‘Impact of the financial turmoil on Information Technology at the ECB

Magí Clavé

London School of Economics

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EUROPEAN CENTRAL BANK

Agenda

- Introduction
- Financial crisis phases
- IT supporting the different phases
- Impact on IT change the bank
- Impact on IT run the bank
- Key elements to ensure quick reactions
- ECB future challenges
- Lessons learned

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Introduction

Issuance of banknotes

Prudential supervision and financial stability

Monetary policy

Forex markets

IT systems

Foreign reserves

International cooperation

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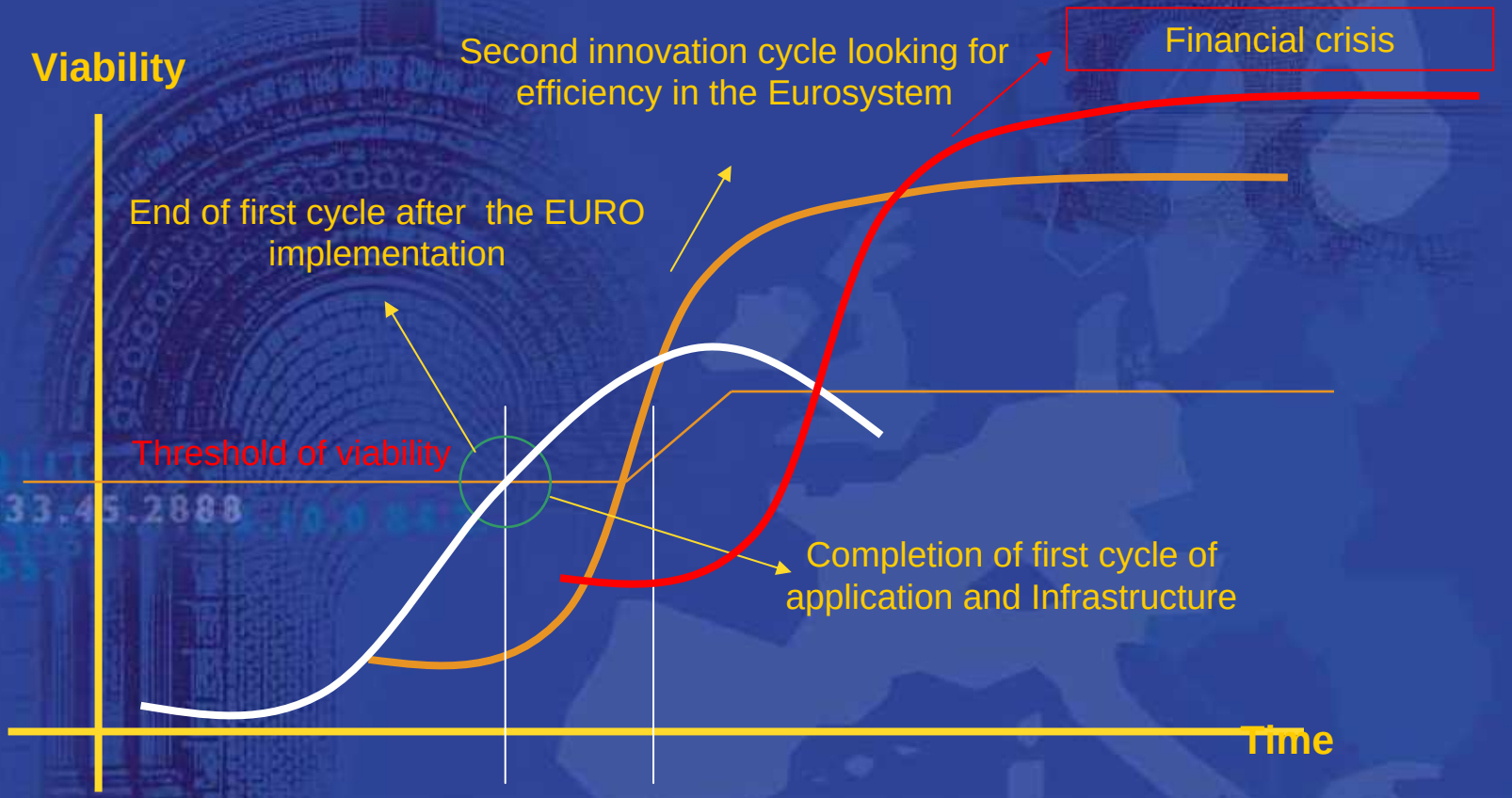
Introduction

ECB as an organisation and its IT innovative offspring



Innovation and Transformation Life-cycle Model

Introduction

Mark Twain

"The art of prophecy is very difficult, especially with respect to the future."

