Business Continuity and Lean Operations
Synergies and Conflicts
Session 05002
Lean Product Development and Lean Manufacturing

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Abstract

In the wake of a disaster, after the well being of its people, a company's primary concern needs to be the rapid resumption of its supply of product and/or services to its customers and the continuity of its cash flow if it wants to survive. A well developed business continuity plan coupled with lean operations provide synergies that can be exploited towards achieving these goals. There are, however, areas where the strategies conflict. Both the synergies and the conflicts will be discussed.

Outline

This paper will address the following:

- Overview of Business Continuity
- Overview of Lean Manufacturing
- Synergies between BC and Lean
- Conflicts between BC and Lean
- Conclusions

Overview of Business Continuity

Business Continuity originated as an IT concept. The focus of Business Continuity has expanded well beyond this area to encompass the entire value stream. To assure that everyone is familiar with Business Continuity, we will begin with an overview of what the goals of a business continuity plan should be and the process involved in creating one.

Goals of Business Continuity

- Maintenance and assurance of the supply of products and/or services to Customers
- Maintenance of Revenue streams

By being sure these goals are accomplished a business can maximize the probability it can survive a catastrophic event.

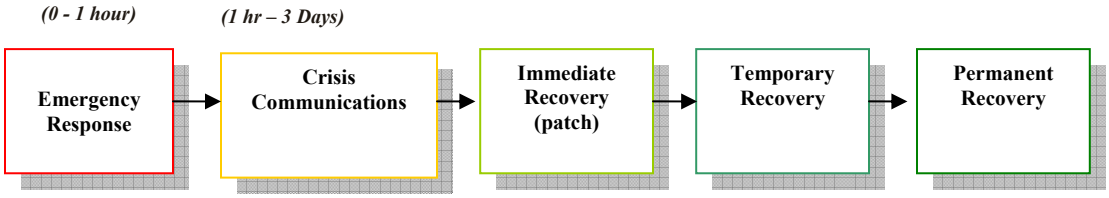
Business Continuity Development Process

The business continuity development process should involve the following steps:

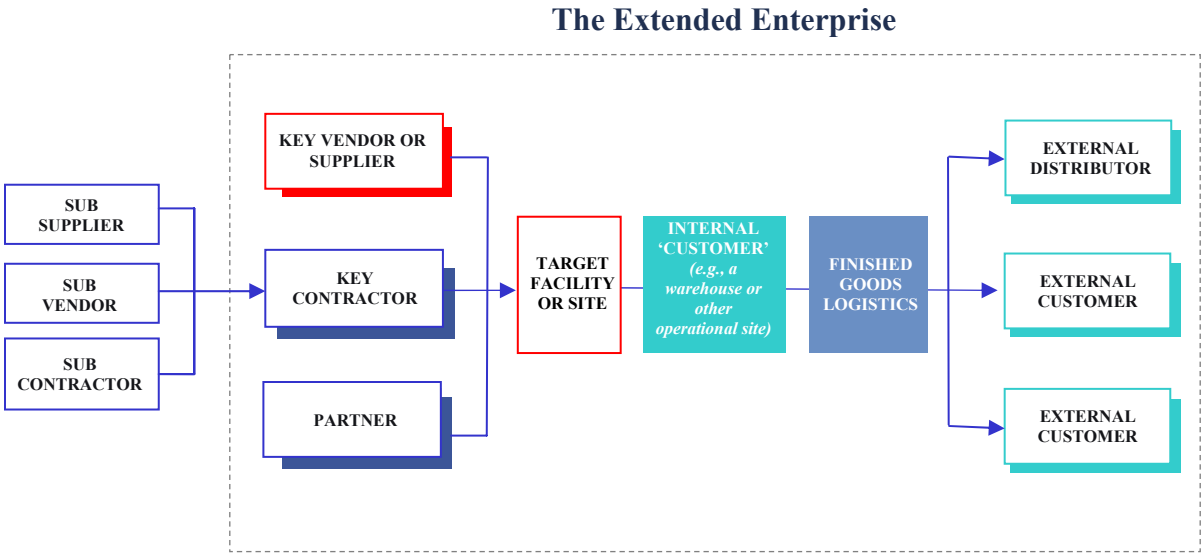
- Risk Management, applying mitigation to minimize the probability of a controllable incident.
- A Business Impact Analysis, which will identify those areas of the business most critical to recover
- Strategy Development
- Plan Development
- Plan testing and maintenance

Plan Development

When developing the business continuity plan, use time as your critical recovery variable and begin with the emergency response. Follow this with identifying the critical communications needing to occur within the first few days and conclude with your operations recovery plan.



