2019 IT Skills and Salary Report
Salary and Certifications
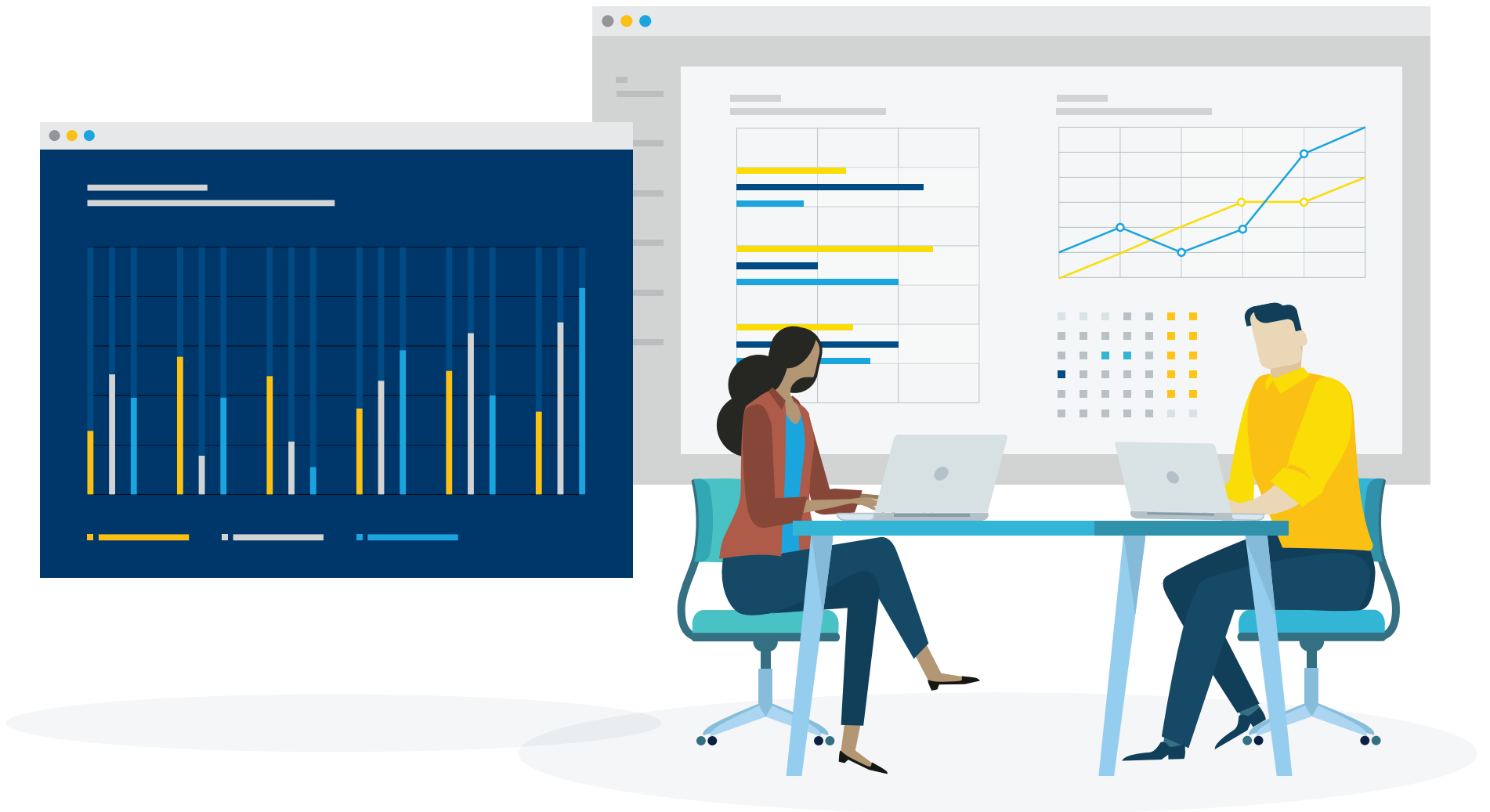
Global Knowledge ®

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Introduction

Welcome to the Global Knowledge 2019 IT Skills and Salary Report. It is the largest worldwide study of professionals in the technology community and has been conducted annually for over a decade. Throughout the report, you'll find the data broken up by region: North America; Latin America; Europe, the Middle East and Africa (EMEA); and the Asia-Pacific region.

IT professionals, human resources and industry leaders use this report as a guide for salaries, in-demand certifications, tech priority areas, skills gaps, professional development, job satisfaction, and future outlooks in IT.

Traditionally, we have combined all areas of study into one report, but this year we're breaking it up into smaller reports so we can dig deeper into each topic.

The reports will be:
- Salary and certifications
- IT decision-maker insights
- Professional development and job satisfaction
- Looking forward

HOW TO USE THE SALARY AND CERTIFICATIONS REPORT

The salary-related data helps answer questions such as:
- What are IT professional salaries around the world?
- What industries pay the best?
- Which job function to pursue if you're looking for a career change
- What's driving raises and bonuses?

The certification section of the report highlights:
- Which certifications are most popular
- The individual and organizational benefits of certification
- The top-paying certifications
- The value of pursuing certifications from multiple tech providers

PRIMARY FINDINGS

Salaries are going up
Global IT compensation is the highest it's ever been. There are a number of factors at play, including responsibility level, job function, tenure, company size, industry and where you live. This report examines how the top-paying IT professionals fit into all of these categories.

Want a raise? Be better at your job.
IT professionals on average earned $5,000 more this year compared to 2018. The main reason? Job performance. Training to add skills that immediately translate to the workplace is leading to pay increases. Professional development makes a difference if you're looking to boost your earnings.

Certifications (still) matter
Eighty-five percent of global IT professionals hold at least one certification, of which over half were earned in the past 12 months. Another 66% plan to attain a new certification this year. Tech professionals still see the value in certifications and are pursuing them in various categories and technologies.

Top-paying certifications vary by region
Instead of just looking at the highest-paying certifications worldwide, this year we broke up our lists by region. That means the top-paying certification in North America may not match the top-paying credential in Latin America. (Spoiler alert: it doesn't!)
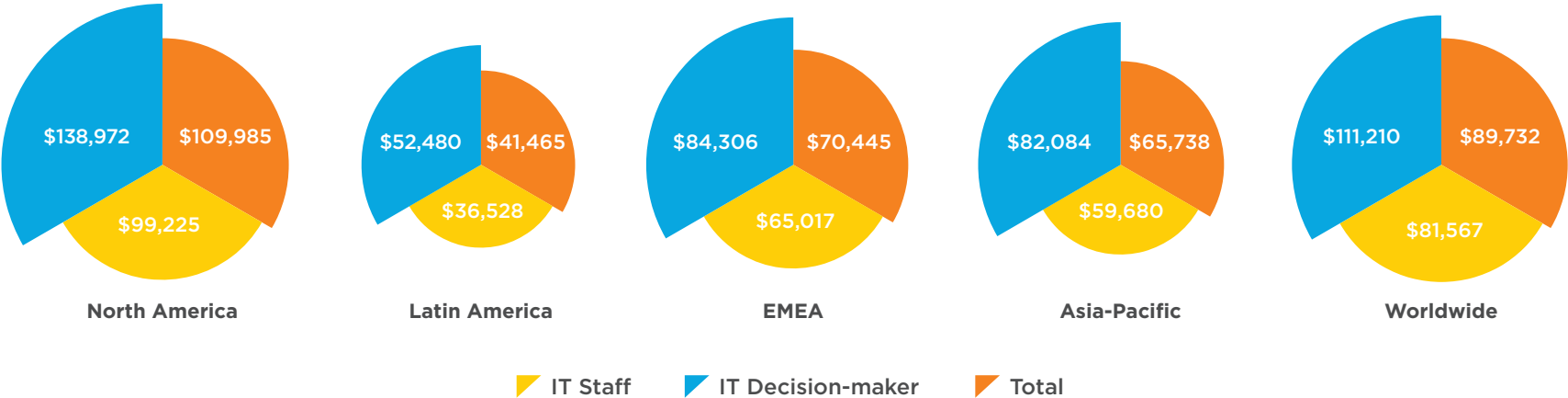
Compensation

An employee's compensation is determined by a combination of factors, including education, responsibility level, job role, certification, tenure, industry, company size and geography—even global and regional economies. In this year's IT Skills and Salary Survey, we asked respondents about these factors and discovered variations around the globe, starting with base salaries. We converted salaries into U.S. dollars to enable relevant comparisons.

BASE SALARY

The average annual salary for global IT professionals is $89,732—the highest it's ever been in this report.

North American IT professionals earn $109,985, which is 23% more than the worldwide average. In the U.S., that number increases to 27%. EMEA has the second highest average salary ($70,445), followed by the Asia-Pacific region ($65,738) and Latin America ($41,465).

$138,972	$109,985		
$99,225			
North America			

$52,480	$41,465
$36,528	
Latin America	

$84,306	$70,445
$65,017	
EMEA	

$82,084	$65,738
$59,680	
Asia-Pacific	

$111,210	$89,732
$81,567	
Worldwide	

Legend: ◢ IT Staff ◢ IT Decision-maker ◢ Total

IT professionals in the U.S. earn higher salaries than their counterparts in any other region. A clear distinction across all geographies is the ratio of IT decision-makers' salaries compared to the salaries of the employees they manage. In North America, IT managers earn an average of 40% more than their staff. This ratio is comparable to Latin America (44%) and Asia-Pacific (38%). In the U.S., decision-makers make 37% more than the employees they manage.

RAISES AND BONUSES

Our respondents, on average, made nearly $5,000 more this year than last. The highest salary increase was amongst Latin American IT professionals, who experienced an average raise of 6.5%. North America (5.8%), EMEA (5.6%) and Asia-Pacific (5.2%) saw slightly smaller increases.
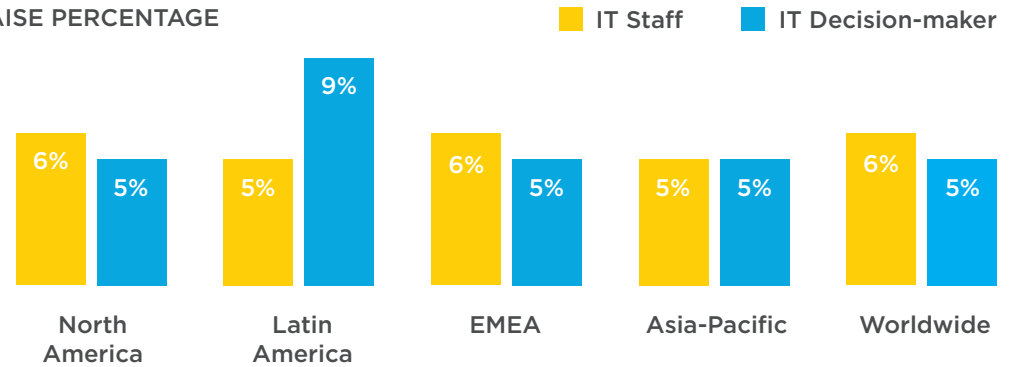
Reasons for a raise

Forty-two percent of the respondents who received a raise attribute it primarily to job performance. Standard company increase is the second most frequently mentioned reason. Fifteen percent were promoted within their company in the past year.
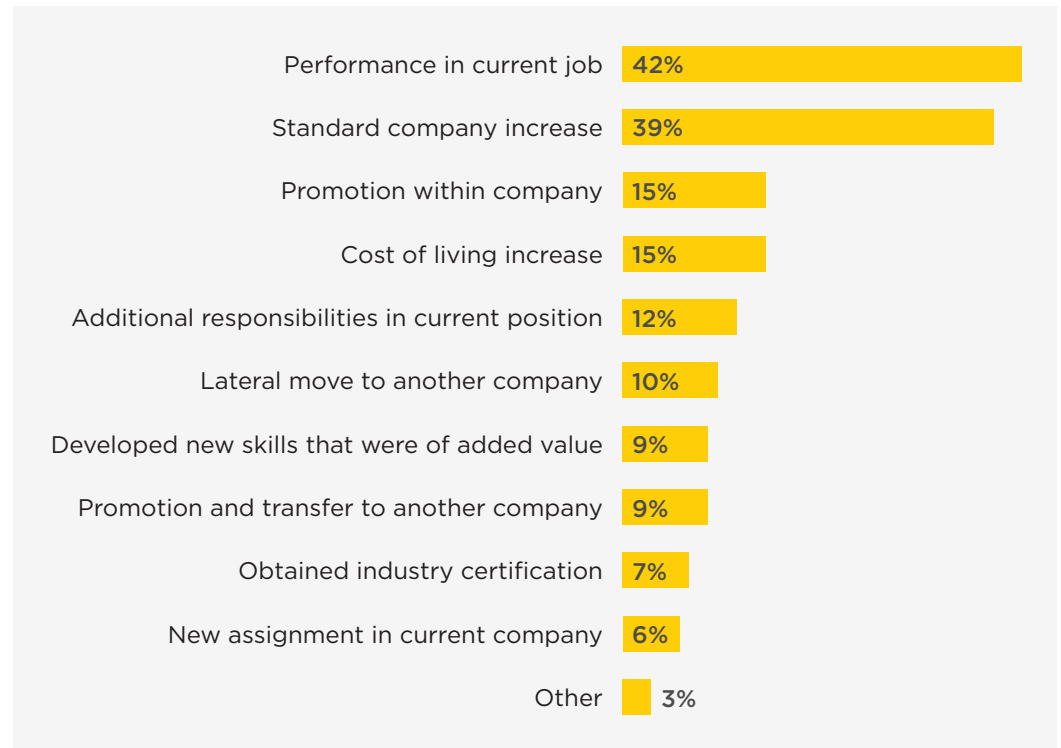
The reason for a raise impacts the amount of the raise. Nine percent of IT professionals attribute their raise to adding new skills—those same individuals earned nearly $12,000 more than last year, a strong indication that training pays off.

Professionals who left their current company and sought a promotion elsewhere saw their salaries jump over 26%, while those who were promoted internally increased their salaries by 14%. A lateral move to another company resulted in a 20% salary increase.

RAISE PERCENTAGE

Legend: IT Staff | IT Decision-maker

Region	IT Staff	IT Decision-maker
North America	6%	5%
Latin America	5%	9%
EMEA	6%	5%
Asia-Pacific	5%	5%
Worldwide	6%	5%

FACTORS FOR INCREASED SALARY

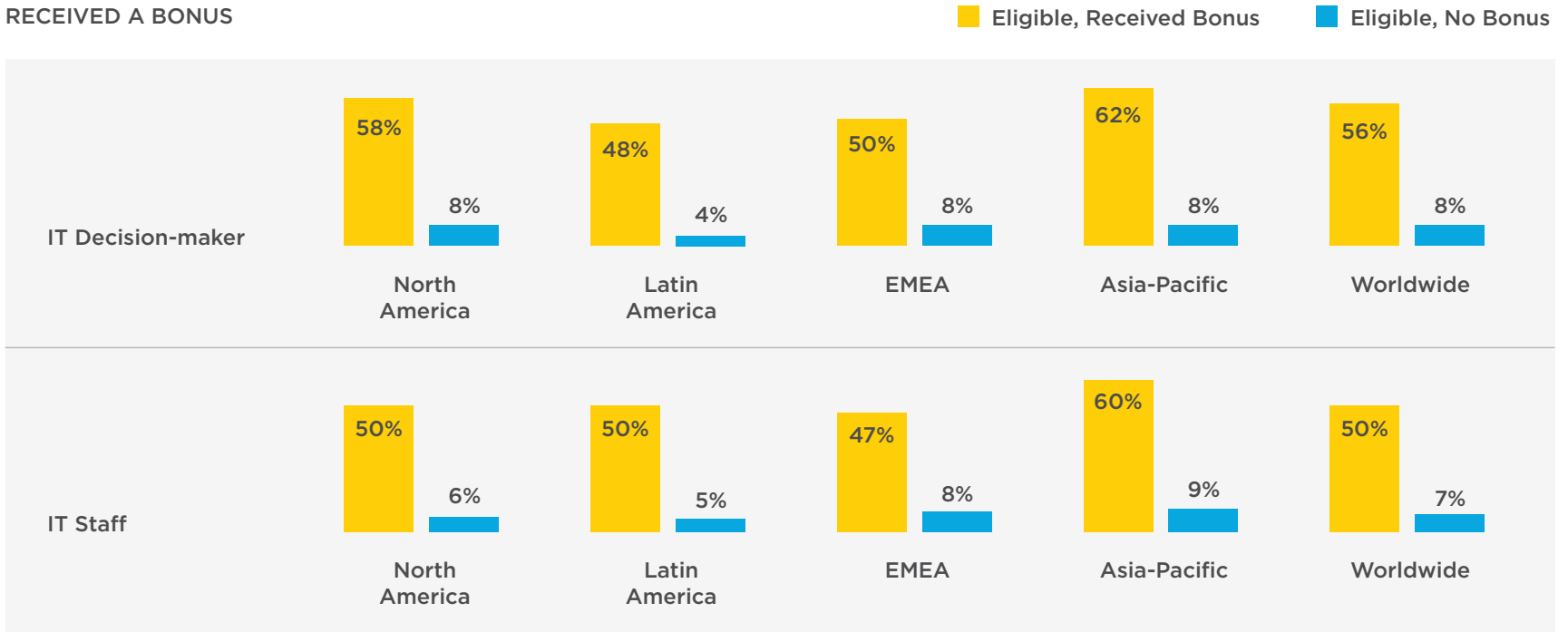| Factor	Percentage
Performance in current job	42%
Standard company increase	39%
Promotion within company	15%
Cost of living increase	15%
Additional responsibilities in current position	12%
Lateral move to another company	10%
Developed new skills that were of added value	9%
Promotion and transfer to another company	9%
Obtained industry certification	7%
New assignment in current company	6%
Other	3%

Worldwide, half of IT staff and 56% of decision-makers earned a bonus. The most bonus-friendly region was Asia-Pacific, with over 60% of employees receiving one. Forty-one percent of global IT professionals were not bonus-eligible this year.

RECEIVED A BONUS ■ Eligible, Received Bonus   ■ Eligible, No Bonus

IT Decision-maker

	North America	Latin America	EMEA	Asia-Pacific	Worldwide
Eligible, Received Bonus	58%	48%	50%	62%	56%
Eligible, No Bonus	8%	4%	8%	8%	8%

IT Staff

	North America	Latin America	EMEA	Asia-Pacific	Worldwide
Eligible, Received Bonus	50%	50%	47%	60%	50%
Eligible, No Bonus	6%	5%	8%	9%	7%

Nearly 250 IT professionals explained in the open-field section of our survey why they received a salary increase. Here are some of the write-in comments:

• "Was going to another company but got a counter offer"

• "New certification"

• "Salary adjustment to match competition"

• "Obtained Master's Degree"

• "Moved to Tokyo from India"

• "My company was acquired"

• "Moved from permanent position to consultant contract in another company"

• "I asked for it"

RESPONSIBILITY LEVEL

We compared respondents' compensation data to their levels of responsibility, ranging from non-management to executive.

Non-management IT staff (specialists, analysts, associates, level 1, etc.) account for 29% of this year's report. Average non-management salaries range from $29,156 in Latin America to $87,328 in North America, with a global average of $75,345.

Most popular job roles include:
• Network engineer
• Security analyst
• Programmer / developer

Mid-level professionals (managers and team leads) form the core of this year's respondent base, accounting for 43%. The average salary for mid-level IT pros is $85,761. Average salaries range from $39,437 for Latin American respondents to $108,798 for those in North America.

