RiskTransform

Changing the Face of Risk

Risk Transformation in the Post Crisis World

Architecting capabilities to thrive in the New Normal

Thomas Obitz, FRM on the Open Group Conference in Edinburgh 19th Oct 2015

Risk management in banks is undergoing transformational change

Changing the Face of Risk

- The last years have demonstrated that the management of financial and behavioural risk in banks is not sufficient.
- The existing architecture of risk is not sustainable. Risk is siloed and segregated from Finance. Underlying information is inconsistent. Risk measures, economic and regulatory capital are not always consistent. Cost of risk is high. Still, conduct risk is a persistent threat to the banking industry.
- To succeed in the new environment, banks need to undergo transformational change of their risk capabilities.
- This will also unlock new opportunities for business without compromising the independence of the second line.
- An architected approach is inevitable.

	Challenges in the financial system	Regulatory Responses	New Capabilities	Building a roadmap to success
•	Barings LTCM The "Credit Crisis" Interest Rate Mis- Selling 	 SMR Stress Testing Business Model Review Dodd-Frank EMIR Central Clearing BCBS239 FRTB 	 Structural reform agenda Traceability, coherent incentives and controls Integrated risk and business management Quality conscious 	 Planning the larger picture Combining consulting and architectural approach Anatomy of a successful incremental approach

information architecture

infrastructure

Integrated information

Lehman wasn't the first organization to fail

- The 2008 financial crisis had a high level of visibility and raised fundamental questions about the financial ecosystem
- However, the underlying challenges failure of internal controls and liquidity issues have happened before
- New was the scale and interconnectedness of the losses
- Regulators have taken decisive steps to increase resilience of the financial system



- Founded in 1762, family owned, 2nd oldest merchant bank
- Collapsed in 1995 after unauthorized futures trading activities of Nick Leeson out of the Singapore office
- Loss of \$1.3bn
- Unsuccessful bailout attempted by BoE
- Sold to ING for £1



- Set up in 1994 by partners including
 - John W. Meriwether, former vicechair of Ex Solomon Brothers
 - Myron S. Scholes and Robert C. Merton
 - David W. Mullins Jr. former vice chair of FED
- · Convergence strategies on spread
- Highly leveraged 4.7bn equity, 129bn assets, 1.25tn notional of derivatives
- Markets moved against LTCM, esp. during Russian debt crisis
- FED arranged a bail-out of \$3.625bn by its creditors, who were fully paid back



- 4th largest investment bank in the US
- Loss of \$2.8bn in 2Q2008, esp. due to massive exposure to lower rated tranches of mortgage securitisations
- Filed for Chapter 11 in Sept 2008
- Major challenge unwinding derivatives positions
- US TARP programme invested \$426bn in 2012. Equity bought back for \$442bn in 2014

Fraud, Failure of internal controls Market Risk Spread Risk, Liquidity Risk, Model Risk Predatory lending and borrowing Product risk, Correlation risk, Liquidity Risk

Post-crisis regulation is changing the market place and requires new capabilities



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- To succeed in the new environment, banks need to undergo transformational change of their risk capabilities.
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Risk Governance	Public scrutiny on the banking sector forces banks to establish clear accountability for all of its activities. Risk appetite and regulatory rules must be translated effectively into the operating model of the bank.	Reverse burden of proofConduct risk	• SMR
Risk Transparency	Management, investors and regulators expect accurate, timely and defendable exposure information. New and more complex risk types with limited data availability to be integrated. Interdependencies between risks critical.	 Contingent risks (XVA, CLR) Correlation Contention between market, credit and liquidity risk Desk level measurements 	Basel IIIFRTBBCBS239SREP
Capital and Liquidity Effectiveness	Post crisis capital requirements have been tightened. New calculation rules increase capital requirements. Collateralization requirements and rehypothecation constraints impact liquidity. Ringfencing requires additional capital.	 Capital add-ons for SIBs Non-modellable risks LCR/ NSFR Mandatory clearing OTC margin requirements 	FRTBBasel IIIDodd-FrankEMIRBCBS261
Risk Effectiveness	Banks have expanded risk functions and controls dramatically in the aftermath of the crisis and will take further steps to protect themselves. The cost of risk across the lines of defence is an increasing burden to P&L.	 Effort for stress testing "Reasonable steps"	• CCAR • PRA, EBA stress tests • SMR
Business Enablement	Risk functions have data and insight which can be used to drive profitable growth. Organizations want to understand the impact of business decisions on their risk profile under different economic scenarios.	Risk aware pricing (e.g. CCR)Business Model Analysis	• EBA BMA

