

## Professional and Scientific Service Sector

### College Hiring 2010-2011

The professional and scientific services sector of the economy is critically important to college hiring due to the fact that the sector encompasses such a breadth of academic disciplines. This sector ranges from legal services to veterinary services, including these key subsectors:

- Accounting (offices of CPAs)
- Architectural and Landscaping Services
- Engineering Services
- Design Services (interior design, industrial design, and graphic design)
- Computer System Design and Services (programming, design, facilities management, software development)
- Management Consulting (marketing, supply chain, administrative management and consulting services)
- Environmental Services
- Scientific Research and Development Services (physical sciences, life sciences, engineering, and social sciences & humanities)
- Advertising, Public Relations, and Media Services
- Marketing Research & Public Opinion Polling
- Photographic Services
- Translation and Interpretative Services

The hiring outlook for this sector serves as one primary indicator for the strength and vitality of the new college hiring market.

Eight hundred and ninety-eight (898) professional and scientific organizations provided information that was used to make hiring predictions for the 2010-2011. This special Recruiting Trends report provides a profile for the professional and scientific services sector based on this information. The results are presented with a minimum of narrative explanation. When appropriate, the results from the other economic sectors have been provided for comparison (denoted in red).

#### Highlights:

Professional and scientific service sector organizations are dominated by small companies, with 87% reporting 500 or fewer employees. Fifty percent (50%) of those responding fall in the category of fast growth (10 to 100 employees).

While more P&SS organizations reported from MWACE region, this region was slightly less represented by small companies than the other three regions.

P&SS organizations tend to target more core schools than employers from other regions.

Compared to employers from other sectors, P&SS employers are more likely to recruit through internships/co-ops (highest concentration except for manufacturing), connections with faculty, referrals through alumni and employees. They are engaged on-campus but less likely to participate in career fairs.

Uncertainty runs high among P&SS employers; they consider the college labor market to be FAIR.

Bachelor hiring is expected to increase by approximately 6% which is slightly lower than employers from other sectors.

Small companies (100 to 500 employees) and the few large companies in this sector are reporting the highest growth in employment.

Computer Systems and Design is the leading sub-sector with reports of hiring doubling compared to last year. Management consulting and scientific research organizations are also indicating higher hiring targets.

New hires will more likely fill positions in consulting services, business services, computer services, and design services than other services. While computer science, business, and select engineering disciplines are heavily recruited, this sector will absorb an array of academic majors ranging from humanities to the physical sciences.

Employers from this sector view new hires as less prepared to handle the fast-paced, complex and ambiguous work environment compared to graduates five years ago. Of particular concern were unrealistic expectations, lack of professional maturity and demeanor, and inability to articulate interests and short-term career goals.

**Characteristics:** The average number of employees per company was reported as 4,900 (9,369) with a median size of 48 (210). A breakdown by **size categories** indicates that professional and scientific organizations tend to be smaller than companies from the other sectors. In fact, 50% of P&SS organizations are classified as fast growth (second stage) organizations; nearly 85% of these organizations have 500 or fewer employees.

Category	Employees	Number: Prof. & Scientific Org.	Percentage of Prof. & Scientific Services	Percentage of Other Sectors
Very Small	< 9	134	15	9
Fast Growth	10 - 100	450	50	29
Small	101 - 500	168	19	24
Medium	501 - 3999	88	10	20
Large	> 4000	58	6	18

Within the NAIC (North American Industrial Classification) system we created 17 sub-categories based on the first three digits of their NAIC number. The following distribution shows the major **economic subgroups** comprising professional and scientific services.

Subsectors	Number of Responding Companies
Computer Systems Design and Services	179
Accounting Offices	129
Engineering Services	124
Management Consulting Services	119
Advertising, PR & Media Services	78
Legal Services	55
Scientific Research & Development Services	49
Other Services (not separately listed)	42
Architectural & Landscape Services	35
Environmental Services	21
Marketing Research Services	19
Design Services	16
Other Scientific & Technical Services	15
Tax Preparation & Payroll Services	9
Veterinary Services	6

P&SS organizations are **geographically** distributed across the U.S. with the highest concentration in the southeast and Midwest. Based on the state from where the survey was submitted, the distribution across the four regional professional associations that serve colleges and employers is illustrated in the following table.

