Lean 6-Sigma Program

Employment Development Department

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Problem Statement: Increasing backlog of electronic survey responses due to program changes have led to unacceptable processing times.

Objective: To reduce the time to process an electronic survey so that 95% of surveys exit the Total Days in Pending within 10 days.

Project Team:
- David Garcia, RM I – Project lead
- Marcel Wong, RPS I – Industry analyst, VBA coder
- Sarah Wong-Sen, RA II – Industry analyst, Macro tester
- Tom Stassi, RPS II – OES Program Expert, SQL coder
Baseline capability average is 26.1 days and ranges to over 100 days.
65.7% of observed work takes longer than 10 days.
Sample size of 1057 between December 2015 - March 2016.


According to analysis, only 1 step considered Value Added.

22 Non-Value Added steps.
Analysis Tools

- Process Map (3)
- Capability Analysis (3)
- Fishbone Diagram
- Boxplot (2)
- Dotplot
- Time Series Plot (2)
- Scatterplot (2)
- FMEAs (Failure Mode and Effects)
- Mult-Vari Chart (4)
- Mood Median Test (4)
- WIP Analysis (Work in Progress)
Scatterplot of employer size and survey weight disproved initial hypothesis that size and survey weight affected Total Days in Pending.

Lean 6-Sigma Program
Key Analytical Finding 2

Critical X’s were identified to shift focus of subsequent analysis, on specific staff assignments and work processes.

<table>
<thead>
<tr>
<th>Step#</th>
<th>Process Map - Activity</th>
<th>Key Process Input</th>
<th>Potential Failure Mode</th>
<th>Potential Failure Effects</th>
<th>SEV</th>
<th>Potential Causes</th>
<th>OCC</th>
<th>Current Controls</th>
<th>DET</th>
<th>RPN</th>
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<tbody>
<tr>
<td>7b</td>
<td>Process Map - Crosswalk file</td>
<td>Accurate crosswalk files</td>
<td>not matching titles</td>
<td>longer to code file</td>
<td>10</td>
<td>time consuming to compile</td>
<td>10</td>
<td>analyst experience</td>
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<td>400</td>
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<tr>
<td>6b</td>
<td>Process Map - Begin formatting f</td>
<td>Utilize appropriate macros/excel functions</td>
<td>format manually</td>
<td>delayed processing</td>
<td>8</td>
<td>inexperience with Excel</td>
<td>7</td>
<td>analyst experience</td>
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<tr>
<td>1b</td>
<td>Process Map - Excel submission</td>
<td>Log in from IDCF</td>
<td>Forget to log in</td>
<td>Data not pending</td>
<td>10</td>
<td>analyst oversight</td>
<td>5</td>
<td>3 specific staff assigned to work</td>
<td>2</td>
<td>100</td>
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<td>1a</td>
<td>Process Map - Weblite submission</td>
<td>Log in from IDCF</td>
<td>Forget to log in</td>
<td>Data not pending</td>
<td>10</td>
<td>analyst oversight</td>
<td>5</td>
<td>3 specific staff assigned to work</td>
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<td>100</td>
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<tr>
<td>8ab</td>
<td>Process Map - Code and Process</td>
<td>SOC Code file</td>
<td>coding incomplete</td>
<td>unable to process</td>
<td>10</td>
<td>lack of time</td>
<td>8</td>
<td>workload capability</td>
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<td>Autobatch file</td>
<td>manually key into SPAM</td>
<td>delayed processing</td>
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<td>lack of experience in autobatch</td>
<td>7</td>
<td>analyst experience</td>
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<td>Process Map - Begin formatting f</td>
<td>Identify needed formatting</td>
<td>data unformatted</td>
<td>not autobatchable into SPAM</td>
<td>9</td>
<td>inexperience with Excel</td>
<td>6</td>
<td>analyst experience</td>
<td>1</td>
<td>54</td>
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<tr>
<td>1b</td>
<td>Process Map - Excel submission</td>
<td>Update status in SPAM</td>
<td>Forget to update Status</td>
<td>Data not pending</td>
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<td>Update status in SPAM</td>
<td>Forget to update Status</td>
<td>Data not pending</td>
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<td>analyst oversight</td>
<td>5</td>
<td>3 specific staff assigned to work</td>
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<td>45</td>
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<td>Prepare file for crosswalk</td>
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<td>analyst experience</td>
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<td>file not loaded into Autobatch</td>
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<td>crosswalk function too complex</td>
<td>7</td>
<td>analyst experience</td>
<td>1</td>
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<td>Load crosswalk into Autobatch</td>
<td>file not loaded into Autobatch</td>
<td>unable to crosswalk</td>
<td>crosswalk function too complex</td>
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<td>analyst experience</td>
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<td></td>
<td></td>
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<td>5</td>
<td>Process Map - Receive additional</td>
<td>Verify corrections made</td>
<td>corrections not made</td>
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<td>7</td>
<td>confusion of addtl data</td>
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<td>direct &amp; detailed contact</td>
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<td>Process Map - Contact employer</td>
<td>Correspond with contact</td>
<td>Contact does not respond</td>
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<td>lack of cooperation</td>
<td>7</td>
<td>Constant follow up</td>
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</table>
Key Analytical Finding 3