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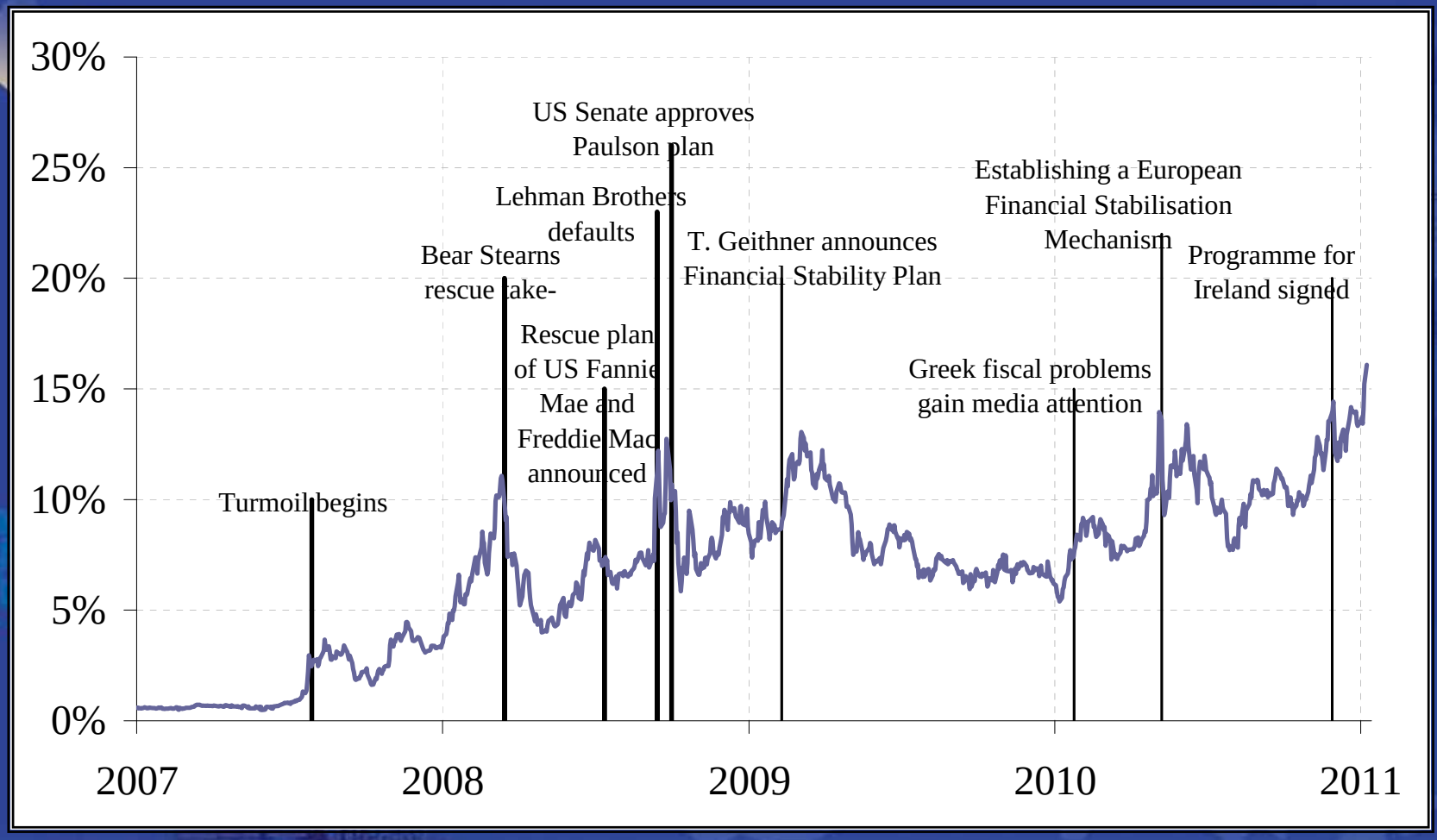
Financial crisis phases - Systemic risk indicator for euro area LCBG



