UK OUG
UK ORACLE USER GROUP

Dennis Adams
a s s o c i a t e s

Life after Go-Live:
How to Manage IT Production

Dennis Adams
UK OUG Conference & Exhibition
2 November 2005

Dennis Adams Associates Limited
Consultancy for IT Production Management
www.dennisadams.net

Navigate your way with Oracle
PeopleSoft & JD Edwards

UK Oracle User Group
Conference & Exhibition 2005

Alternative Titles …

"I need to Manage Systems: where do I start ?"

"How do we stop Fire-Fighting ?"

"Help ! – They want to Outsource Production !"

"How to Cope with IT Production ?"

"Everything that a Developer wanted to know
about Production, but was afraid to Ask."

WHEN the Project goes LIVE, do you …

- Throw a party ?
- Collect your bonus?
- Look for the next contract ?
- Forget the last Project – it's ancient history ?
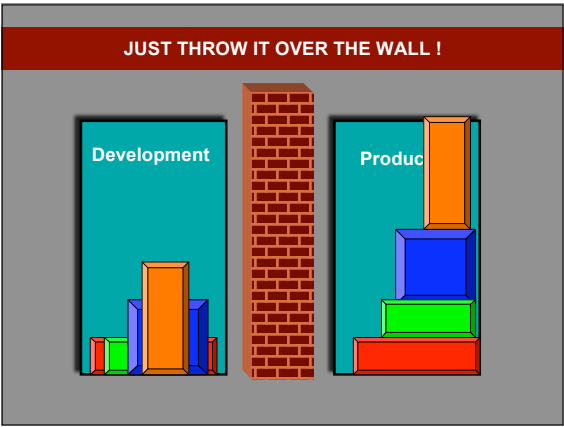- All of the above ?

BUT Someone has to pick up the Pieces !

JUST THROW IT OVER THE WALL !

Development

Produc

IT PRODUCTION: Life After Go-Live

Investment? Out of Disk / Table Space ?

Oracle Upgrades

Application Failures Support Calls Next

Planned Maintenance Project...

Data Copies

Hardware Upgrades

Backup Processes

Extra Users = Extra Power & Storage

THE COST of Poor Application Performance

Top 2,000 European businesses spending more than three million working hours every year trying to get to the root of poor applications performance (equates to €250m).

25 per cent of ICT directors and managers admit they do not know all of the ways in which their corporate networks are being used.

Coleman Parkes research January 2004

KEY CHALLENGES Facing IT Production

- A study by a large IT Services vendor in 2004 showed that, in some organizations, as much as 80% of the IT Budget is required to Support and Maintain the Existing Infrastructure.
- The majority of this cost is **manpower-related**.
- An increasing percentage of the Total IT Budget is required to support and maintain the existing Infrastructure.
- Ongoing Infrastructure upgrades (OS versions, patches etc.) must be managed.
- At the same time, the number of Applications going Live increases year on year.
- Continuous pressure to ensure that systems remain up and running.
- Urgent Support Issues.

The RESPONSE ?

- Concentrate on solving Urgent Support Issues.
  - Neglect Activity Reporting
- Adopt a short-term viewpoint
  - Become less Client-Focused
- Support Culture can be Reactive
  - Forward Planning ??
- The team gets blamed when things go wrong.
- Neither IT Development or Business are aware of Production Costs or Activity
- It becomes difficult to justify further Investment in Infrastructure or Headcount
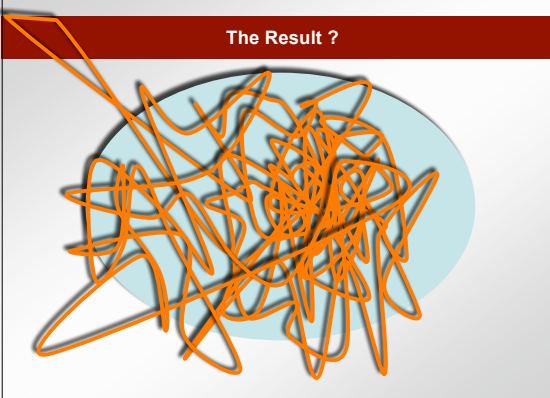- Outsourcing ? ! ?

The Result ?

Is Out-Sourcing the Solution?

- Probably NOT.
  – Only moves the problem.
  – Might be able to deliver the same service at a lower cost ?

