

“Managing an Established Measurement Programme”

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Welcome

- I am honoured to be invited to present to PSM
- This presentation provides an opportunity to share the risks and issues I've seen and give advice on how you can avoid the common pitfalls in your organisation
- I am a member of Steria's core team of specialists in software sizing, IT Measurement, and estimating. I and my colleagues assist Steria professionals throughout Europe deliver effective IT Measurement Programmes and estimating processes to their customers .

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Timeline / Agenda

- What is a measurement programme
- A review of the risks and issues with each component and guidance on how to avoid and resolve them
- Some final thoughts

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Measurement Programme

- Business needs / policy
- Processes providing data and evidence
- Data collection
- Data repository
- Data integrity resolution
- Data analysis
- Reporting
- Decision making

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Business needs / policy

- Are the stake-holders known / changed ?
 - What are they expecting ?
 - What are they funding ?
 - What are they acting upon ?
- Level set the business goals that will be measured (testable requirements)
- Consider each stakeholder as a feather in the tail – there is overlapping data, analysis and possibly reporting – tailor the scope of the measurement programme to maximise what's provided with minimal data and effort – negotiate compromise on what and how information is reported.
 - Review the map of reports to goals, so everyone can see which are giving least value, hence sunset or at least hide and see who objects so can release effort



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Processes providing data and evidence

- Measurement is the cart. Process is the horse. Measurement is often seen as the requirement for performing the process or as the agent changing (improving) the process.
- If there is a process / quality programme ensure there is an effective relationship. You may need to engage the common senior manager.
- If you are, de facto, doing process deployment ensure that you get the necessary management sponsorship.
- Ensure there is clear management leadership on the balance of work by the PM on do the do and track / demonstrate what and how we are doing. (see back-up slide)

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Data collection

- Folks don't typically deliberately supply bad data to disrupt the analysis and reporting, but a dumb data collection tool obliges them to know exactly what's wanted (and how it's spelt). There are too many demands on the data owner's time to enable them to acquire this knowledge.
- The process creating the data may not provide sufficient accuracy or may be over engineered and provide values (at unnecessary expense) which are more accurate and auditable than the decision making from the reports requires.
- Is all the data necessary ?
- Seize every opportunity to make the data collection tool smarter.
 - Context sensitive forms
 - Selecting values from lists
 - Data validity checks eg end date must be later than start date
- Periodically review and update help and off-line guidance
- Get empowered as a critical reviewer for processes
- Periodically review the data required and revise data collection forms as necessary.

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Tools providing data

There are countless project management and programme management support tools.

Virtually all of them provide reports and data extracts

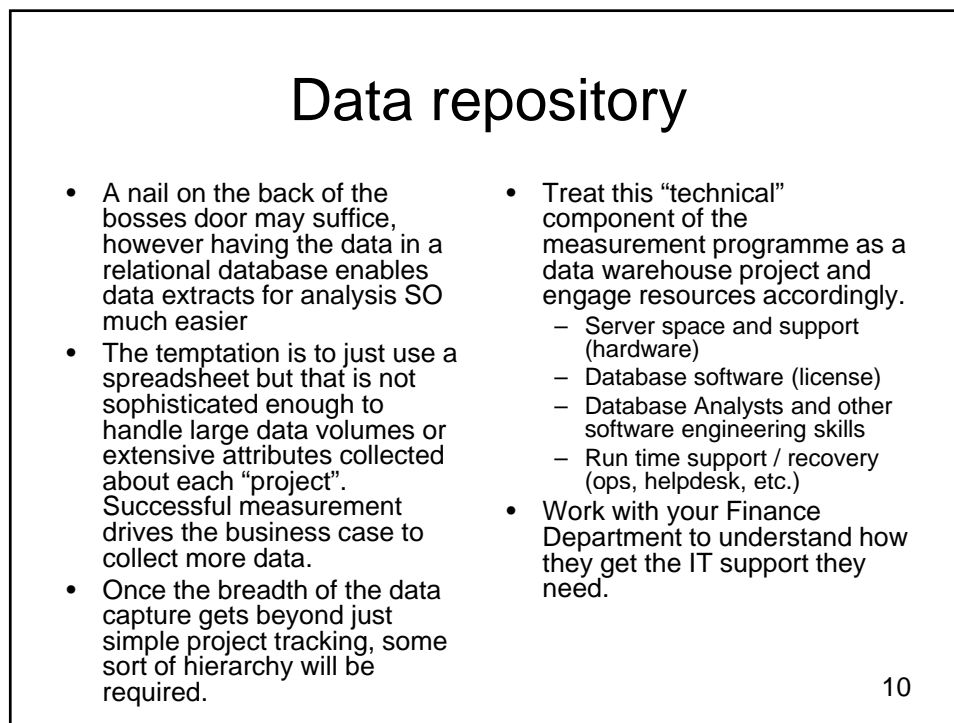
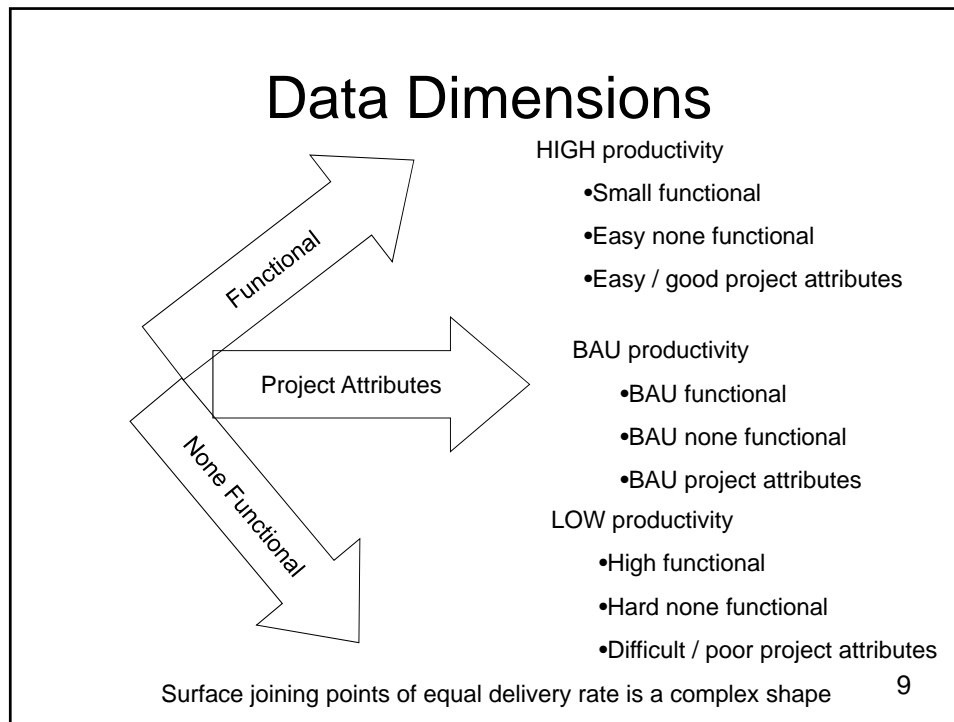
In the perfect world these would be used with perfect project management processes and provide all the necessary and usable data needed for the measurement programme.