LCBG = Large Complex Banking Groups

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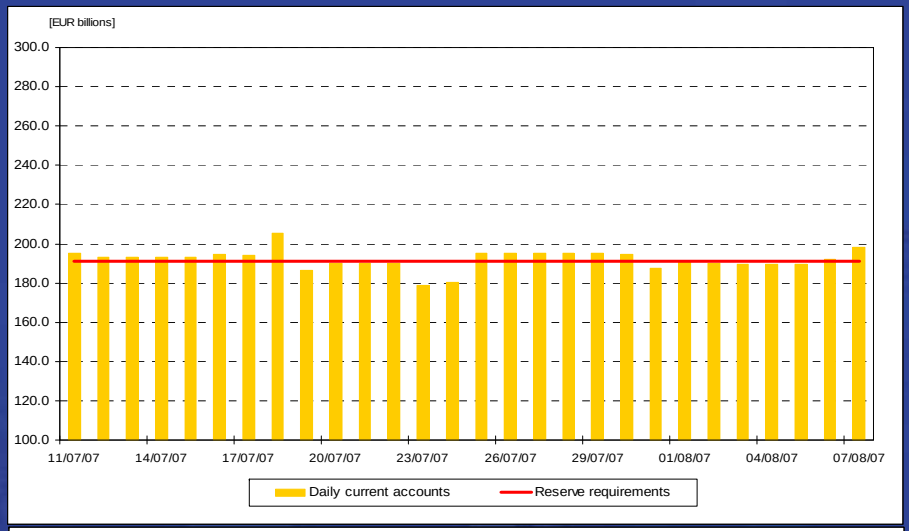
Financial crisis phases

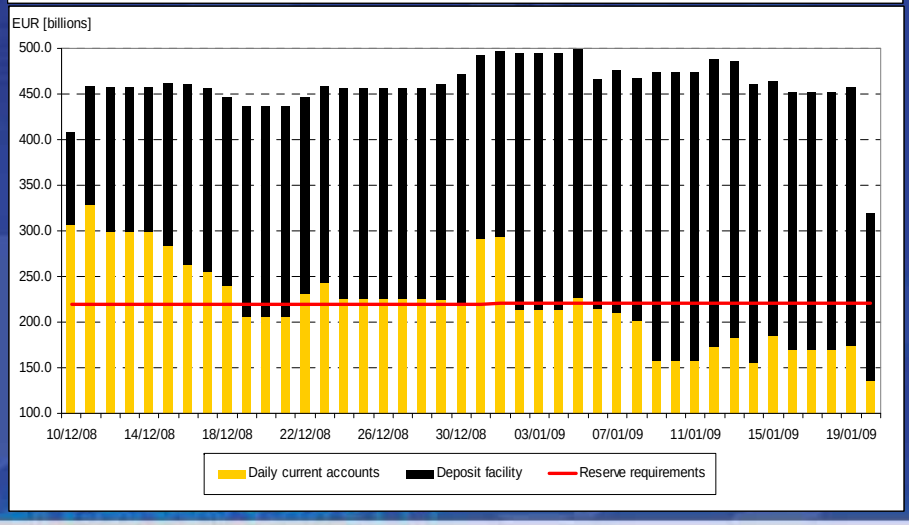
- August 2007 until Lehman Brothers default
- Post Lehman Brothers (September 2008)
- Sovereign debt crisis (2010)

Financial crisis phases – Money market disorder

- Reserve requirement fulfilment before the start of the turmoil: flat (July 2007)

- After Lehman:
  - Frontloading of reserve fulfilment
  - Excess reserves in deposit facility (instead of being placed in markets, i.e. illustrating market break down)





Supporting the different phases

Preliminary stages …

- Total freeze of money market and high reliance on central banking
- Intensify the cooperation among world wide central banks

August 2007 – August 2008

- Aug 2007 exceptional liquidity injection and longer-term liquidity provision
- Dec 2007 provision of USD liquidity obtained through FX swap with the FED

Supporting the different phases

October 2008 – May 2010

- Oct 2008 expansion of collateral assets, fixed rate full allotment operations
- Jun 2009 covered bond purchase programme
- Jul 2009 fixed rate full allotment 1 year operation (440bn)
- May 2010 securities markets programme