Demand for

- New, consistent and integrated risk measurement approaches and infrastructure
- Better control of liquidity and collateral
- Higher quality of risk data and control of uncertainty
- Optimization of risk processes
- Deduplication across the lines of defence
- Traceability between risk governance and operating model

Need for

 Credible roadmap and transformation approach

Fragmented data architecture and siloed IT landscape make risk oversight and change difficult

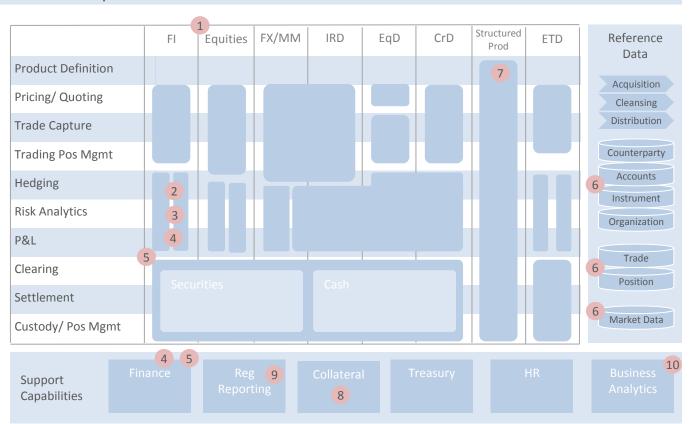
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- IT landscapes of many banks have grown over time. They contain functional duplication and considerable inconsistency.
- Data is aggregated bottom-up. Consistent definitions of data are missing, inconsistent reference data. Decomposition of risk measurements is difficult.
- Consolidation can enable change and reduce cost of ownership.

Frequent challenges of IB landscapes

- Duplication of systems by LoB and geography hinder consolidated view of risk, introduce inconsistent data semantics and drive maintenance cost
- Market and Credit Risk are stovepipes hindering the establishment of a consolidated risk view
- 3. CVA as a "bolt-on" of the landscape
- Independent P&L methodologies between Risk and Accounting, use of different cashflows and valuation methods
- 5. Use of data from secondary sources, manual activities and batch data flows hinder timeliness of reporting and impact data quality
- 6. Lack of central "golden source" of reference data and well-defined distribution and management hinders aggregation of risk data and impacts data quality
- 7. Custom built end to end solutions difficult to be integrated with a centralized view of risk
- 8. Collateral managed in multiple places result in split collateral positions, operational cost and operational risk
- 9. Tactical integration activities make it difficult and expensive to provide the right data for changing reporting needs
- Shared services for other units hinder ringfencing and spin-offs



For banks, this means strengthening capabilities across the operating model

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- To address these challenges, banks require change which is more disruptive than incremental.
- They need to tear down organizational, information and technical silos.
- Looking at risk measurement as a production process and leveraging experience from other industries will achieve disruptive improvement.

Coherent Incentives and Controls Banks will ensure that incentives are aligned with compliance. Independence and oversight across the lines of control. "Reasonable steps" to ensure compliance with regulation. Statistical oversight of behavioural dynamics to manage conduct risk and financial crime.

- Business Architecture and Operating Model definition
- Mapping of controls onto the operating model

Integrated Risk Management Organizations will find an integrated approach for calculating risk figures, capital measures and P&L. They will understand and bridge the differences in language and mind-set between the risk silos and between Risk, Finance and Regulatory Reporting. Business modelling must be integrated with risk modelling.

