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Service Identification
through Value Chain Analysis and Prioritization

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ABSTRACT
In a resource constrained business world, strategic choices must be made on process improvement and service delivery. There are calls for more agile forms of enterprises and much effort is being directed at moving organizations from a complex landscape of disparate application systems to that of an integrated and flexible enterprise accessing complex systems landscapes through service oriented architecture (SOA). This paper describes the deconstruction of an enterprise into business services using value chain analysis as each element in the value chain can be rendered as a business service in the SOA. These business services are explicitly linked to the attainment of specific organizational strategies and their contribution to the attainment of strategy is assessed and recorded. This contribution is then used to provide a rank order of business service to strategy. This information facilitates executive decision making on which business service to develop into the SOA. The paper describes an application of this Critical Service Identification Methodology (CSIM) to a case study.

Keywords
BPM, Service Identification, SOA

INTRODUCTION
Organizations are being encouraged to purchase or build services supporting their organizational processes with a service oriented architecture, in order to replace their application architecture which has evolved over time, using disparate technical environments, the complexity of which is exacerbated by mergers, and acquisitions. But which services to migrate first? Which services are of greatest benefit to the organization? How does an organization select an appropriate range of services for development and in-house deployment or delivery through outsourcing or through web services?

Model-based Management (MBM) can assist in selecting appropriate aspects of the enterprise for service enablement. MBM has been linked by Cummins (2009) to Business Process Management (BPM) and Service Oriented Architecture (SOA). Cummins says ‘SOA technology has enabled rapid and flexible integration across organizational boundaries. BPM technology is improving flexibility and optimization of business processes. MDA (model driven architecture) is an enabling technology of MBM.’ The key elements of SOA, BPM and MBM business benefit are through the consolidation of redundant business processes, which accrete in the modern enterprise through mergers and acquisitions (Cummins 2009: 3). The rapid rate of mergers, acquisitions and demerging requires organizations to have greater agility in their technical architectures.

In addition, before, during and after the global financial crisis, the rate of strategic change has increased, requiring more agile methods of formulating, articulating and executing strategy. Pun (2004) notes the wide range of definitions of strategy and the pressures to move more rapidly in strategy formulation and execution. Zachman (1987, 2010) and derivative enterprise architecture frameworks such as TOGAF (2010) through their business architecture structure and methods, recognize the relationship between strategy formulation (the business view) and the supporting business processes, but few researchers have been examining how to relate these components of the enterprise architecture. Huxley and Stewart (2004) have proposed a means of linking and valuing this relationship in order to identify processes suitable for process redesign or re-engineering purposes. Their conception of a business process in their Critical Process Targeting Methodology (CPTM) is at the value chain representation. The value added chain was originally proposed by Porter (1965) and has been used extensively in strategic planning. Cummins (2010) points to the relationship of a business service to the value added chain model in the business process model.

This paper describes the relationship of a business service to business process and proposes a prioritization methodology linking the business service to the business strategy. The business service is modeled as a high level business process and represented as a value chain component (VCC) in the value chain decomposition of processes. The term business service means a value chain component. Used throughout the paper as an exemplar is an insurance company case study, generalized...
from previous interactions with organizations in the insurance and banking sectors and including the current work in a large insurance company.

The paper first briefly describes the Service Oriented Architecture concept of a business service and shows its relationship to an element in the VCC of a reference model. A methodology is then described, linking this business service to elements in the strategy set of an enterprise and discusses how C-level executives and business process owners can attribute the value of the contribution of that business service to the strategy. The application of this methodology to a case study is described throughout. Refinements to this methodology are elaborated showing how business executives can select the most appropriate service for development and implementation in the service oriented architecture.

**BUSINESS SERVICES IN A SERVICE ORIENTED ARCHITECTURE**

The perception of a service range from business-oriented views of traditional business services to purely technical views of electronic services or web services (Kohlborn, Korthaus, Chan and Rosemann, 2009). On a business level, these services are driven by service strategies and service-oriented business models, which impact organisational structures and individuals (Grönnroos, 2007). On a technical level, services are implemented as encapsulations of autonomous, valuable software capabilities (Krafzig, Banke and Slama, 2005). Considering these technical services, interfaces are more often clearly defined than for business services which enable practitioners to combine services on-the-fly and based on current performance needs (Yu and Lin, 2005; Zeng, Benatallah, Ngu, Dumas, Kalagannam and Chang, 2004).

