The Value Stream Analysis

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Lean-Agile Project Management: Achieving Business Value

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TITLE OF CONTENTS

Project Data

	Working Time (hrs.)	Non-working Time (hrs.)	Lag Time (hrs.)
A. Request project initiation	2.0	0.0	---
B. Approve project request	1.0	15.0	280
C. Establish requirements	70.0	60.0	60
D. Sign-off requirements	4.0	12.0	360
E. Analysis requirements	40.0	80.0	60
F. Design software	80.0	60.0	80
G. Review design	4.0	4.0	180
H. Code software	120.0	140.0	100
I. Test software	60.0	180.0	80
J. Deploy software	8.0	16.0	120

Table 1: Project Data

The Review Design activity (G) has an average 30% rejection rate where the software is sent back to the Design Software activity (F). This rejection loop occurs an average of one time. The Test Software activity (I) has an average 50% rejection rate where the software is sent back to the Code Software activity (H). This rejection loop occurs an average of two times.

Value Stream Diagram

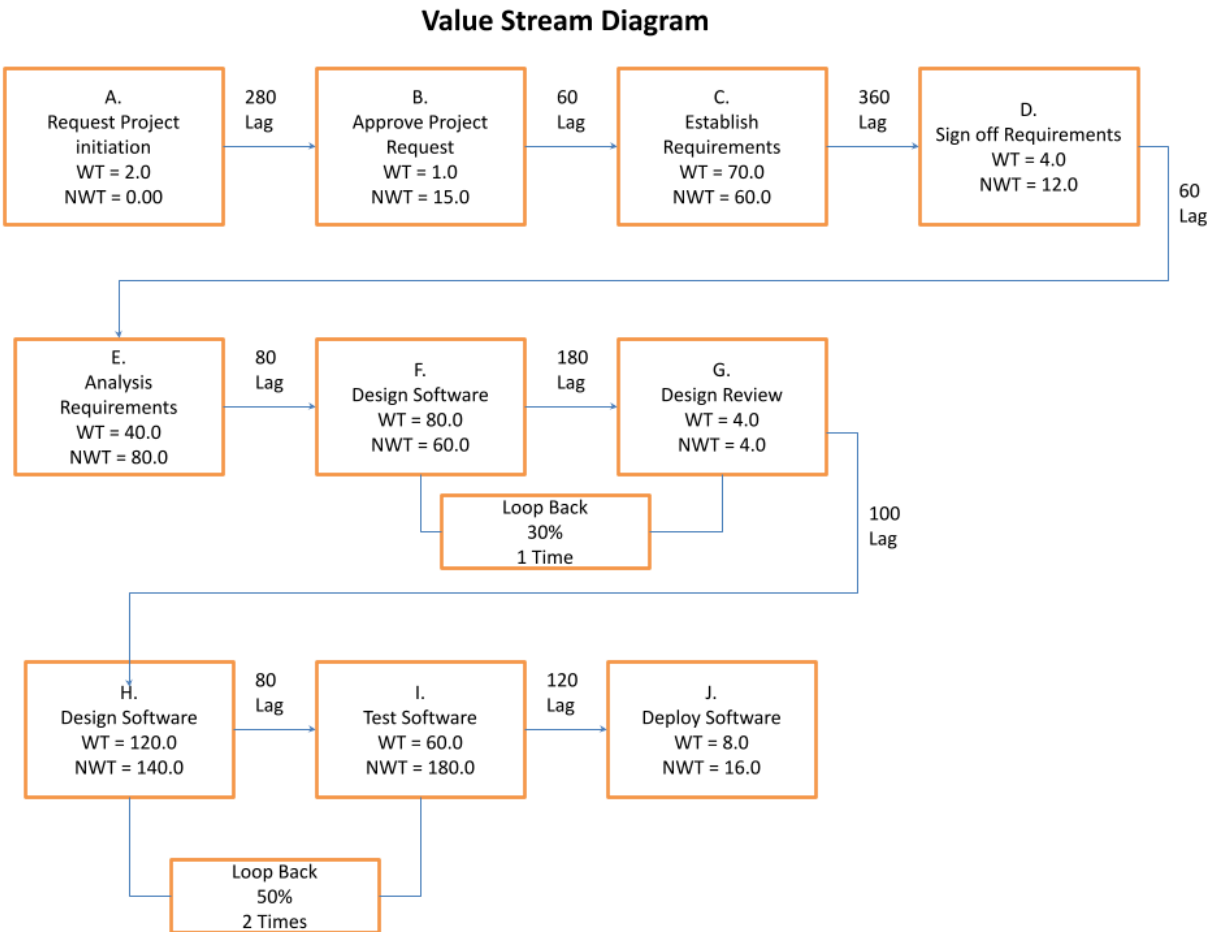

Figure 1: Value Stream Diagram

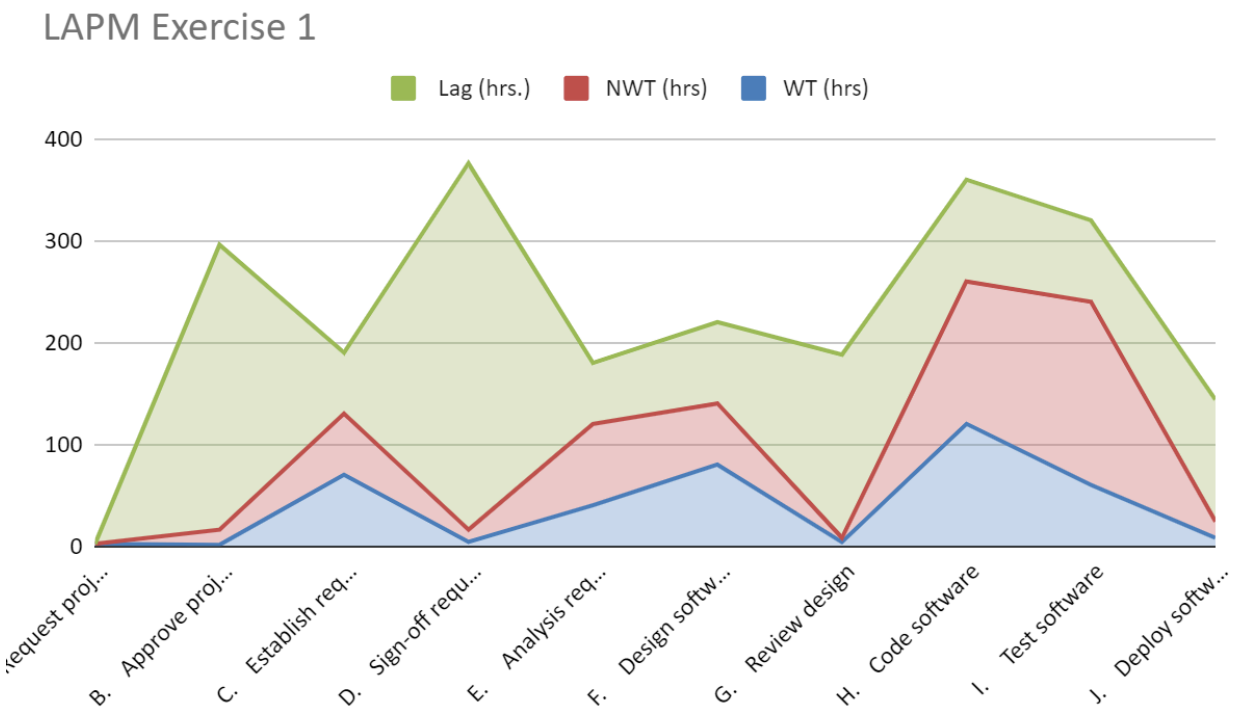

Figure 2: Project Hours (Line Graph)

