

FOR IMMEDIATE RELEASE

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NOTE: This news release is a summary extract of content from the 1st Quarter 2023 data update edition of both the Foote Partners' **2023 IT Skills Demand and Pay Trends Report** and **2023 IT Skills and Certification Pay Volatility Index**, two market intelligence trend reports updated every 3 months from data contributed by HR departments at 4,111 U.S. and Canadian employers. It contains IT jobs, skills and certifications data trends published in the firm's **IT Skills and Certifications Pay Index™** and deep-dive supply/demand benchmark analysis from Foote Partners field interviews.

For the year 2022, average market value for **675 non-certified IT skills** gained 2.1 percent overall, led by Data/Database and Management/Methodology/Process skill categories. In the final quarter of the year overall value was unchanged: 204 skills changed in value (down from 173 in the prior quarter) with 93 gaining ground compared to 111 decreasing in market value.

For **595 IT certifications**, average market value declined 1.1 percent overall for the year 2022, led by losses Web Development, Data/Database, and Networking & Communications certification categories. In the final quarter of the year average cash premium was up a slight 0.1 percent, with only 30 increasing in market value and 56 posting losses in the quarter compared to 58 and 67, respectively, in the prior quarter.

Pay volatility in market value for IT skills and certifications--defined as incidence of gains or declines over a period of time in cash premium pay earned by IT professionals for specific IT skills—averaged 25 percent in 2022, meaning that **one-quarter of the 1,270 skills reported by Foote partners changed in market value every 90 days.**

Hot jobs right now include: UX designers, software engineers, data engineers, cloud engineers, security managers and architects, and project/program managers. Jobs trending downward: systems administrators, DBAs, SEO optimization experts, QA, and some programmers.

February 5, 2023 – Vero Beach, FL. Extra pay awarded by employers to talented tech professionals for **675 non-certified IT skills**—also known as cash pay premiums—displayed flat growth in the final quarter of 2022, in stark contrast to the how the year began: a robust 1.6 percent gain in average market value in the first quarter. Despite this lackluster performance at year's end, the non-certified IT skills surveyed by our firm grew an average 2.2 percent in market value for the year. The current average cash pay premium bonus for a single skill is the equivalent of **9.6 percent of base salary.**

Conversely, average market value for **595 tech certifications** increased a slight 0.1 percent in the fourth quarter of 2023, erasing losses in two of the prior three calendar quarters. The current average cash pay premium for a single IT certification is the equivalent of 6.6 percent of base salary, lead most recently by increases in pay for security certifications.

This according to the latest quarterly update of Foote Partners' **IT Skills and Certifications Pay Index™** (ITSCPI) based on compensation data provided by 4,057 private and public-sector employers in 83 U.S. and Canadian cities who partner with the firm to report pay for their 372,125 technology professionals in the U.S. and Canada.

Since its launch in 1999, the *IT Skills and Certifications Pay Index™* has continuously tracked cash pay premiums paid to tech professionals by their employers for an ever-increasing number of popular tech skills and certifications. Rigorously validated data and detailed market analyses are updated and published by Foote Partners every 90 days. Currently, premiums are reported for 1,248 certifications and non-certified skills.

Pay Performance, 3/12/24/24/36 months
 Certified vs. Noncertified Tech Skills

(91,348 IT professionals, data through 1/1/2023)