- BUT How can you tell ?
  – When you have
    - no measure of the services being provided ?
    - and
    - no measure of the cost break-down ?

HANDLING the Conflicts in IT Production

- In my experience, many of the conflicts facing IT Production originate from a proper desire to deliver the immediate end-user requirements
  – i.e. Short-term resolution of Issues and Support for Applications.

- Unfortunately, Short-term resolution of Issues can lead to long-term lack of Client focus

WHERE do we WANT to be ?

- **Visibility of Activity** to identify the "problem applications" that take a disproportionate percentage of support effort.
  – This enables the Business as a whole to understand the true lifecycle costs of all Applications.

- **Predictable Cost growth** (such as headcount), and Infrastructure costs (such as CPU, memory, disk storage etc.)
  – so that resources and infrastructure can be purchased in good time, with appropriate cost savings.

- **Clear Infrastructure Standards and Service Levels**
  – So that IT Development can understand what technologies can be supported by IT Production, and at what costs.

THE DREAM of Strategic IT Production

- **Smooth deployment of Projects**, as a result of clear handover procedures to IT Production, and IT Production's involvement with Projects at Initiation side, to ensure that Support is viable.
- **Justify the IT Production Budgets** against clearly agreed Performance Metrics.
- **Engage with the Business** sponsors, and successfully argue the case for increasing IT Infrastructure Investment, rather than fighting up-hill budget reduction policies that don't take into account Infrastructure needs.
- Function as a "**Managed Team"**, rather than just event-driven "fix-it ".

Using a Strategic Approach, IT Production Managers can make their teams more Pro-Active more Client-focused, and be in a better position to justify IT Infrastructure Investment

---

WHERE do we START ?

"Life is not a malfunction."

JOHNNY
-FiVE.COM

A fan-made website dedicated to the loveable robot, Johnny Five— Star of the movies 'Short Circuit' and 'Short Circuit 2'

No 5:   *"Plan…"*

Girl: *"Great ! …*
                    …what about it?"

No 5:   *"…need One"*

MOSP

Metrics

Operational Tools

Processes & Procedures
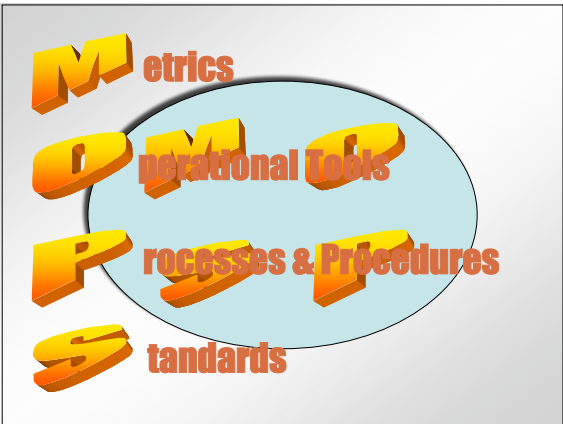
Standards

A Word from our Sponsor:

Work with IT Production Managers to
Audit the current environment and help them
Define and Deliver an IT Production Strategy
based on the key components:-

Metrics

Operational Tools

Processes & Procedures

Standards

HOW could we get there ?

- ANALYSE existing IT Production under the following headings:
  – Metrics
  – Operational Tools
  – Processes and Procedures
  – Standards
- IDENTIFY the gaps
  – under each of these headings
- PRIORITISE
  – from IT Production perspective, but also….
- ENGAGE with Sponsors and Business
  – Talk about what we are doing, and why
- CREATE an IT Production Strategy
  – owned by all stakeholders
- INCREMENTALLY role out changes to the way the department works

Where do you want
to go Tomorrow?

METRICS

CPU Demand for Business Transactions
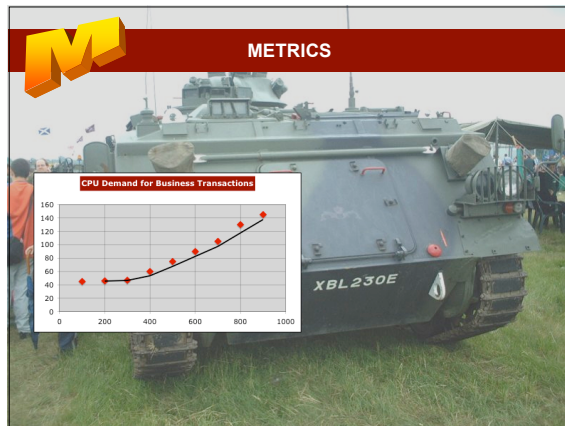
METRICS ?

