

Communities ID Cards

This document gather the “ID Cards” of the CC communities found within your database.

The CC network was built by keeping a link between articles sharing at least 5 references. The communities characterized here correspond to the ones found in the level 1 (in the sense of the Louvain algo) which gathers more than 0 articles.

These ID cards displays the most frequent keywords, subject categories, journals of publication, institution, countries, authors, references and reference journals of the articles of each community. The significance of an item $\sigma = \sqrt{N}(f - p) / \sqrt{p(1 - p)}$ [where N is the number of articles within the community and f and p are the proportion of articles respectively within the community and within the database displaying that item] is also given (for example $\sigma > 5$ is really highly significant). The tf-idf value which can be calculated by $tf - idf = f * \log(1/p)$ is also given.

Table 1: The community 1 - “QUALITY MANAGEMENT” contains $N = 17$ articles. Its average internal link weight is $\langle \omega_{in} \rangle \simeq 1/8$

Keyword	f(%)	tf-idf
QUALITY MANAGEMENT	36.44	0.53
EMPIRICAL RESEARCH	22.60	0.44
QUALITY	11.02	0.29
PERFORMANCE	11.86	0.28
TQM	6.21	0.21
TOTAL QUALITY MANAGEMENT	7.63	0.21
SUPPLY CHAIN MANAGEMENT	7.34	0.20
ISO 9000	4.24	0.16
INTERDISCIPLINARY	3.95	0.15
OPERATIONS STRATEGY	4.80	0.15
CONTINGENCY THEORY	5.37	0.15
ORGANIZATIONAL PERFORMANCE	3.95	0.14
CONTINGENCY RESEARCH	4.24	0.14
STRUCTURAL EQUATION MODELING	4.24	0.14
EMPIRICAL RESEARCH METHODS	4.24	0.13
SIX SIGMA	4.80	0.13
ELECTRONICS INDUSTRY	3.11	0.13
MANUFACTURING STRATEGY	3.95	0.13
PURCHASING	3.11	0.12
TECHNOLOGY MANAGEMENT	3.11	0.12
Subject	f(%)	σ
Operations Research & Management Science	100.00	0.00
Management	82.09	6.60
Engineering, Manufacturing	17.91	-6.60
Journal	f(%)	σ
J OPER MANAG	80.44	10.60
PROD OPER MANAG	17.91	-6.60
M&SOM-MANUF SERV OP	1.65	-6.42

Institution	f(%)	σ
DEPT MANAGEMENT	8.26	36.90
UNIV MINNESOTA	6.06	36.98
CARLSON SCH MANAGEMENT	4.68	36.39
COLL BUSINESS ADM	3.86	23.17
ARIZONA STATE UNIV	2.75	19.97
DEPT SUPPLY CHAIN MANAGEMENT	2.48	20.15
MICHIGAN STATE UNIV	2.48	13.94
OHIO STATE UNIV	2.48	19.25
FISHER COLL BUSINESS	2.20	18.08
COLL BUSINESS	2.20	11.36
OPERAT & MANAGEMENT SCI DEPT	2.20	26.18
LONDON BUSINESS SCH	1.93	22.87
WP CAREY SCH BUSINESS	1.93	16.82
DEPT MKT & SUPPLY CHAIN MANAGEMENT	1.65	13.29
RENSSELAER POLYTECH INST	1.65	21.81
HONG KONG POLYTECH UNIV	1.65	17.52
SCH MANAGEMENT	1.65	7.67
SCH BUSINESS	1.65	8.86
GEORGIA INST TECHNOL	1.38	9.20
UNIV NOTRE DAME	1.38	14.54
Country	f(%)	σ
Usa	30.85	44.09
Canada	3.03	13.61
England	3.03	19.26
Peoples r china	3.03	14.86
Spain	1.65	15.23
Portugal	1.38	22.65
Australia	0.83	10.15
South korea	0.83	9.39
Italy	0.55	8.18
Singapore	0.55	4.38
Author	f(%)	σ
Schroeder RG	13.77	16.23
Linderman K	7.44	11.05
Yeung ACL	6.06	13.15
Sousa R	5.51	17.03
Zhang DL	4.41	16.77
Voss CA	4.13	13.22
Nair A	3.86	7.28
Hartley JL	3.58	9.85
Cheng TCE	3.58	6.35
Lai KH	3.31	9.02

