



The 2006 American Machinist Benchmarking Survey

Summary Data Report

Produced by the Manufacturing Performance
Institute for American Machinist magazine —
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Introduction

The 2006 *American Machinist* Benchmarking Survey was intended to identify the strategies, tactics, and performance measures that work best at machine shops across the country.

This Summary Data Report presents the overall findings from this new survey as well as major cross-tabulations of the data:

- By relationship to customers — captive shop, contract shop, or job shop.
- By relationship to a parent organization — part of a large company or an independent shop.
- By inclusion in the “benchmark set” of shops — benchmark set defined by top 20% of shops as ranked by *American Machinist*.

Data appears in the same sequence as questions were presented to survey respondents. Questions are listed in numeric order and proceed through six categories: *Profile Information, Human Resources, Strategy & Operations, Inventories, Capital Equipment, and Supply Chain & Information Technology*. Questions and answer categories generally are presented in the same wording and format as they appeared on the survey questionnaire.

Survey questions consisted of three types: Directive single-answer questions for which respondents were asked to “check one” answer category; directive multiple-answer questions for which respondents were asked to “check all that apply” or “check three”; and open-ended questions for which respondents were asked to report a numeric answer.

The tables in this report for “check one” and “check all/three” answer categories are presented either in the format presented on the survey or, where more meaningful, in descending order based on the frequency of response for the answer category (i.e., the answer category with the highest number of responses is listed first). Data for directive questions list the frequency (N) and percentage for each answer category (see *Glossary* for definitions of percentage and other terms). Answer categories that were not selected by any respondents have been incorporated into the tables as having a frequency of 0.

The tables for open-ended questions are presented with frequency (N), mean, median, 25th percentile, and 75th percentile statistics. MPI believes it is best to focus on and report the *median* figure (or median with mean). Unlike arithmetical averages or means, the median is the “typical response” and is not distorted by a few unusually high or low values that may exist in the sample due to special circumstances. The median figure represents the mid-point of the figures for a particular measure, with one-half of respondents reporting figures above it and one-half below. In a few instances, the median is 0, which indicates that more than half of respondents for a particular question responded 0; in such instances, it may be advisable to refer to the mean figure.

Glossary

Frequency (N): Frequency is the number or count of responses for a question.

Mean: The average value for answers to open-ended questions.

Median: The midpoint value for open-ended questions — the value above which and below which half the answers fall; equivalent to the 50th percentile. The median is frequently the most reliable statistic upon which to base comparisons.

Percentage: The percentage of responses for a specific answer category based on all responses for that particular question. (*Note: This is not based on the total number of respondents for the survey*). For cross-tabulated data, the percentage is based on those that responded to *both* the question being analyzed and the cross-tabulation question.

Percentiles: The 25th percentile is the value below which 25% of answers fall. The 75th percentile is the value below which 75% of answers fall. *Note: Percentiles have not been reversed for metrics where better performances have lower values. For example, for the measure of annual labor turnover rate, a lower percentage would be considered a better performance, but for “All Shops” the 25th percentile remains listed as 0% and the 75th percentile as 10%.*

Methodology

The 2006 *American Machinist* Benchmarking Survey was conducted using an online questionnaire and promoted in *American Machinist* magazine. There were 249 online respondents, with surveys in February and March 2006. Responses were received by the Manufacturing Performance Institute (MPI), and then entered into a database, edited, and cleansed to ensure answers were plausible, where necessary.

All respondent answers to the survey are confidential. As an incentive, respondents were offered a copy of this Summary Data Report. Those respondents who wanted their shop to be included in an American Machinist Seal of Excellence program provided contact information; all other responses were anonymous.

2006 AMERICAN MACHINIST BENCHMARKING SURVEY — DATA REPORT

	ALL FIRMS	BENCHMARK SET		COMPANY TYPE		SHOP RELATION TO CUSTOMER BASE		
		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop

PROFILE INFORMATION

Is this shop part of a larger company or an independent company?

(N)	246	51	195	87	159	85	49	111
Part of a larger company	35.4%	37.3%	34.9%	100.0%	0.0%	63.5%	30.6%	15.3%
Independent company	64.6%	62.8%	65.1%	0.0%	100.0%	36.5%	69.4%	84.7%

What description below best describes this shop and the relation to its customer base

(N)	245	51	194	86	159	85	49	111
Captive shop	34.7%	39.2%	33.5%	62.8%	19.5%	100.0%	0.0%	0.0%
Contract shop	20.0%	27.5%	18.0%	17.4%	21.4%	0.0%	100.0%	0.0%
Job shop	45.3%	33.3%	48.5%	19.8%	59.1%	0.0%	0.0%	100.0%

Is this shop treated financially as a cost center or a profit center?

(N)	245	50	195	86	157	84	48	110
Cost center	31.4%	32.0%	31.3%	64.0%	14.0%	61.9%	22.9%	12.7%
Profit center	68.6%	68.0%	68.7%	36.1%	86.0%	38.1%	77.1%	87.3%

What are the primary industries this shop services?

(N)	246	50	196	87	156	83	49	110
Industrial equipment and machinery	50.8%	54.0%	50.0%	42.5%	55.8%	41.0%	40.8%	62.7%
Precision machining	39.4%	52.0%	36.2%	18.4%	50.6%	18.1%	36.7%	56.4%
Automotive	29.7%	40.0%	27.0%	23.0%	33.3%	22.9%	28.6%	35.5%
Aerospace	27.6%	28.0%	27.6%	23.0%	30.1%	21.7%	26.5%	32.7%
Defense industry	24.8%	26.0%	24.5%	16.1%	30.1%	14.5%	18.4%	36.4%
Construction/offhighway	22.0%	30.0%	19.9%	16.1%	25.6%	15.7%	24.5%	26.4%
Medical/nanotechnology	21.5%	28.0%	19.9%	17.2%	23.7%	10.8%	18.4%	30.9%
High tech	16.7%	20.0%	15.8%	19.5%	15.4%	20.5%	8.2%	18.2%
Consumer product durables/appliances	13.0%	10.0%	13.8%	11.5%	14.1%	15.7%	4.1%	15.5%
Moldmaking/plastic tool and dies	13.0%	12.0%	13.3%	9.2%	15.4%	12.1%	8.2%	16.4%
Oil and chemical processing	11.8%	6.0%	13.3%	10.3%	12.8%	12.1%	4.1%	15.5%
Consumer packaged goods/nondurables	8.9%	4.0%	10.2%	5.8%	10.3%	4.8%	10.2%	10.9%
Motorsports	8.9%	10.0%	8.7%	4.6%	11.5%	7.2%	8.2%	10.9%
Other	14.6%	10.0%	15.8%	19.5%	12.2%	18.1%	16.3%	10.9%
None of the above	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

