1 DEFINING THE IT LABOR ECOSYSTEM

WHITE PAPER

In the long history of labor forces, there perhaps has never been a more in-demand and competitive candidate pool than today's technology workers. While this candidate-driven market is fostering innovation, it is also placing added pressure on IT hiring managers to not only stay consistently engaged in the hiring process, but also to continue to offer increasingly lucrative compensation packages, engaging projects, and a compelling corporate culture in order to remain competitive in the current IT hiring ecosystem.

1 DEFINING THE IT LABOR ECOSYSTEM

EXECUTIVE SUMMARY

In the long history of labor forces, there perhaps has never been a more demanding candidate pool than today's technology workers.

The rapid and unrelenting changes currently occurring within the IT industry require today's tech workers – and especially information technology professionals – to constantly adapt to new software, apps, systems, services and more, usually under very tight deadlines, and always while juggling other responsibilities. However, those who can keep up with the pace, gain experience and earn valued credentials are highly prized and richly rewarded – usually in ways that other labor groups are not, especially where benefits are concerned.

Part of a talent pool that is growing much slower than the rapidly increasing need, IT workers are heavily recruited. While few would classify this group as outwardly demanding, they are certainly well aware of their status in the tech community and use that to their own advantage. Much of what they receive in the way of compensation and benefits is actually freely offered by companies eager to acquire more tech talent. However, like any in-demand labor contingent, IT workers have become comfortable passing on employment packages that aren't perceived as best-in-class.

Meanwhile, the companies in the hunt for these employees – technology-focused entities as well as non-technical companies with an internal IT component – are propagating the situation by rolling out even more technology-heavy endeavors, speeding up delivery timelines, and requiring all potential tech candidates to undergo an ever more rigorous and drawn out interview process.

It's quite similar to the tech employment situation companies faced during the technology boom of 1994 to 2004 – when technology employment increased at a staggering annual growth rate of 8%. However, this time around, those in the know are pointing to evidence of a long-lasting "fundamental economic shift" that will propel the technology industry for many years to come; while credible industry research is predicting significant growth in tech-heavy projects through at least 2020. During that time, job growth is predicted to grow three times as fast as all other occupations, as the demand for both IT administers and support staff heats up.

The hiring managers handed responsibility for recruiting IT talent in this highly charged atmosphere will need to be strategic and savvy. Those who aren't are likely to be left chasing after the less desirable candidates and paying more than they have to.

THE CURRENT IT LABOR ECOSYSTEM

WITHIN THE IT INDUSTRY, IT'S OLD NEWS THAT EXPERIENCED, WELL-CREDENTIALED TECH TALENT IS IN SUCH HIGH DEMAND THAT THOSE WORKERS HAVE A KEEN AWARENESS OF THEIR MARKET VALUE AND LEVERAGE. STILL, THE LATEST FACTS AND FIGURES ARE ENOUGH TO MAKE EVEN INDUSTRY VETERANS TAKE NOTE:

There are currently more than 100,000 software and IT services companies in the United States competing for technology workers – plus the hundreds of thousands of non-technology companies trying to lure the same candidates.

In 2012, the mean annual salary for network and computer system administrators working across the country was $76,320. For computer user support specialists, the average was $50,130.

The unemployment rate among technology workers in the U.S. is a paltry 2.7% (less than half the overall U.S. unemployment rate: 6.3%).

In the near future, employment of computer and information systems managers is expected to grow between 18% and 26%.

By 2020, one million programming jobs in the U.S. are predicted to go unfilled.

Fully 32% of recruiters and hiring managers report tech candidates are rejecting more of their company's job offers.

Almost 60% of companies report that open positions are currently going unfilled because they aren't able to meet the high salary requirements demanded by tech candidates.

In addition to all the employment perks for which technology companies have become famous (free drinks, food and even dry-cleaning have become standard), some firms are now also doling out raises and bonuses several times a year.

Nearly 41% of tech companies say turnover at their companies is less than 5% (15% to 20% would be considered normal). A whopping 79% of hiring managers say layoffs are unlikely.

Some 61% of recruiters and hiring managers say more tech candidates are demanding higher salaries than what's offered to them.

