Lean IT

Enabling and Sustaining
Your Lean Transformation

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Appendix C: Information Wastes

Following is a list of information wastes we have compiled during our own practice, along with input from many IT professionals we have worked with over the years. We hope this list helps you learn to see waste in your own work environment—the first step toward eliminating it.

This is by no means a complete list, and we'll continue to update it on our website: *www.steadyimprovement.com.* The list is available for download and free distribution.

If you would like to submit your own examples of information waste, please send them to *info@steadyimprovement.com*

Inventory
- Backlog accumulating in electronic and physical inboxes
- Old or obsolete electronic and physical files and messages that should be stored, disposed, or recycled
- Clutter: physical and virtual disorganization wherever work is done or knowledge is stored and shared
- Endless spreadsheets and other "productivity enhancing" documents that encourage local optimization while fragmenting the overall process, increasing the number of delays, handoffs, and errors
- Excess information across local drives, shared drives, SharePoint sites, data warehouses; duplication of the same data in multiple forms (e.g., electronic and paper)
- Sending attachments rather than links, which creates multiple versions of a document (also causing version control and security problems)
- Work waiting to be reviewed, approved, and forwarded
- Software that's purchased but never deployed
- Unnecessary, unclear, incorrect, obsolete, or unused documentation
- Projects and programs that are not being considered but are still on the backlog

- Backlog accumulating in the software development, support, or enhancement queue
- Partially completed development work—uncoded documentation, unsynchronized code, untested code, undocumented code, undeployed code
- Multiple software code objects that perform the same function
- Introducing excessive tools, technologies, or methodologies
- Unused/unnecessary software user licenses
- Excessive inventory of ink cartridges and other consumables that require space and may become damaged or obsolete before they are needed
- Excessive parts inventory

Overprocessing (doing more work than the customer requires)
- Mandated but unnecessary or overly complex processes and activities
- Inspection and correction activities required to catch and correct errors that should be prevented by building quality into the process
- Producing and distributing reports that contain information which is not used
- Sending people unnecessary messages, such as selecting "reply all" to an e-mail message, when "reply" (or no response) is sufficient
- Unused functionality designed into software
- Failure to cancel a project when it is determined to be no longer viable
- "Gold plating" system design and performance striving for perfection rather than practical adequacy
- Excessive or unused reason or categorization codes configured into the software
- Entering redundant information into the same or multiple systems
- Workflow approval routings that are not necessary
- Unclear lines of decision making responsibility/authority that cause unnecessary changes, time, cost, errors, and rework once a project is underway
- Management reporting systems (e.g., hierarchal scorecards and dashboards) that do not align strategy with daily activity, and thus do not effectively prioritize action, leading to effort that does not contribute to organization goals (doing the wrong work, but doing it well)

- Frequent switching between incomplete jobs, also known as multitasking, thrashing, task switching
- Ineffective or repetitive meetings that add little value and don't resolve lingering issues
- Inviting people to unnecessary meetings, or meetings where they don't need to be involved
- Trying to govern or manage systems or processes that are unreliable, unstable, undocumented, or too complicated to understand
- Searching for information or materials that are difficult to find
- Excessive automated exception notifications and alerts that cause distraction, but do not drive effective action or decision making
- Multiple reports containing the same or similar data
- Excessive analysis that does not add value to a decision
- Helpdesk troubleshooting that addresses symptoms but not root causes
- Non-value-adding control activities solely for compliance purposes
- Cost accounting efforts that track and calculate cost per unit/order/event rather than the value stream cost
- Unnecessary transactions, capturing more information than is needed to complete the process or to support decision making (e.g., capturing standard cost variances and calculating overhead allocations in order to support a process that flows)
- Gridlocked or unclear matrix management practices
- Unnecessary monthly closing activities
- Lack of system and process integration that causes unnecessary work
- Budgeting tasks that do not lead to better decision making
- Excessive, unnecessarily invasive, or complex security policies and procedures
- Printed information where electronic is sufficient, for example, presentation slides and handouts
- Writing something, then entering it into a computer system
- Printing information from one computer system then re-entering it into another
- Capturing data at various points along a process, rather than capturing at the source
- Information addiction, excessive e-mail, web surfing, social networking, and so on . . .

Overproduction (producing more / sooner than the customer requires)
- Unnecessary or early work performed due to unclear priorities, interdependencies, or sequence
- Software requirements that are specified long before coding
- Producing and distributing a document days before a meeting, that is then modified based upon later information and redistributed
- Printing collateral materials that are quickly obsolete
- Making extra copies
- Printing single-sided versus double-sided
- Processing paperwork or information before the downstream operator is ready for it
- Making and locking decisions in too early that commit resources and limit flexibility

Waiting / Delays
- Searching for information (which often consumes a half hour or more of every individual's time each day)
- Delays from excessive review and approval steps
- Delays in receiving, transmitting, and storing information
- Slow application response
- Unnecessary distractions and interruptions
- Unclear lines of decision-making responsibility/authority that cause delays (e.g., project approval)
- Delays between coding and testing
- Waiting for hard copies that could have been handled electronically
- Metrics that are not real-time, having to wait to take action
- Missing, incomplete, incorrect, obsolete, or unclear information from upstream processes that require time for clarification and correction
- Overnight batch processing of data
- Reports that take a long time to run
- Waiting for a specialist who is currently working on another task or project (shared resource)
- Discussions or decisions that take too much time because a team is not co-located or does not have the capability for online communication/collaboration
- Long helpdesk hold and callback times

- Using shared equipment; waiting time for availability, plus time required to reconfigure/reboot/login
- Delays in determining correct groups or individuals needed for process or problem resolution
- Missing, incorrect, unclear, or obsolete process documentation which causes delays when a procedural problem or question arises

