

Insurance regulation and operational risk

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- What do we mean by operational risk?
- The operational risk framework and the regulators
 - Loss event data
 - Risk self-assessment
 - Quantification
 - Indicators
 - Scenario analysis
- Embedding operational risk

What do we mean by
operational risk?

Basel II definition of operational risk

“The risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.”

Originated from a BBA/ISDA/RMA 1999 Survey

- Attempt to be positive, i.e. not to say “everything except credit and market risk”
- Not intended as a bounded definition but to indicate the **scope** of OR
- What is ***your*** definition?

Some definitional decisions

- Strategic (or business) risk?

NB Basel rider: “This definition includes legal risk, but excludes strategic and reputational risk”

- Reputation risk?

- Where do reputation and other risks fit in to

CAUSE → EVENT → EFFECT aka

CAUSE → EFFECT → IMPACT/COST?

Cause and effect/event

Examples of 'People' causes from Lloyd's 2007 guidance

Manual input error	E
Error in use of model/system	E
Lack of management supervision	C
Process/procedure not followed	Process rather than people? C
Lack of escalation to management	C
Internal theft or fraud	E
Miscommunication failure	C
Inadequate staff training	C
Inadequate staffing levels	C
Other unauthorised activity	E

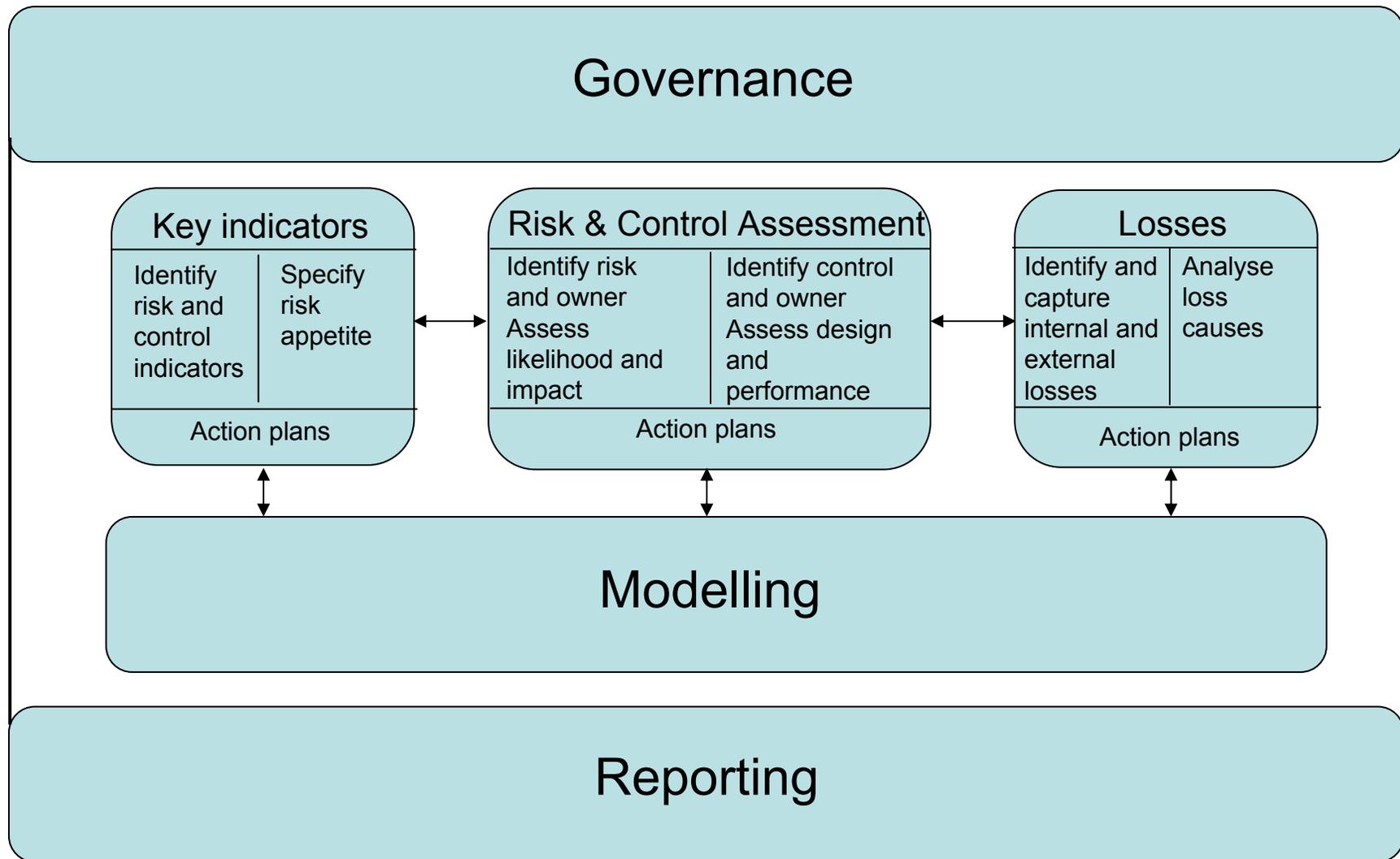
Credit risk	Market risk	Liquidity risk	Insurance risk	Group risk	Operational risk
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Credit risk	Market risk	Liquidity risk	Insurance risk	Group risk	Operational risk
Operational controls					