Your analysis of your vulnerability should extend beyond the boundaries of your facility and include the extended enterprise:



Develop your plan using the following guidelines:

- Review all process steps – including those linked outside your organization
- Identify your critical recovery operations

- Identify single and sole source suppliers
- Identify your capacity and throughput requirements
- Identify the critical (typically long lead time) equipment
- Identify alternate sources for capacity
- Identify your inventory rundown times
- Identify process improvements that can be implemented during a recovery

Remember throughout the process that the goal is to maintain the supply of products and services to your customers and your revenue streams.

Lean Manufacturing

Lean manufacturing is built upon eliminating all waste in an operation. The focus should be on customer pull – a step does not get done until it is pulled upon from downstream.

Types of Waste

Taiichi Ohno identified the following types of waste:

1. Overproduction
2. Transportation
3. Unnecessary Inventory
4. Inappropriate processing
5. Waiting
6. Excess Motion
7. Defects

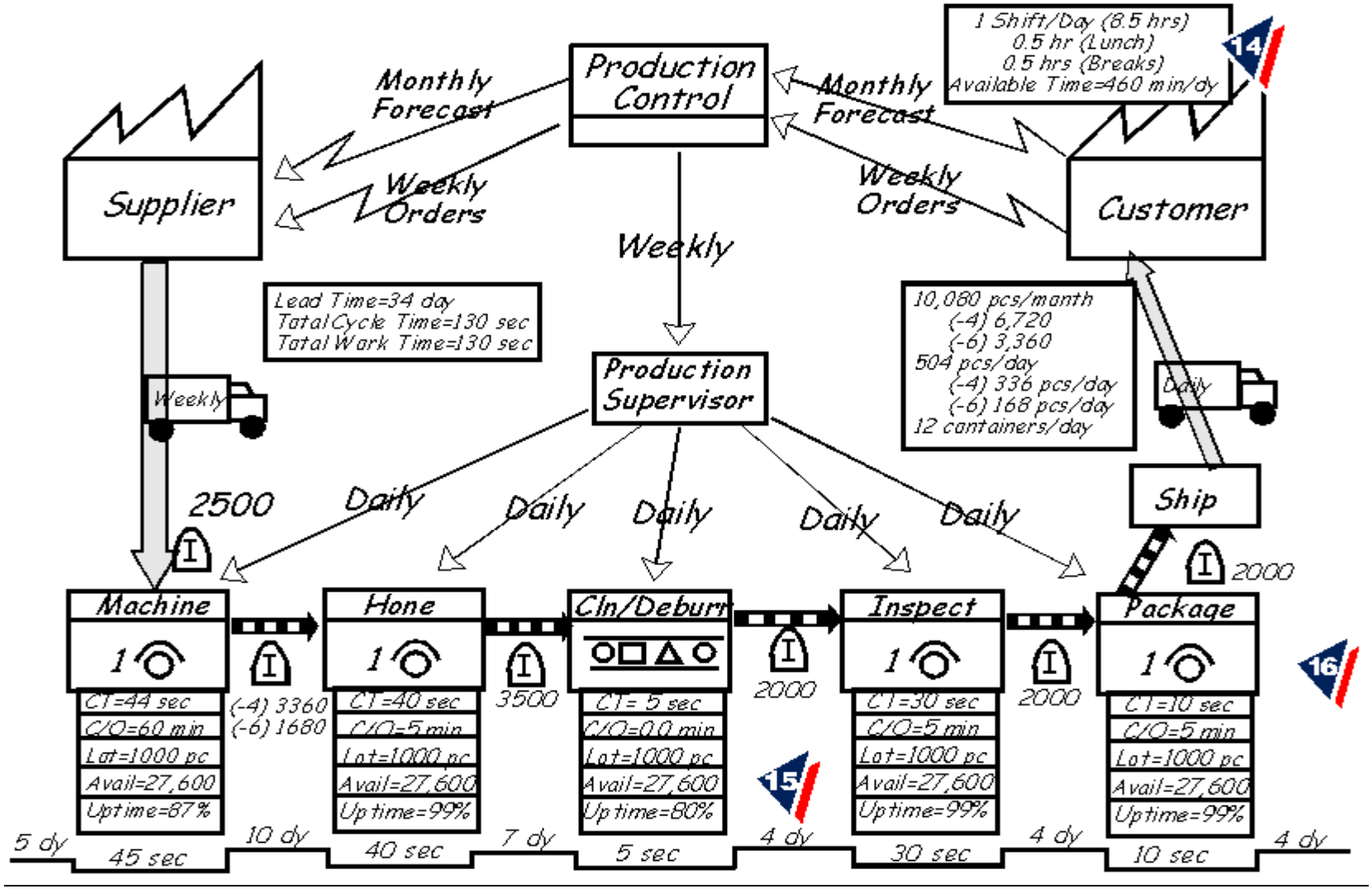
Steps for achieving a Lean Operation

- Mapping the Value Stream
- Mapping the Process
- Identifying waste
- Eliminating waste
- Implementing Pull