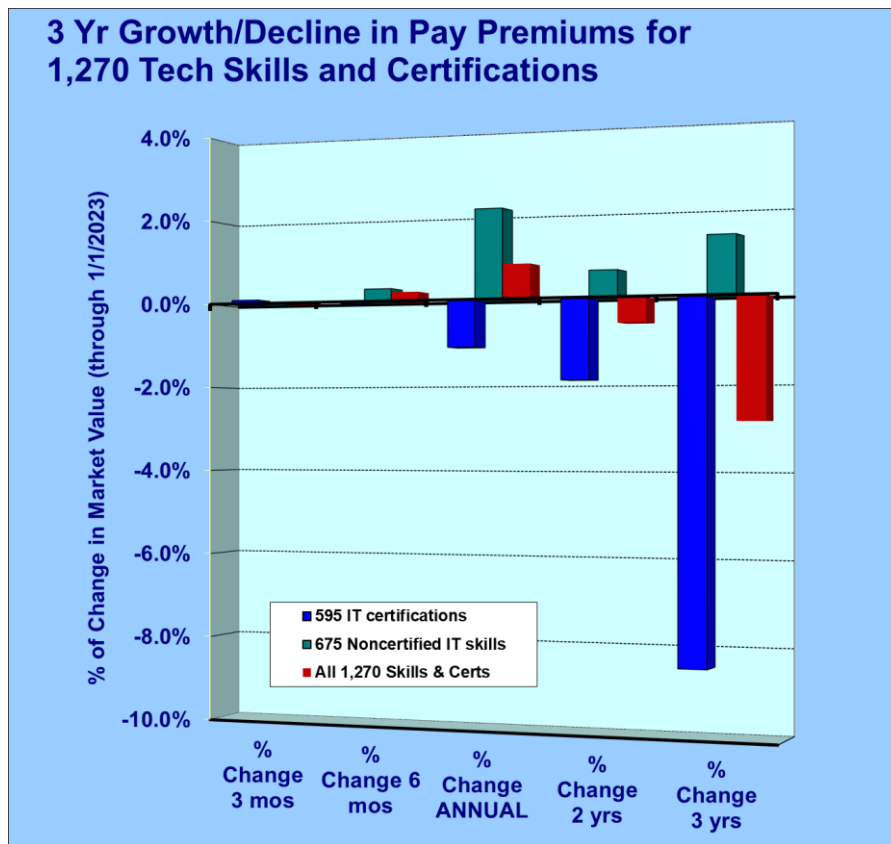


Figure 1

Source: Foote Partners, *IT Skills and Certifications Pay Index™* (4Q2019 – 4Q2022 datasets)

MULTI-YEAR PAY PREMIUM TRENDS: Certified versus Noncertified IT Skills

Average median cash pay premiums for a single certified or noncertified IT skill. N = 91,348 IT Professionals