Reference	f(%)	σ
Flynn B B, 1994, Journal of Operations Management (11), 0	63.64	405.61
Powell TC, 1995, STRATEGIC MANAGE J (16), 15	56.47	385.14
Dow D, 1999, PROD OPER MANAG (8), 1	47.38	395.54
Samson D, 1999, J OPER MANAG (17), 393	46.56	384.70
Flynn BB, 1995, DECISION SCI (26), 659	46.28	353.98
Ahire SL, 1996, DECISION SCI (27), 23	39.94	299.11
Saraph JV, 1989, DECISION SCI (20), 810	35.54	309.28
Choi TY, 1998, J OPER MANAG (17), 59	33.88	334.58
Hendricks KB, 1997, MANAGE SCI (43), 1258	33.61	332.60
Kaynak H, 2003, J OPER MANAG (21), 405	31.96	309.30
Dean JW, 1994, ACAD MANAGE REV (19), 392	30.58	290.73
Benson PG, 1991, MANAGE SCI (37), 1107	29.48	336.83
Anderson JC, 1995, DECISION SCI (26), 637	28.93	296.02
Anderson JC, 1994, ACAD MANAGE REV (19), 472	28.37	252.38
Hackman JR, 1995, ADMIN SCI QUART (40), 309	27.00	248.09
Sitkin SB, 1994, ACAD MANAGE REV (19), 537	26.72	259.65
Hendricks KB, 2001, J OPER MANAG (19), 269	26.17	314.14
Sousa R, 2002, J OPER MANAG (20), 91	25.90	339.75
Sousa R, 2001, PROD OPER MANAG (10), 383	25.07	276.73
Ahire SL, 2000, J OPER MANAG (18), 549	23.69	286.59
Black SA, 1996, DECISION SCI (27), 1	22.87	265.20
Deming WE, 1986, OUT CRISIS (0), 0	22.59	194.43
Easton GS, 1998, J BUS (71), 253	21.21	258.87
Douglas TJ, 2001, ACAD MANAGE J (44), 158	21.21	270.80
Das A, 2000, DECISION SCI (31), 649	20.39	244.85
RefJournal	f(%)	σ
J OPER MANAG	36.36	73.62
MANAGE SCI	31.68	45.89
DECISION SCI	30.30	69.99
ACAD MANAGE REV	29.20	70.82
Journal of Operations Management	27.00	82.24
STRATEGIC MANAGE J	25.90	63.71
J OPERATIONS MANAGEM	25.62	67.43
HARVARD BUS REV	25.34	52.77
ACAD MANAGE J	25.07	64.47
PROD OPER MANAG	23.14	43.03

Table 2: The community 0 - “LEAN PRODUCTION” contains $N = 15$ articles. Its average internal link weight is $\langle \omega_{in} \rangle \simeq 1/16$