- METRIC = *"(technical) A system or standard of measurement"* [Concise Oxford Dictionary]
- *"A value or set of values that SUMMARISE the state of a system"* [Anon]

- *"Some numbers which tell me what is happening"*

- *"Errors using inadequate data are much less than those using no data at all."* [Charles Babbage]

- *"The numbers are a catalyst that can help turn raving madmen into polite humans."* [Philip J. Davis, "Mathematical Maxims and Minims" edited by N. Rose]

WHAT could METRICS do for us ?

- Metrics should enable us to:
- **Explain** to the Business what the IT Production Team is doing
- **Justify** expenditure and future IT Infrastructure Investment
- **Identify** "problem applications"
- Enable efficient **Planning**
- **Control** where resources are allocated

We know we are doing things right.

The client knows we are doing the right things.

WHAT TYPES of METRICS should we capture ?

Infrastructure Assets

Technical behaviour

Time…

Activity

Business behavior
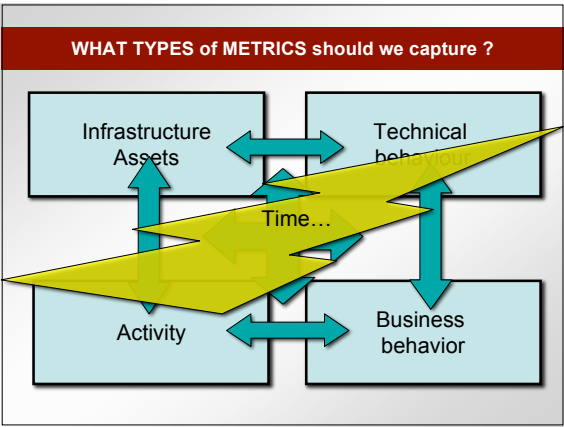
METRIC Traps

- Dangers associated with collecting Metrics or KPIs:
- "Technical Overkill"
  - CPU utilisation to the nth degree may help us squeeze out the last 2% of the available power, but in terms of managing IT Production, it should be of little interest.
- "KPI Khaos"
  - Collections of hundreds of KPIs published on a monthly basis (2 months later?) and read with very little interest by lots of managers with more important things to do.
- In practice,, we should collect that information that gives a broad brush indication **for the purpose of managing the department**
- Metrics should be captured **for a specific target audience.**

WHAT makes METRICS USEFUL?

- Understand the TARGET AUDIENCE:
  - Technical teams trying to monitor / tune systems ? (X)
  - IT Production Management trying to allocate priorities ? (Y)
  - Business trying to find out what IT Production is up to ? (Y)
- IT Production provides a SERVICE:
  - Activity Metrics (e.g Man-Days) should be related back to the Business Function they support - I.e. the underlying APPLICATION.
  - Technical Metrics (e.g CPU use) should be correlated with the underlying BUSINESS METRICS which caused them.
- IT Production can be considered a BUSINESS
  - "Fixed Assets" Balance Sheet = Servers, Disk storage etc.
  - Variable Costs = activity to support an Application
  - Fixed Costs = activity to manage core infrastructure (which must be charged back to the customer).

SOME EXAMPLES

- ACTIVITY METRICS
- Man-Days
  - Significant Percentage of the "Variable Costs"
  - Captured by the APPLICATION they have worked on ("Demand")
  - NOT the cost-centre or skill they have ("Supply")
  - Capture Man-days by TASK, not by SKILL
    - e.g. an Oracle DBA worked on the HR System.

- No of calls to Help Desk, Incidents, Outages etc.
  - By APPLICATION

SOME EXAMPLES (2)

- INFRASTRUCTURE METRICS
- Lists of Servers, their spec and purpose.
  - What Business APPLICATION are they used for ?