2006 AMERICAN MACHINIST BENCHMARKING SURVEY — DATA REPORT

	ALL FIRMS	BENCHMARK SET		COMPANY TYPE		SHOP RELATION TO CUSTOMER BASE		
		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop
From which industries did your shop increase revenues last year?								
(N)	241	51	190	84	155	82	48	109
Industrial equipment and machinery	35.7%	39.2%	34.7%	34.5%	36.8%	32.9%	41.7%	35.8%
Precision machining	20.3%	33.3%	16.8%	11.9%	24.5%	12.2%	16.7%	27.5%
Aerospace	19.9%	17.7%	20.5%	22.6%	18.1%	19.5%	25.0%	17.4%
Automotive	16.2%	13.7%	16.8%	15.5%	16.1%	17.1%	14.6%	15.6%
Medical/nanotechnology	16.2%	25.5%	13.7%	14.3%	16.8%	12.2%	16.7%	18.4%
Defense industry	13.3%	17.7%	12.1%	11.9%	13.6%	9.8%	6.3%	18.4%
Construction/offhighway	12.5%	19.6%	10.5%	9.5%	14.2%	7.3%	20.8%	12.8%
Oil and chemical processing	8.7%	3.9%	10.0%	4.8%	10.3%	11.0%	4.2%	8.3%
High tech	7.9%	13.7%	6.3%	7.1%	8.4%	7.3%	6.3%	9.2%
Consumer product durables/appliances	7.1%	13.7%	5.3%	9.5%	5.8%	11.0%	4.2%	5.5%
Moldmaking/plastic tool and dies	5.8%	3.9%	6.3%	2.4%	7.7%	1.2%	8.3%	8.3%
Consumer packaged goods/nondurables	5.4%	3.9%	5.8%	4.8%	5.8%	4.9%	8.3%	4.6%
Motorsports	4.2%	9.8%	2.6%	1.2%	5.8%	3.7%	4.2%	4.6%
Other	10.4%	5.9%	11.6%	13.1%	9.0%	13.4%	6.3%	10.1%
None of the above	7.1%	3.9%	7.9%	9.5%	5.8%	8.5%	4.2%	7.3%

Which of the following machining processes occur at this shop?

(N)	248	51	197	87	159	85	49	111
Turning	92.7%	100.0%	90.9%	94.3%	91.8%	92.9%	93.9%	91.9%
Milling	92.3%	98.0%	90.9%	94.3%	91.2%	94.1%	91.8%	91.0%
Tapping and threading	87.1%	94.1%	85.3%	90.8%	84.9%	89.4%	91.8%	82.9%
Boring/drilling/reaming	85.1%	90.2%	83.8%	89.7%	83.7%	90.6%	81.6%	83.8%
Sawing	78.6%	82.4%	77.7%	81.6%	78.0%	77.7%	75.5%	82.0%
Grinding	65.3%	60.8%	66.5%	65.5%	66.0%	62.4%	65.3%	68.5%
Broaching/gear cutting	31.1%	41.2%	28.4%	41.4%	25.8%	32.9%	38.8%	26.1%
Multitasking	28.2%	52.9%	21.8%	34.5%	25.2%	34.1%	26.5%	25.2%
Metal heat treating	26.6%	19.6%	28.4%	33.3%	23.3%	28.2%	26.5%	26.1%
EDM/ECM	19.4%	19.6%	19.3%	24.1%	17.0%	23.5%	18.4%	17.1%
Laser cutting	10.1%	13.7%	9.1%	11.5%	9.4%	16.5%	8.2%	6.3%
Water-jet cutting	9.7%	3.9%	11.2%	13.8%	6.9%	11.8%	8.2%	8.1%
Other	5.7%	3.9%	6.1%	5.8%	5.7%	3.5%	12.2%	4.5%
None of these	0.4%	0.0%	0.5%	0.0%	0.6%	1.2%	0.0%	0.0%

2006 AMERICAN MACHINIST BENCHMARKING SURVEY — DATA REPORT

	ALL FIRMS	BENCHMARK SET		COMPANY TYPE		SHOP RELATION TO CUSTOMER BASE		
		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop
Number of employees at this shop?								
All full-time employees								
2004								
(N)	218	49	169	70	146	72	41	102
Median	29.0	54.0	25.0	71.5	24.0	50.0	47.0	20.0
Average	89.4	153.6	70.8	196.3	39.3	169.3	80.8	37.4
75th Percentile	71.3	141.0	60.0	200.0	50.0	161.3	88.5	43.3
25th Percentile	9.0	19.0	8.5	19.8	7.0	10.5	24.0	7.0
2005								
(N)	224	50	174	73	149	72	46	103
Median	30.0	58.0	25.5	65.0	25.0	52.5	49.5	21.0
Average	88.2	151.6	70.0	184.9	41.9	166.9	79.7	37.8
75th Percentile	75.0	149.8	61.0	200.0	55.0	186.3	92.8	43.0
25th Percentile	9.0	12.0	9.0	15.5	7.0	12.8	21.8	6.0
Anticipated 2006								
(N)	228	50	178	74	152	73	46	106
Median	30.0	63.0	27.0	60.5	26.5	54.0	54.0	20.0
Average	106.6	161.9	91.0	235.5	45.2	217.8	89.6	38.7
75th Percentile	84.0	176.3	60.0	217.5	57.5	190.0	102.5	42.8
25th Percentile	9.0	13.5	8.8	15.5	8.0	15.0	23.3	7.8

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		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop
Shop-floor employees								
2004								
(N)	203	47	156	69	134	66	40	96
Median	20.0	35.0	18.0	35.0	17.0	24.5	39.5	15.0
Average	63.0	96.8	52.8	131.0	28.0	111.5	74.3	24.3
75th Percentile	46.0	90.0	40.0	137.5	35.0	84.0	65.0	29.8
25th Percentile	7.0	15.0	6.0	9.0	6.0	8.0	17.3	4.0
2005								
(N)	208	48	160	72	136	67	44	96
Median	21.5	38.5	19.5	31.5	19.5	30.0	42.5	15.5
Average	62.4	89.7	54.2	122.2	30.7	105.5	76.5	25.1
75th Percentile	50.0	93.0	44.8	134.5	40.0	100.0	74.8	29.0
25th Percentile	8.0	12.5	7.0	10.0	7.0	10.0	15.8	5.0
Anticipated 2006								
(N)	209	48	161	71	138	67	43	98
Median	23.0	40.0	19.0	32.0	20.0	30.0	40.0	15.0
Average	73.8	87.3	69.8	155.9	31.6	146.2	68.5	26.0
75th Percentile	50.0	93.8	42.0	145.0	40.0	100.0	80.0	32.0
25th Percentile	8.0	14.3	7.0	11.0	7.0	11.0	17.0	5.8
Which criteria below best describe the run and product mix of your shop?								
(N)	243	50	193	86	155	83	47	110
Long run/High mix	7.8%	14.0%	6.2%	9.3%	7.1%	9.6%	10.6%	4.6%
Long run/Low mix	7.8%	12.0%	6.7%	11.6%	5.8%	13.3%	12.8%	1.8%
Short run/High mix	72.4%	68.0%	73.6%	73.3%	71.6%	69.9%	66.0%	77.3%
Short run/Low mix	11.9%	6.0%	13.5%	5.8%	15.5%	7.2%	10.6%	16.4%
What is the approximate annual revenue for this shop? If shop is a cost center, indicate the approximate value of shipments								
(N)	236	51	185	81	154	80	48	106
Less than \$1 million	25.0%	13.7%	28.1%	17.3%	28.6%	20.0%	18.8%	31.1%
\$1 million to \$10 million	47.5%	41.2%	49.2%	34.6%	54.6%	36.3%	45.8%	57.6%
\$11 million to \$50 million	19.9%	31.4%	16.8%	28.4%	15.6%	25.0%	31.3%	10.4%
\$51 million to \$100 million	3.4%	7.8%	2.2%	8.6%	0.7%	7.5%	2.1%	0.9%
\$101 million to \$200 million	2.1%	3.9%	1.6%	6.2%	0.0%	5.0%	2.1%	0.0%
More than \$200 million	2.1%	2.0%	2.2%	4.9%	0.7%	6.3%	0.0%	0.0%