Exercise One Project Solutions

1. Calculate the total working time and total non-working time of the value stream activities.
    a. Total Working Time: 594.2
    b. Total Non-Working Time: 906.2
2. Calculate the total lag time between the activities of the value stream.
    a. Total Lag Time: 1454
3. Calculate the total Process Cycle Time (PCT) of the value stream.
    a. Process Cycle Time: 2954.4
4. Calculate the Process Cycle Efficiency (PCE). PCE is defined as the total working time divided by the Process Cycle Time (PCT) expressed as a percentage.
    a. Process Cycle Time: 20.11%
5. Consider the following strategies to reduce the PCT while increasing the PCE. Calculate and tabulate the PCT and PCE for each strategy.
    a. Strategy 1: Reduce only non-working times by 50%.
        i. Total Working Time: 594.2, Total Non-Working Time: 453.1, Total Lag Time: 1454,
        ii. Process Cycle Time: 2501.3, Process Cycle Efficiency: 23.76%
    b. Strategy 2: Reduce only working times by 50%.
        i. Total Working Time: 297.1, Total Non-Working Time: 906.2, Total Lag Time: 1454
        ii. Process Cycle Time: 2657.3, Process Cycle Efficiency: 11.18%
    c. Strategy 3: Reduce only lag times by 50%.

