EMPLOYER PERCEPTIONS OF IT APPRENTICESHIPS

February 2018

Employers have been experiencing the highs and lows of recruiting and retaining employees for years, with even more challenging times predicted as the forces of digital transformation accelerate. As such, companies, educators, and policy makers increasingly recognize the need for new approaches to developing and nurturing talent. This entails continued experimentation in leveraging the full suite of training methodologies and tools, as well as the further exploration of alternatives to the traditional 4-year degree that focuses on equipping candidates with job-ready skills and a viable career pathway.

KEY POINTS

Employers face a challenging hiring landscape, and expect it to become even more challenging

Most hiring managers describe the process of filling openings with the "right" candidate at their organization as challenging (57% NET of somewhat + very challenging). For the remaining 43%, it's been manageable over the past 12 months. But when looking out over the next 2 years, 67% anticipate challenging times for hiring ahead. Furthermore, nearly all (99% NET) mark at least one specific challenge they currently endure such as finding candidates with the right level of experience, finding candidates with the right "hard" skills, and the pool of quality candidates in the local region.

Most organizations are open to trying new methods to address hiring challenges

Given the desire—and need—for employers to 'get it right' when hiring new employees, it's perhaps unsurprising that two-thirds have changed or tried out different recruitment tactics over the past 1-2 years to help ease hiring challenges (67% NET of moderately + significantly changed). Also considering the permeation of technology in numerous business processes, there's little excuse for employers not to explore newer types of recruiting methods such as social media campaigns or contests, mobile apps, or analytics. Even more substantial approaches are worth testing out such as partnering with a local community college, working with an association other non-profit group, or trying an apprenticeship for a non-traditional role.

Majority of hiring managers view apprenticeships positively and would consider IT apprenticeship
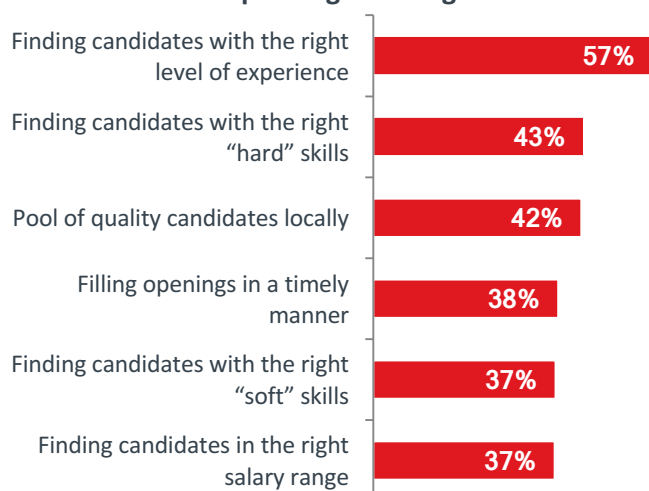
Offhand, nearly 6 in 10 hiring managers have a generally positive view of apprenticeships, with most of the remainder expressing a neutral perception (38%) versus negative opinion (2%). Regarding apprenticeships for information technology (IT) occupations, 8 in 10 think the concept has merit (NET of probably + definitely has merit). However, less than half have heard of such a program applied to IT roles. (48%). Nevertheless, 83% could see their company trying out a formal, registered IT apprenticeship program (NET of 44% probably + 39% definitely).

Among the potential benefits organizations may realize, or have realized, from implementing an apprenticeship program are training workers to suit their needs, addressing skills gaps early in a worker's career, and engaging with local schools, community colleges and other feeders.

67%
Two-thirds of organizations expect filling openings with the right candidate to be challenging over the next 2 years.

[net of somewhat + very challenging]

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Top Hiring Challenges

Challenge	
Finding candidates with the right level of experience	57%
Finding candidates with the right "hard" skills	43%
Pool of quality candidates locally	42%
Filling openings in a timely manner	38%
Finding candidates with the right "soft" skills	37%
Finding candidates in the right salary range	37%

Top Apprenticeship Program Benefits Organizations Could Realize or Have Realized

1. Opportunity to train workers to suit needs (63%)
2. Opportunity to address skills gaps early in a worker's career (50%)
3. Opportunity to engage with local schools, community colleges & other feeders (44%)
4. Opportunity to hire an employee loyal to the company (43%)
5. Opportunity to hire a worker ready to contribute from day one (43%)
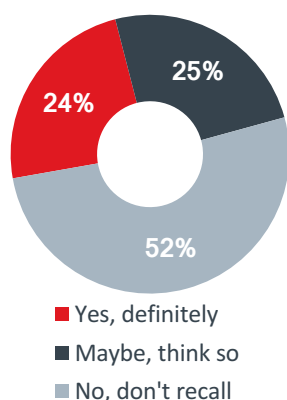6. Opportunity to attract a more diverse pool of candidates (41%)