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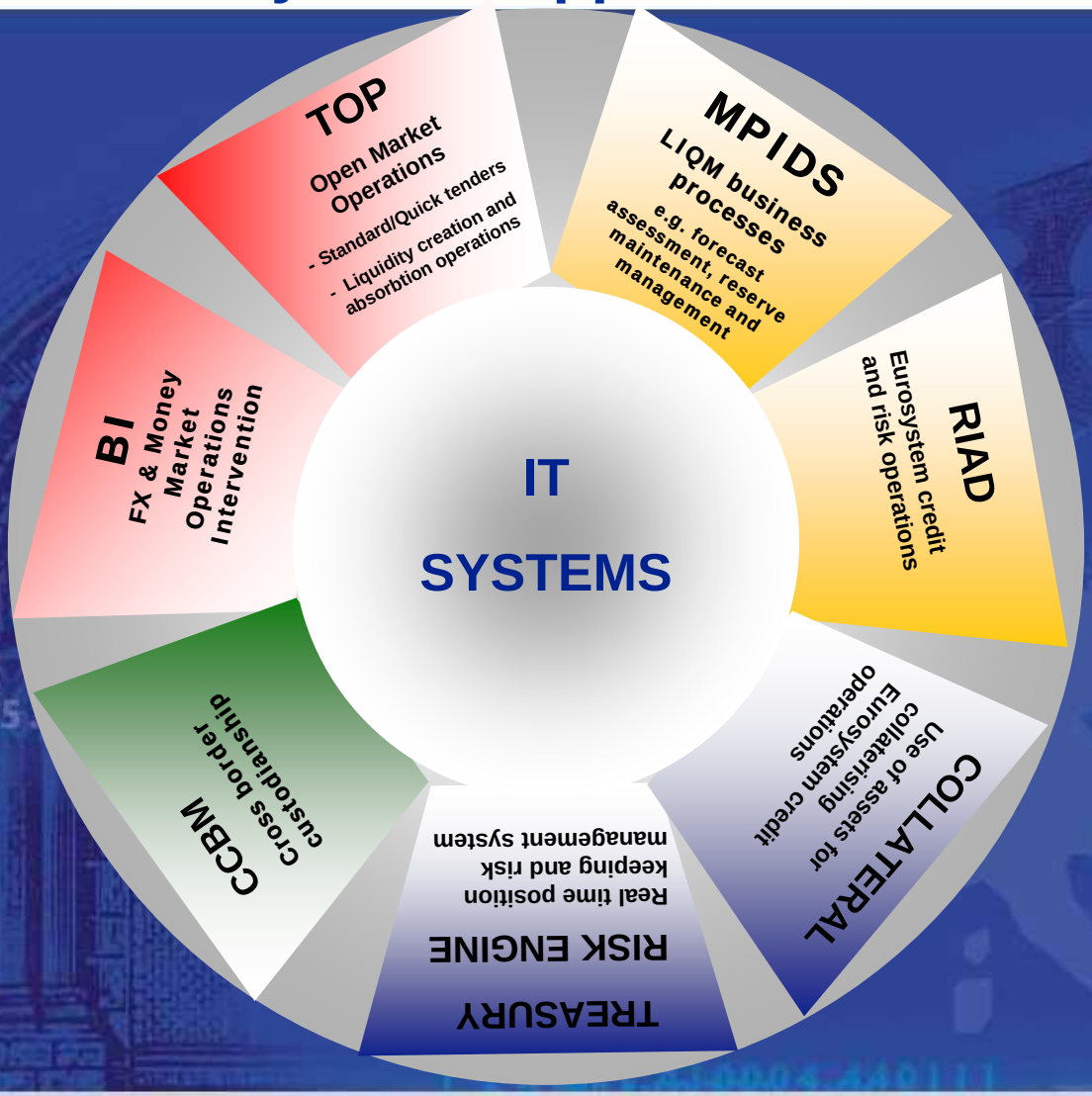
Financial Crisis - IT System Support