- TECHNICAL METRICS
- CPU utilization, expressed as "units of power consumed"
  - NOT Percentage (percentage of "what" ?)
- Disk utilisation as Chargeable Amounts

COST OF SUPPORTING APPLICATION =

*f (CPU power, Disk Space Maintained, Callouts, Operations Tasks) * Architecture Loading*

METRICS: SUMMARY

- What **Infrastructure** you are responsible for
  - servers, purpose, config, user base
- Where your support **Activity** is going
  - time spent by Application, Help desk calls, incidents, outages
- What is happening to your systems **Technically**
  - CPU, disk space etc.
- What the **Business** is doing.
  - Simple key indicators.
- Collect these metrics **over time**
  - Incorporate these into a pragmatic capacity planning function.
- **Correlate** the Business and Technical activities
- Understand who the **Audience** is, and validate.

METRICS should have a PURPOSE

"Perhaps it is time for a pragmatic rethink of … how IT is measured,

to provide strategy-driven performance measurement

as an enabler for your people to deliver what the board wants,

rather than just ensuring that you get a tick in the compliance box"

Iain Parker, The Boxwood Group

Source: Computing 15 September 2005

OPERATIONAL TOOLS
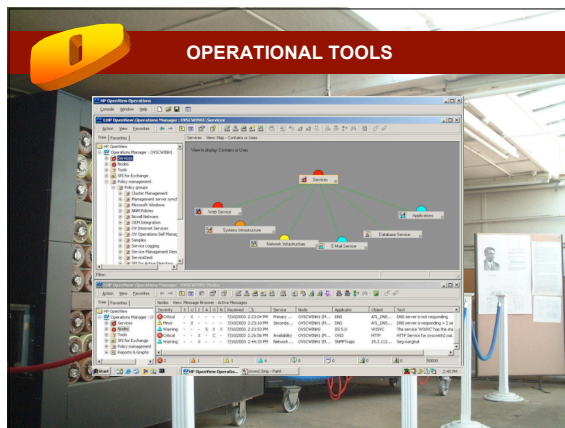
WHAT do we mean by OPERATIONAL TOOLS?

- Technical Solutions to assist the Management of IT Production
- METRIC COLLECTION TOOLS
  – Activity Tracking (Man-Days)
  – Help Desk, Incident Management, Change Control
  – Asset Management.
- TECHNICAL SUPPORT TOOLS
  – HP OpenView, Unicenter, Tivoli, Patrol, Alerting console
  – Specialised Technical Monitoring of Operating Systems, Networks, Databases
  – Specialised monitoring of Application Infrastructure, J2EE
  – Backup / Recovery, Business Continuity
- WORKFLOW

AN Integrated TOOLS Solution ?

HelpDesk

Project Register

Backup Scheduling

Configuration

Incident Management

Database Monitoring

Asset Register

TimeSheets

Console

Security Monitoring

J2EE Monitoring
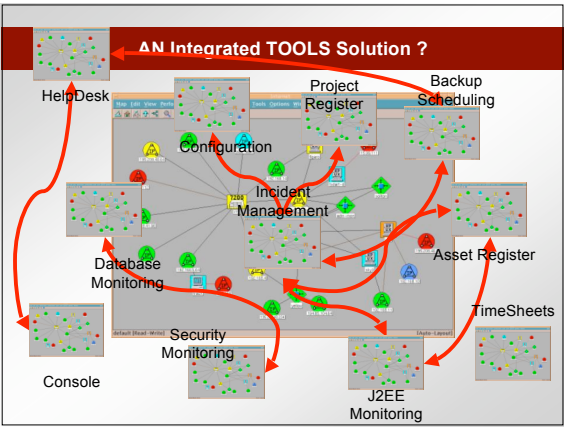
The importance of a TOOLS REFERENTIAL

Each specific category of data should be derived from one Unique Definitive Master Copy.

Tools	Server Configs	Application Names and Owners	PC Owners	Project Names	Licenses		
Help Desk		*	✓		✓		
Configuration Management Database	✓	✓	*		*		
Incident Management	*	*	*	*			
Project Register				✓			
Monitoring Console	*						
Time Capture		*		*			
eBusiness Console	*	*					

Establishing a definitive Referential can help to simplify reporting and minimise inconsistency