Keyword	f(%)	tf-idf	Institution	f(%)	σ	Reference	f(%)	σ
LEAN PRODUCTION	11.61	0.35	DEPT MANAGEMENT	8.41	29.63	Shah R, 2003, J OPER MANAG (21), 129	43.81	318.89
CONTINGENCY THEORY	7.59	0.21	COLL BUSINESS	6.64	28.05	Cua KO, 2001, J OPER MANAG (19), 675	41.15	317.53
SUPPLY CHAIN MANAGEMENT	7.14	0.20	UNIV MINNESOTA	5.75	27.67	Fornell C, 1981, J MARKETING RES (18), 39	26.11	93.95
BEST PRACTICE	5.80	0.19	CARLSON SCH MANAGEMENT	5.31	32.60	Fullerton RR, 2003, J OPER MANAG (21), 383	24.78	262.79
PERFORMANCE	8.04	0.19	COLL BUSINESS ADM	5.31	25.34	Sakakibara S, 1993, Production and Operations Management (2), 0	24.34	233.01
PROCESS IMPROVEMENT	4.91	0.17	MICHIGAN STATE UNIV	3.54	15.92	Sakakibara S, 1997, MANAGE SCI (43), 1246	23.89	194.77
COMPLEXITY	4.02	0.16	SCH BUSINESS	3.10	13.54	Flynn B B, 1994, Journal of Operations Management (11), 0	22.12	110.97
EMPIRICAL RESEARCH	8.48	0.16	FISHER COLL BUSINESS	2.65	17.25	Shah R, 2007, J OPER MANAG (25), 785	21.24	263.00
MANUFACTURING STRATEGY	4.91	0.16	OHIO STATE UNIV	2.65	16.29	Womack j P, 1990, MACHINE CHANGED WORL (0), 0	21.24	139.28
JUST-IN-TIME PRACTICES	3.57	0.16	INDIANA UNIV	2.65	15.79	Flynn BB, 1995, DECISION SCI (26), 659	21.24	127.98
META-ANALYSIS OF CORRELATIONS	3.57	0.16	SCHULICH SCH BUSINESS	2.21	30.23	Flynn BB, 1995, ACAD MANAGE J (38), 1325	20.80	160.42
EMPIRICAL RESEARCH METHODS	4.91	0.16	YORK UNIV	2.21	28.81	Ketokivi MA, 2004, J OPER MANAG (22), 247	20.35	179.86
LEAN MANUFACTURING	3.57	0.15	TEXAS CHRISTIAN UNIV	2.21	24.62	Powell TC, 1995, STRATEGIC MANAGE J (16), 15	19.91	106.87
THEORY DEVELOPMENT	4.46	0.15	CLEMSON UNIV	2.21	17.27	Hopp w J, 2004, Manufacturing & Service Operations Management (6), 0	19.47	251.17
INVENTORY	3.12	0.14	DEPT MANAGEMENT SCI	2.21	13.82	Li SH, 2005, J OPER MANAG (23), 618	19.47	213.79
DYNAMISM	3.12	0.14	SCH MANAGEMENT	2.21	8.29	Ahire SL, 1996, DECISION SCI (27), 23	19.03	112.22
LEAN OPERATIONS	3.12	0.14	OPERAT & MANAGEMENT SCI DEPT	2.21	20.74	White RE, 1999, MANAGE SCI (45), 1	19.03	183.76
LEAN PURCHASING	3.12	0.14	KELLEY SCH BUSINESS	2.21	13.98	Podsakoff PM, 2003, J APPL PSYCHOL (88), 879	18.58	78.47
CONFIRMATORY FACTOR ANALYSIS	3.12	0.14	CHINESE UNIV HONG KONG	1.77	14.53	Huson M, 1995, Journal of Operations Management (12), 0	18.58	172.66
SUPPLY CHAIN INTEGRATION	3.12	0.14	ROBERT H SMITH SCH BUSINESS	1.77	14.53	Dow D, 1999, PROD OPER MANAG (8), 1	18.14	119.28
Subject	f(%)	σ	Country	f(%)	σ	Schmenner RW, 1998, J OPER MANAG (17), 97	17.26	102.75
Operations Research & Management Science	100.00	0.00	Usa	40.71	46.51	Mclachlin R, 1997, Journal of Operations Management (15), 0	16.81	175.51
Management	89.82	7.65	Canada	6.64	24.23	Narasimhan R, 2006, J OPER MANAG (24), 440	16.37	187.63
Engineering, Manufacturing	10.18	-7.66	Peoples r china	3.10	12.00	Hayes RH, 1984, RESTORING OUR COMPET (0), 0	15.93	78.81
			England	2.65	13.26	Anderson JC, 1988, PSYCHOL BULL (103), 411	15.93	67.98
			Spain	1.77	12.89	RefJournal	f(%)	σ
			Netherlands	1.77	10.19	J OPER MANAG	47.79	76.78
			South korea	1.33	12.05	MANAGE SCI	42.92	49.73
			Switzerland	1.33	15.22	DECISION SCI	36.73	67.19
			Italy	0.88	10.48	ACAD MANAGE REV	34.96	67.12
			France	0.88	5.13	ACAD MANAGE J	34.51	70.44
						STRATEGIC MANAGE J	34.51	67.38
						HARVARD BUS REV	34.07	56.44
						Journal of Operations Management	32.74	78.90
						PROD OPER MANAG	32.30	47.99
						INT J OPER PROD MAN	32.30	71.95
Journal	f(%)	σ	Author	f(%)	σ			
J OPER MANAG	86.73	10.26	Shah R	7.96	14.17			
PROD OPER MANAG	10.18	-7.66	Ward PT	5.75	7.80			
M&SOM-MANUF SERV OP	3.10	-4.42	Schroeder RG	5.31	3.63			
			Nair A	4.87	7.58			
			Patel PC	4.42	5.15			
			Voss CA	3.98	10.02			
			Linderman K	3.98	3.91			
			Sousa R	3.98	9.47			
			Swink M	3.98	3.15			
			Narasimhan R	3.54	2.48			