2006 AMERICAN MACHINIST BENCHMARKING SURVEY — DATA REPORT

	ALL FIRMS	BENCHMARK SET		COMPANY TYPE		SHOP RELATION TO CUSTOMER BASE		
		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop
What is your anticipated change in revenues for 2006?								
(N)	237	51	186	80	156	79	49	108
Decrease more than 10%	3.0%	0.0%	3.8%	2.5%	3.2%	1.3%	0.0%	5.6%
Decrease 6-10%	2.5%	0.0%	3.2%	3.8%	1.9%	3.8%	2.0%	1.9%
Decrease 1-5%	2.5%	2.0%	2.7%	1.3%	3.2%	1.3%	0.0%	4.6%
Stay the same	14.4%	3.9%	17.2%	17.5%	12.8%	20.3%	8.2%	13.0%
Increase 1-5%	30.0%	33.3%	29.0%	33.8%	27.6%	31.7%	36.7%	25.0%
Increase 6-10%	26.6%	27.5%	26.3%	22.5%	28.9%	21.5%	26.5%	30.6%
Increase more than 10%	21.1%	33.3%	17.7%	18.8%	22.4%	20.3%	26.5%	19.4%

HUMAN RESOURCES

Which of the following human-resource practices/programs are in use at your shop?

(N)	246	51	195	87	157	84	48	111
Paid vacation days	89.0%	96.1%	87.2%	95.4%	86.0%	92.9%	87.5%	87.4%
Shop-paid medical benefits	71.5%	86.3%	67.7%	75.9%	70.1%	73.8%	77.1%	68.5%
Annual review and raise program	70.3%	86.3%	66.2%	78.2%	66.2%	73.8%	85.4%	61.3%
Employee training program	58.5%	80.4%	52.8%	63.2%	56.7%	59.5%	66.7%	55.0%
Education reimbursements	58.1%	76.5%	53.3%	85.1%	44.0%	82.1%	50.0%	44.1%
Accident prevention program	54.5%	70.6%	50.3%	75.9%	43.3%	61.9%	58.3%	47.8%
Promotion/advancement opportunities	50.8%	66.7%	46.7%	57.5%	47.8%	60.7%	56.3%	41.4%
Paid sick and/or personal days	50.4%	51.0%	50.3%	71.3%	39.5%	70.2%	43.8%	38.7%
Bonus plan	39.0%	49.0%	36.4%	40.2%	38.9%	39.3%	41.7%	37.8%
Profit or revenue-sharing plan	33.7%	43.1%	31.3%	32.2%	35.0%	38.1%	25.0%	35.1%
Leader/supervisor development	32.5%	52.9%	27.2%	41.4%	28.0%	41.7%	35.4%	24.3%
Recruiting and hiring program	24.0%	35.3%	21.0%	27.6%	22.3%	25.0%	27.1%	22.5%
Apprenticeship program	20.3%	19.6%	20.5%	17.2%	22.3%	19.1%	31.3%	17.1%
Employee-ownership options	5.7%	9.8%	4.6%	10.3%	3.2%	8.3%	0.0%	6.3%
None of these	4.1%	2.0%	4.6%	0.0%	5.7%	2.4%	4.2%	4.5%

What percentage of employees are represented by a union(s)?

(N)	238	51	187	83	153	82	44	109
Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Average	7.4%	6.9%	7.5%	14.8%	3.4%	13.5%	4.7%	4.0%
75th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
25th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop
What was your annual labor turnover rate for 2005?								
(number of voluntary and involuntary separations / typical staffing level)								
(N)	220	49	171	72	147	68	45	105
Median	5.0%	5.0%	5.0%	4.5%	5.0%	5.0%	6.0%	5.0%
Average	10.7%	11.9%	10.4%	6.2%	13.0%	8.9%	11.4%	11.8%
75th Percentile	10.0%	10.0%	10.0%	10.0%	15.0%	10.0%	11.5%	10.0%
25th Percentile	0.0%	0.8%	0.0%	0.6%	0.0%	0.2%	1.0%	0.0%
What are the average hours of formal training received by each full-time employee per year?								
(N)	239	51	188	85	152	80	48	108
Less than 8 hours	33.9%	15.7%	38.8%	28.2%	36.2%	31.3%	20.8%	40.7%
8 - 20 hours	38.1%	41.2%	37.2%	35.3%	40.1%	33.8%	45.8%	38.0%
21 - 40 hours	18.8%	33.3%	14.9%	24.7%	15.8%	27.5%	20.8%	12.0%
More than 40 hours	9.2%	9.8%	9.0%	11.8%	7.9%	7.5%	12.5%	9.3%
What percentage of employees make operating decisions without supervisor approval (i.e., empowered)?								
(N)	241	51	190	86	153	83	48	107
0%	8.3%	3.9%	9.5%	7.0%	9.2%	8.4%	10.4%	7.5%
1 - 25%	42.7%	33.3%	45.3%	44.2%	42.5%	39.8%	43.8%	44.9%
26 - 50%	19.1%	23.5%	17.9%	18.6%	19.0%	20.5%	22.9%	15.9%
51 - 75%	12.5%	15.7%	11.6%	12.8%	12.4%	14.5%	8.3%	13.1%
76 - 99%	7.9%	13.7%	6.3%	8.1%	7.8%	8.4%	10.4%	6.5%
100%	9.5%	9.8%	9.5%	9.3%	9.2%	8.4%	4.2%	12.2%
What is the approximate average wage for shop-floor personnel?								
(hourly rate without overtime)								
Operators								
(N)	211	48	163	76	135	69	43	98
Median	\$15.00	\$14.75	\$15.52	\$16.70	\$15.00	\$16.00	\$15.00	\$15.00
Average	\$15.85	\$14.79	\$16.16	\$17.29	\$15.04	\$17.13	\$14.89	\$15.27
75th Percentile	\$18.00	\$16.00	\$18.50	\$18.94	\$18.00	\$20.00	\$18.00	\$18.00
25th Percentile	\$12.00	\$12.00	\$12.50	\$14.00	\$12.00	\$12.50	\$12.00	\$12.00

