 12% at renewal with increasing trend

- Average discount went up to 10%

  ➡ Operational as well as profitability problem

Solution

- Optimization of renewal premiums to lower the call rate of renewed policies

- Optimization of discount rates to lower the profit loss due to discounts

Results

- Discount rate went down from 12% to 9%

- Average discount went down from 10% to 7%

- Overall profit increased by 1.5%

Example 1: Save-the-sale Analytics

Mathematical concept (Renewal price optimization)

$$\underset{(Book)}{\text{Maximise}} \left(\text{Demand(Price)} \cdot \text{Margin} \right)$$

Subject to:
- achieving 9% discount call ratio
- Keeping prices in accept. ranges

Mathematical concept (Discount optimization)

$$\underset{(Calls)}{\text{Maximise}} \left(\text{Demand(Discount)} \cdot \text{Margin} \right)$$

Subject to:
- achieving 7% average discount
- Keeping discounts in accept. ranges

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Example 2: Cross-selling Explaining the concept

- Every insurer is interested to sell his full arsenal to <u>his</u> customers

- Many insurers are unhappy about their current cross sales success

- Can the Amazon trick work for insurers equally well?
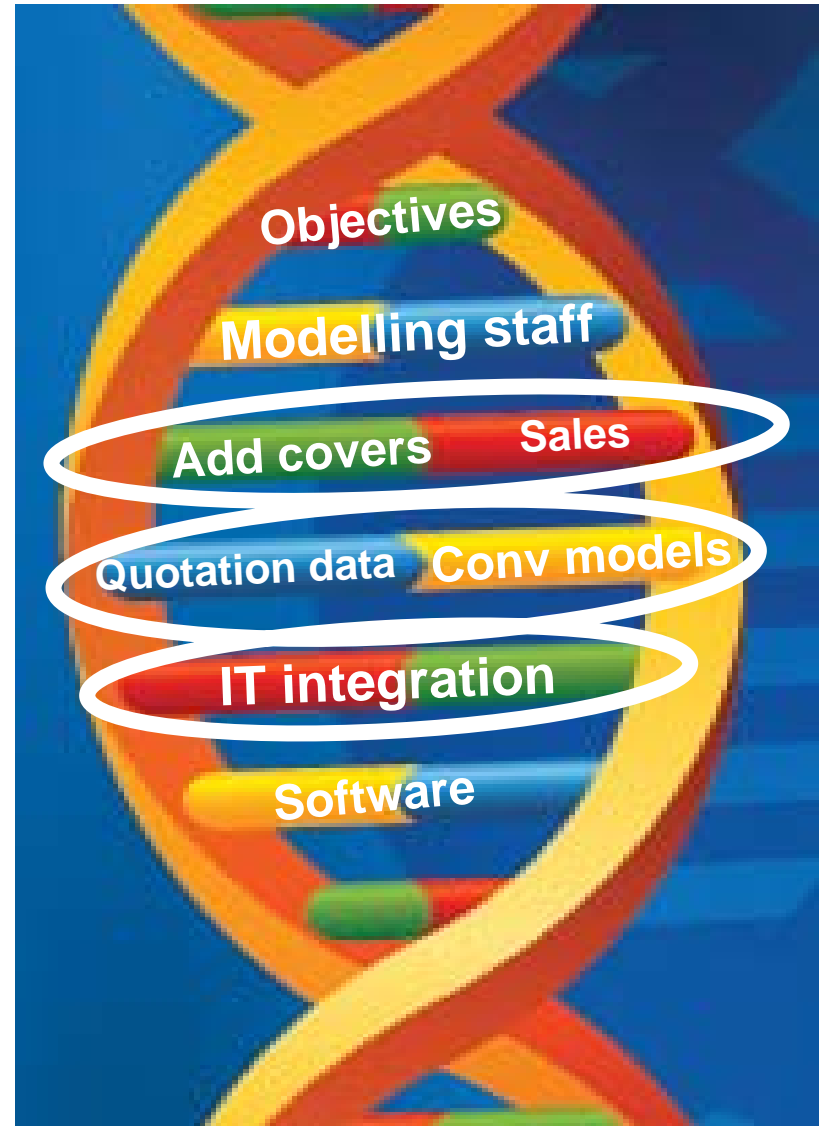
Example 2: Cross-selling
Explaining the concept

Problem

- Clients often search for one product but might be interested in getting another product too

