For decades Business Process Mapping and Analysis has been the traditional starting point for analysing business operations. But as our businesses evolve to be more people and service centric, effective business improvement will need to go beyond traditional process mapping and analysis techniques.

In this paper we introduce Organisational Network Analysis as a superior technique for analysing people centred organisations. Called ‘Value Shops’ and ‘Value Networks’, these businesses are more reliant on optimising the management of scarce expertise and ensuring that knowledge and information are shared effectively across the organisation.
INTRODUCTION

For decades now business process mapping (BPM) and analysis has been the traditional starting point for analysing business operations. Total Quality Management, Lean Manufacturing, Six Sigma, Business Process Re-engineering all have the “Business Process” as their centre of attention for business improvement. When we try and unpack the “Business Process” term we find its usage often stretches far beyond the mechanical workflow processes ideally addressed by Business Process Analysis techniques.

For instance, are the subtle negotiations between a sales person and a client adequately captured in a process map? What about the interactions between a caseworker and client? Or the network inspired selling of Apple’s entertainment products? The delivery of an inspired lecture by a university professor? The bedside manner of an expert physician? Of course we can describe all of the above as “business processes”, but most certainly effective business improvement will need to go beyond traditional process mapping and analysis techniques.

Stabell and Fieldstad¹ in their pioneering paper on Value Chains, Shops and Networks identified that business value can be generated through business models other than the traditional business process chain. They introduced the concept of the “Value Shop” to cater for expert driven businesses like medical centres, law firms, engineering consultancies or research institutions and “Value Networks” for businesses that thrived on client interdependence like telecommunications, banking, utilities and entertainment businesses. To be sure, all of these alternate business models have traditional process chain activities, but in no way are they the “main game”. Subjecting these alternate business models to traditional process analysis and analysis techniques is essentially a misuse of resources.

If your business is centrally not a “value chain” what are the alternatives? Two mature approaches are typically used for addressing the Value Shop and Value Network businesses, being “Social Network Analysis” (SNA) and “Value Network Analysis” (VNA) respectively.

Social Network Analysis and Value Network Analysis

SNA is able to identify those experts in your organisation that others truly depend on for advice and support. Expertise in this sense is not limited to technical disciplines. In our experience SNA has often uncovered individuals with “organisational expertise” i.e. just “how do you get things done around here?” or “how can we get the procurement system to work for us?” Understanding the relationship channels between your experts in the business and the rest of the organisation is akin to a business process map for the more mechanical processes, offering the same level of benefits and insights. SNA can cater for both the value shop and value network business models.

Organisational network analysis: Beyond Business Process Mapping
Optimice Pty Ltd.

VNA can address the value network and value chain type businesses by exposing those client interdependencies that comprise the network and then shaping both tangible and intangible value flows that connect different “roles” in the network. SNA works at the personal level. VNA works at the role level. Like BPM, following transaction flows can capture the value flows between roles. However, VNA takes this analysis one step further, by considering the intangible value flows between roles that are typically behaviourally based. For example, providing early pro-active advice, political support, constructive feedback are activities that we might all appreciate in our day to day work, but you will rarely find in the formal process charts or work contracts².

Organisational Network Analysis
Somewhere in between SNA and VNA there is room to look at how organisational roles interact from a personal, rather than process or flow perspective. We are calling this “Organisational Network Analysis” (ONA), which simplistically is SNA with “roles” as the nodes, rather than individuals. It differs from VNA in the sense that the connections between roles are not detailed as value flows, but simply identified by their degree of inter-role dependency. ONA can be complementary to both SNA and VNA. ONA can address, to differing degrees, all three value configurations.

In this paper we introduce the concept of ONA and illustrate it with a case study.

Where would you use ONA?
We have conducted many SNA and VNA exercises over the years. These exercises have not only been confined to Value Shop or Value Network businesses but also many Value Chain businesses. Invariably there are elements of both techniques that can limit their adoption. For SNA the reluctance is typically

related to privacy, and potential discomfort that might arise for some individuals shown (or not shown) in the social network maps. This can be mediated to some extent by not publishing names in the social network maps, but for survey-based SNA, people are asked to nominate individuals by name and some people find this somewhat uncomfortable. For VNA privacy is not an issue as the unit of analysis is a “role”.

