

AN IDEAL CANDIDATE:

PREVAILING EDUCATION AND EXPERIENCE REQUIREMENTS
IN DALLAS AREA TECHNOLOGY JOB POSTINGS



January 2020



PATHWAYS
to **WORK**

TABLE OF CONTENTS

Executive Summary 3

Background 4

Part 1 – By the Numbers: Supply & Demand 6

Part 2 – Driven by Need: What Employers Expect11

Part 3 – Closing the Gap: A Path Forward17

Summary & Conclusion20

EXECUTIVE SUMMARY

Over the past year a study was conducted to determine the current and projected supply and demand for middle-skill IT jobs in the Dallas county, and gain insight into what employers are seeking relative to the skills, education, and experience of these job candidates. Middle-skill jobs required education and training past high school but not a four-year college degree. A combination of quantitative data analysis and qualitative interviews led to the development of key conclusions and recommendations.

Both the data and employer input support the conclusion that Dallas county supply is down, and demand is up, for middle-skill IT workers. Recent hiring patterns validate an increased need in our local area, and the need is expected to grow at a higher rate in the next few years as compared to the state and nation.

At the same time, education expectations for these roles is high and no longer match the completion level of local graduates, further complicating the shortage. The impact of the supply/demand imbalance is currently felt more by smaller companies compared to larger organizations that can more easily draw candidates based on name recognition, pay rate, and growth opportunities.

Employers provide insight regarding the specific skills they are seeking, which reveals a growing emphasis on soft skills (particularly customer service) as well as foundational technical skills.

Recommendations include: address the hidden costs of education inflation, identify improved measures for these skills to better gauge candidate competency during the hiring process in addition to looking at educational credentials, build partnerships between employers and educational providers, and address demand for IT workers with alternative educational approaches where needed.

ACKNOWLEDGEMENTS

United Way of Metropolitan Dallas gratefully acknowledges Dallas County Community College District Labor Market Intelligence Center, Chiefology, and Leung Consulting, LLC who efforts made this report possible.

BACKGROUND

United Way Metropolitan of Dallas is a community-based social change organization that puts opportunity in the hands of all North Texans. The organization leads the charge to improve education, income and health – the building blocks of opportunity. One of its key initiatives, Pathways to Work, is a cross-sector collaboration of funders, employers and training providers working to create innovative solutions for moving entry-level workers into good middle-skill jobs and ensure employers have a pipeline of skilled and ready-to-work employees especially in the healthcare and Information technology (IT) sector.

Pathways to Work's IT efforts began in 2014 when helped to bring PerScholas, a nationally recognized IT certification training provider to Dallas with programmatic investments. Currently led by a multi-sector advisory council, Pathways has also invested in research and targeted outreach to small cap companies in the IT sector to complement the investments in training. Pathways began hosting small business roundtables to connect small businesses with open middle-skill IT positions to local IT training providers who are helping workers earn the certifications needed by these businesses. These conversations led Pathways to Work to commission this research that takes a closer look at the number of local job postings for entry level IT positions requiring BA or BS degrees to determine the extent of education inflation in the Dallas county labor market in the hope that Pathways to Work can identify new ways to provide critical career opportunities for newly trained IT workers.

SPECIFIC STUDY AIMS

1. Define and understand the current and projected state of **supply and demand** for entry/middle-skill IT jobs in Dallas county.
2. Validate the supply/demand forecast with employers, and better understand the **requirements** they use to select these employees.
3. Develop a core set of **recommendations** to close identified gaps.

STUDY METHODOLOGY

Aim 1: Define the current and projected **supply and demand** for entry/middle-skill IT jobs.

A thorough review of relevant data was conducted. Primary sources included Burning Glass, Emsi, and JobsEQ. This portion of the study was completed in the first half of 2018, using complete data from the preceding year as well as historical and projected data.

PATHWAYS TO WORK

Pathways to Work is a cross-sector collaboration of funders, employers and training providers working to create innovative solutions for moving middle-skill workers into good middle-skill jobs and ensure employers have a pipeline of skilled and ready-to-work employees through three core strategies:

- Convene industry partnerships in health care and information technology to build connections between training providers and employers.
- Invest in innovative training programs to ensure more entry-level, unemployed, or underemployed workers earn skilled credentials and secure middle-skill jobs.
- Strengthen the ability and capacity of funders, employers, and community-based organizations to support, develop, and implement programs that improve the outcomes of workers and help businesses to fill open positions.

Aim 2: Validate the supply/demand forecast and identify key employer **requirements**.

Employer Interviews were conducted between mid to late 2018, involving a cross section of large and small-to-mid size companies for relative comparison. A structured interview process was utilized.

Aim 3: Develop a core set of **recommendations** to address key gaps.

Based on the combination of quantitative data analysis and qualitative employer interviews, a set of recommendations was developed and is presented at the end of this report.