- Integrated Risk-Finance Modelling
- · Cashflow Analysis

Process
Re-engineering
and Risk Data
Factory

Banks will address the duplication of effort between the lines of defence in measuring risk. Process standardization and optimization will increase quality and throughput. Specialization and automation will drive effectiveness.

- Business Architecture
- · Process Optimization

Information Architecture and Data Quality Both to cope with IT complexity and regulatory pressures, banks will consolidate semantics, information flows and information sources. To achieve timeliness, data quality will be a property of information flows at the same level as data semantics. A quantitative model of data quality will support decision making.

- Information Architecture
- Quantitative Data Quality Management

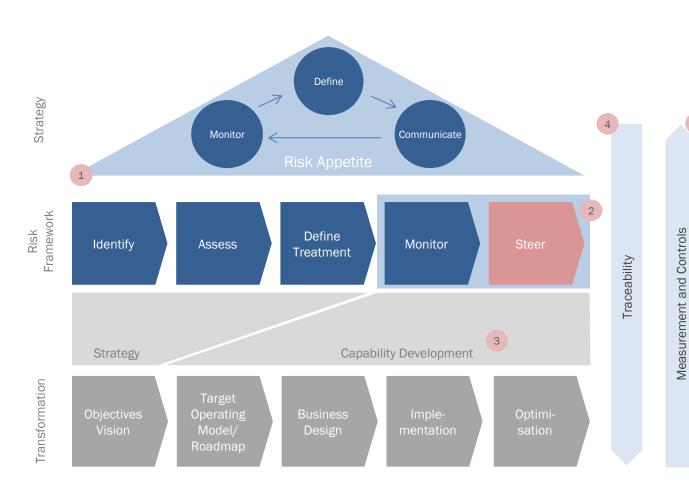
Integrated Information Infrastructure Risk and finance systems will change considerably under regulations such as FRTB (ES, liquidity horizons, desk level reporting). Firms will leverage this opportunity for consolidating the landscape and building a future proof platform. Integration of collateral management.

• Data Quality Aware Integration Architecture

- Organizations will obtain a risk measurement capability which is
 - Much more robust:
 - More flexible:
 - · With stronger capability;
 - And at lower cost.

Many organizations find it difficult aligning the execution capability with their risk governance

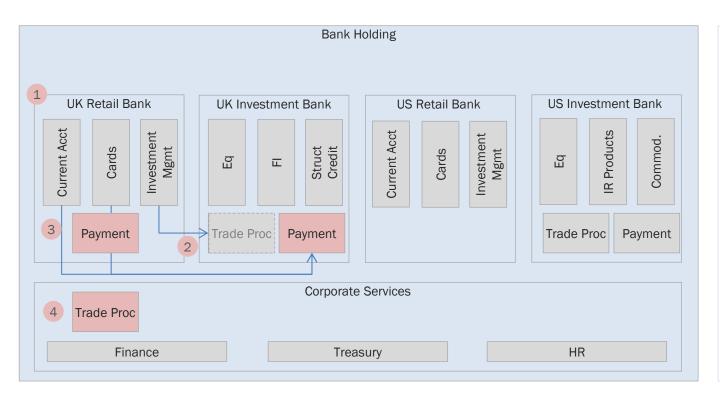
- Many risk functions are looking at the risk governance framework in isolation from their operating model, or map it only to the operating model of the risk function itself.
- Risk management activities are performed across the organisation. In face, there is a clear trend of shifting risk measurement to the first line.
- To govern risk effectively, risk measurements and controls need to become integrated into the overall operating model.



