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Total quality management in the South African motor industry

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APPENDICFS

APPENDIX-1

TABLE 1.1. RESPONSES IN PERCENT (%) - QUESTION III.B

COMPANY	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
RESPONSE (%)	80	20	10	100	10	100
	100	0	30	100	20	90
	100	30	20	100	0	100
	40	10	30	100	20	100
	90	30	20	80	30	100
	100	20	10	100	10	60
	100	10	10	80	20	100
	100	10	20	100	20	20
	100	10	40	100	20	100
	100	20	10	90	20	100
		30	30	100	10	80
		20	10	30	40	100
		30	20	100	10	
		25	10	100	20	
		30	20	100	20	
		25		100	20	
		20		60	15	
		10		100	0	
				100	30	
				100	20	
				50	10	
				60	10	
				100	10	
				100	20	
					30	
					0	
					10	
					20	
					20	
					20	
t-test	7.14	-14.47	-12.79	10.07	-20.20	5.52
Z-test	-4.53	3.27	3.00	-6.34	4.86	-3.0

APPENDIX-2

TABLE 2.1. RESPONSES IN PERCENT (%) - QUESTION III.A(i)

COMPANY	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
RESPONSE (%)	30	100	100	50	100	40
	50	100	90	50	90	50
	50	90	100	60	100	50
	60	100	75	60	100	50
	20	80	90	50	100	30
	60	100	100	60	100	40
	50	30	100	60	80	60
	33	100	66	30	100	60
	50	100	100	30	80	50
	50	100	80	50	100	33
	30	90	80	30	100	50
		100	100	50	100	50
		100	100	33	100	70
		100	90	70	80	
		90	100	40	100	
		100		50	80	
		100		60	100	
		100		50	80	
		100		30	100	
		100		50	100	
				50	100	
				0	100	
				20	100	
				60	100	
				50	100	
				90	100	
					100	
					80	
					100	
					100	
					100	
					100	
					90	
t-test	-1.5[illegible]	30.[illegible]	14.75	-0.75	33.71	-0.44
Z-test	0.40	-10.71	-5.7	0.20	-13.04	0.09

APPENDIX-2

TABLE 2.2. RESPONSES IN PERCENT (%) - QUESTION III.A(ii)

COMPANY	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
RESPONSE (%)	70	0	20	70	0	50
	50	20	20	60	10	50
	50	10	0	60	20	40
	40	0	20	40	0	50
	80	10	10	50	20	0
	40	0	0	40	10	20
	50	20	0	40	20	40
	30	0	0	0	0	40
	50	15	10	70	20	50
	50	0	20	0	0	50
	30	10	20	0	0	20
		0	10	20	20	50
		0	0	10	0	10
		0	10	30	0	
		10	10	60	0	
		0		50	20	
		0		40	0	
		0		50	0	
		20		80	0	
				50	10	
				50	10	
				100	0	
				20	0	
				0	0	
				10	0	
				10	10	
					0	
					20	
					0	
					20	
					0	
					0	
					0	
t-test	1.57	-24.00	-18.87	0.40	-29.61	0.50
Z-test	-0.40	8.03	5.16	-0.14	10.56	-0.11

APPENDIX-3

TABLE 3.1, RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	V.A.	
		#	%
BMW	YES	0	0
	NO	10	90.9
	DON'T KNOW	1	9.1
DELTA	YES	15	78.9
	NO	4	21.1
	DON'T KNOW	0	0
NISSAN	YES	11	73.3
	NO	3	20
	DON'T KNOW	1	6.7
SAMCOR	YES	8	30.8
	NO	16	61.5
	DON'T KNOW	2	7.7
TOYOTA	YES	31	93.9
	NO	1	3
	DON'T KNOW	1	3
VW	YES	8	61.5
	NO	4	30.8
	DON'T KNOW	1	7.7

APPENDIX-4

TABLE 4.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	1.A		I.B (i)		I.B (ii)		I.B(iii)		I.B(iv)	
		#	%	#	%	#	%	#	%	#	%
BMW	YES	10	90.9	9	90	2	20	2	20	2	20
	NO	0	0	0	0	7	70	7	70	7	70
	DON'T KNOW	1	9.1	1	10	1	10	1	10	1	10
DELTA	YES	18	94.7	18	94.7	17	89.5	16	84.2	15	78.9
	NO	1	5.3	1	5.5	1	5.5	2	10.5	2	10.5
	DON'T KNOW	0	0	0	0	1	5.5	1	5.3	2	10.5
NISSAN	YES	14	99.3	11	78.6	11	78.6	11	78.6	11	78.6
	NO	0	0	2	14.3	3	21.4	3	21.4	2	14.3
	DON'T KNOW	1	8.7	1	7.1	0	0	0	0	1	7.1
SAMOOR	YES	19	73	14	73.7	5	26.3	5	26.3	5	26.3
	NO	4	15.3	3	15.8	12	63.2	12	63.2	12	63.2
	DON'T KNOW	3	11.5	2	10.5	2	10.5	2	10.5	2	10.5
TOYOTA	YES	31	96.9	30	96.8	28	87.5	29	90.6	28	87.5
	NO	2	6	1	3.2	4	12.5	3	9.4	2	6.5
	DON'T KNOW	0	0	1	3.2	0	0	0	0	2	6.5
VW	YES	12	92.3	9	75	2	16.7	3	25	3	25
	NO	0	0	3	25	9	75	9	75	9	75
	DON'T KNOW	1	7.7	0	0	1	8.4	0	0	0	0

APPENDIX-5

TABLE 5.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	I.C	
		#	%
BMW	YES	2	20
	NO	8	80
	DON'T KNOW	0	0
DELTA	YES	17	89.5
	NO	2	10.5
	DON'T KNOW	0	0
NISSAN	YES	11	73.3
	NO	4	26.7
	DON'T KNOW	0	0
SAMCOR	YES	8	30.8
	NO	18	69.2
	DON'T KNOW	0	0
TOYOTA	YES	29	93.5
	NO	2	6.5
	DON'T KNOW	0	0
VW	YES	3	23.1
	NO	10	76.9
	DON'T KNOW	0	0

APPENDIX-6

TABLE 6.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	LD	
		#	%
BMW	YES	2	20
	NO	8	80
	DON'T KNOW	0	0
DELTA	YES	17	89.5
	NO	2	10.6
	DON'T KNOW	0	0
NISSAN	YES	11	73.3
	NO	4	26.7
	DON'T KNOW	0	0
SAMCOR	YES	4	22.2
	NO	14	77.8
	DON'T KNOW	0	0
TOYOTA	YES	28	90.3
	NO	3	9.7
	DON'T KNOW	0	0
VW	YES	3	25
	NO	9	75
	DON'T KNOW	0	0

APPENDIX-7

TABLE 7.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	LF	
		#	%
BMW	YES	3	27.3
	NO	8	72.7
	DON'T KNOW	0	0
DELTA	YES	17	89.5
	NO	2	10.5
	DON'T KNOW	0	0
NISSAN	YES	11	73.3
	NO	4	26.7
	DON'T KNOW	0	0
SAMCOR	YES	8	30.8
	NO	16	61.5
	DON'T KNOW	2	7.7
TOYOTA	YES	31	93.9
	NO	2	6.1
	DON'T KNOW	0	0
VW	YES	4	30.8
	NO	7	53.8
	DON'T KNOW	2	15.4

APPENDIX-8

TABLE 8.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	V.G		V.I(i)		V.I(ii)	
		#	%	#	%	#	%
BMW	YES	2	18.2	1	50	2	100
	NO	8	72.7	0	0	0	0
	DON'T KNOW	1	9.1	1	50	0	0
DELTA	YES	17	89.5	15	88.2	16	94.1
	NO	2	10.5	0	0	0	0
	DON'T KNOW	0	0	2	11.8	1	5.9
NISSAN	YES	11	73.3	9	81.8	9	81.9
	NO	3	20	2	18.2	2	18.1
	DON'T KNOW	1	6.7	0	0	0	0
SAMCOR	YES	7	26.9	5	71.4	3	42.9
	NO	14	53.8	2	28.6	4	57.1
	DON'T KNOW	5	19.2	0	0	0	0
TOYOTA	YES	31	93.9	27	87.1	29	93.5
	NO	2	6.1	4	12.9	1	3.2
	DON'T KNOW	0	0	0	0	1	3.2
VW	YES	3	23.1	2	66.7	2	66.7
	NO	7	53.8	1	33.3	1	33.3
	DON'T KNOW	3	23.1	0	0	0	0

APPENDIX-8

TABLE 8.2. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	QUESTION	MONTHLY		QUARTERLY		HALF-YEARLY		YEARLY	
		#	%	#	%	#	%	#	%
BMW	V.H	0	0	0	0	0	0	2	100
DELTA		0	0	0	0	3	17.6	14	82.4
NISSAN		0	0	0	0	2	18.2	9	81.8
SAMCOR		0	0	0	0	1	14.0	6	85.7
TOYOTA		0	0	0	0	4	12.9	27	87.1
VW		0	0	0	0	0	0	8	100

APPENDIX-9

TABLE 9.1. RESPONSES IN PERCENT (%) - QUESTION IV.A

COMPANY	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
RESPONSE (%)	0	80	0	40	60	30
	20	60	30	90	60	10
	0	80	30	0	60	20
	0	20	33	40	80	30
	0	30	40	10	35	30
	20	50	50	20	60	50
	0	40	0	80	60	0
	10	60	30	0	30	40
	0	25	40	60	66	40
	0	60	10	20	60	30
	30	60	0	0	30	20
		40	30	0	60	0
		100	80	10	80	10
		20	33	0	40	
		50	30	30	60	
		60		0	50	
		70		70	30	
		30		30	50	
		50		10	30	
				30	60	
				33	50	
				0	60	
				40	100	
				25	60	
				30	35	
					30	
					100	
					60	
					60	
					50	
					80	
					70	
					10	
t-test	-12.83	0.26	-0.44	-4.45	1.14	-6.40
Z-test	5.48	-0.11	3.20	2.63	-0.42	2.81

APPENDIX-10

TABLE 10.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	ILD(i)		ILD(ii)		ILD(iii)	
		#	%	#	%	#	%
BMW	YES	2	18.2	11	100	0	0
	NO	7	63.7	0	0	11	100
	DON'T KNOW	2	18.2	0	0	0	0
DELTA	YES	17	89.5	19	100	0	0
	NO	2	10.5	0	0	19	100
	DON'T KNOW	0	0	0	0	0	0
NISSAN	YES	12	80	15	100	0	0
	NO	3	20	0	0	15	100
	DON'T KNOW	0	0	0	0	0	0
SAMCOR	YES	8	30.8	26	100	0	0
	NO	18	69.3	0	0	26	100
	DON'T KNOW	0	0	0	0	0	0
TOYOTA	YES	30	90.9	33	100	0	0
	NO	3	9.1	0	0	33	100
	DON'T KNOW	0	0	0	0	0	
VW	YES	3	23.1	13	100	0	0
	NO	9	69.3	0	0	13	100
	DON'T KNOW	1	7.7	0	0	0	0

APPENDIX-11

TABLE 11.1. RESPONSES: FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	ILA	
		#	%
BMW	YES	5	45.5
	NO	6	54.5
	DON'T KNOW	0	0
DELTA	YES	17	89.5
	NO	2	10.5
	DON'T KNOW	0	0
NISSAN	YES	11	73.3
	NO	4	26.7
	DON'T KNOW	0	0
SAMCOR	YES	14	53.8
	NO	12	46.2
	DON'T KNOW	0	0
TOYOTA	YES	31	93.9
	NO	2	6.1
	DON'T KNOW	0	0
VW	YES	8	61.5
	NO	5	38.5
	DON'T KNOW	0	0

APPENDIX-A1

TABLE 11.2. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	QUESTION	STRONGLY AGREE		AGREE		NEITHER AGREE NOR DISAGREE		DISAGREE		STRONGLY DISAGREE	
		#	%	#	%	#	%	#	%	#	%
BMW	II.C	1	10	1	10	7	70	1	10	0	0
DELTA		9	50	7	38.9	2	11.1	0	0	0	0
NISSAN		8	53.3	3	20	3	20	1	6.7	0	0
SAMCOR		5	20.9	1	4.2	17	66.7	1	4.2	0	0
TOYOTA		24	80	5	16.7	1	3.4	0	0	0	0
VW		4	33.4	0	0	7	58.4	1	8.4	0	0

APPENDIX-12

TABLE 12.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	IV.B	
		#	%
BMW	YES	2	18.1
	NO	9	81.9
	DON'T KNOW	0	0
DELTA	YES	15	78.9
	NO	4	21.1
	DON'T KNOW	0	0
NISSAN	YES	10	66.7
	NO	5	33.3
	DON'T KNOW	0	0
SAMCOR	YES	6	23
	NO	20	77
	DON'T KNOW	0	0
TOYOTA	YES	29	87.9
	NO	4	12.1
	DON'T KNOW	0	0
VW	YES	2	15.4
	NO	11	84.6
	DON'T KNOW	0	0

APPENDIX-13

TABLE 13.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	LG(i)		LG(ii)		LG(iii)		LG(iv)	
		#	%	#	%	#	%	#	%
BMW	YES	2	18.2	1	9.00	5	45.5	2	18.2
	NO	8	72.7	9	81.9	6	54.5	8	72.7
	DON'T KNOW	1	9.1	1	9.1	0	0	1	9.1
DELTA	YES	16	84.2	17	89.5	18	94.7	18	94.7
	NO	3	15.8	1	5.3	1	5.3	0	0
	DON'T KNOW	0	0	1	5.2	0	0	1	5.8
NISSAN	YES	11	78.8	11	78.8	11	78.8	11	78.8
	NO	3	20	3	20	1	9.1	1	9.1
	DON'T KNOW	1	6.7	1	6.7	3	27.3	3	21.3
SAMCOR	YES	8	30.8	4	15.4	15	57.7	8	30.8
	NO	18	69.2	22	84.6	7	26.9	18	69.2
	DON'T KNOW	0	0	0	0	4	15.4	0	0
TOYOTA	YES	30	90.9	27	81.8	30	90.9	30	90.9
	NO	0	0	5	15.2	1	3	2	6.1
	DON'T KNOW	3	9.1	1	3	2	6.1	1	3
VW	YES	3	23	2	15.4	8	61.5	3	23
	NO	10	77	11	84.6	4	30.8	10	77
	DON'T KNOW	0	0	0	0	1	7.7	0	0

