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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

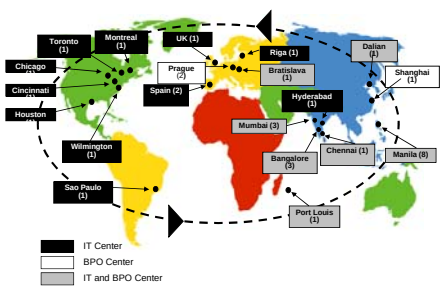
Accenture Career (almost 8 years!)
- Manager in the Technical Architecture group with the Global Delivery Network
- 2 years on a CRM project for a Utility Client
  - Design, Build, Test, Application Support
- 1 year on a Data Centre upgrade for a Utility Client
  - New DC build, Cross Site Clustering, 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
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 …

* Source: www.mca.org.uk

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

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

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

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

Strategy:
- Analyse which fuels offer the best margins, develop business case for expansion and whether to buy more petrol stations and sell non fuel goods e.g. coffee

Technology:
- Developing new systems to capture and manage large amounts of sales and customer data

Systems Integration:
- Test and install new systems to automate authorisation of pumps, price changes to pumps etc; process improvements to avoid queues during peak times

Talent & Organisation Performance (T&OP):
- Recruit skilled staff and train people; provide incentives and performance management processes to retain staff, manage communications with all parties

Supply Chain Management (SCM):
- Identify where to buy fuel from and manage relationships with suppliers; ensure fuels and non fuels delivered on time

Customer Relationship Management (CRM):
- Capture customer data and profiles to build loyalty with the customers and determine what types of fuels sell

Finance and Performance Management (F&PM):
- Ensure the price remains competitive and decide what fuels to sell and whether to sell non fuel items.

Outsourcing:
- Handing over key back office tasks to 3rd parties e.g. HR, payroll etc

SI Example - DIAGEO

Systems Integration

DIAGEO

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.

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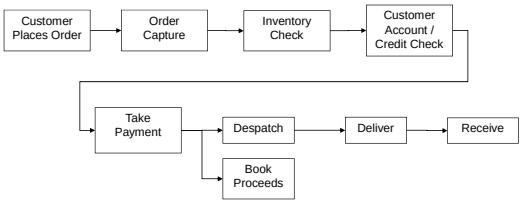
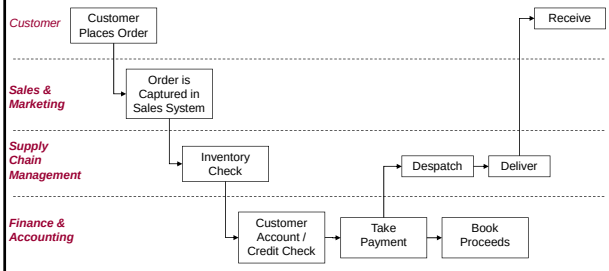
Business Processes versus Business Functions

- 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 fulfilment
  - **Materials order**, from placement to receipt and payment

A simple example - Customer Order process

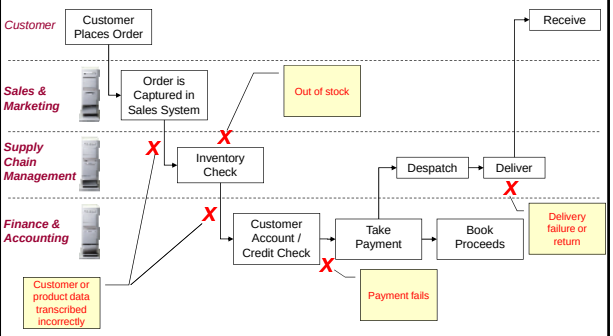


A simple example - Customer Order process



This single process crosses 3 different business functions

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 leads 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

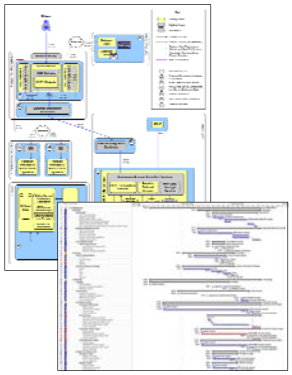
What is Systems Integration?

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 mid 1990's that demonstrates 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%

* J. Herbsleb et al., "Benefits of CMM-Based Software Process Improvements: Initial Results," Tech. Report SEI-94-TR-13, Software Engineering Institute, Carnegie Melon University, Pittsburgh, Aug. 94..