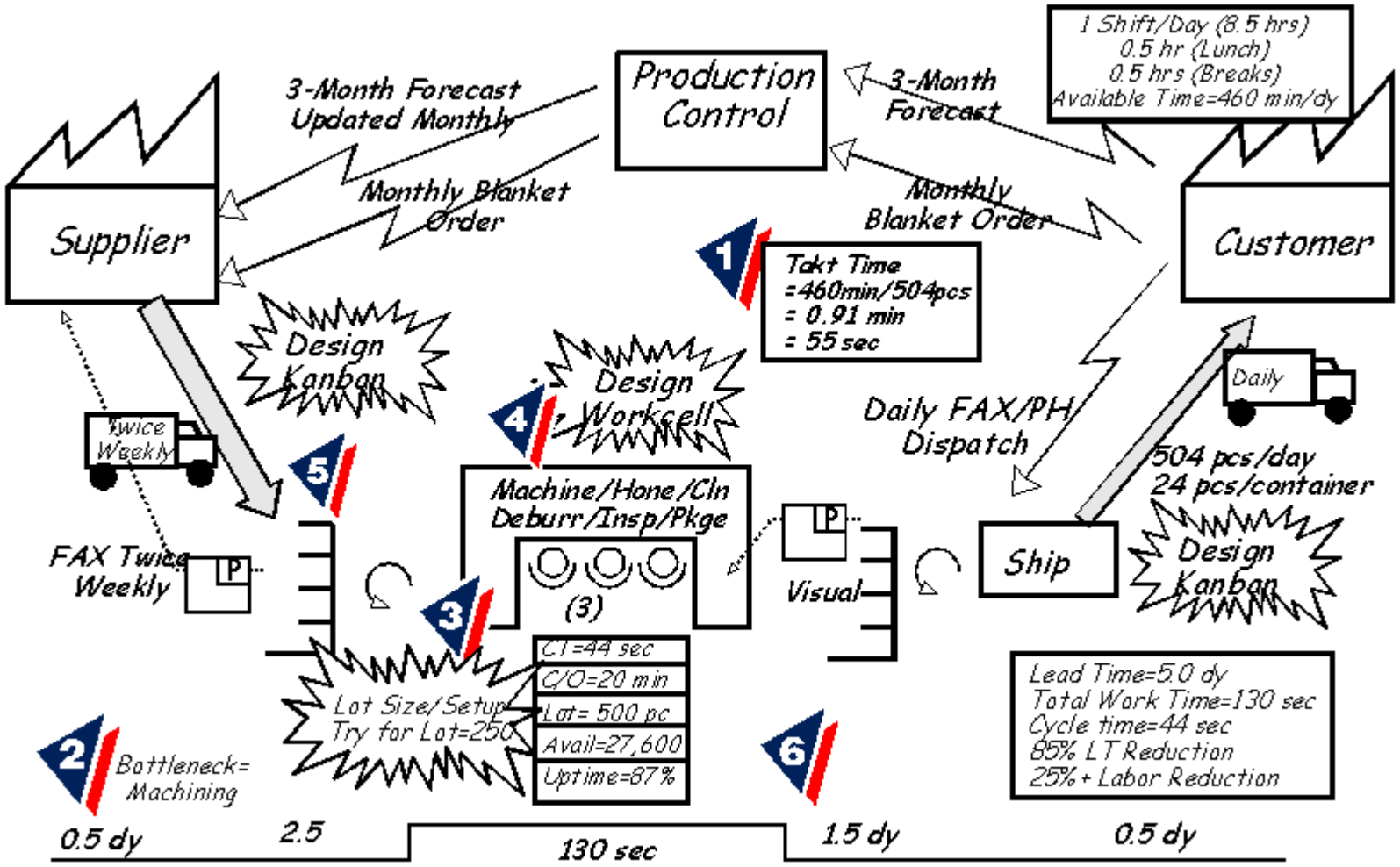
Value Stream Mapping

Review and map the entire extended value stream showing the current state of affairs. This involves looking at the information and product flow for a given value stream. This provides a basis for identifying sources of waste. This