Most popular job roles include:
• IT audit manager
• Security officer
• Project manager

Respondents in **senior-level** roles account for 25% of this year's participants. The average salary at this level is $109,689. Salaries for senior-level respondents are lowest in Latin America where the average is $46,155. Their counterparts in North America earn an average of $136,604.

Most popular job roles include:
• Director
• Chief Security Officer (CSO)
• Senior engineer

Executives account for three percent of IT respondents and report an average salary of $123,508. North American executives make $160,474 annually.

Most popular job roles include:
• Chief Technology Officer (CTO)
• Chief Information Officer (CIO)
• Chief Executive Officer (CEO)

SALARY BY RESPONSIBILITY LEVEL

Level	Average	Count	Percent
North America			
Non-management	$87,328	2,131	33%
Mid	$108,798	2,648	40%
Senior	$136,604	1,598	24%
Executive	$160,474	176	3%
Total	$109,985	6,553	100%
Latin America			
Non-management	$29,156	101	19%
Mid	$39,437	256	50%
Senior	$46,155	135	26%
Executive	$86,634	25	5%
Total	$41,465	517	100%
EMEA			
Non-management	$60,197	1,045	29%
Mid	$68,257	1,555	43%
Senior	$83,162	897	25%
Executive	$92,784	121	3%
Total	$70,445	3,618	100%
Asia-Pacific			
Non-management	$58,707	303	19%
Mid	$60,026	852	54%
Senior	$81,544	378	24%
Executive	$86,174	50	3%
Total	$65,738	1,583	100%
Worldwide			
Non-management	$75,345	3,580	29%
Mid	$85,761	5,311	43%
Senior	$109,689	3,008	25%
Executive	$123,508	372	3%
Total	$89,732	12,271	100%

JOB FUNCTION

SALARY BY JOB FUNCTION

FUNCTIONAL AREA	NORTH AMERICA		LATIN AMERICA		EMEA		ASIA-PACIFIC		WORLDWIDE		
	Average	Respondents	Average	Respondents	Average	Respondents	Average	Respondents	Average	Respondents	Total
Application Development / Programming	$104,098	638	$32,691	29	$60,669	386	$55,441	52	$84,763	1,105	9%
Cloud Computing	$138,320	308	$50,480	17	$99,290	211	$89,209	86	$115,889	622	5%
Cybersecurity / IT Security	$117,932	1,221	$42,725	74	$75,828	528	$73,066	403	$97,322	2,226	18%
Data, Analytics and Business Intelligence	$110,360	227	$35,217	11	$69,595	98	$67,436	27	$93,884	363	3%
DevOps	$114,332	233	$35,917	13	$64,404	165	$42,263	19	$89,618	430	4%
Executive (C-level, Director, VP)	$149,034	455	$68,253	30	$101,523	164	$108,794	57	$131,316	706	6%
Infrastructure, Networking and Telecom	$91,359	880	$32,016	112	$52,517	554	$50,344	224	$70,256	1,770	14%
IT Architecture and Design	$126,095	563	$39,183	69	$83,606	459	$65,589	137	$98,580	1,228	10%
IT Compliance / Audit	$108,214	493	$46,923	77	$65,657	409	$57,915	286	$79,352	1,265	10%
Other	$104,254	696	$49,251	49	$74,265	342	$66,629	140	$89,406	1,227	10%
Project and Program Management	$118,528	323	$48,478	14	$70,754	137	$74,608	86	$98,344	560	5%
Service Desk and IT Support	$63,245	516	$26,049	22	$42,126	165	$40,402	66	$55,689	769	5%
Total (includes "Other" Job Functions)	$109,985	6,553	$41,465	517	$70,445	3,618	$65,738	1,583	$89,732	12,271	100%

Salaries vary considerably by respondents' job functions. The following functional areas make up over half of our respondent base this year:

• Cybersecurity / IT security (18%)

• Infrastructure, networking and telecommunications (14%)

• IT compliance / audit (10%)

• IT architecture and design (10%)

• Application development / programming (9%)

Aside from executives, the highest global salaries are in cloud computing ($115,889), IT architecture and design ($98,580), project and program management ($98,344), and cybersecurity ($97,322).

Cloud salaries are 29% more than the global average. The most popular cloud job roles include cloud architect and cloud engineer.

The most popular job role amongst all survey respondents is network engineer/analyst/technician, making up four percent of the total base.

COMPANY SIZE

IT professionals at the largest companies earn the highest salaries; this remains consistent across all regions. Global salaries exceed $100,000 for those working at companies of more than 5,000 employees. In North America, professionals who work for companies of 5,000-plus earn 16% more than those who work for companies of fewer than 1,000 employees.

EMEA has the largest jump from mid-size to large companies—the salary bump is 23% when you exceed the 5,000-employee threshold. So if you're looking for a salary bump, look for a larger company.

This year, companies with fewer than 10 employees typically pay better than those with 10-49 employees. Worldwide, the salaries in the smallest companies are three percent higher than the next level up.

COMPANY SIZE

NUMBER OF EMPLOYEES	NORTH AMERICA		LATIN AMERICA		EMEA		ASIA-PACIFIC		WORLDWIDE	
	Average	Percentage	Average	Percentage	Average	Percentage	Average	Percentage	Average	Percentage
1 - 9	$104,661	3%	$30,708	5%	$65,735	5%	$65,241	2%	$80,570	3%
10 - 49	$101,476	7%	$35,453	11%	$59,244	10%	$60,235	6%	$77,972	8%
50 - 99	$104,969	6%	$29,917	7%	$61,959	7%	$54,245	4%	$82,155	6%
100 - 249	$102,479	8%	$42,067	12%	$62,091	10%	$61,415	6%	$81,207	9%
250 - 499	$101,188	7%	$42,078	7%	$63,900	7%	$67,810	7%	$83,237	7%
500 - 999	$103,181	8%	$37,450	8%	$63,866	8%	$53,423	7%	$82,662	8%
1,000 - 4,999	$106,005	17%	$38,931	17%	$67,990	16%	$63,964	20%	$86,060	17%
5,000 +	$119,859	41%	$49,795	30%	$83,520	34%	$70,948	45%	$100,890	39%
Do not know	$94,208	3%	$48,146	3%	$56,605	2%	$54,593	2%	$81,466	3%

CAREER EXPERIENCE

Naturally, IT professionals with longer careers have larger salaries. Global professionals with 26 or more years of experience have average annual salaries of $117,030—that's a 135% increase from first-year IT professionals.

In North America, the biggest salary jump exists between years one and five, with professionals seeing their average salary increase by over 33%. While their salary will continue to rise throughout their career, the percentage increase will gradually diminish over time.

Fifty-eight percent of IT professionals have between six and 20 years of career experience. Only two percent are less than one year into the job, while 17% have five years of experience or fewer. At the other end of the spectrum, 25% of respondents have 20 years or more in IT.

CAREER EXPERIENCE

YEARS	NORTH AMERICA		LATIN AMERICA		EMEA		ASIA-PACIFIC		WORLDWIDE	
	Average	Percentage	Average	Percentage	Average	Percentage	Average	Percentage	Average	Percentage
< 1	$59,204	2%	$11,870	1%	$35,302	2%	$49,504	2%	$49,732	2%
1 - 5	$79,207	15%	$23,074	15%	$45,333	17%	$40,859	12%	$61,770	15%
6 - 10	$97,834	17%	$31,567	23%	$57,516	21%	$49,515	24%	$73,716	19%
11 - 15	$111,159	17%	$42,098	23%	$70,555	22%	$62,234	26%	$86,398	20%
16 - 20	$119,229	20%	$48,037	20%	$85,949	19%	$83,965	18%	$102,219	19%
21 - 25	$128,835	14%	$66,294	10%	$89,382	11%	$91,024	10%	$112,505	12%
26+	$128,217	16%	$61,378	8%	$97,139	9%	$94,330	8%	$117,030	13%

INDUSTRY

IT professionals in the aerospace/defense industry earn the highest global salaries at $111,456 annually, while system integrators and value-added resellers (VAR) earn the most in North America ($135,204). This makes sense since system and VAR integrators charge clients for their time and are generally paid well for the expertise they bring to their clients.

The top industry in Latin America (with a minimum of 10 respondents) is government: non-defense, state, local ($54,902), the top industry in EMEA is communications, public relations, advertising ($90,781), and the top industry in Asia-Pacific (with a minimum of 10 respondents) is government: military and homeland security ($97,547).

The most popular industry is banking and finance, which makes up 13% of our respondent base. IT consulting, IT-related services, IT software, and government: non-defense, state, local round out the top five.

SALARY BY INDUSTRY

INDUSTRY	NORTH AMERICA		LATIN AMERICA		EMEA		ASIA-PACIFIC		WORLDWIDE	
	Average	Respondents	Average	Respondents	Average	Respondents	Average	Respondents	Average	Respondents
Aerospace / Defense	$118,231	208	$30,695	3	$69,830	27	$106,659	9	$111,456	247
Banking and Finance	$113,960	668	$41,643	71	$71,665	494	$67,652	304	$87,866	1,537
Communications, Public Relations, Advertising	$125,390	75	$27,500	2	$90,781	36	$70,750	8	$109,863	121
Construction, Architecture, Engineering	$98,740	60	$29,867	3	$60,778	47	$64,281	9	$79,404	119
Education Services	$89,517	416	$34,954	19	$57,437	101	$64,657	24	$80,814	560
Government: Military and Homeland Security	$108,224	364	$66,000	1	$86,321	34	$97,547	23	$105,777	422
Government: Non-defense, State, Local	$93,485	482	$54,902	18	$64,428	148	$74,156	55	$84,868	703
Healthcare	$103,701	532	$51,928	6	$78,815	87	$70,668	30	$98,408	655
Hospitality, Travel, Recreation	$108,461	76	$28,311	5	$65,021	36	$76,478	8	$90,697	125
Insurance, Real Estate, Legal	$106,749	315	$39,799	16	$77,925	106	$74,293	45	$95,158	482
IT Consulting	$117,998	546	$36,978	91	$66,346	548	$60,074	248	$83,076	1,433
IT Hardware	$132,483	70	$43,353	8	$56,693	46	$59,226	44	$88,300	168
IT Software	$132,390	599	$44,498	39	$75,359	404	$61,244	168	$100,637	1,210
IT-Related Services	$110,629	484	$43,912	74	$74,624	472	$64,624	229	$84,841	1,259
Manufacturing: Consumer and Industrial	$101,007	289	$47,547	19	$77,509	146	$59,593	69	$87,041	523
Media, Film, Music	$125,829	94	$32,164	4	$76,025	51	$62,512	12	$103,006	161
Natural Resources: Agriculture, Forestry, Fishing	$95,452	14	$49,500	2	$82,038	6	$20,622	2	$82,033	24
Natural Resources: Mining, Oil, Gas	$107,317	60	$45,327	11	$85,543	46	$68,956	16	$90,044	133
Nonprofit	$89,103	105	$32,500	2	$66,705	26	$83,230	5	$83,850	138
Other	$109,099	308	$37,825	20	$65,924	159	$73,755	57	$90,156	544
Pharmaceutical, Medical, Biotech	$128,692	70	$25,448	3	$74,039	29	$70,791	11	$106,289	113
Professional Business Services	$112,335	159	$48,769	20	$66,486	104	$70,271	57	$87,520	340
Retail	$110,567	144	$48,032	13	$71,495	84	$54,538	23	$90,174	264
System and VAR Integration	$135,204	41	$48,247	6	$73,298	22	$73,791	11	$103,214	80
Telecommunications	$108,759	202	$36,736	52	$59,548	272	$60,441	84	$74,022	610
Transportation or Public Utilities	$100,618	149	$42,873	8	$73,149	77	$72,586	26	$87,903	260
Wholesale	$102,563	23	$69,000	1	$74,793	10	$68,315	6	$89,644	40

U.S. SALARIES

IT professionals in the U.S. have an average annual salary of $113,639. U.S. decision-makers make $141,024 a year.

While tenure, company size and job function certainly affect pay, geography is also a major salary influencer. The cost of living in the Mid-Atlantic and West Coast, for example, is higher than those in the Midwest. When you examine salaries by state, you'll notice that it's dominated by the East and West Coast.

California, which didn't crack our top five a year ago, has the highest average salaries in the country ($134,531). Massachusetts, New Jersey, Virginia and the District of Columbia complete the top five. Connecticut, which had the highest U.S. salaries a year ago, ranks seventh this year.

Wyoming has the lowest salary by state in the U.S. ($66,500), while Alaska, which was last a year ago, has climbed all the way to 31st ($99,993).

SALARY BY STATE

State	Average	State	Average	State	Average
Alabama	$94,810	Louisiana	$96,583	Oklahoma	$94,734
Alaska	$99,993	Maine	$84,916	Oregon	$114,689
Arizona	$117,814	Maryland	$124,952	Other U.S. territories	$92,650
Arkansas	$93,033	Massachusetts	$131,773	Pennsylvania	$104,599
California	$134,531	Michigan	$100,391	Puerto Rico	$59,766
Colorado	$116,995	Minnesota	$108,397	Rhode Island	$118,300
Connecticut	$125,337	Mississippi	$91,955	South Carolina	$101,224
Delaware	$108,316	Missouri	$100,695	South Dakota	$92,627
District of Columbia	$127,302	Montana	$84,570	Tennessee	$92,512
Florida	$102,347	Nebraska	$98,711	Texas	$112,191
Georgia	$109,403	Nevada	$98,239	Utah	$100,050
Hawaii	$94,917	New Hampshire	$108,928	Vermont	$86,775
Idaho	$107,548	New Jersey	$131,640	Virginia	$129,143
Illinois	$111,847	New Mexico	$88,527	Washington	$125,883
Indiana	$99,283	New York	$121,569	West Virginia	$109,279
Iowa	$95,120	North Carolina	$102,042	Wisconsin	$101,768
Kansas	$95,127	North Dakota	$80,808	Wyoming	$66,500
Kentucky	$95,914	Ohio	$103,814		

CANADIAN SALARIES

The average annual salary in Canada is $74,048. IT professionals in Quebec have the highest salaries in the country at $77,897. Rounding out the five highest-paying Canadian provinces are Alberta ($76,429), Ontario ($76,304), British Columbia ($70,949) and Saskatchewan ($69,963).

Provinces with 10 or fewer respondents were omitted from this list.

EUROPEAN SALARIES

Switzerland dominates the European salaries, with an average of $136,301. Norway has the second highest salaries ($97,525), followed by Germany ($95,456), the United Kingdom ($88,575), Ireland ($86,663) and France ($85,475).

European countries with fewer than 50 respondents were omitted from this list.

SALARY BY PROVINCE

Province	Average
Alberta	$76,429
British Columbia	$70,949
Manitoba	$62,551
New Brunswick	$49,040
Nova Scotia	$69,454
Ontario	$76,304
Quebec	$77,897
Saskatchewan	$69,963

SALARY BY EUROPEAN COUNTRY

Country	Average
Belgium	$81,290
Czechia	$45,434
Finland	$75,146
France	$85,475
Germany	$95,456
Greece	$38,397
Hungary	$39,115
Ireland	$86,663
Italy	$58,024
Netherlands	$75,919
Norway	$97,525
Poland	$43,493
Romania	$34,006
Spain	$53,611
Sweden	$77,477
Switzerland	$136,301
United Kingdom	$88,575

Certifications

Eighty-five percent of all IT professionals hold at least one certification. That number trends up to 96% in Asia-Pacific, 93% in Latin America and 87% in EMEA. North America (81%) is the only region below the global average.

CERTIFIED PROFESSIONALS BY REGION

■ Certified   ■ Non-certified

| 19% | 81% | 7% | 93% | 13% | 87% | 4% | 96% | 15% | 85% |

North America   Latin America   EMEA   Asia-Pacific   Worldwide
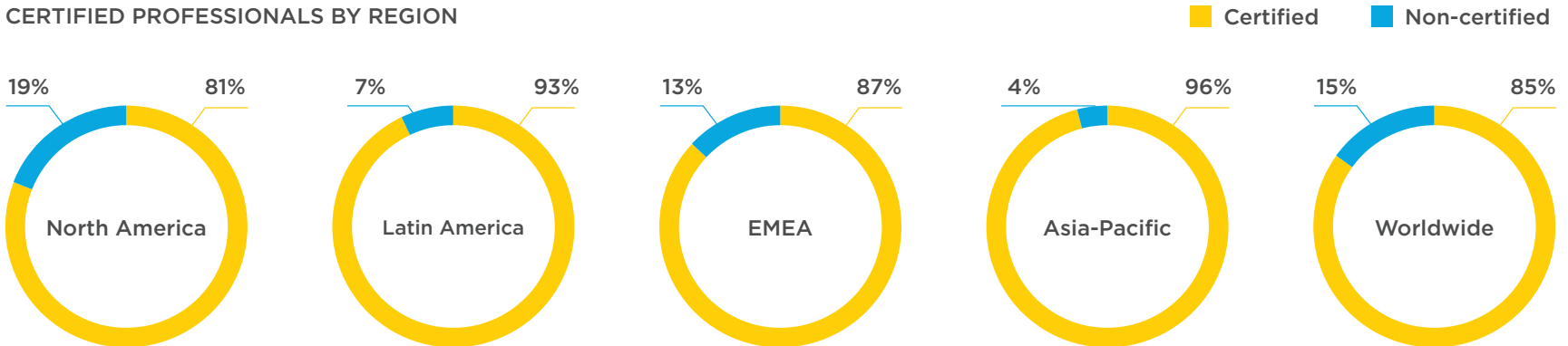
Of that 85%, more than half earned their most recent certification in the past 12 months, while 66% are already pursuing their next certification or plan to at some point this year.

Certifications require an investment of time and money, but a strong majority of IT professionals aren't hesitating in their pursuit because they understand the value. Certifications still matter because the benefits are unmistakable for both the individual and the organization.

INDIVIDUAL AND ORGANIZATIONAL BENEFITS OF CERTIFICATIONS

In all regions, the salaries of certified professionals surpass the salaries of non-certified staff. The largest discrepancy between certified and non-certified staff is in Latin America (21% difference) and Asia-Pacific (11%). In North America, certified professionals make seven percent more than peers with no certifications.

The number of certifications earned also impacts salary. In North America, an individual with six or more IT certifications makes over $10,000 more than those with just one certification on their resume. With few exceptions, each additional certification earned results in at least a minor salary bump.

SALARY BY NUMBER OF CERTIFICATIONS EARNED

Number of Certifications Earned	North America	Latin America	EMEA	Asia-Pacific	Worldwide
None (0)	$104,337	$34,722	$69,173	$59,415	$92,351
1	$106,780	$40,797	$63,019	$55,682	$86,938
2	$108,638	$38,456	$68,254	$62,664	$87,105
3	$114,209	$42,717	$70,195	$67,659	$89,928
4	$113,007	$41,213	$69,407	$61,618	$87,745
5	$110,448	$38,363	$73,392	$71,966	$89,669
6 or more	$117,212	$48,180	$78,469	$76,301	$94,160

Beyond salary, IT professionals overwhelmingly report better job effectiveness after achieving a new certification.

• 52% say their expertise is more sought after within their organization

• 45% have implemented efficiencies

• 43% are faster at performing their job

• 23% say product/service deployments have gone smoother

The value of certification extends beyond individual benefits. Specifically, certified professionals are better at closing skills gaps, meeting client requirements, being more productive, taking less time to troubleshoot issues and completing projects more quickly.