The COST of TOOLS INTEGRATION

INTEGRATION COSTS

No of Tools	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
No of Data Linkages	1	1	3	6	10	15	21	28	36	45	55	66	78	91	105	120	136	153
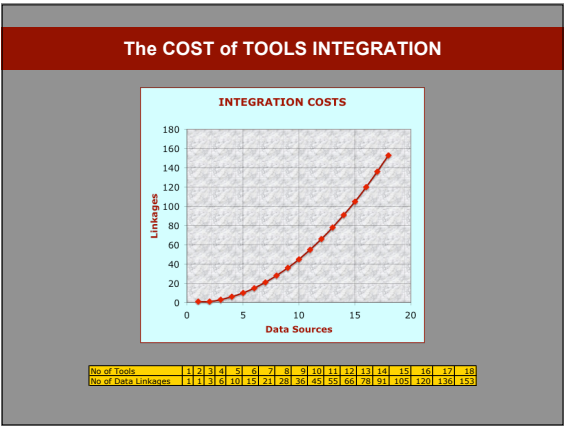
CRITERIA for selecting TOOLS

- Don't invest in too many products !
  – Every new Tool implies significant additional investment in integration
  – Ensure that you are getting value for money from existing investment
- Consider the extent to which Stand-Alone products need to be Stand-Alone
- From a Management Perspective, Tools should:
  – Capture Metrics for management
  – Automate the Support Function

Review of OPERATIONAL TOOLS

- Review what tools you have for collecting Technical and Activity metrics.
- Look at the extent to which tools are integrated
  – Help Desk fed from Asset Management, into Time Tracking etc.
- Tools should have historical analysis
  – e.g. help-desk should include problem resolution, so that subsequent callouts are not duplicated.
- Define a single referential for each data item.

Automate, Integrate and Summarise.

PROCESSES AND PROCEDURES
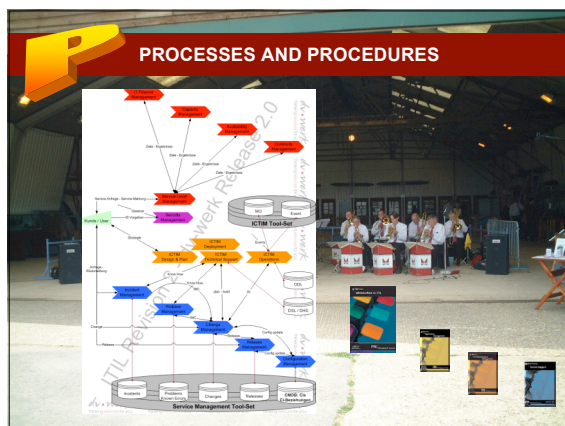
PROCESSES AND PROCEDURES

- **Advantages** of Process:
- SOX, CMMI, ISO 9001, ISO 10000-3
- Reduction in Costs
- Predictable, Repeatable, Auditable, Verifiable

- **Disadvantages:**
- Can become onerous
- Not always reflecting the need to be highly responsive.

- **Conclusion:**
- Deploy Processes which deliver value-add to IT Production and it's clients.

The BEST WAY to Implement ITIL Service Management?

Service Desk

Incident

Problem

Change

Release

Configuration

Configuration Management Database (CMDB)

…or MORE LIKE THIS ?

Service Desk

Incident

Problem

Change

Release

Configuration

Configuration Management Database (CMDB)
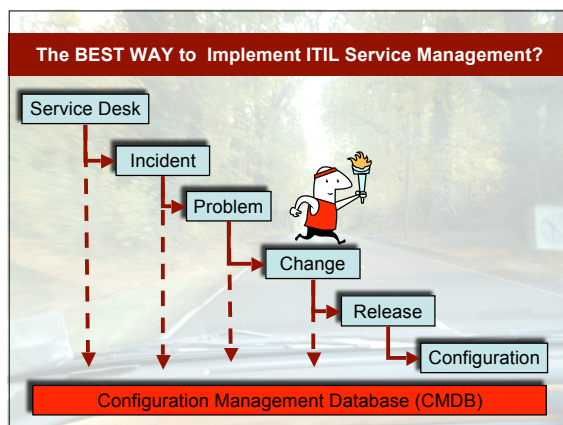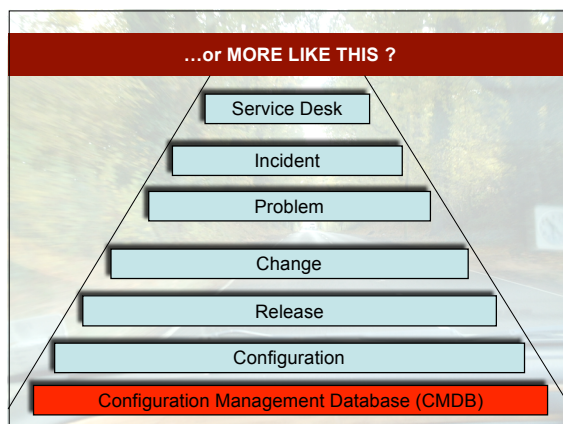
PROCESSES / PROCEDURES to IMPLEMENT