- The company might miss to sell the other product or might even miss to get the deal at all

Solution

- Understand which customers look for more (probability of cross selling)

- Offer alternatives when their expected success is high (<50%) to
  - Make the search and sales process for the client simpler (time & effort)
  - Not miss the chance of selling on top (increase revenue & profit)

Example 2: Cross-selling
Explaining the concept

Customer primarily looks for Motor TPL

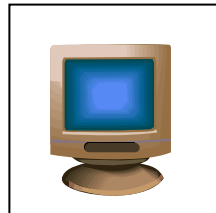*…and searches the internet …*

PO system provides TPL price plus likely covers to choose from upfront
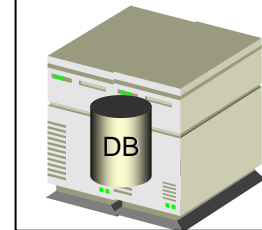
Customer

Internet

- Customer and call info

PO System

DB

- TPL price
- And depending on profile:
  - Legal Protection
  - Bonus Protection

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Example 2: Cross-selling Analytics

Mathematical concept (Legal offer optimization)

$$\text{Offer Legal}_{(Quote)} \left(\text{Prob\_Legal(Profile)} > 50\% \right)$$

Mathematical concept (Bonus offer optimization)

$$\text{Offer Bonus}_{(Quote)} \left(\text{Prob\_Bonus(Profile)} > 50\% \right)$$

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Example 2: Cross-selling campaigns
A practical example

Problem (Israeli Direct Motor business)

- Large motor book, but marginal home book
- Wish to boost home from the motor territory

Solution

- Adjustment of the cross sale/ call centre activity and identification of good profiles in the motor book to sign home insurance

- **Results**

- 30% improvement of cross sale hit ratio
- Significant cost savings due to more efficient allocation of call centre resources

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# Example 3: Migrating between tariffs

- Insurers face this problem when they move from one tariff to another

- Currently insurers do not usually do this optimally
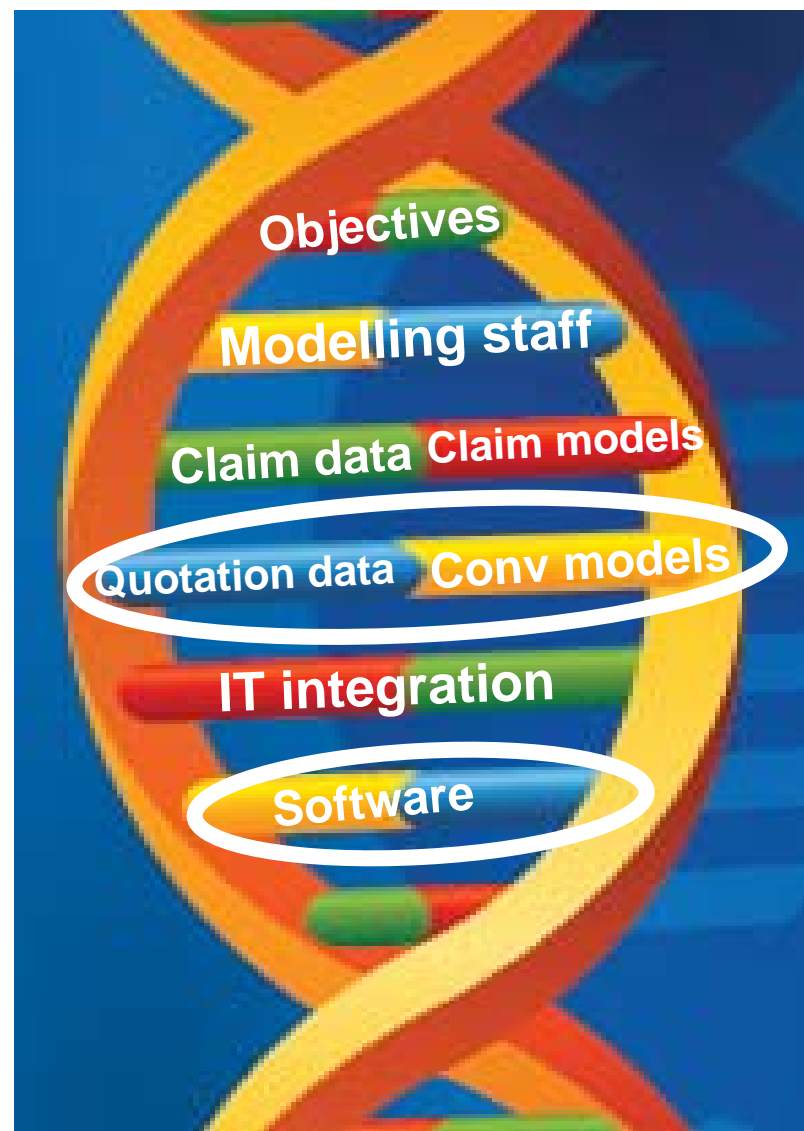
Example 3: Problem statement