APPENDIX-13

TABLE 13.4. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	VLP(i)		VLP(ii)		VLP(iii)	
		#	%	#	%	#	%
BMW	YES	1	16.6	0	0	5	83.4
	NO	5	83.4	6	100	1	16.6
	DON'T KNOW	0	0	0	0	0	0
DELTA	YES	15	88.2	0	0	2	11.8
	NO	2	11.8	17	100	15	88.2
	DON'T KNOW	0	0	0	0	0	0
NISSAN	YES	8	72.7	0	0	3	0
	NO	3	27.3	11	100	8	100
	DON'T KNOW	0	0	0	0	0	0
SAMCOR	YES	3	23.1	0	0	9	79.2
	NO	9	79.2	13	100	3	23.1
	DON'T KNOW	1	7.7	0	0	1	7.7
TOYOTA	YES	26	86.7	0	0	4	13.4
	NO	4	13.3	30	100	26	86.6
	DON'T KNOW	0	0	0	0	0	0
VW	YES	2	22.3	0	0	7	77.7
	NO	7	77.7	9	100	2	22.3
	DON'T KNOW	0	0	0	0	0	0

APPENDIX-A1

TABLE 11.2. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	QUESTION	STRONGLY AGREE		AGREE		NEITHER AGREE NOR DISAGREE		DISAGREE		STRONGLY DISAGREE	
		#	%	#	%	#	%	#	%	#	%
BMW	I.C	1	10	1	10	7	70	1	10	0	0
DELTA		9	50	7	38.9	2	11.1	0	0	0	0
NISSAN		8	53.3	3	20	3	20	1	6.7	0	0
SAMCOR		5	20.9	1	4.3	17	56.7	1	4.2	0	0
TOYOTA		24	80	5	16.7	1	3.4	0	0	0	0
VW		4	33.3	0	0	7	58.4	1	8.4	0	0

APPENDIX-13

TABLE 13.2. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	II.A		II.B(i)		II.B(ii)		II.C(i)		II.C(ii)		II.D(ii)	
		#	%	#	%	#	%	#	%	#	%	#	%
BMW	YES	5	45.5	5	100			4	36.4	11	100	0	0
	NO	6	54.5	0	0			5	45.5	0	0	11	100
	DON'T KNOW	0	0	0	0			2	18.2	0	0	0	0
DELTA	YES	17	89.5	17	100			17	89.5	17	89.5	0	0
	NO	2	10.5	0	0			2	10.5	2	10.5	19	100
	DON'T KNOW	0	0	0	0			0	0	0	0	0	0
NISSAN	YES	11	73.3	11	100			11	73.3	15	100	0	0
	NO	4	26.7	0	0			3	20	0	0	15	100
	DON'T KNOW	0	0	0	0			1	6.7	0	0	0	0
SAMCOR	YES	14	53.8	12	85.7			12	46.2	26	100	0	0
	NO	12	46.2	1	7.1			14	53.8	0	0	26	100
	DON'T KNOW	0	0	1	7.1			0	0	0	0	0	0
TOYOTA	YES	31	93.9	27	87.1			30	90.9	33	100	0	0
	NO	2	6.1	3	9.7			3	9.1	0	0	33	100
	DON'T KNOW	0	0	1	3.2			0	0	0	0	0	0
VW	YES	8	61.5	8	100			8	61.5	13	100	0	0
	NO	5	38.5	0	0			4	30.8	0	0	13	100
	DON'T KNOW	0	0	0	0			1	7.7	0	0	0	0

APPENDIX-13

TABLE 13.3. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	VI.N		VI.O(i)		VI.O(ii)		VI.O(iii)		VI.O(iv)		VI.O(v)	
		#	%	#	%	#	%	#	%	#	%	#	%
BMW	YES	6	54.5	1	16.7	1	16.7	0	0	3	50	1	16.7
	NO	5	45.5	5	83.4	5	83.4	6	100	3	50	5	83.3
	DON'T KNOW	0	0	0	0	0	0	0	0	0	0	0	0
DELTA	YES	17	89.5	17	100	15	88.2	11	64.7	15	88.2	16	94.2
	NO	1	5.3	0	0	2	11.8	6	35.3	2	11.8	1	5.8
	DON'T KNOW	1	5.3	0	0	0	0	0	0	0	0	0	0
NISSAN	YES	11	73.3	8	72.7	9	81.8	6	54.6	8	72.7	8	72.7
	NO	4	26.7	2	18.2	2	18.2	5	45.4	3	27.3	3	27.3
	DON'T KNOW	0	0	1	9.7	0	0	0	0	0	0	0	0
SAMCOR	YES	18	60	2	18.2	1	7.7	1	7.7	8	61.6	9	7.7
	NO	13	60	11	84.7	12	92.3	12	92.3	5	38.4	3	23.1
	DON'T KNOW	0	0	0	0	0	0	0	0	0	0	1	7.7
TOYOTA	YES	30	90.9	27	93.1	27	90	22	73.3	29	96.7	26	86.7
	NO	3	9.1	1	3.4	2	6.7	8	26.6	0	0	1	3.3
	DON'T KNOW	0	0	1	3.4	1	3.3	0	0	1	3.3	3	10
VW	YES	9	69.9	1	11.1	1	11.2	0	0	5	55.6	2	22.2
	NO	4	30.8	8	88.9	8	88.8	8	88.9	4	44.4	6	66.6
	DON'T KNOW	0	0	0	0	0	0	1	11.1	0	0	1	11.1

APPENDIX-13

TABLE 13.5. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	QUESTION	STRONGLY AGREE		AGREE		NEITHER AGREE NOR DISAGREE		DISAGREE		STRONGLY DISAGREE	
		#	%	#	%	#	%	#	%	#	%
BMW	LH	1	9.1	1	9.1	9	81.8	0	18.2	0	0
	LI	1	9.1	1	9.1	9	81.8	0	40	0	0
DELTA	LH	16	84.2	3	15.8	0	0	0	0	0	0
	LI	16	84.2	2	10.6	1	5.3	0	0	0	0
NISSAN	LH	6	40	5	33.3	3	20	1	6.7	0	0
	LI	9	60	3	20	3	20	0	0	0	0
SAMGOR	LH	4	15.4	4	15.4	18	69.2	0	0	0	0
	LI	4	15.4	4	15.4	18	69.2	0	0	0	0
TOYOTA	LH	30	90.9	3	9.1	0	0	0	0	0	0
	LI	29	87.9	4	12.1	0	0	0	0	0	0
VW	LH	2	15.4	1	7.6	10	77	0	0	0	0
	LI	2	15.4	1	7.6	10	77	1	7.7	0	0

APPENDIX-14

TABLE 14.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	QUESTION	STRONGLY AGREE		AGREE		NEITHER AGREE NOR DISAGREE		DISAGREE		STRONGLY DISAGREE	
		#	%	#	%	#	%	#	%	#	%
BMW	IV.E	1	9.1	1	9.1	7	63.7	2	18.2	0	0
	IV.F	1	10	1	10	4	40	4	40	0	0
	IV.G	1	10	0	0	4	40	5	50	0	0
DELTA	IV.E	14	73.7	3	15.8	2	10.5	0	0	0	0
	IV.F	15	83.3	2	11.2	1	5.6	0	0	0	0
	IV.G	14	77.8	2	11.1	2	11.1	0	0	0	0
NISSAN	IV.E	7	46.6	2	13.4	6	40	0	0	0	0
	IV.F	8	57.1	3	21.4	3	21.4	0	0	0	0
	IV.G	7	50	3	21.4	3	21.4	1	7.1	0	0
SAMCOR	IV.E	3	11.5	5	19.2	16	61.5	2	7.7	0	0
	IV.F	3	12.5	3	12.5	14	58.4	4	16.7	0	0
	IV.G	3	12.5	3	12.5	14	58.4	4	16.7	0	0
TOYOTA	IV.E	29	87.5	3	9.1	1	3.1	0	0	0	0
	IV.F	25	83.3	5	16.7	0	0	0	0	0	0
	IV.G	28	93.3	2	6.7	0	0	0	0	0	0
VW	IV.E	1	7.7	2	15.4	8	61.6	2	15.4	0	0
	IV.F	1	8.4	2	16.7	9	75	0	0	0	0
	IV.G	0	0	2	16.7	9	75	1	8.3	0	0

APPENDIX-15

TABLE 15.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	VLQ		VLR(i)		VLR(ii)	
		#	%	#	%	#	%
BMW	YES	2	18.2	0	0	2	100
	NO	8	72.8	2	100	0	0
	DON'T KNOW	1	9.1	0	0	0	0
DELTA	YES	17	89.5	1	5.9	17	100
	NO	2	10.5	15	88.2	0	0
	DON'T KNOW	0	0	1	5.9	0	0
NISSAN	YES	12	80	1	8.3	12	100
	NO	2	13.3	11	91.7	0	0
	DON'T KNOW	1	6.7	0	0	0	0
SAMCOR	YES	8	30.8	1	12.5	8	100
	NO	16	61.6	6	75	0	0
	DON'T KNOW	2	7.7	1	12.5	0	0
TOYOTA	YES	31	93.9	2	7.1	29	93.5
	NO	2	6.1	25	89.3	2	6.5
	DON'T KNOW	0	0	1	3.6	0	0
VW	YES	3	23.1	0	0	3	100
	NO	9	69.2	3	100	0	0
	DON'T KNOW	1	7.7	0	0	0	0

APPENDIX-15

TABLE 15.2. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	VLS		VLT(G)		VLT(D)	
		#	%	#	%	#	%
BMW	YES	2	18.2	0	0	2	100
	NO	7	63.7	2	100	0	0
	DON'T KNOW	1	9.1	0	0	0	0
DELTA	YES	16	84.2	1	6.3	16	100
	NO	2	10.6	13	81.3	0	0
	DON'T KNOW	1	5.3	2	12.5	0	0
NISSAN	YES	11	73.3	0	0	11	100
	NO	4	26.7	11	100	0	0
	DON'T KNOW	0	0	0	0	0	0
SAMCOR	YES	5	19.3	0	0	5	100
	NO	19	73.1	5	100	0	0
	DON'T KNOW	2	7.7	0	0	0	0
TOYOTA	YES	30	90.9	3	10	27	90
	NO	3	9.1	25	83.3	3	10
	DON'T KNOW	0	0	2	6.7	0	0
VW	YES	3	23.1	0	0	3	100
	NO	8	61.5	3	100	0	0
	DON'T KNOW	2	15.4	0	0	0	0

APPENDIX-16

TABLE 16.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	VLA		VLB	
		#	%	#	%
BMW	YES	2	18.2	2	18.2
	NO	9	81.9	9	81.9
	DON'T KNOW	0	0	0	0
DELTA	YES	17	89.5	16	88.9
	NO	2	10.5	1	5.6
	DON'T KNOW	0	0	1	5.6
NISSAN	YES	11	73.3	11	73.3
	NO	4	26.7	4	26.7
	DON'T KNOW	0	0	0	0
SAMCOR	YES	14	53.8	14	53.8
	NO	12	46.2	12	46.2
	DON'T KNOW	0	0	0	0
TOYOTA	YES	31	93.9	31	93.9
	NO	2	6.1	2	6.1
	DON'T KNOW	0	0	0	0
VW	YES	9	69.2	9	69.2
	NO	4	30.8	4	30.8
	DON'T KNOW	0	0	0	0

APPENDIX-16

TABLE 16.2. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	VLD		VLE(i)		VLE(ii)		VLE(iii)	
		#	%	#	%	#	%	#	%
BMW	YES	2	100	2	100	0	0	0	0
	NO	0	0	0	0	2	100	2	100
	DON'T KNOW	0	0	0	0	0	0	0	0
DELTA	YES	15	88.2	15	88.2	1	5.9	2	11.8
	NO	2	11.8	2	11.8	16	94.1	15	88.2
	DON'T KNOW	0	0	0	0	0	0	0	0
NISSAN	YES	9	81.8	10	90.9	0	0	1	9.1
	NO	2	18.2	1	9.1	11	100	10	90.9
	DON'T KNOW	0	0	0	0	0	0	0	0
SAMCOR	YES	8	100	8	100	0	0	0	0
	NO	0	0	0	0	8	100	8	100
	DON'T KNOW	0	0	0	0	0	0	0	0
TOYOTA	YES	29	93.5	27	93.1	1	3.2	4	12.9
	NO	2	6.5	2	6.9	30	96.8	27	87.1
	DON'T KNOW	0	0	0	0	0	0	0	0
VW	YES	8	88.9	7	77.8	1	11.1	1	11.1
	NO	1	11.1	2	22.2	8	88.9	8	88.9
	DON'T KNOW	0	0	0	0	0	0	0	0

APPENDIX-16

TABLE 16.3. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	VLF(i)		VLF(ii)	
		#	%	#	%
BMW	YES	0	0	2	100
	NO	2	100	0	0
	DON'T KNOW	0	0	0	0
DELTA	YES	2	11.8	15	88.2
	NO	15	88.2	2	11.8
	DON'T KNOW	0	0	0	0
NISSAN	YES	1	9.1	10	90.9
	NO	10	90.9	1	9.1
	DON'T KNOW	0	0	0	0
SAMCOR	YES	1	12.5	7	87.5
	NO	7	87.5	1	12.5
	DON'T KNOW	0	0	0	0
TOYOTA	YES	4	12.9	26	83.9
	NO	27	87.1	4	12.9
	DON'T KNOW	0	0	1	3.2
VW	YES	0	0	8	88.9
	NO	9	100	1	11.1
	DON'T KNOW	0	0	0	0

APPENDIX-16

TABLE 16.4. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	VLI(i)		VLI(ii)		VLI(iii)a		VLI(iii)b		VLI(iii)c	
		#	%	#	%	#	%	#	%	#	%
BMW	YES	0	0	0	0	2	100	2	100	2	100
	NO	2	100	2	100	0	0	0	0	0	0
	DON'T KNOW	0	0	0	0	0	0	0	0	0	0
DELTA	YES	16	5.9	2	12.5	14	100	13	100	13	100
	NO	1	94.1	14	87.5	0	0	0	0	0	0
	DON'T KNOW	0	0	0	0	0	0	0	0	0	0
NISSAN	YES	1	9.1	3	30	7	100	7	100	7	100
	NO	10	90.9	7	70	0	0	0	0	0	0
	DON'T KNOW	0	0	0	0	0	0	0	0	0	0
SAMCOR	YES	1	12.5	0	0	6	100	6	100	7	87.5
	NO	7	87.5	8	100	0	0	0	0	1	12.5
	DON'T KNOW	0	0	0	0	0	0	0	0	0	0
TOYOTA	YES	3	9.7	3	10.7	23	92	23	100	20	87
	NO	28	90.3	25	89.3	1	4	0	0	2	8.7
	DON'T KNOW	0	0	0	0	1	4	0	0	1	4.3
VW	YES	1	11.1	3	37.5	5	83.3	5	100	5	100
	NO	8	88.9	5	62.5	1	16.7	0	0	0	0
	DON'T KNOW	0	0	0	0	0	0	0	0	0	0