DEFINING THE IN-SCOPE JOBS

Early in the data review, a need to operationally define entry-/middle-skill jobs became evident. There are 15 IT-related job clusters, each with associated education and experience requirements. (See *Image 1*)

THE 'UNIVERSE' OF IT JOBS

There are fifteen IT-related job clusters:

- | | | |
|---|---|--|
| • Computer System Analysts | • Computer & Information Systems Managers | • Web Developers |
| • Software Developers, Applications | • Computer Programmers | • Computer & Information Research Scientists |
| • Computer User Support Specialists | • Computer Network Support Specialists | • Computer Controlled Machine Tool Programmers |
| • Software Developers, Systems Software | • Computer Network Architects | • Computer Occupations, All Other |
| • Network & Computer Systems Administrators | • Database Administrators | |
| | • Information Security Analysts | |

Image 1

The clusters were examined relative to their alignment with the Pathways to Work IT initiative objectives. Based on this alignment, and additionally informed by data demonstrating the most significant opportunity (i.e. number of jobs in the Dallas county), Computer User Support Specialists was selected as the job cluster of focus. Sample job titles for this cluster include: Help Desk Technician, Desktop Support Specialist, Computer Specialist, Technical Support Specialist, PC or IT Technician, IT Support Specialist, IT Analyst, Information Systems Technician, and Help Desk Analyst. (See *Image 2*)

HOW THE JOB CLUSTER RELATES TO JOB TITLES

Although employers may use different **Titles**, below is a sampling of those often associated with the **Computer User Support Specialists** occupational cluster:

- | | |
|--------------------------------|-------------------------------------|
| • Help Desk Technician | • PC Technician; IT Technician |
| • Desktop Support Specialist | • IT Support Specialist; IT Analyst |
| • Computer Specialist | • Information Systems Technician |
| • Technical Support Specialist | • Help Desk Analyst |

Image 2

PART 1 – BY THE NUMBERS: SUPPLY & DEMAND

AIM 1 RESEARCH QUESTION:

*“What is the current and projected **supply and demand** for middle-skill IT workers in the Dallas county?”*

THE SUPPLY SIDE

A key factor on the supply part of the equation is education. There are a variety of traditional college and university programs (certificate, 2-year, 4-year) that prepare students seeking to enter Information Technology jobs. The typical academic programs include: Computer Systems Networking and Telecommunications, Computer Systems Analysis, Computer and Information Systems Security/Information Assurance, Computer Programming, and Computer Science. (See Image 3)

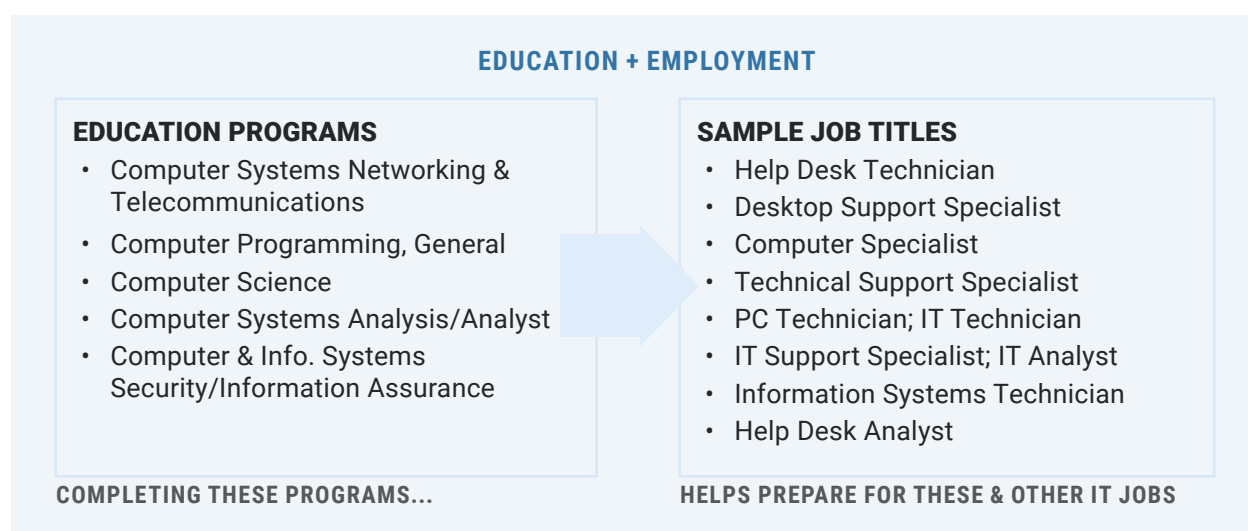


Image 3

DALLAS COUNTY SUPPLY IS DOWN

When looking at the historical data for area education programs related to the Computer User Support Specialists job cluster, an interesting trend is observed. Specifically, Dallas county education institutions are decreasing in number and graduates while state and national program completions are increasing. Since 2004, 28 regional institutions with IT-related programs have produced graduates. Today, there are 15 graduate-producing programs. (See Image 4, 'Supply': The Education Programs)

With fewer programs as of 2018, the number of graduates (program completions) is also down. In fact, this equates to a 16.8% decrease in Dallas county graduates, while the state and nation have increased by 11.2% and 34.8% respectively from 2003 to 2017. (See Image 4, 'Supply': Program Completions)

EDUCATION LEVEL ALIGNS WITH JOB LEVEL

Keeping the focus on Computer User Support Specialist jobs, and looking at the education programs these prospective employees are pursuing, the pattern is a logical one. In the Dallas county, the majority of program completions are from **Certificate programs** (41.2%). Most certificates fall within this category. The next most common program completion is an **Associate's degree** (25.5%), followed by a **Bachelor's degree** (16.4%). This covers 83.1% of program completions. The remaining 16.9% consists of those receiving an award of less than one academic year or more than four years. (See Image 4, 'Supply': Completion Award Level & 'Supply': Institutions)

Dallas area education institutions are **decreasing in number and graduates**, while state and national program completions are **increasing**.

'SUPPLY': THE EDUCATION PROGRAMS

NUMBER

28 regional institutions with IT-related programs produced graduates in 2004.

15 graduate-producing programs in 2016.

