2012 Capital Spending Survey & Forecast

Methodology

Questionnaires were mailed to a universe of 10,000 AUTOMOTIVE DESIGN & PRODUCTION and MODERN MACHINE SHOP plants in the following discrete parts manufacturing industries: SIC 34, Fabricated Metal Products; SIC 35, Machinery, except Electrical; SIC 36, Electrical Machinery; SIC 37, Transportation Equipment; SIC 38, Instruments; and a few selected companies in the Metal Furniture portion of SIC 25. The universe, by employment, was made up of every plant AUTOMOTIVE DESIGN & PRODUCTION and MODERN MACHINE SHOP reach employing 100+ and every Nth plant employing less than 100 until a universe of 10,000 was assembled. We mailed surveys to upper echelon readers—presidents; executive vice presidents; general managers; vice presidents of manufacturing and/or operations; plant, works, or factory managers and superintendents; directors of production engineering; and managers of manufacturing—people with lateral interests and access to the budgetary information and plans needed to complete our questionnaire. We mailed one questionnaire per plant using a computer program to select the highest title reached from an alphabetical search of each selected plant galley. We conducted the survey from July 15, 2011 to August 15, 2011. As of the closing date, 747 surveys were returned for a 7.5% response rate. A total of 720 surveys were determined usable. Unless otherwise indicated, all figures are percentages.

Response

The returns broken out by plant size are as follows:

Plant Employment	Percentage Return 2012	Percentage Return 2011	Percentage Return 2010	Percentage Return 2009	Percentage Return 2008
Less than 20	35.0	36.4	34.3	18.6	26.9
20-49	14.7	13.9	16.2	8.5	13.5
50-99	9.3	8.7	7.1	29.0	8.9
100-499	28.0	25.4	26.9	35.3	34.3
500-999	10.0	9.4	9.3	5.2	10.4
1,000-2,499	2.1	4.7	4.8	2.2	4.6
2,500+	0.9	1.5	1.4	1.2	1.4

Summary Of Findings

1. Next year will your plant's spending for capital machinery/equipment…

	2012	2011	2010	2009	2008
Increase	38.5	31.5	24.2	32.5	37.1
Decrease	13.6	15.1	29.2	19.2	15.3
Remain the same	45.5	50.1	45.7	45.0	46.6
No answer	2.4	3.3	0.9	3.3	1.0
Total	100.0	100.0	100.0	100.0	100.0

2. What are the principal OVERALL motives for 2012 capital investments?

	2012	2011	2010	2009	2008
Increase machine/equipment capacity	52.7	42.6	30.8	50.8	52.0
New machine to reduce cost	47.7	49.7	56.0	55.2	51.9
Machine/process flexibility	26.6	24.7	26.3	29.2	30.7
New products, models	24.4	25.1	23.1	24.9	24.6
Tighter quality standards	18.8	20.7	22.9	22.8	22.3
Make instead of buy	15.1	19.2	17.7	14.9	15.7

3. At what level of capacity is your plant currently operating?

	2012	2011	2010	2009	2008
(Average capacity level reported August preceding survey year.)	77.0	74.4	69.0	78.3	79.2

3a. Your 2012 operating level will be:

	2012	2011	2010	2009	2008
Higher	49.0	44.5	42.8	42.7	48.9
Same	36.3	40.2	37.4	39.8	38.1
Lower	7.1	7.9	13.8	10.1	6.6
No Answer	7.6	7.4	6.0	7.4	6.4
Total	100.0	100.0	100.0	100.0	100.0

4. Which of these costs are primary targets for capital investment?

	2012	2011	2010	2009	2008
Direct labor	62.4	60.7	58.2	66.5	66.1
Material costs	37.3	35.1	37.5	39.5	36.8
Scrap/rework	29.4	25.9	29.5	32.4	34.4
In-process inventory	27.5	26.0	26.9	30.3	29.4
Indirect labor	24.0	20.3	21.7	20.9	25.1
Warranty/field service	6.7	7.3	8.0	7.4	8.5

5. In 2012, how much will your plant invest in machinery/equipment?

$14,001,699,336
New: $9,717,179,339 Used: $3,010,365,357 Rebuilt: $1,274,154,640
(Total projected 2012 capital spending)

5a. How do you plan to finance your equipment?