APPENDIX-16

TABLE 16.5. RESPONSES IN PERCENT (%) - QUESTION VI.C

COMPANY	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
RESPONSE (%)	6	12	8	9	7	5
	9	10	10	15	12	9
		8	9	9	10	6
		12	8	7	9	8
		11	6	8	5	11
		13	8	7	12	8
		8	9	8	8	10
		11	12	10	6	7
		12	6		7	16
		11	9		12	
		8	11		9	
		9			11	
		10			5	
		9			12	
		13			8	
		13			6	
		5			11	
					12	
					6	
					7	
					12	
					13	
					8	
					5	
					9	
					14	
					10	
					15	
					6	
					10	
					11	
AVERAGE	7.5	10.1	8.7	9.12	9.2	8.8

APPENDIX-16

TABLE 16.6. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	QUESTION	DAILY		WEEKLY		TWO-WEEKLY		MONTHLY	
		#	%	#	%	#	%	#	%
BMW	VLG	0	0	2	100	0	0	0	0
DELTA		15	88.2	2	11.8	0	0	0	0
NISSAN		9	81.8	2	18.2	0	0	0	0
SAMCOR		2	25	6	75	0	0	0	0
TOYOTA		27	87.1	4	12.9	0	0	0	0
VW		0	0	8	88.9	1	11.1		

APPENDIX-17

TABLE 17.1. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	RESPONSE	VI.L		VI.M(i)		VI.M(ii)	
		#	%	#	%	#	%
BMW	YES	1	50	0	0	2	100
	NO	1	50	3	100	0	0
	DON'T KNOW	0	0	0	0	0	0
DELTA	YES	0	0	15	88.2	17	100
	NO	13	76.5	2	11.8	0	0
	DON'T KNOW	4	23.5	0	0	0	0
NISSAN	YES	10	66.7	2	40	4	80
	NO	3	20	3	60	1	20
	DON'T KNOW	2	13.3	0	0	0	0
SAMCOR	YES	5	38.5	9	81.8	9	90
	NO	8	61.5	1	9.1	1	10
	DON'T KNOW	0	0	1	9.1	0	0
TOYOTA	YES	26	83.9	6	100	3	75
	NO	4	12.9	0	0	1	25
	DON'T KNOW	1	3.2	0	0	0	0
VW	YES	6	66.7	0	0	4	100
	NO	2	22.2	4	100	0	0
	DON'T KNOW	1	11.1	0	0	0	0

APPENDIX 18

$$\text{Proportion Test} = \frac{(P-p)}{\sqrt{\frac{P*(1-P)}{n}}}$$

SUB-HYPOTHESIS 3:

Q.V.A	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	0	78.9	73.3	30.8	93.9	61.5
No	11	19	15	26	33	13
z score	0	3.88	2.97	-2.50	9.68	1.39

SUB-HYPOTHESIS 4:

Q.I.A	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	90.9	94.7	93.3	73	93.9	92.3
No	11	19	15	26	33	13
z score	4.42	9.07	6.52	2.64	9.68	5.58

Q.I.B(i)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	90	94.7	78.6	73.7	96.8	75
No	10	19	14	19	32	12
z score	4.21	9.07	3.54	2.58	13.27	2.00

Q.I.B(ii)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	20	89.5	78.6	26.3	87.5	16.7
No	10	19	14	19	32	12
z score	-2.37	5.43	2.52	-2.38	8.22	-3.21

Q.I.E(iii)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	20	84.2	78.6	26.3	90.6	25
No	10	19	14	19	32	12
z score	-2.37	4.04	4.52	-2.36	7.54	-2.00

Q.I.E(iv)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	20	78.9	78.6	26.3	87.5	25
No	10	19	14	19	32	12
z score	-2.37	2.94	3.52	-2.36	6.32	-2.00

SUB-HYPOTHESIS 5:

Q.I.C	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
PROP	20	89.5	73.3	30.8	93.5	23.1
No	10	19	15	26	31	13
z score	-2.37	5.43	2.00	-2.22	9.38	-2.31

SUB-HYPOTHESIS 6:

Q.I.D	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	20	89.5	73.3	22.2	90.3	25
No	10	19	15	18	31	12
z score	-2.37	5.43	2.00	-2.86	7.42	-2.00

SUB-HYPOTHESIS 7:

Q.I.F	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	27.3	89.5	73.3	30.8	92.9	30.8
No	11	19	15	24	33	13
z score	-1.71	5.43	2.00	-2.11	9.68	-1.67

SUB-HYPOTHESIS 8:

Q.V.Q	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	89.5	73.3	26.9	93.9	23.1
No	11	19	15	26	33	13
z score	-2.76	5.43	2.00	-2.78	9.60	-2.32

Q.V.I(i)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	50	88.7	81.8	71.4	87.1	66.7
No	2	17	11	7	31	3
z score	0	4.62	2.62	1.22	6.12	0.58

Q.V.I(ii)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	50	94.1	81.9	42.9	93.5	66.7
No	2	17	11	7	31	3
z score	0	7.63	2.62	-0.82	9.38	0.58

Q.V.R	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	100	82.4	81.8	85.7	87.1	100
No	2	17	11	7	31	3
z score	.6	3.43	2.62	2.59	6.12	6

SUB-HYPOTHESIS 10:

Q: II.Q	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	20	88.9	73.3	25.1	96.7	41.8
No	10	18	15	24	30	12
z score	-2.27	6.96	2.00	-2.92	12.85	-0.63

Q.II.D(4)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	89.5	80	30.8	90.9	23.1
No	11	19	15	26	33	13
z score	-2.76	5.43	2.90	-2.22	7.65	-2.31

SUB-HYPOTHESIS 11:

Q.II.A	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	45.5	89.5	73.3	53.8	93.9	61.5
No	11	19	15	26	33	13
z score	-0.33	5.43	2.00	0.30	9.66	0.91

Q.II.C	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	20	88.9	73.3	25.1	96.7	33.4
No	10	18	15	24	30	12
z score	-2.32	4.96	2.00	-2.82	11.85	-1.26

SUB-HYPOTHESIS 12:

Q.IV.B	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.1	76.9	66.7	23	87.9	15.4
No	11	19	15	26	33	13
z score	-2.76	2.84	1.30	-3.97	6.32	-3.53

SUB-HYPOTHESIS 13:

Q.VI.H	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	54.5	89.5	73.3	50	90.9	69.2
No	11	19	15	26	33	13
z score	0.26	5.43	2.00	0	7.66	1.48

Q.VI.Q(i)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	16.7	100	72.7	15.4	93.1	11.2
No	6	17	11	13	30	9
z score	-2.27	*	1.62	-3.83	5.23	-3.73

Q.VI.Q(ii)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	16.7	88.2	81.8	7.7	90	11.2
No	6	17	11	13	30	9
z score	-2.27	4.82	2.62	-6.07	7.30	-3.73

Q.VI.Q(iii)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	0	64.7	54.6	7.7	92.9	0
No	6	17	11	13	30	9
z score	*	1.20	0.25	-6.07	8.47	*

Q.VI.Q(iv)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	50	88.2	72.7	61.6	96.7	55.6
No	6	17	11	13	30	9
z score	0	4.82	3.47	0.81	-2.85	0.30

Q.VI.Q(v)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	16.7	94.2	72.7	7.7	86.7	22.2
No	6	17	11	13	30	9
z score	-2.27	7.63	1.62	-6.07	5.68	-2.03

Q.VI.P(i)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	16.6	88.2	72.7	23.1	86.7	22.3
No	6	17	11	13	30	9
z score	-2.27	4.82	1.62	-2.11	5.68	-2.03

Q.I.G(i)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	66.2	73.3	30.8	90.9	23
No	11	19	15	26	33	13
z score	-2.76	4.04	2.00	-2.22	7.65	-2.31

Q.I.G(ii)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	9.00	89.5	73.3	15.4	81.8	15.4
No	11	19	15	26	33	13
z score	-4.75	5.43	2.00	-4.99	4.152	-3.53

Q.I.G(iii)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prog	45.5	94.7	73.3	57.7	90.9	61.5
No	11	19	15	26	33	13
z score	-0.33	8.07	2.00	0.72	7.65	0.81

Q.I.G(iv)	BMW	DELTA	NISSAN	SAMCOX	TOYOTA	VW
Prop	18.2	94.7	73.3	30.8	90.9	23.00
No	11	19	15	26	33	13
z score	-2.76	8.07	2.00	-2.22	7.65	-2.31

Q.I.H	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	100	73.3	30.8	100	23
No	11	19	15	26	33	13
z score	-2.76	∞	2.00	-2.22	∞	-2.31

Q.I.J	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	94.8	80	30.8	100	23
No	11	19	15	26	33	13
z score	-2.76	8.07	2.90	-2.22	∞	-2.31

SUB-HYPOTHESIS 14:

Q.IV.I	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	81.9	94.8	81.00	73.1	97	92.3
No	11	19	15	26	33	13
z score	-2.76	6.07	2.00	-3.27	15.82	-2.31

Q.IV.H	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	94.8	73.3	23.1	97	23
No	11	19	15	26	33	13
z score	-2.76	6.07	2.00	-3.27	15.82	-2.31

Q.IV.E	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	89.5	60	30.8	96.9	23.1
No	11	19	15	26	33	13
z score	-2.76	5.43	0.79	-2.22	13.46	-2.31

Q.IV.F	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	20	94.5	78.5	25	100	25.1
No	10	18	14	13	30	12
z score	-2.37	7.06	2.52	-2.82	6	-3.21

Q.IV.G	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	10	89.5	71.4	25	93.4	16.7
No	10	18	14	24	30	12
z score	-4.21	5.26	1.73	-2.82	9.23	-3.21

SUB-HYPOTHESIS 15:

Q.VI.Q	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	89.5	80	30.8	93.9	23.1
No	11	19	15	26	33	13
z score	-2.76	5.43	2.50	-2.32	5.60	-2.31

Q.VI.R(i)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	0	5.9	6.3	12.5	7.1	0
No	11	19	15	26	33	13
z score	&	-2	-5.99	-5.96	-9.58	&

Q.VI.R(ii)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	100	100	100	100	93.5	100
No	11	19	15	26	33	13
z score	&	&	&	&	9.68	&

Q.VI.S	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	84.2	73.3	19.3	90.9	23.1
No	11	19	15	26	33	13
z score	-2.76	4.04	2.00	-4.02	7.63	-2.31

Q.VI.T(i)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	0	5.3	0	0	10	0
No	2	16	11	5	30	3
z score	&	&	&	&	-7.30	&

Q.VI.T(ii)	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	100	100	100	100	90	100
No	2	16	11	5	30	3
z score	&	&	&	&	7.30	&

SUB-HYPOTHESIS 16:

Q.VI.A	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	89.5	73.3	30.8	93.9	69.2
No	11	19	15	26	33	13
z score	-2.76	5.43	2.00	-2.22	5.68	1.48

Q.VI.B	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	80.9	73.3	30.8	93.9	69.2
No	11	19	15	26	33	13
z score	-2.76	5.09	2.00	-2.22	5.68	1.48

SUB-HYPOTHESIS 17:

Q.VI.J	BMW	DELTA	NISSAN	SAMCOR	TOYOTA	VW
Prop	18.2	84.2	73.3	15.4	81.8	40
No	11	19	15	26	33	10
z score	-2.76	4.04	2.00	-4.99	4.53	-0.64

APPENDIX 19

TOTAL QUALITY MANAGEMENT SURVEY - (MANAGEMENT)

THIS SURVEY WILL BE TREATED IN CONFIDENCE

INSTRUCTIONS:

* Where the nature of the question requires that the answer be indicated on a scale, please indicate YOUR answer by making a cross at the relevant place on the scale. For example:

Q. It is wrong to steal company secrets?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

* Where the answer requires a yes (Y) or no (N) or don't know (D) response, simply cross the relevant answer. For example:

Q. Most humans have two (2) legs? ..... Y N D

I.

A. Does your company have a formal quality policy? ..... Y N D

B. If YES, does this policy contain:
(i) a brief statement of corporate intent as to quality? ..... Y N D
(ii) the minimal actions to be taken by company divisions with respect to quality? .. Y N D
(iii) Interdivisional relationships concerning quality ..... Y N D
(iv) relationships of quality policies to other company policies ..... Y N D

C. Have you signed a copy of this or any other quality policy? ..... Y N D

D. Has your department drawn up its own more detailed quality policy based on the organisation-wide policy? ..... Y N D

E. If YES, does this policy specifically indicate expected quality responsibilities? ..... Y N D

F. Do you and your subordinates have access to a quality manual which explains expected quality responsibilities, quality procedures and quality expectations? ..... Y N D

G. In YOUR definition of quality, which of the following concepts are included?
(i) conformance to requirements ..... Y N D
(ii) quality is tangible ..... Y N D
(iii) quality is an organisation-wide concept ..... Y N D
(iv) producing a quality product involves both quality of design and quality of conformance ..... Y N D
(v) other .....
.....
.....

H. When deciding what constitutes r quality product, customer requirements must be known.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

I. When deciding what constitutes a quality product, production specifications must be known.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

II.

A. Do YOU know what the key quality requirements of your customers are? ..... Y N D

B. If YES, how are these requirements made known to you?
(i) from survey results given to us ..... Y N D
(ii) other .....
.....
.....
.....
.....

C. My superiors regularly tell me what the key quality requirements of my customers are?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

D. In my department, I consider the following people to be my customers?
(i) my subordinates ..... Y N D
(ii) the people who buy our cars ..... Y N D
(iii) I don't have any ..... Y N D

III.

A. In your opinion, who is responsible for the quality of your department?

(i) the department itself?

0% 20% 40% 60% 80% 100%

(ii) the central quality department?

0% 20% 40% 60% 80% 100%

(iii) other? (please specify) .....
.....
.....
.....
.....

B. What percentage of the work conducted by your department is inspected?

0% 20% 40% 60% 80% 100%

C. If you or one of your employees detect a quality problem on the production line, do you/they have the authority to stop the production line? ..... Y N D

IV.

A. How often does YOUR superior/manager participate in quality team meetings in your department?

0% 20% 40% 60% 80% 100%

B. Do you personally ever give the employees in your department training on quality? ..... Y N D

C. If YES, how often?

Weekly	Two-weekly	Monthly	Six-monthly	Yearly

D. I consider quality to be on a par with other organisational functions, such as finance?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

E. I involve my subordinates in decision-making in the quality improvement area wherever possible?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

F. My manager/s involve me in their decision-making in the area of quality improvement where possible?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

G. I believe that senior management in this organisation are in favour of the decentralising of decision-making responsibility in the area of quality improvement?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

H. I am appraised on my willingness and ability to involve subordinates in the decision-making process in the area of quality improvement?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

I. I am appraised on my success in improving quality in my department?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

J. In setting goals, do you insist on subordinates setting quality goals, in addition to quantity goals?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

V.

A. Does your organisation calculate a cost of quality in monetary terms? ..... Y N D

IF YES, ANSWER QUESTION B-F. IF NO, PROCEED TO QUESTION G.

