SEVEN (7) PRINCIPLES FOR IMPROVING WORKFLOW

THE BOTTOM LINE GROUP

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Overview

This paper introduces seven (7) principles that will help you improve the flow of knowledge work. All 7 are part of an interdependent set; they apply to every workflow (value stream).

7 Principles for Improving Workflow

1. Improve flow from the outside-in
2. Measure what matters to the customer
3. Make the end-to-end (flow) visible
4. Identify and remove barriers to flow
5. Connect and align value added work fragments
6. Organize around the end to end flow
7. Manage the flow visually

Principle 1: Improve Flow from the Outside-In

Paraphrasing Steven Covey, you want to “begin with the end (of the flow) in mind.” What is the item or work product produced by the flow? Who is the customer for that item or work product? Begin with the result you provide to the customer and work backwards, or from the outside in. This focuses your improvement effort on changes to work that customers see or experience. From the customer’s perspective, any other work doesn’t really matter.

Principle 2: Measure What Matters to the Customer

Often in knowledge-intensive work, there are few measures in place that relate to flow such as:

- Lead time
- Cycle time
- Value-added time
- Complete & accurate
- First-pass yield or rolled throughput yield
- Throughput volume/time period (related to customer’s definition of “on time”)
When measures do exist, they tend to be oriented around resource consumption and they are often categorized or grouped into job, function, or project/program budget categories. I recently came across a quote that sums up this situation nicely, “Organizations knowing the cost of everything and the customer value of nothing will not survive.”

This principle establishes measures that help focus everyone’s work on the same customer-focused targets. It helps answer the question “how does this work or my portion of the flow contribute to what the customer wants?”

**Principle 3: Make the End-to-End Flow Visible**

Work begins and ends with the customer, but what happens in between? What is the path that work takes as it progresses from order to delivery? Typically, the flow of work from order to delivery crosses several functions, departments, and roles; it has many hand-offs and touch-points. Every organization has some version of an order to delivery or order to cash workflow (aka value stream, or “core” cross-functional process). Is the current end-to-end workflow more like an Interstate Highway, or is it closer to a collection of much shorter roads, each with different speed limits, numbers of lanes, lots of stoplights, and owned by different jurisdictions?

Most organizations have yet to make this end-to-end workflow visible, or explicit. So instead of a high capacity, throughput-focused Interstate, what they have is a set of dispersed, disconnected, resource-consuming, work “fragments” hidden by the jobs and structural parts that make up the business. These fragments are embedded within the jobs; the jobs are clustered into like groups (finance, engineering, sales, manufacturing, etc.) of resources so the flow of work is not yet viewed, measured, or managed as a coherent whole.

I believe that it is helpful to know how the part of work that you are seeking to improve relates to or impacts the primary Interstate that is the essence of your business, before you attempt to improve it, or reduce its cost. Likewise, you can provide great value to your customer and achieve strong benefits for your organization when you make this Interstate a well-known, well-understood, highly visible, organizational landmark.

This principle helps you establish the boundaries of the workflow, both end-to-end and between the fragments that comprise the end-to-end flow. Once boundaries are visible, it helps you surface all the fragments associated with a specific work product regardless of the job, department, technical specialty or functional discipline in which they currently reside.

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1 From Stephen Parry, Head of Strategy and Change, Fujitsu Services

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When the end-to-end workflow is visible, you can then determine whether you are working on some portion of the primary Interstate, something that connects directly to this Interstate, or something that does neither. This, in turn helps you decide whether a particular work fragment is value-added or non-value added.

**Principle 4: Identify and Remove Barriers to Flow**

As part of this principle, there are 3 main stages:

- **Stage 1:** Recognize waste
- **Stage 2:** Determine cause(s) of the waste
- **Stage 3:** Develop and implement an integrated set of countermeasures

You first learn to recognize the various forms of waste present in the way work is done currently. Then, more importantly, you discover the cause(s) of that waste. Finally, you develop counter-measures that eliminate or reduce the impact of each cause and make adjustments to the factors that hinder flow, such as workflow design, IT, layout, job design, goals, measures, priorities, policies & rules, etc, as an integrated set.

**Stage 1: Recognizing Waste in Knowledge-Intensive Work**

In order to identify and remove barriers to flow you’ll need to strengthen your observation skills so that you recognize the waste in knowledge-intensive work.

**What is Waste?**

Any activity that consumes resources, but does not create or add value is considered waste.