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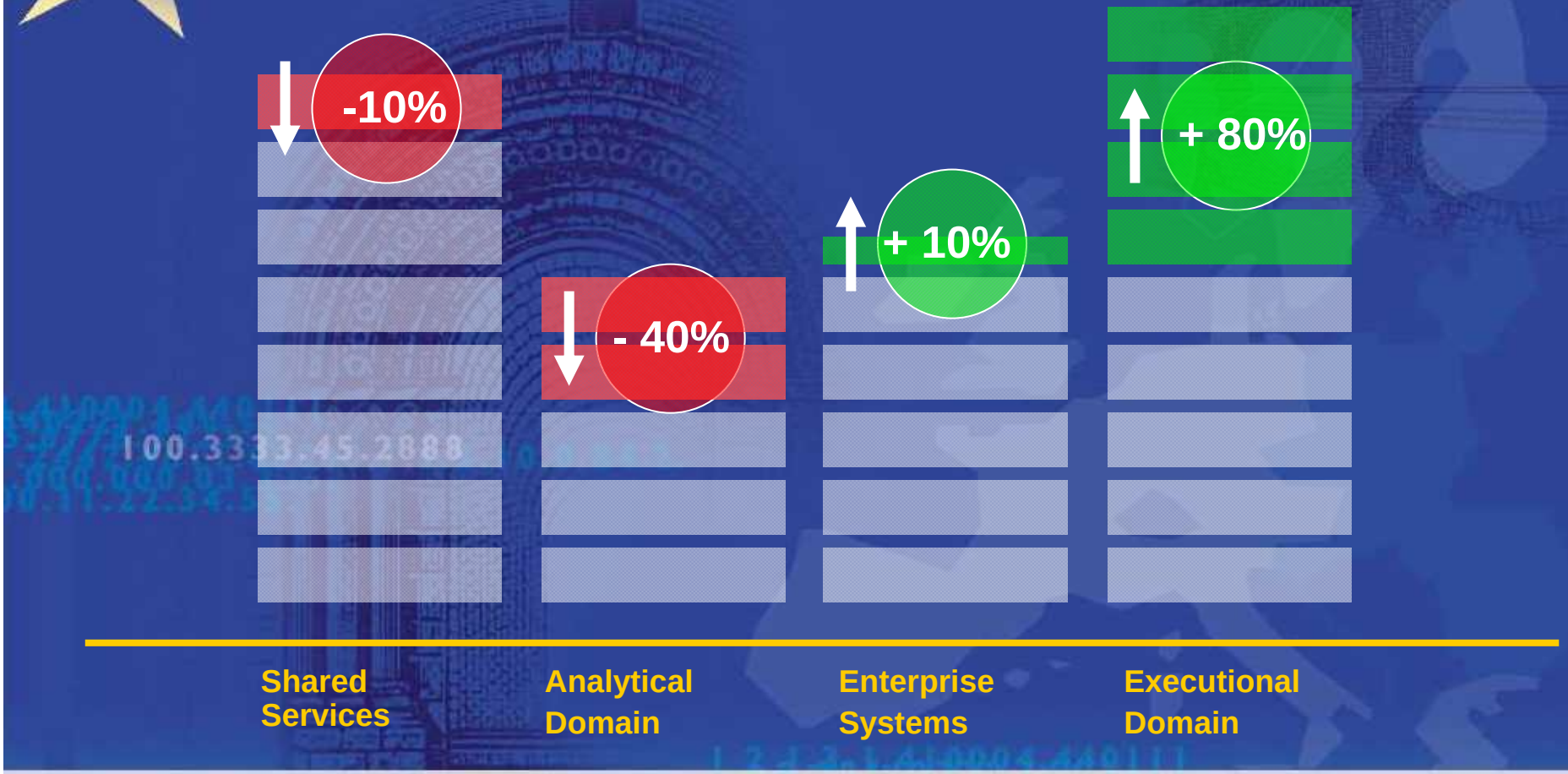
Impact on change the bank

Impact on the project portfolio …

- ECB Project Portfolio for 2009 – 50 planned projects, ongoing or new throughout the year
- Non-standard measures introduced 12 new project activities and postponement of 6 projects
- Forced reprioritisation and reallocation of resources
- Specific know-how required for implementation of non-standard measures

Impact on change the bank

Impact on target capacity by project portfolio



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Impact on change the bank

Intensify the cooperation among banks and impact on maintenance activities …

- During the financial crisis on-call support was requested 24/7, a larger number of voice and video conference calls were set-up
- Several activities were delayed due to requests to keep the IT system available at weekends
- Multiple rescheduling of fail over test, (security) patching and maintenance activities
- Considerable effort was required afterwards to perform these activities.