B. Which of the following elements are included in your departments calculation of the cost of quality?

(i) prevention costs, incurred in preventing defects from occurring, such as quality audits; preventative maintenance; design reviews etc? ..... Y N D

(ii) appraisal costs, used to determine conformance to requirements or specification? ..... Y N D

(iii) failure costs: the costs incurred as a result of things not conforming to requirements the first time? ..... Y N D

C. Who calculates the cost of quality?

(i) the accounting department ..... Y N D

(ii) the quality department ..... Y N D

(iii) your department itself ..... Y N D

(iv) other (please specify) .....

.....

.....

.....

.....

.....

.....

.....

D. Is the cost of quality made known to all members of your department to see? ..... Y N D

E. If YES, how?

(i) graphically ..... Y N D

(ii) in writing ..... Y N D

F. How often is the cost of quality calculated?

Daily	Weekly	Two-weekly	Monthly	Quarterly	Half-yearly

G. Does your department or the company monitor yours and your employees attitudes on quality? ..... Y N D

H. If YES, how often are such surveys undertaken?

Monthly	Quarterly	Half-yearly	Yearly

I. In these surveys, are:
(i) trends regarding employee attitudes towards quality monitored? .....Y N D
(ii) levels of employee understanding of the quality improvement process monitored? .....Y N D

VI.

A. Are your subordinates assigned to some form of Quality Improvement Team? ....., Y N D

B. Do you belong to some form of Quality Improvement Team? ..... Y N D

IF <u>YES</u>, ANSWER QUESTIONS B - M. IF <u>NO</u>, MOVE TO QUESTION N.

C. What is the size of the team which you belong to?

4	5	6	7	8	9	10	11	12	13	14	15	16	17

D. Are the members of your team from the same work area? ..... Y N D

E. Who is the leader of your team?

(i) the team supervisor ..... Y N D
(ii) a shop steward ..... Y N D
(iii) an elected member ..... Y N D

F. How is the team leader appointed?

(i) elected by fellow team members ..... Y N D
(ii) appointed by management ..... Y N D
(iii) other (please specify) .....
.....
.....
.....
.....
.....
.....

G. How often does your team meet?

Daily	Weekly	Two-weekly	Monthly

H. To what extent does your team have the authority to decide what quality problems to investigate?

0% 20% 40% 60% 80% 100%

additions:.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

I. Does your team have the authority to implement solutions to identified quality related problems?

(i) without any conditions ..... Y N D
(ii) always only after management approval ..... Y N D
(iii) a. within certain limits ..... Y N D
b. financial ..... Y N D
c. solution involves other departments .. Y N D
d. other ..... Y N D
.....
.....

J. Does your company have cross-functional quality improvement teams? ..... Y N D

K. If not, how does it maintain cross-functional quality improvement?.....
.....
.....
.....
.....
.....
.....
.....
.....

L. Is your quality improvement team guided by a central steering committee? ..... Y N D

M. If NO, from where do they receive their direction?
(i) upper management ..... Y N D
(ii) the quality department ..... Y N D

N. Are you and the members of your department given training aimed specifically at quality improvement? ..... Y N D

O. In which of the following areas is training provided?
(i) job skills ..... Y N D
(ii) problem-solving tools ..... Y N D
(iii) statistical process control ..... Y N D
(iv) importance of meeting specifications ..... Y N D
(v) interpersonal relations ..... Y N D

P. Is the training: (i) ongoing ..... Y N D
(ii) once-off ..... Y N D
(iii) provided as needed .. Y N D

Q. Do you and your employees receive recognition for contributions to quality improvement? ..... Y N D

R. If YES, what form of recognition is provided?
(i) financial ..... Y N D
(ii) non-financial ..... Y N D

S. Are you and your employees provided with incentives to participate in the quality improvement process? ..... Y N D

T. If YES, what type of incentives are provided

(i) financial: ..... Y N D

If YES, please specify:

.....

.....

.....

.....

(ii) non-financial: ..... Y N D

If YES, please specify:

.....

.....

.....

.....

APPENDIX 20

Mercedes-Benz

University of the Witwatersrand
Department of Business Economics
1 Jan Smuts Avenue
P. O. Wits
JOHANNESBURG
2050

ATT.: MR MATTHEW GROSSETT

Mercedes-Benz of South Africa (Pty) Limited
(Reg No. 62/00271/07)
East London

7 Sellers Way
Gately Industrial Township
East London 5201 South Africa
Box 671
East London 5200 South Africa

Telex: 25-0625 S.A.
Facsimile: (0431) 37-2263
Cables: Narcardis
Switchboard: (0431) 37-9111
Direct Dialling: (0431) 37-

Your Letter:	Your Ref.:	Our Ref.:	Date
		QA/91/003/dd	91/01/08

Dear Sir

RE : TQM SURVEY

We thank you for the interest you took in our Company by including us in your TQM Survey.

We can assure you that we fully share the idea of a TQM concept in our organisation.

However, we regret to advise that we, at this point in time, are not in a position to assist further with your research project.

Economical, technical and IR matters require the full attention of the entire Management.

We wish your research project full success.

Yours Faithfully
MERCEDES BENZ OF SOUTH AFRICA
(PTY) LIMITED

H-J WIEGAND

R. HÜTTMANN

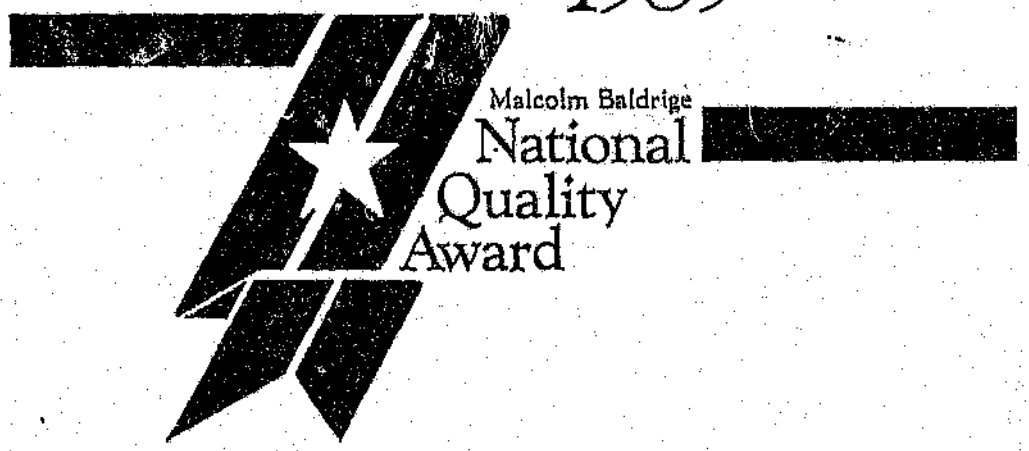
Directors: Dr. G. Lohr (Chairman/German), Prof. W. Breitschwerdt (German), Dr. D.C. Cronjé, Dr. P.R. Markel, Prof. Dr. W. Nolte (German), O. Schmid (Swiss), J. Schrempp (German), H. Werner (German).
Alternates: E. Herzog (German), J. Hubbert (German), R. Knoll (German), J. Sauer (German), H. Uhde (German).
Management Board: C. Kepler (Chairman), P.J.W. Cleary, G. Kamuf, A. Mackbauer, W. Stresser, H. te Poel Deputy E. Glanz.

Registered Trademarks of Mercedes-Benz AG, Stuttgart, Federal Republic of Germany

Registered Trademarks of Honda Motor Co. Ltd. Tokyo, Japan.

APPENDIX 21

Application Guidelines 1989



Managed by:
United States Department of Commerce
National Institute of Standards and Technology
Gaithersburg, MD 20899
Telephone (301)975-2036
Telefax (301)948-3716

Administered by:
The Malcolm Baldrige National Quality
Award Consortium, Inc.
P.O. Box 443
Milwaukee, WI 53201-0443
Telephone (414)272-8575
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P.O. Box 56606, Dept. 698
Houston, TX 77256-6606
Telephone (713)681-4020
Telefax (713)681-8578

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THE MALCOLM BALDRIGE NATIONAL QUALITY AWARD

INTRODUCTION

The Malcolm Baldrige National Quality Improvement Act of 1987, Public Law 100-107, signed by President Reagan on August 20, 1987, establishes an annual United States National Quality Award. The purposes of the Award are to promote quality awareness, to recognize quality achievements of U.S. companies, and to publicize successful quality strategies.

The Award:

- formally recognizes companies that attain preeminent quality leadership, and permits these companies to publicize and advertise receipt of their Awards,
- encourages other companies to improve their quality management practices in order to more effectively compete for future Awards,
- develops and publishes Award criteria that will also serve as quality improvement guidelines for use by U.S. companies, and
- widely disseminates non-proprietary information about the quality strategies of the Award recipients.

This document is a guide for Award applicants. It outlines the the following: the Award processes and requirements; the eligibility categories and restrictions; the fee schedule; and the Examination. An Application Form and a form for listing and describing facilities are included along with related instructions.

AWARD PROCESSES AND REQUIREMENTS — SUMMARY

THE AWARDS

Awards will be presented in November 1988. Award recipients receive a medal contained in a crystal base. The medal bears the inscriptions "Malcolm Baldrige National Quality Award" and "The Quest for Excellence." Recipients may publicize and advertise receipt of their Award, provided they agree to share with other American organizations information about their successful quality strategies.

TIMETABLE

Applications/guidelines available	January 10, 1989
Applications due	May 5, 1989
Applications review/site visits	May 5 - September 30, 1989
Award Ceremony	November 1989

AWARD CATEGORIES

Up to two Awards may be given each year in each of three categories: (1) manufacturing companies or subsidiaries; (2) service companies or subsidiaries; and (3) small businesses. Fewer than two Awards may be given in a category if the high standards of the Award Program are not met. Businesses incorporated and located in the United States may apply for the Award. Subsidiaries—divisions or business units of larger companies—are eligible if they primarily serve either the public or businesses other than the parent company. For companies engaged in both services and manufacturing, classification is determined by the larger percentage of sales. For purposes of the 1989 Awards, small businesses are defined as independently-owned businesses with not more than 500 full-time employees. Further information and restrictions on eligibility are detailed on page 4.

APPLICATIONS

The application consists of: (1) an Application Form for providing basic information about the company; (2) a Site Listing and Descriptors Form for providing information about the company's locations and functions performed; and (3) an Application Report addressing a set of 44 examination items.

For the manufacturing and service categories, the Application Report must be no longer than 75 pages. However, Supplemental Sections may be required for some applicants. Instructions concerning the Application Report can be found on page 14. For the small business category, the Application Report must be no longer than 50 pages; no Supplemental Sections are allowed.

BOARD OF EXAMINERS

A Board of Examiners reviews and evaluates all applications. The Board is comprised of more than 100 quality experts selected from industry, professional and trade organizations, and universities. Those selected meet the highest standards of qualification and peer recognition. Examiners take part in a preparation course based upon the examination items, the scoring criteria, and the examination process.

EXAMINATION PROCESS

Each application is reviewed by at least four members of the Board of Examiners. High-scoring applicants are selected for site visits, to be made by one or more teams of Examiners. A panel of nine Judges from the Board of Examiners reviews all data and information and recommends Award recipients. The Judges' Award recommendations are based not only upon scores applicants receive on the written examination but also upon the Judges' assessment of overall strengths and areas for improvement as determined from site visits. The recommendations of the Judges is final and not subject to appeal. All applicants receive a written feedback summary of strengths and areas for improvement relative to the award examination categories.

SITE VISITS

The highest scoring candidates for the Award will undergo site visits by members of the Board of Examiners. The primary objectives of the site visits are to verify the information provided in the Application Report and to clarify issues and questions raised during review of the Report. A site visit agenda is provided to the company at least two weeks in advance of the visit. The site visit agenda includes, but is not limited to, a schedule of planned visits to the applicant's facilities and operating units, a list of corporate officials to be interviewed, an estimate of time requirements for the visits, and the names of Examiners scheduled to participate. During site visits, presentations are made by applicants, interviews are conducted by the Examiner teams and pertinent records and data are reviewed.

The number of Examiner team members and the time required for site visits varies according to the complexity of the Award application and the number of sites to be visited. Sampling methods and recommendations from the Examiners are used to determine the number of sites to be visited. Most visits last 2-3 days. Reports of findings are developed by site visit teams for submission to the Judges. During site visits, applicants may be asked to provide data for inclusion in this report. Additional information or data will not be accepted from the applicant once site visits are completed, unless specifically requested by the Board of Examiners. Applicants selected for site visits will be asked to authorize review of their tax status regarding filing of tax returns, payment of taxes, and absence of criminal offenses and fraud. The information is required to ensure suitability of the applicant as a national award winner.

CONFIDENTIALITY

All applications are treated as confidential. Applicants are not expected to provide or to reveal proprietary information regarding products, processes, or services. Examiners are assigned in such a way as to avoid conflicts of interest. All Examiners sign nondisclosure agreements. Information regarding successful strategies of Award recipients may be released only after written approval from recipients.

FEES

The Award Program is administered without funding from the United States government. All expenses are paid from application fees and from funds from The Foundation for the Malcolm Baldrige National Quality Award. The Foundation has been established to accept donations and to manage the funds. Fees are charged to cover most costs associated with the examination and judging processes. The following fees are in effect for 1989 applications:

a. Basic Report - $2000 for the manufacturing and the service categories; $1200 for the small business category.

b.Supplemental Section - $1200 each (See Application Report Guidelines, page 15, for details on when it may be necessary to prepare Supplemental Sections.)

Fees must be paid at the time the application is submitted. All fees should be paid by check or money order payable to: The Malcolm Baldrige National Quality Award. Fees will be refunded if it is deemed that the application is incomplete or that the applicant is ineligible.

Site visit fees will be set when the visits are scheduled. Fees depend upon the number of sites to be visited, the size of the team required and the number of days the visits are conducted. Fees will cover the expenses of the site visit teams.

CHANGES FROM THE 1988 REQUIREMENTS

Several changes have been made from the 1988 application requirements. The fees have been changed--increasing in the case of the manufacturing and the service categories and decreasing in the case of small businesses. The maximum number of pages for the small business category has changed to 50 pages. There is no longer a lower limit on the number of employees to be eligible for the small business category. The definition of an eligible subsidiary now includes a requirement of a minimum of 500 employees *or* 20% of the domestic employees of the parent company. Changes in the Examination are described on page 15.

AWARD ADMINISTRATION

The Award Program is managed by the National Institute of Standards and Technology (formerly the National Bureau of Standards), United States Department of Commerce. The Program is administered by The Malcolm Baldrige National Quality Award Consortium, Inc.--a joint effort of the American Society for Quality Control and the American Productivity and Quality Center.

For additional information concerning the Award, contact the Award Office.

Malcolm Baldrige National Quality Award
National Institute of Standards and Technology
Gaithersburg, MD 20899
Tel. (301) 975-2036

Additional copies of the application material may be obtained from the Award Office or from the Administrator, Malcolm Baldrige National Quality Award, P.O. Box 443, Milwaukee, WI 53201-0443, Tel. (414) 272-8575.