Baida, Gordijn and Omelayenko (2004) compared and analysed the service terminology used in both business science and computer science domains (refer to Table 1). According to them, the label “web service” is not a business term, nor a focus in business. Rather, “web service” is a computer science term and an implementation issue.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Services</th>
<th>E-Services</th>
<th>Web services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>Well-defined</td>
<td>Core-interpretation is shared; interpretations vary in the extent of generalization</td>
<td>Rarely used, definition borrowed from computer science</td>
</tr>
<tr>
<td>Computer science</td>
<td>Divergent interpretations</td>
<td>Technical or business definition</td>
<td>Well-defined</td>
</tr>
</tbody>
</table>

*Table 1: Services Terms Usage: Summary (Baida, Gordijn and Omelayenko, 2004)*

In order to clearly distinguish business services from software services, Kohlborn (2008) developed a service terminology which builds on Baida, Gordijn and Omelayenko’s (2004) work (refer to Figure 1).

**Figure 1: Business services versus software services (Kohlborn 2008)**

Considering this categorization of services and the different areas the term service is used in, one should always be aware of the context. Thus, in this paper, the focus is purely from business perspective and service here refers to business service. What needs to be kept in focus is the relationship between strategy, business service and technology implementation. Thus, the service paradigm becomes both a driver and enabler of the goal of business/IT alignment (Avison, Jones, Powell and Wilson, 2004), Erl, 2007).

Though an outcome of clarifying the relation between strategy and service gives a means of increasing business-IT alignment, this latter aspect is not an issue elaborated in this paper. The novelty of the method proposed in this paper is the focus on identifying the relationship between strategy and service and developing a means of valuing the contribution of service to strategy attainment. This will require careful specification of the term service, which is dealt with in the next section.

The term Service Oriented Architecture (SOA) means different things to different people. It is more than a technical delivery mechanism of web-based services. Fred Cummins (2010) says “SOA should not be viewed as a technical discipline, but rather an approach to designing enterprises, including extended enterprises that involve multiple, collaborating companies, agencies or institutions.” He goes on to say “The full potential of SOA is realized when it is applied as an architecture for
business design. The enterprise becomes a composition of capabilities that can be employed in a variety of business contexts. As such, SOA provides the basis for structuring and integrating business processes. The result of applying this architecture will be an enterprise that is more efficient and flexible—an agile enterprise. The agile enterprise is designed for change and optimization through specialization and sharing of capabilities.” (Cummins, 2009: 1)

The Service Oriented Architecture Reference Model (McKenzie, Laskey, McCabe, Brown and Metz 2006) says that “the service oriented architecture is a paradigm for organizing and utilizing distributed capabilities that may be under the control of different entities”. The emphasis is on the capability, which is further described as generating a ‘real world effect’. There is an interaction between those with needs for effects and those that can provide those effects, and thus there is an interaction between consumer (needing the effect) and the provider (providing that effect). Thus, the key elements of SOA are the interaction (between consumer and provider), the effect and visibility of one another (consumer and provider). The interaction of these consumers and providers is modeled in a service ecosystem. McKenzie (et al 2006) go onto to note that the noun service means ‘The performance of work (a function) by one for the other’ and that, in the context of SOA, there is a capability to perform the work, there is a specification of the work offered for another and (there exists an) offer to perform the work. Note that there is no need for the consumer to know how the provider actually produces the effect: all that is required is the effect.

This structure is similar to the elements in the value chain construct used in BPM. The value chain, was described by Michael Porter as a chain of activities for a firm operating in a specific industry in which each component adds value to the inputs to that component and where the costs and the value drivers are identified for each value activity (Porter, 1980). Porter identified primary and support activities. The value chain, according to Porter and Miller (1985: 3), belongs to a larger value system including the value chains of suppliers and buyers, to the ultimate consumers. A value chain component is defined as a specific set of actions that are performed by an organization (Sanz, Nayak and Becker, 2006). This value chain can be further decomposed into more detailed value chain descriptions of each component.

This concept of the value chain and value system has become central to business process modeling within organizations and between organizations in modeling the supply chain. It has been used in BPM tools such as ARIS from IDS Scheer. It has been used in strategy formulation and business modeling.

This value chain construct is, thus, the same as that of a service within the SOA standards (OASIS 2010) as both provides an effect, transforming inputs into desired outputs, without specification of how the transformation occurs. Additionally, the value system is the same as the OASIS service ecosystem. In this research, the business service is a component in the value chain model of the enterprise.

