

AMERICAN MACHINIST

EMPOWERING METALWORKING MANAGERS

The 2007 *American Machinist* Benchmarking Survey Summary Data Report

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Introduction

The 2007 *American Machinist* Benchmarking Survey was intended to identify the strategies, tactics, and performance measures that work best at machine shops across the country. The survey was also the basis for developing a list of finalists for the *American Machinist* Best Machine Shops awards program.

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

- By relation to customers — captive shop, contract shop, or job shop.
- By employment level — 1-20, 21-50, and more than 50 employees.
- By benchmark set — benchmark shops, defined by the top 20% of shops in the database, as ranked by *American Machinist*, vs. other shops.

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 in combination with the 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.

Reading the Tables

Data for all tables should be read down the columns, especially tables with answer categories. For example in the table below: **10.9%** of all shops (183) answering this question anticipate increasing capital equipment spending by more than 20% for 2007; 53 benchmark shops answered the question, of which **17.0%** anticipate increasing capital equipment spending by more than 20% for 2007; 130 other shops answered the question, of which **8.5%** anticipate increasing capital equipment spending by more than 20%.

	All Shops	Benchmark Set	
		Benchmark Shops	Other Shops
What is the anticipated change in capital equipment spending for 2007 vs. 2006?			
(N)	183	53	130
Decreased more than 20%	8.7%	9.4%	8.5%
Decreased 11 - 20%	4.4%	5.7%	3.9%
Decreased 1 - 10%	3.3%	1.9%	3.9%
Stayed the same	38.3%	20.8%	45.4%
Increased 1 - 10%	25.1%	32.1%	22.3%
Increased 11 - 20%	9.3%	13.2%	7.7%
Increased more than 20%	10.9%	17.0%	8.5%

Glossary

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

Mean: The average value for answers to open-ended questions (sum of values divided by the number of responses).

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, such as annual labor turnover rate.*

Methodology

The 2007 *American Machinist* Benchmarking Survey was conducted using an online questionnaire and promoted in *American Machinist* magazine. There were 274 respondents, with surveys received in February and March 2007. 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* Best Machine Shops award program provided contact information; all other responses were anonymous.

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

PROFILE INFORMATION

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

(N)	269	54	215	63	44	160	132	50	66
Part of a larger company	26.0%	16.7%	28.4%	65.1%	36.4%	8.1%	14.4%	22.0%	47.0%
Independent company	74.0%	83.3%	71.6%	34.9%	63.6%	91.9%	85.6%	78.0%	53.0%

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

(N)	268	55	213	63	45	160	131	50	67
Captive shop	23.5%	14.6%	25.8%	100.0%	0.0%	0.0%	19.9%	6.0%	40.3%
Contract shop	16.8%	16.4%	16.9%	0.0%	100.0%	0.0%	9.9%	20.0%	23.9%
Job shop	59.7%	69.1%	57.3%	0.0%	0.0%	100.0%	70.2%	74.0%	35.8%

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

(N)	263	55	208	63	41	158	128	50	66
Cost center	25.9%	16.4%	28.4%	66.7%	24.4%	10.1%	21.1%	12.0%	43.9%
Profit center	74.1%	83.6%	71.6%	33.3%	75.6%	89.9%	78.9%	88.0%	56.1%

What are the primary industries this shop services?

(multiple responses allowed)

(N)	271	55	216	63	44	159	134	49	67
Precision machining	54.2%	72.7%	49.5%	20.6%	59.1%	66.7%	56.0%	65.3%	43.3%
Industrial equipment and machinery	45.0%	38.2%	46.8%	28.6%	38.6%	53.5%	44.0%	51.0%	44.8%
Aerospace	29.9%	52.7%	24.1%	14.3%	31.8%	36.5%	23.1%	51.0%	31.3%
Defense industry	28.8%	47.3%	24.1%	17.5%	29.6%	32.7%	27.6%	40.8%	25.4%
Automotive	27.7%	30.9%	26.9%	19.1%	36.4%	29.6%	26.1%	40.8%	25.4%
Medical/nanotechnology	26.9%	29.1%	26.4%	14.3%	31.8%	30.8%	23.9%	28.6%	29.9%
Construction/offhighway	18.5%	25.5%	16.7%	9.5%	25.0%	20.8%	11.9%	22.5%	26.9%
High tech	17.0%	30.9%	13.4%	11.1%	11.4%	21.4%	15.7%	28.6%	13.4%
Oil and chemical processing	15.1%	20.0%	13.9%	12.7%	13.6%	16.4%	9.7%	28.6%	19.4%
Moldmaking/plastic tool and dies	14.0%	18.2%	13.0%	9.5%	6.8%	17.6%	17.9%	16.3%	9.0%
Consumer product durables/appliances	13.7%	10.9%	14.4%	9.5%	11.4%	16.4%	14.2%	20.4%	9.0%
Motorsports	12.6%	25.5%	9.3%	9.5%	20.5%	12.0%	12.7%	14.3%	9.0%
Consumer packaged goods/nondurables	8.9%	7.3%	9.3%	4.8%	6.8%	10.7%	11.2%	8.2%	3.0%
Other	17.0%	12.7%	18.1%	28.6%	4.6%	15.7%	17.2%	16.3%	19.4%
None of the above	0.7%	0.0%	0.9%	1.6%	0.0%	0.0%	0.8%	0.0%	0.0%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level			
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50
From which industries did your shop increase revenues last year? (multiple responses allowed)									
(N)	259	55	204	57	44	153	130	47	64
Precision machining	30.1%	45.5%	26.0%	12.3%	25.0%	37.9%	32.3%	27.7%	25.0%
Industrial equipment and machinery	28.6%	20.0%	30.9%	17.5%	20.5%	35.3%	28.5%	31.9%	23.4%
Aerospace	18.2%	38.2%	12.8%	8.8%	18.2%	22.2%	13.1%	23.4%	25.0%
Medical/nanotechnology	17.0%	23.6%	15.2%	12.3%	25.0%	16.3%	11.5%	21.3%	23.4%
Defense industry	16.2%	20.0%	15.2%	7.0%	25.0%	17.0%	12.3%	27.7%	15.6%
Automotive	14.7%	20.0%	13.2%	10.5%	25.0%	13.7%	10.0%	21.3%	18.8%
Construction/offhighway	12.7%	20.0%	10.8%	10.5%	27.3%	9.8%	7.7%	8.5%	20.3%
High tech	12.0%	21.8%	9.3%	8.8%	9.1%	14.4%	11.5%	19.2%	9.4%
Oil and chemical processing	11.6%	10.9%	11.8%	10.5%	11.4%	11.8%	3.9%	25.5%	17.2%
Consumer product durables/appliances	7.3%	3.6%	8.3%	7.0%	4.6%	7.8%	6.2%	8.5%	6.3%
Motorsports	7.0%	16.4%	4.4%	7.0%	9.1%	6.5%	8.5%	2.1%	4.7%
Moldmaking/plastic tool and dies	5.0%	7.3%	4.4%	5.3%	2.3%	5.9%	6.9%	2.1%	4.7%
Consumer packaged goods/nondurables	2.7%	5.5%	2.0%	1.8%	0.0%	3.3%	3.1%	4.3%	0.0%
Other	11.2%	12.7%	10.8%	19.3%	4.6%	10.5%	10.0%	12.8%	14.1%
None of the above	8.5%	0.0%	10.8%	10.5%	6.8%	8.5%	15.4%	0.0%	3.1%

Which of the following machining processes occur at this shop?
(multiple responses allowed)

(N)	271	55	216	63	44	160	133	50	67
Milling	95.2%	98.2%	94.4%	96.8%	95.5%	95.0%	97.7%	92.0%	94.0%
Turning	91.1%	94.6%	90.3%	93.7%	84.1%	91.9%	89.5%	92.0%	97.0%
Tapping and threading	86.4%	85.5%	86.6%	85.7%	88.6%	86.3%	82.7%	92.0%	89.6%
Boring/drilling/reaming	80.8%	87.3%	79.2%	82.5%	79.6%	80.6%	70.7%	92.0%	94.0%
Sawing	77.5%	83.6%	75.9%	88.9%	75.0%	74.4%	75.2%	78.0%	82.1%
Grinding	63.1%	61.8%	63.4%	61.9%	59.1%	64.4%	57.1%	64.0%	73.1%
Multitasking	38.4%	70.9%	30.1%	33.3%	45.5%	38.8%	25.6%	62.0%	47.8%
Broaching/gear cutting	29.2%	38.2%	26.9%	30.2%	25.0%	29.4%	27.1%	22.0%	35.8%
Metal heat treating	24.4%	29.1%	23.2%	28.6%	25.0%	22.5%	15.8%	34.0%	37.3%
EDM/ECM	21.4%	29.1%	19.4%	20.6%	18.2%	23.1%	15.8%	26.0%	29.9%
Laser cutting	9.2%	16.4%	7.4%	7.9%	9.1%	10.0%	4.5%	10.0%	14.9%
Water-jet cutting	4.8%	7.3%	4.2%	3.2%	4.6%	5.6%	3.0%	8.0%	6.0%
Other	7.4%	10.9%	6.5%	7.9%	2.3%	8.8%	9.8%	8.0%	3.0%
None of these	1.1%	0.0%	1.4%	0.0%	2.3%	1.3%	0.8%	2.0%	1.5%

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	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

If “multitasking” occurs at this shop, which of the following processes are used?