Operational risk and other risks

	Insurance risk/ Market risk	Operational risk
Is the risk transaction-based?		
Is the risk assumed proactively ?		
Can each risk be identified from accounting information eg the P&L?		
Can you audit that all risk events have been identified?		
Can the risk's financial impact be bounded or limited?		
Can you hold a position in the risk, i.e. can you close out or sell the risk?		

ORM Framework



Risk identification

- Regulators point to risks which are *significant or material* to your business.
- You must regularly re-appraise the register and consider new risks.

Loss event data

Which loss event data are we talking about?

- **Reporting threshold**
- **Near misses**
- **Indirect costs and costs to fix**
- **Offsets and gains, i.e. why just losses and costs?**
- **“Boundary” losses**

Internal loss event data – some health warnings

- It will be incomplete, scarce and patchy
- It will be inconsistently reported although, once reported, it *is* auditable.
- It is historic and backward looking. Major events will probably have led to tighter controls, change of policy etc.
- It does not, of itself, tell you about **causes**.

But it can . . .

- Focus management attention on areas of activity that are giving rise to losses
- Validate risk self-assessments, scenario analysis, key risk indicators and capital allocation.
- It is therefore extremely useful as *information*.

External data is similar – only more so . . .

External loss data – more health warnings

- Pooled, e.g. ABI, BBA GOLD, ORX
 - All the concerns of internal data
 - As with internal data, its construction and nature will depend on the purpose for which it is gathered
 - Different risk, control and reporting cultures
 - Exclusions (e.g. legal, insurance settlements)
 - Scaling?
- Public data, e.g. Aon (claims), Willis (for “clients”), FitchRisk
- External data
 - provide *information*
 - validate and enhance risk self-assessment
 - enhance OR management rather than measure “severe” losses

Regulatory health warnings

- Past not a good guide to the future (Lloyd's 2007 guidance)
- “uncertainty about the completeness and accuracy of the information provided” (FSA AMA report)
- Loss distribution approach and databases – “may need to be complemented by judicious scenario analysis or reference to external loss data” (ICAS review, 4.18)
- “External data is in the realm of *scenario analysis*” - Roger Cole, Chairman Basel Risk Management Group.

Risk self-assessment

Risk self-assessment

- A matrix to assess frequency/probability and severity/impact.
- Involves some degree of scoring
 - traffic lights (red, amber, green) or H,M,L, or
 - larger number of grades (ideally min. 4)
- Should be translated into a mathematical extrapolation.