Table 3: The community 2 - “SIX SIGMA” contains $N = 7$ articles. Its average internal link weight is $< \omega_{in} > \simeq 1/5$

Keyword	f(%)	tf-idf
SIX SIGMA	26.74	0.72
EVENT STUDY	18.60	0.56
QUALITY MANAGEMENT	25.58	0.37
OPERATING PERFORMANCE	6.98	0.32
PROCESS INNOVATION	6.98	0.32
TOTAL QUALITY MANAGEMENT	11.63	0.32
AWARD	6.98	0.29
FIRM PERFORMANCE	6.98	0.28
PROCESS IMPROVEMENT	8.14	0.27
MOTIVATION	4.65	0.24
ACTION RESEARCH	4.65	0.24
STRUCTURED PROBLEM-SOLVING		
PROCESS	4.65	0.24
QUALITY IMPROVEMENT TEAMS	4.65	0.24
PROCESS IMPROVEMENT PROJECTS	4.65	0.24
EXPERIENCE	4.65	0.24
PROJECT CONTEXT	4.65	0.24
CONFIGURATIONS	4.65	0.24
DMAIC	4.65	0.24
PROJECT SUCCESS	4.65	0.24
HIERARCHICAL LINEAR MODELING	4.65	0.22
Subject	f(%)	σ
Operations Research & Management Science	100.00	0.00
Management	85.23	3.87
Engineering, Manufacturing	14.77	-3.87
Journal	f(%)	σ
J OPER MANAG	82.95	5.69
PROD OPER MANAG	14.77	-3.87
M&SOM-MANUF SERV OP	2.27	-2.99

Institution	f(%)	σ
UNIV MINNESOTA	10.23	30.92
DEPT MANAGEMENT	7.95	17.47
MICHIGAN STATE UNIV	6.82	19.41
CARLSON SCH MANAGEMENT	6.82	26.19
COLL BUSINESS	4.55	11.88
EMORY UNIV	4.55	20.95
SCH BUSINESS	4.55	12.54
DEPT MANAGEMENT & MKT	3.41	25.52
GOIZUETA BUSINESS SCH	3.41	16.99
FISHER COLL BUSINESS	3.41	13.89
OHIO STATE UNIV	3.41	13.12
MOORE SCH BUSINESS	3.41	20.02
DEPT MANAGEMENT SCI	3.41	13.41
INDIANA UNIV	3.41	12.71
RENSSELAER POLYTECH INST	3.41	22.29
KOWLOON	3.41	15.43
HONG KONG POLYTECH UNIV	3.41	17.96
OPERAT & MANAGEMENT SCI DEPT	3.41	20.02
KELLEY SCH BUSINESS	3.41	13.56
ELI BROAD GRAD SCH MANAGEMENT	3.41	13.12
Country	f(%)	σ
Usa	46.59	33.39
England	3.41	10.70
Peoples r china	3.41	8.28
Spain	3.41	15.67
Canada	2.27	4.93
Australia	2.27	14.00
Netherlands	2.27	8.23
Italy	1.14	8.43
Portugal	1.14	9.18
Singapore	1.14	4.67
Author	f(%)	σ
Linderman K	10.23	7.87
Schroeder RG	7.95	4.05
Jacobs BW	6.82	13.77
Xia YS	6.82	15.37
Zhang GP	6.82	20.66
Ahire SL	6.82	12.03
Swink M	6.82	4.18
Nair A	5.68	5.65
Moeller SB	4.55	18.37
Malhotra MK	4.55	3.63