'SUPPLY': PROGRAM COMPLETIONS

Comparison of program completions (for 2016):

GRADUATES

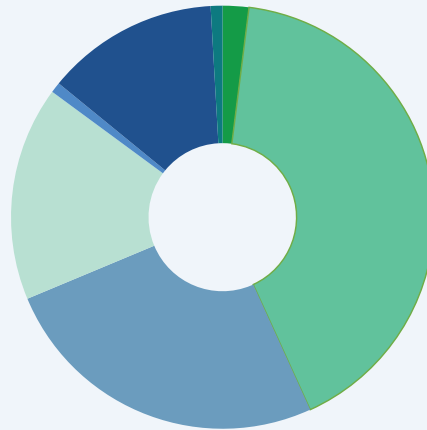
Dallas area --> 658 (-16.8% since 2003)

State --> 3,292 (+11.2% since 2003)

Nation --> 68,005 (+34.8% since 2003)

'SUPPLY': COMPLETION AWARD LEVEL

Award Level	Completions (2016)	Percent
Award of less than 1 academic year	13	2.0%
Award of at least 1 but less than 2 academic years	271	41.2%
Associate's Degree	168	25.5%
Bachelor's Degree	108	16.4%
Postbaccalaureate certificate	5	0.8%
Master's Degree	87	13.2%
Doctor's Degree	6	0.9%
Award of at least 2 but less than 4 academic years	0	0.0%
Post-masters certificate	0	0.0%



'SUPPLY': INSTITUTIONS

The previous numbers reflect college and university completions:

- Southern Methodist University
- North Lake College
- DeVry University-Texas
- Richland College
- Brookhaven College
- El Centro College
- Collin County CCD
- University of Dallas
- Mountain View College
- Remington College-Dallas
- Dallas Baptist University
- The University of Texas at Dallas
- MediaTech Institute-Dallas
- Cedar Valley College
- Vista College-Online

Additional programs have surfaced to address specific needs.

- PerScholas
- NPower
- Dev Mountain
- ComputerMinds

Programs offered by these organizations include:

- Web Development
- IT Cert./Project Management
- IT Support
- Coding
- Cyber Security

Image 4

A NEW BREED OF PROGRAMS HAS SURFACED

The above completions are for traditional college and university programs. While most of the certificates conferred by these programs are for completion of at least one year but less than two academic years, other programs have entered the IT space that require less than a year to complete. These are often referred to as bootcamps or accelerated workforce programs and they prepare graduates with specific skills such as coding, web development, IT support, and cyber security.

THE DEMAND SIDE

The key factors relevant to the demand part of this equation are number and location of jobs. Part 1 of this report takes a closer look at posted job requirements, including education and experience. What's presented in this section is the quantitative data based on the Burning Glass and JobsEQ databases. Part 2 layers in the qualitative element from employer interviews. Please note that these databases do not speak to the number of available jobs or job vacancies but rather a real-time view of how many online job postings exist in the labor market. Some companies may leave posts up perpetually while others hire through word of mouth or other channels.

DALLAS COUNTY DEMAND IS UP

The data reveal an increasing need for Computer User Support Specialists in the Dallas county, at an even great rate than expected for national growth in this job cluster during the same time period. In 2017, the total number of jobs was 15,332. Dallas county accounted for 76% of these positions (11,710), and Collin county had 24% (3,622). The estimated percent change from 2017 to 2021 is +10.2% for Dallas county and +16.1% for Collin county (increasing the total number of jobs from 12,907 and 4,204 respectively). Over this same 4-year time period, the estimated national change for Computer User Support Specialist jobs indicates an increase of 8.3%. (See Image 5, 'Demand': Total Jobs)

SIX CITIES CREATE 90% OF AREA DEMAND

Based on over 4,200 job postings in the Dallas county for Computer User Support Specialist-related positions in 2017, six cities in Dallas and Collin counties create 90% of the demand. The top three cities were Dallas with 37%, Plano at 20%, and Irving with 16%. Richardson, Carrollton and Coppell followed with 8%, 5%, and 4% respectively. (See Image 5, 'Demand': By Location)

JOB POSTINGS SEEK SPECIFIC SKILLS

Most job postings indicate the specific qualifications they are seeking from candidates. So what skills are most in demand? The following list shows the top 10 skill areas, and the percent of postings in which these skills were identified:

• IT Technical Support	88%
• Customer & Client Support / Customer Service	45%
• MS Office / Productivity Tools	35%
• IT Help Desk Support	31%
• IT Operating System	31%
• IT Network Configuration	26%
• IT General Networking	25%
• IT System Design & Implementation	23%
• Administration: Office Machines	22%
• IT: MS Windows	21%

THE WAGES WORKERS CAN EXPECT

As a major metropolitan area, it is not surprising to see that Computer User Support Specialists can anticipate a higher hourly rate in the Dallas county than the nation in general. Wages are just slightly higher in Collin county (median of \$25.83/hour) compared to Dallas county (\$25.52/hour). The median national wage for jobs in this cluster is \$23.74 per hour. (See Image 5, 'Demand': Wages)

EDUCATION ACHIEVED DOES NOT ALIGN WITH EDUCATION REQUIRED

Many of the job postings associated with Computer User Support Specialists are considered entry level positions. As noted earlier, the most common education credential awarded is a certificate (followed by an Associate's degree).

