Rational. software

You always reap more than you sow: Capgemini's Delivery Centres

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IBM Rational Software Development Conference 2007

What keeps me **Rational**?

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IBM

Who are we?

- Richard Glithero
  - 17 years in IT Industry
  - Delivery Transformation Consultant with Capgemini
  - RUP Mentor and facilitator of RUP Academy within Capgemini University
  - Working with RUP and Rational tools for 7 years
- Dee Wauchope
  - Capgemini Principal Business Analyst
  - RUP Mentor
  - Learning & Development Mentor for Business Analysts in the UK

Capgemini: Consulting, Technology & Outsourcing services

40 years of operation

68,000 employees

Over 30 countries

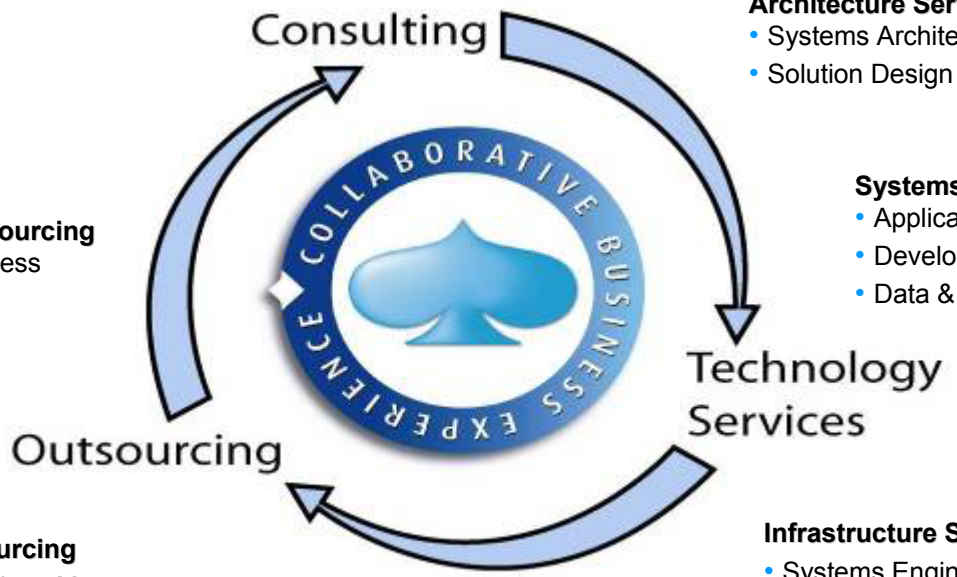
Global Network includes 104 centres

Common Processes – Global Standard

Europe's No.1 Systems Integrators

Process Consulting
- Customer Relationship Management
- Supply Chain Management
- Finance & Employee Transformation

Transformation Consulting
- Business
- Technology



Architecture Services
- Systems Architecture
- Solution Design

Systems Integration
- Application Packages
- Development & Integration Services
- Data & Content Services

Business Outsourcing
- Business Process Outsourcing

IT Outsourcing
- Applications Management
- Infrastructure Management
- Network Outsourcing

Infrastructure Services
- Systems Engineering
- Network Engineering
- Security

"The breadth of Capgemini's IT services capabilities is another important strength. ….the company's breadth - from strategy consulting to outsourcing - is matched by few other services companies"
Gartner

Agenda

- Part I : Capgemini's Delivery Centres
  - Why we set them up
  - How we set them up
  - The Distributed Delivery Challenge
- Part II : A Case Study
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  - Process and resources
  - Tools and techniques
  - Lessons learnt
  - Did it work?
- Questions

Why the Accelerated Delivery Centres exist

Our business demanded we addressed the common issues

- Disconnect between business & IT
- Project over-runs, poor productivity
- Always late, lack of predictability
- Skills gap …people skills aligned to legacy platforms
- Inability to keep up with pace of technology change
- Software development process not responsive to business change
- Constrained by inflexibility of legacy systems
- Can't afford wholesale replacement of current applications

The challenge...

Improved productivity

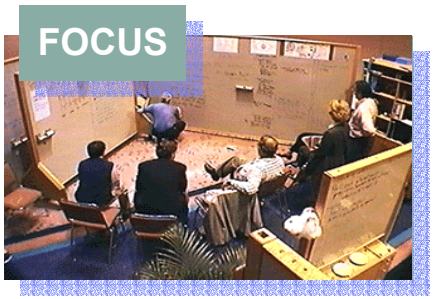
Increased quality

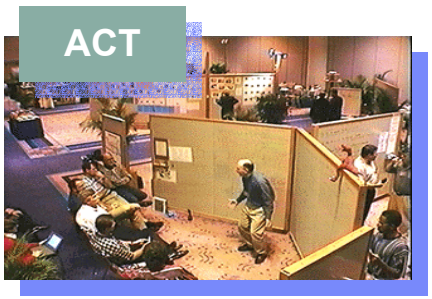
Be faster

..compared to the rest of the industry

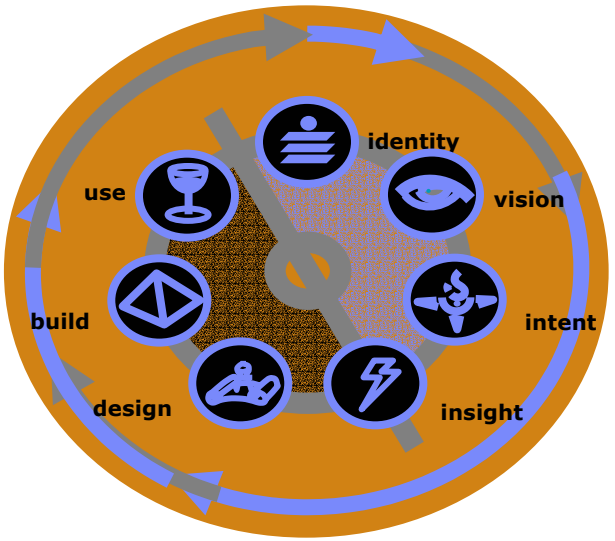
What's interesting is that the challenges our clients see today are similar to those we faced back in the 90s