Problem

- The old tariff is replaced by a new tariff because
- Two products merge into one (M&A?)
- The actuary develops a new loss model
- The underwriter introduces a new classification of vehicles, postcodes, occupations etc.
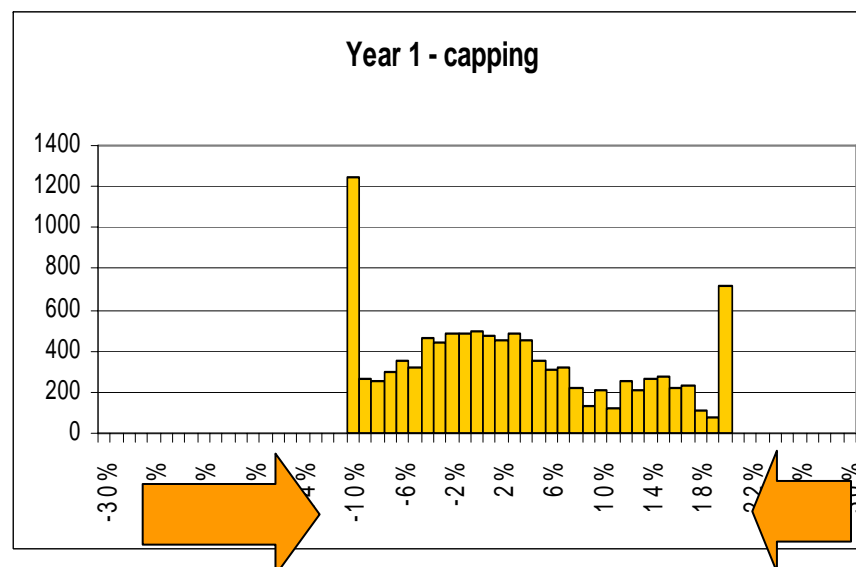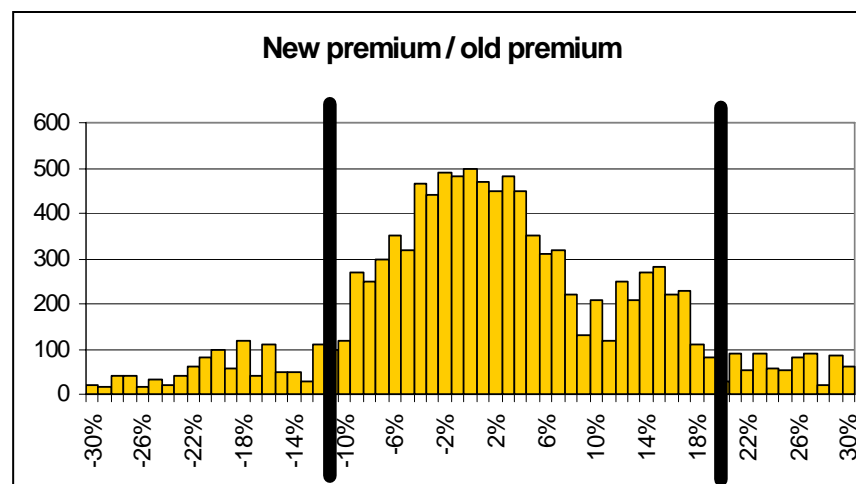
New premium / old premium
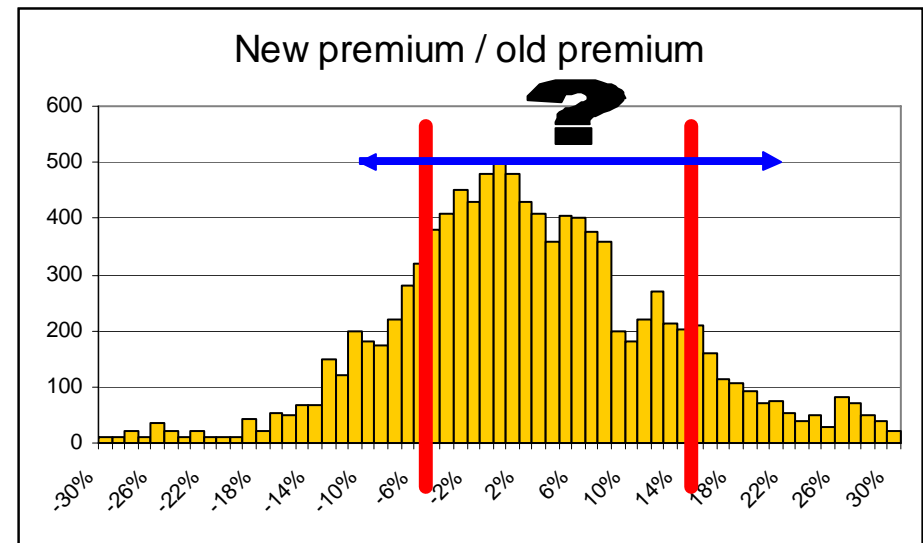
Questions