However, for those job postings specifying an education requirement, almost half asked for at least a Bachelor's degree and 3-5 years of experience. In the Dallas county, 16.4% of graduates in this job cluster are at the Bachelor's level. (See Image 6, 'Demand': Education Requirements & 'Demand': Education & Experience)

DEMOGRAPHIC CHARACTERISTICS

Those currently employed in Computer User Support Specialist-related roles are predominantly male (73.8%) as compared to female (26.2%). (See Image 6, Demographics: Gender)

From a race/ethnicity perspective, the majority are white (53.7%) followed by black or African American (15.3%), Asian (14.5%), and Hispanic or Latino (14.5%). All other racial/ethnic groups make up the remaining 2%. (See Image 5, Demographics: Race/Ethnicity)

The most common age groups currently employed in these roles are 25-34 (29.4%), 35-44 (28.0%), and 45-54 (21.7%). Of those remaining, 13.5% are 55 or over, and 7.4% are 24 or under. (See Image 6, Demographics: Age)

'DEMAND': TOTAL JOBS

The need for Computer User Support Specialists is **expected to increase more in the Dallas area** as compared to national growth during the same period.

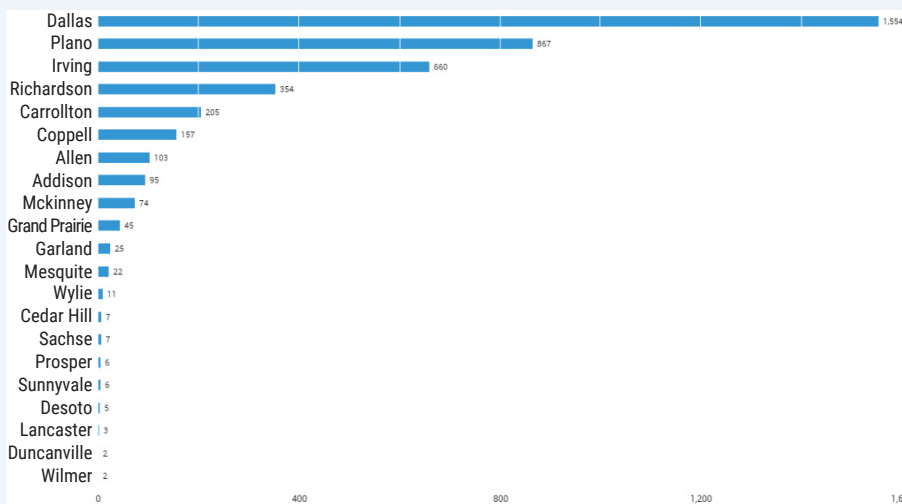
CURRENT JOBS (2017)	% CHANGE (2017-2021)
Dallas Co. = 11,710 (76%)	+10.2% (to 12,907)
Collin Co. = 3,622 (24%)	+16.1% (to 4,204)
(TOTAL = 15,332)	
Nation	+8.3% (to 664K)

'DEMAND': WAGES

Hourly pay for Computer User Support Specialists is **higher in Dallas than the nation in general**, and slightly higher in Collin Co. than in Dallas Co.

LOCATION	25TH PERCENTILE	MEDIAN	75TH PERCENTILE
Dallas Co.	\$19.23 / hr	\$25.52 / hr	\$31.44 / hr
Collin Co.	\$19.46 / hr	\$25.83 / hr	\$31.82 / hr
Nation		\$23.74 / hr	

'DEMAND': BY LOCATION

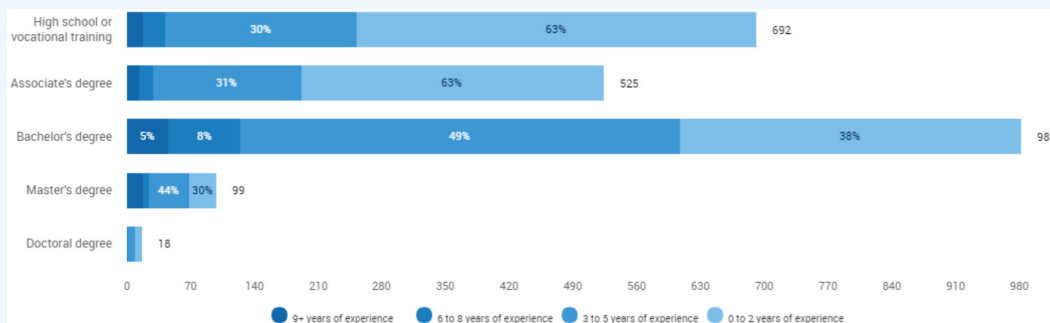


Based on 4,210 job postings in 2017 for Computer User Support Specialist-related positions, **6 cities in Dallas and Collin counties create 90% of the demand:**

Image 5

'DEMAND': EDUCATION REQUIREMENTS

Not all job postings for Computer User Support Specialist-related positions *specify an education requirement*. Of those in 2017 that did (2,317 out of 4,210), **almost half wanted at least a Bachelor's degree, with 3-5 years of experience**.

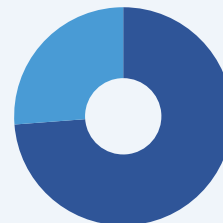


'DEMAND': EDUCATION & EXPERIENCE

Based on the job posting, degree and experience requirements from highest to lowest were:

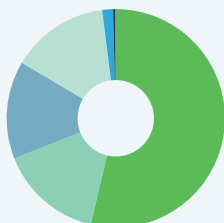
DESIRED EDUCATION	DESIRED EXPERIENCE (BY DEGREE TYPE)			
	0-2 YRS	3-5 YRS	6-8 YRS	9+ YRS
Bachelor's degree:	42%	2ND	1ST	3RD
HS or Vocational Trng:	30%	1ST	2ND	3RD
Associate's degree:	23%	1ST	2ND	3RD
Master's degree:	4%	2ND	1ST	4TH
Doctoral degree:	1%	1ST	2ND	--

