# *Implementation of an Operational Risk Framework*

Basel Committee's Risk Management Group
Conference on
Leading Edge Issues in Operational Risk Measurement

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*Risk Architecture*

***Operational Risk***

# *Operational Risk is emerging as a new risk discipline in the financial services industry*


❖ Risks that traditionally have been considered as market, credit, or “other” are increasingly being evaluated in a disciplined framework as “operational risk”

# Operational Risk

- IS NOT:
  - New
  - Just in the back-office

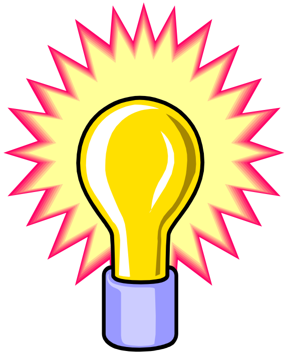
- IS:
  - A significant risk exposure
  - A risk that can be managed and controlled (but, generally, not eliminated)

# Operational Risk Management Framework
# Four Stages of Implementation

Awareness

What were our operational risk losses last year?

How much operational risk do we have?



# *Awareness*

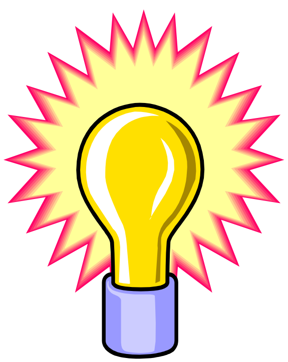
❖ Citigroup has implemented an operational risk management framework to ensure that operational risks are consistently and comprehensively

- **Identified**
- **Assessed**
- **Mitigated / Controlled**
- **Monitored**
- **Measured**
- **Reported**

# Stages of Implementation

Awareness

Definition

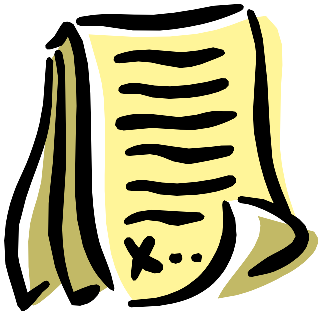


- *Policy*
- *Procedures*
- *Governance Structure*

# Definition

- Citigroup has developed and implemented a corporate Operational Risk Policy
  - Establishes consistent definitions, minimum standards and clear roles and responsibilities
  - Includes standards for Risk and Control Self-Assessment (RCSA)
- Each business, globally, is required to:
  - Adopt the Citigroup policy and develop and release business-specific policies and procedures as needed
  - Establish a governance structure for operational risk

# Three Core Principles Embedded in the Policy



- ❖ Clear ownership of operational risks by the business line managers
- ❖ Independent operational risk management function
- ❖ Independent review by internal audit

# Definition

- Citigroup’s definition of Operational Risk includes reputation and franchise risk associated with business practices or market conduct

- Note:  Reported operational risk losses exclude opportunity costs

# Definition

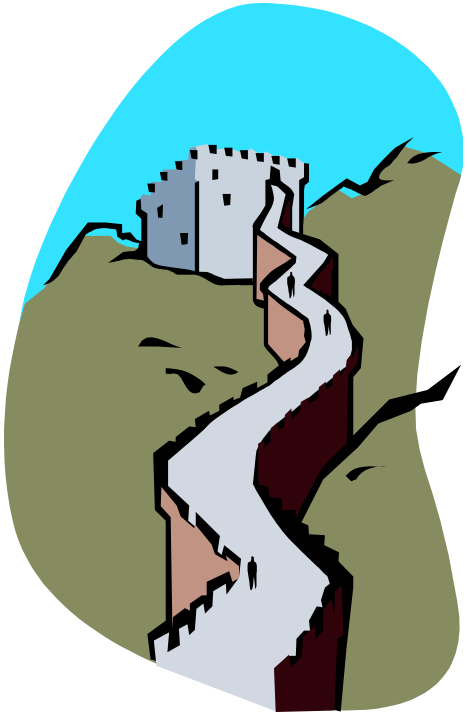
❖ The boundary between operational and other risk types is not always clear

