

MBAA Quarterly Meeting Michigan District

PROVIDENCE
Process Solutions

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Today's Agenda:

- iPad Based Electronic Brew Log
- Building a Brewery on a Budget
- Lean Manufacturing for Breweries



iPad Based Electronic Brew Log



What is it?

- A software application that allows brewers to enter critical brew log data from the mill room through packaging.
- Technologies Utilized:
 - iPad wireless for manual entries throughout the plant.
 - Microsoft Windows O/S, Office Pro 2010, SQL Server.
 - Dell Optiplex host PC.



iPad Based Electronic Brew Log



What Useful Purpose Does It Serve?

- Replaces paper logs and double entries and provides a means to run dozens of reports in Excel that support:
 - Quality Trending – Six Sigma
 - Yield Optimization
 - Ingredient Usage
 - TTB Reporting
 - Lot Trace



iPad Based Electronic Brew Log



How Does it Work?

Quick Demo



Building a Brewery on a Budget



US Craft Breweries, (Micro, Regional, Pub):

1970	1980	1990	2000	2010
1	8	211	1507	1716

US Current Growth = **70 New Breweries / Year**

Will the growth continue or will we begin to see consolidation?



Building a Brewery on a Budget

So how do we build a brewery on a budget?

- **First question...Are you ready?**
 - **Do you have a business plan?**
 - **Do you have proper finance?**
 - **Do you have a brand established?**
 - **Do you have a sales / distribution plan?**
 - **Do you have existing cash flow?**



If not, you may want to consider hiring a contract manufacturer to get established.



Building a Brewery on a Budget



Key budget Considerations:

- Define your 5-year annual BBL's forecast.
- Calculate brew house size...then add 50%.
- Determine equipment replacements versus add-on's:
 - Tanks -Brewhouse...fermentation...conditioning...brite
 - Process cooling – Staged compressors?
 - Process heating – Calculate then double.
 - Packaging – Calculate then double.



Building a Brewery on a Budget

Key budget Considerations:

- Facility – New, used, leased? Infrastructure?
- Internal versus external installation?
- New versus used equipment?
- Level of automation?
- Tasting Room?
- Milling?
- China?



Building a Brewery on a Budget



Let's take a look at several key cost considerations.

You did not really think you would get through an engineering presentation without an Excel spreadsheet...did you?



What is lean?

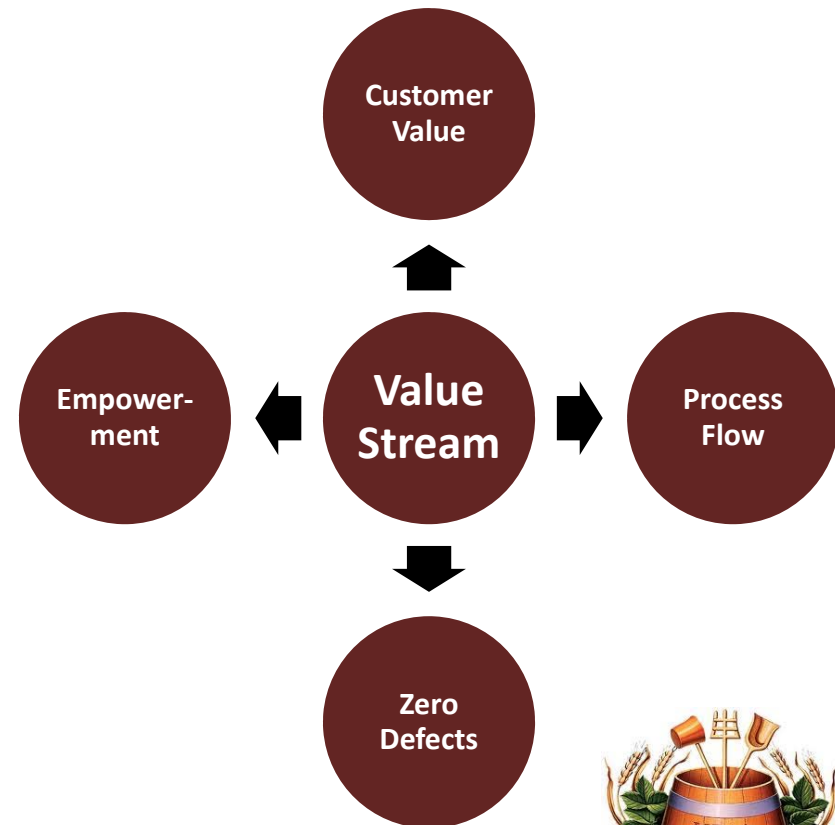
- **Concept = Maximize customer value while minimizing waste.**
- **Lean creates more customer value with less resources.**
- **Lean focuses on eliminating waste in processes.**
- **Lean expands capacity by reducing costs and cycle times.**
- **Lean is about understanding what is important to the customer.**