Undaunted by the statistics, fully 70% of hiring managers report they will try to hire more technology professionals in the coming months.

A RABID DEMAND FOR QUALIFIED TECH EMPLOYEES

When the need for qualified candidates outpaces the supply, it creates a candidate-driven marketplace. Such is the case with the current IT hiring ecosystem – which hasn't experienced such a strong demand for employees since the high-tech boom of the late 1990s and early 2000s.

In that last big technology boom (officially 1994 to 2004) computer systems design and related services industry employment increased by 616,000 people over the 10 year period – which equates to a "staggering" 8% annual growth rate. Since then, the current run-up in IT employment hasn't equaled or exceeded that record, but the numbers are dramatic, just the same: Between 2004 and 2014, employment increased by a whopping 453,000 people, which equates to a 3.4% annual growth rate.

According to researchers at the Bureau of Labor Statistics, one reason why the current wave of IT employment is less than before is because workers are so much more productive today. Another reason: more companies have taken to outsourcing their talent needs to offshore firms. The off-shoring of tech work continues to be a very strong sector trend. Currently, almost half (45%) of all the world's information and communications technology work is performed somewhere other than the U.S.

"We've crossed some sort of border in human history where everything we touch now has software in it."

Within the U.S., more than 100,000 companies provide software and information technology services – each of those firms vying against one another, plus hundreds of thousands of other non-tech firms, for qualified technology workers. Yet, because the vast majority of those companies (99%) employ less than 500 people each, even some industry insiders don't realize how diverse and widespread the demand for technology workers is today.

In a recent Wall St. Journal article, Ryan Carson, the co-founder of an online school for training programmers, framed the overarching situation this way: "We've crossed some sort of border in human history where everything we touch now has software in it." To keep up with the rising demand, the majority of hiring managers say they plan to go on the hunt for more technology professionals. In 2014 alone, the hiring of computer and information systems managers is predicted to grow 18% to 26%.

However, with the unemployment rate for all IT workers hovering at just below 3%, it's unclear how companies intend to find the resources they desire. Nearly 41% of tech companies say turnover at their companies is less than 5% (15% to 20% would be considered normal). And 79% of hiring managers say layoffs are unlikely any time in the near future. In fact, by 2020, the U.S. Bureau of Labor Statistics projects one million programming jobs in the U.S. will go unfilled.

79%
Of hiring managers say layoffs are unlikely in the near future

70%
Of hiring managers plan to hire more IT professionals

100K
Companies provide software and information technology services

A COMPLICATION: COMPANIES WANT ONLY STAR PERFORMERS

The fact that most companies are focused on hiring the most talented tech workers available is another important element of the current IT employment conundrum. Desperate to meet the need for new technologies, programming languages, services and support, and sure that only star performers will suffice, many companies are determined to make sure every technology candidate is a perfect cultural and skills fit, even if that means churning through round after round of candidates and continuing to put off the fulfillment of new positions.

There are IQ tests, personality tests, brain teasers, coding exercises, business challenges, one-on-one interviews, panel interviews, presentation requirements, and even requests for social media passwords so interviewers can gain perspective on the candidate's personal life. Then, in some cases, there's a final meeting with a star employee who has final say over who is hired and who is not (Amazon calls these people "bar raisers"; Microsoft calls them "as-appropriates"). Traditionally, reserved for senior-level candidates, these hiring hurdles are now being pushed in front of applicants for mid-level IT jobs, as well.

In many cases, it's a painful, drawn out process that makes it much harder than necessary for companies to find IT employees, and makes even highly qualified candidates leery of applying for open positions.

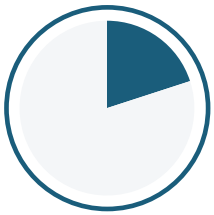
CREATING NEW IT WORKERS

Currently, there are nearly two million highly educated and skilled technology workers in the U.S. That's not nearly enough to satisfy the current or future corporate demand. To make matters worse, colleges and universities are only able to accept a fraction of the people who apply for high-tech degree programs. The number of applicants for the programs has increased exponentially, but traditional institutions simply don't have the bandwidth required. For example, only a quarter of the students who qualified for the University of Washington's computer science program were accepted in 2014.