DEMOGRAPHICS: GENDER



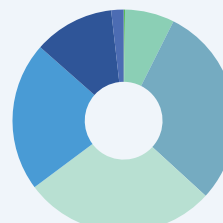
GENDER	2017 JOBS	2017 %
Males	11,348	73.8%
Females	4,019	26.2%

DEMOGRAPHICS: RACE/ETHNICITY



RACE/ETHNICITY	2017 JOBS	2017 %
White	8,255	53.7%
Black / African American	2,346	15.3%
Asian	2,229	14.5%
Hispanic / Latino	2,226	14.5%
Two or More Races	242	1.6%
American Indian / Alaska Native	49	0.3%
Native Hawaiian / Other Pacific Islander	19	0.1%

DEMOGRAPHICS: AGE



AGE	2017 JOBS	2017 %
14-18	33	0.2%
19-24	1,112	7.2%
25-34	4,520	29.4%
35-44	4,302	28.0%
45-54	3,328	21.7%
55-64	1,793	11.7%
65+	279	1.8%

Image 6

PART 2 – DRIVEN BY NEED: WHAT EMPLOYERS EXPECT

AIM 2 RESEARCH QUESTION:

“What are the current employer-identified requirements used to screen and select middle-skill IT workers in Dallas county?”

QUANTITY RIGHT NUMBER & TYPE OF MIDDLE-SKILL IT CANDIDATES

Ten Dallas county employers participated in the study, responding to a set of structured interview questions for consistency across organizations. Large and small/mid-size companies were represented in order to observe any difference on this dimension.

Below are the questions asked related to *right number* and *right type* of candidates, meaning to what extent is there an adequate number of candidates to meet current and projected demand, and possess the requirements that employers are seeking. In subsequent sections, *quality* of candidates is addressed along with related *issues* and *opportunities*.

QUANTITY-BASED QUESTIONS

Related to quantity (right number and type) of entry IT workers, employers were asked whether they experienced any changes in *hiring patterns* over the *past few years*, and whether they anticipate any changes (increase or decrease) over the *next few years*.

Also asked was whether there were any key *changes in the external environment*, or *internal strategic initiatives*, that would impact the number or type of IT positions needed.

The final line of questioning around ‘quantity’ asked employers *where* they generally look for job candidates, whether they have any *challenges* finding the right type and number of candidates, and what their first move would be if they needed to *scale up* to increase their number.

EMPLOYER INTERVIEW QUESTIONS

1. Have you seen any changes in hiring patterns over the past few years?
2. Do you anticipate any changes over the next few years?
3. Are there any key changes/drivers in the external environment and/or internal strategic initiatives that may impact your need for middle-skill IT workers?
4. What do you want most from candidates you consider or hire for middle-skill IT positions?
5. Are there specific skills, abilities, attitudes, experience, or education requirements that you look for in candidates?
6. Based on your previous response, which is your organization’s highest priority during the screening and selection process and why?
7. What internal and/or external factors are driving these preferences?
8. Where do you generally look for job candidates?
9. Do you have any challenges finding the right type or number of candidates?
10. What would be your first move if you needed to scale up hiring?
11. To what extent are educational providers providing the needed quantity and quality of candidates that meet your expectations and requirements?
12. What are the most common areas where middle-skill IT job candidates fall short of your expectations?
13. What are your observations and reactions to the idea of “right-leveling” the education and experience of IT professionals?

HIRING PATTERNS SHOW AN INCREASED NEED

Over the past few years, employers have seen greater demand for middle-skill IT workers due to the expansion of electronic systems. The following hiring patterns have been observed by employers interviewed for this study:

- Need ('demand') has increased as the **expansion of electronic systems** has increased -- from desktop to laptop to tablet, to mobile; increased use of computer systems and apps is also more pervasive.
- Additional reasons for increased need include **changing business models** (more service desk-oriented) as well as a **stronger customer-service orientation**.
- Some are offsetting/**balancing the increased need** by altering the nature of the role -- moving from contractors to employees, bringing them in-house as support specialists or help desk staff. The result has been higher quality of work, with an increased focus on automation (i.e. to reset passwords, etc.) and more user-friendly interfaces (i.e. plug-and-play).
- Employers who are moving from the use of contractors **seek a broader range of skills** from desktop to mobile.
- Some are **hiring from other markets** (i.e. Austin for Application analysts; Tech support I, II, III; Helpdesk support & IT), and even from other countries (particularly for developers; which has been impacted by new pressure on Visas and immigration).
- **Small businesses are feeling the greatest strain** -- supply used to be much greater but is now impacted by the above-mentioned issues and related to the hiring patterns of larger employers, coupled with not as many people going into the field (i.e. belief that software is "cooler" than hardware).

THE NEED IS EXPECTED TO GROW

Employers anticipate hiring patterns over the next few years will reflect a continued increase in need for middle-skill IT workers, if the economy remains stable. Key drivers include:

- **Continued expansion of electronic systems and related skill expectations** --
 - More is being asked of this workgroup based on expanded hardware and systems/apps.
 - Employers have an increased desire for development skills/coding (particularly JAVA/object-oriented technologies), cloud technology, and cyber security.
 - New system implementations (such as PeopleSoft, ATS systems) are occurring.
- With **continued emphasis on customer service** (decreased wait time for computer support).

Employers expect demand for middle-skill IT workers to grow because their technology (systems and applications) is expanding. Every company has also expanded their supported devices (desktops, laptops, tablets, mobile phones) and expect IT workers can adapt to supporting multiple devices.