- How to manage the transition?
- How many years should the transition phase take?
- Can I do anything better than a judgemental cap for renewals?
- Is it worth using segmented capping?

Example 3: Standard approach

Traditional solution

- Apply simple capping and flooring on first renewal

- Actuaries often prefer to leave this decision to the underwriter

- But actuaries should contribute to improving the process

New premium / old premium

Year 1 - capping

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Example 3: Tariff migration, optimal approach

Optimal solution

Capping rules should be optimally segmented, for example:

- 7% on COMP

- 10% on non-COMP

- And apply a +5% correction for policyholders with a claim

Benefits

- Transition is more profitable

- Better retention during the transition

- This is specially interesting for multi-year transitions when flood territories change.

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Example 3: Tariff migration, real case

Example

- Medium size motor insurer

- Direct rating factor optimisation suggests capping by occupation and NCD

- More than 1.6% improvement in retention

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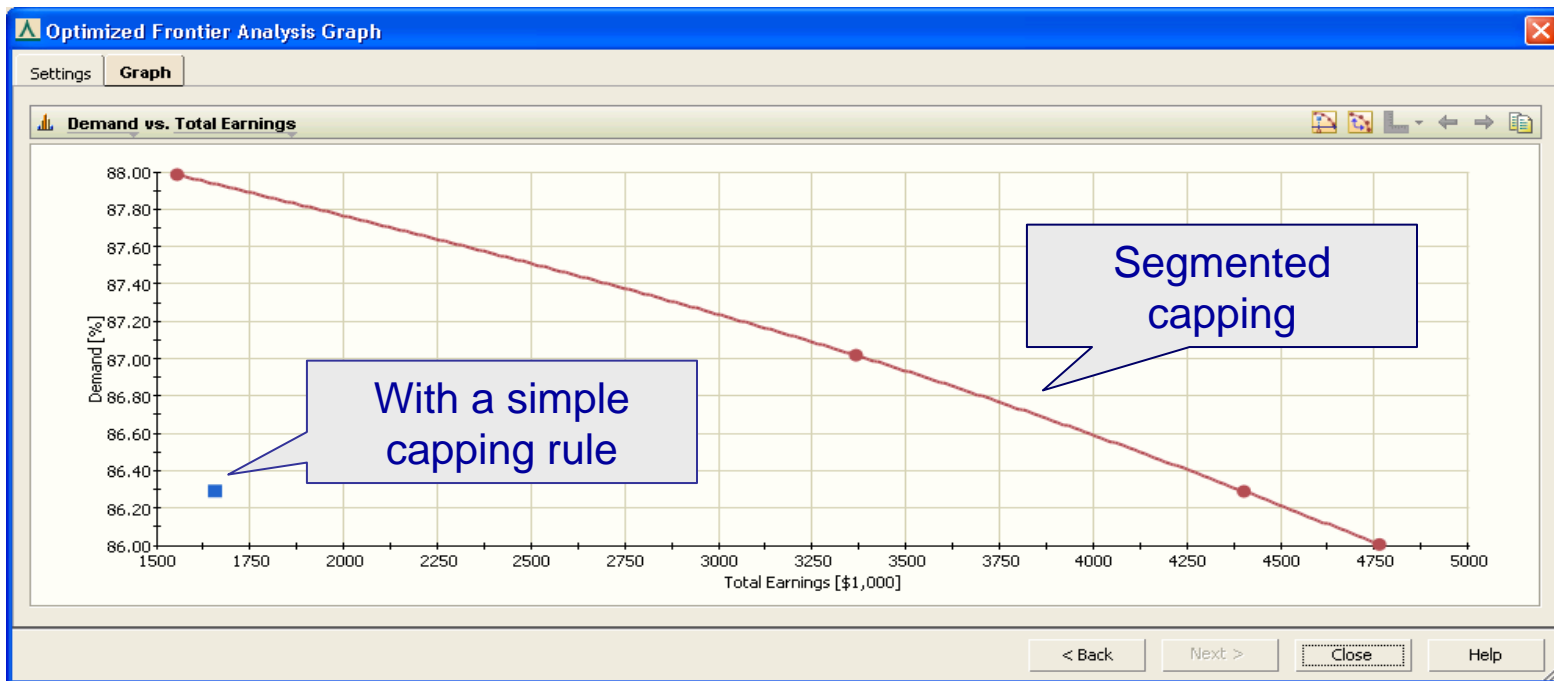
Example 4: Management Information System (MIS)