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Set-up personnel								
(N)	182	43	139	61	121	56	41	85
Median	\$18.00	\$18.00	\$18.00	\$18.75	\$18.00	\$18.38	\$17.00	\$18.00
Average	\$18.54	\$18.53	\$18.54	\$19.52	\$18.04	\$19.10	\$17.89	\$18.47
75th Percentile	\$21.00	\$21.00	\$21.00	\$22.25	\$20.00	\$22.38	\$20.00	\$20.48
25th Percentile	\$15.00	\$16.00	\$15.00	\$16.25	\$15.00	\$16.00	\$15.00	\$15.00
How many job-related injuries and illnesses occurred that resulted in lost work days?								
2004								
(N)	206	48	158	67	137	65	40	98
Median	0.0	1.5	0.0	1.0	0.0	1.0	1.0	0.0
Average	2.7	4.1	2.3	3.9	2.2	4.7	3.1	1.4
75th Percentile	2.0	4.8	1.0	2.0	1.5	3.0	2.8	1.0
25th Percentile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2005								
(N)	207	47	160	68	137	65	43	96
Median	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Average	2.6	2.8	2.5	3.8	2.0	4.1	2.5	1.6
75th Percentile	1.0	3.0	1.0	2.8	1.0	2.5	1.0	1.0
25th Percentile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Injuries per employee in 2005								
(N)	202	46	156	64	136	61	43	95
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Average	0.10	0.04	0.11	0.08	0.11	0.09	0.04	0.13
75th Percentile	0.03	0.02	0.04	0.03	0.04	0.02	0.03	0.05
25th Percentile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	ALL FIRMS	BENCHMARK SET		COMPANY TYPE		SHOP RELATION TO CUSTOMER BASE		
		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop

STRATEGY AND OPERATIONS

Which of the following practices/methods are in use at your shop?

(N)	241	51	190	87	152	83	49	106
Lean Manufacturing methods	51.0%	88.2%	41.1%	64.4%	44.1%	66.3%	46.9%	42.5%
ISO, QS and/or TS quality certification	45.6%	56.9%	42.6%	57.5%	38.8%	50.6%	46.9%	41.5%
Formal continuous-improvement program	32.4%	51.0%	27.4%	44.8%	25.7%	36.1%	40.8%	26.4%
Environmental management techniques	27.4%	43.1%	23.2%	42.5%	19.1%	31.3%	28.6%	23.6%
Benchmarking of other companies/shops	25.7%	45.1%	20.5%	26.4%	25.7%	25.3%	24.5%	27.4%
Total Quality Management methods	23.2%	47.1%	16.8%	25.3%	22.4%	21.7%	22.5%	25.5%
Total productive maintenance	21.2%	39.2%	16.3%	31.0%	15.8%	26.5%	20.4%	17.9%
Six Sigma methods	15.8%	21.6%	14.2%	29.9%	7.9%	26.5%	12.2%	9.4%
Energy management techniques	12.5%	29.4%	7.9%	12.6%	12.5%	15.7%	10.2%	11.3%
Theory of Constraints methods	8.3%	13.7%	6.8%	12.6%	5.9%	14.5%	6.1%	4.7%
Toyota Production Systems methods	7.9%	15.7%	5.8%	11.5%	5.9%	14.5%	10.2%	1.9%
None of these	22.4%	7.8%	26.3%	11.5%	28.3%	16.9%	22.5%	26.4%

Please select the top three objectives that best describe the focus of your market strategy:

(N)	243	51	192	85	156	84	47	109
High quality	74.5%	72.6%	75.0%	78.8%	73.1%	75.0%	74.5%	76.2%
Service and support	63.0%	60.8%	63.5%	60.0%	64.7%	56.0%	74.5%	63.3%
Fast Delivery	40.7%	37.3%	41.7%	38.8%	42.3%	34.5%	29.8%	50.5%
Total value	37.5%	47.1%	34.9%	34.1%	39.1%	34.5%	42.6%	36.7%
Low cost	28.0%	37.3%	25.5%	30.6%	26.3%	25.0%	34.0%	27.5%
Customization	25.1%	17.7%	27.1%	21.2%	27.6%	28.6%	25.5%	22.9%
Innovation	23.5%	29.4%	21.9%	21.2%	24.4%	32.1%	27.7%	14.7%
Product variety	15.2%	11.8%	16.2%	17.7%	13.5%	19.1%	6.4%	15.6%
None of these	0.8%	0.0%	1.0%	0.0%	1.3%	1.2%	2.1%	0.0%

Which of the following tools are in use at your shop?

(N)	244	51	193	87	155	83	49	109
CAD/CAM/CAE systems	84.4%	96.1%	81.4%	85.1%	83.9%	85.5%	91.8%	80.7%
Cellular manufacturing	35.7%	68.6%	26.9%	48.3%	28.4%	42.2%	51.0%	23.9%
Statistical process controls	31.2%	51.0%	25.9%	43.7%	24.5%	42.2%	30.6%	23.9%
Automation	25.8%	43.1%	21.2%	25.3%	25.8%	36.1%	16.3%	22.0%
Computerized maintenance management system	22.1%	41.2%	17.1%	37.9%	13.6%	27.7%	28.6%	15.6%
Robotics	15.2%	27.5%	11.9%	20.7%	11.6%	24.1%	14.3%	8.3%
Vibration and/or thermographic analysis	6.2%	9.8%	5.2%	13.8%	1.9%	13.3%	0.0%	2.8%
None of these	7.0%	0.0%	8.8%	3.5%	9.0%	6.0%	6.1%	8.3%

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How much progress has the shop made toward achieving world-class machining status?								
(N)	241	51	190	86	153	83	47	108
No progress	24.9%	15.7%	27.4%	18.6%	28.1%	22.9%	27.7%	25.0%
Some progress	47.7%	37.3%	50.5%	48.8%	47.7%	43.4%	34.0%	57.4%
Significant progress	24.1%	45.1%	18.4%	25.6%	22.9%	27.7%	31.9%	17.6%
Fully achieved	3.3%	2.0%	3.7%	7.0%	1.3%	6.0%	6.4%	0.0%
Which of the following machining-specific techniques are in use at your shop?								
(N)	242	51	191	85	155	81	49	109
CNC equipment	89.7%	98.0%	87.4%	90.6%	89.0%	87.7%	91.8%	89.9%
Maximizing machine cutting	47.1%	74.5%	39.8%	48.2%	45.8%	43.2%	59.2%	44.0%
Tooling presets	46.3%	74.5%	38.7%	58.8%	40.0%	49.4%	57.1%	40.4%
Chip-removal systems	45.0%	56.9%	41.9%	49.4%	41.9%	49.4%	51.0%	38.5%
Maximizing machine uptime	45.0%	76.5%	36.7%	45.9%	45.2%	43.2%	46.9%	46.8%
Advanced measuring (e.g., laser/CMM)	42.2%	54.9%	38.7%	47.1%	40.0%	46.9%	51.0%	35.8%
Multitasking	38.4%	51.0%	35.1%	45.9%	34.2%	43.2%	36.7%	35.8%
Prefixturing workpieces	38.4%	52.9%	34.6%	35.3%	40.0%	32.1%	40.8%	42.2%
Multiple pallet changers	28.9%	37.3%	26.7%	28.2%	29.7%	24.7%	42.9%	26.6%
Proprietary software	25.2%	47.1%	19.4%	28.2%	23.2%	25.9%	34.7%	20.2%
Multiple spindle machines	21.5%	39.2%	16.8%	21.2%	21.3%	27.2%	24.5%	15.6%
Five-axis machining	19.0%	35.3%	14.7%	29.4%	12.9%	28.4%	18.4%	11.9%
Other	0.4%	0.0%	0.5%	1.2%	0.0%	0.0%	2.0%	0.0%
None of these	3.7%	0.0%	4.7%	3.5%	3.9%	6.2%	2.0%	2.8%
How have per-unit manufacturing costs, excluding purchased material, changed in the past year?								
(N)	231	50	181	75	154	75	46	107
Decreased more than 20%	0.9%	2.0%	0.6%	0.0%	1.3%	0.0%	2.2%	0.9%
Decreased 11 - 20%	8.7%	12.0%	7.7%	8.0%	9.1%	13.3%	4.4%	7.5%
Decreased 1 - 10%	24.7%	40.0%	20.4%	26.7%	24.0%	28.0%	26.1%	22.4%
Stayed the same	19.5%	10.0%	22.1%	25.3%	16.9%	24.0%	17.4%	16.8%
Increased 1 - 10%	34.6%	20.0%	38.7%	30.7%	37.0%	30.7%	34.8%	38.3%
Increased 11 - 20%	9.1%	10.0%	8.8%	5.3%	9.7%	2.7%	13.0%	10.3%
Increased more than 20%	2.6%	6.0%	1.7%	4.0%	2.0%	1.3%	2.2%	3.7%
What is your shop's net profit margin (net profit divided by net revenue X 100)								
(N)	143	42	101	37	105	38	28	76
Median	12.0%	15.5%	10.0%	15.0%	10.0%	15.0%	13.8%	10.0%
Average	15.8%	17.1%	15.3%	17.1%	15.3%	19.9%	13.5%	14.5%
75th Percentile	21.0%	22.5%	20.0%	21.0%	20.5%	32.0%	20.0%	20.0%
25th Percentile	7.0%	8.4%	5.5%	8.5%	6.3%	7.0%	5.9%	6.6%