Reference	f(%)	σ
Linderman K, 2003, J OPER MANAG (21), 193	47.73	291.42
Powell TC, 1995, STRATEGIC MANAGE J (16), 15	47.73	160.22
Nair A, 2006, J OPER MANAG (24), 948	40.91	281.71
Sila I, 2007, J OPER MANAG (25), 83	40.91	273.71
Schroeder RG, 2008, J OPER MANAG (26), 536	39.77	360.58
Zu XX, 2008, J OPER MANAG (26), 630	37.50	331.23
Flynn B B, 1994, Journal of Operations Management (11), 0	34.09	106.86
Linderman K, 2006, J OPER MANAG (24), 779	34.09	326.78
Choo AS, 2007, MANAGE SCI (53), 437	30.68	228.96
Kaynak H, 2003, J OPER MANAG (21), 405	29.55	140.79
Samson D, 1999, J OPER MANAG (17), 393	28.41	115.50
Sousa R, 2008, J OPER MANAG (26), 697	27.27	165.67
Hendricks KB, 2001, MANAGE SCI (47), 359	27.27	184.21
Hendricks KB, 1997, MANAGE SCI (43), 1258	25.00	121.77
Flynn BB, 1995, DECISION SCI (26), 659	23.86	89.75
Corbett CJ, 2005, MANAGE SCI (51), 1046	23.86	154.48
Hackman JR, 1995, ADMIN SCI QUART (40), 309	23.86	107.95
Douglas TJ, 2001, ACAD MANAGE J (44), 158	22.73	142.87
Deming WE, 1986, OUT CRISIS (0), 0	22.73	96.31
Benner MJ, 2002, ADMIN SCI QUART (47), 676	21.59	173.25
Sousa R, 2002, J OPER MANAG (20), 91	21.59	139.45
Hendricks KB, 2001, J OPER MANAG (19), 269	21.59	127.58
Schmenner RW, 1998, J OPER MANAG (17), 97	21.59	80.28
Barber BM, 1996, J FINANC ECON (41), 359	20.45	204.93
Podsakoff PM, 2003, J APPL PSYCHOL (88), 879	20.45	53.93
RefJournal	f(%)	σ
J OPER MANAG	55.68	55.97
MANAGE SCI	52.27	38.05
ACAD MANAGE J	50.00	63.99
DECISION SCI	46.59	53.39
ACAD MANAGE REV	45.45	54.68
ADMIN SCI QUART	44.32	63.68
STRATEGIC MANAGE J	42.05	51.38
HARVARD BUS REV	36.36	37.64
INT J OPER PROD MAN	35.23	49.02
J OPERATIONS MANAGEM	34.09	44.40

Table 4: The community 3 - “OPERATIONS” contains $N = 4$ articles. Its average internal link weight is $\langle \omega_{in} \rangle \simeq 1/6$

