OPTIMIZATION OF DRAWING REDACTION TASKS

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Introduction

Infotech Aerospace Services (IAS) is an engineering company servicing the aerospace, defense, and industrial industries with focus on export sensitive areas. This project deals with a service being performed at IAS regarding the redaction of a engineering drawing. The drawing needs to be redacted to make sure no proprietary information is contained on it such that it can then be exported to the aircraft engine customers. Once redacted, the drawing then needs to be re-classified to be able to be exported. This makes the drawing change hands inside the company, as the Classification Department takes care of the re-classification, whereas the Design Department works the redaction. This setup means one department works on all drawings first before the other department can perform their work. This creates a virtual inventory of drawings and makes the process inefficient.

Objectives

1. Increase efficiency of employee workload.
2. Reduce turn-around time to the client by at least 15%.

Current State

Figure 1 shown the current state, which ilustrates how the process needs to operate in two different departments.

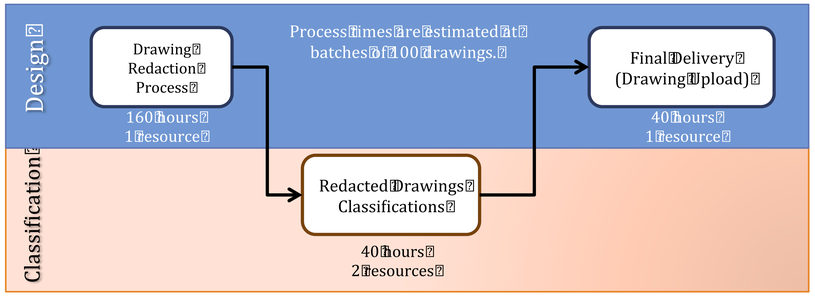

Figure 1
Current State Process Map

Methodology and Implementation

To be able to achieve the objectives of this project the following methodology was used:

- A continuous workflow, a First-In First-Out (FIFO) queue system.
- To support the FIFO queue system, a Integrated Product Team (IPT) structure, as shown in Figure 2, will be implemented to ensure that cohesion and communication is present while working this task.

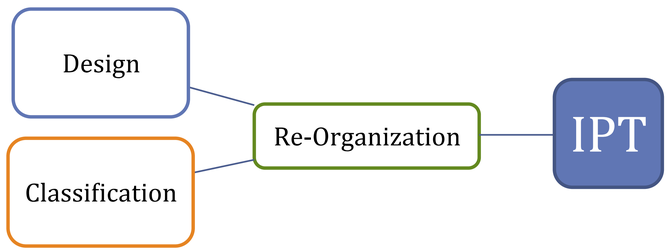

Figure 2
IPT Re-structure

Process simulation was completed in Arena® Simulation Software to ensure an adequate number of employees perform each step of the process with the goal to minimize idle time for each step. Figure 3 shows an example of how the process was simulated in the software.

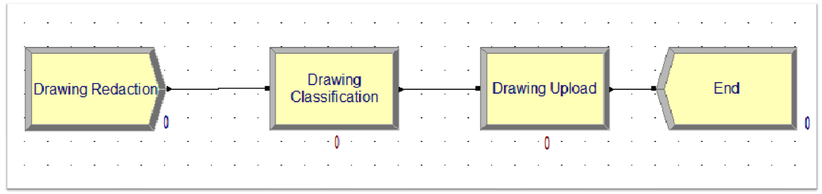

Figure 3
Process Simulation Example

Iterations of process were analyzed in the software by changing the amount of resources working at each step with the goal to achieve zero idle time for the classification step.

Results

Different scenarios were run, starting with one employee at each step all the way to a combination of employees that would yield the highest efficiency. Figure 4 and Table 1 show how the total process time was reduced and which combination yielded the best efficiency.

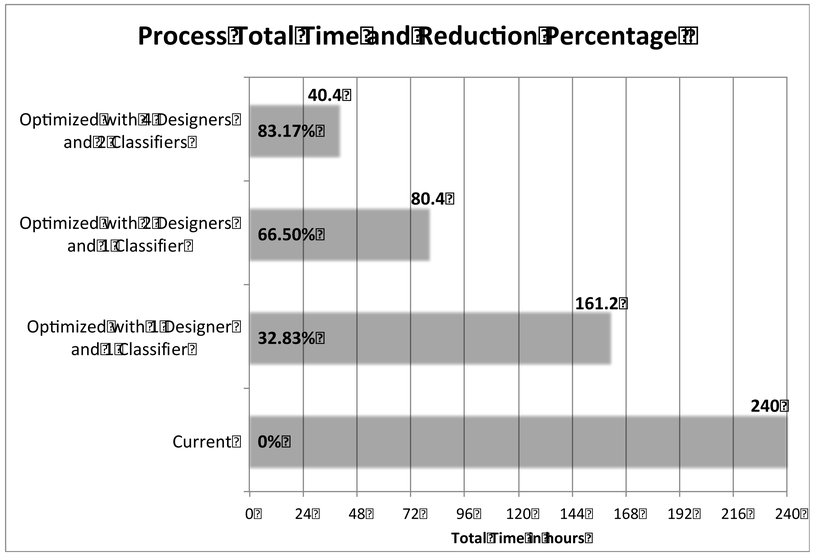

Figure 4
Process Simulation Example

Table 2
Simulation Results

	Scenario	*Utilization %*
1	Baseline	N/A
2	1 Designer and 1 Classifier	50.13%
3	2 Designers and 1 Classifier	99.50%
4	4 Designers and 2 Classifiers	99.01%

After considering all scenarios, Scenario 3 (2 Designers and 1 Classifier) was chosen as the recommendation. While Scenario 4 (4 Designers and 2 Classifiers) provides a quicker turn-around time, it requires more man power which may not always be available. Thus Scenario 3 provides a efficiency without putting a burden in management with the task of providing the manpower.

Conclusion

As a result of the methodology followed in this project, both objectives were achieved, as at least a 66% reduction time was achieved, far greater than the 15% turn-around time reduction that was established as an initial objective. Moreover, more efficient employee workload was achieved by designing a scenario where the employee is virtually 100% of the time working and not idle. This will also help management understand how many employees are needed to meet a deadline, helping make more efficient workload assessments.