CERTIFICATION CATEGORIES

The big money is in cloud computing certifications, with AWS and Google Cloud delivering high salaries across all regions.

Business architecture (e.g., TOGAF) is also associated with top salaries, ranking first in EMEA and Asia-Pacific, and second worldwide.

The most popular certification category is Cybersecurity, Governance, Compliance and Policy. Twenty-seven percent of all respondents have at least one certification in this category, while nearly 18% are ITIL®-certified. In North America, the most popular certification categories beyond cybersecurity are CompTIA, Microsoft and Cisco.

SALARY BY CERTIFICATION CATEGORY

CERTIFICATION CATEGORY	NORTH AMERICA		LATIN AMERICA		EMEA		ASIA-PACIFIC		TOTAL	
	Average	Count	Average	Count	Average	Count	Average	Count	Average	Count
Amazon Web Services (AWS)	$129,868	580	$52,097	29	$85,363	301	$73,582	101	$108,764	1,011
Application Development / Programming	$118,276	194	$45,214	18	$72,702	194	$71,552	45	$91,094	451
Avaya	$99,969	28	$42,202	4	$65,748	20	$33,333	3	$79,762	55
Blockchain	$126,182	22	$80,000	4	$90,003	16	$54,927	15	$92,876	57
Business analysis	$100,775	119	$108,641	7	$86,255	73	$73,515	24	$93,335	223
Business achitecture	$138,980	91	$84,008	14	$101,740	120	$103,491	38	$113,934	263
Business process	$121,103	181	$68,552	20	$81,036	87	$72,489	39	$101,431	327
Cisco	$101,533	825	$33,056	160	$54,852	692	$50,906	316	$71,800	1,993
Citrix	$109,456	359	$38,988	41	$70,130	277	$51,238	129	$83,038	806
Cloud Credential Council	$149,002	22	$80,000	1	$99,402	14	$90,915	13	$118,631	50
CompTIA	$93,097	1,321	$36,493	31	$58,267	184	$70,754	59	$87,152	1,595
Cybersecurity, Governance, Compliance and Policy	$119,742	1,676	$46,406	128	$75,841	817	$71,358	648	$96,308	3,269
Data center	$131,678	38	$45,055	11	$80,436	46	$68,466	25	$90,925	120
Database	$116,961	161	$55,265	10	$67,935	146	$82,048	54	$90,923	371
Dell EMC	$111,332	69	$58,115	7	$77,278	46	$52,030	12	$91,641	134
DevOps	$133,208	66	$68,630	9	$79,282	49	$66,688	16	$102,580	140
Google Cloud	$147,357	351	$50,220	44	$96,041	279	$81,005	150	$112,716	824
Help desk	$83,981	53	$72,463	3	$83,632	17	$89,809	4	$83,758	77
HP	$110,123	62	$61,750	8	$63,394	74	$58,639	8	$82,118	152
IBM	$125,644	97	$58,106	9	$76,270	71	$55,036	33	$94,961	210
ITIL and IT service management	$113,723	892	$45,784	125	$74,832	763	$71,159	369	$88,654	2,149
Juniper Networks	$122,544	54	$40,940	11	$66,786	65	$62,565	29	$83,165	159
Microsoft	$104,127	1,044	$40,353	76	$67,504	661	$68,712	229	$85,637	2,010
Networking	$112,052	150	$43,261	13	$73,715	$84	$63,474	34	$91,532	281
Nutanix	$119,166	52	$35,784	9	$75,551	45	$56,565	14	$89,253	120
Other	$113,831	1,225	$46,519	121	$71,633	756	$65,212	336	$90,705	2,438
Project management	$125,797	620	$57,028	45	$82,272	454	$81,743	171	$102,240	1,290
Red Hat / Linux	$113,165	164	$35,834	18	$75,659	109	$58,305	51	$88,960	342
Veeam	$118,657	34	$23,354	7	$67,884	35	$107,231	4	$87,534	80
VMware	$113,233	312	$42,398	43	$70,152	228	$63,385	95	$87,269	678
Web development	$105,888	110	$49,456	8	$67,627	56	$52,752	9	$89,100	183
Wireless	$106,480	71	$38,983	13	$66,698	56	$62,240	19	$81,664	159

TOP-PAYING CERTIFICATIONS

Earning potential may not be the top reason IT professionals choose to get certified, but it's a positive byproduct that's nearly impossible to ignore. Annually, this report has determined that certified professionals earn more than non-certified professionals. But which certifications pay the most?

This year, we ranked the top-paying certifications by region, so IT professionals, no matter where they live, can have a clearer picture of which credentials can most benefit their earning potential.

Keep in mind, nearly 70% of IT professionals hold more than one certification. These lists do not necessarily indicate that one sole certification will generate these salaries. For example, of the 727 professionals worldwide who hold the AWS Solutions Architect-Associate credential, 37% have earned six or more certifications. While these certifications have proven their value when it comes to salary and career enhancement, cross-certification is a significant contributor when it comes to the world's highest IT salaries.

North America

Between Google Cloud and AWS, cloud computing certifications make up four of the 10 top-paying North American certifications. (Note: For only U.S. data, check out the 15 Top-Paying IT Certifications for 2019.)

Citrix has the most certifications in the top 20 with four (CCE-V, CCP-V, CCA-N and CCA-V). AWS and ISACA each have three. Between Certified ScrumMaster and PMP® – Project Management Professional, two project management credentials crack the top 10.

(ISC)²'s CISSP – Certified Information Systems Security Professional ranks 10th ($123,815) this year.

To be included in the list, a certification must have had at least 100 North American responses.

TOP-PAYING CERTIFICATIONS NORTH AMERICA

Certification	Average	Count
GCP Cloud Architect	$152,129	250
CISM	$132,919	334
Certified ScrumMaster	$132,903	179
AWS Certified Solutions Architect - Associate	$130,883	416
AWS Certified SysOps Administrator - Associate	$130,610	138
AWS Certified Developer - Associate	$130,272	191
Project Management Professional	$129,457	351
CRISC	$128,556	217
CCE-V	$125,870	101
CISSP	$123,815	1,071

Latin America

TOGAF 9.1 is the highest-paying certification in Latin America, with an average annual salary of $74,646. TOGAF is an Open Group certification that validates the ability to analyze and apply knowledge of enterprise architecture.

Six Sigma Green Belt is second at $71,532 while PMP® comes in third at $63,064. Cisco has a strong showing as well in Latin America, with CCIE Routing and Switching, CCNP Collaboration and Cisco Certified Design Professional (CCDP) making the top 20.

Twenty-nine percent of IT professionals have their ITIL Foundation credential, making it the most popular certification in Latin America.

To be included in the list, a certification must have had at least 10 Latin American responses.

TOP-PAYING CERTIFICATIONS LATIN AMERICA

Certification	Average	Count
TOGAF 9.1	$74,646	11
Six Sigma Green Belt	$71,532	12
Project Management Professional	$63,064	27
CCIE Routing and Switching	$57,685	10
CISSP	$57,168	16
AWS Certified Solutions Architect - Associate	$56,193	20
VCA6-DCV	$53,284	12
COBIT 5 Foundation	$52,412	22
CRISC	$52,255	26
GCP Cloud Architect	$50,636	27

EMEA

Similar to North America, GCP Cloud Architect is the top-paying certification in EMEA ($103,448). Another Google certification, GCP Data Engineer, is third with an average salary of $97,175.

With Certified ScrumMaster, PMP®, PRINCE2 Practitioner and PRINCE2 Foundation, EMEA has four top-paying project management certifications in the top 20, the most of any region.

Like Latin America, ITIL Foundation is the most popular certification but it barely cracks the top 20 with an average salary of $74,050.

To be included in the list, a certification must have had at least 75 EMEA responses.

TOP-PAYING CERTIFICATIONS EMEA

Certification	Average	Count
GCP Cloud Architect	$103,448	199
TOGAF 9.1	$99,402	103
GCP Data Engineer	$97,175	98
CISSP	$95,340	167
PRINCE2 Practitioner	$87,987	110
AWS Certified Solutions Architect - Associate	$87,641	220
AWS Certified Developer - Associate	$86,457	92
CRISC	$85,427	175
Certified ScrumMaster	$83,221	119
CISM	$83,193	346

Asia-Pacific

TOGAF 9.1 takes the top spot in Asia-Pacific with an average salary of $102,503. ISACA dominates the top 10 in Asia-Pacific, with three certifications aligned with high salaries: Certified in the Governance of Enterprise IT (CGEIT), Certified in Risk and Information Systems Control (CRISC), and Certified Information Security Manager (CISM). ISACA's Certified Information Systems Auditor ranks 15th in the region and is the most popular as well, with 458 professionals having earned their CISA.

Microsoft makes its strongest showing in Asia-Pacific with three top-paying certifications in the top 20: MCSE: Server Infrastructure, MCSA: Windows Server 2008, and MCSA: Windows Server 2012.

To be included in the list, a certification must have had at least 30 Asia-Pacific responses.

Worldwide

AWS Certified Solutions Architect – Professional topped our worldwide list with an average salary of $120,136. Another cloud certification, GCP Cloud Architect ($118,756), is the second highest-paying certification, while CISSP ($116,573) is third.

Three other AWS certifications make the worldwide top 10, with AWS Certified SysOps Administrator – Associate at No. 5, AWS Certified Developer – Associate at No. 8, and AWS Certified Solutions Architect – Associate at No. 9.

TOGAF 9.1, which is the top-paying certification in both Latin America and Asia-Pacific, is seventh worldwide with a salary of $111,984.

To be included in the list, a certification must have had at least 100 worldwide responses.

TOP-PAYING CERTIFICATIONS ASIA-PACIFIC

Certification	Average	Count
TOGAF 9.1	$102,503	32
GCP Data Engineer	$98,254	60
CGEIT	$94,147	32
CRISC	$93,582	104
CISSP	$91,688	131
GCP Cloud Architect	$88,160	113
CISM	$85,443	215
Project Management Professional	$85,305	106
MCSE: Server Infrastructure	$79,890	51
MCSA: Windows Server 2008	$78,527	39

TOP-PAYING CERTIFICATIONS WORLDWIDE

Certification	Average	Count
AWS Certified Solutions Architect - Professional	$120,136	170
GCP Cloud Architect	$118,756	589
CISSP	$116,573	1,385
GCP Data Engineer	$114,888	266
AWS Certified SysOps Administrator - Associate	$114,800	222
TOGAF 9.1	$111,984	216
Project Management Professional	$111,196	561
AWS Certified Developer - Associate	$111,178	307
AWS Certified Solutions Architect - Associate	$110,429	727
GCP Associate Cloud Engineer	$106,044	158

MOST POPULAR CERTIFICATIONS

Cybersecurity

Cybersecurity certifications are the most popular worldwide, with 27% of respondents having a cyber certification and another 25% planning to pursue one this year.

The most popular cyber certification in North America is CISSP while CISA is the most popular in all other regions. ISACA's CISM and CRISC rank in the top five in popularity of all regions as well.

ITIL®

Not surprisingly, ITIL Foundation is the most popular ITIL certification, held by 93% of ITIL pros in North America. That number rises to 95% in Latin America.

ITIL Practitioner is the second most popular IT service management certification in North America, followed by ITIL Service Lifecycle: Service Operation, ITIL Service Lifecycle: Service Transition, and DevOps Foundation / Fundamentals.

CompTIA

Security+, A+ and Network+ are by far the most popular CompTIA certifications worldwide. In North America, 62% have their Security+, the most of any region.

Project management

The top two project management certifications in North America are PMP® (57%) and Certified ScrumMaster (29%). In other regions, PRINCE2 Foundation is far more popular, ranking first in EMEA and second in Asia-Pacific.

AWS

The most commonly held AWS certifications by AWS-certified professionals are:

- AWS Certified Solutions Architect – Associate - 72%
- AWS Certified Developer – Associate - 33%
- AWS Certified SysOps Administrator – Associate - 24%
- AWS Certified Solutions Architect – Professional - 16%

The same AWS certifications have similar percentages across all regions. AWS Certified Cloud Practitioner is another popular credential that cracked the top five in most regions.

Google Cloud

Google Cloud's most popular certifications were the same across all regions:

- GCP Cloud Architect
- GCP Data Engineer
- GCP Associate Engineer

Microsoft

Microsoft certifications are held by 16% of survey respondents. The retired Microsoft Certified Professional (MCP) and Microsoft Certified Trainer (MCT) were two of the most popular certifications in this category. MCSE: Server Infrastructure is held by 20% of Microsoft-certified professionals in North America, followed closely by MCSA: Windows Server 2008 (19%) and MCSA: Windows Server 2012 (17%).

Cisco

Cisco certifications are held by 16% of all IT professionals. Similar to 2018, CCNA Routing and Switching is the most commonly-held Cisco certification worldwide. Cisco-certified staff are most often certified in:

- CCNA Routing and Switching - 71%
- CCNP Routing and Switching - 33%
- CCNA Security - 18%
- CCENT: Cisco Certified Entry Networking Technician - 15%
- CCDA: Cisco Certified Design Associate - 13%

MOST POPULAR CERTIFICATIONS

Citrix

The top five Citrix certifications for Citrix-certified professionals in North America are:

- Citrix Certified Associate - Virtualization (CCA-V) - 53%
- Citrix Certified Associate - Networking (CCA-N) - 32%
- Citrix Certified Professional - Virtualization (CCP-V) - 32%
- Citrix Certified Expert - Virtualization (CCE-V) - 28%
- Citrix Certified Professional - Networking (CCP-N) - 25%

VMware

VMware Certified Associate 6 - Data Center Virtualization (VCA6-DCV) is held by over 27% of VMware-certified professionals in North America, Asia-Pacific and Latin America. In EMEA, the most common VMware certification is VMware Certified Professional 5 - Data Center Virtualization (VCP5-DCV).

Red Hat

The most popular North American Red Hat certifications for Red Hat professionals are:

- Certified System Administrator - 33%
- LPIC-1 - 26%
- Certified Engineer - 18%
- Linux Essentials - 18%

CROSS-CERTIFICATION

In North America, average salaries jump over two percent with each certification earned. The increases are slightly smaller in other regions, but the results follow a similar trend—the more certifications earned, the higher the salary.

As IT professionals pursue more certifications, many seek to cross-certify and earn multiple certifications in different categories. Essentially, those looking to cross-certify are also looking to expand their skills across various technologies. In doing so, there's a strong chance their salaries will increase as well.

Cross-certifying with an AWS certification is universally a great way to boost salary. The average Cisco-certified professional in North America earns $101,533 a year. When those same Cisco professionals add an AWS certification to their resume, their salaries increase by over $10,000 a year.

Microsoft-certified professionals earn $104,127. Those that cross-certify in AWS see an average boost in salary to $111,848.

BENEFITS OF CROSS-CERTIFYING WITH AWS

Certification	Average Salary	Average with AWS Certification
Cisco	$101,533	$111,869
Citrix	$109,456	$121,885
CompTIA	$93,097	$103,542
ITIL and IT service management	$113,723	$119,191
Microsoft	$104,127	$111,848
Red Hat / Linux	$113,165	$125,718
VMware	$113,233	$123,610

Cross-certifying with an ISACA certification can also result in a nice salary bump. AWS-certified professionals who are also certified in ISACA enjoy a 24% salary bump. Similar salary bumps exist for ISACA professionals who cross-certify in CompTIA (31%), Cisco (23%) and Microsoft (21%). Cybersecurity certifications traditionally pay well, but ISACA certifications in general are highly sought in the industry and are typically associated with some of the highest-paying IT salaries.

Certification Resources

Clearly the value of becoming certified has positive impacts on both the organization and one's career. We have a collection of resources to help you navigate your own certification journey.

If you're starting your journey, read How to Select the Right Certification for You.

If you've decided to get certified but want to ensure you select a proven certification with staying power, check out 18 Certifications Worth Having.

Certification Tracks

Certification tracks provide easy-to-follow roadmaps of the steps and courses you need to take as you pursue a certification.

Certifications take a lot of time and energy, so before you embark on your journey, make sure you're fully aware of the courses and exam prep available, and what's required or optional.

- AWS
  - Check out our AWS Cert Prep Toolkits
- Business Analysis
- Cisco
  - Learn about the certification changes coming in 2020 at www.globalknowledge.com/ciscocerts2020
- Google Cloud
- ITIL®

- Microsoft
- Microsoft Azure
- Project Management
- Red Hat
  - Enterprise Linux
  - Jboss Middleware
  - OpenStack
- VMware

Certification Prep Guides

These "How to Become a" certification prep guides highlight the critical knowledge, skills and abilities you need to achieve each certification. Download them for free.

- Microsoft Certified Azure Administrator Associate
- Microsoft Certified Azure Developer Associate
- Microsoft Certified Azure Solutions Architect Expert
- Google Certified Professional Cloud Architect
- Google Certified Professional Data Engineer

- AWS Certified Architect
- AWS Certified SysOps Administrator
- Project Management Professional
- Build an IT Career with CompTIA Certifications

Certification Exam Tips

- Six Certification Exam Mistakes to Avoid

- 10 Certification Exam Tips and Tricks from the Experts

"Chance favors only the prepared mind."

- Louis Pasteur

Conclusion

Salaries are up across IT and around the globe. While the same percentage of IT professionals received a raise this year compared to 2018, the percentage of that raise was up in every region. It's certainly a good time to start—or expand—your career in IT.

But this report isn't just about salaries. The top-paying jobs, industries and certifications are associated with high salaries for a reason—those are the skills most coveted (and most needed) in IT departments. Cloud computing jobs generally pay well because cloud skills are in high demand and decision-makers can't fill cloud positions quickly enough. Specifically, cloud architect is where the big money is—the top two highest-paying certifications in the world revolve around this job role.

Cybersecurity certifications are the most popular worldwide because hackers are becoming more sophisticated in their attacks. These are the critical skills needed in every organization.

Another trend to note is that certifications don't seem to be as important to North American IT professionals compared to all other regions. Only 81% of North American respondents are certified, which is down four percent from a year ago. With the salary and performance benefits of certification, IT professionals should be constantly looking to upgrade their skills and if they're not currently pursing a certification, they should have one in their near-term plans.

Certifications aren't just about adding a gold star to your resume. The skills and knowledge gained through proper certification prep is exactly what IT departments need right now. Skills gaps are harming organizations and the best antidote is upskilled employees. Preparing for a certification is one of the best ways to add the critical skills that IT departments need right now.

SURVEY METHODOLOGY

The 2019 IT Skills and Salary Survey was conducted online from September 2018 through November 2018, using the Qualtrics Insight Platform.