The low college acceptance rate helps explain why only 24% of the IT workforce holds a bachelor's degree in computer science or math, and 36% do not have a four-year degree of any kind. Of the total IT workforce, two-thirds to three-quarters do not have a technology degree of any type. Recognizing a prized employment opportunity, many prospective IT workers have turned to for-profit colleges for their initial education and training. But now that states and the federal government are cracking down on many of those colleges for perceived marketing and student-loan infractions, the ability to create new IT workers via that avenue also appears compromised. Currently, only 11% of the IT workforce holds an associate degree.

While some 20% of hiring managers say they plan to add entry-level IT positions (more than have been added since 2011), it's really the dearth of more skilled technology workers that is causing the biggest problems within the industry, and it will take entry level employees some time to make an impact on that level. The reality is, technology professionals with six to 10 years of experience are the most sought after (according to 71% of recruiters), followed by candidates with two to five years of experience.

ENTRY-LEVEL



20%

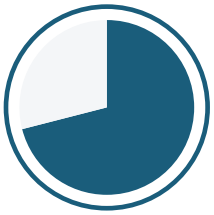
of hiring managers plan to hire for this experience level

2-5 YEARS EXPERIENCE

59%

of hiring managers plan to hire for this experience level

6-10 YEARS EXPERIENCE



71%

of hiring managers plan to hire for this experience level

THE FIRST REQUIREMENT: A HYPER-COMPETITIVE SALARY

A recent article in the industry publication IT Business Edge says, "Technology professionals appear to be taking advantage of the positive job market, with pros more often waiting for the right position and the right pay." And the research seems to bear that out:

- People employed in the STEM category (science, technology, engineering and mathematics) now earn 26% more than their non-STEM counterparts – regardless of education or degrees.
- 61% of recruiters and hiring managers say more tech candidates are demanding higher salaries than what's offered to them. And when the company can't deliver, 32% say the candidate rejects the job offer.
- The result: Almost 60% of companies report that open positions are currently going unfilled because they aren't able to meet the high salary requirements demanded by tech candidates.

In a balanced employer-employee job market, applicants who hold out for higher pay are usually passed over for more eager candidates. But in a candidate-driven ecosystem like now, many employers recognize that remaining competitive requires raising their salary expectations.

RAPID RAISES AND BONUSES ARE GOOD, TOO

Another budding trend has been to provide tech workers with raises and bonuses more than once-a-year. Currently, only 5% of companies offer this new pay perk, and the results appear to be mixed. At Zulily, employees are eligible for pay raises every quarter, and Chief Executive Darrell Cavens told the Wall St. Journal he would offer it even more often if he could. "The raises make a lot of extra work for managers, but employees stay focused on the company, since the next payoff is just around the corner."

However a recent research study shows that the impact of a 10% pay raise is often short-lived, and very limited in its ability to make an employee less likely to quit. Plus, compensation experts say setting the expectation of rapid raises and bonuses could be dangerous if you don't think your company can continue it long-term. For the time being, this appears to be a micro-trend, but if the pool of IT talent remains limited while demand surges, the tactic could become more widespread.

A POTENTIAL TRADE-OFF: A GREAT WORKPLACE FOR SLIGHTLY LESS MONEY

Closely tied to salary is work environment. If the company has a reputation for giving technology workers the freedom, challenge and opportunity they desire, it can often get away with paying less. But achieving that balance is something only the biggest and brightest companies seem equipped to achieve. Some pay disparity can be offset by the perks those companies are famous for providing their employees. But the work environment – more specifically, the opportunity to work on innovative new products and services – seems to be true motivator.