	2012	2011	2010	2009	2008
Current cash flow	66.4	60.2	59.3	63.3	64.2
Working capital line of credit	26.0	25.6	24.4	28.9	29.3
Lease	13.6	15.6	16.1	15.0	15.2
Loan	16.8	14.6	16.0	16.2	16.6

6. What percentage of your total capital equipment dollars will be spent on:

	2012	2011	2010	2009	2008
New equipment	69.4	63.9	64.4	69.9	70.5
Used equipment	21.5	26.4	25.2	21.0	20.7
Rebuilt equipment	9.1	9.7	10.4	9.1	8.8

Note: 50.8% of the total respondents report they will purchase used equipment.
31.5% of the total respondents report they will purchase some rebuilt equipment.

7. What percent of the total capital equipment dollars will be spent on:

	2012	2011	2010	2009	2008
Equipment made in the United States	60.0	62.5	63.0	61.6	60.4
Equipment made outside the United States	40.0	37.5	37.0	38.4	39.6

Note: The median for made in the U.S.A is 65%. The median for made outside the U.S.A is 55%

8. What percentage of your 2012 capital equipment expenditure will be invested in each of the listed categories of machinery/equipment?

	2012	% Total Investment
Metalcutting	$6,218 mil Total	44.4
	New $4,315	
	Used $1,338	
	Rebuilt $565	
Broaching		0.5
Drilling/tapping		2.0
Electrical discharge machining—ram type		1.5
Electrical discharge machining—wire type		1.9
Electrical discharge machining—small hole		0.2
Gearcutting/grinding		1.0
Grinding—flat/surface		2.0

Metalcutting—cont.		
Grinding—cylindrical/external		2.2
Grinding—creep feed		0.6
Grinding—ID/OD		2.1
Grinding—internal		0.3
Grinding—centerless		2.9
Grinding—other types		1.6
Machining centers, horizontal—400 mm pallet or below		6.7
Machining centers, horizontal—greater than 400 mm pallet		11.0
Machining centers, vertical—20 inch Y and below		4.9
Machining centers, vertical—greater than 20 inch Y		5.0
Machining centers, waterjet		1.2
Milling/boring—horizontal		5.4
Milling—vertical		4.0
Sawing/cutoff		1.5
Turning, lathes (turning—only machines), horizontal or vertical—manual		1.8
Turning, lathes (turning—only machines), horizontal—CNC, 10 inch chuck or below		6.6
Turning, lathes (turning—only machines), horizontal—CNC, greater than 10 inch chuck		6.5
Turning, lathes (turning—only machines), CNC, vertical		3.4
Turning, CNC turning centers (with milling capability), horizontal, 10” chuck or below		5.0
Turning, CNC turning centers (with milling capability), horizontal, above 10” inch chuck		6.0
Turning, CNC turning centers (with milling capability), vertical		1.3
Turning, screw machines (single, swiss & multi spindle), automatic		1.0
Turning, screw machines (single, swiss & multi spindle), CNC		2.5
Rotary transfer		2.5
Transfer machines and other special purpose		4.9
Additive Manufacturing Equipment	$140 mil Total	1.0
3D Printing (plastics)		39.9
3D Printing (metals)		60.1
Metal Forming	$1,204 mil Total	8.6
	New $836	
	Used $259	
	Rebuilt $109	
Ironworkers		1.1
Press brakes		13.2
Stamping presses		23.8
Punch presses		13.7
Roll forming lines		11.6
Coil processing equipment		4.2
Shears		1.9
Laser cutting machines		15.5
Band saws		2.6
Thermal cutting machines		3.4
Waterjet cutting machines		4.1
Tube/pipe bending & forming machines		3.1
Tube/pipe production equipment		1.8
Assembly	$2,100 mil Total	15.0
Synchronous automatic and semi-automatic		43.3
Non-synchronous automatic and semi-automatic		21.7
Portable power tools		9.2
Other assembly equipment		25.8
Material Handling	$770 mil Total	5.5
Automated storage & retrieval systems (AS/RS)		12.9