We had to get the business and IT teams working as one





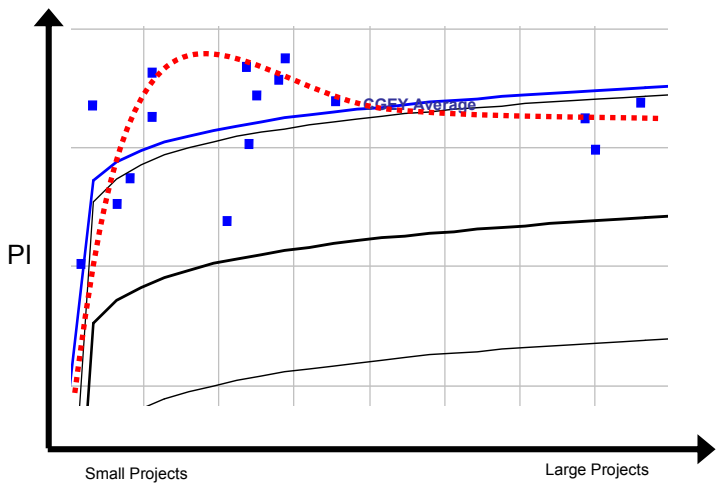
- No single, clear vision of business vision
- Project scope spirals out of control
- Limited Stakeholder buy-in to project
- IT Solution not aligned with business drivers
- User community becomes disillusioned
- Project fails to deliver business benefits (ROI)
- Business team place blame with IT community, “them & us”



This is about IT being treated and behaving like a “Partner”, not a “Supplier” – and sometimes it means asking the business hard questions

Making sure we deliver on the IT promise

- Projects budgets consistently “growing” without scope increase?
- IT cost and time commitment often missed
- Reliance upon key-individuals for project success
- Inability for IT to measure and demonstrate productivity
- Business perceive IT to be “too expensive”
- Projects simply overrun
- Overruns realised too late in lifecycle to implement remedial action



We know just how good we are and need to be

We can demonstrate the value of our investment and capability

We can drive predictability in our business and deliver on our promise

Off to a flying stop?

Ready to roll in 48 hours

Capital expenditure already made

Environment prepared for teams

Facilities available in over 104 global centres

Latest technologies

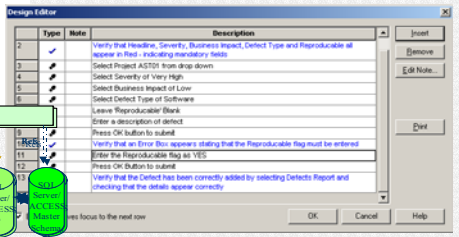
All supported with centralised teams & know-how

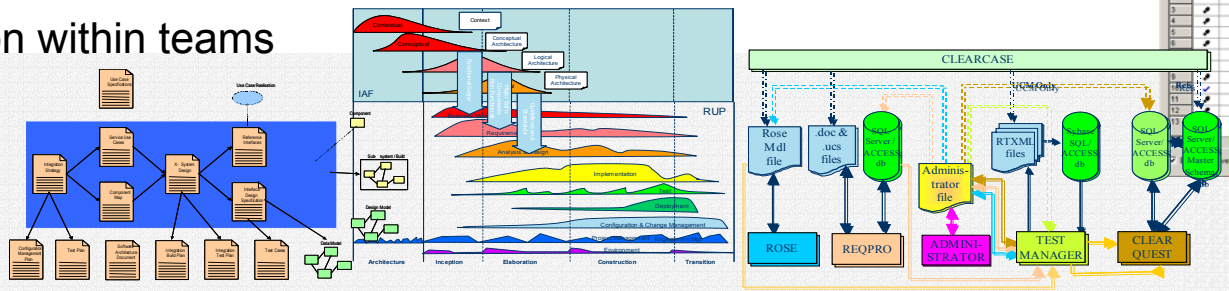
- Significant effort & time lost spent procuring project infrastructure
- Hit with long-term capital expenditure
- Constant investment required to support infrastructure
- Need diverse skills, not often found in a single individual
- Danger of re-inventing the wheel

The single, quickest way to save time is to “stop doing things” – we typically saved between 3 and 12 weeks at the start of a project

“Hero” based project delivery is the most popular global delivery strategy

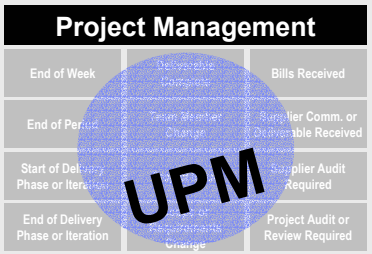
- Inconsistent methods and approaches
- Constant reliance upon key individuals to ensure success
- Inability to scale up the delivery team
- Constantly losing effort, time & cost re-inventing the wheel
- Project team members not interchangeable
- Volatile “quality” of projects
- “Delivery leakage” continues on each project
- Fail to capitalise upon lessons learned across IT department
- Poor development path for staff
- Frustration within teams

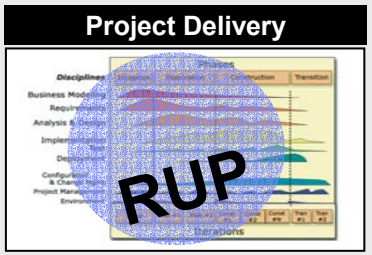




In reality, betting the business on the A*Team only gets you so far

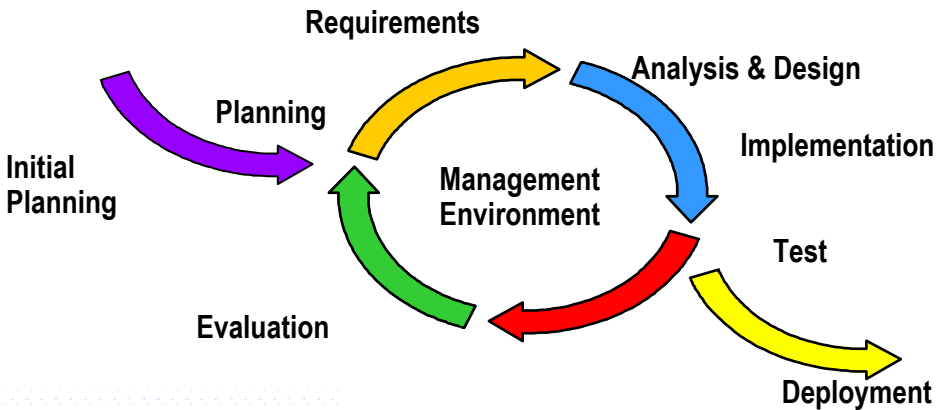
Change happens – it's the only thing guaranteed in IT





"Change is an integral part of the process and is supported by tools"

- IT team seen as being "rigid"
- IT become frustrated with volatile business requirements
- Traditional IT delivery paradigm, requires "stable" requirements
- Change is accommodated by squeezing testing
- Death by "change control"
- Costly to accommodate change late in the lifecycle
- Phase 2 – syndrome
- Business "accepts" contracted solution vs. the right solution
- "them & us"

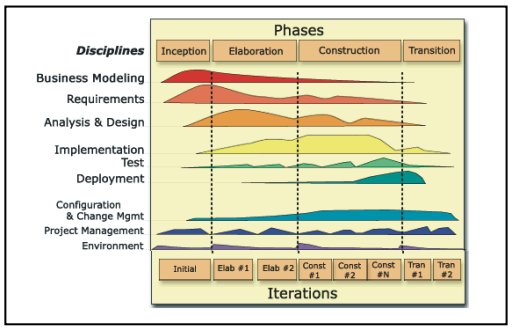


We recommend that you "plan" for change – we find it's the only way of doing the right thing in the right way