- Mult-Vari Chart pointed to specific assignments initially attributing to high Total Days in Pending average.
- WIP Analysis indicated shift in Total Days in Pending due to staffing changes and short-term projects.
Critical X’s (root causes of problems)

- Inconsistent formatting procedures between staff.
- Staff required to manually code files more often than necessary.
- Data validation from respondents is unreliable.
- Automated coding function not utilized due to complexity, number of steps.
- Initial data reception/log in too time consuming.
**Implemented**

- **Standardized data handling & organization.**
  - Train staff on proper procedures to maintain consistency, minimize missing data.

- **Immediate formatting using Excel macros.**
  - Develop standardized macros & provide formal training to staff.
  - Immediate attention to data responses eliminates delay & potential issues are addressed sooner.

**Planned**

- **Expedited coding using standardized & automated function.**
  - Minimizes manual coding by staff which expedites processing speed.

- **Interactive Excel based data collection tool.**
  - Mistake proof data collection to eliminate as much respondent errors as possible, reducing the amount of additional rework.

- **Round robin approach to workload.**
  - Processing not delayed by missing staff or short-term projects/assignments.
- Data types handled in the same manner vs separate in baseline process.
- Use of macros and automated coding minimizes staff efforts.
- Use of interactive form expedites data correction/validation process step.
With only 2 of the 5 improvements techniques implemented, 95.65% of surveys processed in less than 10 days.

Average of 2.97 days.

Sample size of 69, based on analysis of surveys processed over 16 day period.
Improvement from 34% to greater than 95% surveys processing in less than 10 days.
Old Process average: 26.1 days
Improved Process average: 2.9 days
Control Plan

Control Methods utilized for Critical X’s:

- Process Redesign of electronic data organization and management.
- Mistake proofing of responses during data correction/validation efforts using interactive form.
- Training plan developed and employed to prepare staff for macro usage, automated coding function and other best practices tested during Lean Six Sigma project.
- 5S- Standardization of data handling and management, macro utilization, automated coding function and interactive form for data validation.

To be monitored by SPAM database query and Non-normal Capability Analysis in Minitab software.
Additional Benefits

Due to Improved process, staff spend between 19% and 40% less time processing electronic files, which is equivalent to 2 – 4 PY being freed up to perform other critical tasks of OES including:

- Phone solicitation and email correspondence to improve survey response rates.
- Data validation for problematic survey responses, resulting in higher quality estimates.
- Preparing data requests using OES estimates and other short-term assignments involving other LMID products and services.
Green Belt Contact Information

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