Value Stream Mapping

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What is Value Stream Mapping (VSM)?

- Lean is a fundamental change in the way we think, work, and manage
- Lean activities should be based on the 5 Principles:
  - Specify value from the stakeholders’ standpoint
  - Identify all the steps in the value stream for each perspective, eliminating whenever possible those steps that do not create value: maximize value
  - Make the remaining steps flow
  - Let the customer pull just the value needed
  - Pursue perfection until every step adds value
- **Value Stream Mapping** is a graphical method to identify opportunities for improvement. A graphic form of a SWOT analysis...
Mission-Based Improvement (aka SWOT)

1. **Create a Current Value Stream Map (S,W)**
   - Who is my customer/beneficiary/stakeholder?
   - What metrics within the scope of mission do my critical stakeholders value?
   - What do my critical stakeholders get from my organization?

2. **Identify Improvements (W,O)**
   - What is wrong with this process?
   - What process improvements must be made?

3. **Create a Future State Map (O)**
   - What will be different?
   - How will it be different?

4. **Implement Improvements (O,T)**
   - What exactly will be done? (Scope)
   - Who will do and when? (Schedule)
   - How will you know the progress? (Status)
Step 1: Create a **Current Value Stream Map**

**Stakeholders**
- Parents, Students, State Government, and Tarrant County

**Metrics**
- Enrollment
- Retention

**Mission**
- Student Success

**Program Offerings**

**Promotional Processes**

**Student Enrollment and Registration**

**Teaching and Learning Processes**

**Faculty Hiring Process**

**Graduates/Completers**

*This is a Simplified Current VSM*
Rules in Creating the Current State Map

1. Go to the actual place where the process is performed

2. Talk to the actual people involved in the process and get the real facts

3. Observe and map the actual process
   a. Understand the process through facts and data

4. Be cautious of the Hawthorne effect – observation causes short term improvement by one being observed.
Steps to Complete a Current State Value Stream Map

1. Document Stakeholder information and need
2. Identify main processes (in order)
3. Select process metrics
4. Perform value stream walk-through and fill in data boxes, including WIP
5. Establish how each process prioritizes work
6. Calculate system summary metrics
Commonly Used VSM Symbols

- External Party
- WIP (*Work in Progress)
- Process and Data Box
- Manual Data Flow
- Electronic Data Flow
- Opportunity for Improvement
- Pull
- Push

Note: There are no standard VSM symbols
Process Triggers

Between each step, capture how the product/service is signaled to move or work

- Basics: push or pull, paper or electronic signal

Lean Principle # 4 – Establish Pull
Waiting (Work in Progress)

Record the amount of WIP between or waiting at process steps using the inventory icon.

Process Steps

- Process 1
- Process 2
- Process 3
Process Metrics

Select Process Metrics

• Time
  • Process time – Actual time it takes to complete a process or activity
  • Lead time - time from order to delivery
  • Value-added time – time spent on value-added tasks (e.g., anything that has positive impact on student success, indirectly or directly)*

• Percent complete and accurate
• Level of Work-in-Progress
• Number of people

*In traditional Lean, value-added tasks are those that change the product or information e.g. since inspection is not physically changing the product, inspection in always considered as non-value added. It should be interpreted differently in Higher Education. For example assessment (which is a type of inspection) is an important aspect in Student Success, as such Assessment is value-added.
Step 2: Identify Improvements

1. What is wrong with this process?
   - High Level of Work-in-Progress in Student Enrollment and Registration Process and Faculty Hiring Process
     - In Lean, High Work-in-Progress means either a slow process or many errors
     - Using Little’s Law = Lead Time = Amount of Work-in-Progress (WIP) / Average Completion Rate, the overall Lead Time can be reduced by reducing WIP level.\(^1\)

2. What process improvements (i.e., programs/projects) must be made?
   - Improve Student Enrollment/Registration process
   - Reduce Faculty/Staff Hiring Cycle Time
   
   *Please note: Process speeds not always the same so entire system needs to be balanced*

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Step 2: Identify Improvements

Current Value Stream Map

Promotional Processes

Student Enrollment and Registration

Teaching and Learning Processes

Program Offerings

Faculty Hiring Process

WIP

Tarrant County

Stakeholders*

Graduates/Completers

*WIP: Work in Progress

Office of Institutional Intelligence & Research
Step 3: Create a Future Value Stream Map

Future Value Stream Map*

Promotional Processes

Student Enrollment and Registration

Teaching and Learning Processes

Program Offerings

Faculty Hiring Process

Stakeholders*

Improvement Projects (Lean, IT and Policy changes) will change the process from “Push” to “Pull”, e.g. Promotional Processes are anchored on Career Pathways, and Enrollment Process is pulling from the career paths chosen by the prospect students.

Both improvement projects have IT solutions that enabled changing the triggers from Push to Pull.

With the reduction of Hiring Lead Time, it is possible to Pull (rather than Push).

*This is a Simplified Future VSM

Graduates/Completers
Improvement Project: Hiring Lead Time Reduction Six Sigma Project

Average Hiring Lead Time Reduced from 111 to 63 Days = 57% reduction

- It took 6 months to make changes
- Worked w/HR team for 3 months
- Trained HR recruiting team:
  - Conducted “Voice of the Customer” to identify top three main points:
    - Redundant approvals
    - System issues
    - Poor training
  - Mapped process
  - Removed wasteful steps/Maximized value
    - Reduced number of approval steps
Implications of Value Stream Mapping in Higher Education Environment

• Upper Echelons of Leadership Support Needed to Maximize Success of Value Stream Mapping (Prosci 20 years + research shows THE most important factor for success is EFFECTIVE SPONSORSHIP)

• Sphere of Influence/Control of the Area(s) Being Examined a Strong Mitigating Factor for Success (upstream-downstream)

• Strong Culture of Evidence Needed to Foster Data-Informed Decision Making

• Building the Plane While We’re Flying It...Process Improvement While the Process Marches On...
Final Comments

- Value Stream Mapping is a Graphic Form of a SWOT Analysis
- Typically Corporations Use this Process on a Quarterly Basis
- LEAN CONCEPT: Maximizing Value vs. Minimizing Waste (mental model shift)
- VSM, a LEAN approach is NOT the same as PROCESS MAPPING. Process mapping or plainly flow charting is very detailed whereas VSM is to look at how VALUE flows throughout the overall picture
Questions/Comments