Using Lean Value Stream Mapping to Align the Work Streams of Two Companies

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Abstract
Value Stream Mapping (VSM) is a tool used in lean operations. Existing cases show how it has been used to launch a Lean organization or trigger large improvements, but there is little information on its use in merging the work streams of two discrete companies. This paper will discuss this approach.

Keywords: Lean, Value Stream Mapping, Merge

1. Introduction
The Toyota Corporation first implemented what is now called Lean manufacturing in response to the mass-production model in the 1950’s (Chen et al. 2010). The main objective of Lean is to focus on value added processes across the entire value stream and continuously improve as you seek perfection (Jenkins and Minukas 2011).

For the past 20+ years, companies from around the world have made attempts to follow Toyota and become Lean. Hines and Taylor (2010) list the typical steps for transitioning to a Lean operation as
1. Understand your customers and what they value
2. Define the internal value stream
3. Eliminate waste and make information & products flow, pulled by customer needs
4. Extends the definition of value outside your own company
5. Continually aim for perfection

A primary method by which companies define and eliminate waste from their value streams is to conduct a Value Stream Mapping event. Rother and Shook (1999) describe the Value Stream as “all the actions (both value added and non-value added) currently required to bring a product through the main flows essential to every product”. This includes all of the process, product, and information flows. They describe a Value Stream Mapping event to be where processes, materials and information are drawn from the moment of customer request to the final delivery. The purpose is to create a visual representation of a production or service process, which helps identify and eliminate waste and increase efficiency. Both the “current” and enhanced “future” state flows are designed at the event.

We are proposing a new application of value stream mapping here. In this paper, we will review two insurance companies who recently announced a merger. Following the announcement they decided to conduct a Value Stream Mapping event with the objective of
aligning the work streams of the two company’s claims organizations into one efficient set of processes. This study will describe the tool’s use and its success for aligning the companies.

This paper is structured in the following manner: First, there is a review of different uses of Lean Value Stream Mapping as it relates to the use highlighted in this case. Next, there is some background information on the two companies studied and the new challenge they are facing. Then there is a review of the approach to Value Stream Mapping as conducted by the two companies in this study. Finally, the results are analyzed and discussed, and we draw our conclusions.

2. Literature Review
In practice, Value Stream Mapping can be a great way to eliminate wasteful steps and maximize customer value. Most companies looking to transition to a Lean operation will start with a Value Stream Mapping event to jumpstart the change. The current Value Stream Map highlights information that likely hasn’t been analyzed before. The future state Value Stream Map “serves as a goal for future lean activities”. These events can help reduce processing times and improve product quality (Chen et al. 2010).

As stated above, there are several case studies which review the use of the Value Stream Mapping tool. A few examples explain how to utilize the tool when there are multiple flows (Khaswala and Irani 2001, Braglia et al. 2006). Typical Value Stream Mapping focuses on one product, process, and information flow. It assumes that the primary flows occur for most customer products. An extension of the Value Stream Map is described as the Value Network Map. Khaswala and Irani (2001) explain it as a way to use algorithms to cluster similar manufacturing routings and facility layouts to define a single composite Current State Map. Their studies do not focus on the application of the tool, but rather variations which expand its typical use. Value Network Mapping is one approach that could be used to effectively define and improve upon multiple overlapping work streams.

A case study by Braglia et al. (2006) describes a practical application of the Value Stream Map for complex production systems. This is similar to the Value Network Map in that it looks to expand the typical map to work for a more difficult system with multiple flows. The approach focuses on the main flow or the critical path.

The study concludes that the improved value stream mapping technique offers a structured way to break down a complex production process and to perform an optimized analysis of the whole value stream. The technique can handle multiple products with non-identical routings and is successful in handling multiple levels and multiple flows that merge.