The reality is this is a sledge hammer to crack a nut. A much simpler tool can collect the necessary data from the project managers.

Similarly there are some IT developments being done in environments which provide the measurement programme inputs. However care must be taken to ensure that organisation resources are not focused on getting this data at excessive cost.

Static code analysis tools, for example CAST, can also provide measurement data, the pitfall here is just because the data can be collected does not mean that it is meaningful for the organisation.

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Resource commitments

- Project Manager and or delegate[s] provide data and evidence(blow)
- Measurement team collect data and evidence (suck). Perform data integrity, analysis, and reporting
- Technical (maintain and support measurement repository and analysis tools)
- Specialist (statistical analysis of data; design & maintenance of measurement data model and reports
- Management review reports, make decisions, set policy

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Data integrity resolution

- Insufficient checks to ensure appropriate data going forward for analysis
 - Exclude partly completed records
 - Get the dyslexia corrected (52 instead of 25)
 - Outliers may be appropriate for performance measurement but need excluding for estimate calibration.
- This is the area to get inventive with the data analysis (diagnostic reports). “Smart” spreadsheet formulas and a sort will identify issues.
- Need to ensure that the data owner contact details and that of their manager is collected.

As time goes on drop the early data from that used for analysis. It takes time for the organisation to provide good data – crawl, then walk, and finally run. However any data (even inaccurate) is better than no data.

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Data analysis

- Getting the analysis right is difficult, easy to be too trivial or too complex
- It has to be performed consistently each month (period)
- The mapping of raw data to derived data to reports can become complex. Do you know which data is used for which reports ?
- Whilst statistical robust analysis may be required for a CMMI ® class A appraisal this is typically a “sledge hammer to crack a nut”.
- Automate as much of the analysis as possible however this may involve using more than one tool (software application).

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Reporting

- Reports are gee whiz numbers – they are not providing a recommendation or demonstrating that a business need or policy is being fulfilled
- Report is focussed on the down in how, not the up out financial impact
- Insufficient time allowed for ensuring how (the style) of the report is made which is sometimes more important than the content to drive the management to use the report for decision making
- Period between reports is not sufficient to be significant
- Work with report users to ensure they're getting the content (and no more) and usability they need.
 - Trend chart as opposed to table of values
 - Baseline / target value displayed
- Increase the skill of the stakeholders in using tools to avoid having to copy “snapshots” into PowerPoint slides.
- Review frequency of reports
 - Expect monthlies to become quarterly then may be annually or ad hoc
- The trusted capability to produce ad hoc reports is valuable to the management.

For example. The rolling 12 month average trend is a good organisational measure. Setting the average as a target for a particular project is dumb not least because the average of 1,2,8,9 is 5 so a target of 5.5 can't be done for the 1s and 2s because of their project attributes and is pointless for the 8s and 9s.

