Rising and shining.
Just another day at the office
for a high performer.

Systems Integration and Project Delivery
Andrew Hewitt

Agenda
• Introduction
• Management/Technology Consulting
• Business Context and Systems Integration
• Importance of Methodology
• Project Organisation
• Project Phases
• Questions

Presenter
Andrew Hewitt
• Graduated Edinburgh University in 2001
• BEng Chemical Engineering

Accenture Career (almost 8 years!)
• Manager in the Technical Architecture group with the Global Delivery Network
  – Design, Build, Test, Application Support
• 1 year on a Data Centre upgrade for a Utility Client
  – New DC build, Cross Site Clustering, DR/HA testing
• 0.5 years DC strategy for an Upstream Gas Client
  – Consolidation of global DC footprint, virtualisation, DR/HA
• 4 years Technical Architect/Project Manager for Oil Client
  – Landscape, Environment and Capacity Management
  – Desktop and DC Infrastructure, Site Readiness

Role of the Technical Architect
The Architect:
Has a "vision" of the entire solution
Owns the whole technical and business design
Is responsible for making sure the right things happen
Ensures the system will be
• easy to build
• easy to use
• easy to maintain
• easy to operate

What is the Global Delivery Network?
The 11 Delivery Centre Locations:
Brazil
Canada
China
India
Latvia
Mumbai
Mauritius
Philippines
Slovakia
Spain
United States
United Kingdom

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Management/Technology Consulting
What is it actually about?

The worldwide market for consultancy is currently worth over $100 billion having grown from less than $10 billion over the last decade. The UK consulting market is the largest outside the US with a current value of around £10bn.

In its simplest form, consulting is about supporting businesses (and governments) to perform at the highest levels so that they can create sustainable value for their customers and shareholders …

A worked example: Business Challenges faced by a Petrol Forecourt Retailer

What types of business challenges would a Petrol Forecourt Retailer face?

The different types of solutions used to help deal with these challenges, could be categorised as follows:

- Strategies
- Management/Technology Consulting

- Business Context and Systems Integration
  - Importance of Methodology
  - Project Organisation
  - Project Phases
  - Questions

SI Example - DIAGEO

Systems Integration

Background:
- Diageo is the world’s leading premium drinks business, trading in 180 countries. Its alcohol brands include Smirnoff, Guinness, Johnnie Walker and Baileys

Business Challenge:
- Rapid expansion has seen Diageo become the world’s largest premium drinks supplier and significant growth from new acquisitions meant that the company inherited incompatible information systems and business processes.
  - Accenture has been working with Diageo to develop the next generation of SAP functionality for use worldwide. The client’s SAP systems and business processes have been integrated creating a framework of global processes and toolkits known as the “Common Template”, which is now used to deliver process consistency and efficiency across Diageo’s business units.
  - In addition, Accenture is also responsible for the ongoing development and support of Diageo’s electronic services, providing powerful new Web-based tools that enable business users to manage their own website content.

A typical business will have the following business functions:
- Sales and Marketing – marketing and advertising, sales forecasting, sales order capture, customer relationship management (CRM)
- Supply Change Management – purchasing raw materials, manufacturing, logistics
- Accounting & Finance – budgeting, accounts payable and receivable, financial accounting, treasury
- Human Resources – recruiting, training, payroll, career management

However, the activities within a business are completed via the end to end execution of a business process, e.g.:  
- Customer order: from capture to receipt of payment and fulfillment
- Materials order: from placement to receipt and payment
A simple example - Customer Order process

Customer

Order

Capture

Inventory

Check

Customer Account / Credit Check

Take Payment

Despatch

Receive

Book Proceeds

Example points of failure without integrated systems

Typical problems without integrated systems

- Complex interfaces to transfer data between systems and across different technical platforms
  - Different technical platforms
  - Different data models leading to complex transformations
  - Interface failures and suspense – labour intensive to clear
- Customer data duplicated across multiple systems
  - No single view of the customer’s master data or history
  - Potentially multiple accounts per customer
- Limited view of inventory or lead times when making sales
- Limited view of fulfilment failures in the sales system
- Data discrepancies between systems
- Reporting silos – reports of outputs from and inputs to business function silos fail to reconcile
- Compliance difficult to enforce and monitor

Example problems without integrated systems

- A large utility company
  - 35+ days to interface new supplies between sales and billing systems
  - Customers with multiple accounts across gas and electricity billing systems
  - Debt follow-up in error
  - Dual fuel discount
  - Up to 5 million meter reads in suspense at any one time
- A major UK high street bank
  - Interfacing complexity between legacy systems and Finance system led to 6 month project delay

The answer – Systems Integration

- Modular, highly-configurable software built on a single platform
- Coverage of company wide business processes
- Using a common database
- Real-time interfacing of transactional data between modules
- Using shared management reporting tools
What is Systems Integration?