Capgemini's Delivery Centres, a summary

- A global network of 104 centres
- A unique development environment designed for collaborative, iterative software delivery
- "Ready to roll" for a project in 48 hours
- Fully configurable physical environment to meet the exact needs of a project

- Access to global network of dedicated experts in Software Development using RUP and the Rational tools
- Dedicated infrastructure support teams
- Standard, common processes and tools underpinned by best practice templates, guidelines and examples
- Aligned to the Accelerated Solutions Environment (ASE) for accelerated problem solving workshops



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20%-40%
Improved productivity

15%-20%
Increased quality

25%
Faster

Compared to the industry average

- Speed
- Predictability
- Collaboration

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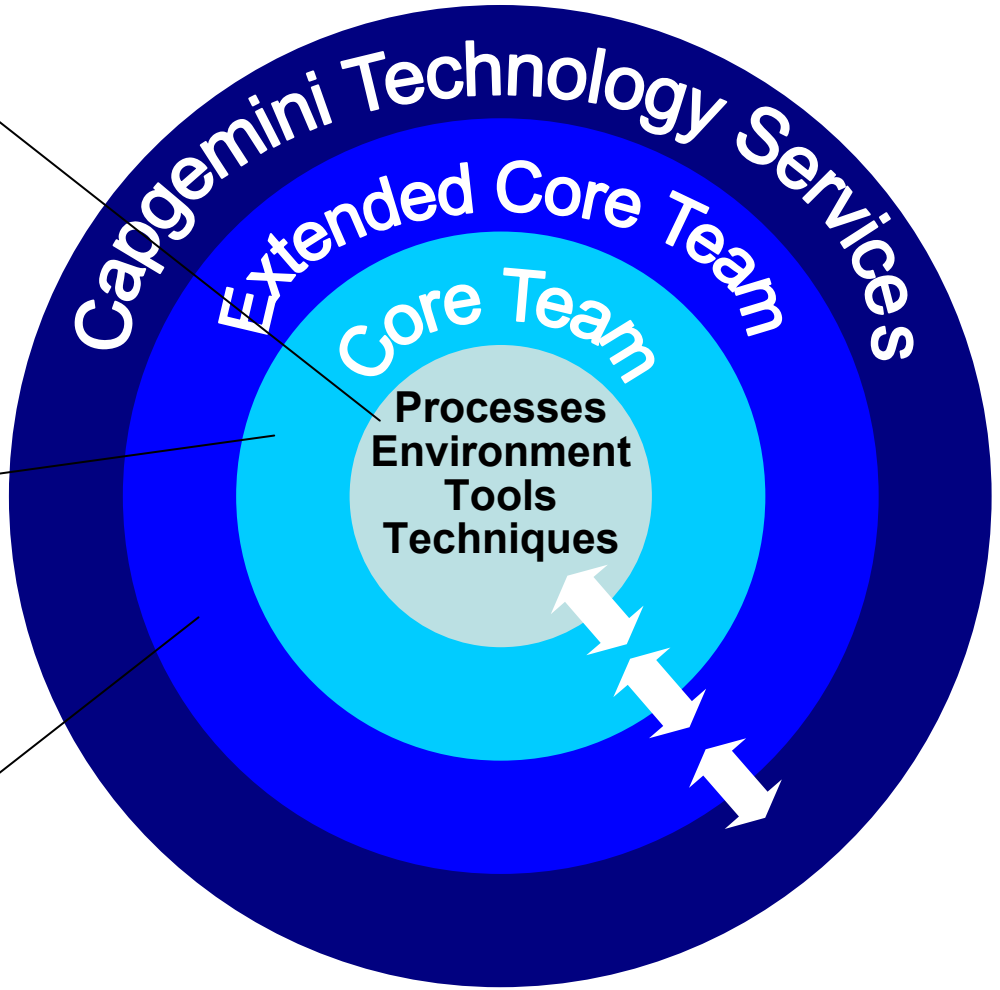
The core team model….

Methods and tools
Our comprehensive set of delivery tools and methods and approach of iterative delivery supports predictability and speed, involves the business at key stages and delivers an agile and responsive service

Core Team
The Core team provides a dedicated team of tool, process and infrastructure experts to provide support to projects as well as ongoing process improvement.

Extended Core Team
The Extended Core team are familiar with the ADC standard methods and tools, having worked on previous projects and can be seeded onto new projects in lead roles reducing the reliance on the core team.



Core Team Roles

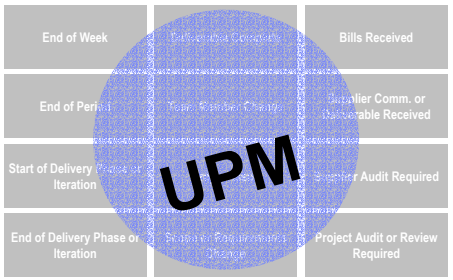
- **Discipline Support**
  - 5 Teams supporting 7 disciplines - **Business Modelling** and **Requirements**, **Analysis & Design** and **Implementation**, **Test**, **Configuration & Change Management**, **Project Management**
  - Populated with experts within discipline
  - Provision of Templates, Guidelines and Examples
  - Ongoing improvement / configuration for discipline
  - Assume Lead roles within Inception, moving to guidance and assurance
- **Tool Specialists**
  - Best practice guidelines for tools
  - Configuration of tools for project
  - Tool usage support during project

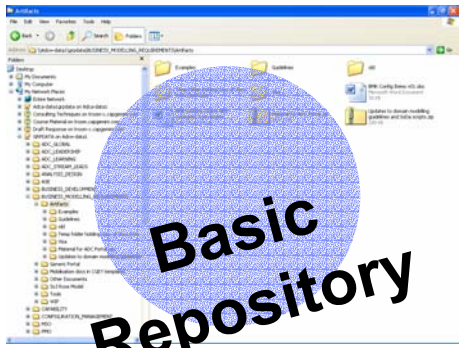
Core Team Roles

- **Technical Infrastructure Team (TIST)**
  - Provision of technical environment
  - Installation of tools
  - Ongoing support for projects
- **Software Engineering Process Group (SEPG)**
  - Process Engineers
  - Software Quality Assurance (SQA)
  - Technical Quality Assurance (TQA)
  - Conduct End of Iteration and End of Phase reviews

We started by keeping it simple….