- Risk functions are reasonably wellpositioned defining risk appetite, and mapping them to a risk framework.
- 2 However, this framework needs to be translated into execution capabilities across the lines of defence, including the mechanisms to take decisions in steering exposure at the business level.
- Therefore, operational capability needs to be developed across the organization. Such transformation is beyond the scope of the risk function and requires an effort of the organization as a whole.
- 4 To demonstrate its fiduciary duty of care, the board needs to ensure that strategic decisions on risk appetite and allocation of risk capacity are mapped onto the business
- 5 Effective control and measurement needs to roll up back from the operational businesses to the corporate level

Ringfencing requires a realignment of corporate capabilities

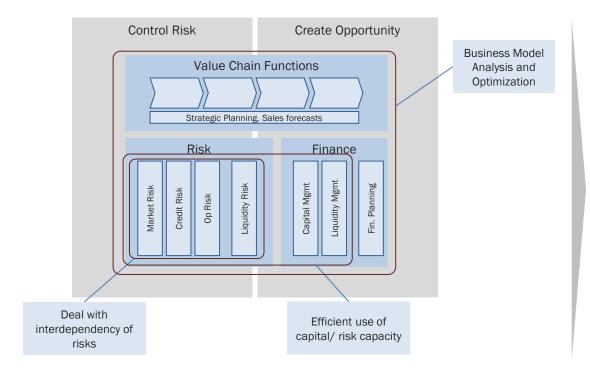
- The PRA has defined requirements for segregating "critical economic activities" of bank (e.g. current accounts, savings) from the rest of the organization to ensure continuity in case of a default in more risky business activities
- This requires ensuring continuity of critical shared services by duplication into the ringfence or by moving them into a bankruptcy remote entity
- A structured, architectured approach is required to resolve the dependencies



- 1 The retail banking organization has to be ringfenced to protect it in case of a default of the parent company.
- Today, many shared services are provided between ringfenced and non-ringfenced areas of the bank
- One option is to be moved into the ringfence (resulting in duplication)
- 4 The other option is to move them into a bankruptcy remote entity

Organisations will progress from measuring risk to optimizing business

- To address new, contingent exposures (e.g. contingent liquidity risk), organizations will integrate their risk management capability across the traditional silos of credit, market, liquidity and operational risk.
- Obtaining a robust and consistent view of capital under stress requires integration with the finance function.
- A realistic picture of business performance under stress requires integration with strategic business planning and sales forecasting. Combining this with a robust simulation capability allows to test robustly how changes in company structure and business model impact resilience to stress.
- Providing these capabilities requires not only new integrated processes and procedures but also strong governance of models and information.



Common understanding of transactions and cashflows

- Common vocabulary/ Data semantics
- · Decomposition of cash flow structure
- Information governance

Integrated risk factor and scenario modelling

- · Scenario definition and modelling
- Scenario generation (MC, historic, stress)
- · Risk factor models/ stand-in pricing

Common pricing models and analytics

- Introduction of new risk measures (ES)
- Model governance
- Integration of results

Information must be reliable, appropriate and timely

- Both financial services organizations and regulators have realized the criticality of managing risk data effectively.
- The "Principles for effective risk data aggregation and risk reporting" 'describe good practices for gathering and disseminating risk information
- FRTB apart from other aspects puts direct capital penalties against gaps in data availability and quality
- Other regulations, such as FSDF, will also be measured on the consistency and quality of data submitted.

BCBS 239

- Governance
- Data Architecture and IT Infrastructure
- Accuracy and Integrity
- Completeness
- Timeliness
- Adaptability
- Accuracy
- Adaptability
- Clarity and usefulness
- Frequency
- Distribution

FRTB

- Modellability and revised models-based approach
- Risk Metrics
- Risk Measurement
- Risk Reporting
- Credit Treatment
- CVA
- Trading/ Banking Book Boundary
- Governance