The tangible value flows in VNA are similar to business process or “use case” approaches that are familiar to those practiced in traditional business process analysis techniques. It is the intangible value flows which are often people or relationship centred, that can be foreign to VNA participants and takes some time and practice to master. Like business process mapping, the overall process can be time consuming as each role is analysed for the content of their value exchanges. This can often limit the scope of organisational analyses that can be practically achieved.

By placing ONA somewhere between SNA and VNA, it can achieve some of the benefits of both approaches, while avoiding some of the limitations. ONA is essentially an SNA at the role level. Participants are asked to nominate “roles” rather than “people” that they depend on for doing their job well, together with the degree of dependence they might have on other roles.

Hence the privacy issues of SNA are avoided, at least for roles that have more than one occupant. It is also easier and more natural for respondents to classify their role partners by the degree of dependence on other roles, than to articulate the more detailed value flows required of VNA.

Additionally, on the plus side is that ONA could be easier for organisations to adopt by minimising the privacy issues of SNA and reducing the time requirements for the value flow articulation of VNA. The limitations are that you will miss the subtle insights provided by knowing the individuals and their personal attributes provided by SNA. You also miss the detail of role-to-role value flows, which can be used to help reformulate roles and be the basis of partnering scorecards.

<table>
<thead>
<tr>
<th>ONA Benefits</th>
<th>ONA limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Typical SNA privacy issues avoided</td>
<td>• Miss out on the insights by not knowing the individuals</td>
</tr>
<tr>
<td>• Easier to nominate roles than individuals</td>
<td>• Miss the detail of the role-to-role value flows.</td>
</tr>
<tr>
<td>• Faster than VNA</td>
<td></td>
</tr>
</tbody>
</table>

3 In the case study provided, the use of a survey with names identified was not acceptable to the workers union


5 [see www.partnershipscorecard.com](http://www.partnershipscorecard.com)
Organisational network analysis: Beyond Business Process Mapping
Optimice Pty Ltd.

We view that ONA is best placed for organisations wanting to do a quick, broad based organisational analysis beyond business process mapping. Typically it will be the value shop and value network style businesses that might benefit most from an ONA, though value chain businesses looking for improvements beyond chain efficiencies would also benefit. ONA can provide a focusing vehicle for the more time consuming processes like BPM and VNA.

ONA Case Study
The best way to illustrate ONA and its benefits is by way of a case study. The client for this case study was a large financial organisation with over 120,000 employees. The project focused on the Information Technology Services department of some 4,000 plus employees. Issues with privacy and potential union issues precluded the department from conducting a traditional SNA. The SNA process was therefore adapted to have the survey respondents nominate “roles” rather than “individuals” that they depended on to effectively perform their own role requirements. Roles were analysed at multiple levels by looking across three levels of the organisation chart.

At the top level reporting to the CIO we had 8 service line roles. At the next level we had 44 business unit roles. Below this we had around 200 role “activities”. These roles were all well documented for the department, with each service line, business unit and related activity documented in their operations manual. From a traditional top-down organisation chart perspective, the department had done a comprehensive job of articulating the roles and responsibilities of each of the identified roles down to the activity level. However what was missing was the peer-to-peer relationships. The effectiveness of the peer-to-peer relationships was one of the objectives for conducting the ONA.

Surveying
This initial study drew respondents only from the management layers (around 200 staff), with the intention of broadening the study at a later date. The on-line survey was seeded with the 200 role “activities”. Activities uniquely belonged to business units, which in turn belonged to service lines, so the organisations was described in classical hierarchical terms. Respondents could be identified against their prime activity and they in turn could nominate any of the other role activities that they interacted with, along with the degree of importance of that interaction. The relationship questions sought interactions around:

- Day to day operational knowledge;
- Problem solving support;
- Information sharing; and
- Desire for more contact.

Because the organisation was described in hierarchical terms, a connection between two activities could also infer a connection between business units and/or service lines, therefore facilitating analyses at multiple levels. In practice however, the limited respondent population of 200 respondents with also 200 activities meant that analyses at the activity level were less meaningful and would require a larger sample.

---

6 The survey was conducted using www.onasurveys.com
Organisational network analysis: Beyond Business Process Mapping

Optimice Pty Ltd.