In addition to the 87% NET of organizations that have tried 'newer' types of recruiting methods, a similar portion have relaxed hiring requirements or expanded roles/audiences over the past 1-2 years to help fill open positions (86% NET). For instance, over a third (34%) have expanded training (e.g. more training provided for new hires), 31% increased the amount of staff training/cross-training, and 3 in 10 opened certain positions at different levels (e.g. more entry- or mid-level positions). Looking ahead, nearly three-quarters expect training for new hires (73%) and training/professional development for existing staff (70%) to grow in importance over the next 2 years (NET of somewhat + significant growth).

More specifically regarding IT positions, nearly half of the employers in this study (across a mix of industries and sizes) indicate having openings for IT-related jobs over the past 12 months (47%). In comparison, this is second only to operations job openings (49%), and above other areas such as customer service (44%), sales/marketing (32%), and finance/accounting (32%).

Besides the hiring and retention challenges employers deal with in general, there are a myriad of issues in particular regarding the IT workforce and filling the tech pipeline.

[See CompTIA's *Assessing the IT Skills Gap*.] Perhaps then it is no wonder that the great majority of hiring managers think apprenticeship programs could be an approach relevant to most IT occupations (44%) or to some (47%) such as IT support/help desk or network administration.

While most employers see potential benefits to implementing an apprenticeship program (95% NET), top concerns include finding the "right" apprentice (52%), staff time to manage (48%), and retention after completion (37%).

Nonetheless, 80% believe the concept of apprenticeships for certain types of IT occupations has merit (NET of probably + definitely has merit). And despite the potential hurdles, most view a formal, registered apprenticeship program as worth the requirements to obtain benefits such as tax credits (86% NET of somewhat + mostly positive). Moreover, 91% NET indicate that one or more resources would be helpful to their organization in exploring, starting or running an IT apprenticeship program including training (49%), partnerships (40%), continued professional development support for employees (37%), and assessments (36%), among several others.
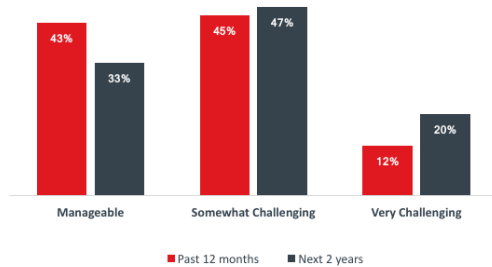
Awareness Level of Apprenticeships for IT Occupations

- 24% — Yes, definitely
- 25% — Maybe, think so
- 52% — No, don't recall

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APPENDIX I – THE HIRING LANDSCAPE

Level of Difficulty in Filling Openings with the Right Candidate

57% NET challenging over past 12 months
67% NET challenging over next 2 years

- Manageable: 43% / 33%
- Somewhat Challenging: 45% / 47%
- Very Challenging: 12% / 20%

■ Past 12 months ■ Next 2 years

Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

Main Hiring Challenges
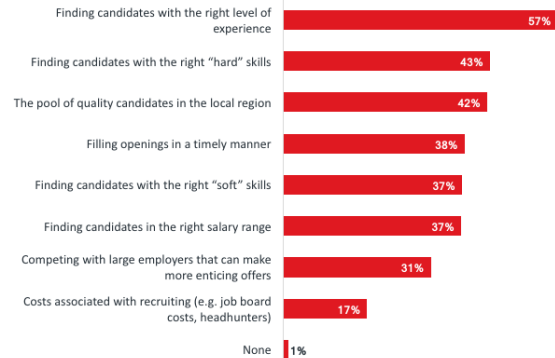
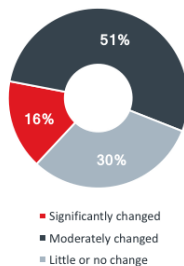| Challenge	%
Finding candidates with the right level of experience	57%
Finding candidates with the right "hard" skills	43%
The pool of quality candidates in the local region	42%
Filling openings in a timely manner	38%
Finding candidates with the right "soft" skills	37%
Finding candidates in the right salary range	37%
Competing with large employers that can make more enticing offers	31%
Costs associated with recruiting (e.g. job board costs, headhunters)	17%
None	1%

Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

Most Organizations Trying Different Recruiting Tactics

Degree Organizations Changed or Tried Different Recruiting Tactics

- 51%
- 16%
- 30%

Top 'Newer' types of methods tried for recruiting candidates:
- Social media campaigns / contests (41%)
- Partnership with local community college (38%)
- Data analytics / predictive analytics (26%)
- Partnership with an association or other non-profit group (23%)
- Mobile recruiting app (22%)
- Apprenticeship for non-traditional role (21%)

■ Significantly changed
■ Moderately changed
■ Little or no change

Over past 1-2 years

[+3% Not applicable]

Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

'Newer' Types of Recruiting Methods Tried Cont.

Recruiting Method Trying / Exploring	OVERALL	INDUSTRY IT	INDUSTRY Non-IT	FIRM STAFF SIZE Small 1-99	FIRM STAFF SIZE Medium 100-499	FIRM STAFF SIZE Large 500+	JOB OPENINGS* Had IT Openings	JOB OPENINGS* Didn't Have IT Openings
Social media campaigns / contests	41%	35%	43%	35%	40%	51%	47%	36%
Partnership with local community college	38%	35%	39%	32%	44%	41%	44%	34%
Data analytics / predictive analytics	26%	46%	20%	18%	27%	35%	38%	15%
Partnership with association / non-profit	23%	26%	22%	16%	31%	23%	28%	18%
Mobile recruiting app	22%	28%	20%	16%	24%	27%	29%	16%
Apprenticeship for non-traditional role	21%	26%	19%	21%	21%	20%	24%	18%
AI, e.g. automated recruiting assistant	14%	30%	10%	10%	17%	18%	19%	10%
None	13%	6%	16%	22%	9%	7%	7%	19%

[%s in bold indicate statistically significant difference across sub-groups] *Past 12 months

Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

What's Worked Well About 'Newer' Recruiting Methods

Sampling of Comments

- "I feel that we have reached more, diverse people than ever before. These people didn't think of government as a place of employment where they could use the skills they've learned, but now see the opportunities available." [partnership with local community college]

- "In opening ourselves to partnerships with local universities/colleges, we can have a wider pool of relevant applicants at an earlier and more flexible point in their career, where we can grow them and mold them to our needs at a more scalable budget." [partnership with local community college]

- "In the case of working with associations, it has introduced us to a talent pool we may not have otherwise found. | With AI, it's allowed us to eliminate some avenues of recruitment and some candidates." [partnership with an association | artificial intelligence]

- "Our increase in the use of social media brought a lot more awareness to our business which increased interest and led to more candidates seeking work with our company." [social media campaigns / contests]

- "Wider range of candidates and has reached farther than our own community." [mobile recruiting app]

- "Automation, objectivity." [data analytics / predictive analytics]

- "It has allowed a trial period to see if the person has the right skills for the position." [apprenticeship for non-traditional role]

- "The hiring process is enhanced by longer-term acclimation and improved skills application." [apprenticeship for non-traditional role]

Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

What About 'Newer' Recruiting Methods Didn't Meet Expectations

Sampling of Comments

- "Candidates are not always immediately available due to school." [partnership with local community college]

- "Even though they are graduated in technical field, they are not much well experienced for a company's success." [partnership with local community college]

- "Social Media - Not always as thorough / takes time to update with most recent information. | Auto-generated recruitment systems - Very keyword specific… If there was a spelling error, or something did not match up to the exact parameters, it may have skipped over necessary information or candidates. We screen as well, but it was used to help attract more applicants. | Employee Referrals - Not always the most reliable / issue of someone who is likable, vs. best fit for the job.." [social media campaigns / contests | artificial intelligence | other – employee referrals]

- "A slight majority of the applicants who came to us through our social media outlets turned out to be unreliable and short-term. They always seemed to be looking for the next thing rather than being present in the moment." [social media campaigns / contests]

- "Missing the human side of hiring." [mobile recruiting app]

- "We haven't seen any benefits of data analytics yet." [data analytics / predictive analytics]

- "In some cases, senior staff is overburdened with additional assessment protocols." [apprenticeship for non-traditional role]

- "It is certainly an investment and can take time. It also needs to be executed properly." [apprenticeship for non-traditional role]

Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

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Job Openings for Select Functions

Organization had staff openings in these areas over past 12 months

Overall*

49% Operations
47% IT or web design
44% Customer service
32% Sales or marketing
32% Finance or accounting
18% Manufacturing
13% Health care
12% Other
6% None / NA

Top 5 Types of Openings by Firm's Total Staff Size

Small (1-99)
42% Customer service
41% Operations
27% Sales or marketing
25% IT or web design
23% Finance or accounting

Medium (100-499)
55% IT or web design
54% Operations
46% Customer service
37% Finance or accounting
35% Sales or marketing

Large (500+)
67% IT or web design
54% Operations
46% Customer service
39% Finance or accounting
36% Sales or marketing

80%
8 in 10 IT industry firms had IT or web design openings in past 12 months
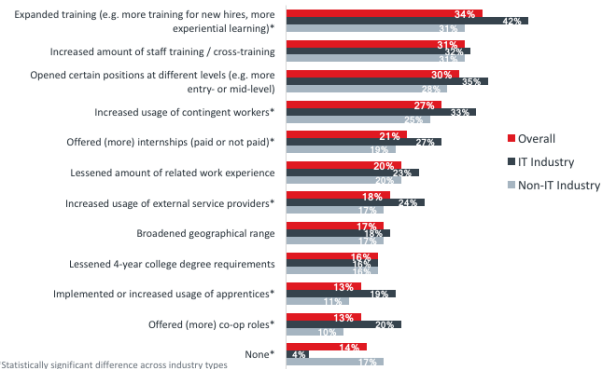
*Note this study was conducted among a mix of industries

Ways Firms Have Relaxed Hiring Requirements or Expanded Roles / Audiences to Help Fill Open Positions

Over past 1-2 years

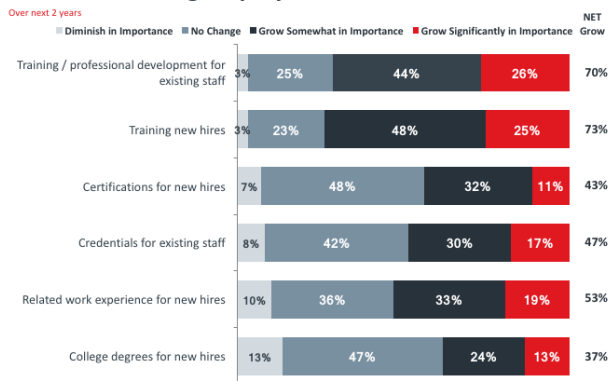Expanded training (e.g. more training for new hires, more experiential learning)* — Overall 34%, IT Industry 42%, Non-IT Industry 31%
Increased amount of staff training / cross-training — Overall 31%
Opened certain positions at different levels (e.g. more entry- or mid-level) — Overall 30%, IT Industry 35%
Increased usage of contingent workers* — Overall 27%, IT Industry 33%
Offered (more) internships (paid or not paid)* — Overall 21%, IT Industry 27%
Lessened amount of related work experience — Overall 20%, IT Industry 23%
Increased usage of external service providers* — Overall 18%, IT Industry 24%
Broadened geographical range — Overall 17%
Lessened 4-year college degree requirements — Overall 16%
Implemented or increased usage of apprentices* — Overall 13%, IT Industry 19%
Offered (more) co-op roles* — Overall 13%, IT Industry 20%
None* — Overall 4%, IT Industry 14%

Legend:
- Overall
- IT Industry
- Non-IT Industry

*Statistically significant difference across industry types

Expected Change in Importance of Factors Among New Hires and Existing Employees

Over next 2 years

Legend: Diminish in Importance | No Change | Grow Somewhat in Importance | Grow Significantly in Importance | NET Grow

Factor	Diminish	No Change	Grow Somewhat	Grow Significantly	NET Grow
Training / professional development for existing staff	3%	25%	44%	26%	70%
Training new hires	3%	23%	48%	25%	73%
Certifications for new hires	7%	48%	32%	11%	43%
Credentials for existing staff	8%	42%	30%	17%	47%
Related work experience for new hires	10%	36%	33%	19%	53%
College degrees for new hires	13%	47%	24%	13%	37%

[Not Sure results not shown]

Educational Requirements in IT Job Postings

2.3m total US IT job postings in 2017

Among all the 2.3m job postings in 2017 for core IT occupations, slightly less than half cite Bachelor's Degree as a minimum requirement (49%). IT roles such as computer support specialists are less likely to indicate the 4-year degree requirement. Furthermore, 4 in 10 of all IT job postings do not cite any education requirement. Other CompTIA research shows that in lieu of a 4-year degree, most employers expect experience, credentials, etc. (See CompTIA *HR Perceptions of IT Training and Certification*.)