Building custom systems from scratch:
- Java
- .NET

Customising packaged applications:
- SAP
- Oracle

Building on legacy:
- Mainframes – replace or wrap?
- Retiring systems – data migration?

And once you’ve made all the technical decisions, how do you get it out the door on time?

What makes SI large?

Complexity:
- Number of code modules (HMRC NIRS2: 33,000 methods);
- Number of users (British Airways: 50,000 staff, 30,000 suppliers, 550 locations);
- Number of integrated applications (Barclays: c.500 interacting systems);

System criticality (London Stock Exchange: 12m transactions/day, 99.9999% uptime = 52 minutes downtime/year).

Usually a combination of all of the above.

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Causes of Technology Project failure

- Unrealistic or unarticulated project goals (expectation management)
- Inaccurate estimates of needed resources
- Poor planning and project management
- Badly defined system requirements
- Poor reporting of the project’s status
- Unmanaged risks
- Poor communication amongst Customers, developers, and users
- Use of immature/unstable technology & platforms
- Inability to handle the project’s complexity
- Sloppy software development practices
- Stakeholder politics
- Contract Management
- Commercial pressures

Why is having a Methodology important?

- Reduced cost
- Improved productivity
- Improved quality & consistency
- Predictability & timeliness
- Reduced risk
- Improved cross-group coordination
- Improved skills
- Reuse opportunities

Carnegie Mellon’s Software Engineering Institute (SEI) conducted a study in the late 1990’s and early 2000’s that demonstrated the benefits of repeatable, well-defined processes. The study involved 13 organizations actively engaged in process improvement for an average of 3 - 4 years.


Median Productivity Gains Per Year 35%
Early Defect Detection 22%
Yearly Reduction in Post-Release Defect Reports 39%
Yearly Reduction in Time-To-Market 19%

Accenture Delivery Suite (ADS): The foundation for our industrialized methods, tools, and procedures.

Accenture Delivery Methods: Defines the best approach to follow
Accenture Delivery Tools: Automates activities defined by methods and processes
Accenture Delivery Architecture: Provides a robust platform for netcentric solutions
Accenture Delivery Metrics: Measures delivery performance
**Drivers for the Use of Methodology**

- There is a need to industrialise and standardise project delivery for a number of reasons:
  - Cost of poor quality
  - Our people
  - Cost of poor quality (CoPQ)
  - Inconsistent work practices
  - Lower people satisfaction
  - Frustrating re-work with clients
  - Inconsistent schedules
  - Increased use of offsite/offshore

**Accenture Delivery Methods (ADM)**

- The ADM is Accenture’s methodology for delivery which aims to:
  - Provide a strong foundation upon which we can deliver reliable, end-to-end solutions;
  - Ensure that we deliver projects on time and at the lowest cost to our clients;
  - Reduce the risk associated with solution delivery;
  - Drive consistency and best practice;
  - Provide a simple yet comprehensive approach;
  - Allow the ‘reuse’ of previously conceived solutions thereby freeing up time to focus on the ‘value add’ component;
  - Multi-site working.

**ADM – the essential components**

- Stages:
  - Plan
  - Analyze
  - Design
  - Build
  - Deploy
  - Test
  - Assembly
  - Performance Test
  - Operational Readiness

- Workstreams:
  - Requirements
  - Functional
  - Technical

- Activity:
  - User Acceptance Test
  - Product Test
  - Application Integration
  - Application Testing
  - Configuration Management
  - Test Environment Management

**ADM delivers quality throughout the Project Lifecycle**

Our methods infuse quality from the beginning. The V-Model promotes stage containment through verification, validation and testing.

**Accenture Delivery Methods Address the Challenges of Multi-Site Delivery**

- All Accenture people regardless of location use the same methodology. This gives us the ability to move work to the most capable and cost-effective location(s). It also minimizes the impact of cultural differences.

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**Project Organisation**

- Project Phases
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Project organisation

Community
On-shore Team
Client Project Team
Business
Off-shore Team
Third-Party Supplier
Client IT Organisation

Wider Company

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Project Phases Part 1
- Listening Skills Quiz
- Project Phases Part 2
- Questions

Project Phases

Estimating
Requirements
Design and Build
Testing
Business Change
Deployment

What is Estimating and how does it fit into Project Life Cycle Management?