Analysis

The ONA survey results provided data on role-to-role relationships for the four relationship types, along with a relative strength of relationship dependency. At the highest level, a link would indicate a “critical dependency” of one role on another. Dependencies at times can be reciprocated, indicating a bilateral dependency relationship. The figure below shows a dependency map between the role activities for the operational knowledge relationship. The nodes represent a role activity, coloured by the service line that they belonged to. The size of the node reflects the relative number of dependency nominations (in-degrees) i.e. the larger the node the more demand there is for this activity. In this case the map only shows the “critical” dependencies.

Figure 1 - Critical Operational Dependencies by Service Lines

What is immediately apparent is the difference between the ONA map and the formal organisation chart as well as a typical business process-mapping chart. It is nowhere as neat or structured and there are a lot more connections shown. While we can see some patterns where activities are tending to cluster along service lines, the connections between service lines are not very crisp. So which of the formal Organisation chart, the business process map or the ONA map do you think is closer to reality?

Business process mapping, when used for business improvement exercises, are meant to represent how a business currently operates. The analysis of the “as-is” situation is then meant to provide the opportunity to design more efficient processes from which the “as-is” processes can be adapted or even removed to achieve a higher performance organisation. But what if the “as-is” representation is only a poor reflection of what is really happening?

In a Value Shop style organisation a business process map may effectively show how say, a patient is progressed through a medical centre, but what it misses is the critical dependencies between roles in the centre that are knowledge or expertise dependent, rather than purely transaction dependent. In a Value Network organisation the Business Process Mapping approach is likely to not identify anything but the linear flows, missing all the critical feedback or reciprocal links that exist in reality. Even when more sophisticated business processing tools are used to cater for feedback loops and to facilitate modeling of processes, one could see that if all the critical dependency relationships were included from the above
example, these models could become overwhelmingly complex to analyse using business process analysis techniques.

So what new analytical techniques can ONA offer? Ultimately the objective of an ONA is no different to a BPM exercise. We are looking for interventions that can increase throughput, lower costs while sustaining a high quality service or product. The analytical techniques to achieve this end do differ in focus as shown in the table below:

<table>
<thead>
<tr>
<th>BPM Analytical Techniques</th>
<th>ONA Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maps transactional flows</td>
<td>Maps role relationship dependencies</td>
</tr>
<tr>
<td>Uses physical “stocks and flows” premise</td>
<td>Uses a people centred interactions premise</td>
</tr>
<tr>
<td>Looks for inefficient flows</td>
<td>Looks for overly complex interdependencies</td>
</tr>
<tr>
<td>Analyses capacity and utilisation</td>
<td>Analyses capability and engagement</td>
</tr>
<tr>
<td>Optimisation has a mathematical interpretation</td>
<td>Optimisation has a behavioural interpretation</td>
</tr>
</tbody>
</table>

Table 1 - BPM vs ONA

As the table shows, ONA is a more people centre approach than BPM. The success of the technique becomes heightened for businesses that are more people and/or service oriented like the medical, legal, financial, educational or community services that now dominate advanced economies.

The following analytical techniques applied in this case study are largely adaptations or extensions to mature SNA techniques, when applied to organisations.

**Demand Analysis**

The network diagram shown in Figure 1 identifies roles connected by directional arrows. If role A is pointing to role B then this is saying that someone in Role A has nominated Role B as a critical connection for them. From a supply and demand perspective one could say that Role A is placing a demand on role B and Role B is a supplier to role A. Roles that have many nominations (called “in-degrees”) are in high demand. The following chart shows which of the 44 business units were in most demand:
Organisational network analysis: Beyond Business Process Mapping

Optimice Pty Ltd.

High demand business units can potentially be bottlenecks. A measure of efficiency could arguably be related to how well the “work is spread around” amongst organisational roles.

Criticality Analysis

Networks where there is a concentration of demand on just a few nodes would suggest that these critical units are indeed becoming bottlenecks in the organisation. We can measure and benchmark this effect using a criticality measure:

Figure 2 - Business Units in most demand

Figure 3 - Role activity criticality

Figure 3 plots the connections that are lost as we incrementally remove the highest demand activities. We can see that the top 27% of activities represent 50% of the connections. While we wouldn’t expect all activities to be equally in demand, this analysis does provide us with an “organisational robustness” measure. For example in other studies we found some organisations where the top 10% of activities represented 50% of the connections, which would suggest that these organisations were far more vulner-
able to overall poor performance if the in demand activities were to perform poorly, when compared to this case study organisation.