Global Knowledge and partner companies and organizations emailed survey invitations to recipients from their databases. Links were also provided in online newsletters. The survey yielded 12,271 completed responses, with 54% coming from the United States and Canada and the remainder from countries around the world. The online survey was tabulated using IBM SPSS and Q Research software.
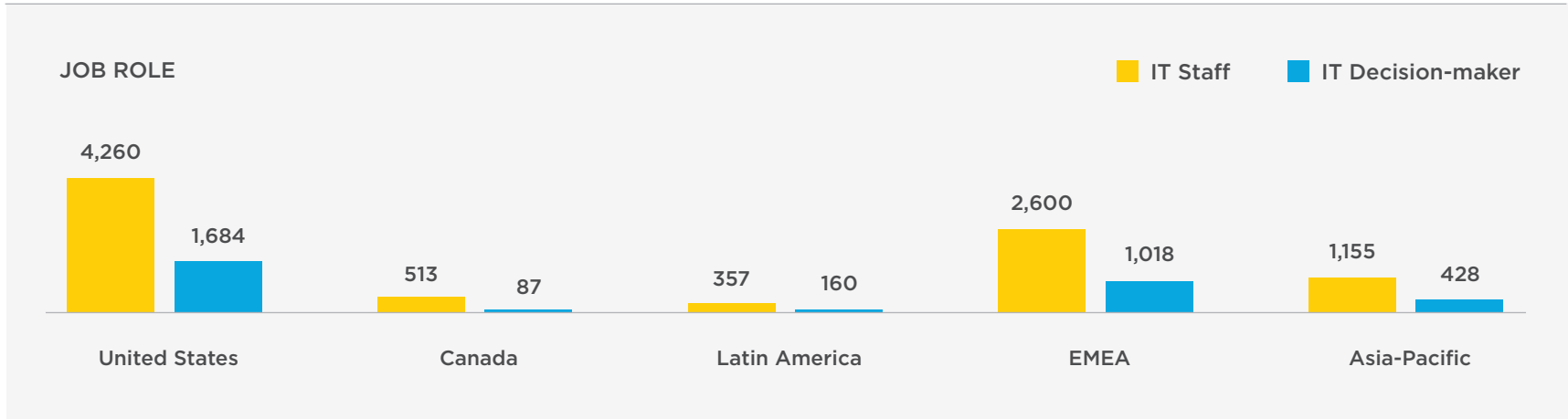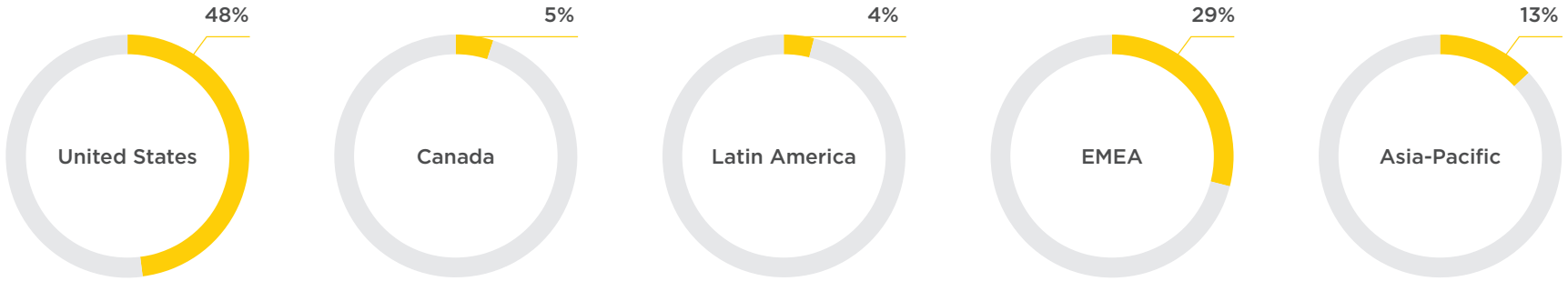
THANKS TO OUR PARTNERS

Global Knowledge extends a special thank you to our partners for helping make this year's survey possible:
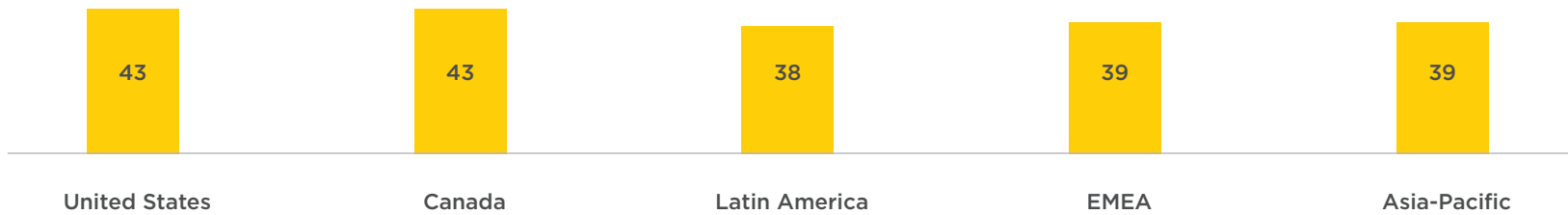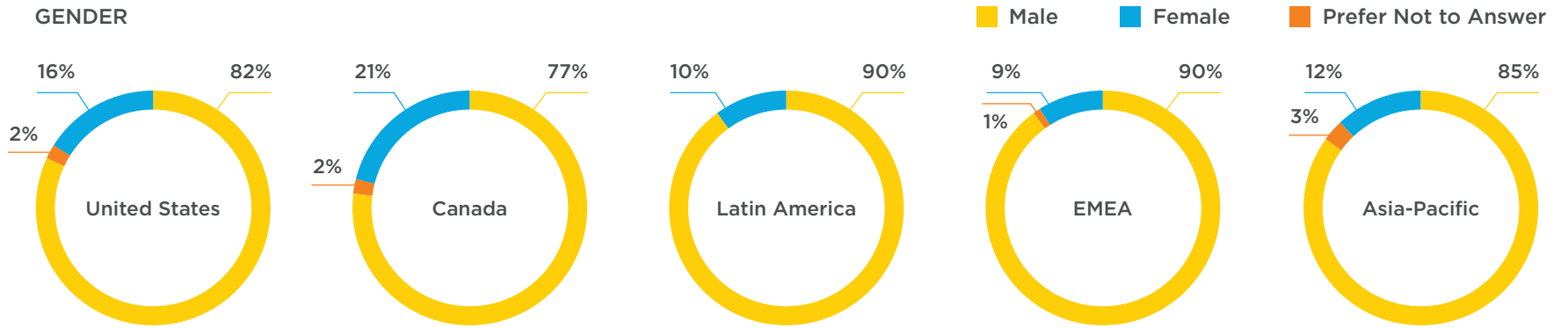
DEMOGRAPHICS

RESIDING COUNTRY OR REGION

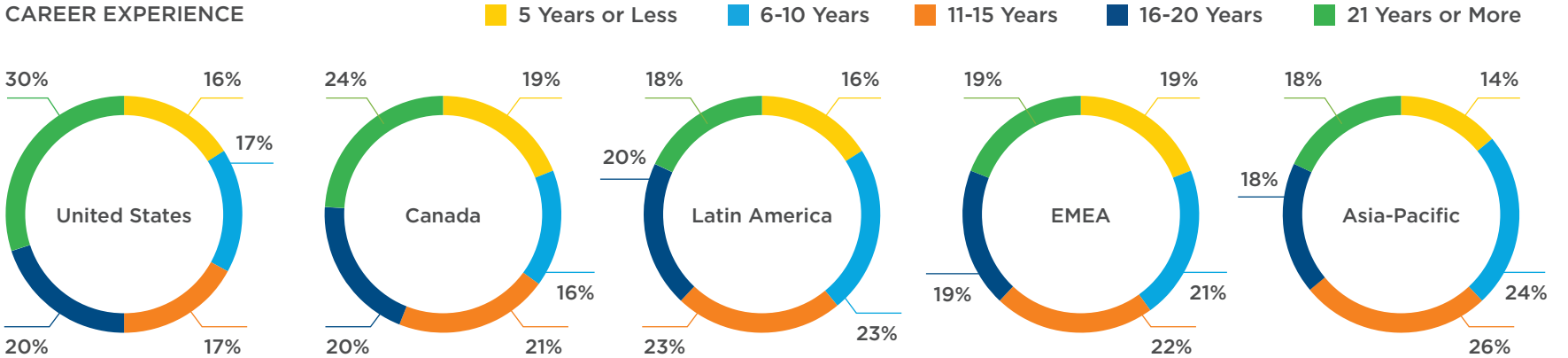| United States	Canada	Latin America	EMEA	Asia-Pacific
48%	5%	4%	29%	13%

JOB ROLE

Legend: 🟨 IT Staff 🟦 IT Decision-maker

	United States	Canada	Latin America	EMEA	Asia-Pacific
IT Staff	4,260	513	357	2,600	1,155
IT Decision-maker	1,684	87	160	1,018	428

AVERAGE AGE

United States	Canada	Latin America	EMEA	Asia-Pacific
43	43	38	39	39

DEMOGRAPHICS

GENDER

Legend: ■ Male ■ Female ■ Prefer Not to Answer

United States — 82% Male, 16% Female, 2% Prefer Not to Answer

Canada — 77% Male, 21% Female, 2% Prefer Not to Answer

Latin America — 90% Male, 10% Female

EMEA — 90% Male, 9% Female, 1% Prefer Not to Answer

Asia-Pacific — 85% Male, 12% Female, 3% Prefer Not to Answer

CAREER EXPERIENCE

Legend: ■ 5 Years or Less ■ 6-10 Years ■ 11-15 Years ■ 16-20 Years ■ 21 Years or More

United States — 16% (5 Years or Less), 17% (6-10 Years), 17% (11-15 Years), 20% (16-20 Years), 30% (21 Years or More)

Canada — 19% (5 Years or Less), 21% (6-10 Years), 16% (11-15 Years), 20% (16-20 Years), 24% (21 Years or More)

Latin America — 16% (5 Years or Less), 23% (6-10 Years), 23% (11-15 Years), 20% (16-20 Years), 18% (21 Years or More)

EMEA — 19% (5 Years or Less), 21% (6-10 Years), 22% (11-15 Years), 19% (16-20 Years), 19% (21 Years or More)

Asia-Pacific — 14% (5 Years or Less), 24% (6-10 Years), 26% (11-15 Years), 18% (16-20 Years), 18% (21 Years or More)

COLLEGE DEGREE

Legend: ■ Yes ■ No

United States — 91% Yes, 9% No

Canada — 78% Yes, 22% No

Latin America — 93% Yes, 7% No

EMEA — 84% Yes, 16% No

Asia-Pacific — 94% Yes, 6% No

About Global Knowledge

Global Knowledge builds skills that enable success.

Global Knowledge is the worldwide leader in IT and professional training, helping develop the skills individuals and organizations need to succeed in the ever-changing world. To meet customer needs, Global Knowledge is located in 15 countries, and has the unique flexibility to deliver a broad portfolio of courses in over 100 countries in classrooms, online, and through a worldwide partner network.

Since 1995, Global Knowledge employees and its award-winning subject matter expert instructors have been committed to enabling the success of more than 230,000 professionals each year.

www.globalknowledge.com

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2019 IT Skills and Salary Report

IT Decision-Maker Insights

Global Knowledge®

Table of Contents

Introduction

Welcome to the Global Knowledge 2019 IT Skills and Salary Report. It is the largest worldwide study of professionals in the technology community and has been conducted annually for over a decade.

Throughout the report, you'll find the data broken up by region: North America; Latin America; Europe, the Middle East and Africa (EMEA); and the Asia-Pacific region.

IT professionals, human resources and industry leaders use this report as a guide for salaries, in-demand certifications, tech priority areas, skills gaps, professional development, job satisfaction, and future outlooks in IT.

Traditionally, we have combined all areas of study into one report, but this year we're breaking it up into smaller reports so we can dig deeper into each topic.

HOW TO USE THE IT DECISION-MAKER INSIGHTS REPORT

The IT decision-maker data helps answer questions, such as:

- What are the biggest challenges facing IT leaders?
- Have skills gaps continued to rise?
- What are the causes and impacts of skills gaps?
- How likely are IT decision-makers to authorize training for their teams?
- How much value do IT decision-makers assign to certified employees?

PRIMARY FINDINGS

Skills gaps pose a huge risk
IT decision-makers report a rise in skills gaps for the third straight year. Nearly 80% worldwide say their teams lack necessary skills. And these gaps have serious consequences, such as increased stress on employees and missed project and product goals for organizations.

Hiring isn't a viable solution
IT leaders who find themselves in dire need of upskilled personnel are finding that they are unable to hire their way out of the problem. The biggest challenge according to decision-makers is their inability to attract qualified candidates. The most difficult hiring areas are cybersecurity and cloud computing.

Not all IT decision-makers authorize training
Only 59% of IT decision-makers approved training in the past year, even as their organizations provided formal training opportunities. The absence of training support is puzzling, considering a lack of training investment is a leading cause of skills gaps.

Certification matters
Ninety-three percent of IT decision-makers believe that certified employees bring value to the organization above and beyond the cost of certification. A majority of managers who authorized training last year did so to prepare their teams for certification or recertification. Certified personnel are better at their jobs, and the value is undeniable.

THIS YEAR'S REPORTS

PART 1
Salary and certifications
Released July 9. Download it for free.

PART 2
IT decision-maker insights

PART 3
Professional development and job satisfaction

PART 4
Looking forward

IT Decision-Makers

IT decision-makers guide the use of resources to meet organizational needs. To ensure success, they must address challenges such as skills gaps, budget constraints, hiring and professional development.

In this year's IT Skills and Salary Report, more than one out of four respondents (28% or 3,377 IT professionals) hold some degree of managerial responsibility over IT efforts.

Most surveyed decision-makers oversee smaller teams, as 73% manage a workforce of 10 or fewer employees. Only four percent manage teams of 100 or more.
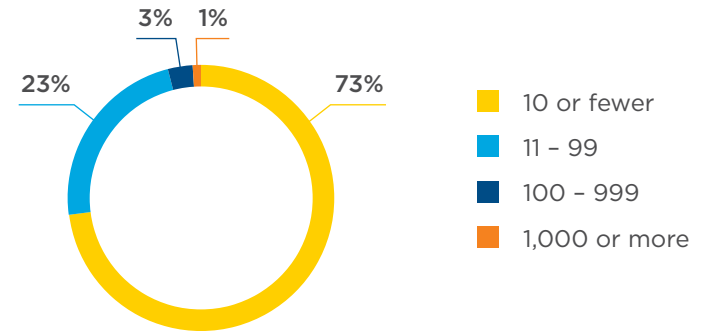
KEY CHALLENGES

IT leaders routinely confront obstacles that impede their ability to achieve organizational goals. Over the past few years, this report has illuminated the main challenges facing decision-makers, most notably rising skills gaps, shrinking IT budgets and a lack of qualified talent.

Recruitment and retention are the top challenges in 2019, with 50% of IT decision-makers struggling to fill their teams with skilled professionals. Resource and budget constraints are the next most pressing issues, faced by 49% of respondents.

Thirty-nine percent of decision-makers struggle to develop stronger teams.

SIZE OF IT WORKFORCE MANAGED

3% 1%
23%
73%

- 10 or fewer
- 11 – 99
- 100 – 999
- 1,000 or more

KEY CHALLENGES FOR IT LEADERS

Challenge	Percentage
Talent recruitment and retention	50%
Resource and budget constraints	49%
Executing with urgency and excellence	40%
Innovation and change management	39%
Developing stronger teams	39%
Organizational alignment	38%
Cultural and generational dynamics	28%
None	4%

Recruitment and retention are the top challenges in 2019, with 50% of IT decision-makers struggling to fill their teams with skilled professionals.

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IT DEPARTMENT BUDGETS

Not all IT decision-makers manage a budget, but for those who do, there is a large discrepancy in budget size. For those who have a budget, 33% are allotted less than $250,000 annually, while 29% have budgets of $3 million or more. For purposes of this survey, salaries are excluded from budgets.

Budget size is often reflective of team size. Sixty percent of managers who have the smallest budgets manage 10 or fewer employees.

While financial restrictions remain a key challenge for IT leaders, many are optimistic about their 2019 budget.

In North America, 52% of IT decision-makers expect a budget increase this year. In Asia-Pacific, that number rises to 56%. These are the highest numbers in three years, and if true, will certainly reduce resource and financial constraints moving forward.

Globally, 17% of decision-makers expect a budget decrease.

ANNUAL IT BUDGET (EXCLUDING SALARIES)

9%
13%
33%
16%
29%
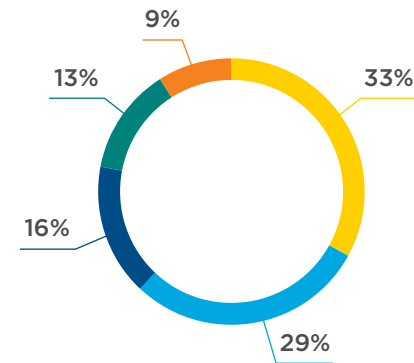
- Up to $249,999
- $250,000 – $499,999
- $500,000 – $999,999
- $1 million – $2.9 million
- $3 million+

FORECASTED IT BUDGET CHANGE (EXCLUDING SALARIES)

	NORTH AMERICA			LATIN AMERICA			EMEA			ASIA-PACIFIC		
	2019	**2018**	**2017**	**2019**	**2018**	**2017**	**2019**	**2018**	**2017**	**2019**	**2018**	**2017**
Increase	52%	41%	39%	49%	44%	44%	46%	36%	32%	56%	41%	47%
Decrease	17%	23%	22%	16%	27%	29%	18%	25%	28%	17%	22%	22%
No Change	31%	35%	39%	35%	29%	27%	35%	39%	40%	27%	36%	31%

SKILLS GAPS

The most ominous trend in our IT Skills and Salary Report is in regard to skills. IT decision-makers have told us in recent years that they are struggling to ensure their teams have the skills needed to meet organizational goals. Unfortunately, that struggle is only getting worse.

Since 2016, skills gaps have more than doubled. While only 31% of decision-makers experienced a lack of necessary skills in 2016, 79% worldwide face skills gaps today.

REPORTING CURRENT SKILLS GAPS

■ 2019   ■ 2018   ■ 2017
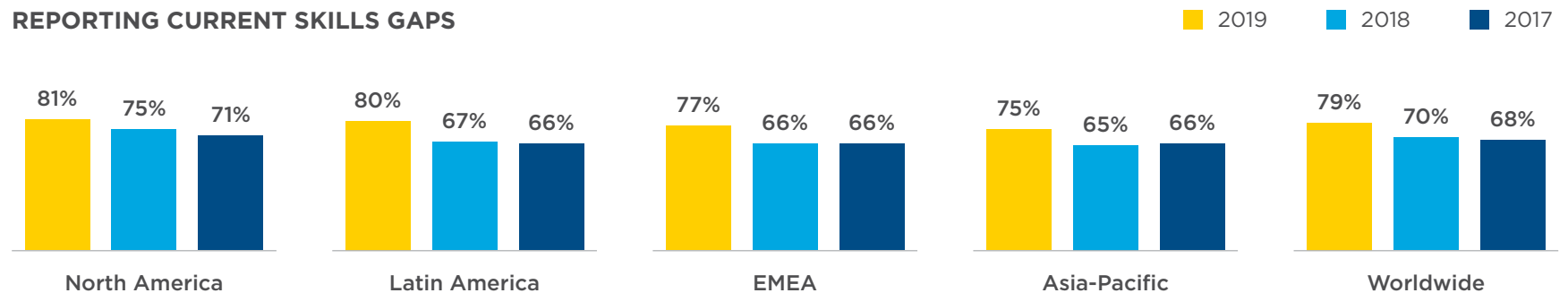
North America decision-makers report the highest percentage of skills gaps (81%), while Latin America (80%), EMEA (77%) and Asia-Pacific (75%) follow closely behind. All regions report more skills gaps this year compared to last.

Is there an end in sight? IT decision-makers aren't so optimistic, with 68% anticipating new skills gaps to form in the next two years.

