

هندسة القيمة وإعادة هندسة العمليات ودورهما في تخفيض التكاليف

مقدمة

(JIT)

مشكلة البحث



هدف البحث

فرضية البحث

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مجال البحث

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الفصل الاول / هندسة القيمة ودورها في تخفيض التكاليف

المبحث الاول - مدخل تعريفى لهندسة القيمة

.. :"

(Lawrence Delos Miles) (1904 - 1985)

(Lawrence) (The Father of Value Analysis
(General Electronic)
1938 1932 (Vacuum Tub)
(Wixson , www.srv. net)
1974
(Miles)
1954
(Value Engineering)
1959 (Pennsylvania)
(SAVE) 1962 (SAVE)
(1963-1966) (The SAVE Journal of Value Engineering)
(1.1)
(Dhillon , 2002 : 193 - 194)
-"
(Hilton)
(Hilton , 1999: 220).
(Atkinson)
(Atkinson & et.al, 2001 : 375)
(Dhillon)
(Dhillon , 2002 : 194).
(Maher)
(Maher , 1997 : 426)
(Dhillon , 2002: 195)

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(Swenson, 2003: 3) (Luis, www.numa.org.br: 3)

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(Blocher & et.al, 1999 : 137)

(Design to cost, DTC)

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(DTC)

(DTC)

(Vitaliano ,www.value-eng.org)

(DTC)

(Roy , www.cranfield.ac.uk : 10)

(DTC)

(DTC)

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(Value Engineering change proposals)

(VECP)

(www2.hawaii.gov:132-1)

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(Strzok, rpsc.raytheon.com: 1)

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المبحث الثاني / مدخل إلى خطة عمل هندسة القيمة

..(Value Engineering Job Plan , VEJP) -

.. Information Phase -

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.. Function Analysis Technique -

(Kaplan)

(Functional Analysis System Technique , FAST)

(Kaplan & Atkinson , 1998 : 228) .

: (FAST) (Kaufman,2003, www.scav-csva.org)

:

.(function dependencies)

(FAST)

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(www.scav-csva.orgKaufman,1998,) .

(Crow, www.npd-solutions.com : 4) :

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:Functional Cost (1)

: (Function worth) (2)

(Value) (3)

..(Innovation phase)

(10 :2004) = = = (12 :2003)

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(Technical Section & et.al , January , 2004 : 1 - 4)

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(Technical Section & et.al , January , 2004 : 1 - 4)

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.. Evaluation Phase -



.. Development Phase

:(Technical Section & et.al , January , 2004 : 1-6)

.. Implementation Phase

:

(action)

الفصل الثاني- إعادة هندسة العمليات

المبحث الأول/ مدخل إلى إعادة هندسة العمليات

(Strassmann, www.strassmann.com :1)

.(1920)

(Hammer & Champy)

.(1995 :165) .

1990 .(2004 :9)

-(Michael Hammer)

(Chase & et.al, 2004: 338)

(From Scratch)

. (Gaither & Frazier, 2002: 134)



: (Kaplan & Atkinson, 1998: 229)

(Kaplan)

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.(Cost- based line)

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(Thun & Sparenbery, 2003: 9-10)

(Weetman, 1999: 335)

:

(A world Leader)

(Michael Hammer)

(Wheelen & Hunger, 2004: 206)

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(case worker)

(creates)

(Case team)

(Chase, 2004: 339) .

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(Computer- based information system)

(Ross, 1995: 318)

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(flexible service)

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المبحث الثاني

إعادة هندسة العمليات وعلاقتها بالأساليب الحديثة

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(VECP, FAST, V)

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.(clean sheet)

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(Wright & Noe, 1996: 760)

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(TQM)

(Chase & et.al, 2004: 338)

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الفصل الثالث- الجانب التطبيقي

المبحث الأول / نبذة تعريفية بالشركة العامة للصناعات الكهربائية

1963 (1965/8/17 45) : 1959
 1967/2/2 1367
 1967/4/28 (108)
 1970
 () :



المبحث الثاني / تطبيق هندسة القيمة في عينة البحث

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$$\begin{aligned}
 & \text{250000} \quad (\quad) \\
 & \text{220000} \quad (\quad) \\
 & \text{211500} = (*10\% \times 235000) - 235000 \\
 & \%30 \\
 & \text{148050} \quad \text{63450} \\
 & \text{63450} \\
 & \text{(63450 - 211500)} \\
 & \text{186787.8} \\
 & \text{.(1)} \\
 & \text{: (1)}
 \end{aligned}$$