ELIGIBILITY — CATEGORIES AND RESTRICTIONS

INTRODUCTION

Eligibility categories for Awards—manufacturing, service, and small business - are given in Public Law 100-107. Specific requirements and definitions pertaining to these categories are described below under Basic Eligibility. Some companies, eligible under these Basic Eligibility criteria, are not eligible if the nature of their activities is such that the central purposes and requirements of Public Law 100-107 cannot be fulfilled through their participation. Such cases are outlined below under the heading Restrictions on Eligibility.

BASIC ELIGIBILITY

Publicly- or privately-owned businesses incorporated and located in the United States may apply for Awards. State, local, and national government agencies, not-for-profit organizations, trade associations and professional societies are not eligible.

AWARD CATEGORIES

1. Manufacturing Companies and Producers

Companies or subsidiaries that produce and sell manufactured products or manufacturing processes and those companies which produce agricultural, mining, or construction products (SIC Codes 01-39)

2. Service Companies

Companies or subsidiaries that sell services (SIC Codes 40-89).*(Classification of companies that perform both manufacturing and services is determined by the larger percentage of sales.)*

3. Small Businesses

Independently-owned businesses with not more than 500 full-time employees. Business activities may include manufacuring, and/or service.

SUBSIDIARIES

Subsidiaries are defined as business units or divisions of companies. To be eligible, business units or divisions must have existed prior to the Award application and must have a clear definition as reflected in corporate literature such as organization charts, administrative manuals, or annual reports. A subsidiary must have no fewer than 500 full-time employees *or* at least 20% of all employees in the domestic operations of the company to be eligible. In addition, a subsidiary of a company which has more than 500 employees is not eligible for an Award under the small business category even if the subsidiary has fewer than 500 employees. Subsidiaries of small businesses are not eligible for an Award; small businesses must apply as a whole.

The application of a subsidiary must describe the quality systems for the full range of activities of a complete enterprise. Typical activities include: marketing, purchasing, legal services, human resources, sales and distribution, finance and accounting, product engineering and research and development. In some cases, the applying unit may depend upon other company units or the corporate level for one or more of these activities. Such activities are to be identified by organizational and geographic location, and are to be included in the Application Report in the responses to examination items.

RESTRICTIONS ON ELIGIBILITY

The intent of Public Law 100-107 is to create an Award process incorporating rigorous and objective evaluation of the applicants' total quality systems underlying products and services. This examination is to include site visits to verify descriptions given in the written applications. Customer satisfaction is to play a major role in the examination. Award recipients are to serve as

appropriate models of total quality achievement for other United States companies. Companies or subsidiaries whose businesses are such that they cannot fulfill these purposes are not eligible. Specifically, three restrictions apply:

1. A company or subsidiary is not eligible if more than one-half of the total quality management operations which underlie the products or services it delivers is conducted outside of the United States.

2. A subsidiary is not eligible if its parent company or other subsidiaries of the parent company are the customer(s) for more than one-half of its total products or services.

3. Individual units or groups of units of "chain" organizations (such as hotels, retail stores or restaurants) where each unit performs a similar function, are not eligible. Similarly individual plants or groups of plants within a company where each plant manufacturers similar products are not eligible.

MULTIPLE - APPLICATION RESTRICTIONS

1. A subsidiary and its parent company may not both apply for Awards in the same year.

2. Only one subsidiary of a company may apply for an Award in the same year in the same category.

FUTURE ELIGIBILITY RESTRICTIONS ON AWARD RECIPIENTS

1. If a company receives an Award, the company and all its subsidiaries are ineligible to apply for another Award for a period of five years.

2. If a subsidiary receives an Award, it is ineligible to apply for another Award for a period of five years.

3. If a subsidiary constituting more than one-half of the business of a company receives an Award, neither that company nor any of its other subsidiaries is eligible to apply for another Award for a period of five years.

APPLICATION INSTRUCTIONS

1. APPLICATION FORM. Complete the four-page Application Form.

2. SITE LISTING AND DESCRIPTORS FORMS. Complete the Site Listing and Descriptors Forms if the applicant company has more than one location. Include corporate headquarters in this listing.

3. WRITTEN REPORT. Provide an Application Report addressing the examination items. A Basic Report is required from all applicants. Supplemental Sections are required from some applicants. (See instructions.)

4. TO APPLY. Send 15 copies of the complete application along with the fee payment to:

Malcolm Baldrige National Quality Award
P.O. Box 443
Milwaukee, WI 53201-0443

(Overnight Mailing Address)
310 W. Wisconsin Ave.
Suite 500
Milwaukee, WI 53203

APPLICATIONS MUST BE POSTMARKED OR CONSIGNED TO AN OVERNIGHT MAIL DELIVERY SERVICE BY MAY 5, 1989, to be eligible for the 1989 Awards.

An incomplete application will result in disqualification from the 1989 Award. The Award Office staff is available to answer questions about the application and about eligibility.

STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES

Manufacturing and Products

Code	Sector	Code	Sector
01	Agriculture - crops	25	..iture and fixtures
02	Agriculture - livestock	26	Paper and allied products
08	Forestry	27	Printing and publishing
09	Fishing and hunting	28	Chemicals
10	Metal mining	29	Petroleum refining
12	Coal mining	30	Rubber and plastics
13	Oil and gas extraction	31	Leather and leather products
14	Mineral quarrying	32	Stone/clay/glass/concrete products
15	General building contractors	33	Primary metal industries
16	Heavy construction contractors	34	Fabricated metal products
17	Special trade contractors	35	Machinery/computer equipment
20	Food products	36	Electrical/electronic equipment
21	Tobacco products	37	Transportation equipment
22	Textile mill products	38	Instruments/clocks/optical goods
23	Apparel	39	Miscellaneous manufacturing
24	Lumber and wood products		

Services

Code	Sector	Code	Sector
07	Agricultural services	61	Credit agencies
40	Railroad transportation	62	Security & commodity brokers
41	Local & interurban transport	63	Insurance carriers
42	Trucking and warehousing	64	Insurance agents
44	Water transportation	65	Real estate
45	Air transportation	67	Holding & other investment offices
46	Pipelines/except natural gas	70	Hotels and lodging places
47	Transportation services	72	Personal services
48	Communications	73	Business services
49	Electric/gas/sanitary services	75	Auto repair and services
50	Wholesale trade/durable goods	76	Miscellaneous repair services
51	Wholesale trade/nondurable goods	78	Motion pictures
52	Retail building materials	79	Amusement and recreation
53	General merchandise stores	80	Health services
54	Food stores	81	Legal services
55	Auto dealers & service stations	82	Educational services
56	Apparel and accessory stores	83	Social services
57	Furniture stores	84	Museums and art galleries
58	Eating and drinking places	86	Membership organizations
59	Miscellaneous retail	87	Professional services
60	Banking	89	Miscellaneous services

APPLICATION FORM — INSTRUCTIONS

GENERAL INSTRUCTIONS

Type or very clearly print all information requested. The Application Form may be duplicated and single-sided pages submitted. Item 4 requires an attachment if the applicant is a subsidiary. Applicants must submit an Application Form, including the subsidiary attachment, with each copy of the Application Report submitted.

ITEM INSTRUCTIONS

ITEM 1. APPLICANT. Provide the official name and mailing address of the organization applying for the Award.

ITEM 2. HIGHEST RANKING OFFICIAL. Provide the name, title, mailing address, and telephone number of the applicant's highest ranking official.

ITEM 3. SIZE OF COMPANY. Give the estimated number of employees of the applicant as of the date the application is submitted. Give the number of different sites of all units involved with the products or services sold by the applicant. Separate sites need not be counted for offices or other work areas located near each other if the company considers them as one location for business and personnel purposes. (If there is more than one location, then details about each site, including headquarters, are to appear on the Site Listing and Descriptors Form.) Circle the appropriate range for sales of the company for the preceding fiscal year. The applicant is reminded that all information is confidential and that only a range is being requested to provide an appropriate perspective for the Examiners.

ITEM 4. SUBSIDIARY. A broad interpretation of the word subsidiary is used for purposes of this Award. See page 4. If the applying organization is a component of a larger company, then information about the parent company and the highest official of the parent company must be supplied. A short document or the appropriate page(s) from a company publication showing the organization of the parent company and its relationship to the applying unit should be attached to the application form. Indicate the name of this attachment.

ITEM 5. DESCRIPTION OF PRODUCTS AND SERVICES SOLD. In the space provided, describe the types of products or services sold by the applicant. Indicate the approximate percent each type represents of the applicant's total sales. It is not necessary to list individual products or services.

ITEM 6. AWARD CATEGORY. Based on eligibility discussed on page 4 of the 1989 guidelines, indicate which one of the three Award categories pertains.

ITEM 7. SUPPLIER AND DEALER NETWORKS. Summarize the number and types of suppliers of goods and services needed for the applicant's output. If the applicant relies on external sales organizations, indicate the approximate number of each type.

ITEM 8. INDUSTRIAL CLASSIFICATION. From page 10, choose the three SIC codes which best describe the applicant's products or services.

ITEM 9. REPORT COMPONENTS. Indicate all forms and reports submitted as part of the application.

ITEM 10. OFFICIAL INQUIRY POINT. As the examination proceeds, the administrator may need to contact the applicant for additional information. Give the name, address and telephone number of the corporate official with authority to provide additional information or arrange site visits.

ITEM 11. FEES. Indicate fees due: $2000 for a Basic Report for applicants in the manufacturing category or the service category, plus $1200 for each Supplemental Section; $1200 for an applicant in the small business category. Payment must be submitted with the application.

ITEM 12. RELEASE STATEMENT. Please read this section carefully. A signed application indicates that the applicant agrees to the terms and conditions stated here.

ITEM 13. AUTHORIZING OFFICIAL. The signature of the applicant's highest ranking official is required and indicates the applicant will comply with the terms and conditions stated in the document.

ITEM 14. APPLICATION ABSTRACT. Two pages are provided for a summary of the application. Use a fixed pitch font of 12 or fewer characters per inch or a proportional spacing font of point size 10 or larger in preparing this abstract. Use these two pages only and type within borders provided.

SITE LISTING AND DESCRIPTORS FORM

INSTRUCTIONS

Since the Award focuses on the applicant's total quality system, it is important that the Examiners have a good understanding of the size, structure and functions of the different corporate units. In addition, sufficient information must be provided on the products or services produced at each location to make a sound determination of the number of locations to be examined if the company is selected for a site visit. Instructions for filling out the Site Listing and Descriptors Form follow:

A. ADDRESS OF SITE. Provide the complete address of the site.
B. RELATIVE SIZE. Provide the approximate percent of the applicant's employees at each site. Provide the approximate percent of the applicant's sales accounted for by the output of each site. Use not applicable (N/A) for percent sales of headquarters or similar offices when appropriate.

C. LINKAGE TO APPLICATION REPORT. Indicate which part of the Application Report addresses the examination items for each site. Check the Basic Report column if that is where it is addressed or write the number of the Supplemental Section in which the items are addressed. (See page 16 for guidelines on how to determine if Supplemental Sections are needed.)

D. FUNCTIONAL DESCRIPTION. Describe the types of products or services which are the output of the site. It may be necessary to state the relationship between the output of the site and the applicant's final products and services. It is not necessary to list every product or service.

E. SUMMARIES OF MULTIPLE SITES. In cases where the applicant has many sites performing the same function, these sites may be aggregated under one listing. Instead of the addresses for each, a summary statement about the locations may be made. If site visits are to be conducted, a more detailed listing will be requested at that time.

APPLICATION REPORT — INSTRUCTIONS

OBJECTIVE

The objective of the Application Report is to allow applicants to provide information on quality management of products and services and on results of quality improvement processes and to permit a rigorous evaluation to be performed by the Board of Examiners. Each applicant must prepare an Application Report consisting of (1) a brief overview of the applicant's business and (2) responses to the 44 examination items in the Award Examination. A completed Application Report contains the Basic Report, which all applicants must submit, and one or more Supplemental Sections, which some applicants must submit.

PREPARING THE OVERVIEW

The overview should inform the reader of the business climate in which the applicant operates, the general operating conditions existing in the facilities of the applicant, and the relationship of the applicant to the rest of the industry.

The overview provides the applicant the opportunity to "set the stage" for the examiners to better understand significant circumstances impacting on the applicant's business. The type of equipment and facilities used by the applicant should be described in broad terms. Changes taking place in the industry should be identified, such as changes in production techniques, consolidation of facilities, foreign and domestic competition, distribution channels, or selling price.

The overview should also identify factors in the competitive quality climate that are significant, such as industry-wide upgrading of quality or service, lengthening of warranties, extensive adoption of modern quality techniques or use Just in Time procedures. Where applicable, applicants should describe the regulatory climate in which they operate or the impact of environmental concerns on their activities. The applicant's position in the industry, measured by sales and by quality reputation, should be described. Where this position has changed in recent years, the change should be noted, and apparent reasons for the change described.

If the applicant is a subsidiary, a description of the organizational structure and management links to the parent organization should be presented. A comparison to the parent organization of the number of employees, of the sales volume, and of the products and services offered should be included.

DESCRIPTION OF THE EXAMINATION

The Malcolm Baldrige National Quality Award Examination is intended for manufacturing and service businesses of any size. The examination has been designed to permit evaluation of the strengths and areas for improvement in applicant's quality systems and of quality results. Evaluations do not depend upon an applicant's overall organization or whether or not the applicant has a quality department or quality officer.

The Award Examination addresses all aspects of a total quality management system and quality improvement results through seven categories of examination items. The examination items are grouped under sets of subcategories which represent the principal components of the seven categories. Below is a description of the Award Examination along with general guidance for preparing an Application Report.

CATEGORIES

The seven categories for the Award Examination are:

1.0 - Leadership
2.0 - Information and Analysis
3.0 - Strategic Quality Planning
4.0 - Human Resource Utilization
5.0 - Quality Assurance of Products and Services
6.0 - Quality Results
7.0 - Customer Satisfaction

Each category is assigned a number of points, totaling to 1000 points. Applicants must respond to all seven categories.

SUBCATEGORIES

Each category has from two to seven subcategories—numbered with two digits from 1.1 to 7.3. In all, there are 27 subcategories in the examination. Subcategories represent major areas for management attention for the most general quality system.

EXAMINATION ITEMS

Each subcategory has from one to seven examination items numbered with three digits from 1.1.1 to 7.3.5. In all, there are 44 examination items in the Award examination. All information submitted by applicants is in response to specific requirements given in these examination items. Because the Examination is integrated, with examination items organized by category, applicants are encouraged to become familiar with the emphasis and requirements of all items before responding to any one item.