Project Management





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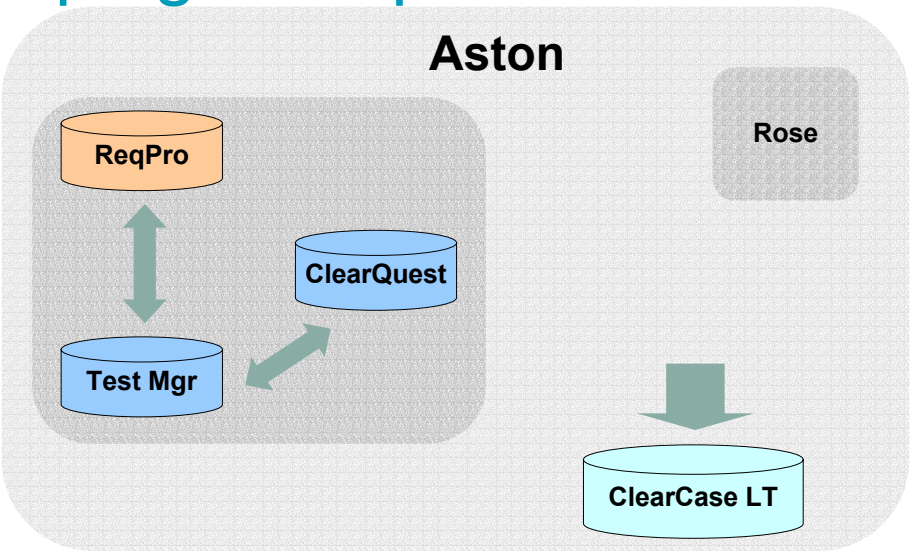

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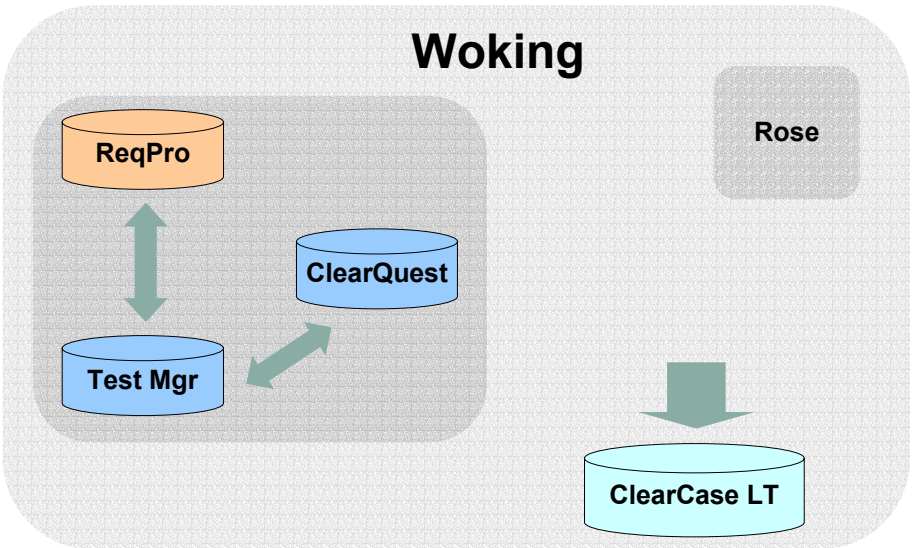
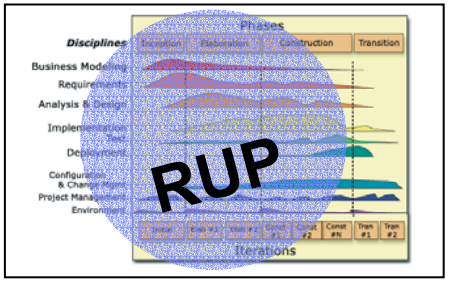
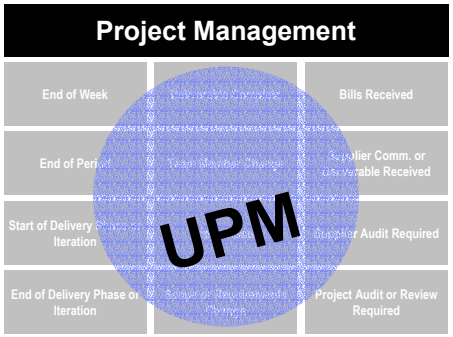
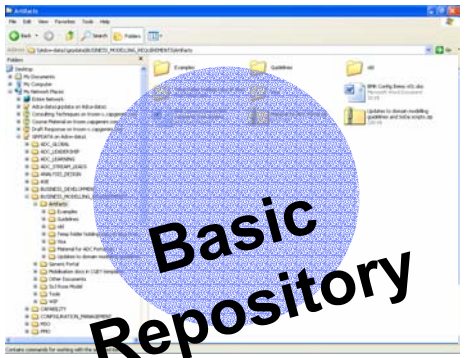