ACE Region	Percent of P&SS Response	Percent of Other Sectors Response
MWACE	29	35
SOACE	32	30
MPACE	17	16
EACE	22	20

Respondents can also be described based on their **primary recruiting areas**. For example, 21% of these companies recruited throughout the US for talent (slightly less than other employers) while 6% indicated that they searched globally. Based on the state distribution, the Great Lakes states have the highest concentration of regional employers while the Pacific Northwest and the Upper Plains states have the fewest.

Recruiting Region	Percentage of P&SS Employers	Percentage of Other Sectors Employers
Globally	6	6
United States	21	27
New England States	12	9
Mid-Atlantic States	18	12
Great Lakes States	23	26
Upper Plains States	7	11
Southeast States	17	18
South-central States	12	12
Southwest States	10	11
Northwest States	7	9

P&SS employers focus their recruiting efforts at public schools (87%) and private (66%) **institutions**. They are less likely to utilize credential earners, two year degree completers, and graduates from for-profit institutions than employers from other sectors of the economy. They are more likely to pursue advanced degree talent than the other employers.

Type of Institution	Percentage of P&SS Employers	Percentage of Other Employers
2-YR for Credentials	10	23
2-YR for Associates Degree	17	33
4-YR Public	87	87
4-YR Private	66	66
2 & 4 YR For-Profit	7	14
Advanced Degree Institutions	50	45
Historic Black Colleges	11	20
Hispanic Serving Institutions	7	15

P&SS employers typically identified slightly more **core recruiting schools** than other employers. Large P&SS employers have an extensive network of schools, targeting nearly three times more schools than large employers in other sectors. Small employers are also more active on multiple campuses. The number of core schools varies by size as the following table suggests:

Size Category	Basic Statistical Descriptors for Core Schools
Very Small	Average 6 Median 3 Range 1 to 218
Fast Growth	Average 6 Median 4 Range 1 to 100
Small	Average 7 Median Range 1 to 30
Medium	Average 13 Median 7 Range 1 to 180
Large	Average 36 Median 12 Range 1 to 300

Hiring staff have a variety of **recruiting tools and strategies** at their disposal to identify and recruit college talent. P&SS employers tend to use internships and co-ops, alumni referrals, and social media along with interviewing on campus and connecting with faculty more than other employers. They are less likely to participate in career fairs and to use their own organizational web portal for recruiting.

Recruiting Strategy	Percentage of P&SS Employers Utilizing	Percentage of Other Employers Utilizing
On-Campus Presentations	40	40
On-Campus Interviews	37	32
On-Campus Career Fairs	50	55
On-Campus Resume Referral System	48	40
On-Campus Faculty Connections	40	36
On-Campus Web-Based Employment System	80	80
Internships and Co-ops & Other Programs for Professional Experience	65	60
Organization's Web Portal	63	70
Employees and Alumni Connections	55	47
Job Fairs – Off Campus (can still be University Sponsored)	13	29
Targeted Job Fairs	18	23
National Web-Based Employment Service Provider	50	49
State & Local Job Boards	13	27
Ads in Professional Outlets	27	34
Consultants	25	19
Social Media (all forms)	32	27

**College Labor Market Outlook:** Before providing their actual hiring targets for the year, respondents were asked their perception of the college labor market (overall and then for their industry) on a scale that ranged from 1 = Poor to 5 = Excellent. Overall, P&SS respondents believe the overall college labor market is **FAIR** (mean 2.00); however, they feel their own sector is doing slightly better with a **FAIR to GOOD** rating (mean 2.51).

**Hiring Intentions for 2010-2011:** Entering the 2010-2011 recruiting period, approximately 67% of professional and scientific services employers (**71%**) had hired a new college graduate the previous academic year. Based on their expectations this year, 31% of manufacturers have definite plans to hire college graduates.

Intentions	Percentage of P&SS Employers	Percentage of Other Employers
Definitely will hire	31	32
Preliminary plans to hire	21	20
Uncertain would like to hire	35	35
Will not hire	13	13

Uncertainty about the economy is prevalent in their hiring plans. Among employers who hired last year, 28% are uncertain about hiring this year. Among those who did not hire last year, uncertainty is nearly 50% about hiring in 2010-2011.