AREAS TO ADDRESS

Each examination item includes a set of Areas to Address, designated by lower case letters and enclosed within a box alongside the item. The Areas to Address are intended to clarify and illustrate the intent of the item. Most Areas to Address pertain to all businesses. Each applicant is expected to respond to the Areas to Address that pertain to their business. Because the importance of the Areas to Address may differ from business to business, and because they may overlap, applicants should respond to examination items as a whole, addressing them in an order and with an emphasis reflecting the applicant's business and quality system. No separate labeling of Areas is required. In responding to an item, applicants may address relevant areas in addition to those included with the item. If any Areas to Address listed does not pertain to the applicant's business or quality system, the applicant must provide a one or two sentence explanation at the end of the response to the item as to why the Area to Address is not applicable.

CHANGES FROM 1988 EXAMINATION

The 1989 Malcolm Baldrige National Quality Award Examination is built upon the same total quality value system, and uses the same basic approach as the 1988 examination. However, several changes have been introduced based upon comments by applicants and members of the Board of Examiners and upon experiences gained in the first year's processes.

Changes from 1988 include reducing the number of examination items from 62 to 44. This reduction has been brought about by narrowing the scope of each of the seven categories to minimize overlap among them. The seven items requesting information on unique and innovative approaches in the 1988 Examination have been eliminated as separate items. In 1989 applicants are encouraged to integrate and highlight their unique and innovative approaches within their overall responses to the 44 examination items. However, applicants should avoid undue claims for uniqueness and innovation, highlighting their approaches in cases when the evidence for uniqueness and innovation is very well founded, and when the unique contributions should be widely publicized if the applicant receives an Award.

The scoring criteria given under each item in the 1988 Examination are replaced with Areas to Address. In 1989, scoring criteria and a description of the factors in scoring are given separately (see page 17) and pertain to all examination items.

In 1989 there is more emphasis on quantitative approaches, and use of comparative and benchmark data. The term "benchmark," as used in the Examination, refers to measures that represent both appropriate bases for comparison and indicators of the best performance levels anywhere in the world. Benchmarks may apply to attributes of products or services, operating performance, or any other area where a company might seek information to measure itself against the best, worldwide. Thus, appropriate benchmarks may be obtained not only from sources within an industry but also from other industries. In presenting and using comparative and benchmark data, applicant should briefly summarize sources for the data used.

RESPONDING TO EXAMINATION ITEMS

Responses to examination items should be concise, factual, and quantitative. Responses should contain descriptive information and data which show the applicant's approach to defining, measuring, and achieving quality objectives, major gains currently being realized, key trends, and projections for future quality improvements based upon reliable quantitative information. To the maximum extent possible, applicants should provide comprehensive information and data which underscore their total quality approach and results. Use of graphs and tables, properly labeled and compactly presented, is strongly encouraged. Lengthy narratives on specific techniques or on the importance of certain approaches to quality objectives are discouraged.

TREND DATA

Several examination items call for trend data. Trend data should cover a time period sufficient to demonstrate progress, and to show that improvements have been *sustained*. The time period may span five years or more, and in most cases at least two years. This will allow applicants who have set up quality systems in recent years and can demonstrate clear progress to show their early trend results. Data should be presented in graphical, tabular, or other compact form.

USE OF BASIC REPORT AND SUPPLEMENTAL SECTIONS

All applicants must prepare a Basic Report addressing all of the examination items. In order to maintain an equivalent level of detail for all sizes and types of companies and subsidiaries, certain applicants may need to provide Supplemental Sections. Below is an outline of the key factors and guidelines for the Basic Report and Supplemental Sections.

Single or Related Product and Service Lines Served by a Single Quality System. Only the Basic Report is required if the applicant has a single quality system which supports all its product or service lines and if the products or services are essentially similar in terms of customers, technology, types of employees, planning, and quality.

Two or More Diverse Product or Service Lines and/or Dissimilar Quality Systems. In such cases, the Basic Report and one or more Supplemental Sections are required. The Basic Report should encompass the largest aggregation of similar product or service lines as described above which are supported by a single quality system. Together, the Basic Report and the Supplemental Sections must cover all products and/or services and all quality systems of the applicant.

In summary, the use of Supplemental Sections is called for primarily when the application covers units of a company which are in essentially different businesses. They are not necessary when similar products are manufactured in different divisions using similar quality systems.

FORMAT FOR APPLICATION REPORT

The Application Report should contain the same category, subcategory, and item numerical designations as in the examination. The Application Report must be typed on standard 8-1/2 by 11-inch paper using a fixed pitch font of 12 or fewer characters per inch or a proportional spacing font of point size 10 or larger. Pages may be printed on both sides.

The overview of the applicant's business must be no longer than two single-sided pages. A separate two-page overview may be written for each Supplemental Section.

For the manufacturing category and the service category, the Basic Report is limited to a maximum of 75 single-sided pages including pictures, graphs, figures, data tables, and appendices. Supplemental Sections are limited to a maximum of 50 single-sided pages. For Small Businesses the Basic Report is limited to 50 pages. In all cases the two-page overviews, dividers, covers, tab separators, title pages, and tables of contents are not counted as part of the page limit.

The use of bulky binders or similar heavy covers is discouraged. Their use decreases the ease of handling and shipping in all phases of the examination process.

SCORING CRITERIA

INTRODUCTION

The system for scoring examination items is based upon three evaluation dimensions: (1) approach; (2) deployment; and (3) results. All examination items require applicants to furnish information relating to one or more of these dimensions. Specific criteria associated with the evaluation dimensions are described below.

APPROACH

Approach refers to the methods the company uses to achieve the purposes addressed in the examination items. The scoring criteria used to evaluate approaches include one or more of the following:

- the degree to which the approach is prevention based
- the appropriateness of the tools, techniques, and methods to the application
- the effectiveness of the use of tools, techniques, and methods
- the degree to which the approach is systematic, integrated, and consistent
- the degree to which the approach embodies effective self- evaluation, feedback, and adaptation cycles to sustain continuous improvement
- the degree to which the approach is based upon quantitative information that is objective and reliable
- the indicators of unique and innovative approaches, including significant and effective new adaptations of tools and techniques used in other applications c types of businesses

DEPLOYMENT

Deployment refers to the extent to which the approaches are applied to all relevant areas and activities addressed and implied in the examination items. The scoring criteria used to evaluate deployment include one or more of the following:

- the appropriate and effective application to all transactions and interactions with customers, providers of goods and services, and the public
- the appropriate and effective application to all internal processes, activities, facilities, and employees
- the appropriate and effective application to all product and service characteristics

RESULTS

Results refers to outcomes and effects in achieving the purposes addressed and implied in the examination items. The scoring criteria used to evaluate results include one of more of the following:

- the quality levels demonstrated
- the contributions of the outcomes and effects to quality improvement
- the quality improvement gains
- the demonstration of sustained gains
- the breadth of quality improvement gains
- the significance of gains in terms of their importance to the company's business
- the comparison with industry and world leaders
- the company's ability to account for gains in terms of specific quality improvement actions

MALCOLM BALDRIGE
NATIONAL QUALITY AWARD

EXAMINATION CATEGORIES, SUBCATEGORIES AND POINT VALUES

1989 Examination Categories/Subcategories		Maximum Points	Percent of Total
1.0	**LEADERSHIP**	**120**	**12**
1.1	Senior Management	30	
1.2	Quality Values	20	
1.3	Management System	50	
1.4	Public Responsibility	20	
2.0	**INFORMATION AND ANALYSIS**	**60**	**6**
2.1	Scope of Data and Information	25	
2.2	Data Management	15	
2.3	Analysis and Use of Date for Decision Making	20	
3.0	**PLANNING FOR QUALITY**	**80**	**8**
3.1	Planning Process	30	
3.2	Plans for Quality Leadership	50	
4.0	**HUMAN RESOURCE UTILIZATION**	**150**	**15**
4.1	Management	25	
4.2	Employee Involvement	40	
4.3	Quality Education and Training	30	
4.4	Employee Recognition	20	
4.5	Quality of Worklife	35	
5.0	**QUALITY ASSURANCE OF PRODUCTS AND SERVICES**	**140**	**14**
5.1	Design and Introduction of Products and Services	25	
5.2	Operation of Processes	20	
5.3	Measurements and Standards	15	
5.4	Audit	20	
5.5	Documentation	10	
5.6	Quality Assurance of Operations and Business Processes	25	
5.7	Quality Assurance of External Providers of Goods and Services	25	
6.0	**QUALITY RESULTS**	**150**	**15**
6.1	Quality of Products and Services	70	
6.2	Operational and Business Process Quality Improvement	60	
6.3	Quality Improvement Applications	20	
7.0	**CUSTOMER SATISFACTION**	**300**	**30**
7.1	Knowledge of Customer Requirements and Expectations	40	
7.2	Customer Relationship Management	125	
7.3	Customer Satisfaction Methods of Measurement and Results	135	
	TOTAL POINTS	1000	

1989 EXAMINATION

1.0 LEADERSHIP (120 POINTS)

The *Leadership* category examines primarily how the senior executives create and sustain a clear and visible quality value system along with a supporting management system to guide all activities of the company. Also examined are the senior executives' and the company's leadership and support of quality developments both inside and outside the company.

1.1 SENIOR MANAGEMENT

1.1.1 (30 pts.) Describe the senior executives' leadership, personal involvement and visibility in developing and sustaining an environment for quality excellence.

Areas to Address

a. extent of personal involvement in quality-related activities such as planning, assessment and review of quality plans and progress, teams, giving and receiving education and training, recognition of employees, learning about the quality of domestic and international competitors

b. communication of company's quality vision to all levels, functional units, and employees

c. evidence of leadership to reinforce customer satisfaction as the priority company objective and quality as a principal strategy

d. accessibility to and routine contact with employees, customers, and suppliers

e. communication (speeches, publications, interviews) of quality excellence outside the company: suppliers and other providers of goods and services; customers; national, trade, business, and professional groups; community organizations; and schools

NOTE: The term senior executives refers to the highest ranking official of the organization applying for the Award and those reporting directly to that official.

1.2 QUALITY VALUES

1.2.1 (20 pts.) Describe the company's quality values, how they are projected in a consistent manner, and how "ownership" of the values throughout the company was achieved and is reinforced.

Areas to Address

a. written policy, mission, guidelines, other documented statements of quality values, or other bases for clear and consistent communication

b. brief summary of the content of policy, mission, or guidelines that demonstrate the quality values

c. reinforcement and assessment of "ownership" at all levels

d. recent or present actions that demonstrate the status of quality values with respect to other considerations of the business, such as short-term profits and schedules

e. approach to building the policies, mission, and values into the leadership process

1.3 MANAGEMENT SYSTEM

1.3.1 (30 pts.) Describe how the company integrates quality values into day-to-day management of operations.

Areas to Address

a. clearly defined customer satisfaction and quality improvement objectives

b. roles, responsibilities and involvement of all levels of management in quality improvement

c. allocation of resources to quality improvement and awareness

d. formal and informal reviews of status and plans

e. types of actions taken to assist units not achieving quality plans

f. improvement of the quality management process

1.3.2 (20 pts.) Describe how senior management creates and maintains close cooperation across functional and departmental lines and at different business locations to achieve quality objectives.

Areas to Address

a. description of cross-functional management processes such as interdepartmental quality improvement and problem prevention teams

b. steps taken to foster effective cooperation such as use of "internal customer" and user/provider techniques

c. key indicators of improved integration

1.4 PUBLIC RESPONSIBILITY

1.4.1 (20 pts.) Describe how the company extends its quality leadership to the external community and integrates its responsibilities to the public for health, safety, environmental protection, and other areas of business practice into its quality policies and systems.

Areas to Address

a. promoting quality awareness and teaching quality techniques to customers, suppliers, stockholders, and other external groups

b. encouraging employee leadership and involvement in quality activities of professional, local, national, trade, and business groups and in national and international standards activities

c. full integration of public health and safety, environmental protection, and waste management requirements into overall quality policies, systems, and continuous improvement objectives

d. company's leadership in promoting high standards in health, safety, environmental protection, and business ethics

2.0 INFORMATION AND ANALYSIS (60 POINTS)

The *Information and Analysis* category examines the scope, validity, use, and management of data and information that underlie the company's total quality system. Also examined is the adequacy of the data and information to support a prevention-based approach to quality using "management by fact."

2.1 SCOPE OF DATA AND INFORMATION FOR "MANAGEMENT BY FACT"

2.1.1 (25 pts.) Describe the company's information systems used in the management, evaluation, and planning of quality.

Areas to Address
a. scope of data: customers, suppliers, internal operations, quality indicators for products and services, employees, competitive comparisons, benchmarks, safety, and environmental
b. the process of determining those items to be included in the quality-related information systems

NOTE: The purpose of this item is to permit the applicant to demonstrate the breadth and depth of the data assembled as part of its total quality management effort. Applicants should give very brief descriptions of the types of data under major headings such as employees and subheadings such as education and training, teams, and recognition. Under each subheading, give a brief description of the data in the information system. Actual data should not be reported in this item. Such data are requested in Categories 4, 6, and 7.

2.2 DATA MANAGEMENT

2.2.1 (15 pts.) Describe how the company ensures that key data are accurate, timely, and available.

Areas to Address
a. steps to ensure validity
b. steps to ensure timely update
c. consistency and standardization of data
d. access to the information wherever and whenever needed

2.3 ANALYSIS AND USE OF DATA FOR DECISION MAKING

2.3.1 (20 pts.) Describe how data are analyzed for timely identification of opportunities or problems, and used for prevention.

Areas to Address
a. principal approaches to identify opportunities or problems
b. root cause determination
c. design and analysis of countermeasures or remedies to address the root causes
d. follow-up analysis to verify that countermeasures or remedies produce the expected results
e. methods used in the analysis of data, including statistical techniques
f. recent improvements in the use of information for quality management

3.0 STRATEGIC QUALITY PLANNING (80 POINTS)

The *Strategic Quality Planning* category examines the company's planning process for retaining or achieving quality leadership and how the company integrates quality improvement planning into overall business planning. Also examined are the company's short-term and long-term priorities to achieve and/or sustain a quality leadership position.

3.1 PLANNING PROCESS

3.1.1 (30 pts.) Describe the company's overall planning process for short- and long-term quality improvement that will result in its retaining or achieving quality leadership.

Areas to Address
a. relationship of quality planning to overall business planning
b. principal types of data, information, and analyses used in planning
c. inclusion of suppliers, dealers, distributors and other external providers of goods and services in planning and plans
d. selection of well-defined, well-coordinated priority initiatives or projects with associated quality assurance and project review plans
e. commitment of resources to projects
f. integration of continuous improvement activities of all work units into plans
g. employee involvement in planning
h. planning reviews and adjustments including reallocations
i. improvement of the planning process

3.2 PLANS FOR QUALITY LEADERSHIP

3.2.1 (25 pts.) Outline the company's approach to selecting quality-related data for competitive comparison and world-class benchmarks and how it analyzes and uses these data to plan for quality.

Areas to Address
a. basis for selection of criteria for competitive comparisons and world-class benchmarks
b. sources of competitive and benchmark data
c. scope of competitive and benchmark data: product and service quality, business operations, processes, employee-related, customer service, and other
d. types of analyses carried out on competitive comparison and benchmark data to plan for quality
e. principal roles competitive and benchmark data and analyses play in company planning

3.2.2 (25 pts.) Summarize the company's principal quality priorities and plans for the short term (1-2 years) and longer term (3-5 years or more).