Note: job posting data is a useful, but an imperfect proxy for job demand. Not every posting translates to a new job. Also, one ad may be posted for multiple openings. Burning Glass Technologies Labor Insights addresses many of these issues, but not all.

Minimum Education Advertised
(% of all IT job ads)

49% Cite Bachelor's Degree Minimum
51% Do Not Cite Bachelor's Degree Minimum

- Ciite Bachelor's Degree Minimum
- Do Not Cite Bachelor's Degree Minimum

Perception of Apprenticeships in General

57% 38% 2%

- Generally positive
- Neutral
- Generally negative
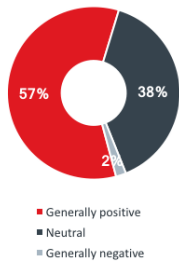
Examples of characteristics among hiring managers more likely to have a positive view:

- In medium- or large-size firms
- IT managers
- Have used apprentices
- Younger than 55 years of age

Description provided in survey:
Apprenticeships are typically described as a rigorous work-based learning program, with certain requirements such as hours of on-the-job training, educational study, and testing or credentials. For example, trade jobs often require apprenticeships for licensure.
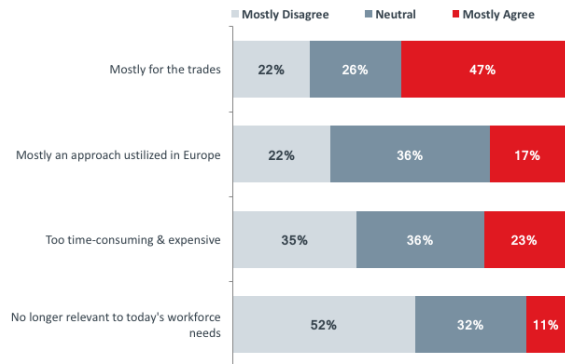
[+3% Don't know] Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

General Impressions of Apprenticeships

Level of agreement

■ Mostly Disagree ■ Neutral ■ Mostly Agree

	Mostly Disagree	Neutral	Mostly Agree
Mostly for the trades	22%	26%	47%
Mostly an approach ustilized in Europe	22%	36%	17%
Too time-consuming & expensive	35%	36%	23%
No longer relevant to today's workforce needs	52%	32%	11%

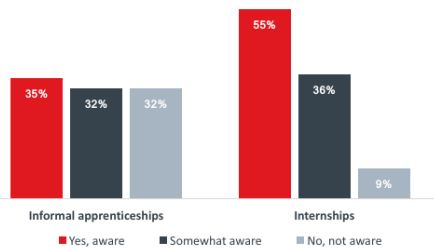[Not Sure results not shown] Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

Awareness of Registered Apprenticeships vs. Other Work Training Programs

68% NET aware of differences between formal, registered apprenticeships recognized by the DoL and informal apprenticeships
91% NET aware of differences between formal, registered apprenticeships and internships

Awareness Level of Differences Between Programs
(registered apprenticeships versus …)

	Yes, aware	Somewhat aware	No, not aware
Informal apprenticeships	35%	32%	32%
Internships	55%	36%	9%

■ Yes, aware ■ Somewhat aware ■ No, not aware

As described in the survey
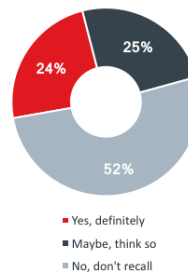Note: these questions were posed separately in the survey, but displayed together here for comparison.
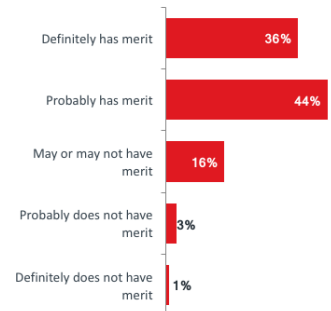
Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