But there's a missing ingredient . . .

Control risk self-assessment

- Two assessments are required
 - Assuming controls work (net)
 - Assuming controls fail (gross)
- The final result will provide
 - A league table or risk map of risk exposures, which will drive management action and facilitate cost-benefit evaluations of new controls
 - Information to internal and external auditors regarding the effectiveness of or weaknesses in controls

Frequency and severity – Traditional view of ORM

High (3) Frequency	3	6	9
Med (2)	2	4	6
Low (1)	1	2	3
	Low (1) Severity	Med (2)	High (3)

Frequency and severity - modern ORM

High (3) Frequency		n/a	n/a
Med (2)			n/a
Low (1)			
	Low (1) Severity	Med (2)	High (3)

Quantification

99.5%, or the world in 1806

- Regulatory capital should be forward looking to a soundness standard comparable to a *99.5% confidence interval over a one year period*.
- The assessment should be “relevant and forward looking” (FSA AMA review)
- Firms should “quantify all their risks” (ICAS review, 2.3)
- Quantification involves “considerable judgement” (ICAS review)

Practical challenges

	Losses	Control risk self assessment
Objective (past)	Y	N?
Subjective (forward looking)	N	Y
Quality analysis by:	Finance	Management
Quantity available	Low?	Tailored
Collection time	Long	Short
Source	Accounts, but . . .	Management

Achieving the soundness standard – possible approaches

- Scaling
- Stress testing
- Back testing
- Boot-strapping
- % loading; “market average” loading

Can these work for operational risk and achieve 99.5% confidence?

Are we looking at the right data distribution?

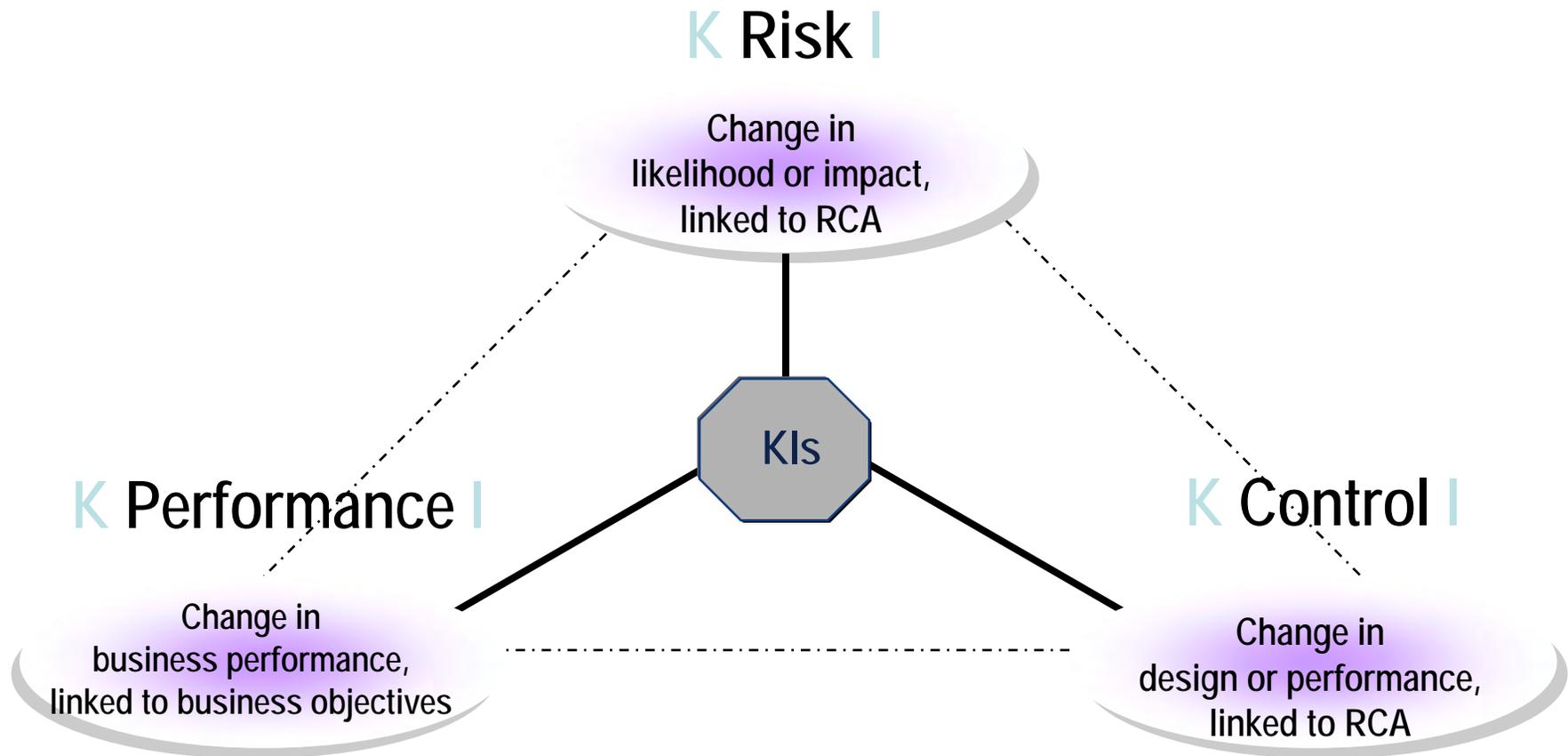
Should we be looking at distributions at all?