While there are many observed benefits of Value Stream Mapping, Mahfouz et al. (2011), point out that it does have a major drawback with accounting for the variability and uncertainty of practical application. They state that simulation acts as a better method for analyzing a system. However, not all industries easily lend themselves to simulation. The subject of this case, the insurance industries, is one such area.

Insurance companies as one of the main sectors in the service industry today are seeing: rising customer expectations, revenue pressures, competitive pressures, increasing expenses, and regulatory pressures (Allway and Corbett 2002). Insurance companies could therefore gain a lot from Lean Management and Value Stream Mapping.

Bonaccorsi et al. (2011) believe that Lean Management could benefit the service industry though improvements in both quality and cost. More specifically, they state that while Value Stream Mapping in the service industry is challenging because of a lack of visibility into processes and ownership, it can be a useful tool in identifying waste or issues and improving the processes.

While our research was able to find multiple uses for Value Stream Mapping as described above, we were unable to uncover a case study on the use of Value Stream Mapping to merge the work streams of two companies. Our paper will analyze this application.

3. Case Study
This case focuses on two US based insurance companies. We will refer to the first company as “Alpha Insurance Company” for reasons of anonymity. Alpha has been in business for over 100 years and employs approximately 45,000 people worldwide. The company provides both personal and commercial casualty insurance through multiple distribution channels. In the fiscal year 2011, they generated over $30B in revenue. Alpha Insurance Company has grown in size year over year and is looking to continue this trend. However, organic growth is slow in the insurance industry. New customers come from either an increase in population or from those currently insured elsewhere. The other option for growth is to purchase a competitor company. In 2008, Alpha took this approach and purchased “Bravo Insurance Company”.

Bravo Insurance Company was in business for nearly 90 years and employed approximately 7,000 people. The company provided both personal and commercial casualty insurance, primarily through independent agents. Bravo Insurance Company saw many years of success, but was recently struggling to make a profit. In 2008, the company sold off its financial services business and its life insurance business. Then Alpha Insurance Company purchased their final product, casualty insurance. For the first four years after being purchased by Alpha Insurance, Bravo still operated as a completely separate company. In the fiscal year 2011 Bravo generated over $6B in revenue.

Rather than integrate the work streams of the two businesses, Alpha Insurance Company decided to keep Bravo Insurance Company running essentially as a separate entity for over four years. Purchasing Bravo Insurance Company increased Alpha’s size by 20%. This is a significant increase in a business where organic growth is difficult. Larger insurance companies benefit from economies of scale with administrative work, claims processing, and marketing. However, by keeping the two companies separate they were duplicating work and driving up their expenses.
In the summer of 2012 the senior management team decided to capitalize on their size through an organizational realignment. Bravo Insurance Company would no longer be separate, but would instead be absorbed into the Alpha structure. Each group with overlapping interests (claims, administrative, IT, etc.) would now need to merge into one company. The challenge is that each group had very discrete processes, systems, and outputs. It would be difficult to align the work streams. Alpha Company’s claims department decided to use Lean Value Stream Mapping to tackle the problem.

4. Proposed Approach
Neither Alpha’s or Bravo’s work streams were seen as ideal, so the senior management team used the realignment decision as an opportunity to not only bring the companies together, but also move everyone towards an ideal state for processes. The steps to complete the Value Stream Map were as follows, with more detailed information below:

- Identify the process as seen by the customer
- Define the current state flows for both companies
- Break out into teams to review the highest impact steps in the stream
- Highlight areas of opportunity in each company’s current state
- Establish the “future state” for the flow
- Plan and begin to merge the companies together into a single future state design

4.1. Identify the process as seen by the customer
Customers of both Alpha and Bravo Insurance Companies interact with the employees for the initial report, during the bill and medical review processes, and the closing. The order of the processes are nearly identical for both Alpha and Bravo Insurance Companies. Each company starts by taking the initial report, then gathering and reviewing billing information, and so on. However, the details behind these processes varied between Alpha and Bravo. The customer (claimant) perspective under Alpha Insurance Company is shown in figure 1 below.

