1.0. Introduction

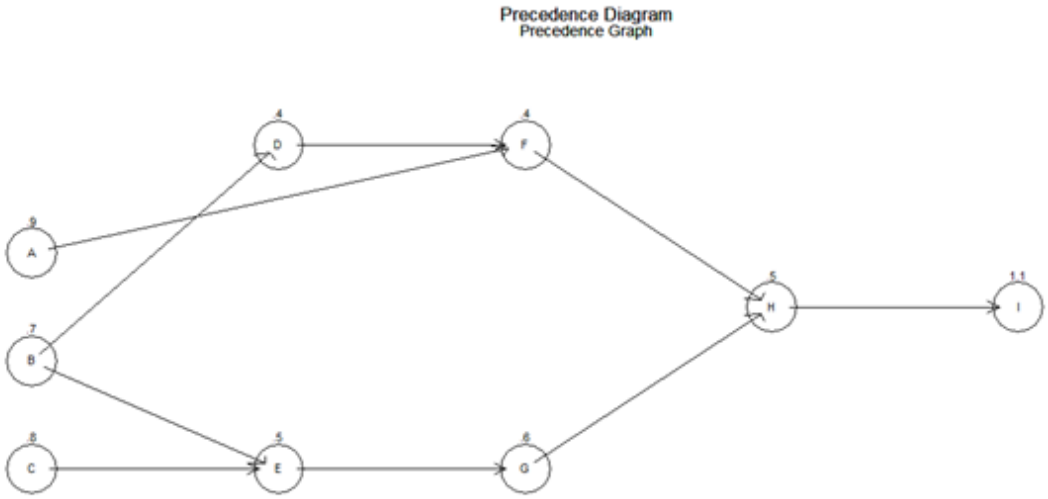
There are many challenges that are faced by engineers and facility managers when assigned with the task of implementing environmental programs within the organization. It is a sophisticated process whereby big costs and significant changes within firm are involved. By employing the correct process decisions, concentrating on service processes and properly assessing customer interactions, the new governmental legislation and regulations might be effectively met. This paper is a case-based research that struggles with the successful implementation of environmental programs within organizations.

1.1. The Basic Terminologies

1.1.1. Best Practices

The adoption of "best practices" of environmental management programs enunciate environmental safety accompanied with reduced costs. However, in the process, the role of human resources and their capabilities cannot be ignored. The performance of a firm is very much determined by the capabilities for process innovation and implementation which are the complementary assets that harmonize the connection in between best practices and finance benefit. (Christmann, 2000)

a.



b.

Cycle time = 8*60/320 = 1.5 Minutes = 90 Seconds

c.

Theoretical minimum number of work stations = 5.9/1.5 = 4

d.

Activity	Immediate Predecessor	Duration (in minutes)	Duration (in seconds)	Positional Weight
A	-	0.9	54	5.9
B	-	0.7	42	5
C	-	0.8	48	4.3
D	B	0.4	24	3.5
E	B, C	0.5	30	3.1
F	A, D	0.4	24	2.6

Executive Summary

To: Jan Northcutt, CEO –Northcutt Bikes

From: Tom Jones

Subject: Production Strategy at Northcutt Bikes

Issue: Production at the Northcutt Bikes Company has failed to keep up with demand projections and sales targets because of lack of capacity and proper production planning. This can have severe consequences for the financial wellbeing and competitiveness of the company. This report presents an analysis of the problem and three alternative production strategies. Quantitative and qualitative factors are analyzed and the implementation issues for the recommended strategy are discussed. The problem statement is defined as below:

"The problem being experienced by the Northcutt Bikes Company is that lack of coordination between marketing, production and distribution departments is resulting in unrealistic demand and production targets."

The following production strategies were identified and analyzed in terms of the tradeoff between inventory holding, stockout, hiring and firing costs:

* Chase demand strategy

* Level production strategy

* Mixed or hybrid production strategy

All the three alternatives had their strengths and weaknesses; however, the mixed or hybrid production strategy offers the most efficient trade-off between all the costs involved. It would also contribute to the long-term well-being of the company by encouraging more frequent

Project Charter Document

Project Name: "Weall, Suthem XXXXXXXXXXXXXXX

Department: Management Information Technology

Focus Area: Development of IT support systems

Product/Process: Computers, networking, and accessories

Prepared By

Document Owner(s)	Project/Organization Role
Virtual Systems Limited	Technology Consultants and suppliers of IT and related products and services

Project Charter Version Control

Version	Date	Author	Change Description
1.1	September 10, 2016	Jason XXXXX	Meeting with Bob Suthem XXXXXXXXXXXXXXXXXXXXXXXXX
1.2	September 30, 2016	Matt XXXXX	• Finalization XXXXXX • Decision on project XXXXXXXX