A FEW ADDITIONAL FACTORS ARE DRIVING INCREASED NEED

In addition to **expanded technology** and emphasis on **customer service**, there are a few other key factors increasing the demand for IT workers:

- **Automation** -- Making it simpler while still balancing security.
- **Cloud & infrastructure** -- Impacting the need for additional cybersecurity.
- **More network support** -- As more employees work from off-site locations.
- **'Big Data'** -- Needed to support workforce and leadership decision making.

THESE SAME FACTORS ARE CHANGING THE TYPE OF IT WORKER EMPLOYERS WANT

What *has* changed –

- There is a trend to want candidates who have seen a wider range of systems.
The perception is that IT education tends to be very product-specific. Employers therefore have a more-is-better mindset (more systems = better troubleshooting).
- The resulting desire is for both increased **experience** and **education** (i.e. more system knowledge).

What *hasn't* changed –

- Continued high demand for Java developers (“It’s the base of everything”).
- State-funded institutions have position/hiring guidelines to follow, making their positions relatively more stable.

EMPLOYERS FIND CANDIDATES VIA MULTIPLE SOURCES

Employers generally look for and find their candidates through external and internal sources.

- External:
 - Job Boards (Website; Indeed)
 - Social Media (LinkedIn)
 - Schools/Colleges/Universities
- Internal:
 - Internal referrals
 - Contract-to-hire
 - Internal promotions

When participating in recruitment fairs or otherwise engaging with colleges and universities, employers tend to look to technical/vocational programs and 2-year colleges for helpdesk and desktop support. Employers generally look for developers and analysts at 2-year colleges and 4-year universities.

LARGER ORGANIZATIONS OFTEN HAVE AN ADVANTAGE OVER SMALLER COMPANIES

While overall there is greater demand than availability, larger organizations appear to experience fewer hiring concerns if they:

- Pay well
- Are high growth (as a company and/or industry)
- Have a good reputation (big name or big player)

The above is particularly true with middle-skill positions (help desk; desktop). Even large organizations have difficulty with hiring very specific application support and higher-level positions.

Smaller or lesser known organizations appear to experience more hiring concerns:

- On the service desk side, they acknowledge it’s a struggle to fill and keep up with demand.
- The pay scale is lower, so they end up competing for talent (with *any* higher hourly wage, not just IT)

A FEW HIRING CHALLENGES DIRECTLY AFFECT LOCAL EMPLOYERS

The interviewed organizations identified a set of challenges that could benefit from additional consideration. In particular:

- **Hiring for diversity** is seen as a challenge. Companies did express a desire to achieve broader representation (i.e. gender, ethnicity) to better reflect those they are serving.
- **The Dallas county market** is viewed as having more demand for 4-year degrees than other areas in the country or even regionally.
- Some have a **degree requirement** or a strong preference; One company interviewed is “grabbing graduates from any 4-year degree STEM program” and then training them internally.

- Employers generally state that **desktop support** positions are not degree-required and instead look for certification and experience. **Helpdesk** positions may or may not have an experience requirement.

APPROACHES EMPLOYERS TAKE TO RAMP UP HIRING

When asked what their first move would be if needing to rapidly increase their IT workforce, employers turned to the following strategies:

- Utilize all **job boards**
- Buy **web space** and potentially **billboards**
- Conduct a **job fair** with on-the-spot interviews

QUALITY

RIGHT SKILLS & ABILITIES OF MIDDLE-SKILL IT CANDIDATES

QUALITY-BASED QUESTIONS

Related to quality, employers were asked what they most want from the candidates they consider for hire in their middle-skill IT positions. Prompts included whether they had any specific **skill**, **ability**, or **attitude** requirements; **experience** requirements; and/or **education** requirements. The responses helped create the 'ideal candidate profile' and provides insight on what employers are seeking.

THE 'IDEAL CANDIDATE' HAS BASELINE TECHNICAL SKILLS AND ABILITY TO LEARN NEW ONES AS THE INDUSTRY CHANGES.

It's no surprise employers expect a successful candidate to possess the right technical skills to effectively fulfill the job requirements.

First, employers tend to start basic with an initial screen to ensure candidates have the **technical skills** needed to meet basic requirements (often looking for certifications, etc.).

The next consideration is generally **breadth of knowledge**. Employers are not just looking at depth, because they will generally grow subject matter expertise in-house. A few current areas of interest identified by employers included mobile support (Android and iOS), cyber, and networks.

Lastly, related to technical skills, employers want to know that prospective employees have the ability to **learn** new systems (beyond the basic ones), as well as the ability to **think** analytically and make quick, quality decisions.

THE 'IDEAL CANDIDATE' HAS SOUND CUSTOMER SERVICE SKILLS.

Beyond technical skills, employers are placing an increased emphasis on job candidates being proficient on interpersonal skills.

- Customer-facing **communication skills** (both verbal and written)
- **Social skills** such as the ability to build rapport and actively listen (i.e. do they interrupt users or listen to the whole message; do they check for understanding and respond comprehensively)
- **Customer service skills** are key. Employers are interested in "how" IT support members have the conversation, "even if someone is calling for something really silly."

THE 'IDEAL CANDIDATE' HAS A GROWTH MINDSET.

The attitudes and attributes that employers view as important for successful candidates to become successful employees include:

- Solid work ethic characterized by **personal initiative** and proactive thought/action.
- **Ambition to learn** more, do more.
- **Service instinct** – a natural tendency to be customer service oriented.
- **Flexible**, including but not limited to a willingness for shift work.

THE 'IDEAL CANDIDATE' HAS POST-SECONDARY EDUCATION AND TRAINING.