Technology workers want to put their skills and experience to work on challenging new endeavors, so they're highly attracted to the companies with reputations for providing those opportunities, and they're willing to accept a lower salary in return. Robert Hohman, the chief executive of Glassdoor.com explains it this way: "Innovation has as much to do with whether to take a job as does pay," which means, "Companies with extremely strong brands don't have to pay top dollar. The brand works for them. "

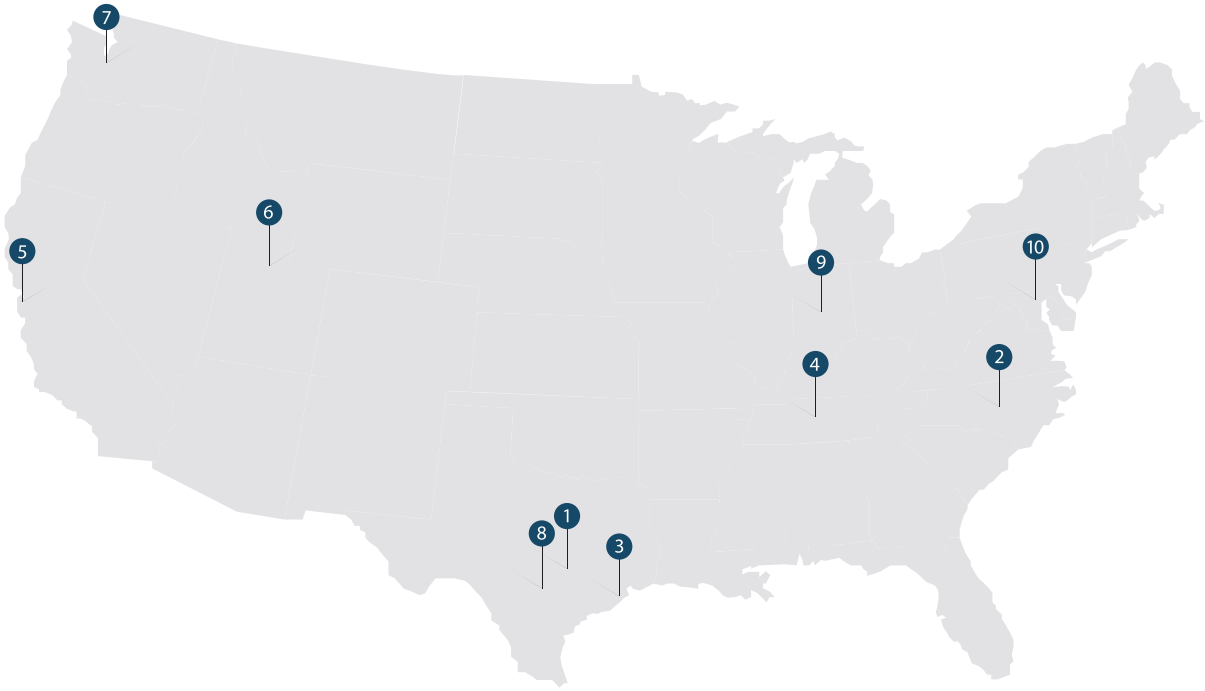
> ***"Companies with extremely strong brands don't have to pay top dollar. The brand works for them."***

COMPANY LOCATION: A BIG ADVANTAGE (OR DISADVANTAGE)

Where a company is located also has a big impact on the type and quality of technology worker it can recruit. However, the cities that currently rank as having the biggest advantage may surprise you. According to the research, the city that a tech worker will be most attracted to also depends on the person. While the young IT guns are still attracted to the traditional and trendy high-tech employment centers of San Francisco / Oakland, San Jose / Sunnyvale / Santa Clara, and Seattle, older, more experienced tech workers with families want to work in areas of the country with better livability and affordability rankings.

Factors that are making a difference include: a diversity of technology employers (not just one primary tech company), a cohort of other technology workers, nearby college / college town with a strong technology program, trendiness (innovative restaurants, events and activities), the presence of manufacturers, affordable housing, expanding suburbs (with manageable commutes), stable micro economy, low taxes, and a low cost of living.

A 2013 Forbes study found that, in the time between the high-tech bust of 2001 and the current high-tech expansion, these 10 cities have attracted the most technology workers (listed in order):



1. Austin / Round Rock / San Marcos, Texas	6. Salt Lake City, Utah
2. Raleigh / Cary, North Carolina	7. Seattle / Tacoma / Bellevue, Washington
3. Houston / Sugarland / Baytown, Texas	8. San Antonio / New Braunfels, Texas
4. Nashville / Davidson / Murfreesboro / Franklin, Tennessee	9. Indianapolis / Carmel, Indiana
5. San Francisco / Oakland / Fremont, California	10. Baltimore / Towson, Maryland

Cities ranked on tech-employment growth between 2001 and 2013, as well as their "near-term" growth from 2010 to 2013. Employment growth at high-tech companies was measured, as was the growth of STEM workers (an effort to capture the growth of tech workers at non-tech companies).