Concept of Apprenticeships for IT Job Roles

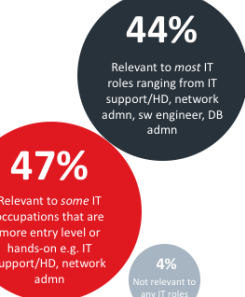**Awareness Level of Apprenticeships for IT Occupations**

24% 25% 52%

- Yes, definitely
- Maybe, think so
- No, don't recall

Merit Level of Apprenticeships for IT

Definitely has merit	36%
Probably has merit	44%
May or may not have merit	16%
Probably does not have merit	3%
Definitely does not have merit	1%

Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

Relevance of Apprenticeship Programs to IT Occupations

44% Relevant to *most* IT roles ranging from IT support/HD, network admn, sw engineer, DB admn

47% Relevant to *some* IT occupations that are more entry level or hands-on e.g. IT support/HD, network admn

4% Not relevant to any IT roles

Examples of characteristics among hiring managers more likely to think apprenticeships could be relevant to *most* IT occupations:
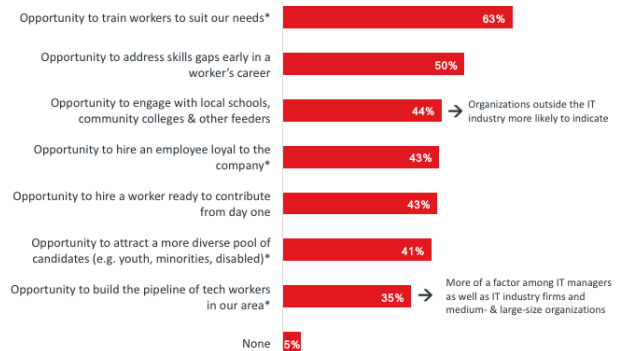
- In the IT industry
- IT or executive managers (vs. business mgrs.)
- Have used apprentices
- Would definitely consider trying a formal, registered IT apprenticeship program
- Younger than 40 years of age

[5% don't know results not shown] Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

Benefits Firms Could Realize / Have Realized from an Apprenticeship Program

Opportunity to train workers to suit our needs*	63%
Opportunity to address skills gaps early in a worker's career	50%
Opportunity to engage with local schools, community colleges & other feeders	44%
Opportunity to hire an employee loyal to the company*	43%
Opportunity to hire a worker ready to contribute from day one	43%
Opportunity to attract a more diverse pool of candidates (e.g. youth, minorities, disabled)*	41%
Opportunity to build the pipeline of tech workers in our area*	35%
None	5%

→ Organizations outside the IT industry more likely to indicate

→ More of a factor among IT managers as well as IT industry firms and medium- & large-size organizations

*Firms with IT staff openings over the past 12 months significantly more likely to indicate as a benefit

Source: CompTIA *Employer Perceptions of IT Apprenticeships* | n=553 U.S. hiring managers & executives

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Top Apprenticeship Program Concerns by Firm Size

Concerns / challenges to implementing or having an apprenticeship program

	COMPANY SIZE CATEGORY BY NUMBER OF EMPLOYEES			
	Overall	Small (1-99 employees)	Medium (100-499 employees)	Large (500+ employees)
#1	Finding the 'right' apprentice (52%)	Finding the 'right' apprentice (55%)	Staff time to manage (52%)	Staff time to manage (51%)
#2	Staff time to manage (48%)	Staff time to manage (42%)	Finding the 'right' apprentice (48%)	Finding the 'right' apprentice (51%)
#3	Retention after program completion (37%)	Lack of funding to start (37%)	Retention after program completion (42%)	Retention after program completion (36%)
#4	Lack of funding to start (31%)	Retention after program completion (34%)	Conforming to federal program requirements (31%)	Lack of funding to start (29%)
#5	Conforming to federal program requirements (29%)	Conforming to federal program requirements (29%)	Organizational / executive buy-in (29%)	Getting buy-in from staff for training an apprentice (29%)

