Launch Failure?

Can we attract and retain the talent that powers innovation?

The 2016 satellite industry workforce study is a key part of SSPI’s New Century Workforce project.

Society of Satellite Professionals International
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The New Century Workforce project, like all SSPI programs, was made possible by the support of the industry’s leading companies. We particularly thank the following for their continuing generous support.

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FOREWORD

The satellite industry is relatively small in numbers but employs people in hundreds of nations around the world. It has a highly educated, productive workforce engaged in doing the most difficult thing humanity knows how to do: putting remote-controlled devices for communication and observation into space and making them work properly for years or decades. Its services touch the lives of every person on the planet, whether they know it or not.

So why is it not universally known as the coolest place to work in the world?

That is the central challenge that the Society of Satellite Professionals has set out to meet with its New Century Workforce project, and Korn Ferry is proud to partner with the Society in doing it.

Korn Ferry

Since Korn Ferry’s inception, clients have trusted us to help recruit world-class talent. Today, we have evolved into a single source for leadership and talent consulting services going far beyond executive recruitment and encompassing leadership development, enterprise learning, succession planning, recruitment process outsourcing, and more. By igniting the human potential within organizations, we serve as a catalyst for growth, transformation, and high performance.

Making the Invisible Visible

Satellite is the world’s essential infrastructure, whether it is delivering news and sports, navigating cars and ships, connecting to the Internet, helping grow more food or synchronizing digital networks around the globe. But it has become the invisible infrastructure, known only to a fraction of the potential employees who could find challenging and rewarding careers there. In this report, SSPI illustrates the problems this invisibility causes and shares examples of employers that find ways to overcome it.

I thank you for taking the time to absorb its conclusions, and look forward to being of service to your company’s success.

Regards,

Clarke Havener
Global Sector Leader, Aviation, Aerospace & Defense
Korn Ferry

NEW CENTURY WORKFORCE

Society of Satellite Professionals International
www.sspi.org
EXECUTIVE SUMMARY

Two numbers sum up the key workforce management challenges facing the satellite industry. The industry relies heavily on a cadre of experienced workers ages 45-54, who make up 42% of employees. According to interviews with human resources executives, they form a relatively small pool of talent in which every company goes fishing.

On the other hand, the voluntary attrition rate – people leaving their jobs by choice – for employees with 1-5 years of service is a shocking 67%. Consider these two numbers together, and what can you conclude? The data suggest that this is an industry that is failing to invest in career paths that retain younger talent. At the same time, it relies heavily on older workers who know how things are done – but may not be as good at devising ways for things to be done differently and better.

Is it high attrition among younger employees that leads companies to rely on veterans, or does the reliance on veterans close off career paths for the next generation? What seems indisputable is that a healthy, growing technology industry should have a lower attrition rate for newer employees and a flatter age curve overall.

Coming and Going

Sixty-four percent of companies reported new hires in Operations, 57% in Design & Engineering and 50% in Sales & Marketing in the past 12 months. Much higher percentages of companies reported making new hires than seeing their headcounts reduced, which is good news for the people working in the industry.

Headcount reductions in Design & Engineering and Operations personnel were reported by the largest percentage of companies, followed by Sales & Marketing and Administration. Comparing these responses with the data drawn from our employee survey shows that, for the most part, voluntary and involuntary attrition are proportional to the percentage of employees in the various job categories.

Engagement and Attrition

One of the best recognized measures of employee engagement in their work was developed by the polling organization Gallup. It measures engagement on a five-point scale in which 5 is highest. By itself, an engagement score does not reveal very much. Greater insight is available from a “favorability rating, in which we measure how many respondents gave a “strong” rating, how many gave a “neutral” rating, and how many a “weak” rating. The result is a picture of the strength of engagement in the organization and its mission.
In terms of job categories, Administration (76%) and Finance (67%) lead all others in terms of having a strong engagement with satellite companies. The three categories with the weakest engagement are Sales & Marketing, Design & Engineering and Operations.

That is, in a word, odd.

Administration and Finance are, generally speaking, one step removed from the core mission of the organization, whether it is to build technology, launch satellites or deliver services. Sales & Marketing, Design & Engineering and Operations are at the functional heart of a satellite company. The disturbing implication is that the closer an employee is to the creation of new customers or the delivery of value to current customers, the weaker is the level of engagement with the company.

Analyzing engagement by the age of employees reveals a related issue. The age group most strongly and enthusiastically engaged in the organization and its mission is 18-24 years old – those most likely to be in a starting position with the company. Surely companies in the industry should be doing more to retain these “newbies” long enough to turn them into productive designers, operators and salespeople – particularly given the disruptive innovation sweeping through the satellite business today.

Getting Paid
The positions most closely associated with the company’s financial results – Management and Sales & Marketing – receive the highest levels of compensation globally. The three categories closest to the creation of new customers or the delivery of value to current customers range from second place (Sales & Marketing) to fifth place (Design & Engineering) to seventh place out of eight (Operations).