should be followed with a map of the desired future state of the value stream as currently understood. Once the value stream maps are developed you can look at your process maps.

Present State Value Stream Map[1]



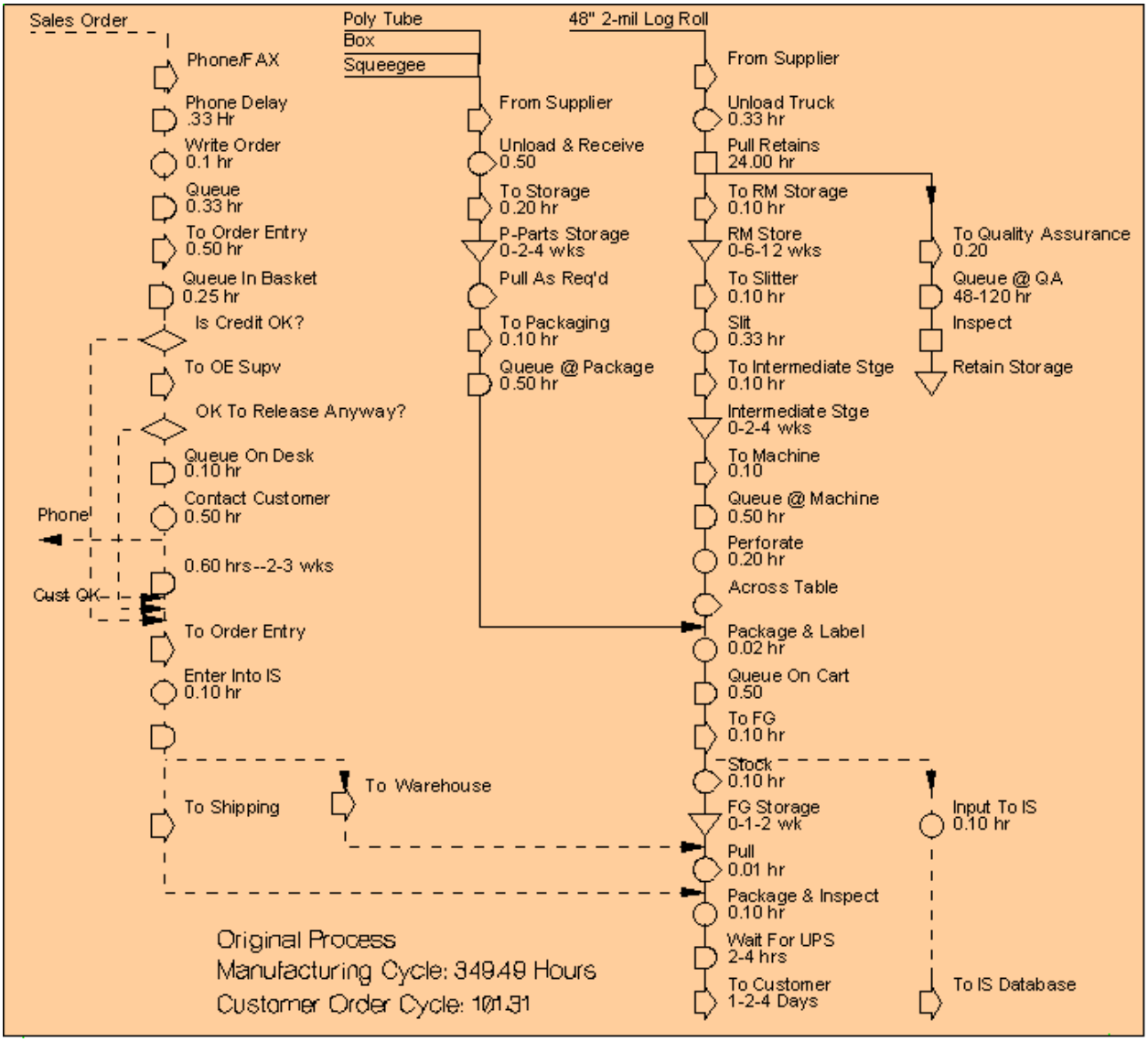
Future State Value Stream Map[1]