**Waste versus Work**

If you think in terms of the basic input, process, output (IPO) model of work, “waste” focuses primarily on the resources used by the input and process components, whereas “value” is the customer’s perception of the output.
We measure activity, i.e. effort hours, labor content, etc., but how much of the activity is waste? Should we really worry about this?

“The 0.05 to 5 Rule”

In 1990, the Boston Consulting Group determined the following:

“Across a spectrum of businesses, the amount of time required to execute a service or an order, manufacture and deliver a product is far less than the actual time the service or product spends in the value-delivery system”

“The 0.05 to 5 rule highlights the poor ‘time productivity’ of most organizations since most products and many services are actually receiving value for only 0.05 to 5 percent of the time they are in the value-delivery systems of their companies.”

Those of you more fluent in “lean-speak” may be more familiar with the terms “value-creating time” and “lead time.” The “0.05 to 5 rule” is the amount of value-creating time expressed as a percentage of total lead time.

If up to 95% of time spent is waste, this represents a significant opportunity for improvement. Learning to see the waste that is hidden in plain sight is a valuable skill.

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### Types of Waste in Knowledge-Intensive Work

The table below defines and gives examples for each of the types of waste that typically occur in knowledge-intensive work.

<table>
<thead>
<tr>
<th>Type of Waste</th>
<th>Definition</th>
<th>Knowledge-Intensive Work Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overproducing</td>
<td>More or sooner than is really needed right now by the customer</td>
<td>Purchasing or creating anything before it is needed</td>
</tr>
<tr>
<td>Inventory</td>
<td>Any form of batch processing, or work-in-process</td>
<td>Work held in in-boxes, storage of office supplies, partially completed tasks or documents, files, online or electronic storage</td>
</tr>
<tr>
<td>Waiting</td>
<td>Delays</td>
<td>Time spent pending review or approval. Time watching logon, screen refresh, or retrieval or manipulation of information</td>
</tr>
<tr>
<td>Extra Processing</td>
<td>Time spent doing unnecessary steps</td>
<td>Re-keying or reformating data; extra copies or unneeded reports, multiple drafts or versions of presentations, briefings, budgets, plans, etc.</td>
</tr>
<tr>
<td>Correction</td>
<td>Any form of defects or re-work</td>
<td>Missing (incomplete), or incorrect data or information</td>
</tr>
<tr>
<td>Excess Motion</td>
<td>Movement of people</td>
<td>Retrieving anything essential to the task at hand that is “out of reach,” such as, data, information, files, centralized in-boxes, book-shelves, office supplies, instructions, printers, fax or copy machines</td>
</tr>
<tr>
<td>Transportation</td>
<td>Movement of work between locations, offices, floors, buildings, systems, and people</td>
<td>Email attachments, documents or files routed for multiple approvals or reviews; expertise or information needed is dispersed rather than co-located or aggregated</td>
</tr>
</tbody>
</table>
Stage 2: Determine the Cause(s) of the Waste

Once you recognize that waste exists, you then seek to find out what causes that waste.

What Causes Waste?

A single type of waste is often caused by a combination of factors. For example, a delay may caused by a combination of missing information and multiple review and approval steps.

Categories of Factors that may Cause Waste

Here is a list of factors grouped by category (affinity) that may cause waste or impede the flow of knowledge-intensive work:

1. Workflow Design Properties
2. Physical Layout
3. Job/work Design
4. Information Technology
5. Policies & Rules

Category 1: Workflow Design Properties

There is a big difference between a collection or sequence of tasks and a \textit{consciously designed}, coherent, workflow made up of all value-creating work. Each of the following factors contributes to the effectiveness of a well-designed workflow.

- Boundaries
- Sequence
- Pattern
  - Serial
  - Parallel
  - Con-current
- Flow
  - Continuous flow
  - Batch processing
  - Push
  - Pull
- Complexity
- Work practices or mechanisms
- Hand-offs
- Triggers
- Inputs
- Activities
- Outputs
- Prioritization of work
- Scheduling of work
- Part/Whole alignment
- Capacity vs. demand patterns and drivers for that work
- Synchronization
- Resource utilization
  - Type or mix
  - Amount
  - How used – to create value, or for some other purpose
- Flow control or regulating mechanism
- Information
  - About the work (quantity, criteria and standards for quality)
- Feedback
  - Normal vs. abnormal operating conditions
  - Performance results (plan vs. actual)
  - Visible, real-time status of progress within the flow

**Category 2: Physical Layout**

This category of factors examines how physically connected or linked one part of the workflow is with the other interdependent parts of that workflow.