While these areas have experienced impressive industry growth since 2001, other major cities are poised to disrupt the historical dominance of Silicon Valley even further. Take for example, areas such as the Dallas / Fort Worth metroplex, which is currently benefiting from a series of high-profile corporate relocations, overall wage increases at double the national average, and the fifth-highest concentration of technology professionals in the nation. Cities such as these, which also offer a competitive and comfortable cost of living along with no state income tax, are providing highly-desirable alternatives to some of the more traditionally high-profile tech regions.

PACKING ON THE PERKS

In-demand tech workers have come to also expect a special package of perks. In addition to the list of non-traditional benefits for which technology companies have become famous (free drinks, food and even dry-cleaning have become standard), tech company employment perks such as bonus programs, stock purchase plans and even reimbursement for personal expenses while traveling are outpacing their non-technology counterparts.

Some well known and some surprising, the following benefits are becoming more common among tech companies*:

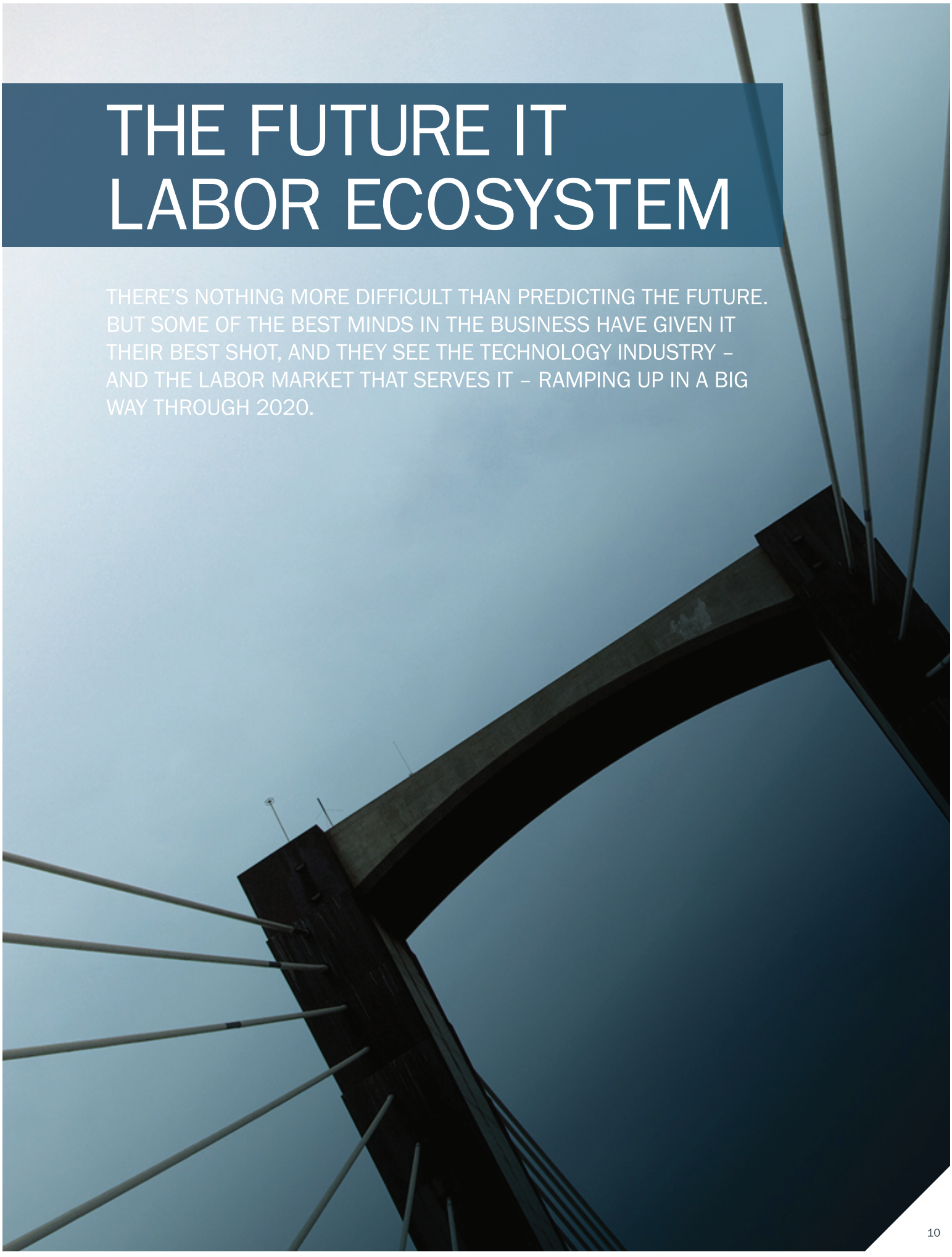
PERKS OFFERED:	TECH COMPANIES	NON-TECH COMPANIES
Telecommuting or flex time	**70%+**	50%
Travel accident insurance	**63%**	37%
Incentive bonuses to C-class executives	**73%**	52%
Temporary relocation benefits	**41%**	23%
Paid house-hunting trips	**34%**	20%
Incentive-based stock options	**25%**	9%
Casual workplace attire every day	**50%**	34%
Allow employees to keep frequent flier miles	**82%**	67%
Undergraduate and graduate tuition reimbursement	**71%**	60%
401K matching	**49%**	36%
Paid military leave	**35%**	22%