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Please provide the following average measures for your shop's typical process or machine:

Machining cycle time

(start of cutting to completion of cutting for a typical product)

Current year (hrs)

(N)	115	43	72	40	75	41	23	51
Median	0.3	0.2	0.6	0.7	0.3	0.3	0.2	0.4
Average	4.1	7.7	1.9	8.9	1.5	8.8	2.1	1.2
75th Percentile	2.0	0.7	2.0	2.1	1.5	2.0	0.8	2.0
25th Percentile	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Three years ago (hrs)

(N)	108	42	66	35	73	38	21	49
Median	0.4	0.3	0.9	0.8	0.3	0.4	0.2	0.8
Average	5.5	9.9	2.6	12.6	2.0	11.4	2.8	2.0
75th Percentile	2.3	1.4	2.5	3.0	1.6	2.6	1.0	2.4
25th Percentile	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1

Set-up time

(time to prepare a job for machining — the non-cut time)

Current year (hrs)

(N)	132	44	88	45	87	45	25	62
Median	1.5	1.3	1.5	1.5	1.5	1.0	2.0	1.5
Average	3.0	3.3	2.9	2.0	3.5	2.6	4.9	2.6
75th Percentile	2.5	2.0	2.5	2.5	2.5	2.3	2.8	2.6
25th Percentile	0.8	0.5	1.0	0.5	1.0	0.5	1.0	1.0

Three years ago (hrs)

(N)	127	44	83	41	86	43	23	61
Median	2.0	2.8	2.0	2.0	2.4	1.5	3.6	2.7
Average	41.0	111.7	3.6	14.9	53.5	112.4	7.0	3.6
75th Percentile	4.0	4.4	4.0	4.4	4.1	4.0	4.5	4.4
25th Percentile	1.0	1.0	1.0	0.6	1.4	0.6	2.0	1.0

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Customer order lead time (order-entry through production to shipment for a typical product)								
Current year (days)								
(N)	148	49	99	48	100	51	27	70
Median	16.5	15.0	20.0	8.5	21.0	10.0	20.0	20.5
Average	25.0	20.2	27.4	15.6	29.5	19.7	32.2	26.1
75th Percentile	30.0	27.5	40.0	21.0	44.3	21.0	50.0	36.3
25th Percentile	7.0	6.3	7.0	4.0	10.0	5.0	10.0	7.0
Three years ago (days)								
(N)	136	47	89	41	95	47	25	64
Median	20.0	21.0	20.0	12.0	25.0	14.0	30.0	20.0
Average	28.5	28.4	28.6	17.1	33.5	23.1	34.8	30.1
75th Percentile	40.0	35.0	43.5	21.0	45.0	30.0	45.0	40.3
25th Percentile	10.0	10.0	10.0	4.8	10.0	5.0	20.5	10.0
On-time completion rate (% of goods delivered on time)								
Current year								
(N)	157	50	107	54	103	53	32	72
Median	92.0%	95.0%	90.0%	92.5%	92.0%	95.0%	95.0%	90.0%
Average	87.3%	92.2%	85.0%	88.0%	86.9%	86.8%	90.0%	86.4%
75th Percentile	98.0%	99.0%	95.0%	98.0%	98.0%	98.0%	99.4%	96.6%
25th Percentile	80.0%	90.0%	80.0%	79.5%	80.0%	79.0%	80.5%	80.0%
Three years ago								
(N)	144	49	95	46	98	48	29	67
Median	85.0%	88.0%	85.0%	82.5%	85.0%	86.5%	85.0%	85.0%
Average	81.5%	82.0%	81.2%	78.0%	83.1%	79.7%	82.8%	82.2%
75th Percentile	95.0%	96.0%	95.0%	95.0%	95.0%	95.0%	96.0%	95.0%
25th Percentile	75.0%	77.5%	75.0%	64.8%	75.0%	75.0%	75.0%	75.0%

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Finished-product first-pass quality yield (% of product that passes final inspection)								
Current year								
(N)	149	50	99	49	100	50	29	70
Median	97.6%	98.0%	97.0%	98.0%	97.0%	96.5%	98.0%	97.0%
Average	94.3%	94.7%	94.1%	95.6%	93.6%	94.4%	93.7%	94.5%
75th Percentile	99.0%	99.0%	99.0%	99.0%	99.0%	98.3%	99.0%	99.0%
25th Percentile	95.0%	95.0%	92.0%	93.5%	95.0%	90.0%	92.5%	95.0%
Three years ago								
(N)	139	49	90	43	96	47	27	65
Median	95.0%	94.0%	95.0%	94.0%	95.0%	95.0%	92.0%	95.0%
Average	88.9%	88.7%	89.1%	88.5%	89.2%	89.2%	87.0%	89.5%
75th Percentile	98.0%	96.0%	98.0%	96.9%	99.0%	97.0%	98.0%	99.0%
25th Percentile	85.0%	90.0%	85.0%	80.0%	85.5%	88.0%	80.0%	85.0%
Scrap and rework (as % of shop sales)								
Current year								
(N)	136	45	91	41	95	41	28	67
Median	3.0%	1.6%	3.0%	2.0%	3.0%	2.2%	3.0%	2.5%
Average	6.7%	4.6%	7.8%	5.0%	7.5%	5.3%	8.2%	7.0%
75th Percentile	5.0%	3.0%	5.0%	4.0%	5.0%	5.0%	5.0%	5.0%
25th Percentile	1.0%	0.7%	1.5%	1.0%	1.0%	1.0%	1.5%	1.0%
Three years ago								
(N)	130	46	84	38	92	40	26	64
Median	5.0%	3.0%	5.0%	5.0%	4.5%	4.5%	5.0%	5.0%
Average	8.4%	6.6%	9.3%	8.3%	8.4%	7.1%	11.0%	8.1%
75th Percentile	8.0%	5.3%	10.0%	10.0%	8.0%	8.0%	11.3%	6.0%
25th Percentile	2.0%	1.6%	2.0%	2.0%	1.6%	1.7%	3.0%	1.0%
What is your shop's revenue per man-hour? (annual revenue / total paid man-hours, including paid vacation and overtime)								
(N)	88	30	58	23	65	20	18	50
Median	\$60.10	\$63.55	\$60.00	\$64.10	\$60.00	\$62.50	\$63.55	\$60.00
Average	\$72.80	\$71.58	\$73.43	\$81.88	\$69.58	\$67.98	\$82.58	\$71.20
75th Percentile	\$80.00	\$81.25	\$81.25	\$78.23	\$82.50	\$79.25	\$105.45	\$81.25
25th Percentile	\$48.00	\$51.50	\$42.75	\$50.00	\$45.39	\$42.50	\$51.50	\$43.20