What is causing the IT skills shortage?

It's difficult to pinpoint a single reason for the current IT skills shortage. Even decision-makers seem split on the cause, which suggests that a number of factors are at play.

The number one reason for skills gaps is difficulty attracting job candidates with relevant expertise. Managers who have expected to hire their way out of their skills problems have faced a tough reality the past few years—there just aren't enough qualified applicants.
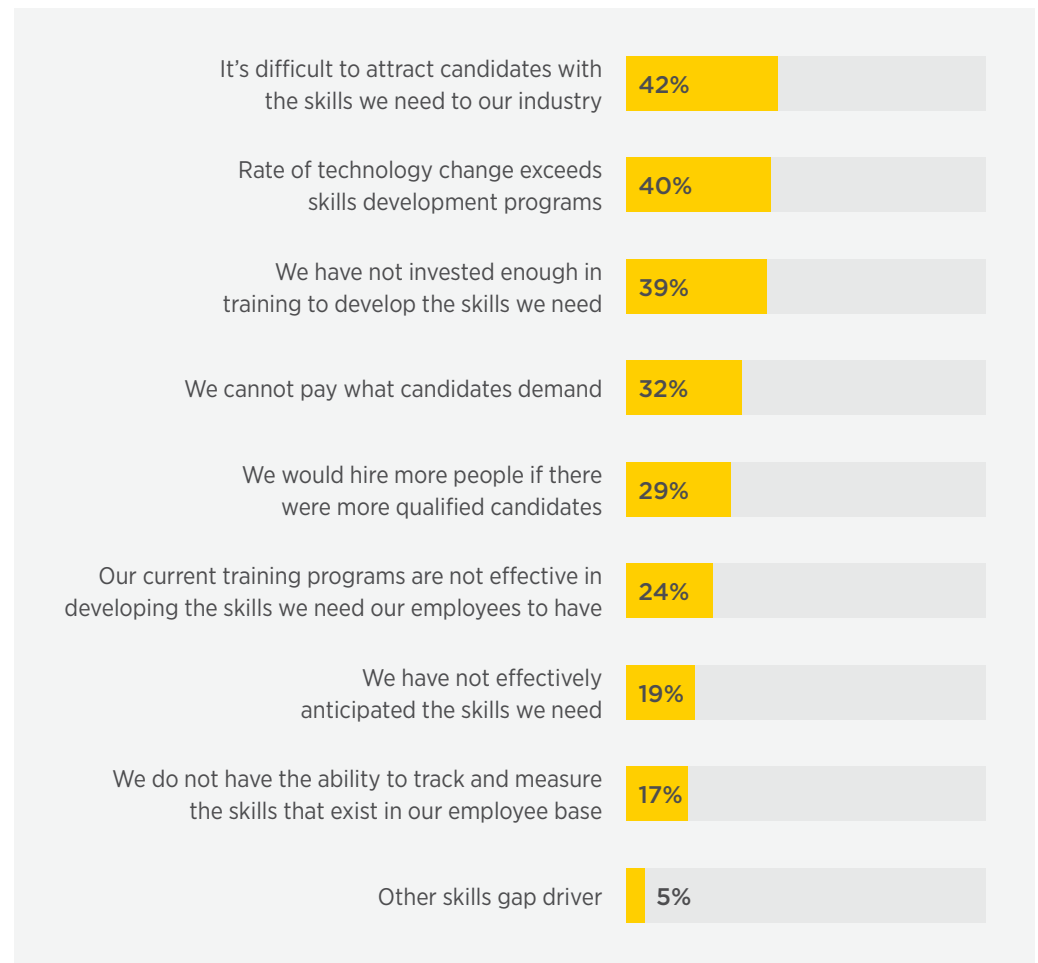
The second most likely cause of skills gaps is the rate of technological change. IT professionals struggle to keep pace—they can't train quickly enough. With that in mind, 39% of decision-makers attribute skills gaps to a lack of training investment. This number is in line with last year's report, which means not much has been done to increase funding for professional development.

Cost of skills gaps

Seventy-six percent of IT leaders say that skills gaps pose a high or medium risk to business objectives. This risk comes in many forms—delays, loss of revenue, employee stress, loss of business to competitors, etc.

Regardless of cause, there's no doubt that skills gaps have severe consequences. Research from the International Data Corporation (IDC) suggests that by 2020, 90% of all organizations will have adjusted

REASONS BEHIND SKILLS GAPS

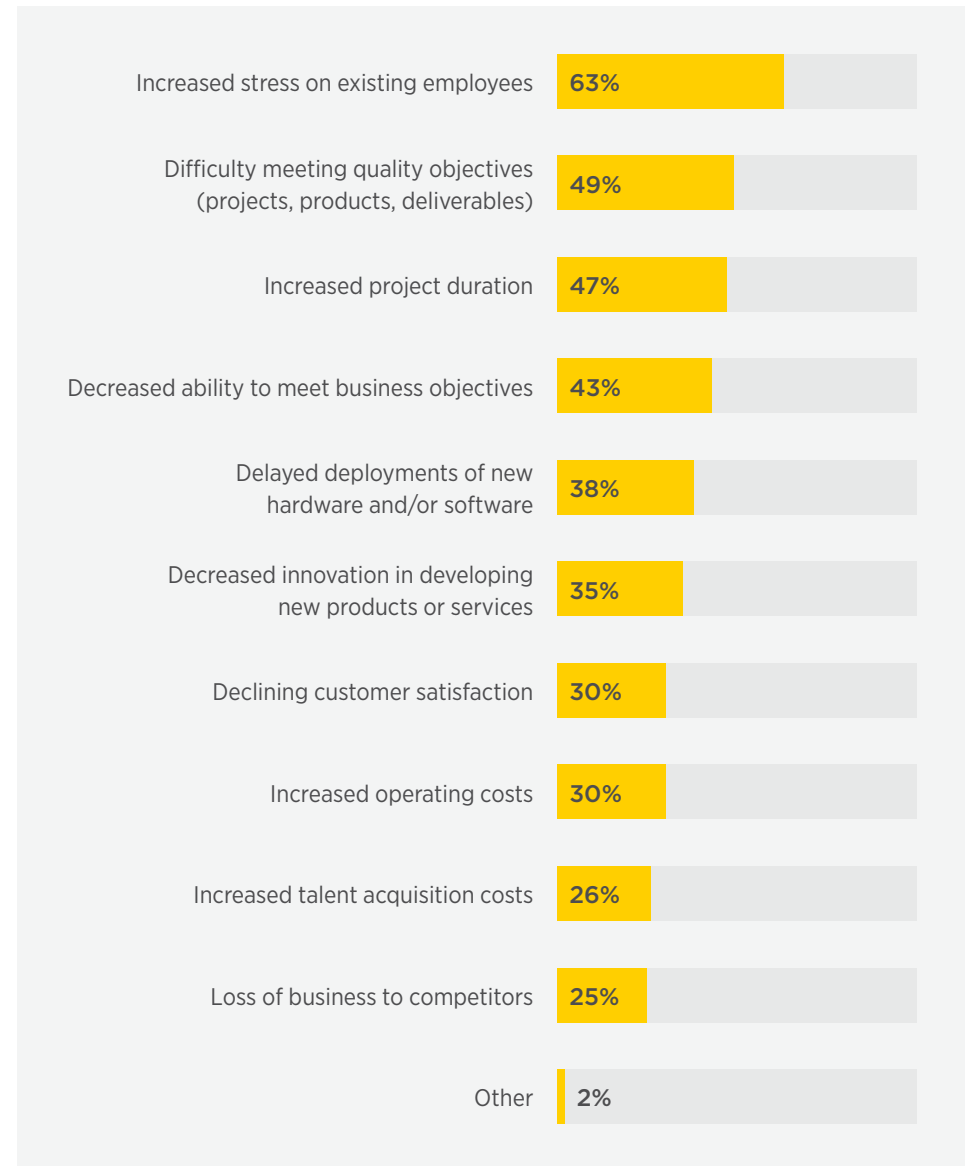| Reason	Percentage
It's difficult to attract candidates with the skills we need to our industry	42%
Rate of technology change exceeds skills development programs	40%
We have not invested enough in training to develop the skills we need	39%
We cannot pay what candidates demand	32%
We would hire more people if there were more qualified candidates	29%
Our current training programs are not effective in developing the skills we need our employees to have	24%
We have not effectively anticipated the skills we need	19%
We do not have the ability to track and measure the skills that exist in our employee base	17%
Other skills gap driver	5%

project plans, delayed product and service releases, incurred costs or lost revenue because of a lack of IT skills. IDC estimates that these losses worldwide will total $390 billion annually.[1]

In terms of productivity, 60% of IT decision-makers believe that skills gaps cost their employees between three and eight hours per week. Extrapolate that out and IT departments could be losing up to 416 hours per employee, per year, to skills gaps. With the average North American IT salary at $109,985, we're talking over $22,000 lost in salary per employee. Add in the opportunity costs of not training your people to overcome business challenges and it's even more substantial.

According to IT decision-makers, skills gaps will cost employers up to 416 hours and over $22,000 per employee, per year.

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IMPACT OF SKILLS GAPS ON THE ORGANIZATION

Increased stress on existing employees	63%
Difficulty meeting quality objectives (projects, products, deliverables)	49%
Increased project duration	47%
Decreased ability to meet business objectives	43%
Delayed deployments of new hardware and/or software	38%
Decreased innovation in developing new products or services	35%
Declining customer satisfaction	30%
Increased operating costs	30%
Increased talent acquisition costs	26%
Loss of business to competitors	25%
Other	2%

HIRING

For the fourth year in a row, IT decision-makers report having the most difficult time finding qualified cybersecurity talent. Thirty-eight percent of worldwide decision-makers struggle to hire the cybersecurity professionals they need. This skews up to 48% in Asia-Pacific, but remains relatively consistent across all other regions.

Cloud computing professionals are also in high demand, rising from 29% to 34% in one year. Decision-makers in Latin America are actually having a tougher time hiring cloud professionals than those in cybersecurity.

Hiring, in general, has been a thorn in decision-makers' sides of late. Nearly 70% say that hiring has been somewhat or extremely difficult. Only seven percent say that hiring is easy.

TOP 10 CHALLENGE AREAS FOR FINDING QUALIFIED TALENT

Challenge Area	North America	Latin America	EMEA	Asia-Pacific	Worldwide
Cybersecurity	37%	38%	37%	48%	38%
Cloud Computing	34%	39%	34%	31%	34%
DevOps	24%	23%	25%	20%	24%
Systems and Solutions Architects	21%	13%	21%	17%	20%
Analytics and Big Data	19%	21%	20%	23%	20%
Application Development	20%	13%	19%	12%	19%
Leadership and Management	17%	18%	18%	21%	18%
Artificial Intelligence and Machine Learning	14%	21%	19%	27%	18%
Systems Engineering	17%	11%	16%	8%	15%
Networking and Wireless	15%	21%	16%	12%	15%

THE VALUE OF TRAINING IN ORGANIZATIONAL SUCCESS

Fifty-eight percent of IT decision-makers say their organizations offer formal training for technical employees. This number is down one percent from last year.

Those that offer formal training report fewer skills gaps and greater productivity. But not all decision-makers are taking advantage of training opportunities for their staff. Even when formal training was provided by the company, only 59% of decision-makers authorized it. When formal training is available, managers need to do everything in their power to ensure employees have the opportunity to build necessary skills.

Workload is often an excuse we hear as to why training isn't authorized—IT decision-makers think they can't afford to have employees away from their desks taking a course. But think about the productivity lost due to skills gaps. If IT decision-makers don't make room for training now, they'll pay for it later in the form of lost revenue and production, and possibly employees leaving for other jobs. Investing in their staff shows a commitment that may ease stress levels and help retain top talent.

There is a significant difference in the cost of training versus cost of replacing an employee. IT leaders have told us how difficult it is to find qualified staff. But even if you do find a suitable job candidate, you've lost time to hiring and onboarding. This is just another example of how a training investment in current staff is less of a financial burden than hiring, and subsequently training, new employees.

Need help managing your training? [Download our free training planner](#).

THE VALUE OF CERTIFICATION

For the IT decision-makers who authorized training in the past 12 months, 67% did so to prepare their team members for certification or recertification.

Certification value is undeniable—93% of decision-makers around the world agree that certified employees provide added value above and beyond the cost of certification.

The main benefit of certified personnel is their ability to close organizational skills gaps—over half of all IT decision-makers said this was an advantage. Certified professionals are also better at meeting client requirements, increasing productivity, reducing time to troubleshoot, and completing projects more quickly.

BENEFITS FROM CERTIFIED PERSONNEL

Benefit	North America	Latin America	EMEA	Asia-Pacific	Worldwide
Closes organizational skill gaps	56%	39%	46%	54%	52%
Meets client requirements	44%	61%	55%	46%	49%
Boosts productivity	48%	34%	48%	51%	48%
Troubleshooting issues takes less time	43%	39%	37%	38%	40%
Projects are completed faster	38%	46%	40%	37%	39%
Gives us an edge over competitors	34%	41%	45%	36%	38%
Reduces employee turnover	36%	39%	29%	21%	31%
Products and services are deployed quicker	26%	24%	26%	20%	24%
Makes hiring easier	17%	20%	17%	9%	16%

When asked to estimate the economic benefit of certified employees versus their non-certified peers, 63% said it exceeds $10,000 a year. Twenty-two percent placed the number above $30,000.

The skills gained in certification prep provide a tremendous amount of value to teams and organizations. If budget is the main reason to not authorize certification training, IT decision-makers need to understand that certified employees will more than make up for the investment.

Resources to help you certify and recertify your team
Certifications require investments of time, money and mental focus. Make sure you and your team aren't wasting them. Global Knowledge centralizes certification resources so you don't have to search.

• How to Select the Right Certification for You

• IT Certifications: 5 New Realities

• Certification Prep Guides

ESTIMATED ANNUAL ECONOMIC BENEFIT CERTIFIED EMPLOYEES BRING TO THE ORGANIZATION

22%

41%

38%

■ Up to $9,999
■ $10,000 – $29,999
■ $30,000+
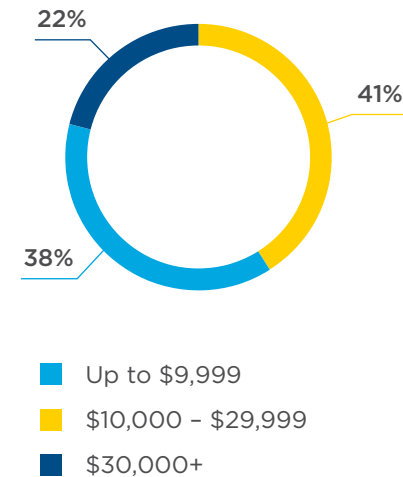
Sixty-three percent of IT decision-makers say the economic benefit of certified employees exceeds $10,000 a year.

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Conclusion

Forty-two percent of organizations do not allocate funds for training. Simply put, IT decision-makers need better support. How can they realistically be expected to drive organizational success when their employees have to fend for themselves to upgrade their skills? Free, informal training resources only go so far. Formal training needs to be prioritized.

At the same time, IT decision-makers must authorize training when it's built into their budgets. According to our report, 41% of decision-makers who had formal training available for their teams decided to forgo it. You can't object to a lack of training investment when you are leaving skill-building opportunities on the table.

A cost-effective way to eliminate skills gaps is to train existing staff. Buying skills isn't always a realistic solution, plus it can be more expensive. IT decision-makers are also struggling to hire qualified talent, especially in high-demand fields like cybersecurity and cloud computing. Decision-makers should always be focusing on building the skills of the employees they already have. This type of investment will chip away at skills shortages and show team members that the organization supports their professional development.

If our surveyed decision-makers are correct in their hypotheses, IT budgets should gradually increase in 2019. That means more training should be authorized this year. An overwhelming majority of managers support certifications and their added value. They know that the cost of certification and certification training will be less than the value a certified employee adds to the organization.

IT decision-makers face a host of daily challenges, including identifying skills needs, managing personalities, balancing budgets and pushing their teams to innovate. It's an awful lot of pressure, especially when skills gaps are delaying organizations from seizing market opportunities. It all starts with an investment in skill-building. Organizations must support the decision-maker, and decision-makers must in turn support their teams. If the last three years are any indication, skills gaps aren't going away on their own. They must be attacked head on with the appropriate training.

RESOURCES

- IT Skills and Salary Report Resource Hub
- How to Convince Your Manager of the Benefits of Training
- Mind the Gap: Six Steps to a Highly-Skilled Workforce free eBook
- The 10 Most Important IT Skills for 2019

SURVEY METHODOLOGY

The 2019 IT Skills and Salary Survey was conducted online from September 2018 through November 2018, using the Qualtrics Insight Platform.

Global Knowledge and partner companies and organizations emailed survey invitations to recipients from their databases. Links were also provided in online newsletters. The survey yielded 12,271 completed responses, with 54% coming from the United States and Canada and the remainder from countries around the world. The online survey was tabulated using IBM SPSS and Q Research software.
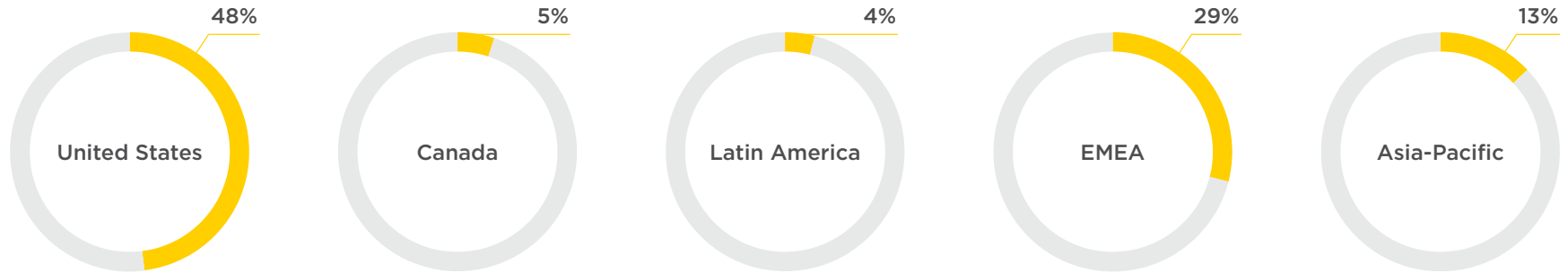
THANKS TO OUR PARTNERS

Global Knowledge extends a special thank you to our partners for helping make this year's survey possible:
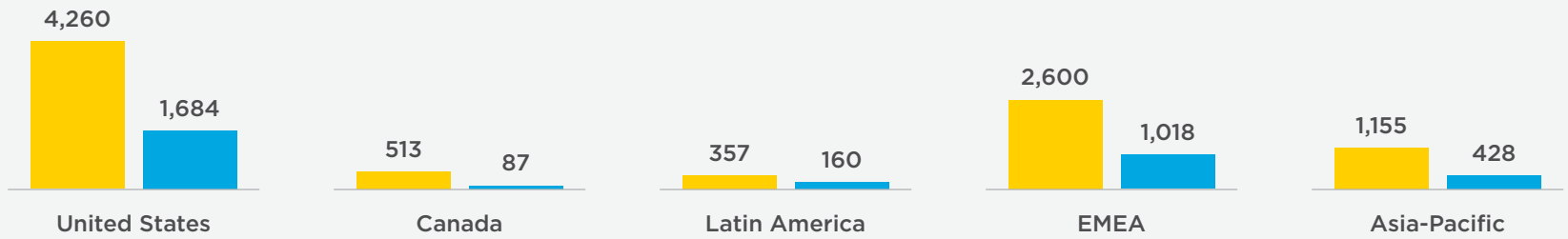
RESIDING COUNTRY OR REGION

48%	5%	4%	29%	13%
United States	Canada	Latin America	EMEA	Asia-Pacific

JOB ROLE

■ IT Staff   ■ IT Decision-maker

	United States	Canada	Latin America	EMEA	Asia-Pacific
IT Staff	4,260	513	357	2,600	1,155
IT Decision-maker	1,684	87	160	1,018	428

AVERAGE AGE

United States	Canada	Latin America	EMEA	Asia-Pacific
43	43	38	39	39

DEMOGRAPHICS

GENDER

Legend: ■ Male ■ Female ■ Prefer Not to Answer

United States
- 82% Male
- 16% Female
- 2% Prefer Not to Answer

Canada
- 77% Male
- 21% Female
- 2% Prefer Not to Answer

Latin America
- 90% Male
- 10% Female

EMEA
- 90% Male
- 9% Female
- 1% Prefer Not to Answer

Asia-Pacific
- 85% Male
- 12% Female
- 3% Prefer Not to Answer

CAREER EXPERIENCE

Legend: ■ 5 Years or Less ■ 6-10 Years ■ 11-15 Years ■ 16-20 Years ■ 21 Years or More

United States
- 16% 5 Years or Less
- 17% 6-10 Years
- 17% 11-15 Years
- 20% 16-20 Years
- 30% 21 Years or More

Canada
- 19% 5 Years or Less
- 16% 6-10 Years
- 21% 11-15 Years
- 20% 16-20 Years
- 24% 21 Years or More

Latin America
- 16% 5 Years or Less
- 23% 6-10 Years
- 23% 11-15 Years
- 20% 16-20 Years
- 18% 21 Years or More

EMEA
- 19% 5 Years or Less
- 21% 6-10 Years
- 22% 11-15 Years
- 19% 16-20 Years
- 19% 21 Years or More

Asia-Pacific
- 14% 5 Years or Less
- 24% 6-10 Years
- 26% 11-15 Years
- 18% 16-20 Years
- 18% 21 Years or More

COLLEGE DEGREE

Legend: ■ Yes ■ No

United States
- 91% Yes
- 9% No

Canada
- 78% Yes
- 22% No

Latin America
- 93% Yes
- 7% No

EMEA
- 84% Yes
- 16% No

Asia-Pacific
- 94% Yes
- 6% No

About Global Knowledge

Global Knowledge builds skills that enable success.