- Layout
- Distance
- Workplace design
- Ambient conditions

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• Everything in it’s place and a place for everything at a glance to do the flow
• Required resources located at point of use
• Visual management of flow

Category 3: Job/Work Design

What is the relationship between sets of interdependent jobs i.e., the individual jobs and the workflow that comprises those jobs? This category also contains factors that examine how performance is measured, managed, reinforced, or recognized and the people development mechanisms in place.

• Learning what constitutes standard work
• Adequate resources
• Role clarity
• Task clarity
• Task interference
• Criteria for what constitutes excellent quality at the source
• Incentives/consequences
• Feedback
• Guidance
• Coaching
• Goals
• Measures

Category 4: Information Technology

Effective use of information technology is crucial to the performance of knowledge-intensive work. This category examines several factors, such as:

• Ease of Use
• Shares data
• Brings shared data to point of use
• Timely
• Supports decisions
• Flexible
Category 5: Policies & Rules

This category is always an eye opener to examine.

- Written, un-written
- Formal, informal
- Business rules
- Assumptions
- Folklore
- Regulations
- Legal or statutory

Stage 3: Develop and Implement an Integrated Set of Countermeasures

Often, there is a set of factors from each of the above categories that collectively cause the waste currently in the value delivery system. Your countermeasures should reflect this interdependency, and they should be implemented as an integrated whole.

Principle 5: Connect and Align Value-added Work Fragments

Should you strive for more or less fragments in your workflows?

More fragments equals more waste. Generally speaking, the more fragments involved as work progresses from order to delivery, the greater the complexity, cost, and lead time of your business.

Workflow “nirvana” would be that the end-to-end flow that becomes your Interstate is composed only of the fewest number of 100% value-added work fragments, each of the right size, performed in a synchronized sequence that consumes the least amount of resources in order to provide just what the customer wants, when they want it.

This does not happen overnight. It took about 40 years to create the U.S. Interstate Highway System. Toyota has been working over 50 years on their Toyota Production System.
In my experience, the jobs that make up knowledge work have not been consciously defined or designed around their desired contribution to an end-to-end flow as an organizing principle.

Typically, it takes a set of jobs from multiple functions to accomplish the tasks associated with producing a given item in knowledge-intensive work. Each job is made up of tasks, some of which turn out to be valued-added and some which are non-value added when viewed in the context of the appropriate workflow to which they belong. Very often a single knowledge worker’s job is made up of tasks that support (are a subset of) several different workflows or value streams.

As part of applying this principle you sort the (now visible) work fragments you identified earlier into value-added versus non-value-added, and then group the value-added fragments into logical subsets and sequences that may or may not match current job definitions or department responsibilities. Simply put, you design the work so that is “flow-centric.”

Principle 6: Organize Around the End-To-End Flow

This principle makes the part/whole relationships throughout the end-to-end flow the central context for organizing work, resources, and accountability. There are two aspects:

1. Overall flow (horizontal integration and management of the whole)

Who (what role and individual) is accountable for the end-to-end flow? Typically a new role of value steam manager or process owner is needed. This role is the customer’s advocate and sees to it that the customer’s definition of value is used to set the end-of-flow performance targets.

2. Within and between each portion of the flow (synchronization of the parts)

The ownership role then seeks to coordinate and align the moving parts of the organization throughout the flow to adjust goals, measures, jobs, resources, etc., so that all are focused on meeting the customer’s performance targets. This may include:

- Physical or virtual layout of work and work performers to emphasize flow
- Workload balancing
- Sequence of work
- Scheduling and prioritization
- Cross-training
Principle 7: Manage the Flow Visually

Ideally, you want everyone within the flow to be able to self-monitor whether the rate, quality, and quantity of their work is optimized to meet the end-of-flow performance targets. You also want everyone to be able to distinguish between normal and abnormal operations quickly (real-time feedback) so that defective work is not sent downstream and help can be dispatched when and where it is needed to get things back to normal right away.

This principle typically makes timely information on status, progress, problems, and performance results visible to everyone within the flow as part of their daily work. It helps focus attention not only on maintaining the rhythm of regular flow operation, but also on establishing explicitly defined contingencies (i.e., a fast, known, and certain response) for removing barriers to flow when they occur.