*Credit*

*Market*
*ALM*
*Liquidity*

*Insurance*

*Business / Strategic*

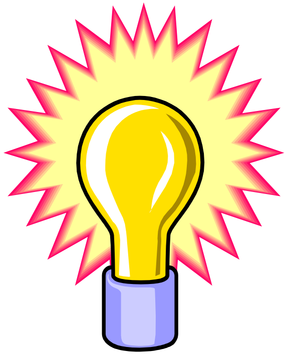


*Operational*

❖ Duplicate capture of loss information for "boundary events" may not be worth the cost if risks are already comprehensively identified and managed

# Stages of Implementation

*Awareness* → *Definition* → *Measurement*



- *Policy*
- *Procedures*
- *Governance Structure*

- *Risk and Control Self-Assessment*
- *Data Collection*
- *Quantification*
- *Reporting*

# *Implementation Actions Required in Each Business*

- ❖ Conduct comprehensive Risk and Control Self-Assessment
- ❖ Identify and assess Key Operational Risks and Controls
- ❖ Identify and report Key Risk Indicators
- ❖ Collect Operational Risk Loss Data (utilizing technology platform)
- ❖ Measure (using methods including economic capital)
- ❖ Report (with process to assure quality)

# Technology Platform

- A Loss database that provides an effective interface with all businesses is a critical tool for loss data collection
- Citigroup has built a loss data collection system that is deployed globally via the intranet
  - Approach has been to run pilots with selected businesses followed by staged implementation
  - Now fully deployed

# Approach to Economic Capital
# Desired End State: Adjusted LDA

- Simulate an aggregate potential loss distribution for operational risk
- Drivers of the simulation model include:
  - Probability distribution [Frequency]
  - Potential loss distribution given an event [Severity]
- Economic Capital requirement calculated as the potential unexpected loss at the target confidence level and time horizon
- Split by business line and (if possible) by risk category
- Adjust for quality
- Calculate a correlated sum across business lines and risk types
- Full implementation depends on a robust data set, the collection of which is well underway
  - Some business lines may require a different model framework

# Economic Capital
# Adjustments to Baseline Capital

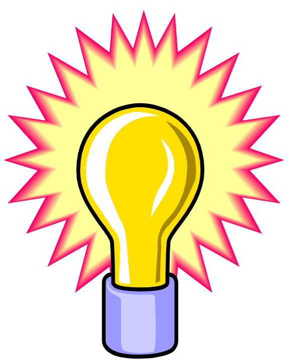
- Quality Adjustment Factor (QAF) produces changes that are under the control of the business and a function of the following internal audit information:
  - Risk Level
  - Number of Business Issues
  - Severity of Business Issues
  - Number of days resolution is past due
- Control Quality Indicator (under development) will be a function of:
  - Quality Adjustment Factor
  - Qualitative data on business risk and control self-assessment
  - Key Risk Indicators
  - Scorecard methodology

# Economic Capital: Interim State

- Interim approach implemented for use during current data collection phase
- Assess potential losses due to unexpected operational loss events using external historical loss data
- Base initial capital figures on largest relevant loss events for each line of business, with some adjustments
- Total allocated according to the size of each business (Revenue) and its risk and control environment (Qualitative Adjustment Factor)
- Correlated sum is calculated across all business lines and risk types
- Each period, the allocation is adjusted as a function of the square root of the change in size of the business and the change in the QAF
- End result: sound, simple estimate of the "worst case" loss, with periodic changes driven by factors under the control of the business