Conveyors		32.1
Automated guided vehicles (AGVs)		7.5
Other		47.5
Gaging-Inspection-Testing	$938 mil Total	6.7
In-process gaging		26.7
Post-process gaging		20.1
Coordinate measuring machines (CMMs)—automatic, DCC		20.4
Coordinate measuring machines (CMMs)—manual		2.6
Testing		18.7
Vision systems		11.5
Finishing Equipment	$630 mil Total	4.5
Cleaning		18.9
Electroplating and anodizing		9.7
Painting		28.0
Deburring (vibratory finishing, polishing, buffing)		18.9
Powder Coating		16.8
Air pollution control equipment		4.1
Water pollution control equipment		3.6
Welding-Riveting-Brazing	$644 mil Total	4.6
Heat Processing	$308 mil Total	2.2
Plastic Molding	$532 mil Total	3.8
Other	$518 mil Total	3.7

For Example:

Computer Hardware & Software
Injection Molding Equipment
Die Casting Equipment
Rubber Molding Equipment
Electronic Assembly
Semi Conductors
Specialized Equipment
Tooling
Woodworking Equipment
Environmental Equipment
Facility Upgrade

9. Has (or will) your company purchased any "multi-function" machines tools (for example, turn/mill machines)?

	2012	2011	2010	2009	2008
Yes	34.9	32.6	31.0	32.6	33.4
No	65.1	67.4	65.0	67.4	66.6

9a. If yes, what types of machines have you (will you) purchase?

	2012	Avg. Number	2011	Avg. Number	2010	Avg Number	2009	Avg. number	2008	Avg number
Turn + 2-axis milling capability	32.1	2.2	33.6	2.6	32.9	7.9	33.9	2.6	34.5	3.9
Turn + 3-axis milling capability	47.1	4.5	37.8	2.3	37.3	12.5	42.5	2.7	40.1	3.9
Turn + 5-axis milling capability	19.5	4.0	26.9	1.9	24.7	16.7	24.7	2.1	24.9	4.4
Machining center + turning capability	20.0	1.3	20.6	1.8	22.4	11.9	25.6	3.5	21.9	2.0
Machining center + grinding capability	6.7	1.3	3.4	2.0	5.9	2.9	5.3	3.1	6.2	3.2
Turning machines + grinding	8.8	1.7	6.3	1.5	9.8	7.7	5.8	3.0	6.7	1.6
Other	5.0	2.0	6.7	9.2	7.8	28.3	9.3	4.9	5.9	6.5

10. The metalworking industries face a shortage of skilled labor. In light of this shortage, how is your company reacting?

	2012	2011	2010	2009	2008
Spending more efforts on training employees	72.8	63.3	75.8	77.0	73.4
Buying more sophisticated machinery to reduce labor content	41.4	35.9	39.1	42.5	47.2
Increasing salaries to attract more skilled workers	19.4	14.7	14.5	22.9	24.9
Turning away new business opportunities	7.9	6.4	4.7	7.6	8.6
Other	10.4	10.7	10.7	9.2	8.5

10a. You indicated that you are spending more effort on training employees. What tools are you using?

	2012	2011	2010	2009	2008
On the job training	76.2	71.8	75.8	74.5	74.8
Apprentice-like hands-on training	50.6	46.0	46.2	51.5	48.9
In plant classrooms	34.8	31.0	33.9	35.7	34.8
Community college/tech school	31.3	30.3	33.7	36.3	32.5
Online	11.8	9.6	11.0	9.7	7.6