- The Principles for effective risk data aggregation and risk reporting aim at more reliable and timely risk measurement, and the ability to better analyse and decompose exposures. The regulation is aimed at the G-SIBs with a 2016 deadline, but will be translated into rules for D-SIBs by national regulators.
- While data quality had always been a concern for risk managers, the
 requirements have put it straight onto the CRO agenda. Half of G-SIBs are
 expected not to be fully compliant by 2016. Potential consequences include
 capital surcharges and penalties.
- While it brought together Risk and IT in looking at data quality, it also surfaced that the concepts of data quality used in IT are of limited use for the risk function.
- Regulators are expected to apply the principles to other regulations.
- The Fundamental Review of the Trading Book (FRTB) is a major overhaul of the complete market risk framework introduced by Basel 2, 2.5 and 3. Further papers published by the Basel Committee introduce related changes in the CVA framework and on interest rate risk in the banking book.
- These papers introduce several interrelated changes which increase capital requirements considerably, i.a. through non-modellable risk factor charges, longer holding periods, desk level risk measurement and the exclusion of securitization from modellability.
- Insufficient data availability and quality can result in non-modellability of risk factors and significant additional capital charges.

Providing consistent and correct information is critical to risk management

- Risk only is able to influence the organization if its information is trusted.
- On the one hand, this requires consistently high data quality. Traditional IT centric data quality measures are meaningless for the risk function organizations need to understand the level of uncertainty in results. To improve quality of output, process quality and governance must be controlled.
- On the other hand, the meaning of data must be agreed. This requires a well-defined semantics. Reference models and standards help establish shared meaning.

Information Quality

Data

Semantics

Cost of information and data quality deficiencies is high

- Conservative estimates can increase RWA and liquidity buffers
 Traditional data quality metrics are IT centric and irrelevant
- Does not help to determine the uncertainty of risk numbers Quality of risk data is insufficient
- · Correctness, timeliness and completeness of data

Data is generated bottom-up without consistent meaning Difficult to aggregate risk data in a meaningful way Difficult to analyse exposures

and Difficulty to integrate data from external sources

Standards

• Lack of standards for data compaties

- Lack of standards for data semantics
- Lack of standards for structure of data

Data Governance

Originators of data do not take ownership

- · Lack of accountability for data quality
- Data cleansing and enrichment across the organization
- Inconsistent versions of information

Data quality to be described by variance and bias of risk measures

- · Quantitative methods required for data quality measurement
- Allows to assess where investment in data quality improvements is most effective

Standardising data semantics and structure results in more meaningful risk metrics and reduced integration cost

- Industry data standards such as FIBO provide a framework for mapping data
- Integration standards like BIAN reduce integration cost

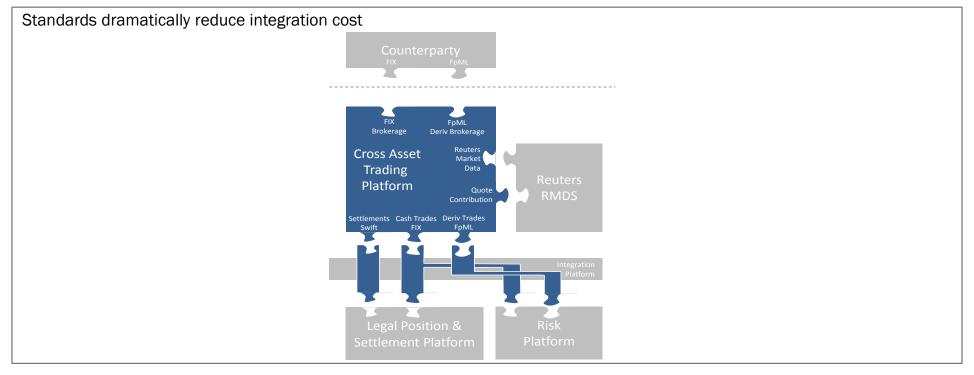
Establishing clear accountability for data across the organisation and clear processes results in sustainable improvement of quality of information.

- Clear RACI, defined roles and responsibilities
- Monitoring and measurement of data quality
- Relevance to senior management's goals

A combination of semantic standards and packaged applications adds value way beyond reuse



- Integration Cost is a significant part of the IT budget¹⁾. The combination of packaged applications and standards addresses this issue
 - Packaged applications carry the same standard interfaces as used externally
 - Integration Platforms provide out of the box adapters
 - The combination reduces integration effort significantly
- Financial Services have developed standards for external interaction early (SWIFT/ ISO 20022, FIX, FpML, IFX, ...) and are beginning to adopt service and data standards internally (BIAN, FIBO).
 - A frequent challenge to integration are different requirements in terms of data quality.
 - It is critical to realize that there is a trade-off between timeliness and correctness of data. Reconciliation takes considerable time.
- Data quality is a property of information similar to its semantics. Recognizing it explicitly in an integration architecture allows standardizing data feeds without compromising availability of data.



