Process Modelling and analysis

Proposing a Higher Education Reference Model

This document is a product of Charles Sturt University's Workplace Productivity Program undertaken between 2005 and 2008. It is one of a series of downloadable extension materials provided for the benefit of the Higher Education Sector.

More information and additional downloadable resources about the program may be found at www.csu.edu.au/special/WPP
Complex Organisations

Universities are highly complex organisations. They generally have multiple, and often incongruent, goals across the theatres of learning and teaching, research, and community engagement. Universities have both academic and administration cultures. It is sometimes difficult to find the things that bind a university together apart from the fact of being a university. A reference point is required that - something that can be used by anyone to understand the overall picture and where they fit in that picture.

Just like the charts presented here. Five different views – about the same thing. While the charts provide information on such things as barometric pressure, cloud, rainfall patterns and temperature, there is always a constant – the map or outline of Australia.

This outline is the hub for a variety of applications. You can overlay many more aspects than just the weather on this constant, such as topography for example. The constant is important because regardless of the dimension of analysis, there is a common reference that facilitates communication and integration.
Overlays

Like the weather maps before, there are many forms of analysis to be considered as a University. Some of the possible ‘overlays’ are noted above. Like the weather analogy, we need the constant to pull these overlays together.
Organisational Constants

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Who</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Where</td>
</tr>
<tr>
<td>Rules, Controls, Strategy</td>
<td>Why</td>
</tr>
<tr>
<td>Events</td>
<td>When</td>
</tr>
<tr>
<td>Things (assets, programs, subjects, …)</td>
<td>What</td>
</tr>
<tr>
<td>Process</td>
<td>How</td>
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</tbody>
</table>

Constraints

There six fundamental options for constants relevant for any organisation, not just Universities. To select a constant – apart from being something that will tie the overlays together, it needs to be constant! Traditionally, much focus is placed on organisational structures and charts. While these detail how an organisation is arranged, they are rarely constant and they don't explain what really happens. Additionally, an org chart for enterprises even in the same sector (such as Higher Ed) may be quite different.

Process is the constant, the others either change or are intangible to many. If processes are described at a suitable conceptual level – they don't change (unless you move out of Higher Education or whatever sector you are in). Process outlives organisational structure, legislation, strategy, events, … Process is the hub - you can overlay many things on process.

At CSU we originally appreciated the importance of process at an enterprise level through considering the enterprise architecture. Early work was loosely based on Holcman (See http://www.zifa.com/holcman.html) , i.e., Map process to data, initiatives, org units, systems, and goals and you will get good results.

From an information technology perspective, applications support your customers processes, this is also a key driver at CSU.
Dimensions of analysis

Further to the Holcman concepts – by mapping process to only four other things (in this case data, systems, org units, goals), you get the six other relationships for free. The slide shows the mapping using simple matrices – the four big ones, lead to the six small ones. With these relationships understood, there is the ability to then be able to answer a myriad of questions and gain an insight into the organisation. The information we originally hoped to gain follows below. In retrospect, they were probably quite IT oriented.

- Org - These orgs do these processes / these are common processes done by many orgs
- Goal - This goal impacts on these processes / These processes do nothing towards goal
- Data - This process needs this data / These processes need same data / Data collected no-one cares about
- Systems - The same process uses diff systems / This system can do these processes / This process is not supported by a system
- Goals - This goal impacts on these orgs / These orgs are working on these goals
- Org and Data - These orgs use the same data / These processes need same data / Data collected no-one cares about
- Goal and Data - This goal has no data about it / This data is impacted by these goals
- Systems and Goals - This system helps with X goals / These goals impact on these systems
- Systems and Data - These systems use the same piece of data

Later work in the Workplace Productivity Program brought a more far reaching appreciation of the pivotal role of process and process understanding in achieving organisational performance.
Links to Process

The reality is that process provides the common ground for the overlays referred to earlier. It is a foundational construct for an organisation – it is an aspect of its knowledge infrastructure.
A Process model for Charles Sturt University.

This model describes the end-to-end core processes of the University, namely Learning & Teaching and Research, driven by 'Determine Course and Discipline profile'. These are segmented into 5 process groups comprising, in turn, sub groups. This is sufficient to allow conversations about process to take place in a variety of settings.

After the style of Porter’s (1998) Value chain, the slide also indicates the enabling, planning and governance processes. Note that there is no reference here to the organisation structure, i.e., the WHO. The key characteristics of the model are that it is:

• Conceptual
• Independent
• Primitive
• Stable
• Integrative
• Useful

Development of the model
A draft process model was developed, then refined through a series of sessions with senior portfolio managers and with nominated reference groups. The model was signed off by the Senior Executive Committee who required that reference be made to University values, to ensure that in the course of reviewing processes, university values would be considered. The model provided the starting point for the review and analysis of university processes.

A Higher Education Reference model

While this model was developed for CSU, it could readily be adapted for other HE institutes that have as their core business, Learning & Teaching and Research. In this sense, the model provides the basis for a HE Reference Process model, discussed later in this presentation.

References:
Organisation Unit process models

Just as the program developed a CSU process model as a tool to analyse CSU’s core activities, process models were developed for each of the organisation units within CSU to support detailed analysis of the enabling processes. i.e., each was treated for the purposes of analysis as an organisation in its own right.