(multiple responses allowed)

(N)	178	45	133	41	33	99	76	40	50
Mill/turning	56.2%	66.7%	52.6%	56.1%	54.6%	57.6%	42.1%	60.0%	74.0%
Hard-turning	29.2%	33.3%	27.8%	19.5%	39.4%	30.3%	23.7%	37.5%	32.0%
Multiple-live tools	28.1%	40.0%	24.1%	22.0%	33.3%	27.3%	18.4%	22.5%	48.0%
Multispindle machining	26.4%	40.0%	21.8%	19.5%	30.3%	27.3%	14.5%	20.0%	48.0%
Hard-milling	23.0%	24.4%	22.6%	24.4%	30.3%	19.2%	18.4%	30.0%	22.0%
Mill/grinding	21.9%	31.1%	18.8%	12.2%	24.2%	24.2%	18.4%	22.5%	26.0%
Grinding/turning	19.1%	20.0%	18.8%	12.2%	21.2%	21.2%	11.8%	25.0%	24.0%
None of these	20.8%	4.4%	26.3%	34.2%	6.1%	19.2%	34.2%	12.5%	8.0%

Number of employees at this shop?

All full-time employees

2005

(N)	252	55	197	57	40	151	128	47	67
Median	16.5	30.0	15.0	45.0	38.5	15.0	6.0	29.0	100.0
Average	70.7	75.6	69.3	164.6	65.8	37.9	7.7	31.0	218.0
75th Percentile	59.5	85.0	46.5	145.0	94.3	30.0	12.0	39.0	185.0
25th Percentile	6.0	10.0	5.0	5.5	12.8	5.0	3.0	22.0	72.0

2006

(N)	252	55	197	56	39	153	134	50	68
Median	18.0	35.0	15.0	46.5	40.0	15.0	7.0	31.5	105.0
Average	78.0	81.7	77.0	189.5	79.5	38.3	8.1	32.7	248.9
75th Percentile	58.0	92.0	46.5	143.3	100.0	34.0	13.0	40.0	207.5
25th Percentile	6.0	11.0	6.0	5.0	13.0	6.0	3.0	25.0	72.8

Anticipated 2007

(N)	249	55	194	55	38	152	133	47	67
Median	19.0	40.0	16.5	52.0	37.5	16.5	8.0	34.0	108.0
Average	87.1	88.2	86.8	221.7	84.7	40.7	9.0	35.4	266.1
75th Percentile	60.5	100.0	50.0	150.0	101.3	35.0	13.0	42.0	200.0
25th Percentile	7.0	12.0	6.0	6.0	12.3	6.0	4.0	28.0	74.0

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	Benchmark Set		Relation to Customer			Employment Level			
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50
Shop-floor employees									
2005									
(N)	230	54	176	52	34	141	120	47	62
Median	10.5	17.0	9.5	10.5	24.0	10.0	5.0	22.0	65.0
Average	44.0	51.2	41.8	92.7	49.0	25.7	6.2	22.0	134.5
75th Percentile	34.3	64.0	29.5	68.8	66.8	23.0	8.0	27.0	100.0
25th Percentile	4.0	4.8	4.0	5.0	7.8	4.0	2.0	16.0	35.8
2006									
(N)	235	55	180	51	37	144	122	50	63
Median	13.0	24.0	10.5	14.0	26.0	11.0	5.0	24.0	75.0
Average	49.4	55.8	47.4	112.6	52.5	27.1	6.8	24.0	152.1
75th Percentile	34.0	70.0	28.0	80.0	73.5	25.0	9.0	28.3	115.0
25th Percentile	5.0	8.0	5.0	5.0	8.5	4.3	3.0	18.0	40.0
Anticipated 2007									
(N)	234	55	179	52	36	143	121	47	63
Median	14.5	29.0	11.0	17.5	29.0	11.0	5.5	26.0	77.0
Average	57.3	60.9	56.2	138.5	54.9	29.4	7.7	26.9	166.6
75th Percentile	38.8	75.0	30.0	88.8	74.0	27.0	10.0	34.0	124.0
25th Percentile	5.0	8.0	5.0	5.0	8.3	5.0	3.0	20.0	45.0
Which criteria below best describe the run and product mix of your shop?									
(N)	254	55	199	57	41	153	131	49	63
Long run/High mix	5.5%	10.9%	4.0%	7.0%	4.9%	4.6%	3.8%	6.1%	7.9%
Long run/Low mix	7.1%	3.6%	8.0%	8.8%	17.1%	3.3%	6.9%	8.2%	7.9%
Short run/High mix	70.5%	78.2%	68.3%	70.2%	65.9%	73.2%	67.2%	73.5%	74.6%
Short run/Low mix	16.9%	7.3%	19.6%	14.0%	12.2%	19.0%	22.1%	12.2%	9.5%

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	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

Please indicate approximate annual revenue for this shop:

In 2006

(N)	204	54	150	39	33	129	106	44	53
Median	\$2,400,000	\$3,500,000	\$1,800,000	\$3,200,000	\$4,000,000	\$1,900,000	\$655,000	\$3,450,000	\$15,000,000
Average	\$24,492,235	\$10,062,387	\$29,686,980	\$102,722,846	\$10,417,329	\$4,973,473	\$1,242,321	\$4,881,409	\$68,866,940
75th Percentile	\$6,450,000	\$13,125,000	\$5,000,000	\$24,000,000	\$16,000,000	\$4,756,016	\$1,500,000	\$5,000,000	\$35,000,000
25th Percentile	\$600,000	\$1,450,000	\$518,750	\$400,000	\$1,550,000	\$600,000	\$200,000	\$2,850,000	\$6,750,000

Projected in 2007

(N)	206	54	152	39	34	130	107	44	53
Median	\$2,500,000	\$4,650,000	\$1,900,000	\$3,539,800	\$5,000,000	\$2,075,000	\$750,000	\$4,275,000	\$16,500,000
Average	\$26,164,351	\$11,718,127	\$31,296,563	\$109,809,713	\$10,540,972	\$5,715,265	\$1,462,928	\$5,727,273	\$75,117,605
75th Percentile	\$7,000,000	\$14,250,000	\$5,500,000	\$26,000,000	\$16,750,000	\$5,025,000	\$1,800,000	\$5,475,000	\$40,500,000
25th Percentile	\$672,500	\$1,650,000	\$600,000	\$550,000	\$1,300,000	\$600,000	\$250,000	\$3,212,500	\$7,750,000

Please indicate the percentage of shop revenue from outside North America:

In 2006

(N)	215	53	162	42	33	138	112	45	54
Median	0.0%	1.5%	0.0%	5.5%	1.5%	0.0%	0.0%	0.0%	6.5%
Average	8.3%	6.3%	8.9%	16.6%	8.4%	5.8%	6.3%	7.3%	13.8%
75th Percentile	8.0%	10.0%	5.0%	25.0%	10.0%	3.0%	1.0%	7.5%	20.5%
25th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Three years ago

(N)	212	53	159	42	32	136	110	45	54
Median	0.0%	0.0%	0.0%	1.0%	2.0%	0.0%	0.0%	0.0%	3.0%
Average	7.2%	4.3%	8.2%	14.4%	9.0%	4.7%	5.8%	6.8%	11.0%
75th Percentile	3.3%	4.0%	3.4%	21.3%	13.8%	1.0%	0.0%	3.5%	18.1%
25th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

HUMAN RESOURCES

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

(multiple responses allowed)