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INVENTORIES

Which party owns the majority of:

Material inventory

(N)	233	51	182	81	150	79	47	105
Customers	11.6%	11.8%	11.5%	11.1%	12.0%	5.1%	10.6%	17.1%
Suppliers	6.4%	5.9%	6.6%	7.4%	6.0%	5.1%	8.5%	6.7%
Company/shop	82.0%	82.4%	81.9%	81.5%	82.0%	89.9%	80.9%	76.2%

Tooling inventory

(N)	234	51	183	81	151	79	47	106
Customers	4.3%	3.9%	4.4%	4.9%	4.0%	2.5%	10.6%	2.8%
Suppliers	5.6%	13.7%	3.3%	9.9%	3.3%	8.9%	6.4%	2.8%
Company/shop	90.2%	82.4%	92.4%	85.2%	92.7%	88.6%	83.0%	94.3%

What are your inventory turn rates for the following categories of materials?

(Note: Annual COGS is the sum dollar value of labor, overhead, and all materials for the year.)

Raw material turns

(annual COGS / avg value of raw material on hand)

(N)	91	41	50	31	59	29	23	38
Median (turns per year)	10.4	10.4	11.0	6.3	12.0	6.0	12.0	12.0
Average (turns per year)	20.1	23.5	17.3	14.1	23.3	11.3	26.3	23.2
75th Percentile (turns per year)	20.0	24.0	20.0	15.0	22.0	12.0	23.0	40.0
25th Percentile (turns per year)	5.5	6.0	4.0	4.0	6.0	3.5	6.3	6.0

Work-in-process material turns

(annual COGS / avg value of WIP on hand)

(N)	84	40	44	27	56	24	22	37
Median (turns per year)	10.0	12.5	9.0	8.1	12.0	7.0	13.4	12.0
Average (turns per year)	22.4	28.5	16.9	14.7	26.4	16.2	24.9	25.4
75th Percentile (turns per year)	24.0	24.8	20.2	24.0	28.5	23.8	25.9	27.0
25th Percentile (turns per year)	6.0	8.0	5.0	4.0	7.3	4.0	6.5	8.0

Finished goods turns

(annual COGS / avg value of finished goods on hand)

(N)	84	38	46	27	56	26	22	35
Median (turns per year)	10.5	12.0	8.5	8.0	11.2	7.6	11.2	12.0
Average (turns per year)	24.1	24.6	23.6	23.8	24.5	14.5	17.4	35.9
75th Percentile (turns per year)	21.9	22.5	19.3	24.0	21.9	12.0	16.5	40.0
25th Percentile (turns per year)	5.0	6.2	4.2	4.0	6.0	3.8	5.8	5.0

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Total inventory turns								
(annual COGS / avg value of total inventory on hand)								
(N)	86	41	45	31	54	28	23	34
Median (turns per year)	7.0	8.7	5.5	6.1	7.0	5.8	8.0	7.0
Average (turns per year)	17.4	13.2	21.3	25.8	12.8	24.8	15.0	13.3
75th Percentile (turns per year)	12.0	12.7	12.0	12.0	12.0	10.5	16.0	12.0
25th Percentile (turns per year)	4.7	6.0	3.0	4.0	4.9	3.0	5.0	4.8
By what percentage have total material inventory turns changed in the past year?								
(N)	148	47	101	47	101	51	34	63
Decrease more than 20%	1.4%	0.0%	2.0%	4.3%	0.0%	3.9%	0.0%	0.0%
Decrease 11 - 20%	9.5%	14.9%	6.9%	8.5%	9.9%	11.8%	2.9%	11.1%
Decrease 1 - 10%	8.1%	8.5%	7.9%	4.3%	9.9%	9.8%	8.8%	6.4%
Stay the same	36.5%	25.5%	41.6%	36.2%	36.6%	33.3%	32.4%	41.3%
Increase 1 - 10%	27.0%	23.4%	28.7%	25.5%	27.7%	21.6%	26.5%	31.8%
Increase 11 - 20%	14.9%	25.5%	9.9%	17.0%	13.9%	13.7%	26.5%	9.5%
Increase more than 20%	2.7%	2.1%	3.0%	4.3%	2.0%	5.9%	2.9%	0.0%
What is the approximate amount spent on tooling per year?								
(N)	167	43	124	52	115	47	36	83
Median	\$50,000	\$125,000	\$30,000	\$100,000	\$42,000	\$75,000	\$175,000	\$25,000
Average	\$184,303	\$292,377	\$146,826	\$309,556	\$127,667	\$225,262	\$403,450	\$68,218
75th Percentile	\$150,000	\$305,705	\$120,000	\$300,000	\$125,000	\$250,000	\$390,000	\$100,000
25th Percentile	\$10,000	\$60,000	\$10,000	\$16,250	\$10,000	\$10,000	\$30,500	\$10,000
Where is tooling inventory typically located (by percentage at each location)?								
(N)	206	50	156	72	134	66	42	97
In the tool crib	41.8%	43.0%	41.4%	36.1%	44.9%	40.7%	35.4%	45.8%
On machining or on the floor	50.2%	50.9%	50.0%	52.6%	49.0%	50.7%	56.2%	46.9%
In sharpening	3.6%	5.0%	3.2%	3.0%	4.0%	3.7%	4.7%	3.2%
Other	4.3%	1.0%	5.4%	8.3%	2.2%	5.0%	3.8%	4.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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	ALL FIRMS	BENCHMARK SET		COMPANY TYPE		SHOP RELATION TO CUSTOMER BASE		
		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop

CAPITAL EQUIPMENT

Please indicate the level of capital-equipment spending (as a percentage of sales) for 2005?

(N)	167	45	122	47	119	50	35	81
Median	4.7%	5.0%	3.0%	3.0%	5.0%	2.5%	5.0%	4.7%
Average	8.1%	10.5%	7.3%	6.9%	8.5%	4.2%	9.4%	9.8%
75th Percentile	10.0%	10.0%	10.0%	10.0%	10.0%	6.2%	10.0%	11.0%
25th Percentile	1.0%	1.8%	1.0%	1.0%	1.0%	0.3%	2.0%	0.9%

What is the anticipated change in capital equipment spending for 2006 vs. 2005?