** Source: Silicon Valley Business Journal study of data from the Society for Human Resource Management.*

The perk examples included above are focused on the technology industry, but that doesn't mean traditional companies need not take notice. On the contrary. IT workers move between the traditional and tech worlds, so employers offering standard and traditional perks may find themselves struggling to sell their brand to candidates and land leading talent. And any benefits that are considered unique and implemented throughout an organization will need to be offered in a way that doesn't alienate non-tech workers.

THE FUTURE IT LABOR ECOSYSTEM

THERE'S NOTHING MORE DIFFICULT THAN PREDICTING THE FUTURE. BUT SOME OF THE BEST MINDS IN THE BUSINESS HAVE GIVEN IT THEIR BEST SHOT, AND THEY SEE THE TECHNOLOGY INDUSTRY – AND THE LABOR MARKET THAT SERVES IT – RAMPING UP IN A BIG WAY THROUGH 2020.



BUBBLE, OR FUNDAMENTAL ECONOMIC SHIFT?

Many businesses – both inside and out of the tech world – are wondering if the current run-up in IT tech hiring is closely tied to a run-up in technology company stock market valuations … and when investors finally pull back on their financial bets in still-unproven technology companies, it will free up more IT workers and limit the rapid increases in pay and benefits – just like the technology downturn of early 2000 did. That may turn out to be true. But in addition to signs that the technology sector is overheated, there is also evidence and expert opinion that the current worldwide obsession with technology is a fundamental economic shift and not simply a bubble.

"…investors aren't willing to back a new company until it has begun generating real, sustainable revenue."

For one thing, no one – especially the investor community – has forgotten about the technology-sector bust of 2004 that ushered-in a stubborn and ugly recession. While it's true that investors are eager to back technology companies of all kinds today, they're also the first to penalize companies that don't deliver profits. And that's a big change from the last time around.

Another dramatic difference: It's far more difficult to take a tech company public today, because investors aren't willing to back a new company until it has begun generating real, sustainable revenue. In short, investors today are optimistic about new technology, and very excited by the future potential, but also, because they were burned once before, highly skeptical – of both startups and market leaders.

In a recent article in the Wall St. Journal, Internet pioneer and industry insider Marc Andreessen was asked for his take on the current situation. His response, "The people who say it's all like the '90s and it's all going to come crashing down just don't know what they're talking about."