	246	54	192	57	40	146	126	49	62
(N)									
Paid vacation days	87.0%	90.7%	85.9%	93.0%	90.0%	84.3%	78.6%	98.0%	95.2%
Shop-paid medical benefits	72.4%	83.3%	69.3%	79.0%	70.0%	71.2%	61.1%	89.8%	79.0%
Annual review and raise program	70.3%	88.9%	65.1%	77.2%	72.5%	67.1%	58.7%	85.7%	82.3%
Employee training program	66.7%	92.6%	59.4%	70.2%	77.5%	61.6%	55.6%	73.5%	83.9%
Accident prevention program	55.7%	68.5%	52.1%	70.2%	57.5%	50.0%	35.7%	69.4%	83.9%
Education reimbursements	55.7%	64.8%	53.1%	68.4%	70.0%	46.6%	33.3%	73.5%	83.9%
Paid sick and/or personal days	52.4%	55.6%	51.6%	64.9%	55.0%	47.3%	43.7%	57.1%	61.3%
Promotion/advancement opportunities	52.0%	72.2%	46.4%	63.2%	47.5%	50.0%	36.5%	71.4%	67.7%
Bonus plan	42.7%	59.3%	38.0%	43.9%	40.0%	43.2%	40.5%	44.9%	45.2%
Profit or revenue-sharing plan	38.6%	51.9%	34.9%	33.3%	32.5%	41.8%	31.0%	46.9%	50.0%
Leader/supervisor development	34.6%	55.6%	28.7%	47.4%	35.0%	29.5%	20.6%	32.7%	62.9%
Apprenticeship program	31.7%	57.4%	24.5%	21.1%	40.0%	34.3%	27.8%	36.7%	38.7%
Recruiting and hiring program	30.5%	61.1%	21.9%	33.3%	30.0%	29.5%	15.1%	38.8%	56.5%
Employee-ownership options	8.9%	11.1%	8.3%	14.0%	7.5%	7.5%	7.1%	6.1%	11.3%
None of these	2.9%	1.9%	3.1%	1.8%	0.0%	4.1%	4.8%	0.0%	0.0%

What was your annual labor turnover rate for 2006?

(number of voluntary and involuntary separations / typical staffing level)

	228	55	173	50	34	141	119	45	60
(N)									
Median	5.0%	4.0%	5.0%	2.0%	5.0%	5.0%	0.0%	6.0%	5.0%
Average	9.7%	6.7%	10.7%	8.9%	11.7%	9.7%	10.2%	9.2%	9.7%
75th Percentile	15.0%	8.0%	15.0%	10.0%	17.8%	15.0%	15.0%	15.0%	11.5%
25th Percentile	0.0%	0.0%	0.0%	0.0%	2.8%	0.0%	0.0%	2.0%	2.0%

What are the average hours of formal training received by each full-time employee per year?

	236	54	182	52	37	143	122	46	59
(N)									
Less than 8 hours	32.6%	11.1%	39.9%	28.9%	29.7%	35.7%	36.9%	32.6%	22.0%
8 - 20 hours	30.9%	27.8%	31.9%	34.6%	37.8%	27.3%	31.2%	37.0%	28.8%
21 - 40 hours	22.0%	35.2%	18.1%	23.1%	24.3%	21.7%	16.4%	17.4%	39.0%
More than 40 hours	14.4%	25.9%	11.0%	13.5%	8.1%	15.4%	15.6%	13.0%	10.2%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

What percentage of employees make operating decisions without supervisor approval (i.e., empowered)?

(N)	241	54	187	53	37	147	124	47	59
0%	7.9%	0.0%	10.2%	7.6%	8.1%	7.5%	8.9%	6.4%	3.4%
1 - 25%	36.9%	22.2%	41.2%	39.6%	43.2%	35.4%	34.7%	38.3%	42.4%
26 - 50%	19.1%	29.6%	16.0%	18.9%	18.9%	19.7%	15.3%	21.3%	25.4%
51 - 75%	18.3%	25.9%	16.0%	18.9%	16.2%	19.1%	17.7%	17.0%	22.0%
76 - 99%	8.3%	9.3%	8.0%	9.4%	5.4%	7.5%	10.5%	6.4%	6.8%
100%	9.5%	13.0%	8.6%	5.7%	8.1%	10.9%	12.9%	10.6%	0.0%

What is the approximate average wage for shop-floor personnel?

(hourly rate without overtime)

Operators

(N)	212	53	159	46	35	128	104	44	57
Median	\$16.00	\$16.00	\$16.00	\$16.00	\$15.00	\$16.00	\$15.50	\$16.50	\$16.00
Average	\$17.18	\$16.55	\$17.38	\$18.50	\$15.01	\$17.13	\$16.92	\$16.69	\$17.28
75th Percentile	\$19.00	\$18.00	\$20.00	\$24.00	\$17.00	\$19.00	\$19.81	\$18.00	\$18.78
25th Percentile	\$14.00	\$13.00	\$14.00	\$14.00	\$12.95	\$14.00	\$13.50	\$15.00	\$14.00

Set-up personnel

(N)	188	50	138	39	33	113	97	36	49
Median	\$20.00	\$20.00	\$19.00	\$20.00	\$19.75	\$20.00	\$19.00	\$20.00	\$20.00
Average	\$20.54	\$20.87	\$20.42	\$21.49	\$18.41	\$20.54	\$20.24	\$20.02	\$20.42
75th Percentile	\$23.00	\$23.00	\$23.00	\$25.00	\$20.00	\$22.75	\$24.00	\$22.00	\$22.00
25th Percentile	\$16.11	\$17.88	\$16.00	\$16.61	\$15.00	\$16.23	\$16.00	\$18.00	\$16.56

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

How many job-related injuries and illnesses occurred that resulted in lost work days?

2005

(N)	215	54	161	47	30	136	118	41	53
Median	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
Average	2.9	6.1	1.9	4.2	3.9	2.3	0.9	0.7	9.3
75th Percentile	2.0	2.5	1.5	2.0	1.3	1.0	0.0	1.0	10.0
25th Percentile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2006

(N)	214	54	160	46	29	137	116	44	51
Median	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.0
Average	3.6	7.2	2.3	4.7	3.3	3.3	1.0	2.0	11.1
75th Percentile	2.0	4.3	1.8	3.0	1.5	1.5	0.0	2.0	7.0
25th Percentile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Injuries per employee in 2006

(N)	214	54	160	46	29	137	116	44	51
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02
Average	0.10	0.08	0.11	0.08	0.11	0.11	0.12	0.07	0.09
75th Percentile	0.04	0.05	0.04	0.04	0.03	0.05	0.00	0.04	0.06
25th Percentile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

STRATEGY AND OPERATIONS

How much progress has the shop made toward world-class machining status?

(N)	233	55	178	52	37	140	118	46	58
No progress	17.6%	1.8%	22.5%	17.3%	10.8%	19.3%	25.4%	17.4%	3.5%
Some progress	44.2%	34.6%	47.2%	50.0%	54.1%	40.0%	45.8%	34.8%	48.3%
Significant progress	33.1%	50.9%	27.5%	26.9%	32.4%	35.0%	25.4%	39.1%	41.4%
Fully achieved	5.2%	12.7%	2.8%	5.8%	2.7%	5.7%	3.4%	8.7%	6.9%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level			
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50
Which of the following practices/methods are achieving in use at your shop? (multiple responses allowed)									
(N)	229	55	174	51	38	136	114	46	59
Lean Manufacturing methods	52.8%	78.2%	44.8%	52.9%	63.2%	50.0%	34.2%	58.7%	84.8%
ISO, QS and/or TS quality certification	45.9%	69.1%	38.5%	52.9%	57.9%	40.4%	25.4%	58.7%	74.6%
Formal continuous-improvement program	32.3%	56.4%	24.7%	29.4%	42.1%	31.6%	17.5%	37.0%	55.9%
Benchmarking of other companies/shops	26.6%	45.5%	20.7%	29.4%	29.0%	25.7%	18.4%	26.1%	42.4%
Total productive maintenance	25.8%	45.5%	19.5%	19.6%	15.8%	31.6%	20.2%	28.3%	33.9%
Environmental management techniques	24.0%	40.0%	19.0%	27.5%	15.8%	25.7%	14.0%	32.6%	37.3%
Total Quality Management methods	22.7%	43.6%	16.1%	21.6%	18.4%	24.3%	16.7%	30.4%	30.5%
Six Sigma methods	17.5%	29.1%	13.8%	25.5%	23.7%	13.2%	9.7%	17.4%	32.2%
Energy management techniques	13.5%	21.8%	10.9%	7.8%	18.4%	14.7%	9.7%	19.6%	13.6%
Theory of Constraints methods	8.7%	14.6%	6.9%	15.7%	7.9%	6.6%	3.5%	6.5%	22.0%
Toyota Production Systems methods	6.6%	10.9%	5.2%	13.7%	2.6%	5.2%	1.8%	4.4%	17.0%
None of these	20.1%	3.6%	25.3%	21.6%	7.9%	22.1%	31.6%	15.2%	1.7%