Hiring Last Year	Definitely Hire	Preliminary Plans	Uncertain	Will Not Hire
YES	44	23	28	5
NO	6	18	49	27

**Hiring Targets for 2010-2011:** The following hiring projects are based on the complete information provided by 757 P&SS employers. Hiring is expected to increase by 6% for BA degree and 3% for MBA but will likely decline for other degree levels. The increase in BA hiring trails the increase report employers from other sectors where BA hiring is up by 10% (see national report).

Degree Level	Average Hires 09-10	Average Hires Expected 10-11	Percentage Change Year over Year
Credentials	11.3	9.8	-13
Associate	10.7	9.6	-10
Bachelor	26.7	28.4	6
MBA	7.7	7.9	3
Masters	9.7	8.5	-12
PhD	7.0	6.7	-4
Professional	18.2	15.9	-28
Total Hires	34.8	35.2	1

**Size of company:** The overall figures mask what is happening among employers from various size categories. The important role size plays in this sector is illustrated in the following table. Employers within all size categories expect strong gains in BA hiring with small companies and large corporations/organizations signaling strong gains.

### Very Small Companies (9 and fewer employees)

Degree Level	Average Hires 09-10	Average Hires Expected 10-11	Percentage Change Year over Year
Credentials	.8	.9	11
Associates	.9	1.2	38
Bachelor	.7	1.3	88
MS/MA	.5	1.3	>100
Total	.9	1.8	>100

### Fast Growth Companies (10 to 100 employees)

Degree Level	Average Hires 09-10	Average Hires Expected 10-11	Percentage Change Year over Year
Credentials	1.4	1.4	4
Associate	.9	1.3	39
Bachelor	2.2	2.4	10
MBA	1.5	1.4	-7
MS/MA	1.5	1.7	8
PhD	1.2	2.0	64
Professional	1.7	1.3	-23
Total	2.9	3.2	11

### Small Companies (100 to 500 employees)

Degree Level	Average Hires 09-10	Average Hires Expected 10-11	Percentage Change Year over Year
Associate	4.7	4.8	3
Bachelor	6.9	11.1	61
MBA	1.9	2.4	26
MS/MA	2.5	2.9	16
PhD	1.7	2.1	23
Total	9.6	13.9	45



### Medium Companies (500 to 3999 employees)

Degree Level	Average Hires 09-10	Average Hires Expected 10-11	Percentage Change Year over Year
Bachelor	11.4	12.4	9
MBA	3.2	4.5	41
MS/MA	7.3	7.0	-4
Total	18.1	18.2	<1

### Large Companies (More than 4000 employees)

Degree Level	Average Hires 09-10	Average Hires Expected 10-11	Percentage Change Year over Year
Bachelor	119.5	175.5	47
MBA	15.2	31.2	>100
MS/MA	87.1	118.5	36
Total	209.5	253.9	21

**Professional and Scientific Services Subsectors:** Hiring targets were extracted for key subsectors within P&SS where sufficient information was available to provide reliable results. Several sectors are showing strong hiring growth for BAs, especially computer systems services (over 100%) and scientific research. Most sectors, except legal services, are making solid gains in BA hiring.