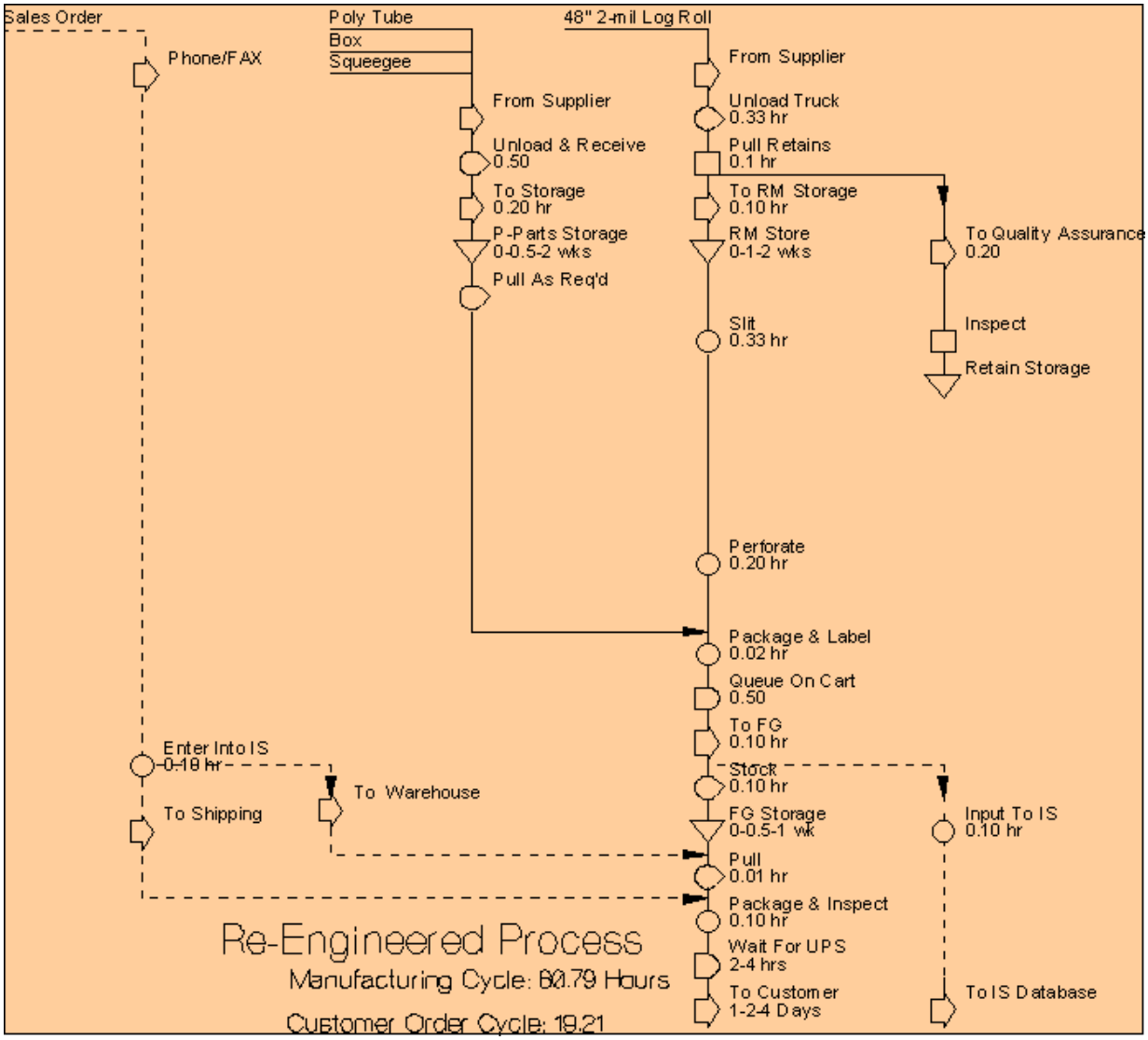
Process Mapping

A process map visually depicts the sequence of events needed to build a product or produce an outcome. Again both the present state and the desired future state of the process should be mapped. Critical steps should be identified at this point.