/		/			
27,192	27.192	1000			.1
15,500	1	15500		()	.2
20,000	4.3			+	.3
6,599	1 + 1			+	.4
5,840					.5
2,050					.6
54,000	1	54000			.7
6,000	1	6000			.8
5,776					.9
345	0.3				.10
11,995					.11
2,078					.12
157,375					



/	/	/			
6850	50	137			.1
396	3	132			.2
620	5	124			.3
58	0.5	115			.4
7,924					
156,299					
21,488.8	%13				
186,787.8					

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186,787.8

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27,192

7,304

34,496

4,484

38,980

13%



في تخفيض التكاليف

:	61,020	:	-2
	17,515	:	-3
	7,457.4	:	-4
	10,654.2		-5
	12,553.7		-6
	(12)	()	*
	6,599.2		-7
	6,780		-8
	2,316.5		-9
	15,995.15		-10
	6,526.8		-11
	389.85		-12
:			-
	148,050		
			-1
	186,787.8	38,980	
	148,050	x	
	30,896	(x)	
27,342			*(Y+13%Y=30896)
			3,554
)
	48,365		-2
	13,883		-3
	5,910		-4
	8,445		-5
			=y(1)*
		%13=	(2)
	3869	U-pioe	-
	335	U-pipe	-
	4241		-
	9,950		-6
	5,230		-7
	5,374		-8
	1,836		-9
	12,678		-10
	5,173		-11
	310		-12



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- 1
- 2
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- 7
- 8
- 9
- 10
- 11
- 12
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$$\begin{pmatrix} F1 \\ F2 \\ Fr \end{pmatrix} = \begin{pmatrix} C11.a11 & C12.a12 & C1s.a1s \\ C21.a21 & C22.a22 & C2sa2s \\ Cr1.ar1 & Cr2.ar2 & Crs.ars \end{pmatrix} \cdot \begin{pmatrix} C1 \\ C2 \\ Cs \end{pmatrix}$$

Source: (schlink&et.al, www,etc.ufsc.br.)

$$\begin{matrix}
 r & 1 \\
 & \cdot \\
 & s & 1 \\
 & : \\
 j & & j & & j & & j \\
 & K & & K & & K & & K \\
 & & & & & & & =Fj \\
 & & & & & & & =CjK \\
 & & & & & & & = ajK \\
 & & & & & & & = CK
 \end{matrix}$$



(*)

ajk

.(2)

(2)

المكونات												
الوظائف												
25%	15%	1%	10%	15%	25%	20%	20%	10%	5%	25%	1%	المساهمة في دورة التبريد
1%	5%	35%	10%	5%	1%	1%	1%	1%	1%	1%	30%	حماية البراد من الظروف الخارجية
1%	1%	35%	1%	1%	1%	1%	1%	1%	1%	1%	25%	اعطاء جمالية للبرا
1%	1%	1%	1%	1%	1%	1%	1%	1%	40%	1%	5%	حفظ الماء
5%	5%	1%	1%	5%	20%	15%	1%	1%	1%	10%	1%	تحويل غاز الفريون الى سائل
1%	5%	1%	1%	5%	10%	10%	1%	1%	1%	25%	1%	زيادة ضغط الغاز وتدوير الغاز في دورة التبريد
1%	1%	1%	10%	1%	1%	1%	40%	50%	3%	1%	1%	تنظيم درجة الحرارة وحماية الاجزاء الكهربائية
5%	5%	5%	10%	5%	5%	5%	5%	5%	1%	5%	5%	الصيانة
50%	15%	5%	10%	15%	20%	20%	20%	20%	40%	20%	5%	تبريد الماء
1%	5%	1%	1%	5%	5%	10%	1%	1%	1%	5%	1%	تقليل درجة حرارة ضغط السائل
1%	1%	1%	1%	1%	1%	5%	1%	1%	1%	1%	1%	تقليل درجة حرارة الضاغط
8%	41%	13%	44%	41%	10%	11%	8%	8%	5%	5%	24%	المساهمة في تجميع المنتج

$$\%100 = (\quad)$$

(*)



(1)	C13	C1- C12	(Minitub)
:			
MTB > Store	"	"	
MTB > Copy	C1-C12	M1	
MTB > Copy	C13	M2	
MTB > Mult	M1 M2 M3		
MTB > Copy	M3	C14	
MTB > r sum	C1-C12	C15	
MTB > Let	K1= Sum	C13	
MTB > Let	K2= Sum	C14	
MTB > print	M1 M2 M3		
MTB > Print	K1	K2	
MTB > End			