- The process of measuring how much time, effort and the number and type of resources it will take to complete a piece of work.
- Takes place at the front-end of a project and is subsequently revisited throughout a project’s lifecycle as more clarity on the scope and design of the work develops.
- It is a team sport – includes you, engagement leadership, QA team, offshore participants and SME’s as needed.
- Includes both time & expenses

Inputs:
- Project Scope Definition
- Iteration / Stage Strategy
- Initial Estimate
- Project Road Map
- Sponsor Goals and Expectations

Outputs:
- Work Plan
- Project Assumptions

Why use ADM Estimating Models?

- Standard, more consistent and repeatable process for estimating, which can ensure we have enough resources to finish on time and reduce heroics
- Higher quality estimating models continually being improved can increase project reliability and bolsters client relationships
- Generate an ADM compliant workplan which will be the basis for the work schedule for all resources on a project
- Aligned with Strategic Objectives, with projects responsible for keeping estimated time to complete tasks up to date
- Improved Support for Planning and Execution, delivering on time and on budget

Project Phases

Estimating
Requirements
Design and Build
Testing
Business Change
Deployment
Requirements’ Gathering

**What Do We Do This For?**
- To define what the business needs are that will have to be implemented into the technical solution.

**How Do We Achieve This?**
We talk to various people in the business, individually or in focus groups, to gain a better understanding. These include:
- Business Stakeholders
- Fraud, Security and Risk
- Legal
- Users and their supervisors - to understand what they do and how they do it
- Other areas of the business such as online and call centre

**Why Do We Do This?**
- To understand the future vision of the business and incorporate this into the solution
- To minimise risk and uphold business security
- To ensure legal requirements are not breached
- To understand the end user experience and how the processes could be made more efficient
- To ensure the processes are aligned and the customer experience is consistent

The requirement gathering process

- Key component within any application design & build is the appropriate gathering of requirements;
- Functional & Non-Functional Requirements (NFR);
- Business Requirements & System Requirements;
- Scope creep / deferral / staging;
- Requirement prioritisation activities;
- Business benefit analysis;
- Issue / risk logs;
- Change control process.

**Discussion:** What impact can the incorrect definition of requirements have?

What is Requirements Management?

**Definition of Requirements**

- It is important to understand that requirements are all about “what” is needed, not about precisely “how” it will be delivered.

**What requirements ARE**
- Requirements are inclusive of the functions we expect a system to be able to perform and the level of performance desired from these functions.
- Requirements are used to define both business and system needs.
- A requirement is a “condition or capability needed by a user to solve a problem or achieve an objective.”

**What requirements ARE NOT**
- Requirements are not exact specifications regarding how a function will be implemented. This is the kind of detail provided in a design spec.

**Source:** Institute of Electrical and Electronic Engineers-610

Why Requirements Management?

**Distribution of Defects**
Studies have shown that a higher ratio of defects can be attributed to requirements when a formal requirements management process is not defined.

**Project with formal requirement process**
- Business requirements 42%
- Design 21%
- Construction 31%

**Project without formal requirement process**
- Business requirements 34%
- Design 43%
- Construction 23%

**Why Requirements Management?**
- Research shows that:
  - 82% of rework efforts are focused on correcting requirements defects
  - 10% on fixing design errors
  - Only 8% on fixing coding errors

**Phase containment:** A requirement defect found post production takes ~8 hours to fix, while one found in the requirements or inspection phase takes ~15 minutes.

Cost overruns - Planning, estimating, and change control can be significantly improved by identifying defects before unnecessary costs accrue.

In addition, requirements-related defects are typically much more expensive to remedy.

Research shows that:
- 80% of rework efforts are focused on correcting requirements defects
- 10% are spent on fixing design errors
- Only 9% are spent on fixing coding errors

**Phase containment:** A requirement defect found post production takes ~8 hours to fix, while one found in the requirements or inspection phase takes ~15 minutes.

**Risk Mitigation**

- Planning, estimating, and change control can be significantly improved by identifying defects before unnecessary costs accrue.

**Source:** Best Practices for Requirements Development & Management

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Listening Skills Quiz

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Listening Skills Quiz

How good do you think your listening skills are?

Let's see.........with a quick quiz

Question 1

You are participating in a race. You overtake the 2nd person. What position are you in?

Question 2

You are participating in the same race - if you overtake the last person, then you are...?

Question 3


Question 4

Mary's father has five daughters, Nana, Nene, Nini, Nono. What is the name of the fifth?

Question 5

Is there any law against a man marrying his widow's sister?
Question 6
If an international aeroplane should crash on the exact border between two countries and there are unidentified survivors. In which country should they be buried? – The country they were travelling to, or, the country they were travelling from.