### Hiring in Selected Professional and Scientific Services Subsectors

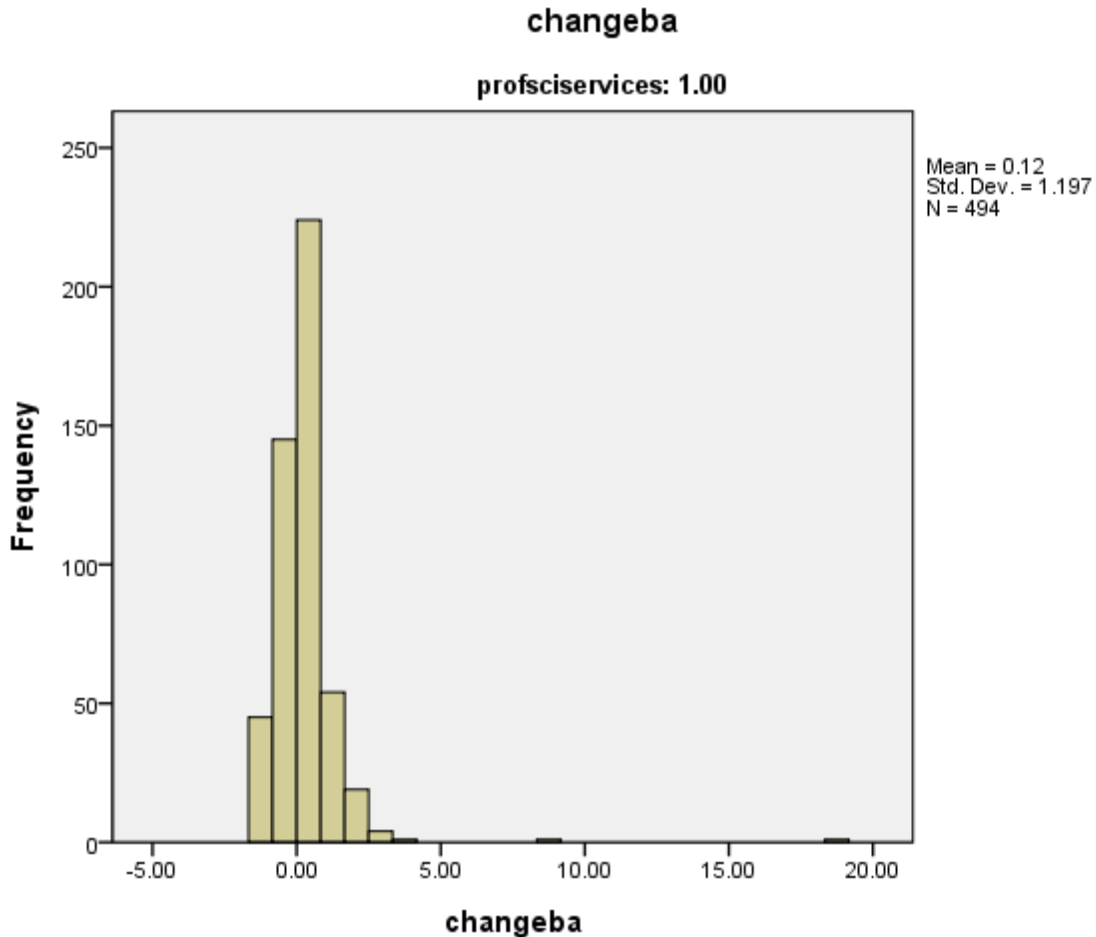
Subsector	Average Hires 09-10	Average Hires Expected 10-11	Percentage Change Year over Year
Legal Services			
BA	5.0	4.3	-13
Professional Accounting	2.6	2.0	-22
BA	36.4	39.0	7
MBA	8.4	10.6	26
MS	44.5	48.4	9
Tax Preparation & Payroll Services BA	1.4	2.6	90
Architectural & Landscape Svcs. BA	2.0	2.6	28
Engineering Services			

Credential	1.0	1.1	8
Associates	.9	1.7	92
BA	3.1	4.2	32
MS	2.8	4.0	41
Design Services BA	1.2	1.4	18
Computer Systems			
Credentials	127.9	3.7	->100
Associates	5.4	5.8	8
BA	8.4	26.6	>100
MBA	3.0	7.7	>100
MS	3.3	11.5	>100
PhD	2.0	6.2	>100
Management			
BA	17.0	19.8	16
MBA	1.8	2.5	38
MA/MS	4.1	3.9	-4
PhD	1.4	1.8	28
Environmental			
Services BA	2.8	1.9	-30
Scientific Research			
BA	8.7	11.3	30
MS	3.8	4.8	26
PhD	2.9	4.4	50
Other Technical & Scientific Services BA	4.6	4.7	2
Advertising, PR & Media Buying			
BA	6.7	7.0	3
MA/MS	2.6	12.5	>100
Marketing Research			
BA	29.0	30.4	5
Other P&SS			
Associates	2.4	11.0	>100
BA	17.3	19.6	13

**The Extremes:** In the national analysis, the distribution of hiring change year over year showed that an outlier group was aggressively hiring compared to the remaining employers. A similar check was conducted on the P&SS sample. We looked at the distribution from two perspectives at the bachelor's level. The first was percentage change from last year. In this case, we identified a group of outliers at the positive end. The following histogram illustrates

this distribution. The change analysis presents a problem in that the calculation excludes companies that did not hire last year but are hiring this year (cannot divide by zero). The second approach was to examine the difference in hiring between years. We found a similar set of positive outliers.