(N)	199	47	152	63	134	65	41	90
Decreased more than 20%	8.5%	6.4%	9.2%	6.4%	9.0%	7.7%	9.8%	7.8%
Decreased 11 - 20%	3.5%	6.4%	2.6%	6.4%	2.2%	3.1%	4.9%	3.3%
Decreased 1 - 10%	5.5%	4.3%	5.9%	6.4%	5.2%	6.2%	4.9%	5.6%
Stayed the same	32.7%	21.3%	36.2%	33.3%	32.8%	33.9%	26.8%	34.4%
Increased 1 - 10%	26.6%	25.5%	27.0%	27.0%	26.9%	30.8%	24.4%	25.6%
Increased 11 - 20%	9.1%	17.0%	6.6%	14.3%	6.7%	7.7%	14.6%	7.8%
Increased more than 20%	14.1%	19.2%	12.5%	6.4%	17.2%	10.8%	14.6%	15.6%

Please provide the following capacity and equipment measures for your shop (across the shop)

Production volume

(as % of designed plant capacity)

Current year

(N)	123	45	78	36	87	39	23	61
Median	77.0%	80.0%	75.0%	77.5%	77.0%	80.0%	80.0%	75.0%
Average	72.7%	74.6%	71.6%	72.6%	72.8%	76.1%	73.5%	70.3%
75th Percentile	90.0%	92.5%	90.0%	93.0%	90.0%	95.0%	90.0%	90.0%
25th Percentile	60.0%	65.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%

Three years ago

(N)	116	44	72	34	82	37	21	58
Median	70.0%	70.0%	70.0%	67.5%	70.0%	75.0%	65.0%	70.0%
Average	66.0%	67.4%	65.2%	62.3%	67.6%	69.1%	61.9%	65.5%
75th Percentile	83.8%	80.0%	85.0%	82.3%	85.0%	90.0%	80.0%	89.3%
25th Percentile	50.0%	51.3%	50.0%	50.0%	50.0%	55.0%	45.0%	50.0%

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		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop
Total output (number of units produced in the year)								
Current year								
(N)	79	39	40	26	53	27	18	34
Median units	37,350	100,000	9,000	56,500	15,000	10,400	147,500	12,500
Average units	1,573,778	2,606,439	566,934	2,666,481	1,037,735	3,485,450	424,134	664,321
75th Percentile units	500,000	964,000	186,250	395,000	636,500	530,000	881,164	395,000
25th Percentile units	1,671	3,220	418	2,775	700	1,671	36,250	383
Three years ago								
(N)	74	37	37	25	49	26	17	31
Median units	11,000	65,000	4,000	7,500	12,000	8,000	100,000	9,000
Average units	1,472,493	2,380,939	564,046	2,553,276	921,072	3,172,213	277,666	702,148
75th Percentile units	397,500	813,476	293,000	340,000	498,355	785,000	421,912	450,000
25th Percentile units	500	1,850	350	650	500	238	16,250	400
Total machine uptime (hours of production as % of plant operations hours per week)								
Current year								
(N)	113	44	69	33	79	34	24	54
Median	80.0%	89.5%	80.0%	90.0%	80.0%	85.0%	82.5%	80.0%
Average	78.1%	85.0%	73.6%	79.6%	77.2%	81.1%	80.0%	74.9%
75th Percentile	94.5%	95.0%	90.0%	95.0%	90.0%	95.0%	93.8%	90.0%
25th Percentile	70.0%	76.3%	60.0%	67.5%	70.0%	73.8%	71.3%	60.0%
Three years ago								
(N)	105	43	62	30	74	32	21	51
Median	75.0%	80.0%	70.0%	70.0%	75.0%	79.0%	75.0%	74.0%
Average	70.5%	75.6%	66.9%	66.6%	71.8%	72.9%	66.6%	70.2%
75th Percentile	90.0%	90.0%	85.0%	90.0%	85.0%	90.0%	85.0%	90.0%
25th Percentile	60.0%	60.0%	50.0%	47.5%	60.0%	61.3%	50.0%	60.0%

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		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop
Machine availability (as % of scheduled uptime)								
Current year								
(N)	105	40	65	33	72	34	22	49
Median	90.0%	92.5%	90.0%	95.0%	89.0%	90.0%	90.0%	90.0%
Average	78.4%	83.1%	75.4%	87.1%	74.4%	85.7%	76.1%	74.3%
75th Percentile	95.0%	97.8%	95.0%	97.0%	95.0%	95.0%	95.0%	98.0%
25th Percentile	73.5%	76.3%	55.0%	85.0%	54.0%	84.8%	65.0%	50.0%
Three years ago								
(N)	98	39	59	30	68	31	20	47
Median	90.0%	90.0%	90.0%	90.0%	87.5%	90.0%	82.5%	90.0%
Average	75.0%	77.1%	73.6%	79.3%	73.1%	79.0%	70.2%	74.4%
75th Percentile	95.0%	97.0%	95.0%	95.0%	95.0%	95.0%	94.5%	98.0%
25th Percentile	57.5%	60.0%	50.0%	68.8%	50.0%	65.0%	46.3%	50.0%
Percentage of equipment maintenance that is reactive (as % of all maintenance)								
Current year								
(N)	108	45	63	38	70	40	20	48
Median	50.0%	40.0%	50.0%	42.5%	50.0%	50.0%	50.0%	40.0%
Average	46.6%	43.8%	48.6%	47.7%	46.0%	50.3%	47.5%	43.2%
75th Percentile	80.0%	70.0%	85.0%	86.3%	80.0%	92.5%	75.0%	80.0%
25th Percentile	10.0%	10.0%	10.0%	10.0%	10.0%	20.0%	10.0%	10.0%
Three years ago								
(N)	99	43	56	33	66	36	19	44
Median	60.0%	50.0%	60.0%	50.0%	67.5%	77.5%	40.0%	55.0%
Average	54.1%	52.5%	55.4%	51.6%	55.4%	60.5%	45.0%	52.8%
75th Percentile	85.0%	80.0%	90.0%	92.5%	85.0%	95.0%	75.0%	83.8%
25th Percentile	20.0%	15.0%	20.0%	15.0%	23.8%	21.3%	10.0%	16.3%

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	ALL FIRMS	BENCHMARK SET		COMPANY TYPE		SHOP RELATION TO CUSTOMER BASE		
		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop
Return on invested capital (net operating profit after taxes / capital invested)								
Current year								
(N)	68	33	35	17	51	20	17	31
Median	14.5%	20.0%	10.0%	21.0%	12.0%	19.0%	18.0%	10.0%
Average	26.6%	34.6%	19.0%	34.8%	23.8%	29.1%	32.1%	21.9%
75th Percentile	30.0%	44.0%	18.0%	50.0%	25.0%	46.3%	32.5%	28.0%
25th Percentile	9.3%	12.0%	5.0%	13.5%	8.0%	12.0%	8.8%	7.0%
Three years ago								
(N)	63	32	31	16	47	17	17	29
Median	8.6%	12.0%	5.0%	13.5%	8.0%	10.0%	12.0%	8.0%
Average	18.1%	21.4%	14.8%	22.6%	16.6%	24.6%	19.9%	13.3%
75th Percentile	20.0%	27.3%	15.0%	20.0%	20.0%	35.0%	27.5%	15.0%
25th Percentile	4.0%	5.0%	2.0%	4.3%	4.0%	5.0%	2.5%	1.9%

SUPPLY CHAIN & INFORMATION TECHNOLOGY

Which of the following supply-chain practices are in use at your shop?