Areas to Address
a. principal priorities and their relationship to the company's quality leadership objectives
b. how plans affect suppliers, dealers, distributors, and other external providers of goods and services
c. resources committed to the plan
d. projection of major changes anticipated in the company's competitive quality position based upon implementation of the plan

4.0 HUMAN RESOURCE UTILIZATION (150 POINTS)

The *Human Resource Utilization* category examines the effectiveness of the company's efforts to develop and utilize the full potential of the work force for quality and to maintain an environment conducive to full participation, continuous improvement, and personal and organizational growth.

4.1 MANAGEMENT

4.1.1 (25 pts.) Outline the company's current and future (1-2 years and 3-5 years or more) priorities for improving the utilization of all employees in quality improvement.

Areas to Address
a. integration of human resource plans with quality requirements of business plans
b. key strategies for increasing the effectiveness and productivity of all employee categories, including hourly and bargaining unit employees
c. principal priorities
d. how the company manages, evaluates, and improves its human resource plans
e. management's role in human resource utilization, including seeking feedback from employees

4.2 EMPLOYEE INVOLVEMENT

4.2.1 (20 pts.) Summarize the means available for all employees to contribute to quality improvement.

Areas to Address
a. approaches to enhanced employee authority to act (empowerment)
b. employee recourse in cases of potential quality deficiencies or compromises
c. quality improvement team participation: within functional units, cross-functional, and involving suppliers and other external groups, as appropriate
d. suggestion system or other opportunities for employees to contribute and how the company gives feedback to contributors
e. ease of access by employees to management beyond immediate supervisors
f. how the company encourages employee innovation

4.2.2 (20 pts.) Summarize and assess trends in employee involvement.

Areas to Address
a. suggestion trends, adoption rates, percent of employees making suggestions, and other indicators of contributions from all employee categories
b. team participation--trends and indicators of participation by all employee categories
c. appropriate comparisons and assessment of current levels of involvement
d. how effectiveness and benefits of involvement and empowerment are assessed

NOTE: See page 16 for instructions on how to respond to items requiring trend data.

4.3 QUALITY EDUCATION AND TRAINING

4.3.1 (30 pts.) Summarize for up to 5 years the types of quality education and training received by employees in all employment categories.

Areas to Address

a. approach to deciding what quality education and training is needed

b. quantitative measures of types and extent of quality education and training, including quality orientation of new employees, percent of employees receiving education and training in each category, quality education and training costs per employee, average hours of quality education and training annually for all employee categories

c. employee categories selected to receive special education and training in statistical and other quantitative methods, and rationale for selection

d. methods for application of the knowledge and skills acquired and reinforcement of quality education and training

e. how the effectiveness of quality education and training is evaluated and improved

f. availability and utilization of education and training by suppliers, customers, and other external groups, as appropriate

4.4 EMPLOYEE RECOGNITION

4.4.1 (20 pts.) Describe how the company recognizes employees for contributions to quality improvement and summarize trends in recognition.

Areas to Address

a. types of recognition, including opportunities for peer recognition

b. methods for achieving overall balance--between individual and team recognition, and between individual objectives and organizational objectives

c. how company assesses the effectiveness of types of recognition on motivation

d. data regarding percent of employees and teams recognized in different employee categories by type of recognition

4.5 QUALITY OF WORKLIFE

4.5.1 (15 pts.) Describe how the company safeguards the health and safety of employees, ensures comfort and physical protection, and maintains a supportive work environment.

Areas to Address

a. analysis of root causes of accidents and work-related health problems and prevention of adverse conditions

b. inclusion of quality of worklife factors such as health, safety, satisfaction, well-being, morale and ergonomics in quality assurance and quality improvement activities

c. mobility, flexibility, and retraining in job assignments, e.g., when changes in technology or work processes result in elimination of some jobs

d. counseling and employee assistance

e. how employee satisfaction and the principal factors that contribute to it are determined

f. employee feedback on quality-related aspects of the company's operations

4.5.2 (20 pts.) Summarize trends in employee well-being and morale.

Area to Address
Trends and comparisons with industry averages, industry leaders, and others as appropriate in:
a. safety
b. attendance
c. turnover
d. morale and satisfaction indicators

5.0 QUALITY ASSURANCE OF PRODUCTS AND SERVICES (140 POINTS)

The *Quality Assurance of Products and Services* category examines the systematic approaches used by the company for total quality control of goods and services based primarily upon process design and control, including control of procured materials, parts, and services. Also examined is the integration of quality control with continuous quality improvement.

5.1 DESIGN AND INTRODUCTION OF NEW OR IMPROVED PRODUCTS AND SERVICES

5.1.1 (25 pts.) Describe how new or improved products and services are defined, designed and introduced to meet customer requirements and how processes are designed to produce these products and services.

Areas to Address
a. conversion of customer needs and expectations to product, process, and service specifications
b. methods and their applications for the design, development, and validation of products, processes, and services, including testing and evaluation
c. design review taking into account factors such as safety, health, environment, process reliability, product reliability, measurements, and standards
d. detailed control plan: selecting and setting key process characteristics to be controlled and how they are to be controlled
e. steps taken to minimize introduction time and to ensure compatibility among design, supplied parts and services, manufacture, sales and service

5.2 OPERATION OF PROCESSES WHICH PRODUCE THE COMPANY'S PRODUCTS AND SERVICES

5.2.1 (20 pts.) Describe how the processes which produce the company's products and services are controlled, optimized, and maintained.

Areas to Address
a. determination, evaluation and improvement of capabilities of key process characteristics
b. system for detecting, correcting and preventing upsets of key process characteristics
c. optimization of process performance, including design of experiments
d. assurance of process reliability and availability

5.3 MEASUREMENTS AND STANDARDS FOR PRODUCTS, PROCESSES AND SERVICES

5.3.1 (15 pts.) Describe how the accuracy of measurements used in quality control is assured.

Areas to Address
a. determination of measurement variability (precision and bias) in relation to measurement requirements
b. measurement method validation to ensure capability to meet measurement requirements
c. measurement quality assurance
d. standardization within the company to ensure compatibility

NOTE: Measurements include both on-line and off-line measurements. For physical and chemical measurements used in laboratories and in production, indicate approaches to ensuring that measurements are traceable to national standards, for example, through calibrations, reference materials, or other means.

5.4 AUDIT

5.4.1 (10 pts.) Describe audit and other evaluation methods used to assess the performance of the system for assuring the quality of products and services. (system audit)

Areas to Address
a. types and frequency of system audits and who conducts them: company, customers, government, other
b. what is included in system audits
c. approach to translating audit findings into system improvements

5.4.2 (10 pts.) Describe methods used to assess the quality of products and services. (product or service audit)

Areas to Address
a. types and frequency of product and service audits
b. other approaches used to assess product and service quality
c. approach to translating audit findings into process improvements

5.5 DOCUMENTATION

5.5.1 (10 pts.) Describe documentation and other modes of "knowledge preservation" and transfer to support quality assurance and quality improvement.

Areas to Address
a. documentation system supporting quality assurance, including types of documents and activities covered
b. company standardization--ensuring consistency of operating practices among facilities, where appropriate
c. timely update to keep pace with changes in technology, practice and quality improvement
d. revision and data retention policy; disposal of obsolete documents

5.6 QUALITY ASSURANCE OF OPERATIONS AND BUSINESS PROCESSES

5.6.1 (25 pts.) Describe how the quality of internal support functions and business processes is assured.

Areas to Address
a. how internal product and service standards are set for functions such as research and development, finance and accounting, plant and facilities management, marketing, sales, product service, personnel, and administrative support
b. principal means for quality assurance
c. how quality improvement is assessed; types and frequencies of reviews

5.7 QUALITY ASSURANCE OF EXTERNAL PROVIDERS OF GOODS AND SERVICES

5.7.1 (25 pts.) Describe how the quality of materials, components, products and services purchased from or provided by other businesses is assured.

Areas to Address
a. approach to verification that the company's quality requirements are being met by suppliers, dealers, distributors, and other external providers of goods and services
b. selection, long-term relationships, numbers of suppliers, contractors, and other external providers of goods and services
c. audits, inspections and certification programs
d. recognition programs, education and training, and other assistance

6.0 QUALITY RESULTS (150 POINTS)

The *Quality Results* category examines quality levels and quality improvement based upon objective measures derived from analysis of customer requirements and expectations and from analysis of business operations. Also examined are current quality levels in relation to those of competing firms.

6.1 QUALITY OF PRODUCTS AND SERVICES

6.1.1 (40 pts.) Based upon key product and service quality measures derived from customers needs and expectations, summarize trends in improvement.

Areas to Address
a. trends in key product and service quality measures
b. other objective measures of improved quality
c. connections between quality improvement results and improvement projects or initiatives

NOTE: Key product and service quality measures are the set of principal measurable characteristics of products and services, including delivery and after-sales services, which, taken together, best represent the factors that determine customer satisfaction. Examples include measures of accuracy, reliability, timeliness, performance, behavior, delivery, documentation and appearance.

6.1.2 (30 pts.) Based upon key product and service quality measures derived from customer needs and expectation, compare the company's current quality levels and trends with industry averages, industry and world leaders.

Areas to Address
a. bases for comparison such as independent reports, analyses, company's evaluations
b. current quality level comparisons
c. trends and current levels and their significance in terms of the company's quality leadership plans

6.2 OPERATIONAL AND BUSINESS PROCESS QUALITY IMPROVEMENT

6.2.1 (30 pts.) Based upon key measures of operating quality, summarize trends in quality improvement and compare the company's operating quality levels with competitors and benchmarks.

Areas to Address
a. trends in key operating quality measures for production activities and for internal support for services
b. trends in key operating quality measures for functions such as research and development, finance, plant and facilities management, marketing, sales, product service, personnel and administrative support
c. comparisons with industry and world leaders
d. connection between quality improvement results and improvement projects

NOTE: Key measures of operating quality are the set of principal measurable characteristics of business processes such as use of people, supplies, energy, and capital reflected in lead times, yields, waste, inventory levels, rework of products and services, first-time success rates, environmental improvements, and other indicators.

6.2.2 (30 pts.) Based upon key measures of product and service quality, summarize trends in improvement in quality of supplies and services furnished by other companies.

Areas to Address
a. trends in key indicators of improvement in quality of supplies and services
b. brief explanation of significant changes in terms of the company's quality improvement projects or initiatives
c. highlight awards the company's suppliers and service providers have received, and the role the company played in helping them improve their quality

6.3 QUALITY IMPROVEMENT APPLICATIONS

6.3.1 (20 pts.) Summarize briefly three applications or projects that illustrate the breadth and effectiveness of the company's quality improvement activities. Select applications or projects not included elsewhere in the company's Award submission.

Areas to Address
Format for application summaries:
a. reason for the application or project
b. number and type of employees and teams involved
c. improvement approaches and techniques
d. results and their impact
e. how improvements are standardized

7.0 CUSTOMER SATISFACTION (300 POINTS)

The *Customer Satisfaction* category examines the company's knowledge of the customer, overall customer service systems, responsiveness, and its ability to meet requirements and expectations. Also examined are current levels and trends in customer satisfaction.

7.1 KNOWLEDGE OF CUSTOMER REQUIREMENTS AND EXPECTATIONS

7.1.1 (40 pts.) Describe how the company determines current and future customer needs and expectations.

Areas to Address
a. process for identifying customer constituencies, potential customers, and their needs and expectations through interviews, surveys, and other contacts
b. other key data and information used in determining needs and expectations
c. frequency, duration, objectivity, and depth of data collection including roles and responsibilities
d. types of analyses performed on data and information
e. segmentation by product and service features to determine the relative importance of these features
f. how the company evaluates and improves the effectiveness of its determination of customer needs and expectations

7.2 CUSTOMER RELATIONSHIP MANAGEMENT

7.2.1 (20 pts.) Describe how the company provides customer service and ensures its continuous improvement.

Areas to Address
a. integration of customer service with overall management
b. ensuring easy access by customers such as toll-free phone numbers for comments, assistance, and reactions
c. tracking system to ensure service responsiveness such as meeting response time and other key standards
d. service and product follow-up and analysis
e. empowering customer-contact employees to resolve problems and to take extraordinary measures when appropriate
f. technology support for customer-contact employees
g. special training, recognition, and attitude/morale determination of customer-contact employees
h. process for improving customer service

7.2.2 (20 pts.) Describe the company's customer service/contact standards, and how they are set and modified.

Areas to Address
a. customer service/contact features for which standards are set
b. deployment in all departments to ensure support for customer service/contact
c. verification that service/contact standards are being followed
d. evaluation and improvement of standards
e. employee involvement in developing, evaluating and improving or changing standards

7.2.3 (20 pts.) Describe the company's commitments to customers on its explicit and implicit promises underlying its products and services.

Areas to Address

a. guarantees and warranties: comprehensiveness, conditions, understandability, and credibility

b. other types of commitment and their meaning

c. changes during the past 3 years in warranties, guarantees, and other commitments made by the company related to improved quality

d. comparison of commitments with those of competitors, including significant relative changes

7.2.4 (25 pts.) Summarize trends in honoring commitments and in improving customer relationships.

Areas to Address

a. trends in key indicators of commitment such as field service, returns, refunds, replacements, repair, repeat services, responsiveness, warranties, and guarantees

b. explanation of trends in terms of changes in commitments and quality of products and services

c. trends in key indicators of success in improving customer-relationships and service/contact standards

7.2.5 (10 pts.) Describe the company's complaint-management system and how it operates.

Areas to Address

a. coordination of complaints made to different parts of the company for central review and analysis

b. ensuring easy access for customers to complain

c. active complaint and customer feedback solicitation

d. ensuring that most complaints are resolved promptly by customer-contact employees

e. analysis to understand market consequences of unresolved complaints for policy review

f. process used to improve the complaint-management system

7.2.6 (10 pts.) Describe how the company analyzes complaints and translates them into preventive actions.

Areas to Address

a. complaint analysis process for root cause determination

b. dissemination of complaint information and analysis to relevant departments for prevention

c. improvement of standards, processes, procedures, systems, or instructions and information for customers

7.2.7 (20 pts.) Summarize and explain the company's complaint trends.

Areas to Address

a. complaint trends with explanation of significant changes

b. changes in resolution approaches and resolution times

c. correlation of retention of customers with complaints and complaint resolution

7.3 CUSTOMER SATISFACTION METHODS OF MEASUREMENT AND RESULTS

7.3.1 (25 pts.) Describe the company's methods for determining customer satisfaction.

Areas to Address
a. selection of key indicators of satisfaction
b. type and frequency of methods used
c. procedures used to ensure objectivity and validity of data
d. segmentation by customer type, if appropriate
e. methods used to analyze customer satisfaction data
f. translation of customer satisfaction information into quality improvement activities

7.3.2 (30 pts.) Briefly summarize the company's customer satisfaction trends.