Kohlborn, Korthaus, Chan and Rosemann (2009) have developed a Service Analysis and Design framework, which shows clearly the connection between strategy, business service, business process and software services supporting those processes. This is shown in Figure 2.

**Figure 2 Service Analysis Design Framework**

This framework is being used the project with the case study partner, as they seek to identify, design and implement software services aligned with business strategy, and this research addresses the top layer: the connection between business strategy and business service.

**STRATEGY FORMULATION AND ARTICULATION**

Business strategy forms the focus for business activity, from its formulation, implementation, to its execution and monitoring. Strategies are generally formulated as goal directed end states along specific business activities. Pun (2004) states that there are corporate, business or functional strategies and often the organization is not clear on the granularity in its articulation of
these strategies. Many organizations have vague or aspirational strategy statements, which are often difficult to operationalize, implement and manage. In order for strategic goals and objectives to be effectively communicated and pursued in a consistent, repeatable manner, a common language is required. This common language must span the entire strategic management portfolio, including defining cause and effect relationships among strategic themes. Ultimately this understanding leads to strategic accountability and governance that assists organizations in achieving, measuring, and reporting their results. Regardless, the strategic objectives should be rendered into a highly formatted description which specifies the focal area and activity, articulates measurable outcomes, specifies attainable outcomes, species the resultant sought in the outcome and specifies the time in which the outcome is to be achieved. This format has the acronym SMART (specific, measurable, attainable, results oriented and time bound).

Such strategy sets often have conflicting objectives, such as increase quality by 10%; decrease production time by 5%. In addition, not all strategies are created equal as some are seen as more important than others, or some seen as main effort and others as supporting effort. This prioritization of strategies is often implicit rather than explicit and this prioritization of the strategy set needs to be articulated and a rank order of strategies produced.

One means of classifying strategies is using the Balanced Score Card approach (Kaplan and Norton 1996). In this method, strategies can be deconstructed into achieving financial objectives, improved business process objectives, learning and growth objectives or customer objectives. Enterprises can develop their own focal areas when using a balanced score card approach. The approach taken to link business service to strategy in this research project is discussed in the next section.

CASE STUDY DESCRIPTION

The case study protocol used in this research is adapted from Huxley and Stewart (2008) and is described below.

- Develop a ‘straw man’ reference model (from the literature) for the selected line of business or enterprise.
  - Develop the level 1 value added chain for each element in the reference model.
  - Develop the level 2 value added chain for each element above.

- Validate this reference model and value added chain constructs either through focus groups involving representatives from this industry sector or business process owners in the participating enterprise.

- Discuss and define the terms ‘critical process’ and ‘critical service’ as the service (value added chain component) that has the most impact on the attainment of enterprise strategy.

- Identify the strategy set currently in force in the enterprise.

- Identify the top 5 strategies to which the business unit contributes.

- Map the services identified in the reference model and value added chain level 1 constructs to the top strategies.

- Identify the contribution of the service to strategy attainment in rank order of strategy by assigning weights (1 to 100%) for each service contributing to strategy attainment, where the total of the contribution sums to 100%.

- Analyse the impact of the service to strategy by
  - Sorting services by contribution per strategy.
  - Summing the number of contributions of service to the strategy set.
  - Summing the total contribution of service to the strategy set.

The goal of the research is to identify the kernel service set (the set of strategic services common to the selected industry sectors).

This methodology has been applied in many small to medium enterprises and, in particular, to several insurance companies. Their strategies are commercial-in-confidence and cannot be stated explicitly in this paper. The current industry partner (CIP) is participating in a large research program. It is a large insurance company which is one of the country’s leading conglomerate in banking, insurance, investment and superannuation and is in the top 25 listed companies. It has a strong market share in personal and commercial insurance lines here and overseas. It provides a range of banking and insurance

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1 A confidentiality clause prevents the identification of the name of this industry partner.
products directly to customers through an extensive branch and agency network, call centre operations, on line facilities and through intermediaries and corporate partners.

**BUSINESS SERVICE TO STRATEGY MAPPING**

CIP has twenty-two strategies, grouped in sets shown in Table 2.