What customer ask us:

- What are the key indicators that the Board Committee needs to know in order to select the right PO strategy?.

- How others departments (Marketing, Sales) can benefit from the information provided by PO (portfolio volume, Retention Ratio, Profitability, customer classification)?
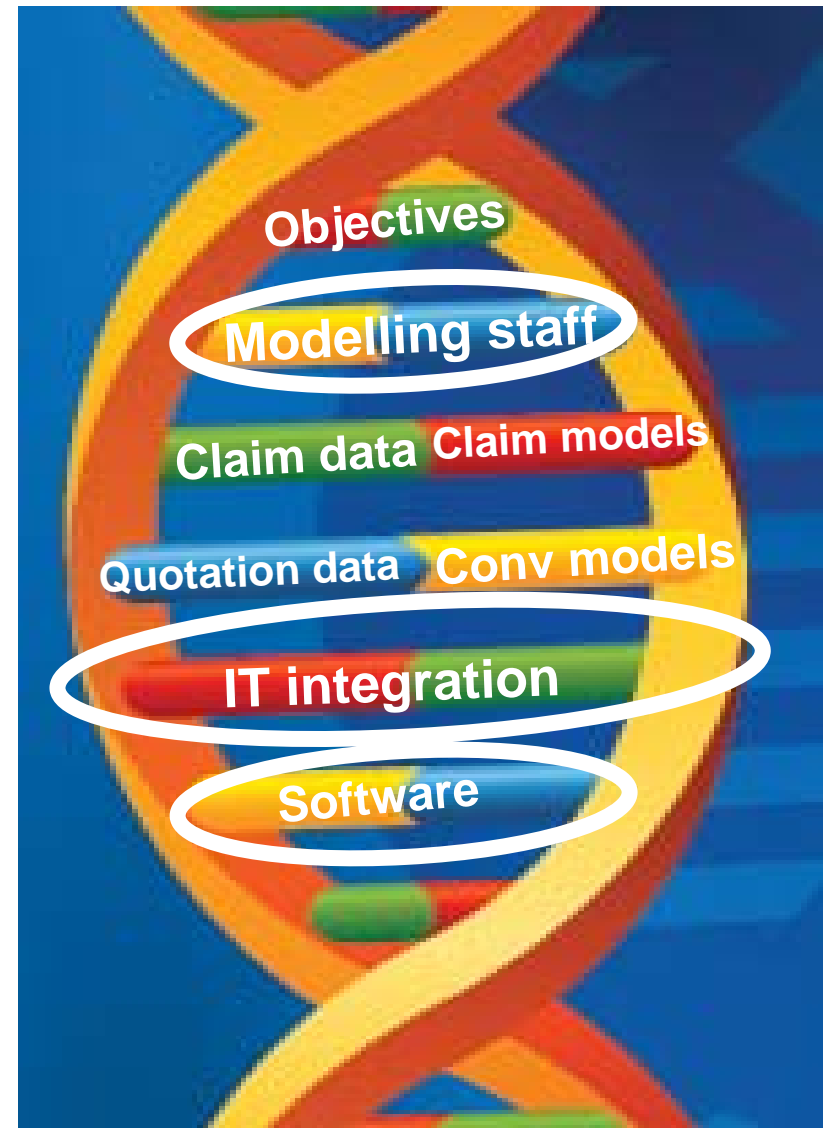
Example 4: Management Information System (MIS)