![Figure 1: Value Stream Map for Alpha Insurance Company](image-url)
An additional Value Stream Map was created for Bravo Insurance Company. This highlighted that while the main process steps were the same, there were significant differences in key performance metrics. Bravo’s Value Stream Map is seen in figure 2 below.

![Value Stream Map for Bravo Insurance Company](image.png)

**Figure 2: Value Stream Map for Bravo Insurance Company**

The first process, initial assessment is where a customer tells the account of their car accident. Customers are asked to describe the accident and list property damage and/or medical injuries. In the insurance industry, this is typically completed within the first 30 days following an accident.

After the initial assessment, customers will then be asked for property damage reports and bills for medical treatment. They may also need to discuss the details of the reports with the insurance adjuster. The amount of interaction between the insurer and the insured will vary by complexity of the claim. The more medical procedures and money being claimed, the more time the insurance companies will spend reviewing the information for accuracy.

Finally, the closing phase is where the two parties agree upon a settlement and conclude their interactions. The key actions of this phase are driven by legal requirements that release the insurance company of further obligations. This is also where the customer would receive any money that is owed to them.

Alpha and Bravo had varied results based on their defined work streams. When there are variations in value streams, customers see different service levels. The large differences between Alpha and Bravo lead times and first pass yield percentages drive inconsistency in customer experience and expectation. There was a clear opportunity to improve all metrics and align to a single workstream.

4.2. **Define the current state flows for both companies**
The major process flows for Alpha and Bravo were in line as these are industry standards for claims practices. However, the impacts to the customer varied because of differences within the value streams. To understand the full impact, the teams mapped out the typical process flows for
both an Alpha customer and a Bravo customer. Then, they captured data points for lead time, cycle time, first pass yield, and changeover time to enable a comparison of the two work streams.

Based on the defined process maps, Alpha’s cycle time, or the amount of time spent processing the claim, was approximately 380 minutes while Bravo’s was approximately 650 minutes. Alpha’s first pass yield, or the percent of customers who move from initiation to close without repeating any processes, was 2.0%, while Bravo’s was 1.2%. The changeover times, or the amount of time required to transition from one process to the next, were comparable between Alpha and Bravo. Alpha’s time ranged from 34 to 38 minutes and Bravo’s time ranged from 39 to 48 minutes.

4.3. Break out into teams to review the highest impact steps in the stream
The current state mapping exercise was used to detail the steps for the major phases of the claims handling process, namely the initial assessment, the bill review, the medical review, and the closing process. If Alpha and Bravo were to align their work streams, they would need to focus on these areas first. To do so, the Value Stream Mapping team broke out into subgroups based on the four major phases. The objective for each subgroup was to analyze the current states for the two companies and determine the best single approach to use going forward.

4.4. Highlight areas of opportunity in each company’s current state
With each current state process already mapped, the subgroups now worked to highlight the pain points within the current processes. The participants used post it notes to flag all areas that fell into one of the seven Lean waste types, which includes defects, over processing, waiting, transportation, inventory, motion, and excess processing. These problem areas would then become the basis for the next step in Value Stream Mapping, designing the future state.

4.5. Establish the “future state” for the flow
A typical Value Stream Mapping event’s future state design focuses on the highlighted opportunities steps and reengineers them to eliminate as much waste as possible. This event was different because the objective also included aligning two work streams. This additional complexity meant that along with analyzing ways to improve the opportunity areas, the teams needed to review the comparable processes of Alpha and Bravo.

While on the surface it appears as though this would double the amount of work required, it ended up improving both the speed and quality of the work. The design team would now have additional data points for input. A typical Value Stream Mapping event would only have one example for input into the ideal state, but this approach allowed for two. For example, let’s assume that Alpha’s process for initial assessment was deemed to be working very well and required no changes and that Bravo’s process for this phase was not working well. Bravo could simply transition to Alpha’s process without the need for a full redesign. Another scenario seen by the designers is where both companies weren’t performing well for a certain phase. The designers could now eliminate two options from their ideal state. In a typical Value Stream Mapping event you only have insight into the quality of one process, not two.