# Operational Risk Management Framework
# Stages of Implementation

*Awareness* → *Definition* → *Measurement* → *Management*



- *Policy*
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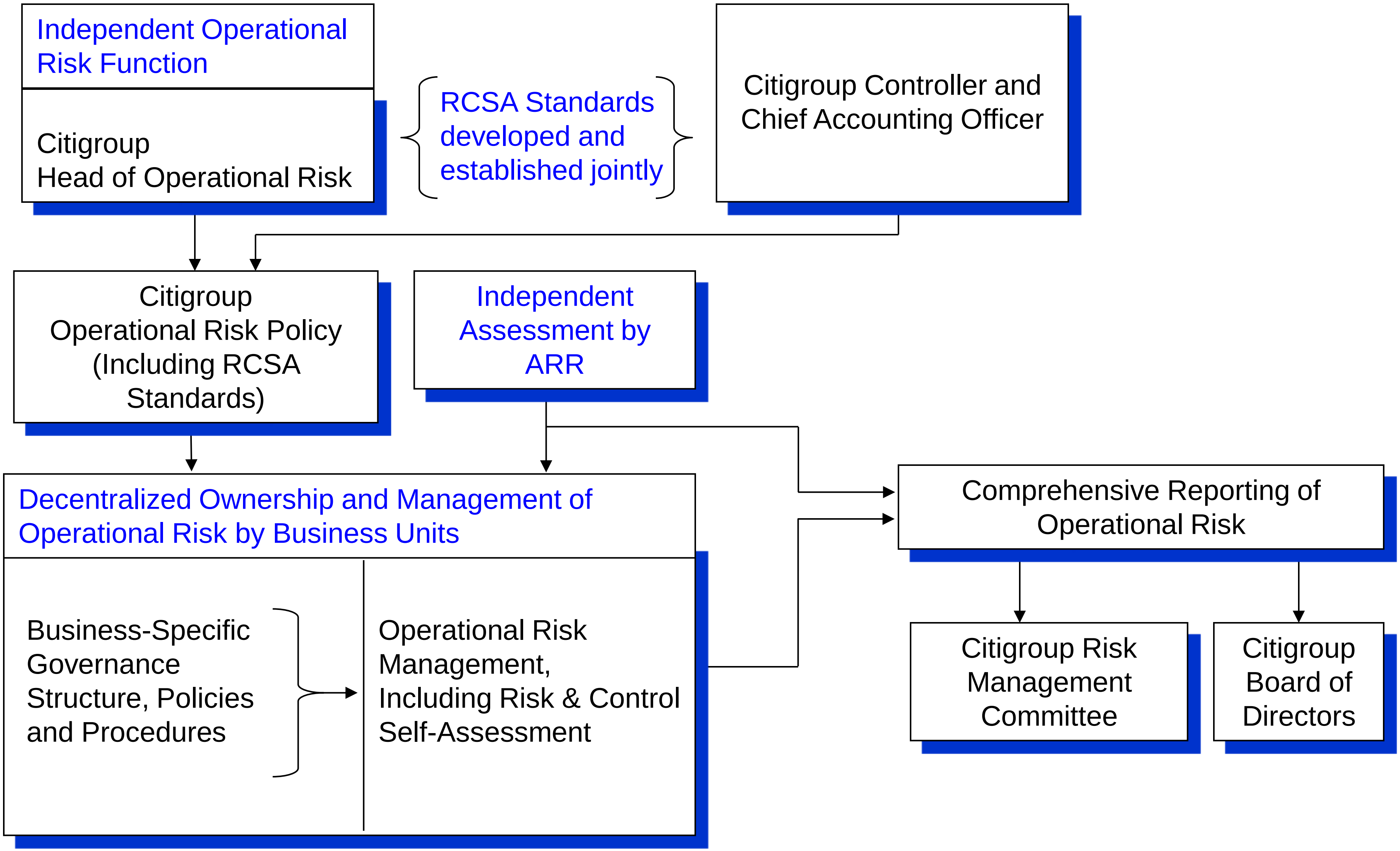
- *Reporting*

# *Actions Required in the Businesses to Support the Management Stage*

- Identify forum to
  - Review and monitor operational risk exposure and loss experience
  - Establish tolerance for operational risk exposure
  - Review exposure versus tolerance

# Operational Risk Framework



# *How long does it take?*

*Hint: Can't be accomplished overnight if it is to become part of the culture of the business*

- Citigroup developed its operational risk policy and consulted with Senior Business and Functional Management over the course of one year
  - Rushing this stage could result in a policy that is not accepted by the businesses
- All of the major businesses achieved initial compliance with the Policy over the course of 9 – 12 months
- The second year has included expanded implementation and a formal review of every business by internal audit
- The operational risk database and reporting system is being developed in phases with 1 or 2 major releases a year

# *Critical Factors for Success*

- Senior Management Support
- Multi-Functional Participation
  - (Finance, Risk, O&T, Audit, etc.)
- Business Level Buy-In

# Achieving Business Level Buy-In

- ❖ Involve the businesses up-front
- ❖ Work with and complement existing processes
- ❖ Demonstrate clear benefits

# *What are the Benefits of the Framework?*

- Foundation on which to comprehensively and effectively **manage** (identify, assess, mitigate / control, monitor, measure and report) operational risks
- Improved understanding and ownership of operational risks by the businesses
- Collection of data to support quantification of operational risk for both economic and regulatory capital purposes
- Use of diagnostic information to improve processes and controls, reduce losses, and reduce earnings volatility