Present State Map[(2)]



Future State Map[2]



The journey to Lean operations is just that a journey. Once the value streams and processes have been mapped and the wastes have been identified, the journey to achieve the future stats begins. As this journey progresses, additional sources of waste will be identified and a new future state will need to be defined. The goal is to eliminate waste and thus improve the bottom line for all stakeholders.

Synergies Between Business Continuity and Lean

First and foremost, to be successful both processes need to have the full support of upper management. Both are long journeys requiring the cooperation and input of everyone in the organization. Unfortunately both often involve some form of crisis to get the effort kicked off. The tools providing the greatest synergies are the process and value stream mapping steps.

Value Stream Mapping

- From the Business Continuity perspective this step helps identify potential single points of failure to a business. These would include the potential loss of a single or sole source supplier or service provider, which could literally shut a business down if they are lost.
- From a lean manufacturing perspective this provides information on optimization opportunities. Eliminating or shortening steps to get the needed input from the supplier. By eliminating unnecessary steps, the probability of a failure point resulting in a business interruption event is also eliminated.

Process Mapping

- From the Business Continuity perspective the process map identifies the critical steps that need to be resumed to ensure the continuity of operations. As you are evaluating the process for recovery, steps which add no value are identified allowing one to streamline the process to enhance the recovery time.
- From the lean manufacturing perspective, unnecessary steps are identified and eliminated thus improving the process. This serves to simplify the recovery procedures should a business continuity plan need to be activated. The simplified processes should hopefully be more quickly recovered. By simplifying operations it may also be possible to eliminate long lead equipment thus reducing recovery time.

The Major Conflict – Inventory

There is one major area of conflict between the two programs – what is the definition of "unnecessary" inventory.

Lean

The ideal in lean operations would be to have no inventory – the customer asks for a specific product as it is needed, the supplier starts the production as soon as the call comes in, the prior material supplier starts their production when called upon by the product supplier and so forth. What is needed is the minimum amount of inventory of material to maintain the supply of product to the next step in the value chain. When the customer pull stops, the inventory level should be zero.

Business Continuity

But what happens if the chain is broken and a prior step cannot provide the needed product to the next step in the process? From a business continuity perspective, enough inventory should be kept on hand to bridge the supply gap between when an incident occurs and the time it takes to restore production, either at the existing facility or at an identified alternate manufacturer. This argument also holds for single and sole source raw material suppliers. Keeping inventory is waste but this needs to be balanced off with

the risk of losing all or part of a customer's business should your ability to produce be interrupted. The customer may not come back or, if you were a single or sole source supplier, may allocate part of their requirements to an alternate supplier to prevent a similar situation from impacting their business.

If you are a multi-site operation, consider placing properly sized work cells for the same product line at multiple sites to reduce the risk of business loss should an event occur at one site.

If you are a single site operation, evaluate the ability to develop flexible work cells capable of serving as a backup to other production cells.

One other area of conflict is return to stakeholders. In Lean operations, the impact on the bottom line is seen as soon as the changes to operations are made. For a Business Continuity plan, the return is only seen when the plan has to be implemented, which everyone hopes is never.

Final Thoughts

Implementing a lean program and creating a business continuity plan can be done in parallel. The needed process and value stream maps can serve to provide needed information to both processes. While Lean is a journey to achieve perfection and thus is never fully implemented, a business continuity plan also requires constant attention. Any process changes create by Lean operations (or other changes) must be captured in the continuity plan so an organization is recovering the best process. The continuity plan must be regularly exercised to find gaps and keep the key recovery personnel familiar with the procedure.

As an organization implements its lean program and improves it processes, be sure the business continuity plan is updated to reflect the current stat of the process.

When creating or implementing a continuity plan, look for opportunities to leap to your future state during the recovery process. Opportunities to implement changes that were deemed too risky by upper management may suddenly become the best approach when trying to recover from a disaster.

References

1. Strategos, "Value Stream Mapping -- How to do It", www.strategosinc.com/value_stream_mapping.htm
2. Strategos, "Process Mapping -- How to do It", www.strategosinc.com/process_map example.htm