- ITIL Service Management provides a valuable **framework** within which to define your processes:
  - Service Desk, Incident and Problem Mangaement,
  - Change and Release Management
  - Configuration (Asset Management)

- In Addition, it is important to highlight the Process INTERFACES between IT Production and the outside world.

- Project Deployment, Handover.

- Involvement with Production at Project Initiation, linked to Standards

- Sponsorship of R&D within the Production team.

INTERFACING PROCESSES

Initiation	A	R & D	Configuration
Build	G		Release
	I	Standards	Change
	L		Problem
Deploy	E	Handover	Incident
Support			Service Desk
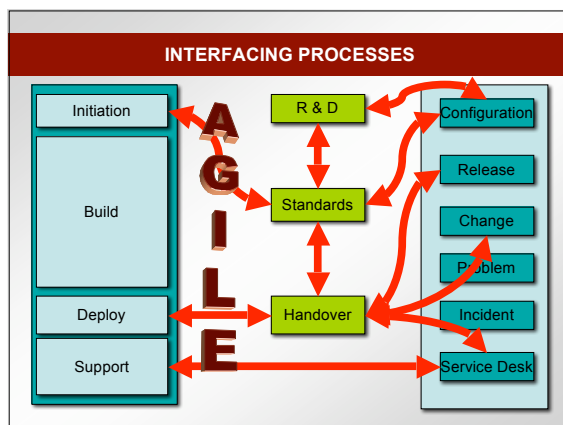
BETTER a FEW Procedures that ARE followed THAN…

"Most IT organisations have processes and procedures for how services are delivered for both projects and operations.

Often these processes and procedures are codified

but not maintained or actively policed..."

Iain Parker, The Boxwood Group

Source: Computing 1 September 2005

PROCESSES and PROCEDURES should:

- Facilitate the day-to-day running of IT Production, and it's relationship with the Business Sponsors and IT Development
- Facilitate rapid Deployment of Projects to live, upgrade, change controls processes etc.
- Enable changes to Production Standards (hardware & O/S upgrades etc.) and procedures to ensure that IT Development work and Business Sponsorship is visible to the IT Production team.
- Enable a clear interface with Development Projects at the earliest possible phase.

> Don't overload your teams with Procedure.
> Use a pragmatic common-sense approach.

STANDARDS

Why are STANDARDS so IMPORTANT?

- In some cases, the choice of Technology for a new Application can be driven by Developers' Choice:
  - Useful Development Tools ?
  - Design and Development Features ?
  - Familiarity ?
  - The desire to try out the latest technology ?
- Result: Applications whose Development costs may be Low, but the Support Costs may be high (even prohibitive).
- Defining IT Production Standards can redress this balance.
- Standards can contribute to controlling Costs of Maintenance & Support
- Simplicity = Economies of Scale in Support

HOW do you create STANDARDS?

- Establish a **Production Architecture** role
  - Define Production Readiness Criteria
  - Engage with Development
  - Publish Technology "menu" of Production Standards
- Developers and Business need to understand that these Standards represent the optimum support costs for Applications.
- Engage with Developers at Project Initiation.
- Configuration Baselines affect charge-back
- Template SLAs should reflect these Standards
- Establish processes for amending these Standards

Choice of Standards should depend upon whether or not a Technology is "Production-Ready"