North America vs. Europe
North American employers pay significantly more than their European peers in most job categories. Operations showed the greatest disparity, with North American employees reporting 180% of the average salary paid to Europeans. North American administrative staff reported earning 150% while Design & Engineering and Sales & Marketing employees were paid 130% more. Only in Finance & Accounting are Europeans outperforming North Americans on pay. The average Finance & Accounting salary in North America was reported to be only 76% of the average salary in Europe on a purchasing power parity basis.

Compensation Growth
Compensation increases over years of service by between 27% and 30% over the course of 15 years with the same company. Though the work is well-compensated overall, respondents portray salary growth as modest year over year. European companies pay lower salaries overall, but these grow at a significantly faster pace. Over a course of a +15-year career with the same company, a European employee averages a 67% increase in compensation, compared with 28% for a North American.
Engineering Compensation

Engineers are at the upper end of the average compensation range throughout their careers with satellite industry employers, though not in the same class as Management or Sales & Marketing. Starting salaries range from a purchasing power parity equivalent of $100,000 up to $142,000. Over a career with a single employer, they can expect their compensation to grow by between 27% and 32% on average.

Starting salaries in Europe, as reported by employees, are only about half the North American average. The gap gradually closes so that, after 15 years with the same company, European engineers are paid on average 80% of North American compensation on a purchasing power basis. This reflects a career salary growth rate averaging 85% for European engineers, compared with 23% for North American engineers.

Attracting and Retaining Talent

For decades, the industry has been able to hire qualified and experienced people from the military, where satcom plays a prominent role among communications options, and from the broadcasting and cable industries. They came to the satellite business ready-made: knowing the technology fundamentals and experienced in the rough-and-tumble of making services actually work. Today, militaries are a fraction of their former size in most industrialized nations and service represents a career choice rather than a career interlude. As broadcasting becomes increasingly a matter of bits transmitted over wires and cables, deep experience in radio frequency operations is becoming scarcer by the year.

Seller’s Market

Forty-three percent of human resources executives cited difficulty filling jobs in Design & Engineering, while 21% cited Sales & Marketing and 14% Operations. These are the same positions that are core to the company success but exhibit such weak engagement in that success. Recruiters are challenged to find candidates with the experience and qualifications they are seeking. When they do find them, it is hard to meet their compensation needs, because suitable candidates are enjoying a “seller’s market” where most of the leverage is in theirs.

There is an old saying that, when you find yourself in a deep hole, the first step you should take is to stop digging. Conditions in the talent market dictate that the industry needs to reduce its emphasis on competing for a stagnant and shrinking supply of ready-made talent, and to increase its focus on recruiting and training less-experienced people with the smarts, creativity and enthusiasm to power innovation. That takes patience and conscious effort. Most of all, it requires a change in mind-set from hunting for talent to farming it.

Fortunately, the industry can learn a great deal from a small number of companies that are highly proactive in attracting and nurturing talent.
Attracting and Recruiting
The model companies in our sample target specific universities for recruiting. They go on campus during scheduled Career Days to represent their companies. They also approach individual professors, departments and student groups and seek to build relationships that steer graduate and post-graduate students to them.

The goal of these recruiting efforts is to identify candidates for formal work-study, internship or associate programs. The key to success with these programs is straightforward: relate them to the company’s priorities and create opportunities for young people to both demonstrate their value and contribute to progress.

Inside the satellite industry, everyone knows how challenging and exciting the work is, and what an enormous impact it has on the world. That can blind decision-makers to just how little everyone else knows about satellites. SSPI launched its Better Satellite World campaign (www.bettersatelliteworld.com) to help future employees and customers, as well as today’s policymakers, understand that satellite is the indispensable technology of the modern world, bringing huge benefits to commerce, education, human welfare, safety, commerce, security and peace.

Onboarding & Mentoring
Leading companies take an equally thoughtful and structured approach to onboarding new hires and connecting them to experienced employees who can help nurture their development. One company offers 2-3 hours of online training before the first day of work, followed by a full-day orientation. An executive of another leading company noted that, “with younger talent, the priority is to help them understand the satellite industry, to see how great a place it is to work, and what our company contributes to it.”

Programs can orient new employees but it takes human interaction to cement the relationship. At 80% of companies sampled over the past two years, mentoring is undertaken informally by self-appointed employees who understand its value. At 20% of companies, however, it an organized effort. In one company, mentors fill out an application with skills and areas of interest. Mentees do the same, and the HR department matches them up.

Career Growth
All of this work aims to make new hires productive as well as creating strong engagement with the company’s mission. The work continues throughout a career in the most proactive companies in our industry.

The industry’s clear leader in training operates its own university within the organization to deliver training in technology, sales, leadership and customer engagement. The company also created a “Stretch” program that creates short-term teams from different parts of the business to tackle a specific technology or business challenge. In addition to addressing real issues, the program gives team members visibility across the organization, which can be a valuable contributor to advancement.
Talent Management on a Budget
Small-to-midsize companies in the industry – making up nearly half of all employers – may find this model of employee attraction and engagement unaffordable. Talent development, however, is not a one-size-fits-all process. It can easily scale to the size of the company. Being intentional about growing tomorrow’s talent counts for far more than money, and companies of almost any size can see returns from devoting relatively small amounts of time and money to it, and this study offers specific recommendations and links to online resources.