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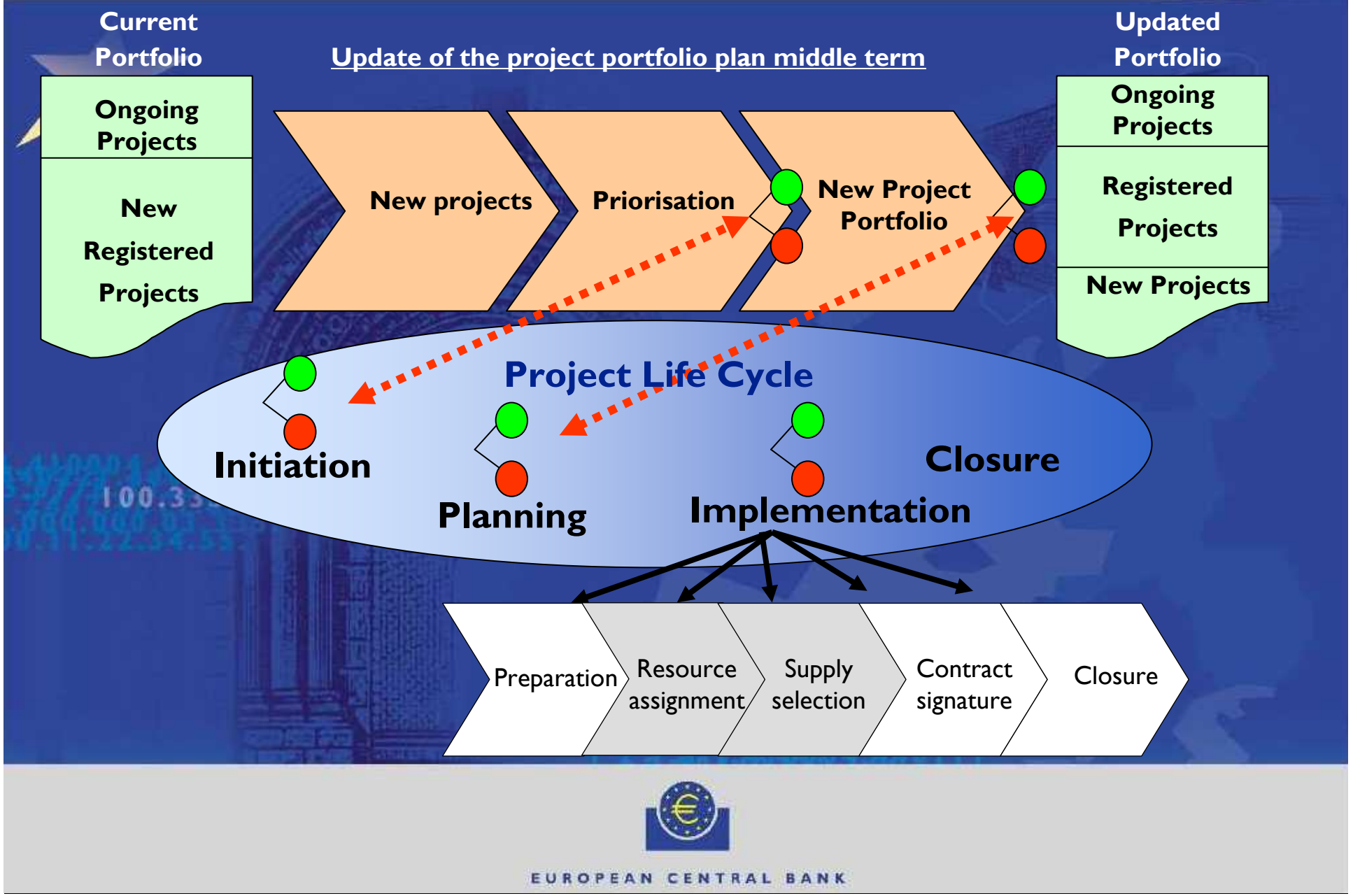
Key elements to ensure quick reactions - IT Governance



Key elements to ensure quick reactions – strong processes

IT quality management (projects)

Management Service

IT service Management (operations)

ISO 27001

(in progress, target certification November 2011)

Information security management

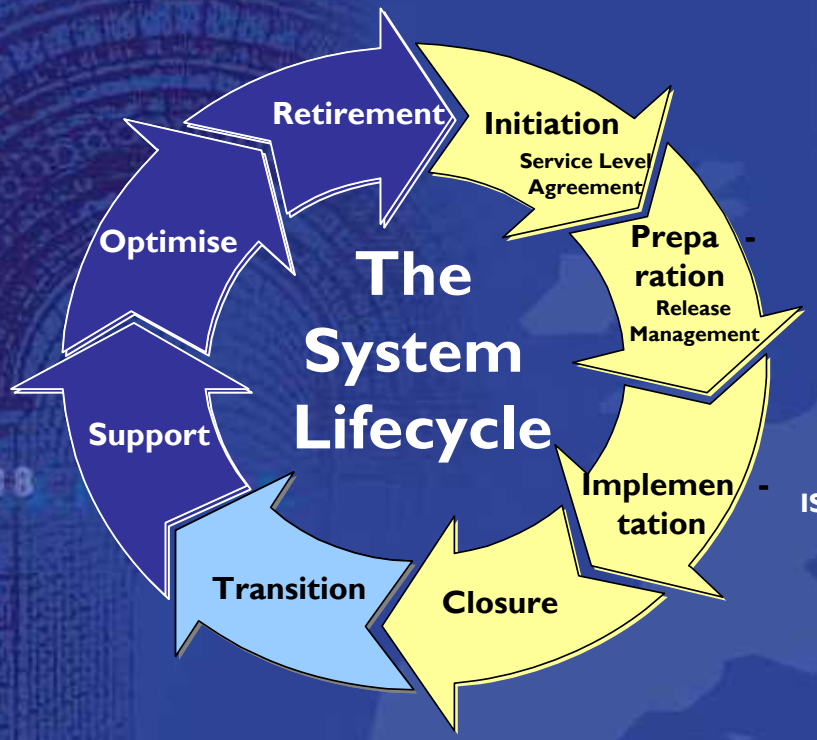
Key elements to ensure quick reactions - strong processes