<table>
<thead>
<tr>
<th>Category</th>
<th>#</th>
<th>Category</th>
<th>#</th>
<th>Category</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>2</td>
<td>Brand Alignment</td>
<td>1</td>
<td>Customer</td>
<td>4</td>
</tr>
<tr>
<td>Stakeholder</td>
<td>1</td>
<td>Operational Efficiency</td>
<td>2</td>
<td>Distribution</td>
<td>2</td>
</tr>
<tr>
<td>People</td>
<td>3</td>
<td>Marketing</td>
<td>2</td>
<td>Systems</td>
<td>4</td>
</tr>
<tr>
<td>Pricing</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 2: Strategy Sets in Insurance Company*

Two examples of generic customer strategies are: *increased customer satisfaction* and *increased cross sales to customers*. These two generic strategies will be used as focal strategies for this paper.

The business services are next identified using a Process Reference Model of the enterprise. A Process Reference Model is defined as “representation of a system as an organization in terms of a structure of relatively independent, interacting, and in terms of the globally defined task of these components” (Biemans, 1990, pp 35). A reference model is composed of value chain level 0 elements. An example of such a Process Reference Model for an insurance enterprise is shown in Figure 3. This reference model was constructed through a series of workshops held with C-level executives in another insurance company. It was subsequently generalized through consultation with other line managers in CIP during a series of industry projects.

Each of the value chain elements shown in this Process Reference Model can be implemented as a business service. For example, the value chain element *Billing* can be delivered as an internal or external service or instantiated, with appropriate security, as a web service. The *Billing* service in an insurance company is seen as a core process rather than an enabling process as its execution is central to the financial security of the firm.

![Figure 3: Exemplar Business Process Reference Model](image-url)

The deconstruction of the Policy Management value chain element of the process reference model into lower level value chain elements is shown in Figure 4.

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2 Some results have been generalized from other studies due to the commercial-in-confidence nature of strategies and their metrics.
The Policy Management level 1 service commences with an enquiry of the existing policy or the range of available policies. Some enquiries are on existing policies and concern variation to the master data such as address or to increasing or decreasing the coverage. This latter policy alteration requires financial adjustments and may involve the identification of different policies. The enquiry may lead to the renewal of the existing policy with or without change, or the enquiry may be from a new customer and lead to the identification and issuing of a new policy. These outcomes lead to the raising of a policy invoice, which is passed to the billing level 0 business service.

In this manner, all value chain elements of the process reference model can be elaborated. If necessary, this deconstruction of VCCs can continue to provide a finer granularity in the model. One deconstruction of a value chain to level 2 is shown in Figure 5.

Each of these level 1 and 2 components can be rendered as a business service. These business services may be bundled to one service provider. Consider the services Determine requirements and Suggest Options. These two services can be outsourced to external service providers such as agents. Note that the business service Issue Policy then passes its output and information to the level 1 Policy Invoice service.

Commencing from the level 0 deconstruction of the reference model, each value chain element can be mapped into where it contributes to the attainment of a strategy. This is a many to many mapping as each strategy requires many VCCs in order to be realized and any one VCC can be required by several strategies. Model the strategy set as \{S_i\} where i \in \{1, n\}. The service-to-strategy mapping aspect of the methodology shown in Figure 6, showing the mapping of a generic set of level 1 value chain components labeled VC^0_i \{k..k\} to the generic strategy S_i. In this example, two strategies have been isolated: S_i and S_j. VCCs i, j, and k (VC^0_i, VC^0_j, and VC^0_k) are required to attain strategy S_i, while VCCs k, m and n (VC^0_k, VC^0_m, and VC^0_n) are required to attain strategy S_j. We thus see that VC^0_k contributes to the attainment of at least two strategies, that every strategy requires several VCCs to be realized and that VCCs can be reused.

In the insurance case study, the generic strategy increased customer satisfaction involves the value chain level 0 components of policy management, claims management, billing, and disbursement. The generic strategy increased sales of products per customer involves the same value chain level 0 components of policy management, claims management, billing and
disbursement, as well as market development, product development, marketing, and sales. These relationships are shown in Figure 7.

The reasons for this mapping are that customer satisfaction is a function of how the policy management process works. If it works poorly, with a long lead-time, incorrect information or too many forms and medical examinations, then customer satisfaction is lowered. Similarly, the customer’s experience of the claims process affects their satisfaction with the company. Any mistakes in billing, with over charging, late charging or under-charging (which may affect their policy) reduces customer satisfaction. Finally, receipt of claims monies also affects customer satisfaction in terms of its timeliness and agreed value.