What are we left with?

AMA methodology to include *internal and external loss data, scenario analysis* and factors reflecting the *business environment and internal control systems*. [Basel II]

The business environment and internal control systems

Indicators



Key risk indicators

- Observed or calculated values used to show the state of a risk which is considered *key*
- A warning light of future risk exposure
- Enables early detection and management of unacceptable risk against predefined tolerance levels
- Can express 'risk appetite' and monitor scenario assumptions
- Should be a meaningful driver of risk (ie related to *causal* factors)

NOT:

- A predictor of future risk severity or frequency
 - An indicator of control or control failure
 - An indicator of business performance
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- And they need not be numeric . . .

Risk indicators - an Audit Committee perspective

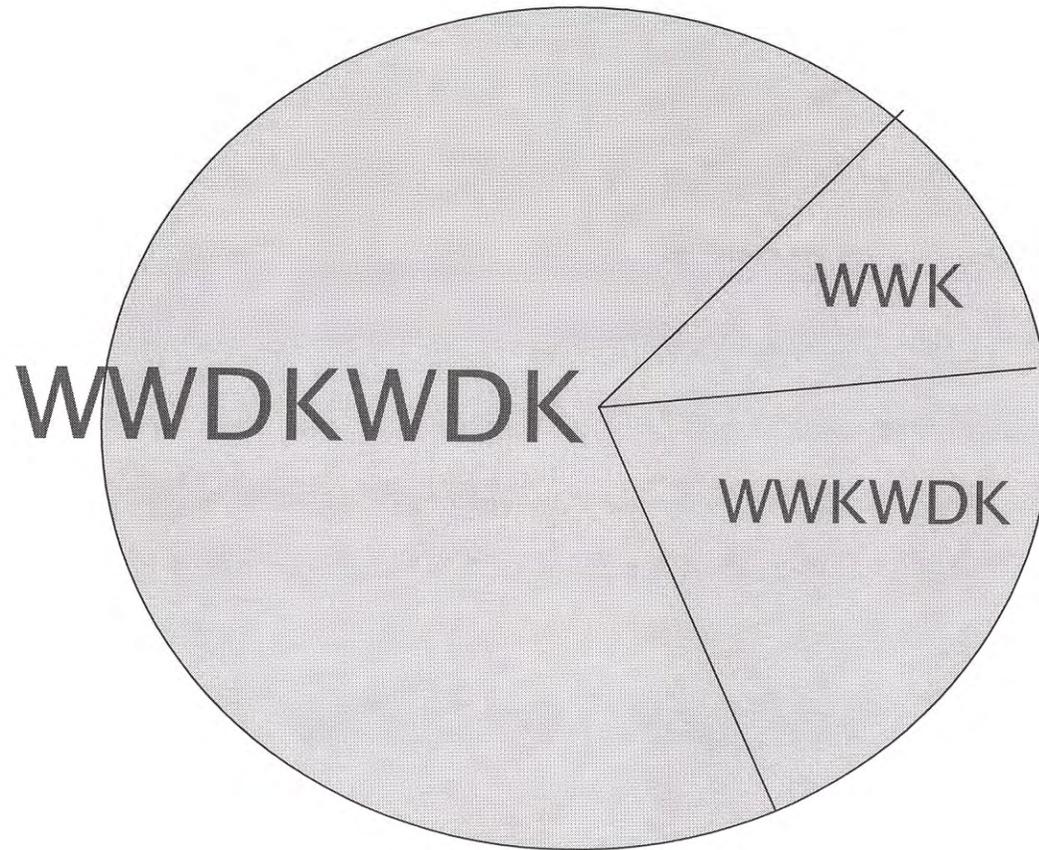
NB almost all Y/N

[Audit Committee Institute (KPMG) – Shaping the Audit Committee agenda, May 2004]

Inappropriate tone at the top	Unusually rapid growth
Frequent organisational changes	Unusual results or trends
High turnover of senior mgt	Industry softness or downturns
Lack of succession plans	Interest rate or currency exposures
Inexperienced management	Exposure to rapid technological changes
Lack of management oversight	Late surprises
Management over-ride	Autocratic management
Overly complex organisational structures or transactions	Ongoing or prior investigations by regulators or others
Untimely reporting and responses to audit committee enquiries	Excessive or inappropriate performance-based compensation
Unrealistic earnings expectations (by firm or financial community)	Lack of transparency in business model and purposes of transactions

Scenario analysis

An Uncertain World



not forgetting **WWDKWK**

Scenario analysis

- The 1 in 200 year event
- Consider, inter alia:
 - Controls under stress
 - Effect on reputation
 - Don't limit scenarios to 'high'-scoring risks
 - Change:
 - Internal: projects; increased size or complexity of business
 - External: competition, environment (social, economic, political etc)
- Scenarios should be combined

e.g.

Combined scenarios – 1

Contract certainty

Due to a wording dispute a major claim is conceded.

Syndicate exposed to further unexpected claims in respect of similar policy wordings.

Staff levels not sufficient to process claims; staff over-worked.

Senior claims manager leaves – replacement not found for 12 months

[Source: Lloyd's 2007 ICAS guidance]