Facing the Future
The satellite industry is facing the greatest wave of innovation since the ending of the domestic and international monopolies on satellite communications. Long-established companies face potentially disruptive innovators that want to change the fundamental rules of the game, from the cost of launch to the size and lifespan of spacecraft.

The leaders of today’s satellite business are clearly aware of the danger and are adapting their companies fast to a new era. It is time for their talent management policies to make the same evolutionary leap.

Young people are currently flocking to work at companies that identify themselves as disrupters, whether founded by established tech stars or dynamic young entrepreneurs. This is the world in which the established satellite industry is searching for, attracting, onboarding and trying to retain talent. Facing these challenge, the industry can no longer rely on finding Mr. Right. It needs to build as much expertise in talent cultivation as it has developed in putting advanced technologies into the most hostile environment we know and making them produce a profit.
FISHING IN THE SAME POOL

Two numbers, illustrated by the charts below, sum up the key workforce management challenges facing the satellite industry.

As shown by the first chart, the industry relies heavily on a cadre of experienced workers ages 45-54, who make up 42% of employees. These are people who know the business and the technologies, are deeply versed in the processes and the unique demands of customers.
They are well paid, and the value they provide in return is equally high. According to interviews with human resources executives, they form a relatively small pool of talent in which every company goes fishing:

“We are all competing for the same talent, and there is only a limited amount of it to go around.”

“Our challenge is finding qualified people with the right personality. People who have space and technology experience, and can get along with people, deal with stress and deal with diversity. That was easier in the past than it is now. A lot of it isn’t taught in school.”

What’s Wrong with This Picture?

The second chart on the previous page illustrates a different story. It shows voluntary attrition – people leaving their jobs by choice – across various age ranges. The percentage of employees with 1-5 years of service who voluntarily leave their positions is a shocking 67%, a number that drops to 32% for those with 5-10 years of service. The sample of human resource executives is hardly comprehensive of the industry, and a larger sample might reduce the disparity. But the period between the end of the first and fifth years on the job in a satellite company does appear to be a kind of “valley of death” where too many talented people exit the premises.

Consider these two numbers together, and what can you conclude? The sample of companies is admittedly small, and a different set of respondents might generate different numbers. But the data suggest that this is an industry that is failing to invest in career paths that retain younger talent. At the same time, it relies heavily on older workers who know how things are done – but may not be as good at devising ways for things to be done differently and better.

Is it high attrition among younger employees that leads companies to rely on veterans, or does the reliance on veterans close off career paths for the next generation? The data does not point one way or the other. What seems indisputable, however, is that a healthy, growing technology industry should have a lower attrition rate for newer employees and a flatter age curve overall.
COMING AND GOING

We asked human resources executives to report on hiring and headcount trends at their companies over the past year. The chart below tracks the percentage of companies in our sample reporting new hires and headcount reductions.

Sixty-four percent of companies reported new hires in Operations, 57% in Design & Engineering and 50% in Sales & Marketing. Much higher percentages of companies reported making new hires than seeing their headcounts reduced, which is good news for the people working in the industry. The only exception was Sales & Marketing, where the same percentage of companies reported new hires and headcount reductions, whether voluntary or involuntary. Overall companies reported that 66% of headcount reductions were voluntary and 34% were involuntary.

The chart on the next page presents the data in a different way. It shows how headcount reductions were distributed by job category within our sample group over the past 12 months.
Headcount reductions in Design & Engineering and Operations personnel were reported by the largest percentage of companies, followed by Sales & Marketing and Administration. Balancing these were decisions about the job categories in which companies reported they would be hiring in the next 12 months, illustrated by the chart below. Design & Engineering, Sales & Marketing and Operations topped the lists, reflecting the need to maintain staffing in these critical areas.
Comparing these responses with the data drawn from our employee survey shows that, for the most part, voluntary and involuntary attrition are proportional to the percentage of employees in the various job categories. The exception is in Operations, which makes up 10% of employees at the average company but is reported by 40-50% of companies to experience attrition or recruiting.

**Attrition and Engagement**

What does it mean that 79% of companies expect to hire Design & Engineering staff, 71% expect to hire Sales & Marketing staff and 57% expect to hire Operations personnel? Is it a sign of growth for the industry or a sign of something else?

We can gain a different perspective on that question by looking at employee engagement as reported in our employee survey. While compensation is part of the value employees take from their work, it is not the top priority for most people. Higher on the list is the opportunity to make progress in meaningful and challenging work and to feel valued for the contributions we make. The sum total of these factors is called engagement, and the standard way to measure it is through a survey.

One of the best recognized was developed by the polling organization Gallup. It asks employees to indicate how much they agree or disagree with 12 statements, ranging from “At work, I have the opportunity to do what I do best every day” to “My supervisor, or someone at work, seems to care about me as a person.” Agreement or disagreement is measured on a five-point scale in which 5 means “agree strongly” and 1 means “disagree strongly.”