Value Sources and Value Sinks

When we look at supply and demand together, it’s possible to identify how activity roles and/or business units relate in a supply and demand sense. Typically a role will be seeking value from other roles and in turn other roles may be seeking value from them. If we look at the strength of demand and supply around a node we can effectively do a value “mass balance” to identify whether a particular role is a “value source” or “value sink.”

Figure 4 - Value Sources and Value Sinks?

Figure 4 shows an extract of a network map showing how roles are connected via demand and supply. This time however they are coloured to indicate the degree to which the role is a value source or a value sink. The nodes are sized by the relative number of connections they have. The thickness of the line shows the relative strength of dependence. Value sinks are roles that tend to “demand” more from others than they “supply” to others. Alternatively the opposite is the case for value sources, which supply more to others than they demand from them. The connections show the flow of dependency between, in this case, business units.

What should we interpret form this analysis? A simple interpretation could be that value sinks are bad because they take more than they give, so we need to work on these. More subtly however, strong value sources could also be bad if the demand on the source is due to a lack of capability to efficiently service the demand. And perhaps a lack of capability could be due to a reluctance to draw knowledge from other sources.

In the case study, showing this analysis provoked a significant amount of discussion, some no doubt due to the novelty of seeing an analysis like this for the first time. We highlighted to the executive the example of the change management business unit as a value sink, who appeared to be drawing strongly from four other units but appeared not to be in demand itself. The CIO advised us that he had only disbanded that unit the week before, suggesting that perhaps this validated our analysis!
NEW INSIGHTS AND/OR SPECULATIONS

We have already indicated that we believe ONA provides an inexpensive method for achieving a larger scale business analysis, when compared to business process analysis and value network analysis. The value sink / value source analysis was able to show very quickly, which areas would be the most prospective in terms further investigation. Where business units or activity roles are identified as extreme value sources or value sinks, we can speculate as to why this is so. For example, we can review the current competency levels of those roles that have been identified as large value sources or value sinks.

![Figure 5 - Value Sink / Source Interventions](image)

Figure 5 provides potential improvement interventions gleaned from the value sink / source analysis. A low competency value sink may be in this position because they are newly formed and still building their capability by drawing heavily on other roles. The improvement action could be to provide time and training support to help this role to become more valued. If the value sink is highly competent then it possible that their visibility in the organisation is poor and therefore could benefit from more organisational promotion.

Alternatively, like the change management role in the case study, the role may simply not be adding value and therefore needs to be “re-engineered” into other roles. For the large value source with low competency, role occupants could be coached into reaching out more to other roles for support in helping to build their competency. If the value source is already highly competent, then it’s likely that they are under resourced and therefore cannot efficiently meet the demands on them.
The ONA outputs could also be used to help focus business process and/or value network analyses activities. A focus on the key interactions with the large value sources and sinks are likely to provide the greatest return when applying these complementary analytical techniques.

In summary, we see that ONA as presented here, can provide a quick and efficient way of providing an organisational overview of performance. Demand analysis can provide a quick identification of roles that are being overloaded and potentially becoming bottlenecks. The value source / value sink analysis can provide some real insights into the effectiveness and efficiency of the organisation as a whole. By applying ONA as the initial analysis activity, the more comprehensive, but more expensive analytically techniques like BPM and VNA can be focused on areas where the potential benefits are greatest.
ABOUT OPTIMICE

Optimice provides specialised consulting services and toolsets to help organisations map and improve business relationships at multiple levels. Optimice identifies relationship patterns between people, organisations or markets, and we have improved the basic techniques to optimise these relationships in a compelling business-focused context.

Our Partnership Scorecard™ helps organisations manage the intangible relationship aspects of outsourcing, smart sourcing, alliances, joint-ventures and similar complex business frameworks.

Our specialized survey tool www.onasurveys.com provides consultants and other practitioners the most effective and user friendly tool available on the market to collect data on business relationships.

Optimice Pty Ltd.

23 Loquat Valley Rd
Bayview NSW 2104
Phone +612 8002 0035
Fax +612 8213 6274
www.optimice.com.au
Email: contact@optimice.com.au
ABN 92 123 562 854