Combined scenarios - 2

Loss of underwriting team

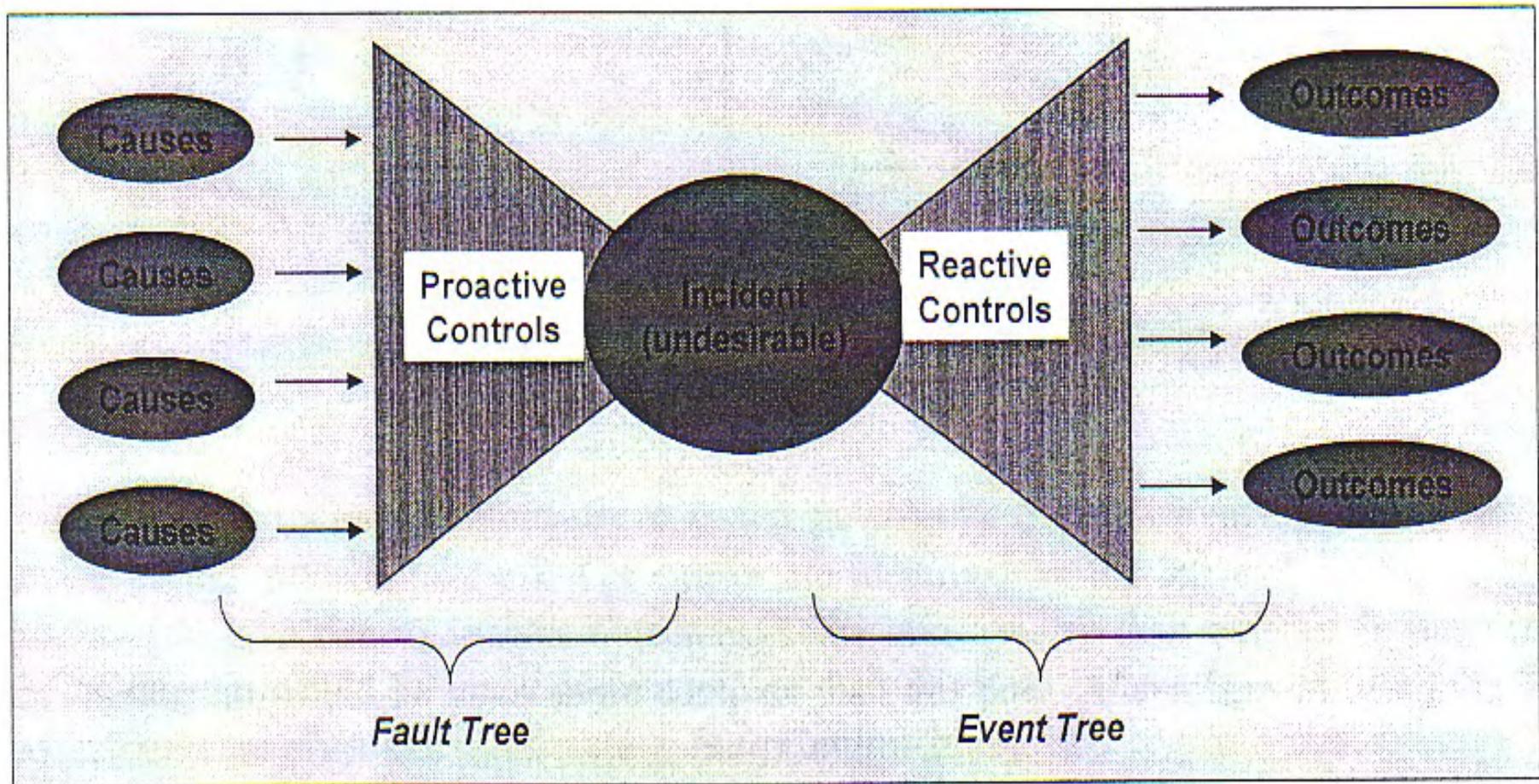
Loss of largest team to competitor.

Profitable niche market, therefore high recruitment costs and long lead time → significant loss of profits.

Poor document maintenance → inability to fully service claims.