By itself, an engagement score between 1 and 5 does not reveal very much. Greater insight is available from a “favorability rating, in which we measure how many respondents gave a “strong” rating of 4 or 5, how many gave a “neutral” rating of 3, and how many a “weak” rating of 1 or 2. The result is a picture of the strength of engagement in the organization and its mission.
The chart above makes clear that, in terms of job categories, Administration (76%) and Finance (67%) lead all others in terms of having a strong engagement with the organization. The three categories with the weakest engagement are Sales & Marketing, Design & Engineering and Operations.

That is, in a word, odd.

Administration and Finance are, generally speaking, one step removed from the core mission of the organization, whether it is to build technology, launch satellites or deliver services. Every company, in every industry, has administrative and finance staff, and what they do does not different that much from company to company.

Sales & Marketing, Design & Engineering and Operations are at the functional heart of a satellite company. The disturbing implication of this chart is that the closer an employee is to the creation of new customers or the delivery of value to current customers, the weaker is the level of engagement with the company. Despite the preponderance of highly experienced and highly qualified people in the Operations, Design & Engineering and Sales & Marketing, these crucial employees seem less strongly connected to the company than the people who process their paychecks.

Analyzing engagement by the age of employees reveals a related issue. The chart below shows that the age group most strongly and enthusiastically engaged in the organization and its mission, by self-assessment, is 18-24 years old – those most likely to be in a starting position with the company. For the next age group, 24-34 year olds, strong engagement drops from 75% to 49%, after which it plateaus in the 37-41% range.
Some of the difference is unavoidable and is experienced in every industry. Young employees tend to be more engaged that people in middle age, for reasons that are obvious to those who have been in both positions. Younger people bring greater natural energy to what they do. They are excited by ideas, technologies and processes that will gradually become a familiar part of the working day. They have, generally speaking, been disappointed less often by the twists and turns of life.

But consider this chart in the context of the chart on page 9 of voluntary attrition by length of service. The implication is unavoidable: there is a well of engagement, energy and excitement within too many companies in the satellite industry that is not being sufficiently tapped. While innovation is hardly a monopoly of the young or new on the job, these groups possess a fresh set of eyes and the willingness to question the limits of the possible. Surely companies in the industry should be doing more to retain these “newbies” long enough to turn them into productive designers, operators and salespeople – particularly given the disruptive innovation sweeping through the satellite business today.
GETTING PAID

The study asked full-time employees to indicate their compensation within ranges (e.g., 50,000-100,000) in the currency in which they were paid. This self-reported data was then converted to US dollars at purchasing power parity (PPP). Unlike currency exchange rates, PPP is based on equivalent buying power. In one of the best known examples, The Economist publishes an annual Big Mac Index, which sets exchange rates between currencies based on how much of that currency is used to buy a Big Mac, an item that is exactly the same wherever it is consumed. The figures used here thus reflect the actual experience of wage earners in different countries in terms of their standard of living, rather than how many units of their currency they receive.

Ninety percent of employees responding to the survey are compensated with an annual salary, while only 10% are hourly employees. But before we dive further into compensation, we need to have a basic understanding of the universe of employees who collect those wages.

Industry Demographics

Respondents represented a broad sample of the satellite industry, including the core company sectors (build, launch, operate, services) as well as end-users and companies closely related to the industry, as indicated by the chart below.

Respondents by Employer Type

- Work for Satellite Co. 54%
- Work for Related Co. 37%
- Work for End-User 9%

Responses by Region

- No Am 70%
- Europe 19%
- Asia 6%
- ME & Africa 3%
- Latin Am 2%

Respondents by Sector

The chart below depicts the companies that make up the core of the satellite industry (“Satellite Companies” in the chart above). Manufacturers of satellites and components employed 25% of respondents while satellite operators employed another 36%. The next
largest two categories were systems design & integration and ground-segment technology, both at 10%. Employees working for satellite-related companies included consulting engineers, attorneys, software and applications developers, educators, researchers and non-profit executives.

The survey attracted a small number of end-users: 55 or 7% of the sample. Of these, about 54% worked for government and 23% for media & entertainment companies, with the balance spread across other market sectors.

**Respondents by Company Size**

In general, companies in the capital-intensive satellite industry have small staffs relative to the revenue they generate. In our sample group, 46% reported working for a company with under 500 employees, another 24% work for companies with less than 2,500 employees, and 30% are employed by bigger firms.
The 2016 Web survey of satellite industry employees provides an update to the first demographic profile provided in the 2015 study. Of respondents to the survey, 83% were male and 17% female. They are highly educated, with 65% possessing a graduate or professional degree and a further 26% having an undergraduate degree.

![Highest Level of Education](image)

For the large percentage of employees with a professional degree, engineering was the choice of 75%, with an MBA as the second most popular choice.

![Professional Qualifications](image)

A broad range of engineering specialties find employment in the satellite industry. The leading disciplines are aerospace, electrical and systems, with mechanical and engineering management degrees in second place.
Education has a significant impact on compensation around the world, as indicated by the chart below and the table that follows. “Professional” means a degree qualifying the respondent in one of the engineering, business administration or project management specialties.