Motion/Transport/Transfer
- Walking to/from printer, copier, fax machine, filing cabinet, archival storage
- Poor user interface or process design that causes unnecessary keystrokes, mouse clicks, or navigation steps
- Nonstandard handoff of information from one process step to another when it requires some form of change or re-interpretation of the information
- Intercompany handoffs of nonstandard, nonintegrated information (e.g., supply chain transactions)
- Security barriers to flow of nonsensitive information
- Filing or moving physical documents that could be stored and forwarded or linked electronically
- Providing a spreadsheet or report to more people than actually need it
- Needing to split email attachments into smaller segments due to file size limitations
- Toggling between disconnected applications
- E-mails sent/responded to uninvolved people
- Unnecessary movement of electronic information
- Sending attachments rather than links to documents
- Printing information from one computer then re-entering it into another
- On-site visits to resolve system issues that could be resolved (or prevented) with remote monitoring and correction
- Using multiple emails for dialogue when a conference call or face-to-face meeting is more effective
- Manual expediting of documents—walking documents through the approval process
- Poor ergonomic design of work stations

Errors/Defects/Rework

- Incomplete, incorrect, obsolete, or unclear information from upstream processes that must be corrected
- Inspection and correction processes
- Poor project execution
- Not understanding customer/user requirements and expectations, thus delivering ineffective "solutions"
- Unstable software, hardware, communications, devices, etc., that make it difficult for people to get value-added work done
- Lost information
- Mixed messages from management about the importance of doing work right the first time, while also doing all daily work "on schedule"
- Excessive productivity standards, measurements, and incentives that emphasize volume/speed over quality
- Forming a kaizen team to improve an automated business process without including a representative from IT, often resulting in incorrect system requirements and change requests
- Application bugs and design flaws
- Unauthorized changes to software and systems
- Inadequately tested changes to software and systems
- Testing introduced too late in the lifecycle of a project
- Software patches applied simply to correct errors introduced by the previous patches
- Assuming customer needs / requirements instead of getting it directly from the customer (not asking for information, or asking for the wrong information)
- Measures that lack valid prescriptive guidance
- Time and effort required to identify and correct bad data as it propagates across multiple data sources
- Entering conflicting information into the same or multiple systems
- Reconciling conflicting sources of data and subsequent disagreements over whose data is right
- Consequences of estimating, pricing, forecasting, or scheduling errors (to name just a few) based on incomplete, incorrect, irrelevant, or obsolete data or assumptions

- Helpdesk knowledgebase information that is incorrect, incomplete, unclear, or obsolete resulting in a failed intervention, potentially causing additional harm and lost user productivity
- Helpdesk interventions that do not solve the problem due to mis-understanding, unclear communication or problem definition thus requiring further troubleshooting and correction
- Missing, inaccurate, incomplete, unclear, or obsolete specifications or process documentation
- Errors resulting from insufficient or improper analysis and reflection
- Meeting conflicts and subsequent rescheduling caused by misuse of the scheduling system
- Inability to receive email attachments that exceed file size limits, causing rework
- E-mail, spam, and the problems that result from excessive filtering
- Free text fields instead of drop-downs, check boxes, etc. that allow user error and the propagation of bad data throughout downstream systems
- Requiring workers to memorize or write down data from one source to be entered into another source

Unnecessary Complexity / Overengineering
- Over design of software applications
- Over automation of processes
- Premature technology intervention to improve a process, before the process is well understood, simplified, and improved by the people responsible for it
- Developing complex solutions to simple or nonrecurring problems
- Spreadsheets with unnecessarily complex formulas, macros, and multiple dimensions that give the appearance of sophistication while masking potential errors and invalid assumptions
- Overly complex governance, funding, prioritization, and control processes
- Lack of systems thinking: focus on departmental optimization rather than overall process performance
- Inappropriate or overly complex IT chargebacks that cause ineffec-tive behavior and misguided IT investment decisions

- Rigid and lengthy system change/upgrade cycles that encourage user workarounds and offline systems
- Attraction to newest, latest technologies rather than existing systems that serve their purpose
- Not distinguishing between symptoms and root causes
- Proliferating improvement initiatives that are not strategically aligned, prioritized, or adequately resourced

Underutilized Human Potential
- Information overload
- Unnecessary process, data, or system complexity
- Dull, repetitive, or mundane activities that could be eliminated or automated
- Unnecessary or complicated top-down rules and process controls
- Lost, conflicting, or underutilized knowledge that must be rediscovered and relearned once a problem occurs
- Excessive approvals needed or other bureaucracy that discourages improvement and innovation
- Lack of guidelines or work standards to empower employees
- Too much time spent on daily work, with not enough time allowed for individuals to improve the work
- Not communicating targeted objectives to all associates involved in a process
- Excessively detailed standards that do not allow flexibility
- Lack of visuals and measures to indicate where problems need to be solved
- Not asking for ideas
- Not capturing and sharing ideas
- Not making knowledge easy to locate and apply
- Not investing in education and training
- Not encouraging cross-functional communication and collaboration

Environmental Waste
- Electricity consumed by IT assets
- Paper consumed by unnecessary printing
- Printing single-sided versus double-sided
- Ink, toner cartridges, and other recyclables that are disposed prematurely . . . or not recycled!

- Improper disposal of materials, including hazardous materials found in many electronics
- Using paper coffee cups instead of ceramic mugs
- Document storage, archive, and disposal waste
- Overnight shipping expenses and carbon footprint that could be reduced through electronic transport
- Transportation (fuel, carbon, and other costs) that could be reduced through telecommuting and remote meetings
- Business processes causing environmental waste, that could be improved with thoughtful application of information and information systems