i. Total Working Time: 594.2, Total Non-Working Time: 906.2, Total Lag Time: 727

ii. Process Cycle Time: 2227.4, Process Cycle Efficiency: 26.68%

Effectiveness of Different Strategies

6. Collaborate with the team and Compare the effectiveness of the three strategies. What other strategies can be used to reduce the PCT and increase the PCE?
    a. Strategy 1 decreases PCT and increases PCE, but not by much. Employees will be unhappy with no NTW.
    b. Strategy 2 decreases in both PCT and PCE. This strategy forces employees to work faster to get the task/project done.
    c. Strategy 3 decreases PCT and increases PCE significantly. This strategy eliminates lag times by changing the system (reduced lag time by 50%).
7. Is it more effective to get better at what we do or by eliminating delays between what we do? What Lean thinking principles can be applied for reducing the PCT and delivering value faster?
    a. It is more efficient to BOTH get better at what we do and eliminate lag time. Lean thinking principles that apply to getting better at what we do is to empower the team and amplify learning. Lean thinking principles that apply to eliminating lag time is to eliminate waste and deliver fast. Getting efficient at BOTH ensures that we are able to optimize the project as a whole with the most efficient system and team.

Appendix A

		WT (hrs)	NWT (hrs)	Lag (hrs.)	Row Total (hrs)	Total (hrs)
	A. Request project initiation	2	0	0	2	2
	B. Approve project request	1	15	280	296	298
	C. Establish requirements	70	60	60	190	486
	D. Sign-off requirements	4	12	360	376	566
	E. Analysis requirements	40	80	60	180	556
	F. Design software	80	60	80	220	400
	G. Review design	4	4	180	188	408
	H. Code software	120	140	100	360	548
	I. Test software	60	180	80	320	680
	J. Deploy software	8	16	120	144	464
	Total without loops	389	567	1320	2276	2420
	Loop G-F	25.20	19.20	54.00		
	Loop I-H	180.00	320.00	80.00		
Question						
1, 2	Totals	594.20	906.20	1454.00	2954.40	hrs
3	Process Cycle Time (PCT)				2954.40	hrs
4	Process Cycle Efficiency (PCE)				20.11	%
5a	Strategy 1: 50% x NWT	594.20	453.10	1454.00	2501.30	hrs
	Process Cycle Time (PCT)				2501.30	hrs
	Process Cycle Efficiency (PCE)				23.76	%
5b	Strategy 2: 50% x WT	297.10	906.20	1454.00	2657.30	hrs
	Process Cycle Time (PCT)				2657.30	hrs
	Process Cycle Efficiency (PCE)				11.18	%
5c	Strategy 3: 50% x Lag	594.20	906.20	727.00	2227.40	hrs
	Process Cycle Time (PCT)				2227.40	hrs
	Process Cycle Efficiency (PCE)				26.68	%
5d	Strategy 4: Reduce Non working time and lag by 50%	594.20	453.10	727.00	1774.30	hrs
	Process Cycle Time (PCT)				1774.30	hrs

	Process Cycle Efficiency (PCE)				33.49	%
5e	Strategy 5: Reduce Non working time and lag by 100%	594.20	453.10	1454.00	2501.30	hrs
	Process Cycle Time (PCT)				2501.30	hrs
	Process Cycle Efficiency (PCE)				23.76	%
5f	Strategy 6: Reduce Working time ,Non working time and lag by 50%	148.55	453.10	727.00	1328.65	hrs
	Process Cycle Time (PCT)				1328.65	hrs
	Process Cycle Efficiency (PCE)				11.18	%
5g	Strategy 7: Reduce Working time by 50%, non working time and lag by 100%	297.10	906.20	727.00	1930.30	hrs
	Process Cycle Time (PCT)				1930.30	hrs
	Process Cycle Efficiency (PCE)				15.39	%