While actual posted positions across many organizations show significant variation in education requirements, including an increasing degree expectation (see Part 1 – 'Education achieved does not align with education required'), the employers interviewed stated:

- The most common requirement was a HS diploma or equivalent (with experience)
- Appropriate certifications are expected (i.e. A+, network, computer, mobile)
- Mid-level positions have a higher education requirement (i.e. BA)

THE 'PERFECT CANDIDATE' HAS EXPERIENCE

Whereas education requirements were variable in job postings and more consistent in employer interviews, experience requirements were variable in both. Some job postings required as little as 0-2 years of related experience, while others asked for 3-5 years. In some cases, more than five years was desired. It was also acknowledged that applicants need to be able to articulate their experience in an interview, not just look good on a resume.

Based on employer interviews, the following range of responses surfaced:

- Enough to have acquired a solid foundation (then teach our 'company way').
- A record of progressive experience (with preference given to those who have consulted).
- At least 1-2 years of experience in a similar role
- 3 years of experience in a similar role

IF EMPLOYERS HAD TO PRIORITIZE... HERE'S WHAT THEY'D PICK

Assuming the most basic tech skills and education/experience requirements are met, employers say it ultimately comes down to soft skills/customer service and culture fit:

- The first screen is for fundamental technical skills
- All companies then expressed the significance of employability or interpersonal skills and culture fit, with the emphasis on customer service.
- Education and experience came in third place (assuming minimum qualifications); experience trumps education.

"If it comes down to great a education but no personality vs. wonderful personality but lack of education, we'll take the latter" (i.e. select for social skills, train on tech). "You can't train 'valuing customers'."

Whether the employer is large or small, they are looking for culture and competency fit. Employers want candidates to be excited about the work and the company. Some have online assessments for technical skills, so they can confirm knowledge/skill and then focus elsewhere.

ISSUES AND OPPORTUNITIES

RIGHT QUANTITY, RIGHT QUALITY, AND RIGHT-LEVELING

ISSUE AND OPPORTUNITY-BASED QUESTIONS

Employers were further asked about the extent to which educators are producing the needed **quantity** of qualified candidates; the extent educators are providing the needed **quality** of candidates who met their requirements; and their observations and reactions to the idea of "**right-leveling**" the education and experience of IT professionals (i.e. hiring certificate-level workers for entry positions, BA/BS for higher-level positions, etc.).

ACHIEVING THE RIGHT QUANTITY

As stated earlier, many employers have experienced an increased need for middle-skill IT workers over

the past three years, which is expected to grow over the next three years and beyond. Some employers are also recognizing the value of partnering with traditional colleges and universities, as well as with less-traditional training programs. When asked whether educators are producing the right **quantity** of candidates, the following responses were recorded.

Community-based training programs like Per Scholas and IT-related college/university programs has demonstrated positive outcomes for employers, including:

- Recruiting events help fill openings (i.e. 25 candidates for 4 positions).
- When recruiters go out to the schools, the right candidates are there. This approach seems to work better than when career counselors send candidates to the employer since they do not always understand the nature of the job.
- While employers may work with several schools, they tend to go to those they can count on (“strong programs, focused on the right things”).

In general, larger organizations tend to work more closely with schools than small businesses.

OPPORTUNITIES:

- Smaller employers struggle more with finding the needed number and type of candidates than large employers.
- Employers of all sizes would like to see an increased number of graduates for open computer support specialist positions and others like cyber security.
- Other shortages can be location-based. For examples, more candidates live in urban areas than rural locations.

ACHIEVING THE RIGHT QUALITY

It’s important to understand if or how middle-skill IT candidates are meeting or falling short of employer expectations. Based on employer interviews, below are the most important areas identified by employers for educators to consider:

Technical Knowledge/Skill OPPORTUNITIES

- SQL (**Sequel**)
- **Networking** (in addition to the newer areas like **cyber** and **mobile**)

Non-Technical/Soft Skill OPPORTUNITIES

- **Social skills** (communication/people skills)
 - ability to interact well, both verbally and in writing
 - it starts with the interview (turn your phone off, present your qualifications well, have questions prepared, etc.)
- **Customer service** attitude & skills

‘RIGHT-LEVELING’ EDUCATION AND EXPERIENCE

This is an area where some key differences appear based on organization size.

Small businesses report an intentional effort to match education and experience to role (particularly for middle-skill positions).

This is driven in part to the competition for talent, where larger or more well-known organizations win.

Significant emphasis is placed on social skills and fit, recognizing that hard skills can be learned (and experience developed) in many different ways.

Their experience with this approach has generally been positive, as reflected by one employer’s remark that “Others are missing out on really good talent.”

Larger organizations are interested in getting candidates with the highest education or skill level in the marketplace.

Some do not see an expectation imbalance for middle-skill roles; others acknowledge it exists. As a large employer explains “Why aren’t we doing this [‘right-leveling’]? I think because we can get away with it. There are folks with 5-15 years of experience still applying for these jobs. If they’ll take the pay, we’ll take them.”

Another stated, “The intent is not to be hard-hearted or not give people a chance.” Hiring managers are accountable to their boss and internal community; it’s viewed as risky if the candidate isn’t a proven entity. The costs of not hiring well can be high (including damage to expensive systems, and reputation). State institutions are careful to stay compliant with requirement guidelines.