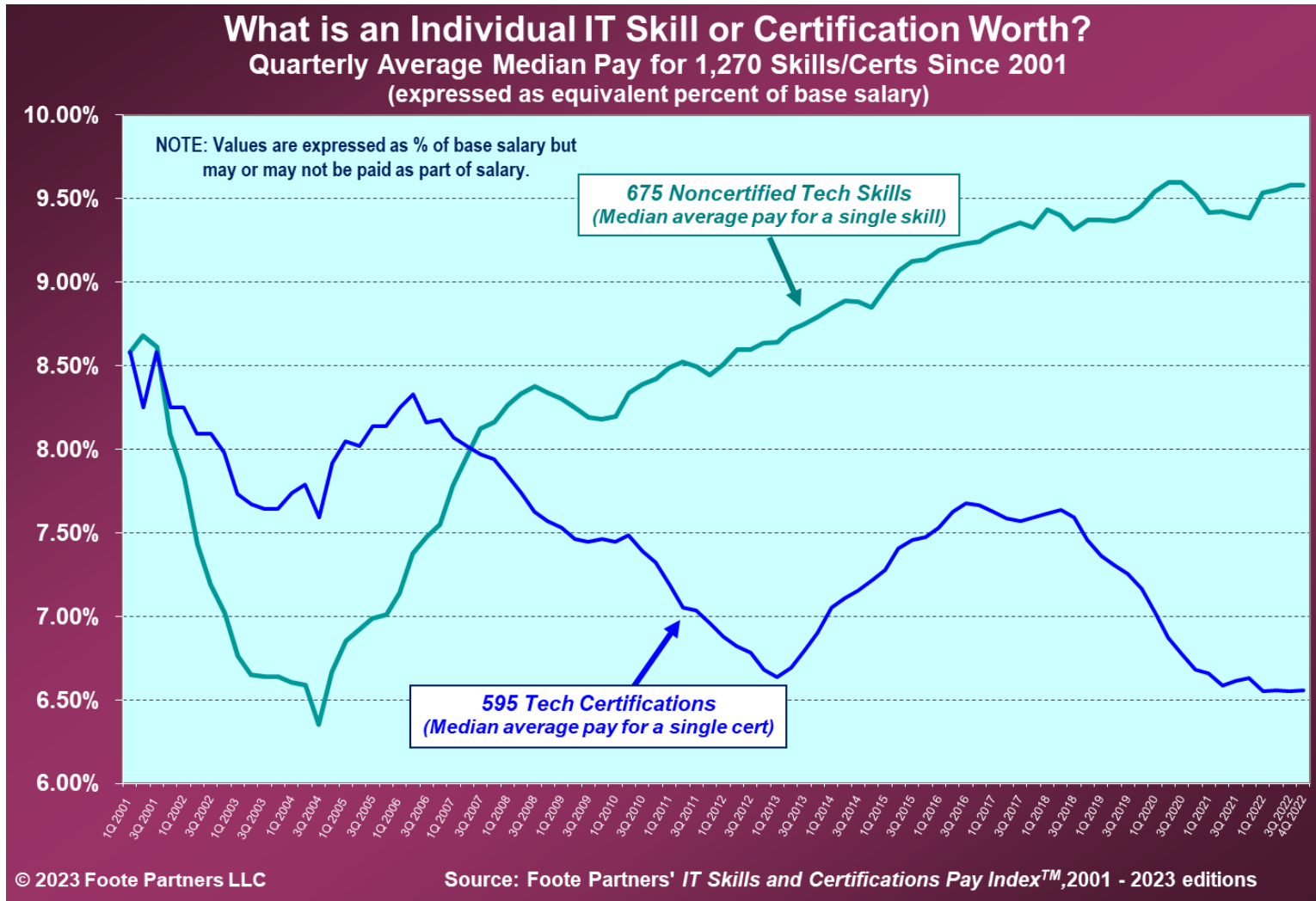


Figure 2

IT Skills & Certifications Pay Data Trend Charts & Analysis

IT Skills and Certifications Pay Index™ – 4th Quarter 2022 data edition*

- Noncertified IT Skills (Page 6)
- IT Certifications (Page 18)

IT Skills and Certifications Pay Volatility Index™ – 4th Quarter 2022 data edition*

- Summary (Page 30)
- IT certifications (page 33)
- Non-certified IT skills (page 34)

*All data collected through January 1, 2023

How to interpret gains and losses in IT skills and certifications pay premiums

Quarterly gains and losses in premium pay reflect a widening or narrowing, respectively, in the gap between supply and demand for skills and certifications. This may occur for any number of reasons. For example, a quarterly decline in pay for a skill may signal that the market supply of talent for that skill is catching up to demand—not necessarily that demand is starting to wane. IT professionals are often attracted to a skill or certification if they perceive that it has rising value in the marketplace and therefore can help them to achieve higher pay, greater job security, a promotion, or more flexibility in their career choices. As they pursue greater competency in that skill or as more workers attain certification, supply increases and market pricing (which is elastic to the laws of supply and demand) will be driven downward unless demand is rising at the same proportional rate. Conversely, if demand rises and supply is not increasing to match that level of demand, pay premiums for specific skills and certifications will increase.

Therefore, when interpreting gains and losses in market pay it is important to consider all factors that could be driving supply and demand and market perception. Those factors range from:

- aggressive marketing of certifications by vendors;
- changes in certification programs (e.g., certification extensions or retirement);
- new technology and evolution/maturation of current technologies;
- technology adoption rate;
- product integration strategies,
- economic conditions;
- employment opportunities;
- mergers/acquisitions;
- budget cycles and the timing of skills and talent acquisition by employers;
- changes in labor sourcing plans pursuant to company strategies.

Noncertified IT Skills Data Trend Charts & Analysis

(Data collected through January 1, 2023)

Apps Dev. Tools/Platforms

Agile software development
 Amazon Kinesis
 Amazon SageMaker (ML)
 Amazon Web Services
 Amazon Web Services CDK
 Apache Airflow
 Apache Ant
 Apache Camel
 Apache Cloudstack
 Apache Cordova
 Apache Flex
 Apache Hadoop
 Apache Lucene
 Apache Maven
 Apache Pig
 Apache Spark
 Apache Struts/Struts2
 Apache Tomcat
 Apache Zookeeper
 Appium
 Automated Testing
 AWS CloudFormation
 AWS CloudFront/CloudFront
 Functions
 AWS Lambda
 Azure Stack
 Bamboo/BambooHR
 Behavior-Driven Development
 Bitbucket
 Boost C++
 Business Objects
 C
 C#
 C++
 C++ /CLI
 CA PPM (Clarity PPM)
 Cerner Millennium
 CircleCI
 Clojure
 Cloudera software
 Cloud Foundry PaaS
 COBOL
 Cognos
 Confluence
 Continuous Delivery
 Cucumber
 Datadog

