Name: Muhammad kamal khan

ID : 13126

Course name : business process engineering

Instructors:: Asma khan

Question No 04:

List the steps for TOC Methodology.

Answer ::

Step 1: Identify the constraint

This tells us where to focus our improvement efforts, since we know that only an improvement at the constraint makes a difference.

Step 2: Optimize the constraint

Before adding capacity, we need to use the capacity we already have. “Optimize” in this sense means “doing everything possible to use the constraint to its fullest capacity.”

Step 3: Subordinate the non-constraints

The job of all non-constraints is to subordinate their decisions to the constraint’s needs. They should optimize for constraint (and thus system) performance, not their own individual performance, the results of which we witnessed in post #102.

Step 4: Elevate the constraint

Only once we’ve completed the previous steps does it make sense to add more constraint capacity, and thereby increase system performance. Because adding capacity is tremendously expensive in terms of time and money, we do it as a last resort, not a first resort.

Step 5: Return to step 1

The inevitable result of the first four steps, and the reason this is a “continuous” improvement method, is that the constraint moves somewhere else. This step insists that you start back at the beginning, and don’t let inertia become the constraint.

Let's take a closer look at Step #1, and why it represents a significant shift in how we conduct improvement within organizations.

Question No: 03

Analyse capacity needs and utilization with the help of below given data and fill the given table using respective formulas;

Activity	Processing Time (Min)	Resource Requirements	Number of Jobs
A	2	R1	1
B	5	R1	0.3
C	8	R2	1
D	3	R2	1.1
E	4	R2	1.1
Inspection	4	—	1.1
F	2	R1	1
G	4	R3	1
H	2	R3	1

Resource	Unit Load (Min)	Unit Capacity (Jobs/Min)	Available Resources (Units)	Pool Capacity (Jobs/Min)
R1	$2 + 5 \times 0.3 + 2 = 5.5$	1/5.5	2	2/5.5 = 0.36
R2	$8 + 1.1 \times (3 + 4) = 15.7$	1/15.7	2	2/15.7 = 0.13
R3	$4 + 2 = 6$	1/6	1	1/6 = 0.17

Question No: 01

a) Define General Process Chart and how it characterizes the process?

b) List disadvantages of Process Activity Chart.

c) Compute Load Distance (LD) scores for the below given current and proposed designs and identify which design is the better one;

Answer part (A)

The simplest form of process chart is known as an outline process chart and records an overview or outline of a process. Only those steps of a process that can be represented by the ASME symbols of operation and inspection are recorded. ... The sequence of motion of each hand is charted using the same symbols as before.

To develop understanding of how a process is done

To study a process for improvement

To communicate to others how a process is done

When better communication is needed between people involved with the same process

To document a process

When planning a project

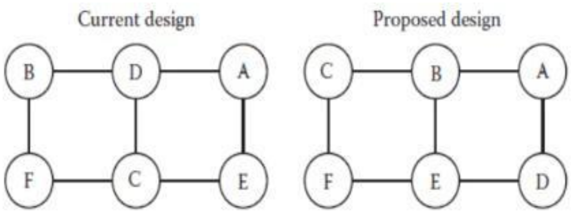
Answer (B) part

UML modelling language include that these diagrams have the potential to become overly complex because their user-friendly nature may lend itself to an all-inclusive description. In other words, since it is so simple to display the information related to the project, why not include all of it? When an analyst has a large project, creating a single, overly complex diagram can be a temptation.

However, as one author notes, “if you are using activity diagrams to define the structure of a work flow, you should not attempt to explore several levels of activity graphs down to their most ‘atomic’ level”. Instead, an analyst should try to present a new diagram for each work flow, or if more applicable, to use swim lanes to present different actors within the same work flow.

Another aspect of these diagrams is that they may not be used in lieu of a state diagram or sequence diagram because “activity diagrams do not give detail about how objects behave or how objects collaborate.” This is not a disadvantage per se, but it is important for an analyst to keep in mind when applying diagrams to their work.

Answer part (C)



Example of a Load Matrix

	A	B	C	D	E	F
A		20		20		80
B			10		75	
C				15		90
D					70	

TABLE 4.4

LD Calculation for Two Designs

		Current Design		Proposed Design	
Centers	**Load**	**Distance**	**LD Score**	**Distance**	**LD Score**
(A,B)	20	2	40	1	20
(A,D)	20	1	20	1	20
(A,F)	80	3	240	3	240
(B,C)	10	2	20	1	10
(B,E)	75	3	225	1	75
(C,D)	15	1	15	3	45
(C,F)	90	1	90	1	90
(D,E)	70	2	140	1	70
Total			790		570

0

Question No: 02)

a. The observation periods for 3, 6, 5, and 2 jobs are 10, 20, 20, and 10 min, respectively. In other words, the WIP was 3 jobs for 10 min, 6 jobs for 20 min, 5 jobs for 20 min, and 2 jobs for 10 min. Then, calculate the average WIP?

Answer ::

Average WIP = $3\times10 + 6\times20 + 5\times20 + 2\times10 \backslash 10+20+20+10 = 4.5$ jobs

Question no 2 part B

B part

. A process management team has studied a process and has developed the flowchart in Figure 3. The team also has determined that the expected waiting and processing times (in minutes) corresponding to each activity in the process are as shown in Table 1.

i. Calculate the average CT for this process.

ii. Calculate the CT efficiency.

Ct= 10+0.10×20+25+1.15(12+23+35)+15

=10+2+25+1.15(70)+15

=52+80.5=132.5

ii) calculate C.T efficiency

Activity Time	wanting time (min)	processing time (min)	Activity time (min
A	20	12	32
B	15	18	33
C	5	30	35
D	12	17	29
E	3	12	15
F	5	25	30
G	8	7	15
H	5	10	15
I	15	25	40
J	5	20	25
K	4	10	14

Processing time = 12+0.10×18+30+1.15(17+12+25)

+7+10+25+20+10

=12+1.8 +30 +62.1+7+10+25+20+10

= 177.9

132.5 =1.34

Ct efficiency is 1.34

The END