*This figure shows the distribution of the percentage change in hiring year over year for P&SS employers who responded in 2010-2011.*



The change year over year analysis revealed that 36% would be reducing their hiring targets, 34% would remain the same, and 30% would increase hiring. The positive outliers expect to increase hiring by 200% while those decreasing their hires expect to reduce targets by 86%. The difference analysis showed 29% reducing their hiring, 24% holding to last year's level, and 47% increasing their hires from last year. Positive outliers expect to increase hiring 66% while those reducing hires will do so by 40%. The following table summarizes this information.

Group	Average Bachelor Hires 09-10	Average Bachelor Hires Expected 10-11	Percentage Change Year over Year
Positive outliers: change year over year	3.6	10.7	200
Positive outliers: difference between years	65.6	108.9	66
Negative outliers: change year over year	4.2	.6	-86
Negative outliers: Difference between years	18.5	11.1	-40

**Who are Professional and Scientific Services Employers Seeking for Their Talent Pool?** As would be expected, P&SS are heavily recruiting computer science talent from all disciplines, followed by accounting, marketing, finance and computer and electrical engineering. While these majors dominate, the breadth of majors that these employers will tap into is broad, ranging from the humanities to the health sciences.

Majors	Percentage of Employers Seeking
All Majors (no specific major specified)	21
All Technical Majors (engineering and computer science, major not specified)	34
All Business Majors (specific major not specified)	25
All Liberal Arts (no specific major specified)	13
Accounting	28
Computer Science	27
Computer Programming	23
Marketing	21
MIS-computer science & Computer Information Systems	19

Information Systems	18
Finance	17
Computer Engineering & Electrical Engineering	15
MIS-business & Communications	14
Economics	12
MBA	22

Other majors of interest: Public Relations (11%), Information Security (12%), Multimedia Design (10%), Mechanical Engineering (10%), and Civil Engineering (10%).

**Types of positions being filled:** Listed below are the top positions that P&SS employers expect to fill with new college hires this year. The list is led by consulting services, engineering services, and computer services.

Type of Position	Percentage of Employers Filling this Position
Consulting	30
Accounting	24
Computer Service/Engineering	23
Business Services	17
Marketing	16
Design Engineering	15
Information Services	14
Project Management & Sales & Technical Services & Administrative Services	12
Design Media	11
Customer Services	10

**Starting Salaries:** The following list of starting salaries by academic discipline is not complete. We have only included salaries where 30 or more companies have provided their salary information. These few cases have been included because their statistics show smaller deviations from the average. A more detailed salary summary can be found in the separate report in this series (available at [www.ceri.msu.edu](http://www.ceri.msu.edu)).

#### Associate Level

Degree	Average Starting Salary (\$)	Salary Range (\$)
All Business Majors	35,446	18 – 65K
All Engineering Majors	42,560	22 – 78K
All Computer Science & IT	39,654	18 – 78K