Global Knowledge is the worldwide leader in IT and professional training, helping develop the skills individuals and organizations need to succeed in the ever-changing world. To meet customer needs, Global Knowledge is located in 15 countries, and has the unique flexibility to deliver a broad portfolio of courses in over 100 countries in classrooms, online, and through a worldwide partner network.

Since 1995, Global Knowledge employees and its award-winning subject matter expert instructors have been committed to enabling the success of more than 230,000 professionals each year.

www.globalknowledge.com

MEDIA INQUIRIES

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2019 IT Skills and Salary Report

Professional Development and Job Satisfaction

Global Knowledge ®

Table of Contents

Introduction

Welcome to the Global Knowledge 2019 IT Skills and Salary Report. It is the largest worldwide study of professionals in the technology community and has been conducted annually for over a decade.

Throughout the report, you'll find the data broken up by region: North America; Latin America; Europe, the Middle East and Africa (EMEA); and the Asia-Pacific region.

IT professionals, human resources and industry leaders use this report as a guide for salaries, in-demand certifications, tech priority areas, skills gaps, professional development, job satisfaction, and future outlooks in IT.

Traditionally, we have combined all areas of study into one report, but this year we're breaking it up into smaller reports so we can dig deeper into each topic.

HOW TO USE THE PROFESSIONAL DEVELOPMENT AND JOB SATISFACTION REPORT

The professional development data answers the following questions:

- Are organizations taking into account employee training preferences?
- Why do IT professionals seek training?
- How do IT professionals prefer to learn?
- What are the main training inhibitors?

The job satisfaction data answers the following questions:

- How does job satisfaction impact employee turnover?
- Does training impact job satisfaction?
- What are the main reasons that IT professionals pursue alternative employment?

PRIMARY FINDINGS

IT pros train, with or without manager support
Eighty-five percent of IT professionals took some form of training this year, even though only 58% of organizations offered it. Our survey respondents face a major training roadblock in a lack of manager support.

Instructor-led training is most valuable
When given the option between classroom, on-demand, virtual or blended learning, almost 60% of survey respondents said classroom is their top choice.

Unsatisfied staff are more likely to leave
Over 90% of unsatisfied IT professionals are likely to pursue a new job this year. This spells trouble for management, as nearly 30% of worldwide IT professionals say they are at least somewhat dissatisfied with their job.

Growth is more important than salary
Two-thirds of IT professionals who changed employers in the last year were seeking better growth and development opportunities, not necessarily higher pay.

THIS YEAR'S REPORTS	
PART 1 Salary and certifications Released July 9. Download it for free.	**PART 3** Professional development and job satisfaction
PART 2 IT decision-maker insights Released Aug. 30. Download it for free.	**PART 4** Looking forward

Professional Development

Professional development includes formal and informal learning—everything from researching a topic online to attending an instructor-led training course. No matter their preferred learning methods, the Global Knowledge 2019 IT Skills and Salary Report makes it clear that IT professionals are eager to learn, and are continually searching for ways to build or enhance their skill set.

PREFERRED LEARNING METHODS

When it comes to formal versus informal learning, IT professionals favor a more structured approach. Two out of three survey respondents prefer formal training when it comes to work-related skill development. One-third prefers more impromptu, peer-to-peer learning in an unstructured setting.

It's also important to understand that professionals do not have to choose between one or the other. The most effective training strategy is a combination of formal and informal methods. All learning types have value, whether you're asking a colleague for help or attending a private group training. Just make sure you know what type of skill you're looking to add before you select your training.

The Way You Train Impacts Your Success
Your method of training should depend on how critical the needed skills are to your success. We've developed an index to help you select the right one.

Download the Global Knowledge Skills Development Index™.

FORMAL TRAINING

Instructor-led classroom training remains valuable and is a favorite amongst our survey respondents. When presented with four formal training options—Classroom, On-Demand, Virtual and Blended—nearly 60% of 8,194 IT professionals rank classroom training as their number one choice. On-demand is their second pick (18%), followed by blended (16%) and virtual (8%).

PREFERRED METHOD TO LEARN

33%   67%

- Formal (instructor-led, structured)
- Informal (peer-to-peer, impromptu, unstructured)
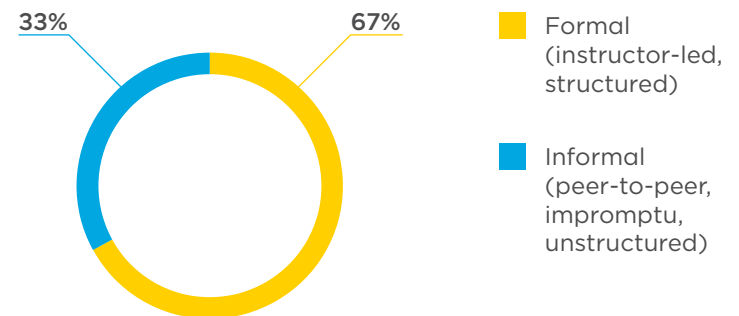
Classroom training is likely the top option for IT professionals because they deem it more effective than online or self-paced learning. Sixty-nine percent of respondents say classroom training is very or extremely effective, compared to 50% for on-demand courses.

Private Group Training, or onsite training, is also deemed valuable. Seventy percent of IT professionals say it's incredibly effective to have an expert lead a formal training session at their workplace.

We've found through customer conversations and post-class assessments that Private Group Training is particularly beneficial when it comes to high-priority or high-risk skills because it:

• Brings a subject matter expert to you

• Gathers a group of like colleagues together

• Helps the team coordinate

• Develops a common language around new terms

• Provides the freedom to openly discuss company-specific tech stacks, configurations, problems and more details you otherwise cannot talk about in a public setting

Even with the preference for instructor-led training, more IT professionals attended on-demand or e-learning sessions in the past year. This is due in large part to a lack of budget or management support for classroom training and ease of access.

And yet, 41% of IT professionals attended classroom training last year, up four percent from 2018. After a 10% drop in classroom attendance from 2016 to 2018, tech professionals are starting to realize that when critical skills are needed, instructor-led training is their best option.

Learn more about the link between skills and training type in our article, "Rising IT Skills Gaps Coincide with Drop in Instructor-Led Training Attendance."

41% of IT professionals attended classroom training last year, up from 31% in 2016. Tech professionals are starting to realize that when critical skills are needed, instructor-led training is their best option.

TWEET THIS →

TRAINING TYPES PARTICIPATED IN OR ATTENDED IN LAST 12 MONTHS

Training type	North America	Latin America	EMEA	Asia-Pacific	Worldwide
Web-based, on-demand session (self-paced e-learning session, subscription-based)	73%	70%	65%	63%	69%
Classroom (out-of-office) training session	39%	42%	45%	44%	41%
Informal training session at work (non-organized, impromptu, peer-to-peer)	43%	34%	40%	33%	40%
Live instructor-led online training session	29%	25%	21%	18%	25%
Formal training session at work (expert-led)	24%	22%	26%	26%	25%
None	7%	7%	8%	8%	7%
Other	2%	2%	2%	2%	2%

INFORMAL LEARNING

Informal learning is a key component of professional development. IT professionals have a wealth of informal options to help them build less critical skills and fill in knowledge gaps between formal trainings.

Researching a topic online is the preferred informal learning resource … and we all do it. An online search is the easiest and most efficient way to gain knowledge about a skill that may be adjacent to your key job functions. Sixty-nine percent of worldwide IT professionals and 75% of North American professionals researched a topic online in the past year.

Other popular informal learning resources are white papers, webinars and seminars/technical conferences.

LEARNING RESOURCES USED IN LAST 12 MONTHS

Training type	North America	Latin America	EMEA	Asia-Pacific	Worldwide
Researched a topic online	75%	57%	66%	53%	69%
Downloaded a white paper or technical guide	65%	65%	65%	56%	64%
Attended webinars	68%	66%	60%	53%	64%
Attended a seminar, luncheon or technical conference	61%	48%	58%	53%	59%
Read and/or contributed to a blog	43%	32%	40%	30%	40%
Joined an online community (e.g., Reddit, CNET)	29%	22%	22%	17%	25%
Posted to or followed someone on social media (e.g., Twitter, LinkedIn)	25%	23%	27%	18%	25%
Other	15%	13%	12%	9%	13%
None	2%	2%	2%	4%	3%

WHY PROFESSIONALS TRAIN

The short answer: skills. Globally, 85% of IT professionals took some form of training last year—79% of whom said their main reason was to "build new skills." The days of general skill-building and the IT "jack-of-all trades" are gone. IT departments seek professionals with specific and specialized skills, so more IT professionals are seeking specific and specialized training.

IT skills gaps are having wide-ranging impacts. As documented in our report on IT Decision-Maker Insights, nearly 80% of decision-makers say their teams lack necessary skills. This number is up from 31% in 2016, illustrating how widespread and debilitating skills gaps have become.

It's a misconception that IT professionals who train or get certified are only focused on salary, or worse, are one step out the door. Some professionals are driven by salary and train to prepare themselves for a job change, but a greater percentage are focused on attaining new certifications and learning new technologies. Managers need to set these fears aside and approve training for their teams.

REASONS TO TRAIN

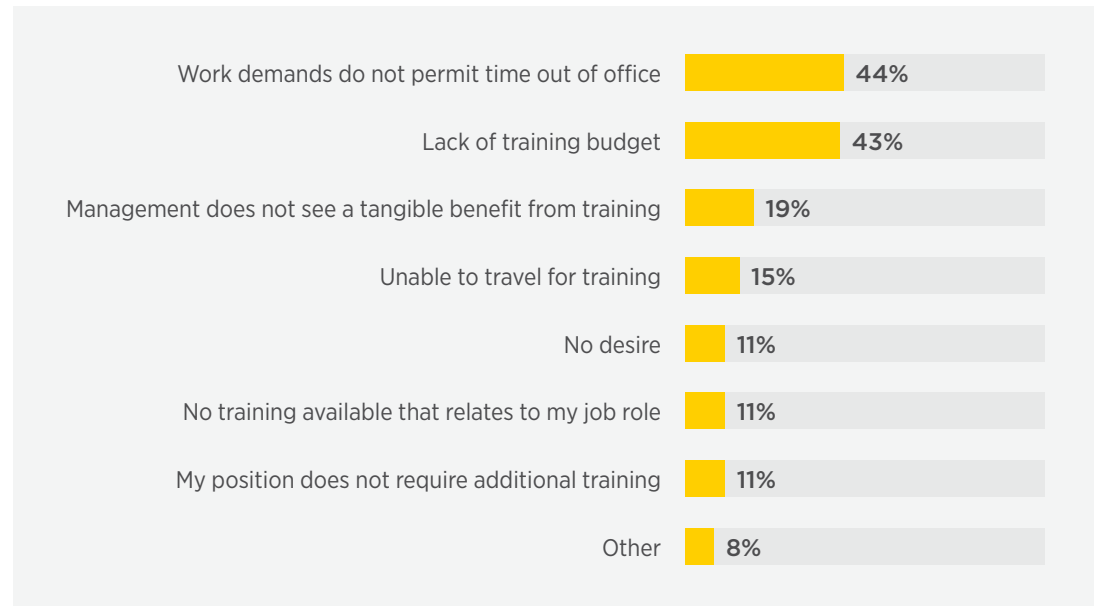| Reason	IT staff	IT decision-maker	Overall
Build new skills	81%	76%	79%
Prepare for a career certification or specialist exam	46%	40%	45%
Prepare organization for a new technology or product migration/deployment/upgrade	36%	44%	38%
Salary increase	36%	27%	34%
Prepare to qualify for a different job	35%	27%	33%
Meet employer's requirement	29%	25%	28%
Evaluate new technology and products for possible purchase	24%	33%	27%
Other	3%	3%	3%

Managers are asking employees to do more with less and not setting them up for success by improving their capabilities through skills development.

TWEET THIS →

Employees need to be set up for success. Fifty-eight percent of decision-makers said formal training is provided by their company. To make matters worse, only 59% authorized training even when it was available. These percentages are abysmal, especially considering the industry-wide spread of skills gaps. Managers are asking employees to do more with less and not setting them up for success by improving their capabilities through skills development. How does that make any sense?

The fact that 85% of worldwide tech professionals took some form of training last year shows the resilience of IT staff. They will seek training and professional development opportunities even with little or no support from their bosses or organization.

TRAINING INHIBITORS

Inhibitor	Percentage
Work demands do not permit time out of office	44%
Lack of training budget	43%
Management does not see a tangible benefit from training	19%
Unable to travel for training	15%
No desire	11%
No training available that relates to my job role	11%
My position does not require additional training	11%
Other	8%

In fact, lack of manager support is the third biggest training inhibitor. Almost half of respondents say that work demands and lack of a training budget are the main roadblocks that get in the way of training, which again highlights the need for organizations to prioritize cultures of learning.

In terms of likelihood to attend training, skills-based and certification-focused training are the clear frontrunners. Nearly half of our respondents are likely to attend professional skills training (e.g., leadership, communication skills) and 30% are likely to attend business process skills training (e.g., project management, ITIL®).
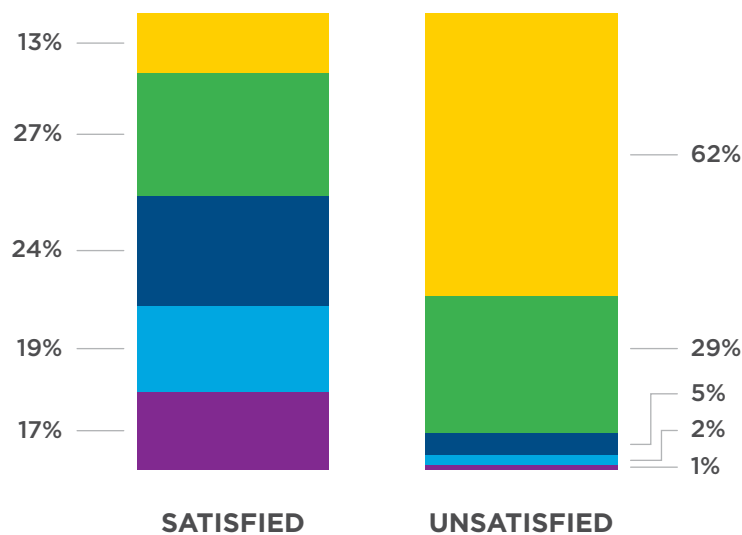
LIKELIHOOD TO ATTEND TRAINING

Training type	Extremely likely	Somewhat likely	Neither likely nor unlikely	Somewhat unlikely	Extremely unlikely
IT training (skills-based)	25%	33%	23%	8%	11%
IT training (certification-focused)	20%	28%	27%	12%	12%
Professional skills (leadership, management and communication skills)	16%	31%	24%	16%	13%
Business process skills (project management, ITIL®, Six Sigma, etc.)	9%	21%	34%	17%	19%

Job Satisfaction

IT decision-makers told us the number one reason for skills gaps is an inability to hire qualified job candidates. They also told us the most damaging impact of skills gaps is increased stress on their employees. This creates a vicious cycle, as a stressed and unsatisfied workforce often seeks alternative employment.

Ninety-one percent of unsatisfied IT professionals are likely to pursue a new position this year, compared to 40% of those who are satisfied with their current job. Our survey respondents have made it abundantly clear—they will not wait out a bad work situation. If they are overwhelmed, unhappy or believe their company isn't investing enough in their development, they will pursue other opportunities.

**JOB SATISFACTION AND
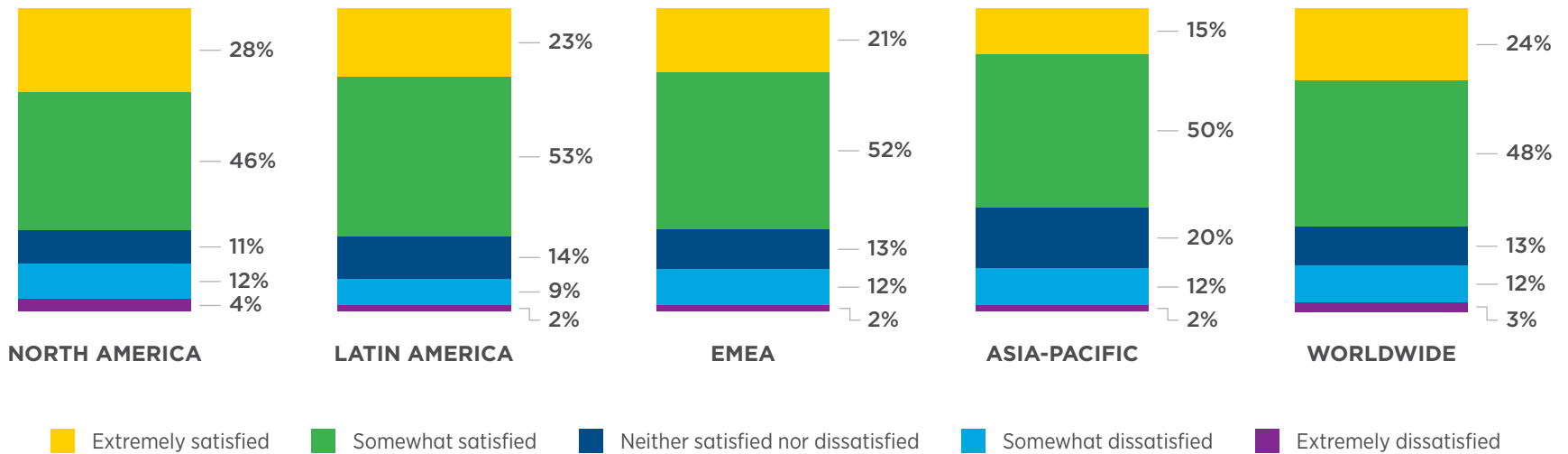LIKELIHOOD TO PURSUE A NEW POSITION**

SATISFIED
- 13%
- 27%
- 24%
- 19%
- 17%

UNSATISFIED
- 62%
- 29%
- 5%
- 2%
- 1%

Legend:
- Extremely likely
- Somewhat likely
- Neither likely nor unlikely
- Somewhat unlikely
- Extremely unlikely

IT pros will not wait out a bad work situation. If they are overwhelmed, unhappy or believe their company isn't investing enough in their development, they will pursue other opportunities.