Increased cross selling of products to the customer will depend on the variety of product (product development), the targeting of the product (market development and marketing), advertising and effectiveness of the agents (sales), as well as the experiences from customer satisfaction.

The relative contribution of each level zero business service (VCC level 0) varies in each strategy. This relationship of service contribution per strategy will be shown in the next section.

**CONTRIBUTION OF BUSINESS SERVICE TO STRATEGY**

Now that the business service to strategy map is developed, the contribution of the value chain components to each strategy can be determined. This commences by first prioritizing the strategies from the C-level executive perspective, which are either noted in the strategy document or determined in a workshops with these executives.

**Value Chain 0 (Process Reference Model) Analysis**

Each strategy is analyzed in order of prioritization, commencing with the most important strategy. Business process owners are required in this phase of the methodology as they must determine the level of contribution of each element in the assigned value chain. The workshop participants assign the percentage contribution of the level zero value chain elements in the process reference model to each strategy.

**Value Chain 0 Analysis**

For each strategy-service mapping, a value chain level 0 analyses now follows. The strategy is isolated and the value chain level 0 elements are revealed. The weight of contribution (totaling 100%) is assigned to each element in value chain level 0. Figure 8 shows a theoretical assignment of the VCCs in the process reference model to two sample high priority strategies.

From this theoretical example, we see that the effect of policy management varies with strategy. In the strategy increased customer sales the contribution of policy management to the attainment of that strategy is 30%. In the strategy increased cross selling to customer the contribution of policy management is 10%.
Business Service Contribution Calculation

This process is repeated for the next level of business service as identified in the value chain level 1 (VC1). A theoretical example using the contribution of policy management to increased customer satisfaction is shown in Figure 9.

A theoretical example using the contribution of policy management to increased cross selling to customers is shown in Figure 10.

This example shows that the effect of each value chain level 1 varies in its contribution to the focal strategy. The contribution of each level 1 element of the value chain to policy management is now computed through multiplying the contribution weights. This is shown in Table 3.
Table 3 Calculating contribution across levels

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Level 0 Business Service</th>
<th>Attributed Level 0 Business Service Contribution</th>
<th>Level 1 Business Service</th>
<th>Attributed Level 1 Business Service Contribution</th>
<th>Net effect Level 1 Business Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1: Increased customer satisfaction</td>
<td>Policy Management</td>
<td>30%</td>
<td>Policy Enquiry</td>
<td>40%</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Policy Alteration</td>
<td>20%</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Policy Renewal</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New Policy</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Policy Invoicing</td>
<td>20%</td>
<td>6%</td>
</tr>
<tr>
<td>S2: Increased cross sales to customer</td>
<td>Policy Management</td>
<td>10%</td>
<td>Policy Enquiry</td>
<td>50%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Policy Alteration</td>
<td>5%</td>
<td>.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Policy Renewal</td>
<td>5%</td>
<td>.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New Policy</td>
<td>30%</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Policy Invoicing</td>
<td>10%</td>
<td>1%</td>
</tr>
</tbody>
</table>

This process is continued for every level 1 business service.

Stopping condition for analysis

Though the process can be continued until the smallest granular VCC is identified. In practice, the goal is to define the high level business service. The granularity of this business service should be defined in the organizations service oriented architecture or their enterprise architecture. It is suggested to cease this analysis at this level or at level 3 value chain decomposition, which every comes first, as the link of smaller components to strategy becomes forced.

The output of business service prioritization

Recall that the strategies have been rank ordered from most important to least important (or main effort to support effort) and this rank ordering has been agreed by consensus by the C-level executives. For each strategy, a mapping has been produced of the level zero business services which contribute to the attainment of that strategy and the percentage weight of its contribution has been agreed by the business process owners. This has produced a service-strategy map which defines the service ecosystem. To this service-strategy map, the level one business services have been added and the percentage weight of those services to the attainment of the strategy has been agreed by the business process owners. The combined effect of this these weights lead to a rank ordering of level 1 business services, from most important to strategy to least important to strategy. In addition, the level one business services contribution to the overall strategy set can be determined by counting the number of occurrences in strategy attainment and also by adding the total weights. This information provides a quantitative measure of the relative impact and importance of each level one business service. This information guides the selection of business services for development as technical services. The final selection of the potential candidates depends on other factors, which are discussed next.