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

(multiple responses allowed)

(N)	233	55	178	52	37	140	119	46	59
High quality	76.4%	92.7%	71.4%	65.4%	70.3%	81.4%	73.1%	80.4%	79.7%
Service and support	65.7%	70.9%	64.0%	63.5%	67.6%	66.4%	63.9%	63.0%	71.2%
Fast Delivery	42.9%	52.7%	39.9%	40.4%	29.7%	47.1%	39.5%	54.4%	44.1%
Total value	38.2%	45.5%	36.0%	30.8%	54.1%	37.1%	31.1%	41.3%	47.5%
Innovation	28.3%	29.1%	28.1%	38.5%	24.3%	25.0%	28.6%	21.7%	30.5%
Customization	26.2%	21.8%	27.5%	26.9%	24.3%	27.1%	30.3%	26.1%	22.0%
Low cost	22.3%	14.6%	24.7%	17.3%	18.9%	24.3%	23.5%	15.2%	23.7%
Product variety	17.2%	14.6%	18.0%	17.3%	16.2%	17.1%	15.1%	26.1%	15.3%
None of these	0.9%	0.0%	1.1%	3.9%	0.0%	0.0%	1.7%	0.0%	0.0%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level			
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50
Which of the following tools are in use at your shop? (multiple responses allowed)									
(N)	234	55	179	52	38	140	119	46	59
CAM systems	66.2%	80.0%	62.0%	69.2%	73.7%	65.0%	59.7%	65.2%	76.3%
3D CAD systems	55.1%	63.6%	52.5%	57.7%	65.8%	52.1%	49.6%	52.2%	66.1%
2D CAD systems	53.4%	67.3%	49.2%	46.2%	50.0%	57.1%	50.4%	65.2%	50.9%
Statistical process controls	30.3%	54.6%	22.9%	25.0%	39.5%	30.0%	15.1%	39.1%	54.2%
Cellular manufacturing	29.5%	49.1%	23.5%	32.7%	47.4%	23.6%	10.9%	32.6%	64.4%
Automation	26.9%	43.6%	21.8%	25.0%	31.6%	26.4%	16.8%	34.8%	42.4%
Computerized maintenance management systems	15.8%	30.9%	11.2%	21.2%	13.2%	15.0%	5.0%	15.2%	39.0%
Robotics	14.1%	21.8%	11.7%	13.5%	26.3%	10.7%	4.2%	8.7%	37.3%
Online machine monitoring	9.8%	23.6%	5.6%	11.5%	2.6%	11.4%	1.7%	15.2%	20.3%
Vibration and/or thermographic analysis	8.1%	9.1%	7.8%	17.3%	7.9%	4.3%	4.2%	4.4%	17.0%
None of these	6.4%	1.8%	7.8%	9.6%	2.6%	5.7%	10.9%	2.2%	0.0%

How have the following machining-specific techniques improved your shop's production over the past three years?

Tooling presets

(N)	216	55	161	48	37	128	107	42	57
In use —major improvement	19.4%	36.4%	13.7%	14.6%	18.9%	21.1%	14.0%	21.4%	31.6%
In use —some improvement	31.9%	34.6%	31.1%	29.2%	40.5%	30.5%	29.0%	26.2%	38.6%
In use —no improvement	8.3%	14.6%	6.2%	8.3%	8.1%	8.6%	4.7%	14.3%	10.5%
Not in use	40.3%	14.6%	49.1%	47.9%	32.4%	39.8%	52.3%	38.1%	19.3%

Multiple workpiece fixturing

(N)	215	55	160	47	36	128	108	41	56
In use —major improvement	25.6%	36.4%	21.9%	19.2%	30.6%	25.8%	24.1%	24.4%	32.1%
In use —some improvement	33.5%	34.6%	33.1%	29.8%	41.7%	33.6%	29.6%	31.7%	41.1%
In use —no improvement	10.2%	7.3%	11.3%	8.5%	13.9%	10.2%	9.3%	12.2%	7.1%
Not in use	30.7%	21.8%	33.8%	42.6%	13.9%	30.5%	37.0%	31.7%	19.6%

In-process measurement

(N)	214	54	160	49	35	126	105	41	58
In use —major improvement	26.6%	48.2%	19.4%	18.4%	22.9%	31.0%	24.8%	31.7%	24.1%
In use —some improvement	32.7%	35.2%	31.9%	38.8%	40.0%	28.6%	21.0%	31.7%	56.9%
In use —no improvement	10.3%	1.9%	13.1%	8.2%	8.6%	11.1%	11.4%	7.3%	8.6%
Not in use	30.4%	14.8%	35.6%	34.7%	28.6%	29.4%	42.9%	29.3%	10.3%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level			
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50
Coordinate measuring machines (CMM)									
(N)	215	55	160	48	36	127	108	42	55
In use —major improvement	19.5%	25.5%	17.5%	12.5%	19.4%	22.1%	12.0%	21.4%	34.6%
In use —some improvement	20.0%	32.7%	15.6%	16.7%	25.0%	20.5%	13.0%	19.1%	34.6%
In use —no improvement	8.8%	9.1%	8.8%	6.3%	11.1%	8.7%	8.3%	9.5%	9.1%
Not in use	51.6%	32.7%	58.1%	64.6%	44.4%	48.8%	66.7%	50.0%	21.8%
Barfeeders									
(N)	211	52	159	48	35	125	107	41	53
In use —major improvement	19.4%	25.0%	17.6%	12.5%	25.7%	20.0%	17.8%	19.5%	24.5%
In use —some improvement	14.2%	19.2%	12.6%	10.4%	22.9%	13.6%	9.4%	9.8%	26.4%
In use —no improvement	6.6%	9.6%	5.7%	2.1%	5.7%	8.8%	2.8%	14.6%	9.4%
Not in use	59.7%	46.2%	64.2%	75.0%	45.7%	57.6%	70.1%	56.1%	39.6%
Prefixturing workpieces									
(N)	214	55	159	48	35	127	108	41	55
In use —major improvement	16.8%	25.5%	13.8%	8.3%	8.6%	22.1%	21.3%	12.2%	14.6%
In use —some improvement	27.6%	29.1%	27.0%	25.0%	42.9%	25.2%	22.2%	26.8%	36.4%
In use —no improvement	9.4%	7.3%	10.1%	12.5%	11.4%	7.9%	7.4%	9.8%	10.9%
Not in use	46.3%	38.2%	49.1%	54.2%	37.1%	44.9%	49.1%	51.2%	38.2%
CNC equipment									
(N)	226	55	171	48	37	138	115	44	57
In use —major improvement	58.0%	72.7%	53.2%	56.3%	56.8%	59.4%	53.9%	56.8%	68.4%
In use —some improvement	24.3%	18.2%	26.3%	29.2%	32.4%	21.0%	20.9%	29.6%	24.6%
In use —no improvement	5.8%	3.6%	6.4%	4.2%	8.1%	5.8%	7.8%	4.6%	3.5%
Not in use	12.0%	5.5%	14.0%	10.4%	2.7%	13.8%	17.4%	9.1%	3.5%
Proprietary software									
(N)	213	54	159	47	36	126	107	42	54
In use —major improvement	18.3%	24.1%	16.4%	4.3%	19.4%	23.0%	21.5%	19.1%	13.0%
In use —some improvement	22.5%	29.6%	20.1%	21.3%	30.6%	21.4%	14.0%	33.3%	31.5%
In use —no improvement	5.6%	3.7%	6.3%	4.3%	5.6%	6.4%	4.7%	7.1%	5.6%
Not in use	53.5%	42.6%	57.2%	70.2%	44.4%	49.2%	59.8%	40.5%	50.0%