Question 7
A man builds a wooden hut with four sides and each side has a Southern exposure. He is sitting down to eat dinner when a bear rings the doorbell. What colour is the bear?

Question 8
An archaeologist claims that he has dug up a coin clearly dated 46BC – why is he a liar?

Question 9
How many animals of each species did Moses bring onboard the Ark in the Great Flood?

Question 10
If I only have one match and I go into a cold room with an oil heater, kerosene lamp and a wood stove, what do I light first?

Let's see how you did.

Here's the answers…………………………….
Question 1
You are participating in a race. You overtake the 2nd person. What position are you in?

Answer
If you overtake the second person and you take his place, you are second!

Question 2
You are participating in the same race - if you overtake the last person, then you are...?

Answer
You cannot overtake the last person.

Question 3

Answer
The correct answer is actually 4100

Question 4
Mary's father has five daughters, Nana, Nene, Nini, Nono. What is the name of the fifth?

Answer
The fifth daughter's name is Mary.

Question 5
Is there any law against a man marrying his widow's sister?

Answer
The man would be dead if he had a widow.

Question 6
If an international aeroplane should crash on the exact border between two countries and there are unidentified survivors. In which country should they be buried? – The country they were travelling to, or, the country they were travelling from.

Answer
You would not bury survivors.
Question 7

A man builds a wooden hut with four sides and each side has a Southern exposure. He is sitting down to eat dinner when a bear rings the doorbell. What colour is the bear?

Answer
The hut must be at the North Pole so the bear would be white.

Question 8

An archaeologist claims that he has dug up a coin clearly dated 46BC – why is he a liar?

Answer
The term BC was not known in 46 BC.

Question 9

How many animals of each species did Moses bring onboard the Ark in the Great Flood?

Answer
Moses did not have an Ark.

Question 10

If I only have one match and I go into a cold room with an oil heater, kerosene lamp and a wood stove, what do I light first?

Answer
The match.

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### Design and Build

**What Do We Do This For?**
- To design and build the solution based on the business requirements that have been defined.

**How Do We Achieve This?**
- Review the requirements
- Document at a high level how the solution will work
- Document at a lower level how the solution will work
- Build the solution

**Why Do We Do This?**
- To define how long the build will take and the associated cost
- To detail how the solution will work for business approval
- To deliver a solution that meets the business and user needs

### Testing

**What Do We Do This For?**
- To ensure there are no ‘defects’ in the solution that need fixing
- To deliver a seamless solution to the end users

**How Do We Achieve This?**
- Two major phases of testing
  - FAT (Functional Acceptance Test)
  - UAT (User Acceptance Test)
- Write Test Requirements including the individual steps a tester will have to complete in the system to meet the requirements
- Write Data Requirements to ensure that the mock data is available in order to complete the test scripts
- Create an environment, in which testing can take place. This will contain all the Mobile Numbers, customers and scenarios that need testing

**Why Do We Do This?**
- FAT – To ensure that the system works as it should do based on the original business requirements from a technical standpoint
- UAT - To ensure that the system works as it should do based on the original business requirements from a user perspective

### Business Change - Training

**What Do We Do This For?**
- To teach Retail employees how to use the new solution once it is available in stores

**How Do We Achieve This?**
- Create a detailed Training Needs Analysis ie. What the training will have to achieve, in this case it will have to teach them how to use the new system to sell a handset for example
- Write a Training Approach - how we opt to train the employees
- Create a Training Plan of what will happen when
- Evaluate how long it will take for the employees to become competent in the new solution
- Launch and conduct the training

**Why Do We Do This?**
- To ensure the employees use the new system
- To ensure the employees can use the system correctly
### Business Change - Communications

**What Do We Do This For?**
- To communicate to the employees that the new solution will be given to them.

**How Do We Achieve This?**
- Create a Communications Approach
  - Send e-mails to the stores when key activities are taking place
  - Visit stores and employees where necessary
- Create a Comms' Plan

**Why Do We Do This?**
- To ensure the employees know what is happening and when
- To build morale and enthusiasm around the change
- To ensure that the employees will accept and accommodate the change

### Project Phases

- Estimating
- Requirements
- Design and Build
- Testing
- Business Change
- Deployment

### Deployment

**What Do We Do This For?**
- To meet the end deliverable paid for by the client.

**How Do We Achieve This?**
- Define how the deployment will be achieved – Big Bang or Roll Out?
- Create a Deployment Plan with timescales of when each store will receive the new solution
- Support the Deployment in stores
  - BAU Support Team will be in place to take on issues following a defined period after the solution has been deployed
  - Follow up issues that have been raised by users

**Why Do We Do This?**
- To complete the delivery piece
- To assume the business benefits

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