FACTORS IN SELECTING SERVICES FOR IMPLEMENTATION

Though the net effect of service to strategy can be calculated as above, a critical question is which set of services should be first implemented? Options include the set of services that have the highest net contribution or are instrumental in attaining the most strategies. Huxley and Stewart (2004, 2009) suggest to conduct a classical risk analysis of the business service (VCC). The business service must be assessed in terms of failure, where failure can be one of three conditions: under performing, failing to perform and over performing. For this to be assessed, process metrics must be kept for each element of the value chain in terms of the boundaries of acceptable performance, expected performance, and failure to perform. Few organizations keep such metrics. In addition, the impact of failure needs to be quantified. Huxley and Stewart (2009) suggest that the business process owners can assign a numeric value (between 1 and 10) on the impact of failure, where 10 is catastrophic affect and 1 is negligible affect. For each business service, a probability of failure is also determined. Application in the field has shown that this aspect is the most difficult element for the business managers to assign, again, because of lack of performance metrics in the firm. Most processes do not fail as corrective action is taken with normal business management practices.
An alternative is to assess the level of impact of the existing systems supporting the business service. Gable, Sedera and Chan (2003) suggest that the performance of systems should be assessed in terms of their information quality, systems quality, organizational impact and systems impact. They have developed a survey which assesses each of these components allowing the systems support to be valued. The use of this aggregated value then provides a rank ordering of most effective to least effective systems impact. Further work is required in this area of systems performance, for the objective is to identify those systems with significant contribution to strategy and the most needy of information systems replacement by services. Targets could be the services with the poorest current systems support or most underperforming processes. Another factor suggested by Huxley and Stewart (2009) is to also assess the return on investment (ROI) and the probability of project success for each element in the service candidate set.

The current research is investigating how to establish the smallest candidate set for consideration for service development contrasting the efficacy of the risk assessment approach to the system impact approach. In the current case study, business managers have been asked to assess the problems associated with system support to the identified business service. The five top strategies identified by the participants were Systems, Pricing, Customer, Marketing and Brand Alignment (in rank order). Product alteration was seen as a key element in driving commonality across systems and a likely candidate for service development as product alteration is found in many of the underlying application systems supporting the enterprise. The problems associated with the set of product alteration modules were set at 8 (on a 10 point scale), with variable impact on the strategies: System (5) and Pricing (7).

A summary of the findings to date in the case study is shown in Table 4 (leaving the actual strategy revealed as it is commercial in confidence). Further workshops are underway with the industry partner to determine the value and problems associated with product alteration in Customer, Marketing and Brand Alignment strategy attainment. In addition, workshops are being planned with other similar insurance companies in order to identify the best potential service candidate. In addition, a tool is being developed to support the interactive engagement with the industry partners to capture the information dynamically during the workshop.

<table>
<thead>
<tr>
<th>Strategy Set</th>
<th>Value Chain Level 0 Business service</th>
<th>Value Chain Level 1 Business service</th>
<th>Attributed Impact</th>
<th>Attributed Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>Product Life Cycle Management</td>
<td>Product Development</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quote/Underwrite</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Set up product</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lodgment</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fulfillment</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Policy Management</td>
<td></td>
<td>Product Alteration</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Product Inquiry</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Billing</td>
<td></td>
<td></td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Collection</td>
<td></td>
<td></td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Claims Management</td>
<td></td>
<td>Assessment</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
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Table 4: Value and Problem Associated with Service to Strategy Attainment

CONCLUSION

The strategy literature in information systems has focused mostly on relating business strategy to ICT, software processes or developing IT strategy maps. This research differs from business strategy and IT alignment studies by focusing on business service to strategy mapping, which has been identified as a research gap in the existing literature. This paper has presented a methodology for identifying appropriate business services for design development and implementation in the goal to create a service oriented architecture supporting the enterprise. It has argued that a business service in such a reference architecture is isomorphic to a value chain component in the process reference model at an appropriate granularity. The methodology identifies the most appropriate candidates for business service development as those services which contribute the most to the attainment of business strategy. The paper has argued that this contribution can be determined in conjunction with the business process owners through distributing the percentage contribution to strategy attainment. Extensions to this work are additional case studies applying the methodology, which will identify common strategic business services in specific domains and common strategic business services across domains. This methodology also provides a means for enterprises to align
their service delivery with strategy, and it gives a potential means of measuring alignment of the existing SOA and elements of the Enterprise Architecture with strategy. This may assist in achieving Cummin’s (2009) goal of more agile enterprises, where agility is focused on rapidly meeting changing strategic imperatives.

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REFERENCES