At the conceptual level, a pattern emerged across the Divisional models. Each Division has 3 core processes, namely:

1. **Provide Services and/or infrastructure** - that each enabler provides services and/or infrastructure to support the University’s core processes.
2. **Support Customers** – each enabler provides direct support to customers that use their services.
3. **Provide Strategy and Advice** – each enabler is a specialist in a certain field (eg IT, Facilities, HR). The University relies upon these specialists for strategy and advice with respect to their discipline.

Divisions may also describe ‘Service’ processes i.e., specialist processes related to the distinct services the division provides. This provides a structure for detailing processes and procedures related to the service.

The development of these process models provide divisions with a means to understand their business, align themselves with the university strategy and support the conduct of process improvement and renewal.
Potential applications of the process model

This example is intended to illustrate model's independence of organisational structure. Using the model as the key reference, associations between process and other constructs such as stakeholders, goals, other processes and events can be made.

In CSU’s case, the need to understand these associations ultimately drove the development of the CSU Process Knowledge Base, a repository of information about such associations with process at the hub. This facilitates process analysis, business analysis and a range of other activities. (The CSU Process Knowledge Base features as a separate downloadable at INSERT URL HERE)

Before relating process to organisation, however, it is important to understand what you are relating independently first (i.e., primitive concepts such as process).
Potential applications of the process model (continued)

As shown earlier, an enabling process can be analysed through exploring the process model for the owning Division. In this example, the procedures and role descriptions associated with the process are being analysed. In this way, people and process can be seen in the context of the entire organisation.
Potential applications of the process model (continued)

Using the reference model instead of organisational charts allows different perspectives such reviewing and reporting health and identifying process improvement opportunities.

Likewise, the model can be used to investigate:

• Effectiveness in meeting compliance requirements
• Achievement of desired outcomes for the institution and its students.
• Identification of the key interactions between Faculties and Division or between internal and external stakeholders
• Effectiveness of core processes in managing interactions
• Effectiveness of enabling processes in supporting core processes
Overlay Systems

You might consider that processes are supported by IT (applications or systems depending upon your terminology). To place a value on your IT and how well it supports the organisation, you may consider mapping your IT systems to your reference model.

This visual intends to demonstrate different systems supporting a variety of processes (or not!). So what do you do with it? If you don’t have a system supporting a process, then you may have some quick wins. For systems that are supporting a process, you might consider a health check to determine how well that process is supported. Is there system duplication? ie the same process undertaken elsewhere but supported by different software?

At CSU this concept helped to define the approach to application portfolio management.
Overlay ICT Investment

A reference model can assist your organisation to focus its project efforts, and if not, assist in appreciating where the efforts are going – ie portfolio management.

Grab a reference model, your list of projects and some ‘dots’. Pretend the dots are projects or initiatives and the dots on the processes that are being improved or changed. Look at it from a variety of periods – perhaps at budget time and then subsequently.

This slide attempts to demonstrate some maturity in CSUs portfolio management process. The focus towards the main goal of teaching and learning and research support. By thinking about process – core process, we’ve got things back to a better balance.

Imagine if instead of budget or project bids by organisational unit, we looked by process? Or at least reviewed them by process. Would doing this change your list of projects?

This is a very powerful communication tool you could use it to get a conversation going in and across your organisation about your organisation.
The reference model presents a wide range of opportunities. The model can trigger, drive and assist in communicating numerous changes.

- New approaches to risk management, continuous improvement and review
- Refining organisational structures
- Drawing attention to the ‘main game’
- Conveying complexity
- Communicating in a common language
- Establishing a Strategic Application Plan
- Portfolio Management
- Eliminating duplication
- Creating opportunities for real enterprise wide change
The reality is that even if we don’t agree on terminology or language, a higher education reference model can assist us as a sector.
Building a Process model for your organisation

- Confirm the institutional Strategy
  - Engage with the Senior Executive

- Identify core and enabling processes
  - Review strategy and plans, existing process documentation and models

- Draft the model and refine it with
Stakeholder context model

Burlton says,

• Consider your strategy

• Understand your stakeholders in that context

• Understand interactions > core & enabling processes
Stakeholder Model & the Reference model

The Stakeholder context model can assist the identification / confirmation of processes, through understanding the interactions with stakeholders and then asking what are the processes that are required to fulfil those interactions.

<table>
<thead>
<tr>
<th>Used in conjunction with the Reference Model ask:</th>
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<tbody>
<tr>
<td>• What processes are involved in these interactions?</td>
</tr>
<tr>
<td>• How well are these interactions fulfilled?</td>
</tr>
<tr>
<td>• Who is a stakeholder in this process?</td>
</tr>
<tr>
<td>• Who should be involved in analysis, reform and renewal efforts?</td>
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</tbody>
</table>
Time spent drafting, reviewing, and gaining consensus on a high level process model for the organisation is time well spent.

It provides the basis for communicating the business of the institute to a wide audience and supports wide ranging applications, some examples being business process management, applications portfolio management, business continuity, induction, and decision making on investment in strategic and tactical initiatives with or without an ICT component.