2007 American Machinist Benchmarking Survey

	All Shops	Benchmark Set		Relation to Customer			Employment Level		
		Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50
Five-axis machining									
(N)	208	54	154	47	36	122	102	40	56
In use —major improvement	7.7%	16.7%	4.6%	8.5%	5.6%	8.2%	2.9%	7.5%	16.1%
In use —some improvement	8.7%	13.0%	7.1%	8.5%	13.9%	7.4%	2.0%	15.0%	17.9%
In use —no improvement	3.4%	5.6%	2.6%	2.1%	2.8%	4.1%	1.0%	2.5%	7.1%
Not in use	80.3%	64.8%	85.7%	80.9%	77.8%	80.3%	94.1%	75.0%	58.9%
Chip-removal system									
(N)	216	53	163	48	35	129	108	41	57
In use —major improvement	12.0%	15.1%	11.0%	8.3%	2.9%	14.7%	12.0%	12.2%	10.5%
In use —some improvement	34.3%	41.5%	31.9%	22.9%	45.7%	35.7%	24.1%	41.5%	49.1%
In use —no improvement	16.7%	13.2%	17.8%	20.8%	20.0%	14.7%	13.0%	26.8%	15.8%
Not in use	37.0%	30.2%	39.3%	47.9%	31.4%	34.9%	50.9%	19.5%	24.6%
Maximizing machine uptime									
(N)	216	54	162	49	35	128	109	40	57
In use —major improvement	20.8%	35.2%	16.1%	12.2%	17.1%	24.2%	20.2%	20.0%	22.8%
In use —some improvement	44.0%	51.9%	41.4%	46.9%	48.6%	43.0%	38.5%	40.0%	59.7%
In use —no improvement	11.6%	7.4%	13.0%	8.2%	22.9%	8.6%	9.2%	22.5%	5.3%
Not in use	23.6%	5.6%	29.6%	32.7%	11.4%	24.2%	32.1%	17.5%	12.3%
Maximizing machine cutting									
(N)	211	54	157	48	35	124	105	40	56
In use —major improvement	24.2%	42.6%	17.8%	18.8%	22.9%	25.8%	21.9%	22.5%	30.4%
In use —some improvement	42.7%	48.2%	40.8%	39.6%	42.9%	45.2%	40.0%	42.5%	50.0%
In use —no improvement	11.4%	5.6%	13.4%	10.4%	22.9%	7.3%	7.6%	20.0%	8.9%
Not in use	21.8%	3.7%	28.0%	31.3%	11.4%	21.8%	30.5%	15.0%	10.7%
Multiple pallet changers									
(N)	208	53	155	47	36	122	102	39	57
In use —major improvement	17.3%	26.4%	14.2%	10.6%	13.9%	20.5%	12.8%	12.8%	31.6%
In use —some improvement	13.5%	18.9%	11.6%	12.8%	27.8%	9.8%	6.9%	20.5%	21.1%
In use —no improvement	5.3%	3.8%	5.8%	6.4%	11.1%	3.3%	1.0%	12.8%	3.5%
Not in use	63.9%	50.9%	68.4%	70.2%	47.2%	66.4%	79.4%	53.9%	43.9%

2007 American Machinist Benchmarking Survey

	All Shops	Benchmark Set		Relation to Customer			Employment Level		
		Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50
Multitasking									
(N)	214	54	160	49	35	126	107	41	56
In use —major improvement	17.8%	37.0%	11.3%	14.3%	14.3%	19.1%	9.4%	24.4%	28.6%
In use —some improvement	29.0%	27.8%	29.4%	30.6%	48.6%	23.0%	25.2%	26.8%	41.1%
In use —no improvement	10.3%	13.0%	9.4%	6.1%	14.3%	11.1%	7.5%	17.1%	7.1%
Not in use	43.0%	22.2%	50.0%	49.0%	22.9%	46.8%	57.9%	31.7%	23.2%
Multiple spindle machines									
(N)	211	53	158	47	36	124	107	40	54
In use —major improvement	10.4%	11.3%	10.1%	10.6%	8.3%	9.7%	7.5%	10.0%	18.5%
In use —some improvement	10.9%	22.6%	7.0%	6.4%	11.1%	12.9%	8.4%	10.0%	18.5%
In use —no improvement	6.2%	5.7%	6.3%	8.5%	5.6%	5.7%	1.9%	7.5%	13.0%
Not in use	72.5%	60.4%	76.6%	74.5%	75.0%	71.8%	82.2%	72.5%	50.0%
Other measuring (e.g., laser)									
(N)	200	49	151	46	34	116	104	37	50
In use —major improvement	9.0%	20.4%	5.3%	2.2%	14.7%	9.5%	5.8%	13.5%	12.0%
In use —some improvement	10.0%	10.2%	9.9%	10.9%	11.8%	9.5%	10.6%	5.4%	12.0%
In use —no improvement	4.5%	2.0%	5.3%	8.7%	2.9%	3.5%	2.9%	2.7%	8.0%
Not in use	76.5%	67.4%	79.5%	78.3%	70.6%	77.6%	80.8%	78.4%	68.0%
How have per-unit manufacturing costs, excluding purchased material, changed in the past year?									
(N)	222	54	168	49	35	136	113	45	57
Decreased more than 20%	3.6%	5.6%	3.0%	6.1%	0.0%	3.7%	4.4%	2.2%	3.5%
Decreased 11 - 20%	7.7%	16.7%	4.8%	10.2%	2.9%	8.1%	7.1%	8.9%	8.8%
Decreased 1 - 10%	21.2%	29.6%	18.5%	20.4%	25.7%	19.9%	14.2%	26.7%	29.8%
Stayed the same	19.4%	9.3%	22.6%	20.4%	22.9%	17.7%	24.8%	8.9%	14.0%
Increased 1 - 10%	31.1%	25.9%	32.7%	34.7%	37.1%	28.7%	31.9%	26.7%	33.3%
Increased 11 - 20%	13.5%	7.4%	15.5%	6.1%	8.6%	17.7%	15.0%	20.0%	7.0%
Increased more than 20%	3.6%	5.6%	3.0%	2.0%	2.9%	4.4%	2.7%	6.7%	3.5%
What is your shop's net profit margin (net profit divided by net revenue X 100)									
(N)	159	51	108	22	23	113	85	31	41
Median	14.0%	14.9%	12.0%	14.5%	8.1%	14.3%	15.0%	13.0%	10.0%
Average	16.9%	18.7%	16.0%	19.1%	13.4%	16.4%	18.0%	14.9%	15.3%
75th Percentile	20.0%	23.0%	20.0%	25.0%	15.0%	20.5%	22.5%	20.0%	19.0%
25th Percentile	7.5%	10.0%	6.1%	5.0%	5.3%	8.0%	8.0%	8.0%	5.0%

2007 American Machinist Benchmarking Survey

All Shops	Benchmark Set		Relation to Customer			Employment Level		
	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50

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)	114	47	67	18	23	73	54	27	32
Median	0.5	0.7	0.5	0.4	0.3	0.7	0.9	0.7	0.3
Average	7.5	6.2	8.4	2.5	8.4	8.5	6.0	11.4	7.1
75th Percentile	2.3	2.0	3.0	2.0	1.5	3.0	3.3	8.0	0.7
25th Percentile	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1

Three years ago (hrs)

(N)	107	46	61	18	21	68	49	26	31
Median	0.6	0.8	0.6	0.5	0.3	1.0	1.0	1.4	0.4
Average	10.4	8.9	11.6	2.1	9.7	12.9	9.4	14.0	9.5
75th Percentile	3.0	3.0	3.2	3.0	1.1	4.8	3.0	12.2	1.1
25th Percentile	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.1

Set-up time

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

Current year (hrs)

(N)	130	49	81	19	28	83	66	29	33
Median	2.0	2.0	2.0	1.0	2.0	2.0	1.5	2.0	2.5
Average	4.8	3.0	5.9	1.8	3.1	6.1	3.2	9.7	3.9
75th Percentile	3.2	4.0	3.1	2.5	3.8	4.0	3.0	4.0	5.5
25th Percentile	1.0	0.8	1.0	0.5	1.5	1.0	1.0	1.3	1.0

Three years ago (hrs)

(N)	119	48	71	19	24	76	59	27	31
Median	3.0	3.0	3.0	2.0	4.5	3.0	2.0	3.0	4.0
Average	7.3	4.7	9.0	2.3	5.9	9.0	4.5	15.2	5.5
75th Percentile	5.0	5.9	5.0	3.5	10.0	5.0	3.5	6.0	6.0
25th Percentile	1.5	1.5	1.5	1.0	2.0	1.5	1.0	2.0	2.0

2007 American Machinist Benchmarking Survey

All Shops	Benchmark Set		Relation to Customer			Employment Level		
	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50

Customer order lead time

(order-entry through production to shipment for a typical product)

Current year (days)

(N)	142	52	90	24	25	93	71	31	38
Median	20.0	16.5	20.0	17.0	20.0	20.0	14.0	30.0	20.5
Average	30.0	21.6	34.8	31.0	42.2	26.5	19.1	43.2	40.3
75th Percentile	35.0	30.0	35.0	44.5	35.5	30.0	25.0	45.0	43.5
25th Percentile	8.0	8.5	7.8	7.0	14.0	7.5	7.0	14.0	9.3