Areas to Address
a. trends in customer satisfaction indicators and significance of the trends in terms of improvements in the company's product and service quality
b. trends in adverse indicators such as claims, recalls, returns, liability judgments. Briefly describe how major issues were resolved or current status.
c. trends in compliance with federal, state, and local health, safety, and environmental regulations. Briefly describe how major issues were resolved or current status.

7.3.3 (30 pts.) Compare the company's customer satisfaction results with those of competitors in similar markets.

Areas to Address
a. comparison with industry averages, industry and world leaders, as appropriate. Give bases for comparison.
b. surveys, competitive awards, recognition and ratings by independent organizations. Briefly explain surveys, awards, recognition, and ratings.

7.3.4 (20 pts.) Describe how the company monitors gains and losses of customers and analyzes this information for quality improvement.

Areas to Address
a. ensuring validity and objectivity of monitoring methods
b. identification of key product and service features that determine customer retention
c. translation into quality improvement

7.3.5 (30 pts.) Summarize the company's trends in gaining and losing customers.

Areas to Address
a. turnover/retention data and indicators
b. gains and losses relative to size of markets
c. sources of gains: referrals, exports, product and service improvement
d. sources of losses: dissatisfied customers, competition, price, other

Department of Business Economics

APPENDIX 22

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Private Bag 3, WITS 2050, South Africa • Telegrams 'Univits' • Telex 4-27126SA • Telephone (011) 716-1111

5419

23.08.90

Dear

PILOT STUDY ON TOTAL QUALITY MANAGEMENT

May I take this opportunity of thanking you and your staff very much for agreeing to participate in this pilot study. Your co-operation and assistance are very much appreciated.

The purpose of this study is to gain an insight into the extent to which the principles of total quality management are applied in a particular manufacturing industry.

I would appreciated it if you would distribute the questionnaires and covering letters in the manner agreed vis: to executive and functional management.

Should you have any problems with the questionnaires, please do not hesitate to contact me at 011 - 716-5419/5561.

Please could you keep all completed questionnaires at your office, and I will make arrangements to collect them.

Thanking you in anticipation.

Yours sincerely

MATTHEW GROSSETT

The University of the Witwatersrand rejects racism and racial segregation. It is committed to non-discrimination particularly in the constitution of its student body, in the selection and promotion of its staff, and in its administration.

INSTRUCTIONS TO PILOT STUDY PARTICIPANTS

1. Please will you answer the Questionnaire

2. Please will you write any critisim you have of either the covering letter or the questionnaire on the document concerned.

3. The attatched sheet, marked APPENDIX-A, provides an explanation of the issues which are adressed by the accompanying section in the questionnaire. Please consider the extent to which the issues identified in APPENDIX-A are adressed by the corresponding questions in the questionnaire.

4. Ather aspects to consider include:

structure
lack of clarity/understanding
grammar/spelling
time to complete
relevance
relevance/applicability of questions
etc

MATTHEW GROSSETT JULY 1990

Department of Business Economics

APPENDIX 23

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG
Private Bag 3, WITS 2050, South Africa • Telegrams 'Uniwits' • Telex 4-27125SA • Telephone (011) 716-1111

5419

23.08.90

Dear

TOTAL QUALITY MANAGEMENT SURVEYS

May I take this opportunity of thanking you very much for the time which you have given up to provide me with an insight into quality assurance within your organisation. Your co-operation and assistance are much appreciated.

As you are no doubt aware, quality is very important in your industry. In the industry in which you are employed, as in may others, quality plays an important role in determining the success of the organisation. Where products are perceived by customers to be inferior in quality, their is little chance that they will sell. The purpose of this study is to collect information on the quality improvement practices employed in your organisation.

As you work through the questionnaire you will find some sections which ask questions about yourself, while in others you are asked your opinion. For these opinion questions there are no right or wrong answers. What is important is to know just what you think. Your answers can be completely frank. Your name will not appear anywhere on the questionnaire. The questionnaire will take you about fifteen minutes to complete.

On completion of the questionnaire, please place it in the envelope provided and seal it. Completed questionnaires are to be handed in at the quality assurance department manager before the end of the month.

Thanking you in anticipation.

Yours sincerely

MATTHEW GROSSETT

The University of the Witwatersrand rejects racism and racial segregation. It is committed to non-discrimination particularly in the constitution of its student body, in the selection and promotion of its staff, and in its administration.

APPENDIX-14

TABLE 14.2. RESPONSES BY FREQUENCY (#) AND PERCENT (%)

COMPANY	QUESTION	STRONGLY AGREE		AGREE		NEITHER AGREE NOR DISAGREE		DISAGREE		STRONGLY DISAGREE	
		#	%	#	%	#	%	#	%	#	%
BMW	IV.H	1	9.1	1	9.1	6	54.6	3	27.3	0	0
	IV.I	5	45.5	4	36.4	2	18.2	0	0	0	0
DELTA	IV.H	16	84.3	2	10.5	1	5.2	0	0	0	0
	IV.I	16	84.3	2	10.5	1	5.2	0	0	0	0
NISSAN	IV.H	8	53.3	4	27.7	2	13.3	1	6.7	0	0
	IV.I	7	46.7	4	26.7	3	20	1	6.7	0	0
SAMCOR	IV.H	2	7.7	4	15.4	11	42.3	9	34.6	0	0
	IV.I	10	38.5	9	34.6	6	23.9	1	3.8	0	0
TOYOTA	IV.H	29	87.9	3	9.1	1	3.1	0	0	0	0
	IV.I	29	87.9	3	9.1	1	3.1	0	0	0	0
VW	IV.H	1	7.7	2	15.3	10	77	0	0	0	0
	IV.I	8	61.5	4	30.8	1	7.7	0	0	0	0

Department of Business Economics

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..ivate Bag 3, WITS 2050, South Africa · Telegrams 'Univits' · Telex 4-27125SA · Telephone (011) 716-1111

5419

23.08.90

To whom it may concern

PUBLICATION OF RESEARCH FINDINGS

I would like to express my appreciation to you for your assistance with the research project for my M.Com. degree at this university.

I agree with your stipulation that I will not publish any of my research findings with regard to your organisat'·n, other than for examination purposes, without your prior pe..mission.

Yours faithfully

MATTHEW GROSSETT

The University of the Witwatersrand rejects racism and racial segregation. It is committed to non-discrimination particularly in the constitution of its student body, in the selection and promotion of its staff, and in its administration.

APPENDIX 24

TOTAL QUALITY MANAGEMENT SURVEY - (EXECUTIVE MANAGEMENT)

THIS SURVEY WILL BE TREATED IN CONFIDENCE

INSTRUCTIONS:

* Where the nature of the question requires that the answer be indicated on a scale, please indicate YOUR answer by making a cross at the relevant place on the scale. For example:

Q. It is wrong to steal company secrets?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

* Where the answer requires a yes (Y) or no (N) or don't know (D) response, simply cross the relevant answer. For example:

Q. Most humans have two (2) legs? ..... Y N D

I.

A. Does your company have a formal quality policy? ..... Y N D

B. If YES, does this policy contain:
(i) a brief statement of corporate intent as to quality ..... Y N D
(ii) the minimal actions to be taken by company divisions with respect to quality ..... Y N D
(iii) Interdivisional relationships concerning quality ..... Y N D
(iv) relationships of quality policies to other company policies ..... Y N D

C. Have you signed a copy of this policy? ..... Y N D

D. Have all the major departments in your organisation drawn up their own more detailed quality policy based on the organisation-wide policy? ..... Y N D

E. If YES, do these policies specifically indicate expected quality responsibilities? . Y N D

F. In YOUR definition of quality, which of the following concepts are included?
(i) conformance to requirements ..... Y N D
(ii) quality is intangible ..... Y N D
(iii) quality is an organisation-wide concept ..... Y N D
(iv) producing a quality product involves both quality of design and quality of conformance ..... Y N D
(v) other .....
.....
.....
.....

F. Do you and your subordinates have access to a quality manual which explains expected quality responsibilities, quality procedures and quality expectations? ..... Y N D

G. When deciding what constitutes a quality product, customer requirements must be known.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

N. When deciding what constitutes a quality product, production specifications must be known.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

II.

A. Do YOU know what the key quality requirements of your customers are? ..... Y N D

B. If YES, how are those requirements made known to you?
(i) from survey results given to us ..... Y N D
(ii) other .....
.....

C. I consider the following people to be my customers?
(i) my subordinates ..... Y N D
(ii) the people who buy our cars ..... Y N D
(iii) I don't have any ..... Y N D

III.

A. Who is responsible for quality in your organisation?
(i) individual departments.

0% 20% 40% 60% 80% 100%

(ii) the central quality department?

0% 20% 40% 60% 80% 100%

(iii) other. (please specify) .....
.....
.....
.....
.....
.....

B. If an employee detects a quality problem on the production line, does he have the authority to stop the production line?..... Y N D

IV.

A. How often do YOU participate in quality team meetings in other departments in the organisation?

0% 20% 40% 60% 80% 100%

B. Do you personally ever give your subordinate management training on quality? ..... Y N D

C. If YES, how often?

Weekly	Two-weekly	Monthly	Six-monthly	Yearly

D. I consider quality to be on a par with other organisational functions, such as finance?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

E. I involve subordinate management in my decision-making wherever possible?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

F. I appraise subordinate management on their willingness and ability to involve their subordinates in the decision-making process?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

G. I appraise subordinate management on their success in improving quality in their departments?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

H. In setting goals, do you insist on subordinates setting quality goals, in addition to quantity goals?

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

V.

A. Does your organisation calculate a cost of quality in monetary terms? ..... Y N D

IF YES, ANSWER QUESTION B. IF NO, PROCEED TO QUESTION C.

B. Which of the following elements are included in your organisations calculation of the cost of quality?

(i) prevention costs, incurred in preventing defects from occurring, such as quality audits; preventative maintenance; design reviews etc? ..... Y N D

(ii) appraisal costs, used to determine conformance to requirements or specification? ..... Y N D

(iii) failure costs: the costs incurred as a result of things not conforming to requirements the first time? ..... Y N D

C. Who calculates the cost of quality?

(i) the accounting department ..... Y N D

(ii) the quality department ..... Y N D

(iii) your department itself ..... Y N D

(iv) other (please specify) .....
.....
.....
.....
.....

D. Is the cost of quality made known for all members of your organisation to see? ..... Y N D

E. If YES, how?

(i) graphically ..... Y N D

(ii) in writing ..... Y N D

(iii) verbally ..... Y N D

F. How often is the cost of quality calculated?

Daily	Weekly	Two-weekly	Monthly	Quarterly	Half-yearly

G. Does your organisation monitor its employees attitudes on quality? ..... Y N D

H. If YES, how often are such attitude surveys undertaken?

Monthly	Quarterly	Half-yearly	Yearly

I. In these surveys, are:
(i) trends regarding employee attitudes towards quality monitored ..... Y N D
(ii) levels of employee understanding of the quality improvement process monitored ..... Y N D

VI.

A. Are you a member of some form of Quality Improvement Team? ..... Y N D

IF YES, ANSWER QUESTIONS B - L. IF NO, MOVE TO QUESTION M.

B. What is the size of the team which you belong to?

4	5	6	7	8	9	10	11	12	13	14	15	16	17

C. Are the members of your team from the same work area? ..... Y N D

D. Who is the leader your team?
(i) the team supervisor/manager ..... Y N D
(ii) a shop steward ..... Y N D
(iii) an elected member ..... Y N D

E. How is the team leader appointed?
(i) elected by fellow team members ..... Y N D
(ii) appointed by senior management ..... Y N D
(iii) other (please specify) .....
.....
.....
.....

F. How often does your team meet?

Daily	Weekly	Two-weekly	Monthly

G. To what extent does your team have the authority to decide what quality problems to investigate?

0% 20% 40% 60% 80% 100%

additions:.....
.....
.....
.....
.....
.....
.....

H. Does your team have the authority to implement solutions to identified problems without any conditions? ..... Y N D

I. Is your quality improvement team guided by a central steering committee? ..... Y N D

J. If NO, from where do they receive their direction?
(i) upper management ..... Y N D
(ii) the quality department ..... Y N D

K. Does your organisation have cross-functional quality improvement teams? ..... Y N D

L. If NOT, how does it maintain cross-functional quality improvement? .....
.....
.....
.....
.....
.....

M. Are the members of your organisation given training aimed specifically at quality improvement? ..... Y N D

N. In which of the following areas is training provided?

(i)	job skills	Y	N	D
(ii)	problem-solving tools	Y	N	D
(iii)	statistical process control	Y	N	D
(iv)	importance of meeting specifications.	Y	N	D
(v)	interpersonal relations	Y	N	D

O. Is the training: (i) ongoing ..... Y N D
(ii) once-off ..... Y N D
(iii) provided as needed ..... Y N D

P. Do you recognise your subordinates for contributions to quality improvement? ..... Y N D

Q. If YES, what form of recogaition is provided?

(i)	financial	Y	N	D
(ii)	non-financial	Y	N	D

R. Are your subordinates provided with incentives to participate in quality improvement?..... Y N D

S. If YES, what type of incentives are provided?
(i) financial: ..... Y N D
If YES, please specify: .....
.....
.....
(ii) non-financial: ..... Y N D
if YES, please specify: .....
.....
.....

APPENDIX 25

Matthew Grossett
Dept. Business Economics
Wits
2050

Dear Participant

RE: TOTAL QUALITY MANAGEMENT SURVEY. INSTRUCTIONS TO PILOT STUDY PARTICIPANTS

Please note that this questionnaire is composed of SIX sections. The are to be adressed by each section is described below. While completing the questionnaire, please pay attention to whether the questions in each section do in fact address the areas they are intended to.

Section 1 - This section is designed to identify two elements of the quality improvement process: (i) the extent of the respondents understanding of what constitutes a quality product, and (ii) whether the organisation has a specific quality policy and the extent to which this policy has been distributed to management.

Section 2 - This section is designed to identify the importance which management attach to customer requirements as a component of quality. A further important objective of this section is to identify the extent to which management are aware of the requirements of their customers.

Section 3 - This section is designed to identify the extent to which the responsibility for quality has been decentralised or to the point of production.

Section 4 - The purpose of this section is to shed some light on the management style being adopted in the various plants.

Section 5 - The purpose of this section is to investigate the level of understanding and utilisation of the cost of quality in the various plants.

Section 6 - The purpose of this section is to investigate the effectiveness of the organisations efforts to develop and involve the work force in the quality improvement process. Included is an investigation of the extent and nature of employee involvement in quality improvement, recognition for achievements in the quality field and the nature and extent of quality education provided.

Thank you for your participation.

MATTHEW GROSSETT

Author: Grossett Matthew Jon.
Name of thesis: Total quality management in the South African motor industry.

PUBLISHER:
University of the Witwatersrand, Johannesburg
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