Flow Chart Summary Matrix

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Too often we construct flow charts of a process's current state but never spend the time to understand what resources the process is consuming and how much it is costing us. We make changes to the current state flow and do not fully understand if the changes made resulted in any decreased costs, time, or people. We assume that since we made changes the end result should be improved. This is not always the case.

The Flow Chart Summary Matrix tool helps those that have constructed a flow chart understand the following at each process step or group of process steps:

- Touch Points – Which steps touch critical customers?
- Costs associated with a step
- Person Hours – how much human capital is required? (Full time equivalent headcounts or FTEs)
- Supplies Required
- Equipment Required – computers, desks, software, etc.
- Space Required – how much space does the process occupy?
- Time - how much time does it take to complete the process or parts of it?
- Cost of Quality – what do we spend on making sure we have a quality output?
    - Prevention
    - Appraisal
    - Failure
        - Internal
        - External
- Partnerships Needed – who else needs to be involved to make our process work effectively and efficiently?
- Other – specific to your process or analysis needs.

The Flow Chart Summary Matrix is shown in figure 1. The categories for which information is gathered are listed in the far left column. The process steps are listed across the top of the matrix. Step type is shown in the row below. Once the matrix is filled in category values for the current process are summed at the far right (∑ Actual). This total shows the amount of resources expended on the current state.

Once the proposed or desired state is developed, the same calculations (∑ Proposed) are performed. A comparison of actual and proposed costs indicates whether the process change is an improvement and by how much. Non-costing categories, such as touch points and partnerships assist in setting action priorities. The value of investment in steps requiring external partnerships or direct communication with the customer aids in decision making within the process as a whole.

In theory the Flow Chart Summary Matrix is simple to complete. It takes a lot of data analysis to develop a value for each part of the matrix, however. The effort to complete the matrix gives a problem-solving team a far deeper understanding of the process under study. Often the data analysis uncovers additional steps that need to be added to the flow.

Figure 2 is an example of the Flow Chart Summary Matrix with summary data for a Lean Six Sigma Black Belt project performed with the Environmental Health unit of the Orange County Health Department in Orlando, Florida during 2009 – 2010.[1] Costs of Quality category definitions are available at http://www.asq.org/learn-about-quality/cost-of-quality/overview/overview.html.

Once we truly understand what the current state measurements are we can determine the impact proposed changes will have when we construct the desired state flow chart.

This Matrix forces us to dig into the process and determine its true resource costs.

Figure 1:Flow Chart Summary Matrix

Flow Chart Step Number	Meas Unit	1	2	3	4	5	6	Actual Σ	Proposed Σ	Delta
Type of Step										
Touch Points										
Cost										
•Person Hours	$									
•Supplies Required	$									
•Equipment Required	$									
Total Cost of Steps										
Space Required (fixed, NA)										
Time										
Cost of Quality** •Prevention •Appraisal •Failure •Internal •External										
Partnerships Needed										
Step Type Legend: P = Process D = Decision T = Transport W = Wait S = Storage R = Review										

[1] Recognition given to OCHD Quality manager, Vicente Alberto Araujo and Data analyst, Andrew Burns for permitting use of this project example.

Figure 2:Flow Chart Summary Orange County, FL Health Dept

Flow Chart Step Number	Meas Unit	2	3	4	6	8	9	Actual Σ	Proposed Σ	Delta
Type of Step		P	R	R/P	P/T	S	W			
Touch Points		√		√	√					
Cost										
•Person Hours	$	$66.43	$12.18	$0.18	$0.00	$1.76	$3.87	$84.42		
•Supplies Required	$	$.13	$0.00	$0.00	$0.00	$1.51	N/A	$1.64		
•Equipment Required	$	$24.73	0.00	$0.00	$0.00	$0.22	0.00	$24.95		
Total Cost of Steps		$91.29	$12.18	$0.18	$0.00	$3.49	$3.87	111.01		
Space Required (fixed, NA)		$6.00	N/A	N/A	N/A	N/A	N/A	$6.00		
Time	Min	233 min	37.40 min	N/A	N/A	10 min	16min	296.40 min		
Cost of Quality** •Prevention •Appraisal •Failure •Internal •External		 $66.43 $12.00 $8,000 $111.01 $8,000								
Partnerships Needed	(NA)	Site evaluation by contractor, Property Appraiser, Sunshine line Locate, Building Department								

Step Type Legend: P = Process D = Decision T = Transport W = Wait S = Storage R = Review

(*Dollar values have been modified to obscure confidential planning information)

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