The table on the next page lists the high and low salary in PPP reported by employees in each of the educational categories.
In addition to education, job category also determines the employee’s compensation potential, as illustrated by the chart below. The positions most closely associated with the company’s financial results – Management and Sales & Marketing – receive the highest levels of compensation globally. (Management jobs pay the most, in this as in most industries.) The three categories closest to the creation of new customers or the delivery of value to current customers range from second place (Sales & Marketing) to fifth place (Design & Engineering) to seventh place out of eight (Operations).

The employee survey received enough data from two regions, North America and Europe, to be able to drill deeper into respective compensation levels there. Keeping in mind that the numbers are reported based on equal purchasing power, there are sharp disparities in what satellite professionals are paid on different sides of the Atlantic.
North American employers pay significantly more than their European peers in most job categories. Operations showed the greatest disparity, with North American employees reporting 180% of the average salary paid to Europeans. North American administrative staff reported earning 150% while Design & Engineering and Sales & Marketing employees were paid 130% more. Only in Finance & Accounting are Europeans outperforming North Americans on pay. The average Finance & Accounting salary in North America was reported to be only 76% of the average salary in Europe on a purchasing power parity basis.

In comparing compensation in purchasing power terms, it is important to recognize that most European countries provide their citizens with services – healthcare, pension, childcare support, etc. – for which the citizens of the United States pay in part or in whole from their compensation or their pockets. Americans are the largest segment of the North Americans responding to the survey.

**Compensation by Length of Service**

For the global data set, compensation increases over years of service by between 27% and 30% over the course of 15 years with the same company. Though the work is well-compensated overall, respondents portray salary growth as modest year over year.
Again, there are significant differences in salary growth between regions. The chart below compares salary growth within the same company over a career between European and North American companies. Though European companies pay lower salaries overall, these grow at a significantly faster pace. Over a course of a +15-year career with the same company, a European employee averages a 67% increase in compensation, compared with 28% for a North American.
Compensation for Engineering Positions

The chart below depicts the compensation reported by employees in engineering positions with their companies from starting salaries to more than 15 years of service with the same employer.

Engineers, Compensation by Length of Service, PPP

<table>
<thead>
<tr>
<th>Length of Service</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>$101,953</td>
<td>$141,743</td>
</tr>
<tr>
<td>1-5 years</td>
<td>$112,803</td>
<td>$153,255</td>
</tr>
<tr>
<td>5-10 years</td>
<td>$128,929</td>
<td>$171,576</td>
</tr>
<tr>
<td>10-15 years</td>
<td>$128,739</td>
<td>$173,138</td>
</tr>
<tr>
<td>More than 15 years</td>
<td>$134,997</td>
<td>$180,370</td>
</tr>
</tbody>
</table>

Engineers are at the upper end of the average compensation range throughout their careers with satellite industry employers, though not in the same class as Management or Sales & Marketing. Starting salaries range from a purchasing power parity equivalent of $100,000 up to $142,000. Over a career with a single employer, they can expect their compensation to grow by between 27% and 32% on average.

As with the global compensation figures, there are significant differences between European and North American compensation for engineering positions. Starting salaries in Europe, as reported by employees, are only about half the North American average. The gap gradually closes so that, after 15 years with the same company, European engineers are paid on average 80% of North American compensation on a purchasing power basis. This reflects a career salary growth rate averaging 85% for European engineers, compared with 23% for North American engineers.
Pay for Performance

It appears that employers in the industry are evenly divided on the question of paying performance-based compensation.

Fifty-eight percent of respondents report receiving a bonus as part of their compensation. Of these, 60% receive the bonus based on their individual performance and 40% as a share of an incentive pool. Bonus compensation, however, makes up a modest part of the
total pay packet for most employees. It makes up less than 10% of total compensation for half of all respondents, while 27% report it making up 10-20% of compensation.

Pay for performance is most common in sales positions, of course, and there it makes up a more meaningful portion of total compensation, as shown below. For the salespeople in the sample group, 55% receive 10-30% of their total compensation from commission, while 17% receive 31-50%.
Since its earliest days, the satellite business has benefited from a hidden privilege when it comes to recruiting talent. Like most privileges, it has generally gone unnoticed until that dismal day when it begins to disappear.

For decades, the industry has been able to hire qualified and experienced people from the military, where satcom plays a prominent role among communications options, and from the broadcasting and cable industries. They came to the satellite business ready-made: knowing the technology fundamentals and experienced in the rough-and-tumble of making services actually work. Today, militaries are a fraction of their former size in most industrialized nations. They are more likely to be all-volunteer and to represent a career choice rather than a career interlude. As broadcasting becomes increasingly a matter of bits transmitted over wires and cables, deep experience in radio frequency operations is becoming scarcer by the year.

The charts below add further insight. When asked if they found some jobs particularly difficult to fill, human resource executives cited four categories that were most challenging.

“Previously, there were so many people in the talent pool who had previous military experience, where they learned what they needed to know. Not any more.”