The Accenture Delivery Suite

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

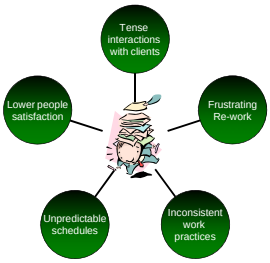
Accenture Delivery Metrics:
Measures delivery performance

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

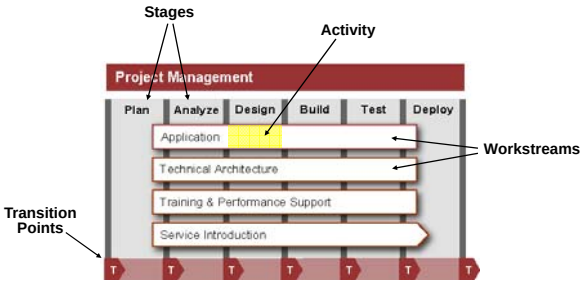
Our people



Accenture Delivery Methods (ADM)

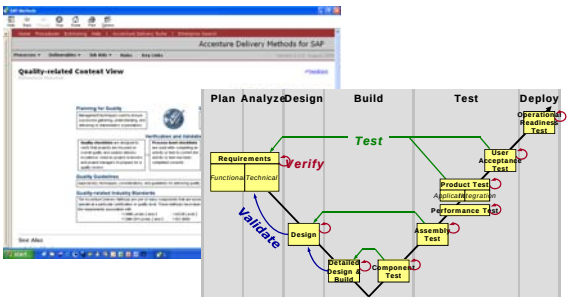
- The ADM is Accenture's methodology for delivery which aims to:
  - Provide a strong foundation upon which we can deliver reliable, end-to-end solutions;
  - Ensure that we deliver projects on time and at the lowest cost to our clients;
  - Reduce the risk associated with solution delivery;
  - Drive 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



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.

Common language
- Clearer communication
- Common frame of reference

Standard transition points
- Entry/exit criteria
- Standard inputs and outputs
- Checklists

Guidelines for planning and managing distributed work – what's different about:
- Estimating, work planning
- Resource management
- Configuration management
- Testing, quality management

Used by the Accenture Delivery Center Network as standard operating procedure

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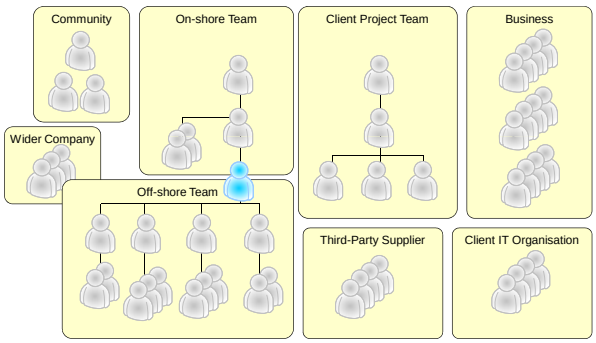
Project organisation



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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 life-cycle 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 fosters 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 those 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.

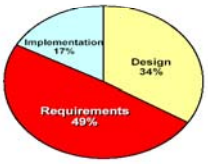
** Source: Institute of Electrical and Electronics Engineers-610

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

Project without formal requirement process



Source: "Borland: Best Practices for Requirements Development & Management"

Why Requirements Management?
Risk Mitigation

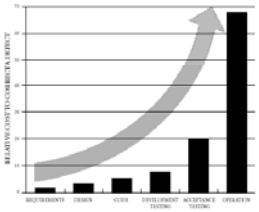
In addition, requirements-related defects are typically much more expensive to remedy:

Research shows that:

- **82%** of rework efforts are focused on correcting requirements defects
- **13%** is spent on fixing design errors
- Only **1%** is 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**.**

Cost overruns **– Planning, estimating, and change control can be significantly improved helping project teams avoid unnecessary cost overruns.**



The relative cost to fix a defect increases as the defect is allowed to propagate through the software lifecycle

Source: "Borland: Best Practices for Requirements Development & Management"

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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

Take 1000 and add 40 to it. Now add another 1000. Now add 30. Add another 1000. Now add 20. Now add another 1000. Now add 10. What is the total?

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

Take 1000 and add 40 to it. Now add another 1000. Now add 30. Add another 1000. Now add 20. Now add another 1000. Now add 10. What is the total?

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

- How did you do?
  - Did you score more than 6?
  - Did you only take in what you expected to hear?
  - Did you make assumptions rather than listening to all the information?
  - Did you pick out the 'usual' information?

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Project Phases

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- Testing
- Business Change
- Deployment

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

Project Phases

- Estimating
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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 requirement
• 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

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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
  – Cascade important information down through the employees direct leadership
  – 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

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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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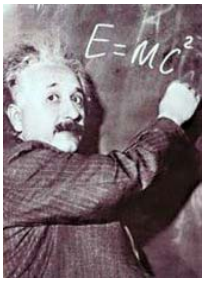

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