Three years ago (days)

(N)	129	50	79	23	22	84	61	30	36
Median	25.0	27.0	25.0	30.0	30.0	23.5	20.0	30.0	35.0
Average	38.1	33.0	41.3	36.5	51.3	35.1	22.0	53.4	54.3
75th Percentile	43.5	45.0	42.0	45.0	48.8	36.9	30.0	66.3	60.0
25th Percentile	12.0	14.0	10.0	7.0	13.0	14.0	8.5	18.5	20.3

On-time completion rate

(% of goods delivered on time)

Current year

(N)	160	55	105	31	28	101	79	34	45
Median	90.0%	95.0%	90.0%	90.0%	95.0%	90.0%	90.0%	91.8%	92.0%
Average	86.6%	91.4%	84.2%	84.7%	87.2%	87.1%	83.6%	87.8%	90.5%
75th Percentile	98.0%	98.0%	95.8%	95.6%	98.0%	98.0%	98.0%	98.0%	97.8%
25th Percentile	80.0%	90.0%	80.0%	80.0%	85.3%	80.0%	80.0%	80.0%	85.0%

Three years ago

(N)	142	52	90	29	24	89	69	32	39
Median	85.0%	87.5%	85.0%	85.0%	86.5%	85.0%	85.0%	85.0%	85.0%
Average	80.8%	81.4%	80.5%	78.7%	81.6%	81.3%	80.7%	80.0%	82.1%
75th Percentile	95.0%	95.0%	94.0%	92.2%	96.5%	95.0%	95.0%	95.0%	94.0%
25th Percentile	73.8%	68.5%	75.0%	65.0%	75.0%	75.0%	75.0%	70.0%	68.0%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

Finished-product first-pass quality yield
(% of product that passes final inspection)

Current year

(N)	156	55	101	29	26	101	79	33	42
Median	98.0%	99.0%	97.0%	98.0%	98.0%	98.0%	98.0%	98.0%	97.5%
Average	95.5%	96.8%	94.7%	95.6%	95.7%	95.4%	95.5%	95.3%	95.4%
75th Percentile	99.0%	99.7%	98.6%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%
25th Percentile	95.0%	96.0%	94.3%	95.0%	93.0%	95.0%	95.0%	90.0%	94.9%

Three years ago

(N)	140	52	88	27	22	91	69	31	38
Median	95.0%	96.5%	95.0%	96.1%	95.0%	95.0%	96.0%	95.0%	92.0%
Average	91.4%	90.8%	91.7%	91.5%	90.7%	91.6%	92.6%	90.1%	90.0%
75th Percentile	98.0%	99.0%	98.0%	98.3%	98.0%	98.0%	98.5%	98.0%	98.0%
25th Percentile	87.3%	88.3%	85.5%	85.0%	86.5%	90.0%	90.0%	85.0%	85.0%

Scrap and rework
(as % of shop sales)

Current year

(N)	145	54	91	25	27	93	72	33	39
Median	2.0%	1.0%	3.0%	1.5%	2.0%	2.0%	2.0%	2.0%	1.6%
Average	4.8%	3.8%	5.3%	6.2%	8.3%	3.4%	5.1%	5.9%	3.2%
75th Percentile	5.0%	2.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	4.0%
25th Percentile	1.0%	0.8%	1.0%	1.0%	1.1%	1.0%	1.0%	1.1%	1.0%

Three years ago

(N)	130	50	80	23	23	84	62	31	36
Median	3.0%	3.0%	5.0%	5.0%	4.0%	3.0%	3.0%	4.0%	3.0%
Average	6.7%	6.3%	6.9%	9.0%	10.2%	5.1%	6.1%	8.2%	6.3%
75th Percentile	5.0%	5.0%	5.0%	6.0%	7.0%	5.0%	5.0%	7.0%	6.0%
25th Percentile	1.0%	1.0%	1.9%	1.0%	2.0%	1.0%	1.0%	2.0%	1.8%

2007 American Machinist Benchmarking Survey

	Benchmark Set			Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50
What is your shop's revenue per man-hour? (annual revenue / total paid man-hours, including paid vacation and overtime)									
(N)	201	53	148	37	33	128	106	44	51
Median	\$60.00	\$65.19	\$56.09	\$51.08	\$69.93	\$60.00	\$51.51	\$64.81	\$78.00
Average	\$73.49	\$81.24	\$70.72	\$90.75	\$75.36	\$68.36	\$60.86	\$74.20	\$99.16
75th Percentile	\$93.73	\$108.62	\$80.75	\$117.22	\$95.07	\$84.21	\$75.61	\$91.58	\$120.00
25th Percentile	\$38.46	\$42.67	\$35.00	\$29.38	\$37.53	\$40.25	\$33.25	\$43.18	\$45.00

INVENTORIES

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

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

(N)	88	38	50	14	14	60	36	23	28
Median (turns per year)	12.0	11.0	12.0	6.0	11.0	12.0	12.0	11.0	8.5
Average (turns per year)	26.5	17.8	33.2	14.4	21.4	30.6	33.2	33.5	12.7
75th Percentile (turns per year)	26.5	24.8	32.3	22.7	33.0	29.3	46.3	52.0	19.0
25th Percentile (turns per year)	6.0	5.8	6.0	3.0	4.0	6.5	6.0	8.0	4.0

Work-in-process material

(annual COGS / average value of WIP on hand)

(N)	82	37	45	11	15	56	34	21	26
Median (turns per year)	12.0	12.0	12.0	23.0	9.0	12.0	12.0	8.0	12.0
Average (turns per year)	28.1	25.2	30.5	32.1	27.9	27.3	32.0	15.7	33.5
75th Percentile (turns per year)	26.0	30.5	23.5	52.0	34.0	20.0	25.3	25.0	31.6
25th Percentile (turns per year)	6.0	6.5	5.5	4.0	6.0	6.1	5.8	6.0	5.5

Finished goods

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

(N)	72	33	39	9	15	48	30	19	22
Median (turns per year)	12.0	15.8	9.0	40.0	8.0	12.0	12.0	8.0	14.9
Average (turns per year)	25.8	32.7	19.9	86.5	11.9	18.7	26.2	20.5	30.1
75th Percentile (turns per year)	22.5	35.0	16.0	170.0	20.0	20.0	17.8	25.4	28.8
25th Percentile (turns per year)	5.1	7.0	4.0	9.4	5.0	6.0	5.8	5.4	4.0

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level			
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50
Total inventory (annual COGS / average value of total inventory on hand) (N)	80	37	43	11	15	54	31	19	29
Median (turns per year)	8.0	8.5	7.0	6.0	10.0	7.0	9.0	10.0	7.7
Average (turns per year)	14.6	16.8	12.7	9.3	19.5	14.3	16.2	13.8	13.5
75th Percentile (turns per year)	14.0	17.0	12.0	12.0	15.0	14.5	17.0	15.9	11.5
25th Percentile (turns per year)	4.0	5.0	3.0	3.0	4.0	4.0	2.5	5.0	3.5

By what percentage have total material inventory turns changed in the past year?

(N)	140	51	89	25	24	89	66	30	41
Decrease more than 20%	3.6%	2.0%	4.5%	0.0%	0.0%	4.5%	6.1%	3.3%	0.0%
Decrease 11 - 20%	7.9%	9.8%	6.7%	4.0%	12.5%	7.9%	4.6%	6.7%	14.6%
Decrease 1 - 10%	9.3%	13.7%	6.7%	20.0%	4.2%	6.7%	6.1%	6.7%	17.1%
Stay the same	41.4%	31.4%	47.2%	40.0%	45.8%	41.6%	48.5%	33.3%	34.2%
Increase 1 - 10%	17.1%	15.7%	18.0%	16.0%	20.8%	16.9%	21.2%	13.3%	14.6%
Increase 11 - 20%	14.3%	15.7%	13.5%	20.0%	12.5%	13.5%	10.6%	23.3%	14.6%
Increase more than 20%	6.4%	11.8%	3.4%	0.0%	4.2%	9.0%	3.0%	13.3%	4.9%

What is the approximate amount spent on tooling per year?