Operations

Development

ITIL recommends roles and the composition of processes, describes interfaces and management principles

SDLC typically includes a concept, requirements, design, implementation, test, installation, and delivery phase.



IT SERVICE MANAGEMENT

ISO 20000

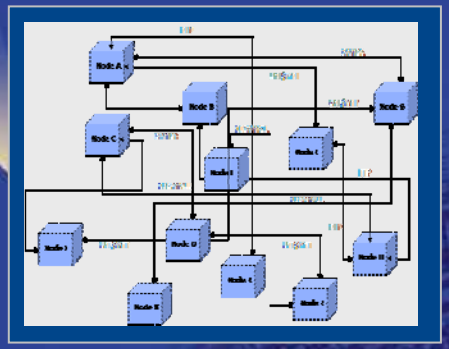
IT QUALITY MANAGEMENT

ISO 9001:2008

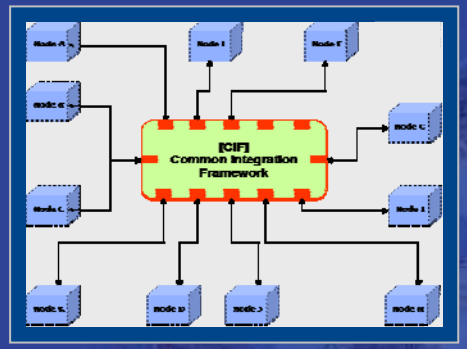
ISO 20000 determines specific criteria to be fulfilled by this particular block of processes.

ISO 9001:2008 is followed to present clear evidences that processes are working well and are formally organised along the SDLC.

Key elements to ensure quick reactions - IT architecture



IT Architecture



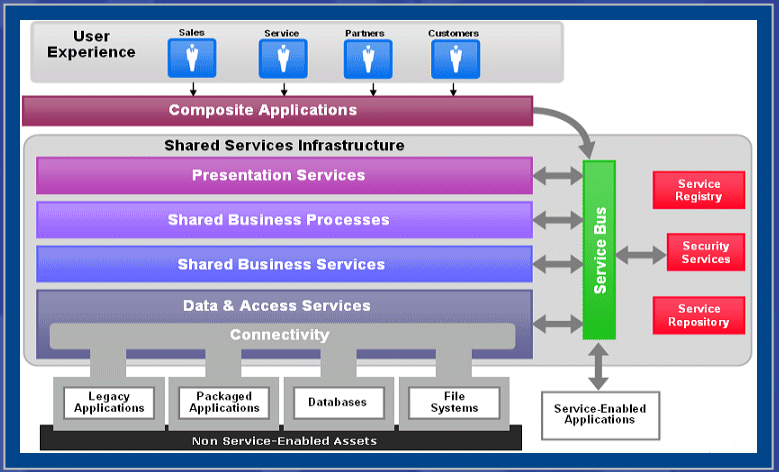
Efficiency based on usability

- Simplicity and reusability
- Development cost reduction
- Maintenance cost reduction
- Robust IT solutions in production

Key elements to ensure quick reactions - IT architecture

- The Enterprise Service Bus a key component to share services

- SOA way to application manage complexity



SOA: Service Oriented Architecture

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ECB future challenges - EcoIT

- Average server utilisation 2006 was 15% / 25% CPU, 1 watt of computing = 2 watts cooling and 95% of resources are wasted (Morgan Standey Investor Report)

- 75% of all Datacenters are already power and space constrained (IDC Summit Report)

- 30% of the California power consumption is dedicated to IT systems (San Jose Mercury News)