Production-Readiness Criteria

Terminology	Definition
Scalability	Can it scale to the number of users / application instances etc. which may be required? As the number of end-users or application instances increases, how **much (proportionally) additional hardware etc. is required in order to deliver the extra capacity?** To what extent can the application be enhanced and expanded to adapt to possible future requirements?
Reliability and Stability	**Reliability** is concerned with the extent to which the application will deliver the expected results in a **consistent and repeatable fashion**, irrespective of changed load and/or changed environmental circumstances. **Stability** is the ability to be able to run unattended for **long periods of time** without operational intervention. Reliability therefore has to do with predictable, repeatable behaviour, whereas Stability has to do with repeatable behaviour over time.
Resilience	**Resilience** is the ability to **recover quickly from a failure of one or more components** that make up an overall system. Resilience assessment is concerned with how to implement Clustering mechanisms to guard against the possibility of failure of an Operating System, and how to ensure that there is no single point of failure within the architecture. Resilience also includes an assessment of how to implement Disaster Recovery mechanisms, and how to implement off-site recovery.
Backup and Recovery	**Backup** extends the idea of Resilience to look at how to respond to the **failure of all components.** This is typically implemented by using backup & recovery techniques. For example, failure of an entire data centre. Secondly, Backup can be used in order to r**ecover the system to a known state at a specific period of time**. One reason might be that some business logic (or dependant application) has resulted in corruption and it is necessary to go back in time to recover. A second reason may be to build an archive or historical copy of the application for the purposes of analysing historical trends, or setting up a test or development environment
Security	**Security** concerned not only with the **security of the application** as presented to the end user (e.g. the ability to implement IP fire walls, packet filters etc.), but also with **isolation** of the Production Application from any development / test versions. For example, what is to prevent a developer from calling the Live Production business logic from within an application sub-net.
Monitoring and Management	One of the purposes of **monitoring** is to **pro-actively identify any adverse changes in the behaviour of the system** and/or it's environment, in order to take appropriate corrective action before the change impacts the business client. For this reason, "Monitoring by exception" is most appropriate. A second form of monitoring is **"trend analysis"**, the purpose of which is to extract time-series data in order to model the long-term behaviour of the system and to collate it against business trends for Capacity Planning purposes. **Management** is also another key role in IT Production. In this case, were are concerned with **how easy it is to amend or adjust the configuration of the application**, and adjust it's environmental behaviour. Such configuration should be as automated (and intuitive) as possible, in order to minimise IT Production costs for supporting the running application.
Supportability	**Supportability** is defined as the features which make the application or system able to be supported by a "Business as Usual" IT team. This is a general extension of the concepts of Monitoring and Mangement, above. The significant issue with the "Supportability" assessment is **whether the application can be supported at a reasonable cost.** In practice, this means ensuring that we can minimise the amount of manual intervention required to keep to application at its appropriate level of activity.

PRODUCTION-READY: Defined

- Scalability
  - As the workload increases, how much additional hardware etc. is required?
- Expandability
  - Can be adapted to possible future requirements?
- Reliability
  - Deliver results consistently & repeat ably, irrespective of changed circumstances ?
- Stability
  - Able run unattended for long periods of time without intervention?
- Resilience
  - Able to recover quickly from a failure of one or more components of the overall system?

PRODUCTION-READY: Defined (2)

- Backup
  - Able to respond to the failure of all components of the system?
- Recovery
  - Able to restore the system to a known state at a specific period of time?
- Security
  - Are Users authenticated and Authorized, and non-users Isolated?
- Monitoring
  - Able to pro-actively identify any changes in the behavior of the system?
  - Able to extract time-series data to model the long-term behavior?"
- Management
  - How easy is it to amend or adjust the configuration of the application, and it's environmental behavior?
- Supportability
  - able to be supported at a reasonable cost?

Production-Readiness Suitability Assessment

	Client	Presentation	Network 1	Business Logic	Transactional	Network 2	Persistence	
Scalability	5	4	5	5	4	4	5	32
Reliability and Stability	4	4	5	4	4	4	5	30
Resilience	5	5	4	5	3	3	5	30
Backup and Recovery	5	5	5	4	3	4	5	31
Security	3	3	5	3	4	4	5	27
Monitoring and Management	5	2	3	5	4	5	5	29
Supportability	5	4	5	4	4	5	5	32
	32	27	32	30	26	29	35	

Value	Meaning	Support Costs
1	Application or System is considered to be totally unsuitable for IT Production use.	Costs of support are likely to be prohibitively high if the application or system were ever introduced into IT Production.
2	This Version of the Application or System is considered to be unsuitable for IT Production use, but could be used for software development, and additional discussions with the vendor should be held in order to introduce required features in a future version.	Costs of support are likely to be very high if the application were ever introduced into IT Production.
3	Application or System is recommended for deployment into production with some additional customisation required by the client or vendor in order to improve supportability.	Costs of support are likely to be in line with costs for other applications of this type.
4	Application or System is suitable for Production deployment, with very little additional customisation required. The client can implement any such customisation, without any necessity for involvement from the vendor.	Costs of support are likely to be in line with costs for other applications of this type.
5	Application or System is suitable for Production deployment, with minimal customisation. The vendor has demonstrated a strong understanding of the principles of "Production Worthiness", which are reflected in the design and implementation of the product.	Costs of support are likely to be in line with, or less than, costs for other applications of this type.