(N)	150	48	102	26	24	98	78	31	38
Median	\$47,500	\$92,500	\$30,000	\$22,500	\$100,000	\$47,500	\$19,000	\$100,000	\$250,000
Average	\$234,759	\$243,060	\$230,852	\$463,635	\$351,125	\$146,447	\$37,048	\$138,711	\$473,237
75th Percentile	\$128,750	\$292,213	\$100,000	\$100,000	\$450,000	\$105,000	\$46,250	\$180,000	\$500,000
25th Percentile	\$10,000	\$35,000	\$6,750	\$1,875	\$30,500	\$12,000	\$5,000	\$45,000	\$100,000

CAPITAL EQUIPMENT

Please indicate the level of capital-equipment spending (as a percentage of sales) for 2006?

(N)	165	53	112	34	25	104	87	32	45
Median	6.0%	8.0%	5.0%	3.5%	6.0%	8.0%	5.0%	8.0%	5.0%
Average	10.2%	14.0%	8.4%	6.8%	10.6%	11.2%	9.8%	16.1%	7.0%
75th Percentile	12.0%	14.5%	10.0%	7.0%	15.5%	12.8%	12.0%	14.8%	10.0%
25th Percentile	2.0%	3.5%	1.2%	0.9%	4.5%	3.0%	2.0%	5.0%	2.0%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

What is the anticipated change in capital equipment spending for 2007 vs. 2006?

<i>(N)</i>	183	53	130	39	27	115	96	36	47
Decreased more than 20%	8.7%	9.4%	8.5%	7.7%	14.8%	7.0%	10.4%	8.3%	6.4%
Decreased 11 - 20%	4.4%	5.7%	3.9%	5.1%	3.7%	4.4%	4.2%	2.8%	6.4%
Decreased 1 - 10%	3.3%	1.9%	3.9%	0.0%	3.7%	3.5%	3.1%	5.6%	2.1%
Stayed the same	38.3%	20.8%	45.4%	41.0%	37.0%	38.3%	44.8%	25.0%	34.0%
Increased 1 - 10%	25.1%	32.1%	22.3%	23.1%	29.6%	25.2%	25.0%	36.1%	17.0%
Increased 11 - 20%	9.3%	13.2%	7.7%	7.7%	0.0%	12.2%	5.2%	13.9%	14.9%
Increased more than 20%	10.9%	17.0%	8.5%	15.4%	11.1%	9.6%	7.3%	8.3%	19.2%

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

Production volume

(as % of designed plant capacity)

Current year

<i>(N)</i>	112	50	62	14	20	78	55	27	29
Median	75.0%	80.0%	75.0%	75.0%	72.5%	75.0%	75.0%	80.0%	75.0%
Average	70.8%	74.3%	68.0%	67.3%	69.9%	71.7%	67.4%	74.8%	73.0%
75th Percentile	85.0%	88.0%	85.0%	86.3%	84.5%	88.0%	85.0%	89.5%	80.0%
25th Percentile	60.0%	65.0%	50.0%	55.0%	62.8%	60.0%	50.0%	65.0%	67.5%

Three years ago

<i>(N)</i>	107	49	58	13	18	76	53	26	28
Median	70.0%	70.0%	68.5%	65.0%	66.5%	70.0%	60.0%	75.0%	70.0%
Average	64.4%	65.0%	63.9%	61.7%	66.9%	64.2%	60.7%	68.7%	67.3%
75th Percentile	80.0%	81.2%	80.0%	82.5%	85.0%	80.0%	81.5%	84.3%	78.8%
25th Percentile	50.0%	52.0%	49.5%	45.0%	53.0%	50.0%	42.5%	50.0%	60.0%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

Total output

(number of units produced in the year)

Current year

(N)	67	40	27	11	12	44	30	14	22
Median units	25,000	90,725	5,000	30,000	3,250	36,500	9,700	65,725	125,000
Average units	5,110,342	4,399,368	6,163,636	143,280	1,002,251	7,472,495	8,079,400	2,025,477	3,256,941
75th Percentile units	450,000	515,000	65,000	376,500	435,000	450,000	103,000	640,000	600,000
25th Percentile units	978	1,650	155	700	84	1,200	208	100	1,150

Three years ago

(N)	63	39	24	11	11	41	27	14	21
Median units	15,000	64,000	3,250	12,000	5,000	38,950	6,500	79,475	101,000
Average units	28,168,990	33,801,504	19,016,155	90,977,743	928,891	18,626,180	25,264,853	1,971,828	50,708,964
75th Percentile units	403,000	465,000	96,095	225,000	190,000	525,000	100,000	417,265	675,000
25th Percentile units	600	1,500	70	460	67	988	134	79	1,100

Total machine uptime

(hours of production as % of plant operations hours per week)

Current year

(N)	104	53	51	16	16	72	49	23	31
Median	80.0%	85.0%	75.0%	80.0%	80.0%	81.0%	75.0%	83.0%	85.0%
Average	75.2%	83.0%	67.0%	71.7%	73.2%	76.4%	69.0%	77.9%	82.4%
75th Percentile	90.0%	92.9%	87.0%	90.0%	90.0%	92.3%	88.5%	90.0%	95.0%
25th Percentile	70.0%	76.0%	55.0%	67.5%	71.3%	66.3%	60.0%	60.0%	75.0%

Three years ago

(N)	98	51	47	15	15	68	45	22	30
Median	75.0%	75.0%	70.0%	75.0%	75.0%	75.0%	70.0%	76.5%	75.0%
Average	69.6%	74.4%	64.4%	65.8%	69.8%	70.4%	64.4%	72.7%	74.5%
75th Percentile	85.0%	85.0%	85.0%	90.0%	85.0%	84.5%	82.5%	83.5%	86.3%
25th Percentile	58.8%	65.0%	45.0%	48.0%	55.0%	60.0%	49.0%	58.8%	65.0%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

Machine availability
(as % of scheduled uptime)

Current year

<i>(N)</i>	101	52	49	16	18	67	50	21	29
Median	90.0%	90.0%	89.0%	92.5%	88.5%	90.0%	90.0%	89.0%	90.0%
Average	75.2%	77.6%	72.6%	89.1%	76.4%	71.5%	66.4%	81.1%	85.4%
75th Percentile	97.0%	98.0%	96.0%	98.0%	95.0%	97.0%	98.0%	95.0%	96.5%
25th Percentile	65.0%	80.0%	57.5%	90.0%	61.3%	40.0%	23.8%	70.0%	84.0%

Three years ago

<i>(N)</i>	95	50	45	15	17	63	46	20	28
Median	80.0%	80.0%	80.0%	90.0%	74.0%	80.0%	77.5%	76.5%	85.0%
Average	69.8%	71.2%	68.1%	85.5%	64.2%	67.5%	63.6%	69.2%	79.7%
75th Percentile	95.0%	95.0%	95.0%	96.0%	90.0%	95.0%	95.0%	90.0%	95.0%
25th Percentile	50.0%	60.0%	45.0%	75.0%	40.0%	40.0%	30.0%	52.5%	75.0%

Spindle utilization time
(in-cut time as % of machine uptime)

Current year

<i>(N)</i>	84	50	34	13	15	56	39	18	27
Median	75.0%	75.5%	62.5%	60.0%	80.0%	75.0%	69.0%	85.0%	75.0%
Average	69.5%	73.5%	63.5%	61.7%	74.7%	69.9%	63.7%	78.3%	72.0%
75th Percentile	85.0%	85.0%	90.0%	81.0%	90.0%	84.3%	80.0%	90.0%	80.0%
25th Percentile	60.0%	70.0%	50.0%	46.0%	60.0%	60.0%	50.0%	73.8%	70.0%

Three years ago

<i>(N)</i>	80	48	32	12	13	55	36	18	26
Median	62.5%	65.0%	60.0%	55.0%	65.0%	65.0%	60.0%	78.5%	60.0%
Average	61.9%	64.2%	58.5%	54.4%	64.9%	62.8%	57.8%	71.9%	60.7%
75th Percentile	79.3%	76.5%	80.0%	76.3%	80.0%	77.0%	73.8%	85.5%	71.3%
25th Percentile	50.0%	51.3%	42.5%	34.8%	50.0%	50.0%	38.5%	57.5%	53.8%

2007 American Machinist Benchmarking Survey

All Shops	Benchmark Set		Relation to Customer			Employment Level		
	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50

Return on invested capital

(net operating profit after taxes / capital invested)

Current year

(N)	61	37	24	8	8	45	33	10	18
Median	15.0%	20.0%	10.0%	8.0%	21.5%	16.0%	15.0%	17.5%	20.0%
Average	24.3%	25.7%	22.1%	26.8%	27.1%	23.3%	24.8%	23.7%	23.7%
75th Percentile	30.0%	31.5%	24.3%	62.0%	43.3%	30.0%	30.0%	25.3%	38.8%
25th Percentile	5.0%	7.5%	0.7%	2.0%	1.9%	5.0%	5.0%	3.9%	4.5%