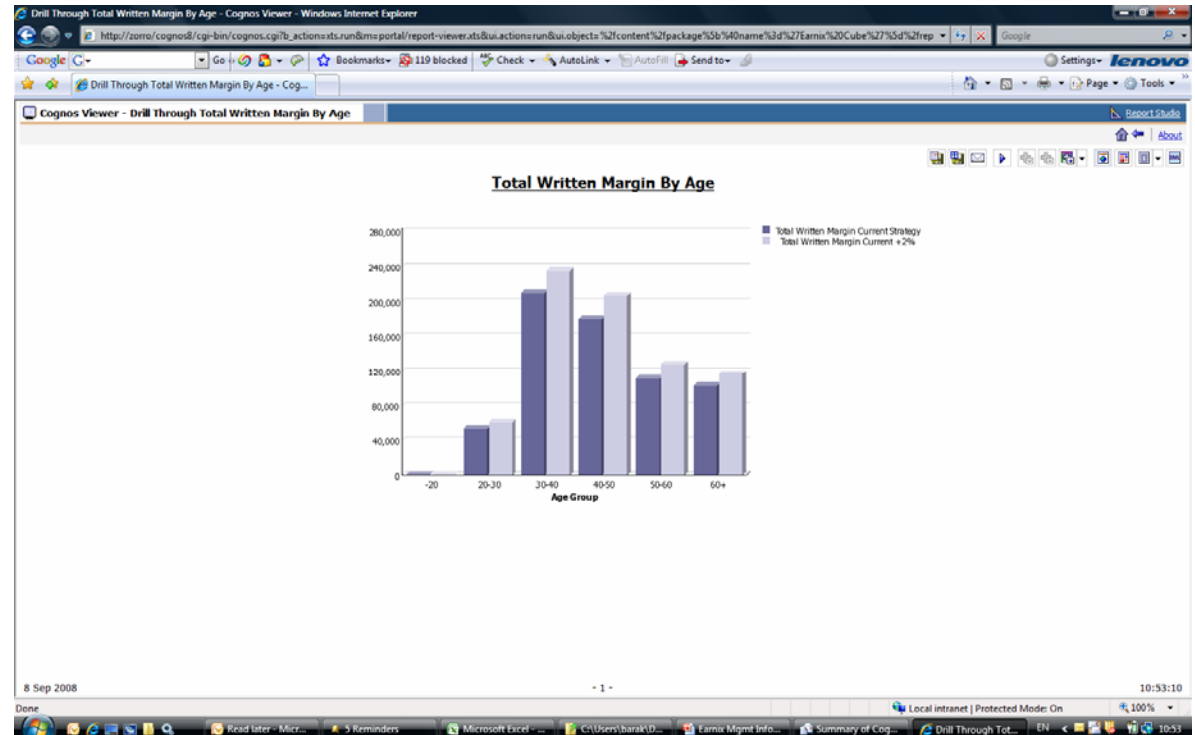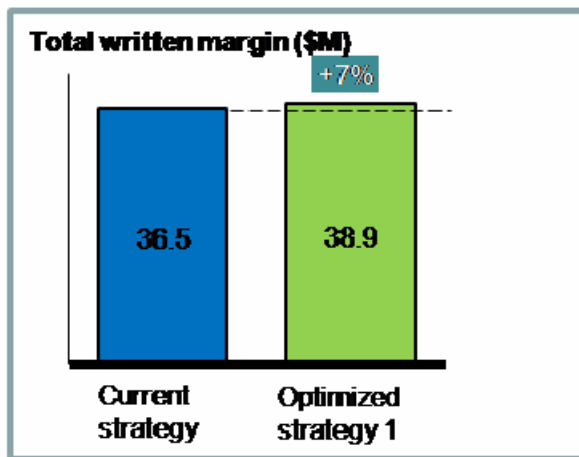**Solution: Integration PO within Software Business Intelligence (BI)**

- Create your own standard reports

- Distribute to whomever needs the information whatever they need (and only that), in the format they like, in a system they currently use

- Aggregate information and add to external data sources to achieve top management view

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Example 4: Management Information System (MIS)

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Example 4: Management Information System (MIS)

Easy Drill-through capabilities

Right-click drill-through

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Earnix internal confidential