(Matrix M3)

(2)

(2)

	/		
14%	20,641.8		1
10%	15,338		2
9%	13,206.1		3
6%	8,130.7		4
6%	8,654.3		5
10%	14,876.2		6
5%	8,112.8		7
5%	6,939		8
17%	24,725.4		9
3%	4,941.7		10
1%	1,878.5		11
14%	20,152.1		12
100%	147,596.6		

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:(3)

(3)

%		
20%	F1	1
10%	F2	2
10%	F3	3
5%	F4	4
5%	F5	5
4%	F6	6
3%	F7	7
2%	F8	8
30%	F9	9
4%	F1	10
4%	F11	11
3%	F12	12
100%		

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(1)

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F1

$$\frac{\text{F1}}{\text{F1}} = \text{F1}$$

F1

$$1.43 = \frac{20\%}{14\%} = \text{F1}$$

$$1 = \frac{10\%}{10\%} = \text{F2}$$

$$1.12 = \frac{10\%}{9\%} = \text{F3}$$

$$0.84 = \frac{5\%}{6\%} = \text{F4}$$

$$0.84 = \frac{5\%}{6\%} = \text{F5}$$

$$0.4 = \frac{4\%}{10\%} = \text{F6}$$

$$0.6 = \frac{3\%}{5\%} = \text{F7}$$

$$0.4 = \frac{2\%}{5\%} = \text{F8}$$

$$1.76 = \frac{30\%}{17\%} = \text{F9}$$

$$1.34 = \frac{4\%}{3\%} = \text{F10}$$

$$4 = \frac{4\%}{1\%} = \text{F11}$$

$$0.21 = \frac{3\%}{3\%} = \text{F12}$$



F1								
F10		F9		F3				
				F11				
					4		F11	
		F2						
(Break even								Line)
	F5		F4					
	F7					F6		
		F12		F8				
								-3
								:
	()						:
								:
								-1
						(Cable)		-
					350			
					1700		2050	
				7.5	7.7			-
				(2500 ×	0.2)	500	
								:
	9,989.6		10,489.5					
		(0.6)	(1/4)	(-
1500					(1)	(1/4)		
					(750 ×	0.4)	
								:
			8,989.5		10,489.5			



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المبحث الثالث / تطبيق إعادة هندسة العمليات في عينة البحث
(Job Sequence)

..(Job Sequence)

(4)

(4)

Machines Jobs				
1	0.5	1	0.5	4
2	0.5	0.5	0.5	4
3	0.5	0.5	0.5	4
4	0.5	0.5	0.5	0.5
5	0.5	0.5	0.5	1
6	0.5	0.5	0.5	1
7	0.5	0.5	0.5	0.2
8	1.5	1.5	0.5	3
9	0.5	1	0.5	4
10	0.5	1	0.5	4
11	0.5	0.5	1	0.1
12	0.5	0.5	0.5	4
13	0.5	0.5	1	0.5
14	0.5	1	1	0.5
15	0.5	0.5	0.5	0.5
16	0.5	0.5	0.5	0.5
17	0.5	0.5	0.5	5
18	0.5	0.5	1	0.1
19	0.5	0.5	1	0.5
20	0.5	0.5	0.5	0.5
21	0.5	0.5	1	1

/



(elapsed time)

- * (40.4) 58.5
 (58.5-40.4) 18.1

(5)

(5)

/	/	/	/		/	
2,107.745	137.0	***15.385	**34.34	85%	50	
119.460	132.0	0.905	2.020	5%	3	
201.996	124	1.629	3.636	9%	5	
20.815	115.0	0.181	0.404	1%	0.50	
2,450.016		18.1	40.4	100%	58.5	

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. 2,450.016

*
 85% x 40.4 **
 85% x 18.1 ***



الفصل الرابع / الاستنتاجات والتوصيات

	/	-
		-1
		-2
		-
	:	-1
	(Minitub)	-
	MTB>store " "	
		(147,597)
	17%	(24,725.4)
	1%	(1,878.5)
)		-
(F2)	(F12,F8,F7,F6,F5,F4) (1=	(F11,F10,F9,F3,F1)
	(4)	
(3)		(0.21)
2	:	-
	-	
2	(15,675.51)	(15,130.364)
	:	-2
	(job sequence)	-
	(40.4)	
		20
(18.1)		-
	(2,450.016)	



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(Job Sequence)

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2004

third: Books

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