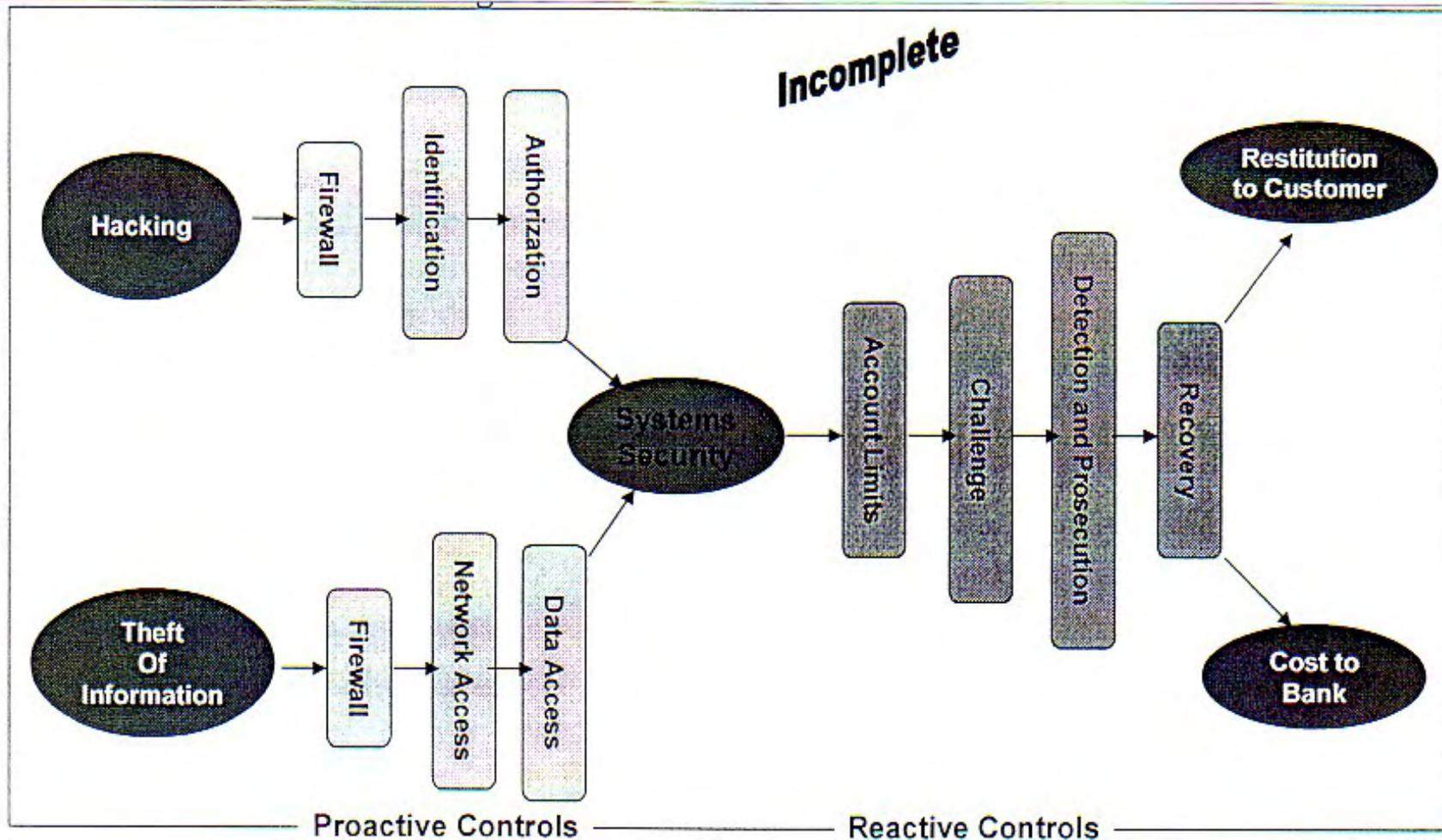
[Source: Lloyd's 2007 ICAS guidance]

The Bow-tie approach



[Source: Safety first – Scenario Analysis under Basel II, McConnell and Davis, April 2006]

Tying the Bow-tie



[Source: Safety first – Scenario Analysis under Basel II, McConnell and Davis, April 2006]

Embedding operational risk

- Where does OR sit in the organisation?
 - Centralised? ‘Independent’?
- What is its relationship to
 - Board and senior management (do they understand OR?)
 - CEO (sign-off ICAS)
 - Risk director
 - Compliance and/or internal audit
- Is OR part of individuals’ business objectives, appraisals, remuneration?
- Is the ICAS calculation an integral part of the assessment of business performance?
- Are OR and ICAS merely regulatory constructs?

Regulatory Commentary

- Lloyd's – ICA: 2007 Guidance and instructions
- FSA – Insurance Sector Briefing: ICAS – one year on (November 2005)
- FSA – Capital Requirements Directive Implementation: Industry Feedback (March 2006)

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