To back up that statement, Andreessen points to:

1	The explosive growth in smartphone usage that's driving an all-new emphasis on technology. Adding, "We're just starting to see the implications of that."
2	Investments in budding technology companies coming from mostly private equity firms, not general investors.
3	A dramatic shift in how today's technology companies run their businesses. Instead of investing hundreds of thousands of dollars in expensive technology infrastructure (investments that startups can find difficult to recover from) the companies use service providers. "They go on Amazon Web Services and they pay by the drink and they're paying somewhere between 100x and 1000x cheaper per unit – per unit of compute, per unit of storage, per unit of networking, per unit of software," says Andreessen.
4	Technology companies that like to project an image of creative fun factories but, behind the scenes, are actually well-run, highly productive organizations with wide-reaching, yet achievable, objectives.

Some in the mainstream media may be sounding an alarm, but for every journalist warning of a tech bubble, there are industry insiders predicting not just a healthy continuation of the current technology trends, but a major ramp-up.

THE ONGOING EVOLUTION OF TECHNOLOGY

The technology challenges and opportunities facing corporate America today, and predicted for the future, show a clear, continuing and unrelenting need for the skills and services technology workers bring to bear.

DATA

IDC forecasts a 44-fold increase in data volumes between 2009 and 2020.

15 out of 17 sectors in the U.S. already have more data stored per company than the U.S. Library of Congress.

Currently, 2.5 billion gigabytes (2.5 exabytes) of data are created every day.

By 2020, the amount of data in the digital universe is predicted to grow to 40 trillion GB.

85% of Fortune 500 companies are incapable of exploiting big data for competitive advantage.

For every minute of datacenter downtime, the company typically loses approximately $7,000.

MOBILE COMPUTING

193 million tablets were sold in 2013.

By the end of 2014, it's predicted that mobile-connected devices will exceed the number of people on earth. By 2018, estimates predict nearly 1.4 mobile devices per capita.

Global mobile data traffic is predicted to increase nearly 11x between 2013 and 2018.

Over two-thirds of the world's mobile data traffic is predicted to be video by 2018.

CLOUD COMPUTING

Currently, only 7% of applications reside in the cloud. By 2020, that number is predicted to grow to 33%.

The cloud is predicted to generate 14 million jobs by 2015.

Public IT cloud services are expected to grow at a compound annual rate of 23.5% through 2017 (five times faster than the industry as a whole).

Worldwide cloud computing will approach $100 billion by 2016.

SAAS

Introduced 15 years ago. Today it is officially the fastest growing software industry ever.

85 percent of all new software is predicted to be SaaS by 2015.

There are more than 2,100 SaaS service providers in the U.S. today, and the market is predicted to grow to $120 billion by 2020.

VIRTUALIZATION

Virtualization moved into the mainstream about 10 years ago. Since then, there's been a rush to virtualize everything from security to computing power and the provision of desktops. Today, more than 70% of x86 server workloads are virtualized and we're in the early days of a new stage: the virtualization of storage and networking.

Of the 3,659 IT and business decision makers recently surveyed, 62% said their top technological priority was to "consolidate IT infrastructure via data center/server consolidation or virtualization."

OPEN SOURCE COMPUTING

Some of the highest trafficked websites are constructed entirely of open source components.

By 2017, Linux-based Android is predicted to account for almost 50% of all mobile smartphone and tablet operating systems.

Founded in 2011, Facebook's Open Compute Project already has 60 official members and thousands of participants.

API

Salesforce.com was the first company to produce a Web-based API.

Today, there are at least 10,000 APIs listed on the most popular directories.

By 2016, the number of open APIs is predicted to reach 30,000.

More than 800,000 websites access data on Google Maps via its API.

APPS

More than 1.5 million apps are available in the Apple App store and Google Play.

Facebook has more than 10 million apps on its platform.

By 2017, a quarter of all business enterprises are predicted to have an app store for managing corporate-sanctioned apps on PCs and mobile devices.

INTERNET

The installed base of the Internet is predicted to reach approximately 212 billion in 2020 – a prediction that includes 30 billion autonomous connected things.

In the three years between 2013 and 2016, Global IP traffic is predicted to nearly double.

Broadband speed is predicted to increase more than twofold by 2016.