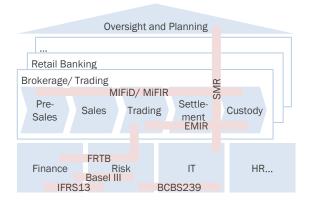
¹⁾ For example, [Schmidt/ Lyle: Lean Integration] claims that integration related cost is 50 - 70% of IT budgets

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Building a roadmap requires consideration

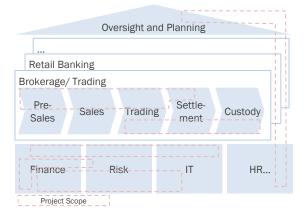
- The level of change banks have to go through requires careful planning to avoid duplication of effort.
- The change approach not only has to consider how to build the right capabilities, but also manage execution risk.
- An important consideration is how to generate frequent "good news" for a large number of stakeholders to motivate the programme.

Addressing the plethora of regulatory driven change requires planning the larger picture



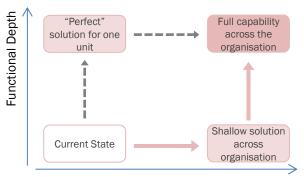
- Both the need for repositioning the business in a transformed environment and the plethora of regulatory change challenge the change capacity of organizations.
- It is critical that organizations plan the impact of this change on a coordinated level, to reduce duplication and inconsistency between initiatives, and to streamline work.
- This requires consolidated analysis of change requirements, and a different way of scoping initiatives.

A combination of consulting and an architectural approach is most effective for sustainable change



- Bottom-up consulting approaches all to often result in friction integrating the solutions
- Traditional "big bang" approaches are discredited for their massive execution risk
- An iterative approach requires a clear architectural vision to integrate multiple change initiatives into a coherent whole.
- Combining an issue driven consulting approach with architecture centric consolidation focuses work on the "big issues" and provides consistency.
- · This allows reduction of overlap between initiatives

It is easier to sustain a project delivering small benefits more frequently across the organization



Organisational Breadth

- When deciding on an iteration approach, organisations can choose
 - "Depth first" implement "complete" functionality for a small part of the organisation
 - "Breadth first" implement a relatively "shallow" functionality first, roll it out across the organization and add functionality then.
- In most cases, "breadth first" allows to keep more stakeholders engaged and hence increase likelihood of success.

Questions?

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About RiskTransform

- Most banks structure the risk function into silos of credit, market, operational and liquidity risk. Finding a common language and consistent reporting between them, but also with Finance is a challenge. Understanding the joint impact of market stress on asset positions and the overall business model is next to impossible. Senior management, regulators and the public are pushing for improvement.
- RiskTransform Ltd is a niche consultancy specialized in business architecture and operating model change for the Risk function. We are using a combination of consulting driven and architectural techniques to drive predictable transformation. Our sweet spot is the integration of risk, operating model and IT change.
- Risk change requires an integrated approach which combines solid change management and architectural capabilities with an understanding of the intricacies and interdependencies of risk. We have experience, processes and reference models bringing together these dimensions, based on industry standards and best practices.
- Founder and a director of RiskTransform is Thomas Obitz, an experienced consultant with Big 4 background and 20 years in the Financial Services industry. He has driven change of operating models in banks and has led large-scale architecture transformation initiatives. With a deep knowledge of Risk (certified Financial Risk Manager/ GARP FRM) and of operating model/ architecture change (TOGAF 9 certified enterprise architect), he is able to combine the functional and the change management needs of the industry.
- RiskTransform is a private limited company incorporated in England and Wales headquartered in London.

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