Lean is not about reducing headcount...really!



What is lean thinking?

Optimizing customer value by streamlining process flow, eliminating defects, and empowering people.



A lean culture

- **When all company employees understands:**
 - **Who their customers are,**
 - **What their customers requirements are,**
 - **Lean mfg. principles and methods,**
 - **Properly empowered to affect quality,**
 - **Can work as a team member.**



Lean Manufacturing For Brewers



Value

Value added activity:

An activity that adds value to the form, fit or function of a product or service, or an activity for which the customer is willing to pay.

Non value added activity (waste):

Those activities that take time, resources, or occupy space, but do not add value to the product.

Necessary:

Inspection and financial analysis.

Unnecessary (waste):

Rework, extra handling, searching for tools, fine tuning walking, unnecessary motion, transportation, setups.



Lean Tool Set

- 7 Forms of Waste
- 5S
- Kaizen
- Poke Yoke
- Value Stream Mapping
- Jidoka
- SMED
- Theory of Constraints



7 Forms of Waste... (Actually there are 8)

1. Overproduction
2. Excess inventory
3. Defects
4. Non-value added processing
5. Waiting
6. Excess motion
7. Transportation
8. Other Wastes:
 - Untapped Human Potential
 - Inappropriate Systems
 - Wasted Utility Resources
 - Wasted Materials



What is 5S?

Elements of 5S:

Sort

Set in Order

Shine

Standardize

Sustain



Kaizen Definition

Kaizen is a Japanese word which means to make better. When used in the context of Lean Mfg., a Kaizen is a methodology by which a work process is improved relative to a customer's perceived value.

Kai Zen
改善
Change Better

Kaizen is translated as change for the better.



Poke-Yoke Definition



**No, Poke-Yoke is not a
new dance move**



Definition

Poke-Yoke was invented by Shigeo Shingo in the early 1960's when he was unable to predict failures using SPC techniques as some errors were discrete in nature and could not be trended.

Poke-Yoke is Japanese for **error-proofing** and focuses on eliminating the opportunity for errors to occur in a process by addressing the source of an error opportunity.



VSM Definition

A Value Stream is the set of all actions (both value added and non value added) required to bring a specific product or service from raw material through to the customer.

- Customer order to invoice
- Product concept to production
- Raw materials to finished product



Jidoka Definition

Jidoka is the process of allowing humans to proactively make changes to their processes in order to positively affect the quality attributes associated with their products and services.

Jidoka is sometimes called autonotation, meaning “automation with human intelligence”.

Why could this be a possibly bad idea?
What could we do to prevent these reasons?



Lean Manufacturing For Brewers

SMED - Quick changeover

- Quick Changeover = Lean mfg. core concept.
- Also known as “single minute exchange of dies” (SMED).
- A rapid and efficient process set-up conversion between products.
- Reduces waste by aligning inventory with demand via smaller batches.



Theory of Constraints Definition

The Theory of Constraints (TOC) is a systems-oriented process improvement methodology that is based on the theory that a system has a single goal, and that systems are composed of multiple linked activities, one of which acts as a constraint on the whole system.

TOC is a methodology to focus on removing and exploiting the constraint in order to optimize throughput.

A constraint is anything that limits a system from achieving its goal or a level of performance desired. A constraint can be viewed as a structural bottleneck which determines the maximum capacity of a system.



Lean culture benefits

- Aligns corporate resources with customer value.
- Improves communication and teamwork.
- Can be implemented in any organization.
- Allows for faster reaction to market changes.
- Strengthens customer relationships.
- Increases information accuracy and timeliness.
- Allows for faster production development.
- Improves employee motivation.



Cheers