Ways to Address Buy-In from Existing Staff

Some ways organizations might try or have tried to address potential employee push-back for needing to spend time training an apprentice
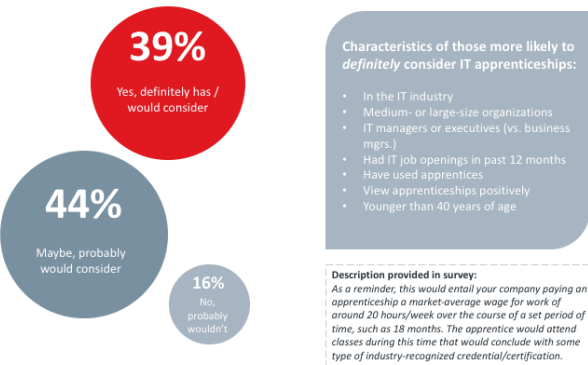
1. Reward employees who train an apprentice (e.g. recognition, bonus) [50%]
2. Support for staff who train an apprentice (e.g. 'train the trainer' training during work) [47%]
3. Recommend certain employees train an apprentice as part of their job role [42%]
4. Allow employees to volunteer to train an apprentice (similar to mentor volunteers) [33%]
5. Require employees, accordingly, train an apprentice as part of their job role [30%]

Likelihood to Try a Registered IT Apprenticeship Program

Degree to which hiring managers could see their organization trying out a formal, registered apprenticeship program for an IT role over the next few years

39% Yes, definitely has / would consider

44% Maybe, probably would consider

16% No, probably wouldn't

Characteristics of those more likely to *definitely* consider IT apprenticeships:

- In the IT industry
- Medium- or large-size organizations
- IT managers or executives (vs. business mgrs.)
- Had IT job openings in past 12 months
- Have used apprentices
- View apprenticeships positively
- Younger than 40 years of age

Description provided in survey:
As a reminder, this would entail your company paying an apprentice a market-average wage for work of around 20 hours/week over the course of a set period of time, such as 18 months. The apprentice would attend classes during this time that would conclude with some type of industry-recognized credential/certification.

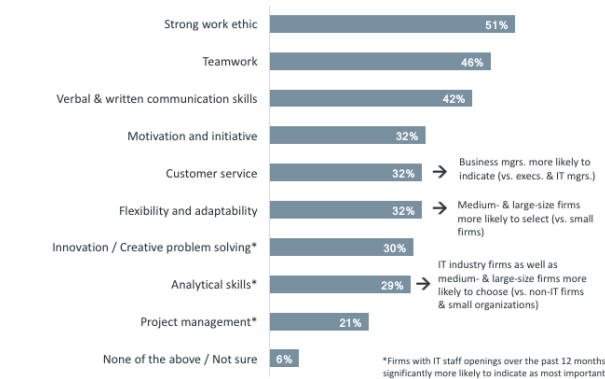## Most Helpful Resources for an IT Apprenticeship Program

Resources Most Helpful for Hiring Managers / Firms to Explore, Start or Run an IT Apprenticeship Program	OVERALL	INDUSTRY		FIRM STAFF SIZE			JOB ROLE		
		IT	Non-IT	Small 1-99	Medium 100-499	Large 500+	Executive Mgmt.	Business Mgmt.	IT Mgmt.
Training resources	49%	52%	48%	47%	50%	52%	39%	49%	59%
Partnerships (with an association, educational institution, etc. to obtain candidates, for example)	40%	35%	41%	37%	43%	39%	41%	40%	41%
Continued professional development support for employees	37%	34%	38%	27%	43%	44%	30%	36%	46%
Assessments (knowledge, skills, etc.)	36%	42%	34%	31%	42%	37%	32%	40%	35%
Career path resources for apprentices	33%	39%	31%	28%	35%	37%	25%	32%	39%
Professional certification programs	32%	38%	30%	30%	34%	33%	29%	29%	40%
Setting up a test pilot	29%	27%	30%	24%	31%	33%	27%	32%	31%
Appropriate mix of program standards with flexible options (e.g. various completion times depending on job level)	25%	28%	24%	24%	27%	24%	25%	26%	27%
None	9%	3%	11%	15%	4%	5%	11%	11%	2%

[%s in bold indicate statistically significant difference across sub-groups]

Most Important Soft Skills Training for IT Apprentices

Skill	%
Strong work ethic	51%
Teamwork	46%
Verbal & written communication skills	42%
Motivation and initiative	32%
Customer service	32%
Flexibility and adaptability	32%
Innovation / Creative problem solving*	30%
Analytical skills*	29%
Project management*	21%
None of the above / Not sure	6%

Customer service → Business mgrs. more likely to indicate (vs. execs. & IT mgrs.)

Flexibility and adaptability → Medium- & large-size firms more likely to select (vs. small firms)

Analytical skills* → IT industry firms as well as medium- & large-size firms more likely to choose (vs. non-IT firms & small organizations)

*Firms with IT staff openings over the past 12 months significantly more likely to indicate as most important