“I was trained by a broadcaster 25 years ago but there is no longer an influx of people into that business. So we have to bring in apprentices and invest more in their training.”

The charts below add further insight. When asked if they found some jobs particularly difficult to fill, human resource executives cited four categories that were most challenging.
It is a familiar list of categories. Forty-three percent cited difficulty filling jobs in Design & Engineering, while 21% cited Sales & Marketing and 14% Operations. These are the same positions that are core to the company success but exhibit such weak engagement in that success. The nature of their difficulty is equally familiar.

Recruiters are challenged to find candidates with the experience and qualifications they are seeking. When they do find them, it is hard to meet their compensation needs, because suitable candidates are enjoying a “seller’s market” where most of the leverage is in theirs, as the quote to the right suggests.

Stop Digging

There is an old saying that, when you find yourself in a deep hole, the first and most important step you should take is to stop digging.

This report has made the case that the satellite industry falls short in specific areas of talent attraction and retention. Conditions in the talent market dictate that the industry needs to reduce its emphasis on competing for a stagnant and shrinking supply of ready-made talent, and to increase its focus on recruiting and training less-experienced people with the smarts, creativity and enthusiasm to power innovation. It is time to stop looking for Mr. Right and start growing its own Mr. and Ms. Rights. That takes patience and conscious effort. Most of all, it requires a change in mind-set from hunting for talent to farming it.

Fortunately, the industry can learn a great deal from a small number of companies that are highly proactive in attracting and nurturing talent. They are among the largest companies in the sector, which makes their investment in talent affordable. The lesson they teach, however, is not about spending money but about putting resources to the right use.
Attracting and Recruiting

Proactive developers of talent pursue two separate tracks. They go after potential job candidates where they are, and create structured programs to bring some of them inside and taking them for a test drive.

Educational Partnerships

The model companies in our sample target specific universities, often within reasonable distance of their major facilities, for recruiting. They go on campus during scheduled Career Days to represent their companies. They also approach individual professors, departments and student groups in the disciplines of greatest value to them, and seek to build relationships that steer graduate and post-graduate students to them. One respondent called it “nose to the grindstone recruiting” – not sexy but productive, like the hard work of a dedicated salesperson.

One company in our sample focuses heavily on relationship-building with universities. “We have established links with four different universities and technical schools, and they contribute a great deal to our annual recruiting goals.”

Companies also cast their nets widely online. “We are doing more and more on the Internet,” said one executive. “Not just posting jobs but trying specifically to make them appeal to younger people and make our whole Web site and industry look sexier.” The top job posting sites identified by our respondents were:

1. Careerbuilder.com
2. LinkedIn.com
3. Monster.com
4. Dice.com

Work-Study, Internship and Associates Programs

The goal of these recruiting efforts is to identify candidates for formal work-study, internship or associate programs. These typically begin with asking business unit managers to submit requisitions for interns with specific skill sets to accomplish specific missions. One executive described the process this way: “HR is provided with a budget, and we canvas the functional areas to see where they need the most help. Whoever raises their hand and expresses a need will get an intern as long as they offer a meaningful position. Quite often, this effort leads them to find their own college students to participate.”
The key to success with these programs is straightforward: relate them to the company’s priorities and create opportunities for young people to both demonstrate their value and contribute to progress.

“Our internships are very formal,” said one HR executive. “Each intern has objectives for the summer as well as weekly goals. They meet constantly with their supervisors and team. Basically, we spend a lot of money to make sure the best ones come back.”

Another focused on breadth of experience. “Our internships are 40 hours per week and pay US$12-15 per hour. The interns work for everybody in the office so they get multi-disciplinary exposure. They get to go to the trade shows and represent us at the booth. They learn about space policy and law as they put together presentations.”

Another company finds work-study to be the most productive approach. “We hire younger folks in their twenties who have recently earned a master’s degree. They have some work experience already. We put them into a work-study rotation that leads to the opportunity to hire them after two years.”

Making Them Aware
Inside the satellite industry, everyone knows how challenging and exciting the work is, and what an enormous impact it has on the world. That can blind decision-makers to just how little everyone else knows about satellites. In recruiting, HR executives report running into the same problem over and over again. “We have difficulty in attracting graduates,” said a respondent, “because our industry is not as well known as others. There are a lot of graduate opportunities in other industries that offer higher pay.”

Even students passionate about space know little about the only industry that does business there. SSPI works with student organizations in the US and Europe to make students aware of career opportunities in the industry. Our experience is consistent. Most of the young people are graduate students in engineering who are super-excited about space. They participate in cubesat projects and dream about missions to Mars. But present them a few facts about the commercial industry, and the typical response is: “I had no idea!”

SSPI launched its Better Satellite World campaign in 2015 to help future employees and customers, as well as today’s policy-makers, understand that satellite is the indispensable technology of the modern world, bringing huge benefits to commerce, education, human welfare, safety, commerce, security and peace. More at www.bettersatelliteworld.com.
Onboarding & Mentoring

Leading companies take an equally thoughtful and structured approach to onboarding new hires and connecting them to experienced employees who can help nurture their development. One company offers 2-3 hours of online training before the first day of work, followed by a full-day orientation. An executive of another leading company noted that, “with younger talent, the priority is to help them understand the satellite industry, to see how great a place it is to work, and what our company contributes to it.”