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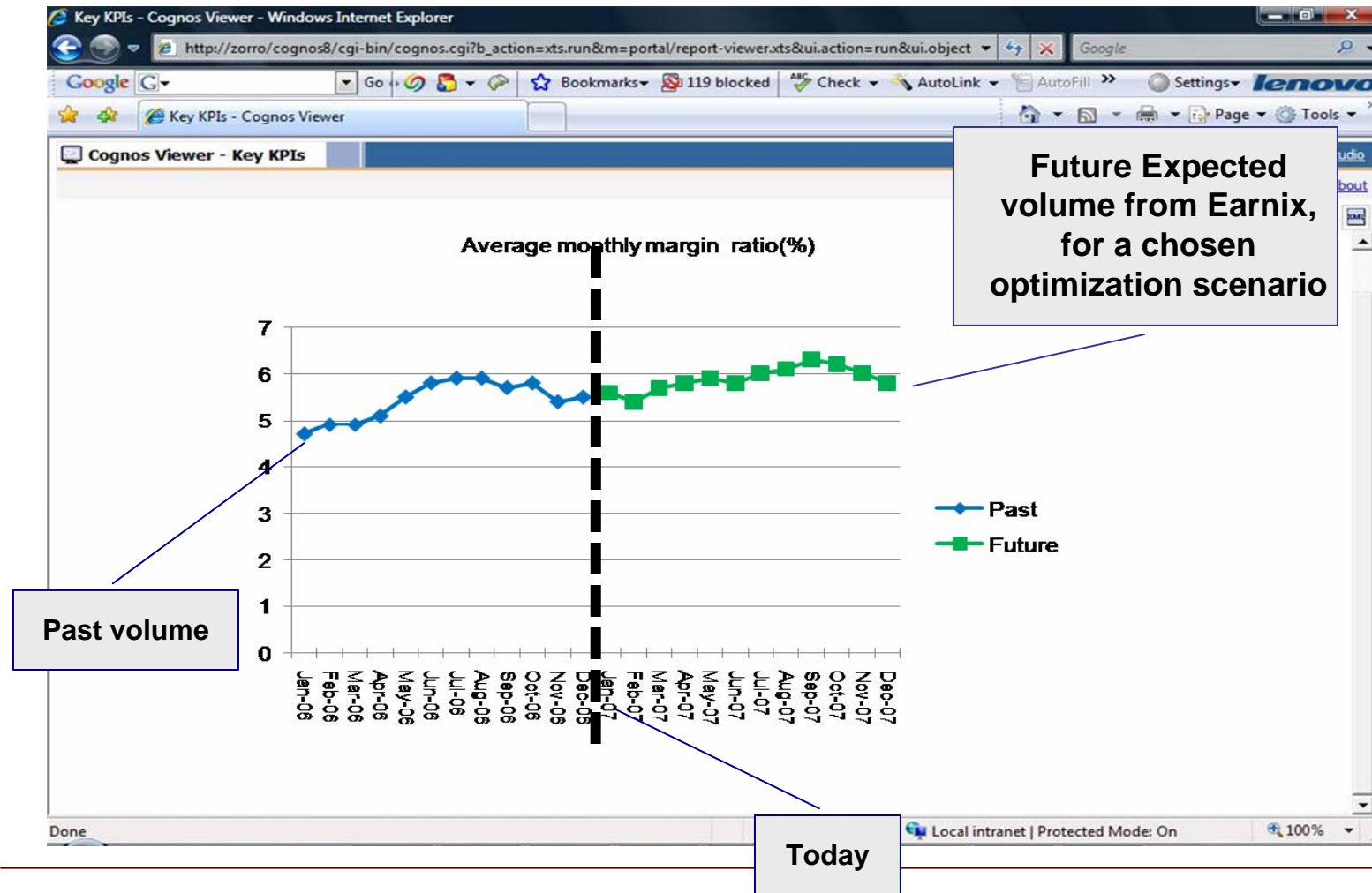# Example 4: Management Information System (MIS)