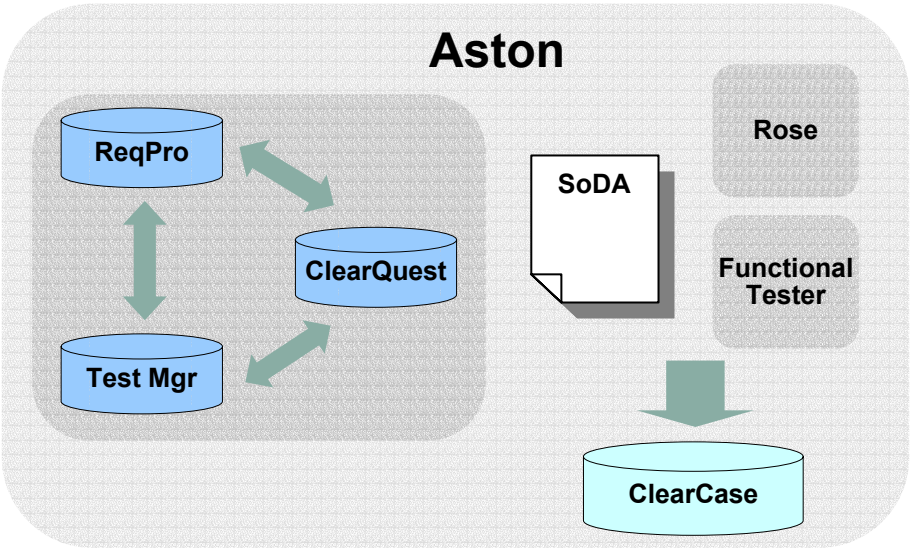
Project Delivery

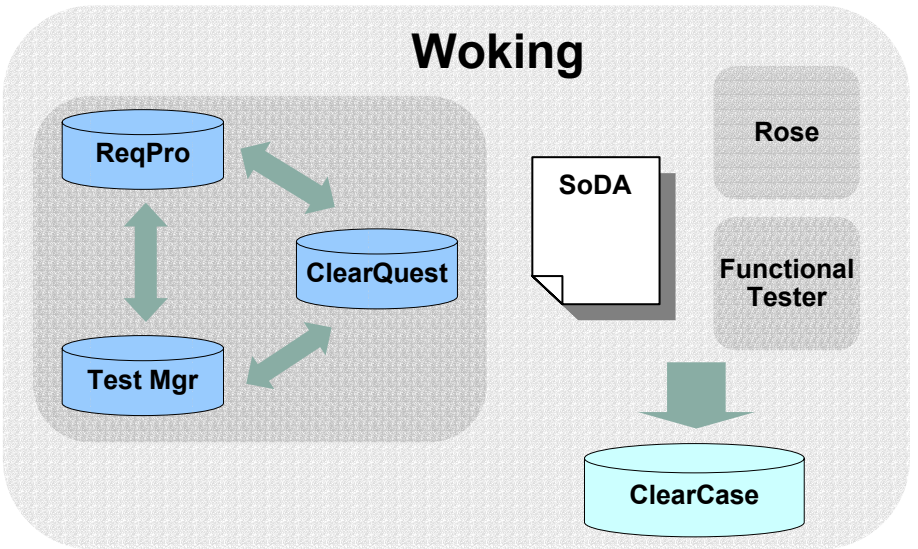


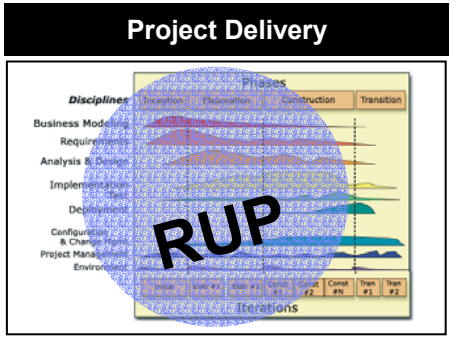
And evolved over time….

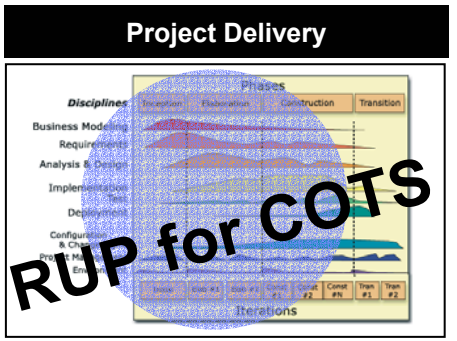


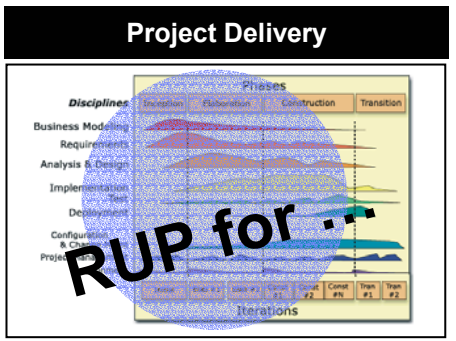












Only when you get an end-to-end story do you realise the real benefits

Evolving over 20 years

RUP software delivery process defined pre-2001

ADC Delivery success from 1993

4,000+ projects using RUP

Both processes delivered using Right-shore approach

Client capitalise upon Capgemini investment

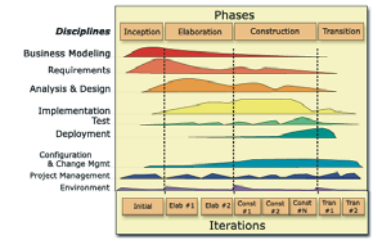
Applies Accelerators to deliver quicker – upto 25% faster

RUN

DELIVER™ (Delivery Governance)

Unified Project Management (P2 aligned)

Delivering with Predictability



Integration, Bespoke, COTs, Re-development, Portal, Oracle (bespoke)..etc

ERP - Peoplesoft, SAP, JDEdwards, Oracle Apps

Delivering the right solution, in the right way

Centre Strategy, including Right-Shore™

Delivering quicker, faster and with better quality

The trick was to avoid “initiative overload”, and bring the disciplines together

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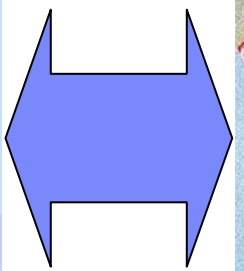
The distributed delivery challenge….



Common

Methods

Tools

Deliverables

Techniques

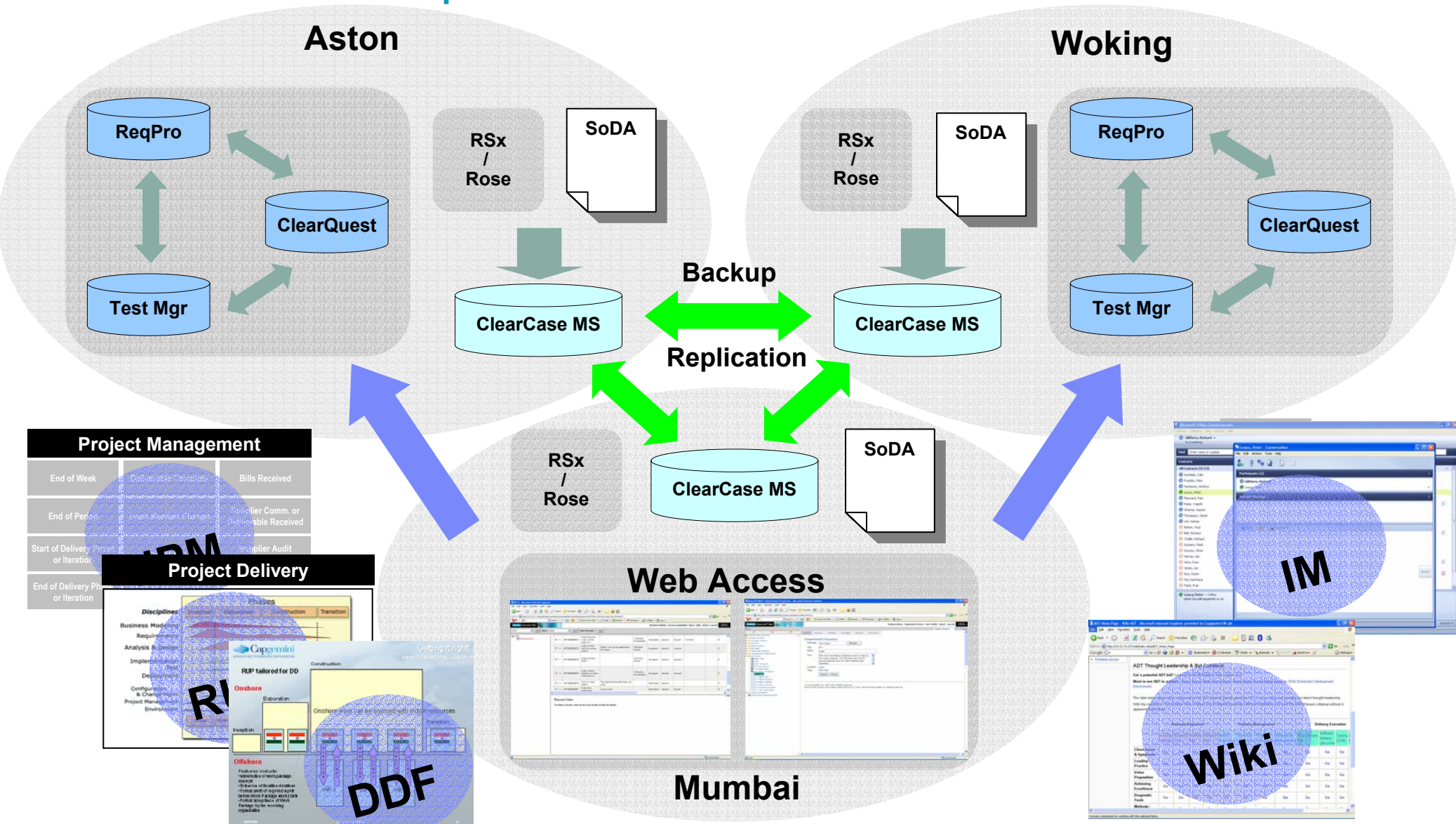
and essentially..