Mentoring

Programs can orient new employees but it takes human interaction to cement the relationship. At 80% of companies sampled over the past two years, mentoring is undertaken informally by self-appointed senior employees who understand its value. At 20% of companies, however, it an organized effort. In one company, mentors fill out an application with skills and areas of interest. Mentees do the same, and the HR department matches them up. “You may not be mentored by someone in your area,” their HR leader told us. “It could be in a different function to help you learn.” Together, mentor and mentee are required to lay out objectives, plan a year of activities and make commitments to action.

One company focuses mentorship specifically on engineers. “We match employees who have at least one year of experience with a mentor, who can work with up to four mentees. They go through an 8-week program together, which provides a major boost to the confidence, skills and understanding of the mentees.”

The program at another company involves about 80 people per year, with a 50/50 split between mentors and mentees. “We select high-potential employees,” an executive explained, “and assign them to mentors. We publish a workbook on how to be a great mentor and the responsibilities of mentees. We track their progress to make sure they are mentoring properly and effectively.”

Career Growth

All of this work aims to make new hires productive as well as creating strong engagement with the company’s mission. The work continues throughout a career in the most proactive companies in our industry.
One company has developed a high-potential training program, which identifies about 35% of employees each year as priorities for development and retention. The program includes technology training and leadership training, as well as the opportunity to be certified to fly satellites for the company.

Another company offers employees training and certification programs as well, but supplements them with massively open online coursework (MOOC) from a major university, which it makes available to employees at no cost.

The industry’s clear leader in training operates its own university within the organization to deliver training in technology, sales, leadership and customer engagement. The company also created a “Stretch” program that creates short-term teams from different parts of the business to tackle a specific technology or business challenge. In addition to addressing real issues, the program gives team members visibility across the organization, which can be a valuable contributor to advancement.

What Works Best?

Where do the most proactive developers of talent put the greatest emphasis in designing their overall talent management program? Respondents were asked to rate the effectiveness of all the talent management programs they have in place on a scale of 1-5, in which 5 was most effective. Internal training and formal internship programs topped the list, followed by programs that create partnerships with universities and technical schools.

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<tr>
<th>Program Effectiveness, 1-5 Scale</th>
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<tr>
<td>Internal training program</td>
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<td>Formal internship program</td>
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<td>Partnerships with universities</td>
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<td>Partnerships with tech schools</td>
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<td>Govt. workforce dev program</td>
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[Graph showing program effectiveness ratings]
Talent Management on a Budget

Small-to-midsize companies in the industry – making up nearly half of all employers – may find this model of employee attraction and engagement completely unrealistic. Create a university for employees? Devote hours and days to building relationships with universities? These are tough to do in a small-to-midsize company pushing out new technology while striving to make payroll.

Difficult perhaps – but essential. Talent development is not a one-size-fits all process. It can easily scale to the size of the company. Being intentional about growing tomorrow’s talent counts for far more than money, and companies of almost any size can see returns from devoting relatively small amounts of time and money to it.

Attracting and Recruiting

- Locate a university or technical school near your facility with programs that relate to your business, from information technology and aerospace to business and marketing. Most have Career Days or other formal recruiting opportunities, and it requires little expense or effort to make those part of the company’s regular activities. The first time is the hardest, but such recruiting rapidly becomes part of the everyday work of the company.

Resources

- “Seven Career Fair Tips for the Employer,” Blogging4Jobs, http://www.blogging4jobs.com/job-search/career-tips-recruiting-event/#IR3YzGxITTMm6XZd.97

Onboarding and Mentoring

- Create a basic manual about what your company does, who it sells to and what its values are. Make sure to outline how the various functions in the company come together to create customers and deliver value to them.

- Go to www.bettersatelliteworld.com for inspiring content on how your business helps change the world for the better.

- Invest time structuring your internship program. At far too many companies, these remain informal and haphazard. Internships succeed when they have a mission and goals that support your business as well as engaging the imagination of young people. With a properly structured program, you will find it far easier to recruit interns from local educational institutions or online.
• Discuss with your veteran employees the value of mentoring and recruit some to act as mentors. Spend a few hours outlining a set of steps that mentors and mentees will take together over the course of a year to produce value for the company.

Resources


Career Growth

• Identify outside resources that can build the skills of employees, from local universities and technical schools to industry associations and MOOCs.

• Develop a simple guide to resources, a tuition reimbursement policy and internal incentives. Engage mentors in promoting the value of training and helping employees take advantage of the program.