The industrial Internet market is expected to grow to $14.4 trillion over the next 10 years.

CYBER SECURITY

The number of denial-of-service attacks has increased by 58 percent in the last year.

A cyber attack botnet can be rented for $7 an hour – and do millions of dollars in damage to a company within minutes.

Nearly 45 percent of CIOs admit they have been under-investing in cyber security.

A SELF-ASSESSMENT FOR IT HIRING MANAGERS

Do you have the brand, the reputation and the experience it takes to recruit best-of-bred IT talent in this rapidly paced, highly charged employee-driven atmosphere? Double-check your capabilities with the self-assessment below.

	DISAGREE				AGREE
	1	2	3	4	5
1. My company has a reputation and an established track record for rewarding IT talent with the challenges and advancement opportunities the candidate pool demands	○	○	○	○	○
2. My company has an industry-leading brand that attracts top IT talent	○	○	○	○	○
3. I'm confident that employment offers will be accepted by our most desired candidates	○	○	○	○	○
4. We excel at discovering best-of-breed IT candidates	○	○	○	○	○
5. Our internal job profiles address not only the desired experience and hard skills, but also the soft skills required to be a good corporate fit	○	○	○	○	○
6. Our interview process is effective at vetting candidates in a matter of days (not weeks) – and doesn't demand too much of the participants or send the wrong signals	○	○	○	○	○

7. Turnover among tech talent at our firm is less than 5%:	YES ☐	NO ☐
8. We have a proven process for screening candidates prior to an in-person interview:	YES ☐	NO ☐
9. We are typically able to arrive on a reasonable and mutually beneficial salary offer:	YES ☐	NO ☐
10. Our employee benefits are equal to, or better, than those of our direct competitors:	YES ☐	NO ☐
11. We have reliable, ongoing insight into the pay packages offered by our competitors:	YES ☐	NO ☐
12. Relocating highly qualified candidates is well within our realm:	YES ☐	NO ☐
13. Vetting, interviewing and hiring non-citizens for tech positions is well within our realm:	YES ☐	NO ☐
14. We have a relationship with a recruiting/staffing partner who understands our needs:	YES ☐	NO ☐

GRADING THE RESULTS

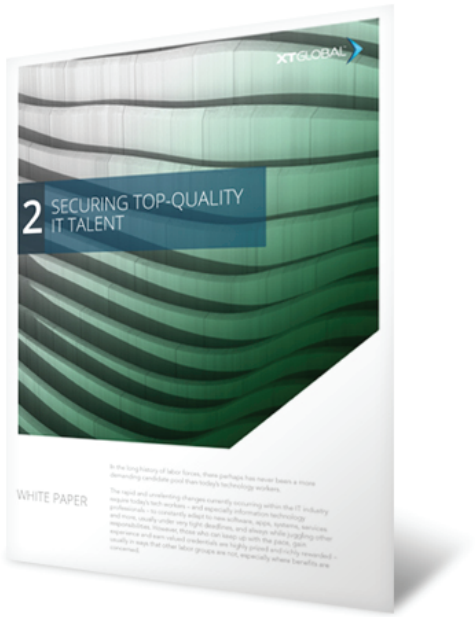
Questions 1 - 6
Calculate the combined total of each of the numeric responses given

Questions 7 - 14
Calculate and combine the values of each response
Yes = 5 points
No = 1 point

53 - 70 points	**Highly Competitive Hiring Program**
35 - 52 points	**Competitive Hiring Program**
18 - 34 points	**Semi-Competitive Hiring Program**
0 - 17 points	**Non-Competitive Hiring Program**

CHAPTER 2:
SECURING TOP-QUALITY IT TALENT

In the next installment of this whitepaper series, you'll learn what it takes to not only source and attract high-quality IT workers, but also how to close the deal and streamline the entire hiring process.



When your business is planning to add technical resources, our team of Senior Client Solutions Partners and Recruiters are here to assist you. Understanding the reasons for your search is important when trying to identify the right fit for your business needs. Whether you're replacing or backfilling personnel, growing organically, or have a demanding project, our contract-to-hire, permanent placement and project staffing capabilities are here to help.

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