TWEET THIS →

Globally, 72% of IT professionals are either somewhat or extremely satisfied with their job. Latin American respondents have the highest rate of job satisfaction (76%) while North American tech professionals are the most dissatisfied (16%). Thirteen percent of worldwide respondents say they are neither satisfied nor dissatisfied.

JOB SATISFACTION

	NORTH AMERICA	LATIN AMERICA	EMEA	ASIA-PACIFIC	WORLDWIDE
Extremely satisfied	28%	23%	21%	15%	24%
Somewhat satisfied	46%	53%	52%	50%	48%
Neither satisfied nor dissatisfied	11%	14%	13%	20%	13%
Somewhat dissatisfied	12%	9%	12%	12%	12%
Extremely dissatisfied	4%	2%	2%	2%	3%

Legend:
- Extremely satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
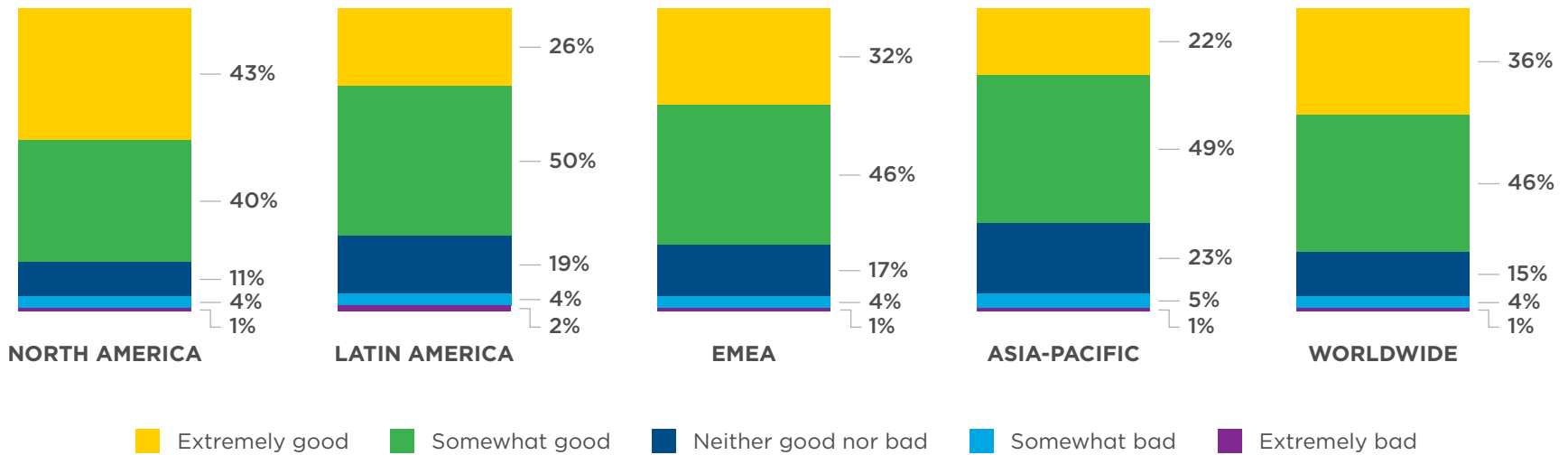- Somewhat dissatisfied
- Extremely dissatisfied

The satisfaction gap between IT decision-makers and staff is smaller than past years. Seventy-six percent of decision-makers are satisfied with their job, compared to 71% of their staff. In 2018, the satisfaction disparity between staff and managers was as high as 35% in the Asia-Pacific region.

JOB SECURITY

Over half of IT professionals will contemplate a job change this year, but not because they fear they'll lose their current job. Our survey respondents are unfailingly secure in their jobs. Worldwide, 82% regard their job security as either somewhat good or extremely good. North American IT professionals are the most confident in their job security (83%).

Only five percent of IT professionals feel at least somewhat bad about their job security. If IT professionals change employers—and 21% did last year—then it's likely a decision by the employee, not management.

JOB SECURITY

NORTH AMERICA
- 43%
- 40%
- 11%
- 4%
- 1%

LATIN AMERICA
- 26%
- 50%
- 19%
- 4%
- 2%

EMEA
- 32%
- 46%
- 17%
- 4%
- 1%

ASIA-PACIFIC
- 22%
- 49%
- 23%
- 5%
- 1%

WORLDWIDE
- 36%
- 46%
- 15%
- 4%
- 1%

Legend: ■ Extremely good ■ Somewhat good ■ Neither good nor bad ■ Somewhat bad ■ Extremely bad

EMPLOYEE TURNOVER

One out of five survey respondents changed employers last year. That's a huge deal for IT managers who are struggling to hire qualified professionals to fill open positions. But something can be learned from the reasons *why* IT professionals leave.

Nearly two-thirds said they wanted more opportunities for growth and development. Higher salary was the No. 2 reason, while company performance was third.

IT professionals are constantly learning. That's part of the excitement of working with technology. They want to use it to its fullest, not fight it. If managers are hesitant to approve training, their employees will see that as a lack of investment, or commitment, from the company.

It's not always about salary. This report shows that growth opportunities are more important than just about anything else for IT professionals.

FACTORS FOR CHANGING EMPLOYER

Factor	Percentage
Opportunity for growth and development	72%
Overall increase in compensation	39%
Company performance	24%
Other	22%
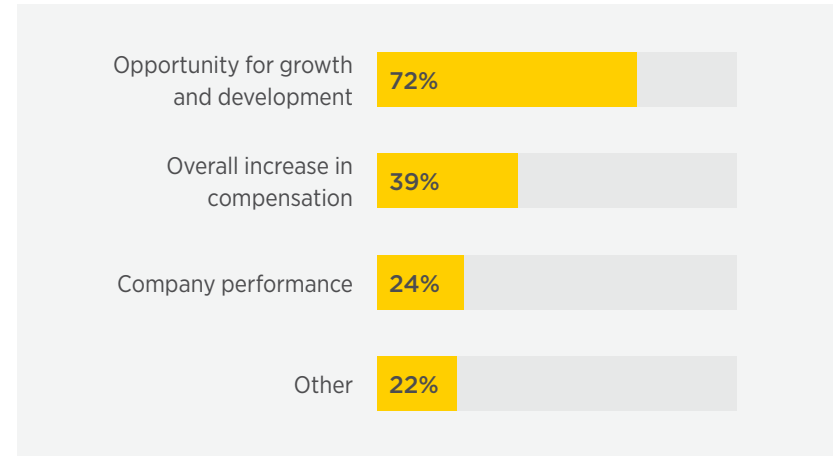
Conclusion

IT professionals have a strong desire for growth. They will seek both formal and informal methods to strengthen their skill set and enhance their career. The fact that 85% of survey respondents took some form of training in the past year illustrates the drive of IT professionals. Unfortunately, it also highlights the lack of support from decision-makers, of whom only 59% approved training for their staff even when their company provided it. Leadership is often hamstrung by budgets, workloads and lack of a strong learning culture, but they would be well served in the long term to find ways to secure continual training for their employees.

When it comes to learning preference, IT professionals place the highest value on live, instructor-led training, but more often participate in on-demand training. This is likely due to the flexibility of this type of web-based e-learning, but too much flexibility does more harm than good. Still, a greater percentage of IT professionals attended a classroom training session this year compared to 2018, which likely illustrates the increased need to fill critical skills gaps throughout the industry. The expert interaction baked into the fabric of classroom training can't be replicated in other hands-off learning methods.

While IT professionals feel secure in their jobs, more than half will take a peek around the industry to see if better jobs are available. This is a serious dilemma for IT managers who are already struggling to hire qualified individuals. Our survey respondents are most interested in growth opportunities, so decision-makers are advised to make this a top priority. Set time aside for staff training. Map out a certification path. These are the investments that can both improve job satisfaction and build needed skills amongst personnel.

IT professionals want to learn and grow their careers. If they're not getting support from their manager or organization, they will seek training on their own or look to grow their career elsewhere. IT professionals have shown that they will not sit idly by as the technology around them advances at a rapid pace. They want to move forward in unison.

Success is achieved when you develop the people who orchestrate technology and business processes. In a "People, Process, Technology" world, technology plays the supporting role—it is only as powerful as the people who create and sustain it.

Invest in your people by giving them chances to grow with you and you will position yourself for the greatest chance of success.

RESOURCES

- IT Skills and Salary Report Resource Hub
- Why Instructor-Led Training is More Critical Than Ever in a Distraction-Heavy World
- Mind the Gap: Six Steps to a Highly-Skilled Workforce free eBook
- 6 Tips for Informal Learning

SURVEY METHODOLOGY

The 2019 IT Skills and Salary Survey was conducted online from September 2018 through November 2018, using the Qualtrics Insight Platform.

Global Knowledge and partner companies and organizations emailed survey invitations to recipients from their databases. Links were also provided in online newsletters. The survey yielded 12,271 completed responses, with 54% coming from the United States and Canada and the remainder from countries around the world. The online survey was tabulated using IBM SPSS and Q Research software.

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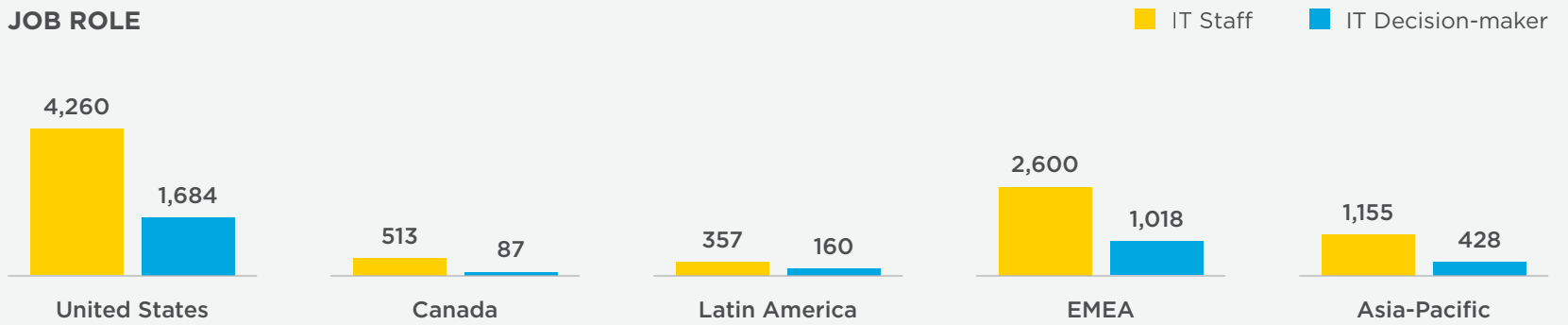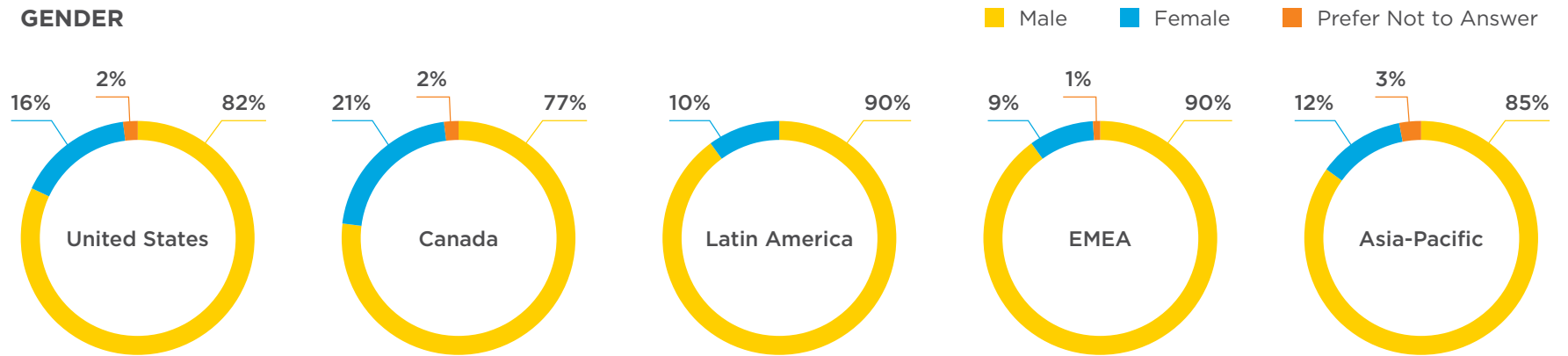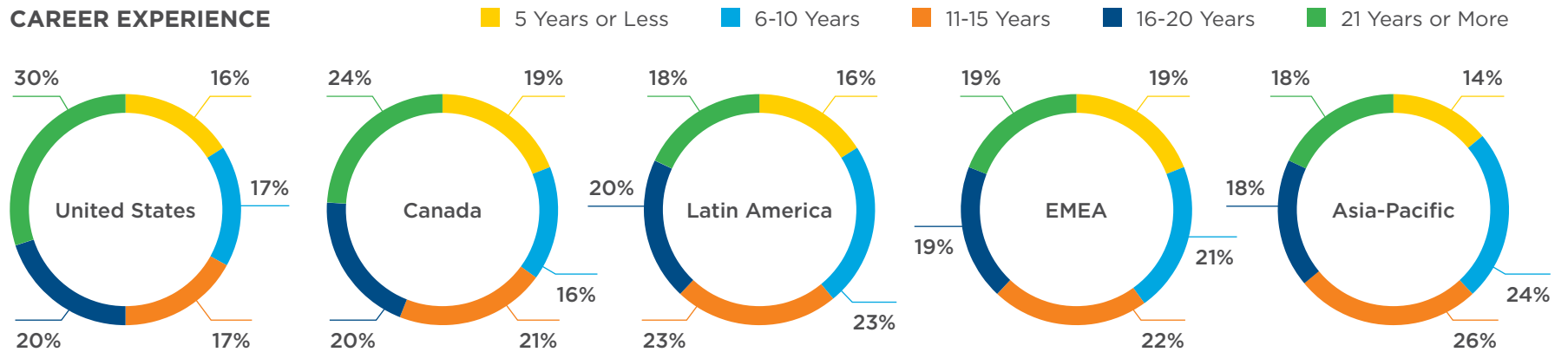
DEMOGRAPHICS

RESIDING COUNTRY OR REGION

United States	Canada	Latin America	EMEA	Asia-Pacific
48%	5%	4%	30%	13%

JOB ROLE

■ IT Staff   ■ IT Decision-maker

	United States	Canada	Latin America	EMEA	Asia-Pacific
IT Staff	4,260	513	357	2,600	1,155
IT Decision-maker	1,684	87	160	1,018	428

AVERAGE AGE

United States	Canada	Latin America	EMEA	Asia-Pacific
43	43	38	39	39

GENDER

Legend: ▮ Male ▮ Female ▮ Prefer Not to Answer

United States
- 82%
- 16%
- 2%

Canada
- 77%
- 21%
- 2%

Latin America
- 90%
- 10%

EMEA
- 90%
- 9%
- 1%

Asia-Pacific
- 85%
- 12%
- 3%

CAREER EXPERIENCE

Legend: ▮ 5 Years or Less ▮ 6-10 Years ▮ 11-15 Years ▮ 16-20 Years ▮ 21 Years or More

United States
- 16%
- 17%
- 17%
- 20%
- 30%

Canada
- 19%
- 16%
- 21%
- 20%
- 24%

Latin America
- 16%
- 23%
- 23%
- 20%
- 18%

EMEA
- 19%
- 21%
- 22%
- 19%
- 19%

Asia-Pacific
- 14%
- 24%
- 26%
- 18%
- 18%

COLLEGE DEGREE

Legend: ▮ Yes ▮ No

United States
- 91%
- 9%

Canada
- 78%
- 22%

Latin America
- 93%
- 7%

EMEA
- 84%
- 16%

Asia-Pacific
- 94%
- 6%

About Global Knowledge

Global Knowledge builds skills that enable success.

Global Knowledge is the worldwide leader in IT and professional training, helping develop the skills individuals and organizations need to succeed in the ever-changing world. To meet customer needs, Global Knowledge is located in 15 countries, and has the unique flexibility to deliver a broad portfolio of courses in over 100 countries in classrooms, online, and through a worldwide partner network.

Since 1995, Global Knowledge employees and its award-winning subject matter expert instructors have been committed to enabling the success of more than 230,000 professionals each year.

www.globalknowledge.com

MEDIA INQUIRIES

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+1 (919) 388-1054

Table of Contents

Introduction

Welcome to the Global Knowledge 2019 IT Skills and Salary Report. It is the largest worldwide study of professionals in the technology community and has been conducted annually for over a decade.

Throughout the report, you'll find the data broken up by region: North America; Latin America; Europe, the Middle East and Africa (EMEA); and the Asia-Pacific region.

IT professionals, human resources and industry leaders use this report as a guide for salaries, in-demand certifications, tech priority areas, skills gaps, professional development, job satisfaction, and future outlooks in IT.

Traditionally, we have combined all areas of study into one report, but this year we're breaking it up into smaller reports so we can dig deeper into each topic.

HOW TO USE THE LOOKING FORWARD REPORT

The data in this report helps answer the following questions:

- What technologies are organizations investing in this year?
- Existing skill sets are the strongest in which areas? Where are they the weakest?
- How do IT decision-makers plan to handle skills gaps?
- What technology providers will receive the most attention this year?

PRIMARY FINDINGS

Cloud computing is the number one tech investment area in the world
Sixty percent of IT professionals expect their organization to invest in cloud computing this year, an increase of 20% from 2018. Cybersecurity is also a top priority, with more than half of our survey respondents expecting it to be a company focus in 2019.

IT professionals are not entirely confident in their cloud and cyber skills
While they are key investment areas, IT professionals are only somewhat confident in their cloud computing and cybersecurity abilities. Existing skill sets are much higher in areas like networking, software development, web development and infrastructure.

Managers plan to add skills through training, not hiring
Nearly 50% of IT decision-makers prefer to train their team members to combat skills gaps. This is likely in response to the hiring difficulties that managers have been facing. Other decision-makers have no clear-cut plan for skills, which is risky considering these gaps aren't going away on their own.

