

Make up for lost time

Compared to other financial institutions, insurance IT departments are playing catch up in the pursuit of "straight through processing".
By Michael Mainelli and John Maitz*

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It's sad but true that a commonly held belief in Germany is that insurance is a profession for those who fail at everything else they tried to make a career out of!

For an industry sector that has faced numerous threats over the past three decades and then argued that it has weathered these successfully, we don't have to look too hard to see that we are, in fact, deluding ourselves.

However, it's important to look at the way that we define insurance. If insurance that we write today is defined as the market we had yesterday, we have certainly achieved growth year on year.

Globally, insurance growth is well correlated with GDP growth, about the same as a percentage of GDP as it was a few decades ago. As markets such as China mature, then insurance growth rises rapidly with the increase in GDP. (With life products this is particularly dependent on the tax structure however.)

The big issue is that the shareholder return on capital in mainstream underwriting and brokerage is poor. After all, who needs a 'track-GDP-industry' for investment in a world of tracker funds?

The problem is that the industry has consistently missed opportunities for internal and external transformation. Yet without rapid transformation, particularly the introduction of real-time risk pricing and selection, industry returns won't improve.

At the heart of this issue, is the fact that the insurance industry is good at ignoring lost opportunities. Whilst you could argue that the main industry has been stable, it

lacks innovation. How can we view it as innovative when its definition of innovation was handling telephone quotes one hundred years after the introduction of the telephone?

What's worse is that the general pace of innovation outside the industry is increasingly cannibalising insurance. Streetdice.com, an online tracking service for online betting stocks, estimates that stock market capitalisation of online betting companies worldwide is nearing \$6bn. These are risk transfer organisations that don't happen to be insurers. But they are starting to offer contracts to sponsors and clubs that displace contingency insurance for player bonuses and attendance – yet another lost opportunity.

Weather derivative transactions have grown to over \$5bn from virtually nothing in 1997. Similarly, these are risk transfer organisations that don't happen to be insurers. And yet, again, they are displacing business interruption, property and other insurances – another lost opportunity.

So, where is this all going wrong and what can be done to put it right?

Basically, the insurance industry has been bad at using information for competitive advantage. The application of information technology is evident in the insurance industry – online insurance, automated claims management, reinsurance bulletin boards – but the industry still finds itself behind comparable industries such as wholesale finance.

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Historically, insurance has always been based on “information asymmetry”: that is, the insurer knew more than the customers, rather than the traditional market values of price, product or service. Within this sector, insurers stressed their customers’ risks and trumpeted their brands. However, the information battlefield has levelled and in some cases it’s true that customers know more than insurers.

So, when most commercial customers purchase annual insurance, they shop around intensely during a short period. In less than a decade, shopping around has gone online.

Or, sophisticated customers may look to take out a derivative at an appropriate time in the market rather than have their cost of insurance capital blended in to the, frankly, fairly poor rates on offer to most insurance companies. Truly mature customers of scale, such as manufacturing multinationals, have transformed their purchases of insurance into enterprise risk/reward management systems. Mature customers build internal markets and risk transfer structures, while the insurance industry makes do with reinsurance at best.

It’s not trendy in insurance to talk about returning to the basics of marketing, pricing and underwriting, or, by any other name, a well run insurance company. Over the years it has become more fashionable to talk about the financial complexity of funding, the structure of the industry or adapting to new regulatory or legal changes. Yet, like all industries, competitive edge comes from innovating around the basics – faster, cheaper, better quality. In insurance markets, innovation around the basics has been minimal – a few new products, some small changes in presentation or bundling and perhaps, a little bit of improvement in claims handling.

There are few examples of sophisticated real-time pricing, developing day-to-day

risk management relationships or moving, as so many other markets have, from a product relationship to a service relationship and on to a long-term partnering relationship. These changes would require effective and capable IT systems.

In the life markets there is a public debate about the social acceptability or ethical limits of using DNA testing to price risk. With DNA testing, it is asserted, insurers can price risk even more keenly. Consumer objection to this invasion of privacy has made insurers tread cautiously. Without this objection, insurers would almost certainly seize this opportunity for keener pricing.

Strangely enough, however, similar corporate DNA techniques are already available in commercial lines, yet insurers are failing to seize these.

The corporate DNA testing equivalent is advanced statistical analysis. The corporate genome contains indicators of the risks most likely to induce the corporate to claim. Obviously, scaffold companies taking out employers’ liability are likely to have claims for injury from scaffolds. But what are the other factors in the genome, assets/employees, volatility of staff numbers or ratio of directors to staff – capable of saying about likely claims?

Unlike say, claims history, these factors are not difficult or expensive to discover. In the UK, the three factors given as an example are publicly available, but rarely used in pricing risk. That’s because insurers’ information systems are poorly constructed and badly integrated with external datasets. Even if insurers’ information systems were more capable of assembling pricing information, the available analytical pricing software is primitive.

Rarely in commercial lines is an effort made to develop the equivalent of an online, real-time actuarial system for dynamic pricing. If this sounds harsh, walk around the dealing room trading floors of an investment bank and see real-time pricing, then compare this with an equivalent insurer’s department.

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Z/Yen has coined an expression to highlight some emerging IT applications – DAPR (Dynamic Anomaly Pattern Response). Dynamic, as in adaptive and learning from new data in real-time; Anomaly, as in identify unusual behaviours; Pattern, as in reinforce successful behaviours, and; Response, as in initiate a real-time action.

Systems that act according to DAPR have been mooted for years. However, recent advances in statistics, such as statistical learning theory, are being successfully applied in a number of markets from manufacturing through logistics to finance, where IT systems need to be applied in dynamic environments and the rules cannot be precisely specified in advance because they change.

One example of a DAPR system is an investment bank that uses Z/Yen's risk/reward prediction system, PropheZy. The bank makes around 25,000 trades a week in one wholesale product. Just under 5% of the trades generate "exceptions" instead of going straight through and they need to be manually examined or corrected. The cost of an exception is many times that of a "straight through processing" (STP) trade.

The IT department has tried on numerous occasions to implement rule-based front-end systems that force traders to make correct entries, but within weeks an unusual trade becomes commonplace or a commonplace trade today becomes unusual. The IT impedes the traders and the firm loses money. If "exceptions" can be caught within 15 or 30 minutes, the bank can take action in its middle-office to reduce costs. The bank copies trades to PropheZy and the system tells the middle-office of trades that are unusual.

Current success rates are above 90%, reducing exceptions from 5% to around 1%, that's a decrease from 1200 problem trades per week to fewer than 250. The point is that only a system that conforms to DAPR is able to adjust to the fact that today's trade could be tomorrow's norm. Traditionally programmed systems just won't cater for this.

DAPR systems have a great deal to offer the insurer. These systems integrate hour by hour with customers' risk management systems of near misses; systems that reprice as the capital markets change, systems that automatically tender for reinsurance hourly or systems that alert customers daily to risk arbitrage opportunities.

IT systems formulated from a statistical viewpoint give you systems that make "good enough" decisions: for example, a system that automatically approves claims without human intervention based on the probability of fraud. When you move from post-hoc analytics to real-time anomaly and patterns, you can build flexible, dynamically-reconfigurable architectures where, for example, a DAPR system will re-configure claims workflows minute-by-minute based on complex interactions of previous claim problems, the type of claims that the recipient has previously rejected and the level of claim that the recipient has previously indicated is too small to deserve attention.

Insurers who move to this level of sophistication have so much to gain. Who knows, we might even see an insurer hedging directly with its own customer base through an online, real-time game – a truly dynamic vision, if ever there was one. ●

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