Resources


⇒ “Learning, Training and Development,” HR Council, [http://hrcouncil.ca/hr-toolkit/learning-implementing.cfm](http://hrcouncil.ca/hr-toolkit/learning-implementing.cfm)

⇒ “Training Ideas,” Inc. [http://www.inc.com/guides/hr/training.html](http://www.inc.com/guides/hr/training.html)
FACING THE FUTURE

The satellite industry is facing the greatest wave of innovation since the ending of the domestic and international monopolies on satellite communications. Long-established companies face potentially disruptive innovators that want to change the fundamental rules of the game, from the cost of launch to the size and lifespan of spacecraft. At the same time, terrestrial alternatives to satellite continue to increase in bandwidth, flexibility and geographic reach.

In his book, *The Innovator’s Dilemma*, Clayton Christianson documented how rarely the incumbents in an industry succeed in introducing paradigm-changing innovation and how often it is new entrants who introduce technologies that find new markets and then gradually take over existing ones. The leaders of today’s satellite business are clearly aware of the danger and are adapting their companies fast to a new era. Builders of the world’s biggest satellites are creating smallsat production lines. Veteran launch companies are designing new vehicles and using their immense experience to squeeze out savings from current operations. High-throughput satellites are moving into GEO at a rate that challenges the ambitions of planned but unproven LEO constellations.

It is time for their talent management policies to make the same evolutionary leap.

Young people are currently flocking to work at companies that identify themselves as disrupters, whether founded by established tech stars or dynamic young entrepreneurs. They are embracing the Silicon Valley culture of long hours, frequent job changes, and placing big bets on the next big thing, knowing full well that only a fraction of those bets will pay off. This is the world in which the established satellite industry is searching for, attracting, onboarding and trying to retain talent. Facing these challenge, the industry can no longer rely on finding Mr. Right. It needs to build as much expertise in talent cultivation as it has developed in putting advanced technologies into the most hostile environment we know and making them produce a profit. ■
HOW THE STUDY WAS CONDUCTED

Through the New Century Workforce project, SSPI aims to help the satellite industry become one of the world’s best at recruiting and engaging the talent that powers innovation. “Launch Failure” is an important part of that project, now in its second year, and it targeted two different groups of respondents.

HR Executive Interviews

Korn Ferry staff completed telephone interviews with human resource leaders and recruiters at major satellite industry companies, based on a questionnaire jointly developed with SSPI. The study asked them about trends in talent attraction, management and retention, and about the important issues affecting their success. A total of 14 interviews were completed at companies including:

- Airbus Defense & Space
- Arianespace
- Elara Communicaciones
- Com Dev
- GeoOptics
- Intelsat
- Microspace Communication
- OmniSpace
- Pratt & Whitney
- SES
- SeaLaunch
- Signalhorn Trusted Networks
- Telecomm Systems
- XTAR

The companies included satellite operators and manufacturers, launch companies, ground-segment technology firms, teleport operators and systems integrators. The executives were responsible for managing a headcount of 17,650 people at 89 sites in 57 countries, with an average of 1,260 employees per company.

Online Employee Survey

SSPI also conducted a separate online survey of satellite professionals in all of the major job categories who worked at companies in 44 countries around the world. The study asked them about themselves, their careers, their compensation and their engagement with the companies.

Invitations to participate went to the combined memberships of SSPI, the Satellite Industry Association, Global VSAT Forum, CASBAA, World Teleport Association and the EMEA Satellite Operators Association, as well as the entire alumni base of the International Space University and the online

NEW CENTURY WORKFORCE
readership of *SpaceNews* and *Satellites & Markets*. SSPI processed data from a total of 1,060 completed questionnaires.

The data from the online survey is self-reported, with no independent verification of accuracy. This is not an issue for most of the results reported here. Where compensation is concerned, however, self-reported information should be considered more an indication of trends than an accurate rendering of compensation ranges by job category or region. Compensation data was received from 777 of total respondents after culling out part-time employees and obvious outliers in the information.
ABOUT THE REPORT

SSPI launches the New Century Workforce project in 2015 to focus attention on the key issue of talent attraction and retention. The annual workforce study is the first international, publicly-available data on the satellite industry workforce. The questionnaire for the HR executive interviews and employee survey was developed in collaboration with an advisory group of human resource executives who volunteered their time to the project.

SSPI executive director Robert Bell led the project and designed survey instruments in collaboration with executives of Korn Ferry, which also conducted executive interviews. Mr. Bell wrote the report based on data from the interviews and the Web-based survey of satellite industry employees.

ABOUT THE SOCIETY

Founded in 1983, the Society of Satellite Professionals International is on a mission to make the satellite industry one of the world’s best at attracting and engaging the talent that powers innovation. With more than 4,000 members in +40 nations, it is the largest satellite industry association in the world. It delivers on its mission through a portfolio of programs:

- **Next Generation** – Staging competitions and sharing information with university students to excite them about careers in satellite.
- **Leaders Quest** – Identifying and honoring present and future leaders as models for the industry to follow.
- **New Century Workforce** – Conducting the annual workforce study and engaging satellite company executives in improving industry practices.
- **Better Satellite World** – Promoting the immense contributions of satellite to commerce, education, communication and human welfare.

Learn more about SSPI and its activities at [www.sspi.org](http://www.sspi.org), @sspi on Twitter or the group “Society of Satellite Professionals International” on LinkedIn.