## Bachelor Level

Degree	Average Starting Salary (\$)	Salary Range (\$)
Accounting	44,114	22 – 65K
Finance	45,992	22 – 65K
Marketing	38,943	14 – 80K
Supply Chain	45,655	24 – 70K
Human Resources	40,588	24 – 75K
MIS-Business	47,188	24 – 90K
Entrepreneur	40,586	24 – 61K
All Business (other)	41,397	22 – 75K
Journalism	33,322	14 – 48K
Public Relations	34,366	22 – 60K
Advertising	33,154	22 - 48K
Multimedia	35,554	23 – 57K
All Communication	36,718	24 – 65K
Computer Science	50,793	30 – 85K
Computer Programming	50,843	30 – 90K
Software Design	51,051	30 – 83K
All Computer (other)	49,088	30 – 70K
Chemical Engineering	53,942	30 – 75K
Civil Engineering	46,514	30 – 64K
Computer Engineering	54,861	30 – 95K
Electrical Engineering	54,861	30 – 90K
Mechanic Engineering	52,937	30 – 82K
All Engineering (other)	49,875	24 – 75K
Environmental Science	37,000	24 – 63K
Chemistry	41,019	24 – 70K
Mathematics	48,565	30 – 70K
Biology	41,803	21 – 70K
All Social Science	41,423	22 – 65K
All Liberal Arts	39,827	28 – 60K
All BA Majors	40,691	20 – 67K

## Advanced Degree

Degree	Average Starting Salary (\$)	Salary Range (\$)
MBA	61,768	38 – 100K
MS- Accounting	50,649	32 – 85K
MS - Engineering	60,250	40 – 100K
MS – Computer Science	64,236	40 – 120K
PhD - Engineering	82,893	46 – 120K
Law	62,000	37 – 145K

**When Do Professional and Scientific Services Employers Expect to Hire?** We asked employers when they planned to have completed their hiring for the 2010-2011 class. Forty percent (40%) indicated that hiring would be completed by the end of first semester. Nearly 55% of large employers would have hiring finished by the end of November. Another 25% expect to complete their hiring by the end of Spring semester 2011. Another 36% do not expect to begin hiring until the summer of 2011 or even later. Uncertainty is evident among the smaller employers (more than 50% of the sample) who have indicated that 45% of their hiring may not occur until the summer of 2011.

Hiring Expected To Be Completed	Percent of All P&SS Respondents	% Very Small Employers	% Fast Growth Employers	% Small Employers	% Medium Employers	% Large Employers
Fall Semester 2010	40	28	38	45	49	54
Spring Semester 2011	25	24	26	25	22	21
Summer to Fall 2011	30	34	31	27	23	21
Spring 2012	6	13	13	4	5	2

We also looked at the timing of the hiring process in the selected subsectors. Several subsectors stand out, having completed their hiring during the Fall semester: computer services, scientific research, environmental consulting, and veterinary services being the prominent groups.

Hiring Expected To Be Completed	Percent by Fall Semester 2011	Percent by Spring Semester 2011	Percent by Summer to Fall 2011	Percent by Spring 2012
Legal Services	15	41	30	13
Accounting	26	20	45	10
Tax Preparation & Payroll Serv.	33	11	44	11
Architectural & Landscape Serv.	20	31	40	9
Engineering Services	31	24	40	4
Design Services	31	19	50	
Computer Services	59	22	15	3
Management Consulting	41	27	25	7
Environmental Consulting	52	10	38	
Scientific Research	62	21	15	2
Other Scientific Services	40	40	20	
Advertising & Media Buying	42	26	28	4
Marketing Research	33	39	22	6



Veterinary Services	50	17	17	17
Other Professional Services	46	22	27	5

**Hiring Outlook Based on Recruiting Strategies:** Using a grouping statistical procedure, the recruiting strategies listed above were sorted into four groups. The only strategy that did not cluster with any of the categories was posting position announcements on the company’s website. In the following tables we have presented the hiring expectations for three of the four groups: events, agents (relationships), and Web/Media. The fourth group, termed the special group (includes posting on state and local job boards, placing ads in professional outlets, and hiring consultants), has not been included. For each category the percentage using different numbers of these strategies, hiring projects, average company size, and mean core schools visited are included.

**Events:** Strategies in this group include visiting campus for presentations or information nights, attending campus career fairs, conducting on-campus interviews, attending off-campus career fairs, and attending targeted career fairs. Organizational size plays a key role with few very small and fast growth companies using any type of event strategy. Larger companies tend to dominate this category, with 13% of the sample using four or five event strategies. All categories show strong gains. Organizations utilizing three or more strategies also tend to have a larger number of core schools. Interestingly, organizations using all four strategies tend to have the fewest number of core schools. Possibly having an effective agent strategy in-place may reduce the number of schools that the organization holds in its core group.