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Decision making

- Measurement by itself only provides data & information. It doesn't change processes, except that staff will try to get better at whatever is being measured. The organization needs to decide on the software process improvements to implement and to use measurement to decide if the improvements are helping it achieve its goals.
- Decisions are not made using the reports because the data or analysis is not trusted
- Some stakeholders are more skilled and supportive than others. They are your best allies to convince the others.
- Ensure you have the correct balance between
 - do the do
 - and tracking and demonstrating what you are doing.

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Conclusions

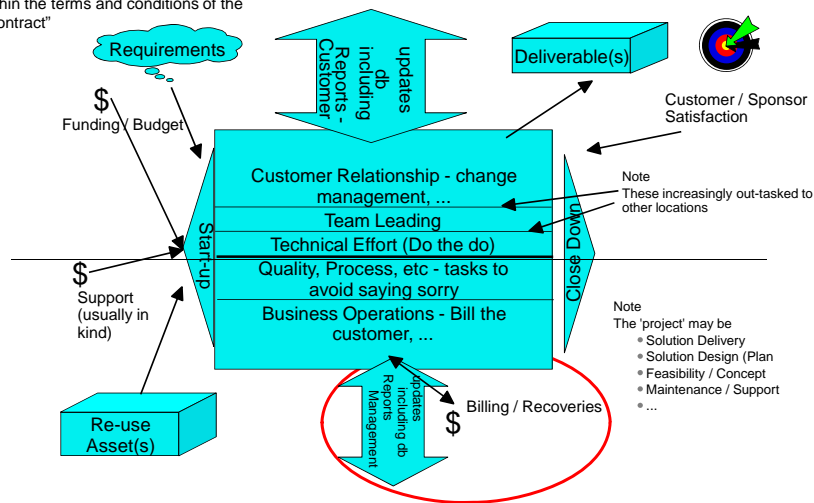
- A measurement programme has several components
- Each has risks and challenges. You'll need to ensure each component is
 - Defined
 - Deployed
 - Supported
- Management of a measurement programme needs input from
 - The executives / managers
 - The Process Improvement team
 - Technical folks to improve the infrastructure
 - Data modelling and analysis subject matter experts
- The goal is to enable executives and management to focus on what needs their attention, not just on who or what is shouting loudest.

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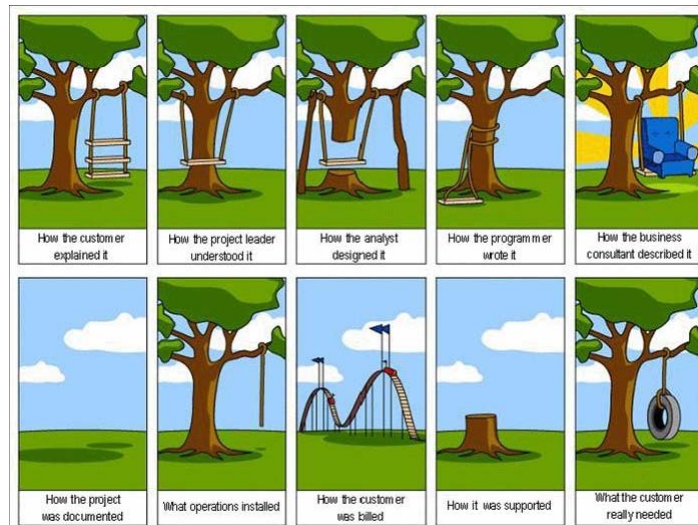
Backup

Balancing do the do, track what and how we are doing

The goal is to deliver on time, on budget, with required scope and quality of deliverable (s) within the terms and conditions of the "Contract"



Requirement Life-cycle



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Data collection – define, deploy, support

- Data definition is the devil in the detail.
 - Typical challenges and issues are
 - what events correspond to the start and end date
 - what categorisation of projects is required to enable apples to be compared with apples
 - what information in addition to the data (dimensions) is required to allow meaningful roll up and drill down
- Deployment covers
 - Publication
 - Commitment to adopt
 - Education
 - Measurements is the cart – management system, delivery model etc. is the horse.
 - Don't let evolution of the measurement programme be seen to be driver for change in the activities that the Project Managers (PMs) must perform. Ensure that Process Improvement deployment is happening first. As smart professionals it's easy to get ahead of the game.
 - The PM's management should care about measurement because it will enable them to give their PMs a better start and more realistic objectives etc. But if the organisation rewards the fire-fighters ...
- Support
 - What's need to prevent "Are these people deliberately trying to sabotage our measurements with their bad data".
 - Audit / data integrity – Building an effective relationship with QA and Business Controls; avoiding garbage in garbage out
Involve quality reviewers, give them measurement skills get them to assist with identifying weak process / procedures that will give bad data.

How to identify the strengths and weaknesses of your measurement reports

- Categorise reports as
 - Rear view – A report of what has happened. For example rolling 12 month average.
 - A statement of fact but provide management with little opportunity to change the business
 - Dashboard – A report of “current” status. For example project status indicator (RYG)
 - Provide better opportunity to trigger management action – focus on what’s needed rather than “who is shouting loudest”.
 - Windshield – A report of “predicted” measurement.
 - Provide management with a possible future unless they take action.

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