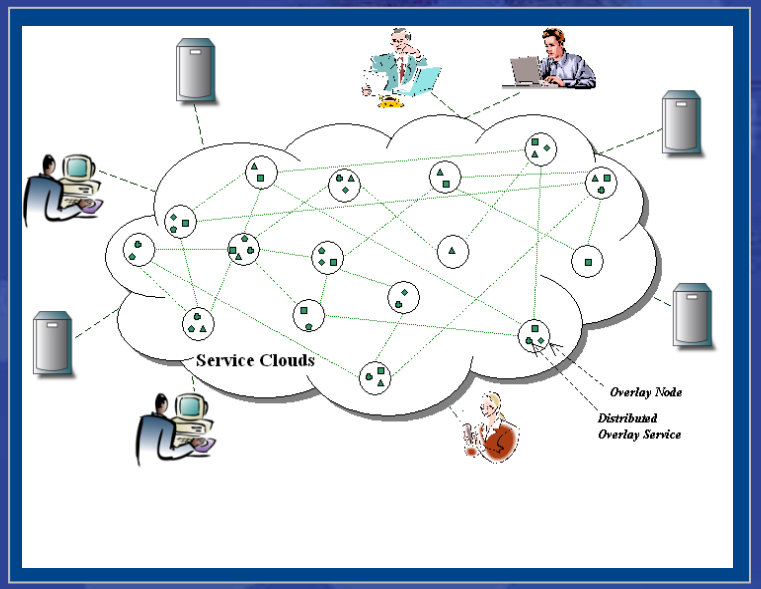
ECB future challenges - Infrastructure

ECB future challenges - Cloud Computing considerations

- A share pool of configurable computing resources that can be rapidly provided and released with minimal management effort or service provider interaction
  (NIST National Institute of Standards and Technology)

- Analysis Cloud Computing deployment model (private cloud), benefits and security aspects

- Cloud Computing will certainly be the future for IT service provisioning and consumption



ECB future challenges - The rise of enterprise intelligence

From Business Intelligence …

- Provide a set of applications and technologies used to gather, provide access to, and analyze data and information.

To Enterprise Intelligence …

- Optimise the use of the total information content - the biggest asset of an organisation
- Transcend organizational silos and computing platforms to connect information and enrich it with technology, making insight and analysis more productive and successful.

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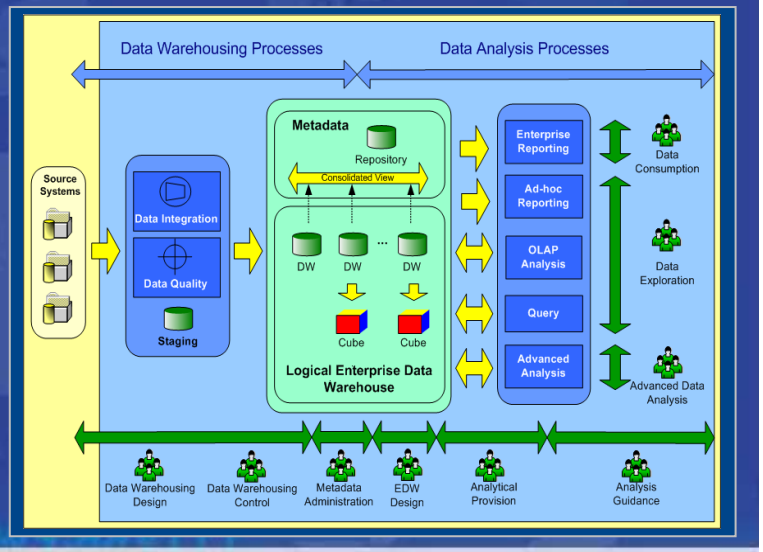
ECB future challenges - European Systemic Risk Board

New independent body for macro-prudential supervision ...

- Monitor and identify risk to the stability of the EU financial system as a whole, issue risk warnings and recommendations to policy makers and supervisors
- Use and create information across 75 member organisations (ECB, European National Banks and National Authorities)
- Knowledge and information management solution to support the establishment and the running of the ESRB



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Lessons learned

- Our systems must be modular, flexible and highly configurable in order to make changes in an effective way
- Ideally IT departments need to have extra capacity for unexpected situations in order to mitigate impacts
- Strong IT Governance and well defined processes (demand gathering, re-prioritisation, resourcing) provides support to manage unexpected situations

Lessons learned

- IT & business know-how is limited to few people, quality is more important than quantity at times of instability.
- Strong cooperation between business and IT is crucial to ensure success in difficult circumstances.
- Taking the risk of anticipative decision making is also important, otherwise systems are not ready when needed.

Questions