Marketing analyst.- view Complex multi graph views
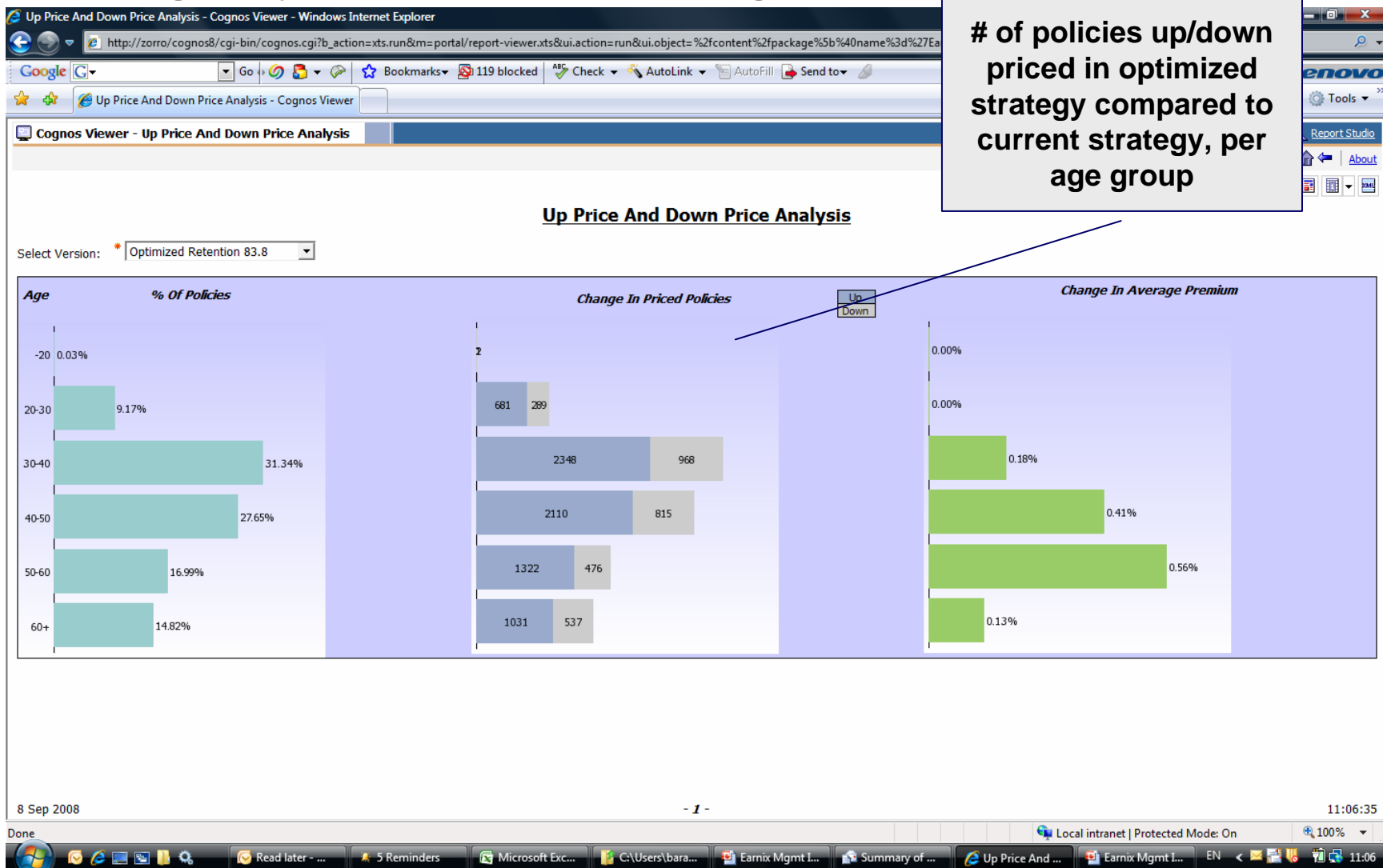
# of policies up/down priced in optimized strategy compared to current strategy, per age group

Example 4: Management Information System (MIS)

Time based reports with future trends

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Thank you !

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The firm has served large organizations in both the private and public sectors for 70 years. Our clients include three quarters of the world's 500 largest companies and three quarters of the *Fortune* 1000 U.S. companies.

Our businesses include HR Services, Reinsurance and Tillinghast.

Tillinghast

The Tillinghast business of Towers Perrin provides global actuarial and management consulting to insurance and financial services companies and advises other organizations on risk financing and self-insurance. We help our clients with issues related to mergers, acquisitions and restructuring; financial and regulatory reporting; risk, capital and value management; and products, markets and distribution.

Francisco Gómez Alvado
francisco.gomez-alvado@towersperrin.com
Telephone: 34 91 590 30 66

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