Three years ago

(N)	59	36	23	8	7	44	32	10	17
Median	10.0%	10.0%	6.0%	7.3%	23.0%	9.0%	8.5%	11.5%	15.0%
Average	14.6%	14.1%	15.2%	23.7%	25.4%	11.2%	14.7%	10.4%	16.7%
75th Percentile	20.0%	20.0%	20.0%	47.8%	35.0%	18.8%	14.5%	25.8%	21.5%
25th Percentile	3.0%	3.4%	2.0%	1.5%	12.0%	2.4%	2.0%	2.0%	3.0%

SUPPLY CHAIN & INFORMATION TECHNOLOGY

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

(multiple responses allowed)

(N)	183	53	130	37	27	116	92	40	46
Customer-satisfaction surveys	44.3%	71.7%	33.1%	35.1%	55.6%	45.7%	30.4%	47.5%	65.2%
Supplier certifications	41.5%	69.8%	30.0%	35.1%	48.2%	43.1%	21.7%	50.0%	71.7%
JIT delivery to customers	39.3%	64.2%	29.2%	24.3%	44.4%	43.1%	29.4%	52.5%	50.0%
JIT delivery from suppliers	29.5%	43.4%	23.9%	35.1%	29.6%	28.5%	20.7%	27.5%	47.8%
Consignment inventory for customers	28.4%	52.8%	18.5%	18.9%	40.7%	29.3%	22.8%	25.0%	45.7%
Customer-satisfaction program	21.9%	34.0%	16.9%	32.4%	29.6%	16.4%	16.3%	22.5%	28.3%
Consignment inventory by suppliers	19.1%	24.5%	16.9%	13.5%	25.9%	19.8%	9.8%	27.5%	30.4%
Supplier rationalization	10.9%	18.9%	7.7%	13.5%	7.4%	11.2%	5.4%	15.0%	17.4%
None of these	23.0%	1.9%	31.5%	27.0%	18.5%	22.4%	35.9%	12.5%	6.5%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level		
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50

How have your typical per-unit prices and costs changed in the past year?

Prices to customers

(N)	176	54	122	35	28	111	91	37	45
Decreased 10%+	1.7%	3.7%	0.8%	2.9%	0.0%	1.8%	1.1%	2.7%	0.0%
Decreased 6 - 10%	5.1%	3.7%	5.7%	2.9%	14.3%	3.6%	8.8%	2.7%	0.0%
Decreased 1 - 5%	9.1%	14.8%	6.6%	2.9%	17.9%	8.1%	3.3%	5.4%	24.4%
0%	17.1%	9.3%	20.5%	25.7%	17.9%	13.5%	25.3%	5.4%	8.9%
Increased 1 - 5%	41.5%	44.4%	40.2%	42.9%	35.7%	43.2%	40.7%	37.8%	46.7%
Increased 6 - 10%	19.9%	20.4%	19.7%	20.0%	7.1%	23.4%	17.6%	35.1%	13.3%
Increased 10%+	5.7%	3.7%	6.6%	2.9%	7.1%	6.3%	3.3%	10.8%	6.7%

Costs paid for materials

(N)	169	52	117	33	27	107	88	36	43
Decreased 10%+	0.6%	0.0%	0.9%	3.0%	0.0%	0.0%	0.0%	0.0%	2.3%
Decreased 6 - 10%	3.6%	3.9%	3.4%	6.1%	3.7%	2.8%	3.4%	5.6%	2.3%
Decreased 1 - 5%	2.4%	3.9%	1.7%	0.0%	7.4%	1.9%	2.3%	2.8%	2.3%
0%	5.3%	3.9%	6.0%	9.1%	3.7%	4.7%	6.8%	2.8%	4.7%
Increased 1 - 5%	21.3%	25.0%	19.7%	15.2%	29.6%	21.5%	21.6%	11.1%	30.2%
Increased 6 - 10%	36.1%	32.7%	37.6%	39.4%	22.2%	38.3%	37.5%	33.3%	34.9%
Increased 10%+	30.8%	30.8%	30.8%	27.3%	33.3%	30.8%	28.4%	44.4%	23.3%

Please indicate the level of IT spending (as a percentage of sales) for 2006?

(N)	140	51	89	21	20	97	74	28	36
Median	1.2%	2.0%	1.0%	1.2%	1.0%	2.0%	1.0%	1.6%	1.5%
Average	3.6%	3.9%	3.4%	4.7%	5.5%	3.0%	3.5%	3.5%	3.6%
75th Percentile	4.0%	5.0%	4.0%	7.5%	2.0%	4.0%	4.0%	4.8%	4.5%
25th Percentile	0.5%	0.7%	0.1%	0.3%	0.5%	0.3%	0.0%	0.7%	0.6%

2007 American Machinist Benchmarking Survey

	Benchmark Set		Relation to Customer			Employment Level			
	All Shops	Benchmark Shops	Other Shops	Captive Shop	Contract Shop	Job Shop	1 to 20	21 to 50	More than 50
What is the anticipated change in information-technology spending for 2007 vs. 2006?									
(N)	176	55	121	33	26	114	92	38	43
Decrease more than 20%	2.8%	1.8%	3.3%	3.0%	0.0%	2.6%	3.3%	2.6%	2.3%
Decrease 11 - 20%	0.6%	1.8%	0.0%	0.0%	0.0%	0.9%	1.1%	0.0%	0.0%
Decrease 1 - 10%	3.4%	5.5%	2.5%	0.0%	7.7%	3.5%	4.4%	5.3%	0.0%
Stay the same	50.0%	29.1%	59.5%	45.5%	46.2%	51.8%	55.4%	50.0%	37.2%
Increase 1 - 10%	30.7%	40.0%	26.5%	30.3%	30.8%	31.6%	27.2%	29.0%	41.9%
Increase 11 - 20%	6.8%	9.1%	5.8%	12.1%	7.7%	5.3%	3.3%	10.5%	11.6%
Increase more than 20%	5.7%	12.7%	2.5%	9.1%	7.7%	4.4%	5.4%	2.6%	7.0%

For which of these activities is your shop using information-technology applications?

(multiple responses allowed)

(N)	190	55	135	42	30	116	95	39	48
Product design (e.g., CAD)	63.7%	76.4%	58.5%	76.2%	66.7%	57.8%	59.0%	59.0%	75.0%
Online purchasing/selling	48.4%	52.7%	46.7%	61.9%	40.0%	45.7%	36.8%	56.4%	60.4%
Manufacturing management	44.2%	61.8%	37.0%	47.6%	43.3%	42.2%	27.4%	61.5%	60.4%
Materials management (e.g., MRP)	41.1%	61.8%	32.6%	42.9%	50.0%	37.9%	19.0%	69.2%	58.3%
Supplier management	38.4%	65.5%	27.4%	33.3%	46.7%	37.1%	22.1%	48.7%	58.3%
Product labeling/coding/identification	33.2%	61.8%	21.5%	35.7%	43.3%	29.3%	16.8%	33.3%	58.3%
Tooling management	32.6%	52.7%	24.4%	31.0%	46.7%	28.5%	21.1%	33.3%	50.0%
Customer management (e.g., CRM)	32.6%	50.9%	25.2%	23.8%	36.7%	34.5%	22.1%	43.6%	41.7%
Asset management	26.3%	40.0%	20.7%	19.1%	33.3%	25.9%	11.6%	48.7%	33.3%
Enterprise management (e.g., ERP)	24.7%	47.3%	15.6%	21.4%	26.7%	25.0%	8.4%	43.6%	39.6%
Warehousing/distribution/logistics	19.5%	29.1%	15.6%	33.3%	23.3%	12.9%	7.4%	18.0%	39.6%
Remote machine monitoring	10.5%	25.5%	4.4%	7.1%	6.7%	12.1%	5.3%	12.8%	14.6%
None of these	10.5%	3.6%	13.3%	4.8%	6.7%	13.8%	17.9%	0.0%	4.2%

SEAL OF EXCELLENCE – BENCHMARK SET

Shop in benchmark set

(N)	274	55	219	63	45	160	134	50	68
Benchmark set	20.1%	100.0%	0.0%	12.7%	20.0%	23.8%	14.2%	26.0%	33.8%
Other shops	79.9%	0.0%	100.0%	87.3%	80.0%	76.3%	85.8%	74.0%	66.2%