Collaboration

One-team

…it just got harder!!

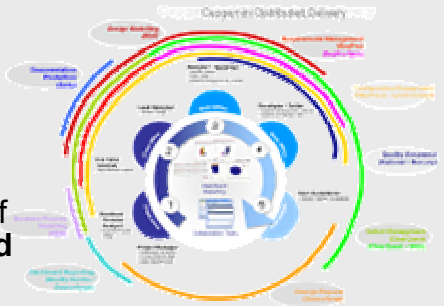
The model now implemented within the Distributed DC….



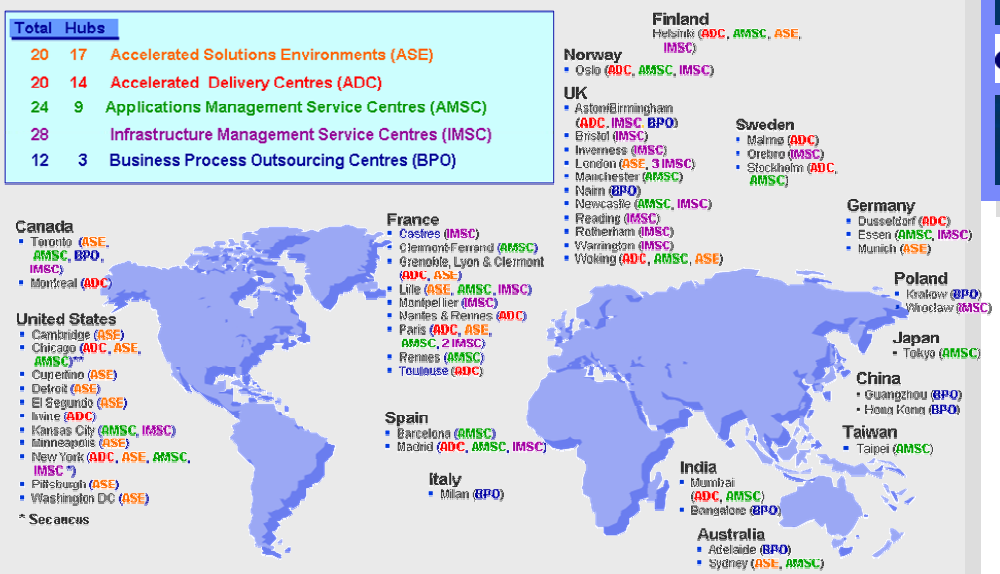
How about making it work in today? Does it work?

Our people know so

Working with common methods, processes and tools – we are one of the few who do iterative, **distributed delivery** – and it works

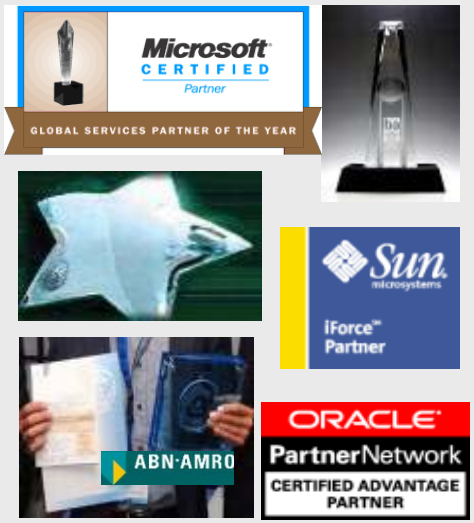


Total	Hubs	
20	17	Accelerated Solutions Environments (ASE)
20	14	Accelerated Delivery Centres (ADC)
24	9	Applications Management Service Centres (AMSC)
28		Infrastructure Management Service Centres (IMSC)
12	3	Business Process Outsourcing Centres (BPO)



Our customers tell us it does

"In an hour and a half this morning, I achieved more than I would by sitting at my desk for 3 weeks"



Our partners think so

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The client: EDF Energy Networks Branch