4.6. Plan and begin to merge the companies together into a single future state design
This phase of the event would prove to be the most challenging. Alpha and Bravo, while comparable in high level product and process flow, had very different current state designs. There were differences in amount of time required for each step, amount of information
requested from the customer, and number of resources necessary to complete the claims handling process. A change to either process flow would be significant, but changing both process flows would require considerable effort on the part of employees from both Alpha and Bravo. The company decided to take a multi step approach to implementation. They would focus first on the biggest impact improvement areas by phase, with the primary focus being on aligning the work streams. If the ideal state would be too challenging to achieve, they chose instead to select one company’s process and align the other to it. After implementation was complete and tested, the next phase could move the aligned work stream to the ideal state identified in the event. While the full gains wouldn’t be realized immediately, the implementation would be manageable. The new aligned work stream is seen below in figure 3.

![Figure 3: The aligned value stream map](image)

The implementation plan included monthly monitoring of key data points to ensure a quality rollout. The metrics would drive any adjustments to either the implementation approach or the design of the new processes.

5. Results Analysis
From an office culture perspective, this approach provided a valuable lift. By taking the time to consider which processes were providing the most value, the frontline employees benefitted. The quality of work for employees of Alpha and the former Bravo company would increase thanks to a reduction in wasted steps.

Once fully implemented, the annual run rate benefits of the Value Stream Mapping event would prove to be significant as seen in Table 1.
Table 1: Key performance metrics

<table>
<thead>
<tr>
<th></th>
<th>Cycle Time</th>
<th>Lead Time</th>
<th>First Pass Yield</th>
<th>Changeover Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha</td>
<td>380 minutes</td>
<td>270-670 days</td>
<td>2.0%</td>
<td>34-38 minutes</td>
</tr>
<tr>
<td>Bravo</td>
<td>500 minutes</td>
<td>264-621 days</td>
<td>1.2%</td>
<td>48-139 minutes</td>
</tr>
<tr>
<td>Aligned</td>
<td>150-215 minutes</td>
<td>92-185 days</td>
<td>60%</td>
<td>35 minutes</td>
</tr>
</tbody>
</table>

Value Stream Mapping turned out to be a success in aligning the two companies with different processes into one single company using the same processes. The management team was able to gain the support of their frontline employees while improving key operational metrics as seen in Table 1. The major challenges will lie in proper execution of the changes going forward, as the ideal future state design is significantly different than the current state. However, future efforts will be less complex and therefore less challenging than the initial Value Stream Mapping event.

While Value Stream Mapping is a great way to improve upon a single work stream of one company, there are some challenges with merging the work streams of two companies. Mainly, the two companies need to be familiar with Lean techniques and be willing and able to commit to the event and its proposed outcome. There must also be a full commitment to the outcome at all levels of the organizations. If these criteria are met, using Value Stream Mapping to align the organizations can be very effective.

6. Conclusion
Value Stream Mapping is a useful tool for not only highlighting waste or issues in process flows, but also for bringing two companies to a common work stream. While more complex in nature, this event proved to be as simple as a typical event and it produced a higher quality outcome. The main condition for future events of this kind would be that the process flows are already in line at a high level. These companies processed similar transactions, namely claims settlement, which followed a standard approach of obtaining initial information, requesting and reviewing billing charges, and completing the closing or settlement phase. The implementation step would end up being too complex if the major process organization and the subtasks both required changes. Organizations looking to conduct a similar analysis should do an initial review for compatibility of high level alignment prior to engaging in the event or expect to spend a significant amount of work on the planning and implementation steps. Ultimately, the success of this event will still rely on the execution of the future state design changes, which will prove to be challenging, but manageable.
References