Microsoft will be a focus for more than half of organizations
In terms of technology providers, Microsoft is a key focus area for 58% of worldwide organizations. Half of North American professionals also list AWS as a major focus area this year.

THIS YEAR'S REPORTS	
PART 1 Salary and certifications Download it for free	**PART 3** Professional development and job satisfaction Download it for free
PART 2 IT decision-maker insights Download it for free	**PART 4** Looking forward

Looking Forward

Two technology areas have dominated the last five years of the Global Knowledge IT Skills and Salary Report—cloud computing and cybersecurity.

Both are high-priority, align with above-average salaries, and are the most challenging hiring areas for IT decision-makers. So it's no surprise that cloud computing and cybersecurity, once again, are the dominant technology requirements for organizations of all sizes.

TOP INVESTMENT AREAS

Investment in cloud computing is estimated to be up 20% from 2018. This is welcomed news, as IT decision-makers are struggling mightily to hire cloud specialists. An investment surge in cloud technologies, training and certifications is exactly what organizations need to fill growing cloud skills gaps.

In 2015, just 35% of worldwide respondents in our report said their organization planned to invest in cloud computing. That number is now 60%.

And cloud professionals are well paid—four of the six highest-paying certifications in North America are either in AWS or Google Cloud.

"While companies originally shifted to the cloud to gain cost controls, most are now migrating for better innovation opportunities and speed to market," said Susan Cipollini,

Global Knowledge global portfolio director for cloud computing. "With that shift, skills gaps have developed. Cloud professionals with specific expertise are needed to ensure companies are seeing a return on their cloud investment. Cloud certifications are key for IT professionals because they validate the skills needed by these organizations and ultimately will help them be successful in their jobs."

Cybersecurity is a chief concern for 56% of organizations—up 12% from 2018. Asia-Pacific is the only region that ranks cybersecurity ahead of cloud. A subset of IT security—GDPR and data privacy—is a projected investment area for 27% of worldwide organizations.

Security is a major investment area due to the proliferation of cyber threats, the growth rate of IoT deployments, and the increasing liability of sensitive data—a risk that often equates to millions of dollars.

"Investment into cybersecurity infrastructure, operations, posture and education has moved to the forefront of nearly every commercial and government entity," said Brad Puckett, Global Knowledge global product director of cybersecurity. "The rapid evolution of cybercriminals and their skills creates some erosion of confidence in organizations due to aging cybersecurity skill sets and architecture. Forward-looking cybersecurity organizations within businesses are dedicating a significant amount of their budget to frameworks, best practices, and emerging cybersecurity skills and knowledge to combat and compete with advanced threats."

Other top investment areas include infrastructure and systems, AI, cognitive computing and machine learning, and IoT.

Some other data on investment areas:

- Virtualization dropped from the third most important investment area of 2018 to No. 7 this year. Networking and wireless also dropped from fourth to 10th.
- In general, our Asia-Pacific respondents are more focused on emerging technologies. They have the highest worldwide investment rates in AI, IoT and blockchain. They are also significantly less invested in software development, web development and infrastructure compared to the rest of the world.
- Investment in mobile app development and deployment is up 28% year over year.

KEY INVESTMENT AREAS FOR 2019

Investment Area	North America	Latin America	EMEA	Asia-Pacific	Worldwide
Cloud computing	62%	58%	59%	59%	60%
Cybersecurity	57%	54%	52%	60%	56%
Infrastructure and Systems	43%	36%	38%	28%	39%
AI, Cognitive Computing and Machine Learning	34%	37%	41%	44%	38%
Internet of Things (IoT)	26%	39%	34%	43%	31%
GDPR and Data Privacy	23%	19%	34%	30%	27%
Virtualization	27%	31%	25%	25%	27%
Software Development	27%	23%	26%	13%	25%
Mobile App Development and Deployment	22%	23%	25%	20%	23%
Networking and Wireless LAN	23%	25%	19%	16%	21%
Business Process Management	20%	19%	18%	15%	19%
Service Management	18%	17%	19%	16%	18%
Web Development	19%	13%	17%	8%	17%
Blockchain	13%	17%	18%	27%	16%
Mobility and Endpoint Management	18%	12%	15%	15%	16%
Customer Relationship Management (CRM)	13%	12%	11%	8%	12%
Video, Voice and Telephony	12%	13%	10%	6%	11%
Enterprise Resource Management (ERP)	11%	9%	9%	7%	10%
Other	3%	3%	2%	2%	3%

EXISTING SKILL SETS

Technology and training investments are driven by existing—or non-existing—skill sets. While cloud computing and cybersecurity are the primary investment areas for 2019, less than 20% of IT professionals would classify their existing skills in these categories as "high." That's a whole lot of uncertainty surrounding two critical IT areas.

> While cloud computing and cybersecurity are the primary investment areas for 2019, less than 20% of IT professionals would classify their existing skills in these categories as "high."

🐦 TWEET THIS →

Survey respondents are more confident in other technologies—67% said their networking and wireless skills are either high or somewhat high, while 62% echoed similar sentiment regarding their software development skills.

The opposite can be said of blockchain and AI/cognitive computing/machine learning. Over half of respondents say their skills in these areas are either low or somewhat low. This isn't surprising considering these emerging technologies are still in their infancy and specific value and skills requirements are still being defined and discovered.

Established technologies, such as networking and wireless, have clear learning paths. To better understand which type of learning matches which skill type (emerging, core, project, etc.), download the Global Knowledge Skills Development Index™. This tool helps define the criticality of a needed skill and recommends a training delivery method.

EXISTING SKILL SETS WITHIN KEY INVESTMENT AREAS

Investment Area	High	Somewhat high	Medium	Somewhat low	Low
Networking and Wireless LAN	30%	37%	25%	5%	2%
Software Development	29%	33%	24%	9%	4%
Web Development	28%	33%	26%	9%	4%
Infrastructure and Systems	28%	40%	25%	5%	2%
Virtualization	26%	33%	28%	9%	4%
Video, Voice and Telephony	23%	30%	30%	12%	4%
Cybersecurity	19%	31%	32%	13%	5%
Cloud Computing	17%	24%	33%	18%	7%
Service Management	17%	33%	36%	12%	3%
Enterprise Resource Management (ERP)	14%	30%	34%	17%	5%
Mobility and Endpoint Management	14%	30%	36%	15%	5%
GDPR and Data Privacy	13%	27%	36%	18%	6%
Mobile App Development and Deployment	13%	24%	32%	21%	10%
Customer Relationship Management (CRM)	11%	29%	36%	17%	7%
Internet of Things (IoT)	10%	20%	33%	24%	13%
Business Process Management	9%	27%	42%	16%	5%
AI, Cognitive Computing and Machine Learning	9%	13%	26%	27%	25%
Blockchain	5%	12%	22%	28%	33%

RESPONSE TO SKILLS GAPS

When asked how they plan to handle skills gaps going forward, 48% of managers say they will train their existing employees. This strategy reduces the need to potentially hire additional headcount. It's also a great way to invest in your people. Employees who believe their company isn't investing in their development are more likely to leave for other job opportunities.

Upskilling current staff seems like a no-brainer, but managers are often hamstrung by a lack of budget or organizational support. Less than 60% of decision-makers say their company offers formal training opportunities. It's difficult to infuse a team or department with necessary skills without backing from the business.

Fifteen percent say they will hire outside contractors for their skills needs, while 15% plan to hire full-time employees.

Shockingly, 19% of IT decision-makers say they have no plan to address skills gaps. Ignoring skills gaps and hoping they will go away on their own is not a sound strategy. This response may be a result of the training challenges decision-makers are facing, such as not knowing where to start or a lack of funding. We can help:
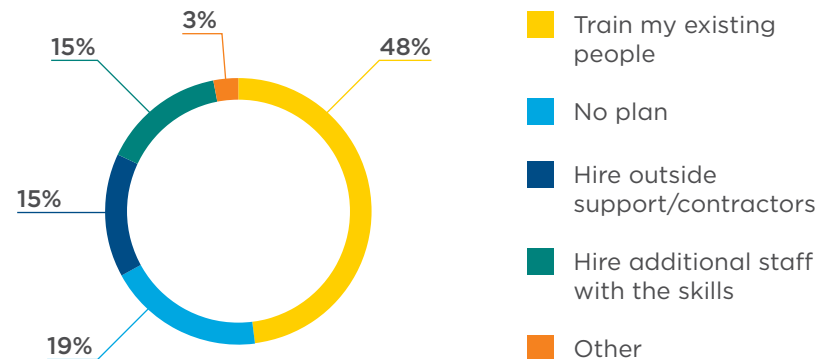
• Skills assessments and quizzes
• Free white paper: How Organizations Buy Training
• Free consultations with our training and technical advisors

IT skills gaps are up 155% in three years in large part because decision-makers are struggling to find qualified job candidates. A possible solution to the hiring dilemma is degree deflation, which would require hiring managers to remove a college degree as a job requirement and focus more on relevant skills and certifications.

When asked how they plan to handle skills gaps going forward, 48% of managers say they will train their existing employees. This strategy reduces the need to hire qualified talent, which isn't as easy as it sounds.

TWEET THIS →

HOW MANAGERS PLAN TO HANDLE SKILLS GAPS

3%
15%
48%
15%
19%

Train my existing people

No plan

Hire outside support/contractors

Hire additional staff with the skills

Other

TOP TECHNOLOGY PROVIDER FOCUS AREAS

A majority of survey respondents expect Microsoft to be a focus area for their organization this year. Fifty-eight percent of IT professionals say Microsoft is of interest to them, with North America showing the highest level of investment (59%). Microsoft's cloud computing platform, Microsoft Azure, is the main reason why so many IT departments are upping their investment in Microsoft services.

"With the global public cloud services market projected to reach $206 billion in 2019 and $331 billion by 2022, it's no wonder that organizations are turning to Microsoft as they move to the cloud," said Michael Watkins, Global Knowledge senior vice president of global product innovation. "Microsoft Azure helps organizations scale their IT operations in a cost-effective manner and meet the need for ever-increasing compute power so they can innovate and stay ahead of their competition. As organizations seek to take advantage of these continued advances, investing in the right technology and training has never been more critical for businesses and their staff."

AWS (46%), VMware (37%), Cisco (35%) and Google Cloud (28%) round out the top five technology provider focus areas for 2019.

TOP 10 TECHNOLOGY FOCUS AREAS FOR 2019

Technology Focus Areas	North America	Latin America	EMEA	Asia-Pacific	Worldwide
Microsoft	59%	52%	58%	57%	58%
Amazon Web Services (AWS)	50%	35%	43%	46%	46%
VMware	37%	40%	35%	37%	37%
Cisco	33%	49%	36%	38%	35%
Google	26%	33%	29%	32%	28%
Docker	19%	15%	24%	14%	20%
Oracle	18%	21%	21%	21%	19%
Red Hat	19%	19%	18%	20%	19%
Citrix	18%	17%	19%	20%	18%
Salesforce	20%	12%	13%	17%	17%

Conclusion

Cloud computing and cybersecurity are big investment areas for our survey respondents, but it doesn't stop there. Organizations are not singularly-focused. They have big plans for multiple technology investments in 2019, whether it be IoT, customer relationship management, or blockchain. In total, there are 17 technologies that are expected to be major focus areas for organizations. That's a lot of tech—and a lot of skills needed to operate and understand that new tech.

When nearly 20% of IT decision-makers tell us they have no plan for skills gaps, that raises a major red flag. Many of the technologies mentioned in this report evolve from year to year, so updated skill sets are vital. Management needs a clear strategy for hiring and professional development. If experienced job candidates aren't readily available, look to train and upskill your current staff. The Skills Development Index provides a path for how to structure your training. An investment in cloud and cybersecurity requires not only an investment in technology, but an investment in the professionals tasked with overseeing these key functions.

The fact that Microsoft and AWS are top technology providers is no surprise, especially as cloud training and certifications are growing in demand. Cloud capabilities are evolving so rapidly that ongoing training and updated expertise are needed now more than ever. If you're a cloud professional and training isn't built into your 2020 plans, speak with your manager. Don't let your skills go out of date.

Cyber professionals are in the same boat—they need an updated skill set to combat evolving cybercriminals who are putting your organization's data at risk. Oftentimes, this also means your—or your clients'—money is at risk. It's no surprise that an investment in IT security is a main concern for so many organizations.

Looking forward, technology's evolution will continue to influence priorities. Cloud is such a focus because there are so many opportunities to be had. As professionals and businesses continue to understand the capabilities of emerging technologies, like blockchain and AI, expect those areas to grow in importance as well. IT departments and organizations are going to put their efforts where they expect to get the largest return. Right now, that's cloud and cybersecurity.

SURVEY METHODOLOGY

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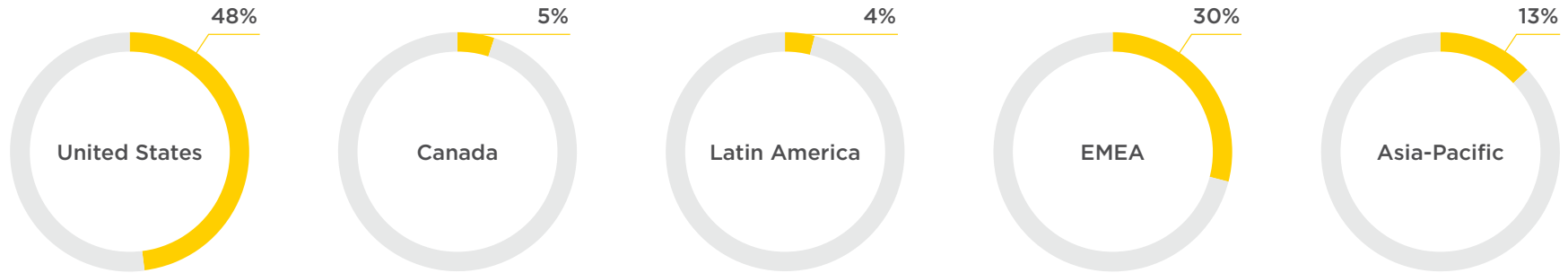
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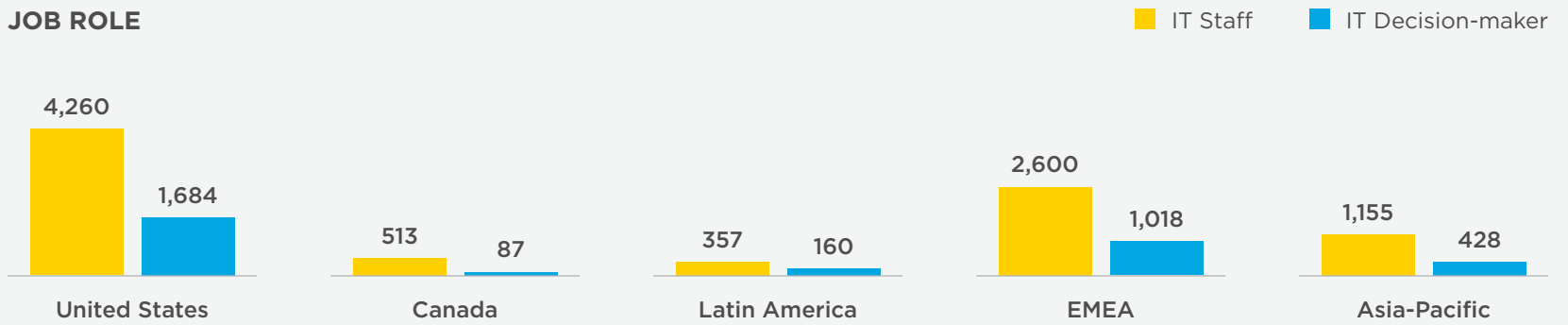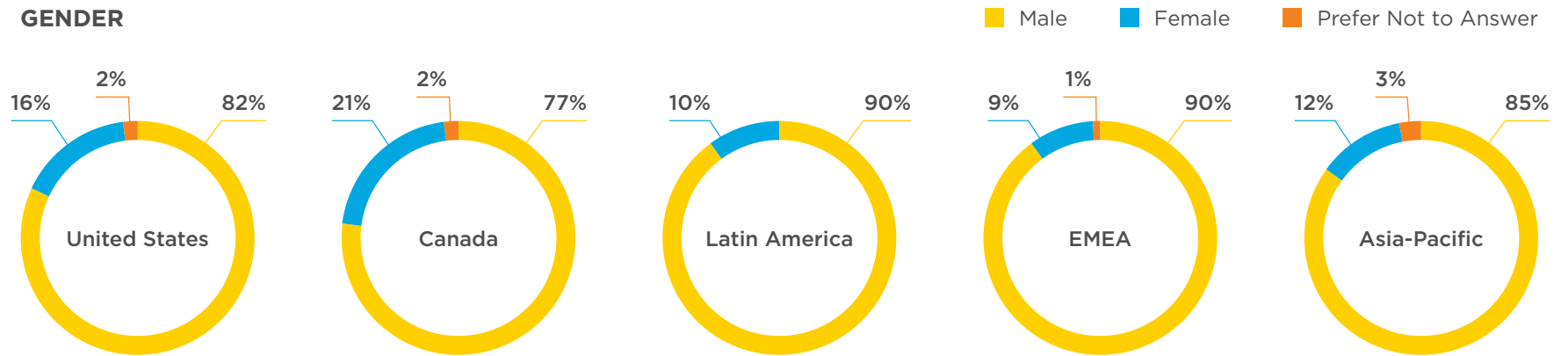
DEMOGRAPHICS

RESIDING COUNTRY OR REGION

United States	Canada	Latin America	EMEA	Asia-Pacific
48%	5%	4%	30%	13%

JOB ROLE

■ IT Staff   ■ IT Decision-maker

Region	IT Staff	IT Decision-maker
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Canada	513	87
Latin America	357	160
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Asia-Pacific	1,155	428

AVERAGE AGE

United States	Canada	Latin America	EMEA	Asia-Pacific
43	43	38	39	39

DEMOGRAPHICS

GENDER

United States: 82% | 16% | 2%
Canada: 77% | 21% | 2%
Latin America: 90% | 10%
EMEA: 90% | 9% | 1%
Asia-Pacific: 85% | 12% | 3%

CAREER EXPERIENCE

■ 5 Years or Less   ■ 6-10 Years   ■ 11-15 Years   ■ 16-20 Years   ■ 21 Years or More

United States: 16% | 17% | 17% | 20% | 30%
Canada: 19% | 16% | 21% | 20% | 24%
Latin America: 16% | 23% | 23% | 20% | 18%
EMEA: 19% | 21% | 22% | 19% | 19%
Asia-Pacific: 14% | 24% | 26% | 18% | 18%

COLLEGE DEGREE

■ Yes   ■ No

United States: 91% | 9%
Canada: 78% | 22%
Latin America: 93% | 7%
EMEA: 84% | 16%
Asia-Pacific: 94% | 6%

About Global Knowledge

Global Knowledge builds skills that enable success.

Global Knowledge is the worldwide leader in IT and professional training, helping develop the skills individuals and organizations need to succeed in the ever-changing world. To meet customer needs, Global Knowledge is located in 15 countries, and has the unique flexibility to deliver a broad portfolio of courses in over 100 countries in classrooms, online, and through a worldwide partner network.

Since 1995, Global Knowledge employees and its award-winning subject matter expert instructors have been committed to enabling the success of more than 230,000 professionals each year.

www.globalknowledge.com

MEDIA INQUIRIES

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