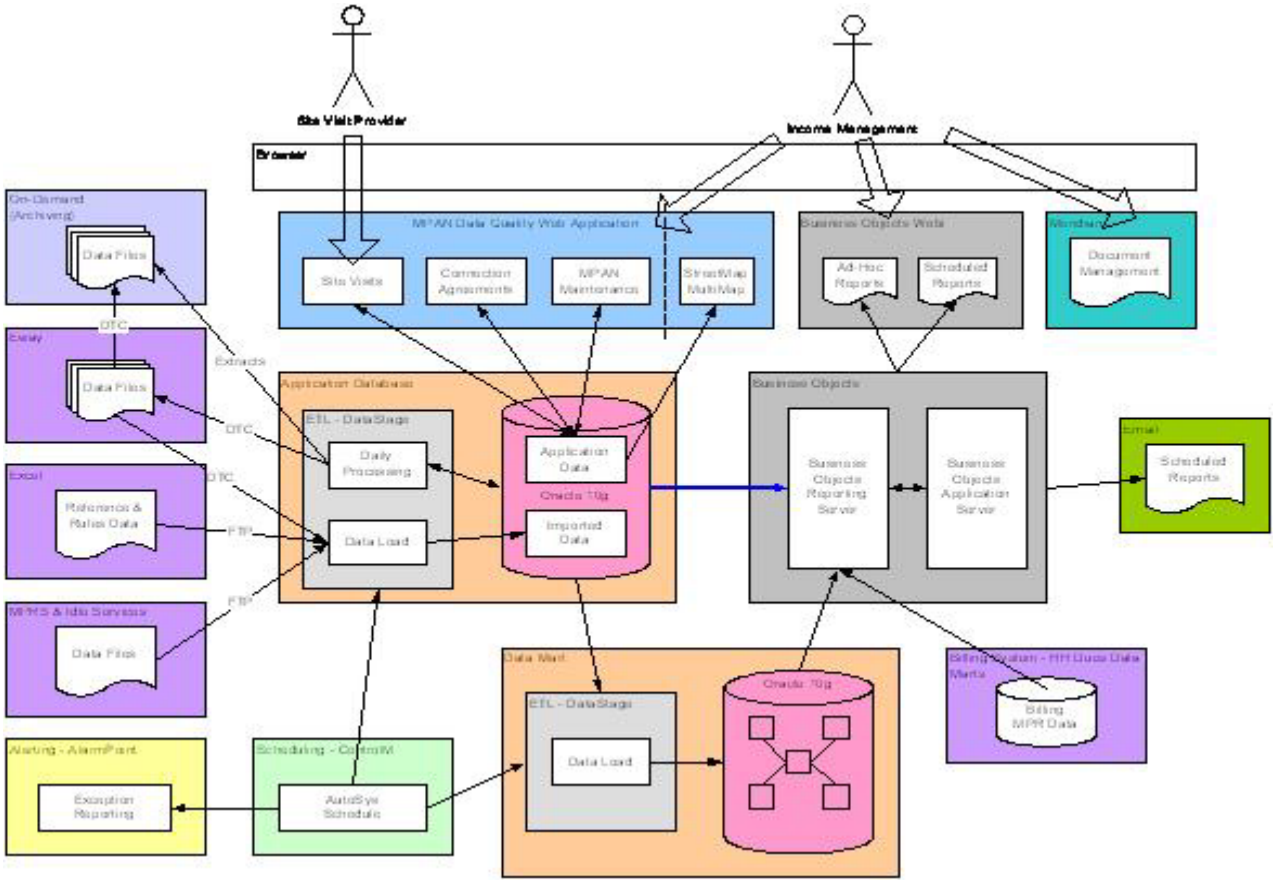
- One of the UK's largest energy companies, providing power to a quarter of the UK's population.
- Supply gas and electricity to over 5 million customers and generate about 5GW of energy from our coal and gas power stations, as well as combined heat and power plants and wind farms.
- Key player in national infrastructure projects, including the electrical upgrading of the London Underground, management of private electricity networks serving four London airports and the Channel Tunnel Rail Link, the country's first new railway in 100 years
- Employ nearly 13,000 people at locations across the UK.
- Core part of the EDF Group, one of the world's largest power companies.
- Networks Branch manages and operates the electricity distribution networks.

The project

- Replace three existing systems used for:
  - scheduling visits to faulty or suspect electricity meters
  - creating connection agreements between EDF Energy and their customers
  - managing contracts
- Implement functionality using ‘standard’ tools and software supported centrally
- Part of a wider IT Enablement Programme

The architecture

Develop a system using Java/J2EE and Data Warehouse technology at its core



The business drivers

- Support a ten-fold increase in the number of visits taking place
- Ensure support from a centralised IT department
- Deliver increased operational efficiency
- Recover additional revenue that had previously been lost
- Provide a store of intelligence to drive other data management / revenue protection activities

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Why distributed delivery?

- Typically offshore development can lead to 20-30 percent annual cost savings in IT spend.

Distributed Delivery refers to engagements delivered using multiple widely distributed teams for various parts of the delivery lifecycle.

- Rightshore™ is Capgemini's global distributed delivery approach.

"Rightshore"™ : the right resource, at the right location, at the right time for a Reduced Total Cost of Ownership (TCO). "Rightshore"™ relies on a network of industrialized near- and offshore centers

Inception Phase

- 10 weeks elapsed timeline

- Primary resources (at peak):
  - 3 UK-based Capgemini Business Analysts
  - 2 EDF Energy business experts
  - UK-based Capgemini Technical and Java Architects
  - UK-based Project Manager
  - Capgemini India Java architect (based in UK)

Find out what is required

- Collated requirements from a variety of existing sources
  - Existing systems
  - To-be requirements baseline provided by client
  - Industry standards
  - Client workshops
- Constructed Use Case Model
  - All Use Cases traced to collated requirements
- Outlined agreed Use Cases
  - Documented a detailed outline of required functionality

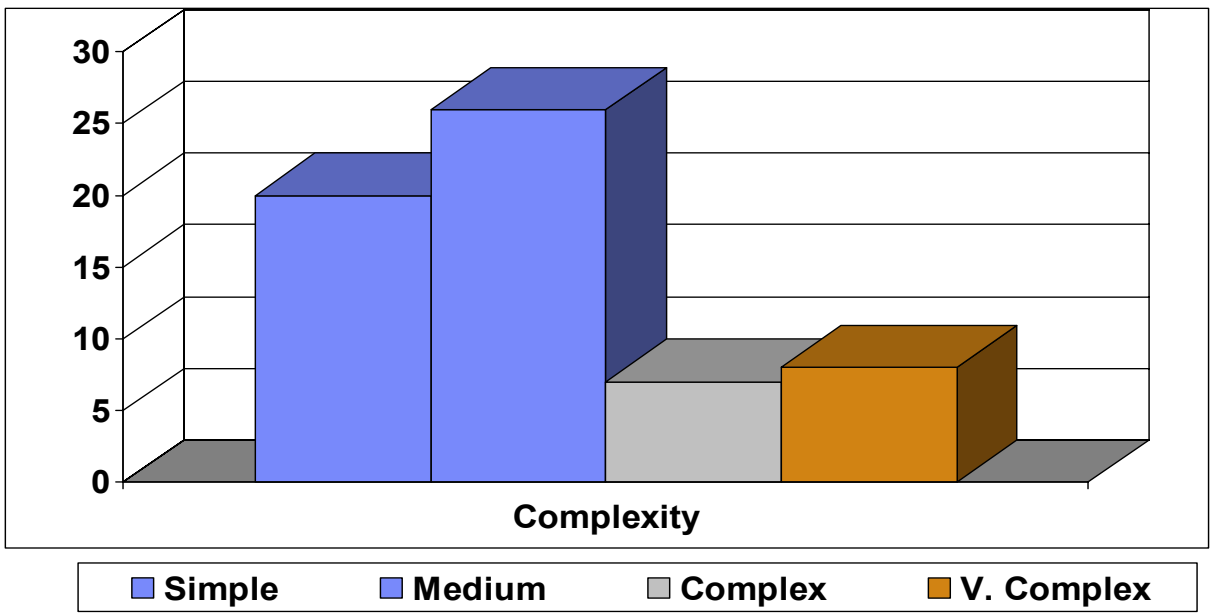
Review and estimate project scope

- Held Use Case review workshops
  - Internal Capgemini review by project architect
  - External EDF Energy review by business stakeholders
- Estimated size and complexity of Use Cases
  - Variety of scope and delivery options
  - Determined priorities
- Design Architectural Model
  - Commence work on technical architecture
  - Java proof of concept work
  - Use Case review by technical team