Number of Event Strategies Utilized	Percent of P&SS Companies at this Level	Average Hires 09-10	Average Hires Expected 10-11	Percentage Change Year over Year	Average Size of Company	Mean # of Core Campuses Company Visits (Median)
None	39	1.6	2.4	50	292	7 (5)
1	14	2.8	2.8	NC	5232	7-8 (4)
2	13	5.2	5.9	13	901	10-11 (5)
3	22	22.4	29.0	29	7601	16-17 (6)
4	9	43.9	75.4	71	17229	13 (6)
5	4	31.8	34.7	10	20397	5-6 (4)

**Agent or Relationships:** This group is comprised of these strategies: using current employees (alumni) to identify potential talent, connections with faculty, resume referral from campus sources, and internship and co-op programs. Those companies using none of these strategies (these tended to be larger organizations) indicated that hiring will remain at the same level as last year. The size distribution is not as skewed for organizations using one to three agent strategies. Organizations who utilize all four strategies are two to five times larger than other organizations in the other categories. Hiring is up strongly across all levels of agent participation, ranging from 7% to 78%. Relationship building appears to be slightly more consistent in sustaining hiring growth than other types of strategies. The number of core schools visited is much more consistent across groups though those using three or four strategies are visiting about a dozen campuses.

Number of Agent Strategies Utilized	Percent of P&SS Companies at this Level	Average Hires 09-10	Average Hires Expected 10-11	Percentage Change Year over Year	Average Size of Company	Mean # of Core Campuses Company Visits (Median)
None	12	2.3	2.3	NC	6831	6-7 (4)
1	24	5.5	7.0	27	1690	7-8 (5)
2	24	5.1	10.0	96	2998	6 (5)
3	24	22.1	23.7	7	5400	11 (5)
4	16	22.2	39.5	78	10557	11-12 (5)

**Web and Social Media:** This group of strategies includes posting position announcements on the college or university website, posting positions on national job boards, and using social media, such as Facebook, LinkedIn, and Twitter. P&SS employers are leaders in using social media as a recruiting strategy. So we would expect a heavy use of media strategies among this group. In addition, more than 80% list open positions on the core campuses employment site. Social media strategy was examined separately. The results show that hiring will increase by 27% over last year (averaging 23 hires per company) for the companies using social media (average size 5,880 and mean core colleges 13).

Number of Web/Media Strategies Utilized	Percent of P&SS Companies at this Level	Average Hires 09-10	Average Hires Expected 10-11	Percentage Change Year over Year	Average Size of Company	Mean # of Core Campuses Company Visits (Median)
None	12	2.7	2.7	NC	436	4 (4)
1	35	12.3	21.3	73	5953	7 (4)
2	31	18.5	21.4	16	6444	10-11 (5)
3	22	8.4	13.5	61	3473	9-10 (5)

**Students Today Versus Students Yesterday:** A frequent question often asked by the national media is whether students today, because of the difficulty in finding employment, are better prepared for the recruitment process and transition into the workplace than those students who graduated five years ago in the middle of a strong college labor market. Employers were asked to compare these two groups on several dimensions of the recruiting process, including resume preparation and interview preparation, as well as personal or behavioral dimensions, including realistic expectations, professional maturity, and ability to express career aspirations. Each item was measured on a five point scale (1 = much less, 3= same as, 5= much better). Overall, employers do not believe today's students are better prepared for their job search, except for resume preparation. They are especially concerned that students hold unrealistic expectations for the current economic situation and have a lower level of maturity.

Transition Dimension	Mean Ranking	Percent Less Prepared	Percent Prepared the Same	Percent Better Prepared
Resume Preparation	3.08	18	53	19
Interview Preparation	2.96	24	53	23
Interact with Other Employees	2.95	22	59	19
Interview Preparation	2.96	24	53	23
Knowledgeable of Company	2.94	28	45	27
Articulate Skills & Competencies	2.89	27	53	20
Express Career Interests & Direction	2.81	33	41	24
Professional Demeanor	2.71	38	45	17
Professional Maturity	2.58	46	38	16
Realistic Career Expectations	2.49	55	26	19

We would like to recognize these companies who continue to support the Recruiting Trends project and the research at the Institute.