2 PROJECT EXECUTIVE SUMMARY

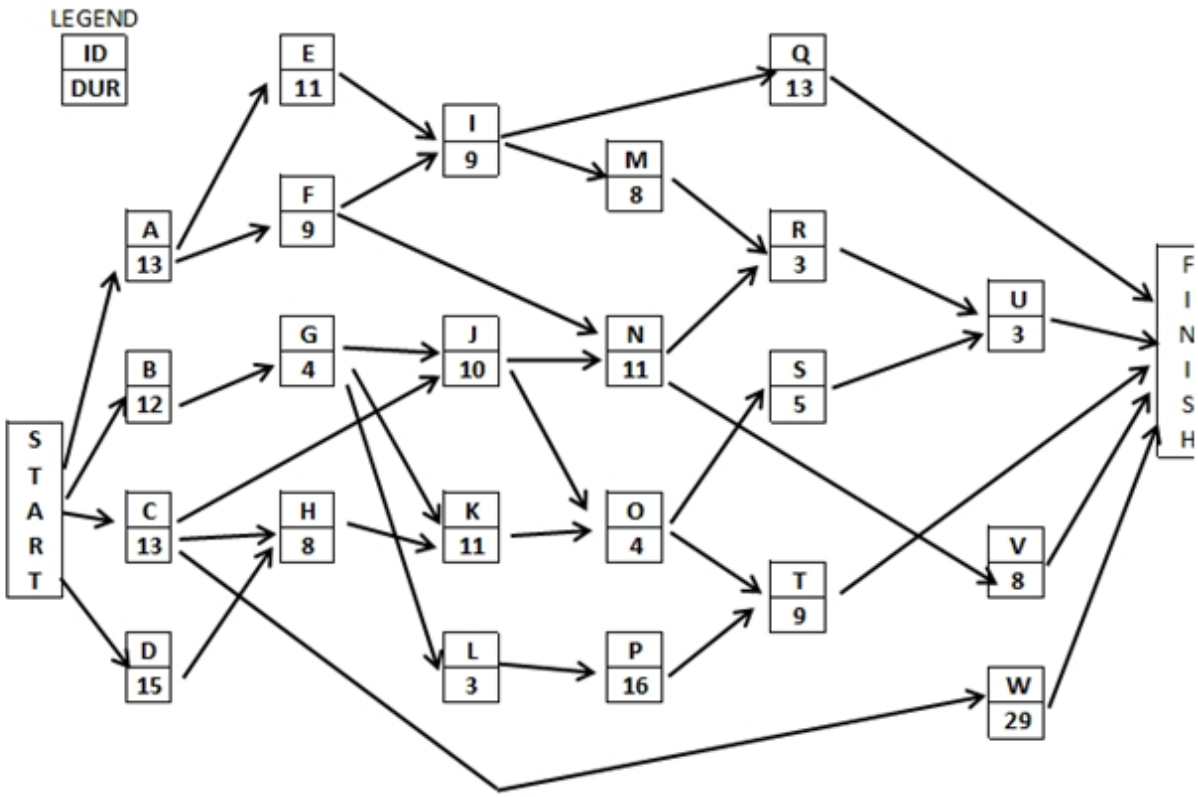
- **Project goals:** to facilitate the Information Technology needs of "Weall, Suthem and Wynn" law firm.
- **Objectives**
    1. To plan, design, develop, examine, and implement the IT infrastructure and support system of "Weall, Suthem and Wynn" law firm in head office in Markham/Unionville HWY 7 corridor and two branch offices in Pickering and Mississauga.
    2. To evaluate and fulfill the project sponsors and stakeholders expectations in line with their provided estimates of the required performance.
    3. To provide operations training to all computer and network users for the respective software and IT capabilities of the network, to be available in the installed computer systems and servers in each office.
- **Scope:** This project is responsible for implementing a new IT infrastructure in client organization "Weall, Suthem and Wynn" law firm with provision of all hardware software, and training assistance.
- **Assumptions:** Commitment of sponsorship from Bob Suthem, resource allocation in form of human and infrastructure resources, and Project team commitment to finish and monitor the decided project activities.

QUESTION 1:

Atkinson department is installing new computer system. They have to perform several activities. Following table provides information about the project:

Activity	Normal Time (days)	Normal Cost ($)	Crash Time (days)	Crash Cost($)	Max Crash	Slope
A	13	18790	9	30070	4	2820
B	12	21850	9	29290	3	2480
C	13	36800	13	36800	0	#DIV/0!
D	15	24770	11	31610	4	1710
E	11	21960	10	24120	1	2160
F	9	6580	6	8005	3	475
G	4	15240	3	17650	1	2410
H	8	18940	7	19930	1	990
I	9	23000	6	33050	3	3350
J	10	85760	6	92200	4	1610
K	11	58200	11	58200	0	#DIV/0!
L	3	24500	2	25800	1	1300
M	8	18900	7	20530	1	1630
N	11	42500	7	52960	4	2615
O	4	12500	3	14090	1	1590
P	16	25600	11	29200	5	720
Q	13	33720	9	37800	4	1020
R	3	39645	2	41535	1	1890
S	5	24710	3	27110	2	1200
T	9	38520	8	39845	1	1325
U	3	8500	2	10250	1	1750

FOLLOWING NETWORK IS DRAWN BY USING NORMAL TIME(in days):



1. **A production line has three machines A, B, and C, with reliabilities of .99, .96, and .93, respectively. The machines are arranged so that if one breaks down, the others must shut down. Engineers are weighing two alternative designs for increasing the line's reliability. Plan 1 involves adding an identical backup line (i.e., a series backup), and plan 2 involves providing a backup for each machine (i.e., a parallel backup). In either case, three additional machines (A, B, and C) would be used with reliabilities equal to the original three.**
***a.* Which plan will provide higher reliability?**

Let small letter denote the alternate machines, then,

R(Existing System) = R(A,B&C) = 0.99 * 0.96 * 0.93 = 0.8839

R(Parallel Alternate) = R(a,B&C) * R(A,b&C) * R(A,B&c) = 0.6905

R(Series Alternate) = R(a,b&c) = 0.8839

Plan 1, the series back-up will provide greater reliability.

***b.* Explain why the two reliabilities are not the same.**

The two reliabilities are not the same, because in the parallel backup when one machine fails, the system switches to the alternate for that machine only. While this means that the reliability of the system when one machine fails, remains unchanged, when this is considered for the overall parallel alternate, total reliability declines. Practically, it means that when a machine with a similar reliability is used due to failure of the existing machine, then that probability of failure of the first machine is taken into account when determining the new system reliability (i.e. post replacement with backup) which reduces the overall reliability of the system.

This is not the case in series backup where if one machine fails the entire line is replaced with a