Agree project scope

- Agreed which Use Cases should be included for Elaboration
- Ca 1100 Man day project
  - Assigned Use Cases for a 2 phase delivery approach

Use Case Complexity	
Simple	20
Medium	26
Complex	7
Very Complex	8
Total	**61**



Use Case Prioritisation Principles

- Select Use Cases that cover areas of greatest technical complexity first and may form a basis for scenarios for Proof of Concepts
- Select Use Cases that will have significant impact on the definition of the Architecture (one or two from each area):
  - ETL
  - Exception Handling
  - Screens handling large volumes of records
  - Reporting
- Select Use Cases that will define the required data structures
- Remaining Use Cases

Elaboration Phase

- 18 weeks elapsed (3 x 6 week iterations)

- Onshore UK resources:
  - Capgemini Requirements Lead
  - 2 Capgemini Business Analysts
  - Multiple EDF Energy business experts
  - Capgemini Technical Architect

Elaboration Phase

- Onshore Capgemini India resources:
  - 2 Business Analysts
  - Java architect –
  - Java development team leader
  - ETL development team leader
  - Business Objects development team leader
  - Test Manager
  - Project Manager

Elaborate Functional Requirements

- Detailed functional requirements
  - Added detail to outline Use Cases
  - Documented detailed business rules, system messages, special requirements, data mappings, robustness diagrams
- Use Case storyboarding
  - Agreed generic UI requirements with HTML designer and client
  - Individual screen mock-ups as photographs of workshop white board screen design
  - HTML screen designs provided once Use Cases approved
- Report layouts
- Design Model
- Proof Of Concepts

Agree Elaborated Requirements

- Held Use Case review workshops
- Documented architecture and non-functional requirements
- Internal Capgemini review by project architects / development team leaders / test manager / requirements lead
- External EDF Energy review by business and IT department stakeholders

Agenda

- Part I : Capgemini's Delivery Centres
  - Why we set them up
  - How we set them up
  - The Distributed Delivery Challenge
- Part II : A Case Study
  - What we set out to do
  - Process and resources
  - Tools and techniques
  - Lessons learnt
  - Did it work?
- Questions

Inception artefacts using Rational tools

- Functional and Non-Functional Requirements and Use Case references logged in Requisite Pro
- Use Cases modelled in Rational Rose
- Logical Domain Model in Rational Rose
- Initial Design Model in Rational Rose

Inception artefacts using other tools

- Outline Use Case Specifications, Supplementary Specification etc.
  - Use Case Specifications, Vision etc. written in Microsoft Word
  - Stored and version controlled in SourceForge by Capgemini
  - Internal reviews set up in SourceForge
  - Read-only access provided to EDF Energy personnel

- Glossary
  - EDF Energy and Industry standard terms entered in SourceForge wiki
  - Read and write access provided to both Capgemini and EDF Energy personnel

Elaboration artefacts using Rational tools

- Business Rules and System Messages logged in Requisite Pro
- Use Cases modelled in Rational Rose
- Logical Domain Model in Rational Rose
- Design Model in Rational Rose

Elaboration artefacts using other tools

- Outline Use Case Specifications etc.
  - Use Case Specifications, Storyboards, Report Layouts etc. written in Microsoft Word
  - Stored and version controlled in SourceForge by Capgemini
  - Internal reviews set up in SourceForge
  - Read-only access provided to EDF Energy personnel
- Screen layouts designed in HTML from initial screen mock-ups
- Database Modelling in Erwin
- Java / Business Objects proof of concept work

Other tools used

- Rational ClearCase
  - Configuration management of Rational Rose models
- Rational ClearQuest
  - Entry and tracking of system defects and change requests
- Microsoft Excel
  - Workshop scheduling
  - Management of requirements progress
  - Clarification Query register
  - Change Request register
- Collaborative tools - Messenger, GIMS, Conference Calls, ClearCase Multi Site

Further techniques used

- Enhanced use case specification
  - Business Rules
  - System Messages
  - Baseline client requirements traced to Use Case
  - Data mappings
  - Robustness diagrams
- Use of SoDA
  - Some sections of Use Case Specifications generated using Rational SoDA, e.g. Business Rules generated from Requisite Pro repository; Robustness diagrams generated from Rational Rose
- Digital photographs to provide screen mock-ups

Collaboration

- Throughout this project there has been close interaction with key business users of the system. Examples include:
  - Proof of concept exercises
  - The work-shopping, review and sign-off of Use Cases in groups
  - The design and sign-off of screen layouts based on approved screen mock-ups provided by EDF Energy
  - Early demonstrations of the system and informal UAT

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One Team

- One team mentality
- The success of a project is the people – ensure that the first few, ideally 30-50%, of the project team are hand picked strong resources.
- Respect cultural differences
- It takes a lot of effort to make it work - it's not a simple cost saving exercise.
- Encourage an environment where mistakes are discovered, communicated and remedied early – NOT a blame culture!
- QA is essential to the success of the project

Collaborative teams don't need to be geographically co-located all the time

- However, there are key times when there is a need to bring appropriate team members together:
  - Proof of Concept demonstrations – Client, Business Analyst and POC developer
  - Start of Elaboration phase – Client, Business Analysts and key technical stream members
  - When elaborating core complex Use Cases - Client, Business Analysts and key technical stream members
  - Supporting build / test team clarification queries - Business Analysts and build / test team members
  - Informal and formal UAT – Client, Business Analysts, key technical stream members and test team

Regular communication is essential

- Need a high level of stakeholder involvement
- Work closely with the client team to ensure buy in
- Distributed Delivery makes team management more complex
- Hold regular calls between internal team members so no-one is isolated
- Hold regular calls between stream leads so everyone is kept informed
- Hold regular calls between Capgemini and EDF Energy so everyone is aware of project progress and any issues or risks
- Put in place a process for clarification queries – this is more time efficient and easier to organise than myriad email communications
- Implement a strict Change Control process and make clear what does/does not constitute a change in scope and how it will be managed

Miscellaneous

- Don’t be afraid to change your approach to overcome challenges
- Only use tools where they add value to support the methods you adopt
- Clear reuse of process facilitates resource flexibility and reduces learning curve
- Time difference
- Need to provide more explicit information in the requirements than normal
- Internal technical reviews are vital

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Did it work?

- I'll have to get back to you…..
  - Currently still in UAT
  - Go live for first phase in October

- ……it's not all been plain sailing……..
- ……but…..
- ……so far, so good!

Questions

Thank You

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