Keyword	f(%)	tf-idf	Institution	f(%)	σ
OPERATIONS	7.02	0.33	UNIV MINNESOTA	13.56	33.65
RESOURCE-BASED VIEW	7.02	0.32	DEPT MANAGEMENT	11.86	21.50
THEORY	7.02	0.30	COLL BUSINESS	10.17	22.10
CONTINGENCY THEORY	10.53	0.29	CARLSON SCH MANAGEMENT	10.17	32.07
OPERATIONS STRATEGY	8.77	0.27	COLL BUSINESS ADM	10.17	25.01
CASE STUDY RESEARCH	5.26	0.26	OPERAT & MANAGEMENT SCI DEPT	6.78	32.73
ORGANIZATIONAL STRUCTURE	7.02	0.26	EMORY UNIV	6.78	25.66
THEORY OF PERFORMANCE			LONDON BUSINESS SCH	5.08	24.51
FRONTIERS	5.26	0.25	GOIZUETA BUSINESS SCH	5.08	20.82
RESOURCE-BASED VIEW OF THE			CLEMSON UNIV	5.08	20.47
FIRM	5.26	0.25	MICHIGAN STATE UNIV	5.08	11.79
INDIVIDUALISM/COLLECTIVISM	5.26	0.25	ELI BROAD GRAD SCH MANAGEMENT	5.08	16.11
MANUFACTURING STRATEGY	7.02	0.23	CORNELL UNIV	3.39	13.60
ASIA	5.26	0.21	RICHARD T FARMER SCH BUSINESS	3.39	37.57
MEASUREMENT METHODOLOGY	3.51	0.21	TEXAS A&M UNIV	3.39	14.08
SUPPLY-CHAIN MANAGEMENT	3.51	0.21	DEPT INFORMAT & OPERAT		
MIS-OPERATIONS INTERFACE	3.51	0.21	MANAGEMENT	3.39	20.78
GENERAL METHODOLOGY	3.51	0.21	ARIZONA STATE UNIV	3.39	9.95
THEORIZING	3.51	0.21	MIAMI UNIV	3.39	23.71
DISSOLUTION	3.51	0.21	DEPT MANAGEMENT SCI	3.39	10.92
CONCEPTUAL METHODS	3.51	0.21	CURTIS L CARLSON SCH		
CHANGE DRIVERS	3.51	0.21	MANAGEMENT	3.39	20.78
Subject	f(%)	σ	Country	f(%)	σ
Operations Research & Management Science	100.00	0.00	Usa	61.02	36.11
Management	83.05	2.82	Netherlands	6.78	20.49
Engineering, Manufacturing	16.95	-2.82	England	6.78	17.65
			Canada	5.08	9.41
			Spain	3.39	12.75
			Brazil	1.69	18.76
			Portugal	1.69	11.26
			Finland	1.69	14.15
			India	1.69	8.52
			Australia	1.69	8.52
Journal	f(%)	σ	Author	f(%)	σ
J OPER MANAG	83.05	4.68	Schroeder RG	20.34	10.18
PROD OPER MANAG	16.95	-2.82	Linderman K	6.78	3.99
			Samson D	6.78	8.25
			Schoenherr T	5.08	5.38
			Rosenzweig ED	5.08	2.66
			Power D	5.08	4.98
			Peng DX	5.08	6.16
			Huang XW	5.08	5.13
			Roth AV	5.08	1.25
			Bendoly E	5.08	2.41
Reference	f(%)	σ			
Amundson SD, 1998, J OPER MANAG (16), 341	76.27	305.55			
Wacker JG, 1998, J OPER MANAG (16), 361	35.59	206.02			
Schmenner RW, 1998, J OPER MANAG (17), 97	35.59	108.49			
Barney J, 1991, J MANAGE (17), 99	30.51	66.83			
Hayes RH, 1984, RESTORING OUR COMPET (0), 0	28.81	73.03			
Schroeder RG, 2002, STRATEGIC MANAGE J (23), 105	25.42	125.77			
Flynn B B, 1994, Journal of Operations Management (11), 0	23.73	60.83			
Skinner W, 1969, HARVARD BUS REV (47), 136	23.73	82.16			
Teece DJ, 1997, STRATEGIC MANAGE J (18), 509	23.73	63.49			
Melnyk SA, 1998, J OPER MANAG (16), 311	23.73	162.21			
Ferdows K, 1990, J OPERATIONS MANAGEM (9), 168	23.73	66.66			
Fornell C, 1981, J MARKETING RES (18), 39	22.03	40.46			
St john CH, 2001, J OPER MANAG (19), 143	22.03	155.72			
Ahire SL, 1996, DECISION SCI (27), 23	22.03	66.43			
Flynn B B, 1990, J OPERATIONS MANAGEM (9), 250	22.03	60.30			
Flynn BB, 1999, J OPER MANAG (17), 249	20.34	93.79			
Thompson J, 1967, ORG ACTION (0), 0	18.64	55.12			
Swamidass PM, 1987, MANAGE SCI (33), 509	18.64	51.56			
Rosenzweig ED, 2004, PROD OPER MANAG (13), 354	18.64	69.69			
Powell TC, 1995, STRATEGIC MANAGE J (16), 15	18.64	51.12			
Dow D, 1999, PROD OPER MANAG (8), 1	16.95	56.93			
Vickery SK, 1993, DECISION SCI (24), 435	16.95	55.11			
Kaynak H, 2003, J OPER MANAG (21), 405	16.95	66.07			
Wacker JG, 2004, J OPER MANAG (22), 629	16.95	99.43			
Bollen kenneth A, 1989, STRUCTURAL EQUATIONS (0), 0	16.95	42.09			
RefJournal	f(%)	σ			
J OPER MANAG	72.88	60.20			
ACAD MANAGE REV	55.93	55.23			
MANAGE SCI	50.85	30.28			
Journal of Operations Management	50.85	62.87			
J OPERATIONS MANAGEM	49.15	52.66			
HARVARD BUS REV	49.15	41.91			
DECISION SCI	47.46	44.54			
STRATEGIC MANAGE J	45.76	45.84			
J MANAGE	40.68	51.18			
PROD OPER MANAG	40.68	31.08			