(N)	199	50	149	64	133	64	43	90
Customer-satisfaction surveys	39.2%	54.0%	34.2%	48.4%	34.6%	45.3%	37.2%	35.6%
JIT delivery to customers	37.2%	62.0%	28.9%	32.8%	39.1%	29.7%	37.2%	42.2%
Supplier certifications	35.2%	58.0%	27.5%	43.8%	30.8%	35.9%	48.8%	27.8%
JIT delivery from suppliers	28.6%	50.0%	21.5%	45.3%	20.3%	39.1%	25.6%	22.2%
Customer-satisfaction program	21.6%	30.0%	18.8%	23.4%	21.1%	20.3%	18.6%	24.4%
Consignment inventory for customers	21.1%	26.0%	19.5%	17.2%	23.3%	20.3%	20.9%	22.2%
Consignment inventory by suppliers	17.6%	20.0%	16.8%	26.6%	12.8%	25.0%	20.9%	10.0%
Supplier rationalization	8.5%	12.0%	7.4%	14.1%	6.0%	10.9%	9.3%	6.7%
None of these	21.6%	10.0%	25.5%	9.4%	27.1%	14.1%	16.3%	28.9%

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		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop
How have your typical per-unit prices and costs changed in the past year?								
Prices to customers								
(N)	190	50	140	60	130	57	45	88
Decreased 10%+	4.2%	2.0%	5.0%	1.7%	5.4%	0.0%	2.2%	8.0%
Decreased 6 - 10%	3.2%	10.0%	0.7%	1.7%	3.9%	0.0%	6.7%	3.4%
Decreased 1 - 5%	10.0%	18.0%	7.1%	13.3%	8.5%	8.8%	13.3%	9.1%
0%	18.4%	12.0%	20.7%	15.0%	20.0%	17.5%	17.8%	19.3%
Increased 1 - 5%	37.9%	34.0%	39.3%	46.7%	33.9%	49.1%	35.6%	31.8%
Increased 6 - 10%	19.5%	20.0%	19.3%	21.7%	18.5%	19.3%	20.0%	19.3%
Increased 10%+	6.8%	4.0%	7.9%	0.0%	10.0%	5.3%	4.4%	9.1%
Costs paid for materials								
(N)	185	50	135	61	124	55	44	86
Decreased 10%+	1.1%	0.0%	1.5%	0.0%	1.6%	0.0%	2.3%	1.2%
Decreased 6 - 10%	2.2%	4.0%	1.5%	3.3%	1.6%	0.0%	6.8%	1.2%
Decreased 1 - 5%	3.8%	6.0%	3.0%	6.6%	2.4%	9.1%	2.3%	1.2%
0%	3.8%	0.0%	5.2%	8.2%	1.6%	9.1%	2.3%	1.2%
Increased 1 - 5%	28.1%	24.0%	29.6%	26.2%	29.0%	30.9%	22.7%	29.1%
Increased 6 - 10%	30.8%	38.0%	28.2%	32.8%	29.8%	29.1%	31.8%	31.4%
Increased 10%+	30.3%	28.0%	31.1%	23.0%	33.9%	21.8%	31.8%	34.9%
Please indicate the level of IT spending (as a percentage of sales) for 2005?								
(N)	136	41	95	36	99	37	28	70
Median	1.0%	1.5%	1.0%	2.0%	1.0%	2.0%	1.0%	1.0%
Average	3.1%	4.6%	2.5%	5.3%	2.4%	2.8%	3.7%	3.1%
75th Percentile	3.0%	5.0%	3.0%	5.0%	2.0%	5.0%	2.0%	2.4%
25th Percentile	0.5%	0.8%	0.5%	0.6%	0.5%	0.5%	0.5%	0.5%
What is the anticipated change in information-technology spending for 2006 vs. 2005?								
(N)	183	51	132	55	126	55	40	86
Decrease more than 20%	1.6%	0.0%	2.3%	1.8%	0.8%	0.0%	0.0%	2.3%
Decrease 11 - 20%	1.1%	0.0%	1.5%	1.8%	0.8%	1.8%	2.5%	0.0%
Decrease 1 - 10%	4.9%	5.9%	4.6%	3.6%	5.6%	7.3%	5.0%	3.5%
Stay the same	52.5%	49.0%	53.8%	43.6%	56.4%	47.3%	47.5%	58.1%
Increase 1 - 10%	26.8%	27.5%	26.5%	32.7%	24.6%	25.5%	37.5%	23.3%
Increase 11 - 20%	6.6%	11.8%	4.6%	7.3%	6.4%	9.1%	2.5%	7.0%
Increase more than 20%	6.6%	5.9%	6.8%	9.1%	5.6%	9.1%	5.0%	5.8%

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		Benchmark shops	Other shops	Part of a larger company	Independent company	Captive shop	Contract shop	Job shop
For which of these activities is your shop using information technology applications								
(N)	193	51	142	67	125	62	44	86
Product design (e.g., CAD)	70.0%	72.6%	69.0%	74.6%	68.0%	75.8%	77.3%	62.8%
Manufacturing management	62.7%	78.4%	57.0%	64.2%	61.6%	61.3%	72.7%	58.1%
Online purchasing/selling	49.7%	52.9%	48.6%	47.8%	51.2%	56.5%	50.0%	45.4%
Materials management (e.g., MRP)	49.2%	70.6%	41.6%	58.2%	44.8%	62.9%	56.8%	36.1%
Product labeling/coding/identification	41.5%	58.8%	35.2%	44.8%	40.0%	41.9%	52.3%	36.1%
Customer management (e.g., CRM)	34.2%	39.2%	32.4%	28.4%	36.8%	38.7%	34.1%	30.2%
Tooling management	32.1%	52.9%	24.7%	38.8%	28.8%	29.0%	47.7%	26.7%
Supplier management	26.9%	39.2%	22.5%	29.9%	25.6%	32.3%	31.8%	20.9%
Enterprise management (e.g., ERP)	23.8%	31.4%	21.1%	31.3%	20.0%	30.7%	29.6%	16.3%
Warehousing/distribution/logistics	22.8%	29.4%	20.4%	31.3%	18.4%	38.7%	20.5%	12.8%
Asset management	18.1%	21.6%	16.9%	19.4%	17.6%	16.1%	20.5%	18.6%
None of these	7.3%	3.9%	8.5%	7.5%	7.2%	6.5%	4.6%	9.3%

SEAL OF EXCELLENCE — BENCHMARK SET

Shop in benchmark set								
(N)	249	51	198	87	159	85	49	111
Benchmark set	20.5%	100.0%	0.0%	21.8%	20.1%	23.5%	28.6%	15.3%
Other shops	79.5%	0.0%	100.0%	78.2%	79.9%	76.5%	71.4%	84.7%