IS a Solution PRODUCTION-READY?

"Simplicity remains one of SOAP's primary design goals as evidenced by SOAP's lack of various distributed system features such as security, routing, and reliability to name a few."

Understanding SOAP

Aaron Skonnard

MSDN, March 2003

http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnsoap/html/understandsoap.asp

---

How to approach STANDARDS

- Create Technical standards within IT Production against which developers should create solutions.
  - How are these Standards updated?
- Engage with other technical teams to discuss emerging technologies.
- Implement "IT Production Assessment" function before deployment.
- Put in place a systematic policy of technology upgrade, to ensure that costly systems are decommissioned.

Sometimes there are valid Business reasons for deploying solutions that are not perfect !

SOME imaginary CASE STUDIES

Metrics
Operational Tools
Processes & Procedures
Standards

How Does
IT WORK
in Practice?

Case Study: Improving IT Production with Business

- Become Client-focused - a strategic goal.

- Collect Metrics on all IT Production current Activities
- Provide Costing breakdowns by Application:
  - man-hours
  - Activities - help desk calls etc.
  - capital costs
  - Consumption of Infrastructure Resources (CPU, disk etc.)

- Work with the Business to arbitrage Application costs.
- e.g. If the Business can see that Application "X" is having a big impact on bottom-line costs, they are motivated to address the costs involved.

Case Study: How to Justify IT Infrastructure Investment

- Make existing IT Production Costs Transparent to the Sponsor
  - Shows IT Production as secure place to invest.

- Provide Historical Trending of Metrics
  - If the Business and other teams are already receiving regular reports on Historical Trends, then a request for further funding will not come "out of the blue".

- Provide a Breakdown of existing Costs on a regular basis.

- Improve the credibility of IT Production, in advance, by making sure that Sponsors know that IT Production are measuring (and therefore controlling) current costings on a regular basis.

Case Study: How to Manage New Technologies

- Define Production Standards

- Implement Processes for dealing with Standards changes

- Create a Production Architecture team responsible for defining the "menu" technical choices for Production.

- Work with the IT Development team to have agreed Standards, and agreed implications for not following those standards.

- Use agreed processes and "workgroup" approach to examine the implications of new Technologies from both the perspective of Business, IT Development, AND IT Production.

Case Study: The Outsourcing Threat

- Outsourcing of IT Production is often motivated by:
  - 1) A desire to Reduce Costs, AND
  - 2) IT Department itself is unable to identify HOW to reduce costs.
- Key Issue:
  - Visibility of Costs and Activities enables an organisation to more easily justify what it is currently doing.

- A Client's IT Production team can potentially obviate the Outsourcing threat by:
  - Becoming Client Focused
  - Creating Metrics on Activity and Costings for Business Units
  - Engage with Business Units on processes and Procedures
  - Becoming the "Insourcer of Choice"

LIFE after GO-LIVE: How to MANAGE IT Production

- Without a Strategic Approach, IT Production can become "Fire-Fighting"
- The Key Elements for a Strategic IT Production Approach:
  - METRICS
  - OPERATIONAL TOOLS
  - PROCESSES AND PROCEDURES
  - STANDARDS
- Approach:
  - ANALYSE WHERE YOU ARE NOW
  - CREATE AN IT PRODUCTION STRATEGY
  - IMPLEMENT INCREMENTALLY

REMEMBER PRAGMATIC COMMON SENSE !

UK OUG
UK ORACLE USER GROUP

Dennis Adams
a s s o c i a t e s

LIFE AFTER GO-LIVE:
HOW TO MANAGE IT PRODUCTION

Dennis Adams
UK OUG Conference & Exhibition
2 November 2005

Dennis Adams Associates Limited
Consultancy for IT Production Management
www.dennisadams.net

Navigate your way with Oracle
PeopleSoft & JD Edwards

UK Oracle User Group
Conference & Exhibition 2005