PART 3 – CLOSING THE GAP: A PATH FORWARD

AIM 3 RESEARCH QUESTION:

*“What are the highest-leverage opportunities and related **recommendations for closing** any supply-demand **gaps** and/or ‘right-leveling’ the education and skill needs for middle-skill IT roles?”*

RECOMMENDATION 1 – ADDRESS WHY IT MATTERS (IDENTIFY THE HIDDEN COSTS)

Not everyone currently sees or feels the supply-demand imbalance or the education inflation that has occurred over time. Small and mid-size companies are presently dealing with the effects, while larger companies have (for the most part) been able to delay the impact through various strategies. As the supply-demand gap grows in the coming years, organization of all sizes are likely to feel the pinch.

Rather than wait until this occurs, it could be useful to create a common understanding among organizations of all sizes as to WHY this is a relevant issue and how it is affecting them today as well as in the future. Some of the current issues may not be completely obvious to employers. Creating this understanding may serve as a starting point for engaging employers in solutions that will benefit them both now and later.

HIDDEN COSTS OF EDUCATION INFLATION INCLUDE ^{1,2}:

1. Increase in time-to-fill (35% for help desk jobs)
2. Increase in salary costs (11-30% more for degreed workers than non-degreed with experience)
3. Increase in turnover (degreed workers are more likely to leave for a competitor)
4. Decrease in engagement
5. Lost opportunities for well-qualified non-degreed workers, limiting access to a decent standard of living
6. Lost diversity – diversity is a goal and challenge for employers.

Degreed and non-degreed workers in the same occupation have been found to be equally productive on key performance metrics.

¹ Burning Glass Technologies: Moving The Goalposts: How Demand for a Bachelor’s Degree is Reshaping the Workforce, September 2014, https://www.burning-glass.com/wp-content/uploads/Moving_the_Goalposts.pdf

² Accenture, Grads of Life, Harvard Business School: Dismissed by Degrees: How degree inflation is undermining U.S. Competitiveness and hurting America’s middle class, October 2017, <https://hbs.edu/managing-the-future-of-work/Documents/dismissed-by-degrees.pdf>

RECOMMENDATION 2

IDENTIFY BETTER MEASURES FOR KEY SKILLS

Rather than risk leaving it unstated and implied, it should be noted that identifying better measures for key skills first requires identifying the key skills. While a significant step forward has been provided via the quantitative data analysis in Part 1 (pg. 9) and the qualitative interviews in Part 2 of this report (pgs. 13 and 16-18), other approaches can be used to further validate and refine the critical knowledge, skills, and attitudes needed for IT graduates to succeed in the Dallas county workforce.

It's clear that employers desire a foundational set of technical skills coupled with an increasing call for customer service skills. It appears that over time employers have come to use education level as a proxy for gauging whether a candidate possesses the preferred skills. If a more nuanced approach can be developed to identify and then measure proficiency relative to these skills, it may make the 'right-leveling' of education and experience possible.

SPECIFIC RECOMMENDATIONS INCLUDE:

- Identify the core "hard" and "soft" skills required for success in the targeted jobs.
- Develop more effective indicators to measure performance on these key skills (i.e. alternative credentialing models; new ways to validate aptitudes and competencies).
- Reference specific skills in job postings, and utilize skills-based screening and selection strategies in lieu of a "degree as proxy" approach.

RECOMMENDATION 3

BUILD PARTNERSHIPS OF EMPLOYERS AND EDUCATIONAL PROVIDERS

Bringing together the right people to discuss and resolve the most pressing issues shared by all is a good idea, regardless of what you call it.

Interviews with employers and educators revealed the need and desire to more **systematically** enable employers to influence curriculum and enable educators to more systematically receive feedback on graduate performance relative to employer requirements. Benefit may be gained by bringing the key groups together, at an appropriately identified interval, to have a collective and continuing conversation.

INITIAL THOUGHTS ON NEXT STEPS INCLUDE:

- Build on, and expand, what already exists.
- Bring together key employers of various sizes and industries, and educators across the continuum of program offerings.
- Collectively prioritize the most pressing issues.
- Test and implement the most promising solutions.

RECOMMENDATION 4

SUPPLEMENT WITH ALTERNATIVE EDUCATION APPROACHES WHERE NEEDED

Based on the projected data, in the coming years we can expect demand to continue increasing while local supply struggles to keep pace. Employers are beginning to recognize alternative education models as viable pipelines for entry-level positions, which could serve as a template for future growth. For example, employers identified the engagement of training programs such as PerScholas, and Dev Mountain as a key first step if presented with the need to rapidly increase IT staffing/capacity.

There appears to be an opportunity not only for employers and educators to collaborate, but also for various types of educators to work together to address the need for different types of graduates with different skill sets (cyber, networking, coding, cloud, mobile, etc.).

Even beyond formal education, experiential opportunities have increased in importance as employers seek to find ways to develop a ready-now pipeline of IT professionals that are productive contributors from entry- to mid- to senior-level positions.

SPECIFIC RECOMMENDATIONS INCLUDE:

- Employers may benefit from strengthening relationships with other education providers, in addition to traditional colleges and universities.
- Consider high schools, coding bootcamps, workforce training programs, vocational and community colleges, and partnerships with community-based organizations.
- In alignment with Recommendation 2: Communicate needs, influence curriculum, and provide feedback on outcomes to create a continuous improvement loop.
- Consider pre-employment internships and/or apprenticeships.
- Create post-employment training to develop targeted skills and build an internal talent pipeline.

SUMMARY & CONCLUSION

The Dallas county Economy is booming in large part because of the thriving IT sector. Local employers have a great need for middle-skill technology workers but there is growing concern that education inflation is keeping talented workers from filling open positions. A deeper understanding of the economic and social costs of education inflation and additional methods that employers can use to validate skills and competencies beyond degrees will ensure that employers capitalize on every source of talent available to them and newly trained workers achieve career success in the IT sector.