Delphi
 Drupal
 Eclipse
 Elixir
 Epic Systems applications
 Erlang
 Ethereum
 F#
 Flutter
 Full Stack Development
 Git/GitHub
 GitLab
 GitOps
 Go language (Golang)
 GoCD
 Gosu/Guidewire
 Gradle
 Groovy/Grails
 Grunt
 Hibernate/NHibernate
 HP ALM (App. Lifecycle Mgt)
 HP Unified Functional Testing
 Integration Testing
 iRise
 Jasmine
 Java SE/Java EE
 JBehave
 Jenkins
 JIRA
 JUnit
 Kotlin
 MapReduce
 MATLAB
 Microsoft Azure
 Microsoft Azure Stack
 Microsoft Azure Logic Apps
 Microsoft Power Platform
 Microsoft SQL Server Mgt Studio
 Microsoft Team Foundation Server
 Mokito
 NetWeaver
 Next.js
 NIM
 NUnit
 Objective-C
 Objective Caml (Ocaml)
 Octopus Deploy
 OpenShift

Oracle APEX
 Oracle Apps Developer Framework
 PL/SQL
 Powerbuilder
 Progress 4GL/Development tools
 R language
 RapidMiner
 Red Hat Fuse
 Rstudio
 Ruby
 Ruby on Rails
 Rust
 Saas
 SAS
 SAS Enterprise Guide
 Scala
 Scrum
 Selenium
 Semaphore CI/CD
 ServiceNow ITSM
 Sonatype Nexus
 SpecFlow
 SPSS
 SQL
 Swift
 Tcl
 TeamCity
 TestNG
 TransacT-SQL/tSQLt
 Travis CI
 UML (unified modeling language)
 Visual Basic 6.0
 Visual C++
 Vue.js
 VMware Cloud Foundry PaaS
 WebSphereMQ
 Xcode

Web/e-Commerce Development

Active Server Pages
 ActiveX
 Adobe Experience Manager
 Ajax
 Amazon Cloudwatch
 AngularJS
 Apache Solr
 Apache Velocity
 Apache web server

Apache Wicket
 Apex Code
 Backbone.js
 CGI
 Cold Fusion MX
 Content management systems
 CSS/CSS3
 Cypress
 Django
 Docker /Docker Swarm
 Documentum
 Elasticsearch/Elastic Stack
 Ember.js Figma
 Front End Development
 GatsbyJS
 Google Analytics
 Google App Engine
 Google Cloud Platform
 GraphQL
 HTML5
 JavaBeans/EJB 3.0
 JavaFX
 JavaScript
 Java Server Pages
 JBoss/Wildfly
 Jetty
 Joomla!
 jQuery
 JSON
 Julia
 KnockoutJS
 Laravel PHP
 Magento/Adobe Commerce
 Magnolia
 Microsoft .NET
 Microsoft BizTalk Server
 Microsoft Blazor
 Microsoft Commerce Server
 Microsoft Identity Integration Server
 Microsoft Internet Information
 Services
 Microsoft Forefront Threat
 Management Gateway (ISA)
 Microsoft Sharepoint/Sharepoint
 Server
 Microsoft Silverlight
 Microsoft Visual Studio
 Mobile applications development

Mule/MuleESB
 Node.js
 Oracle Fusion
 Oracle WebLogic/
 Oracle Workflow Pandas
 Perl
 PHP (all)
 PySpark
 Python
 React
 Redux
 REST
 RESTful
 SailPoint
 Scalable Vector Graphics
 (SVG)
 Secure coding/SW
 development
 Sitecore CMS
 SOAP
 Social Media/Networks
 Spring Framework
 Spring Boot
 Spring Cloud
 Spring Integration
 Spring MVC
 Spring Security
 TIBCO
 UDDI
 Umbraco
 VBScript
 Video/graphics editing
 Visual Interdev
 VoiceXML
 Web collaboration appliances
 Web Content Development
 Web Design
 WebSphere
 WebSphere Datapower
 Wikis
 WSDL
 XAML/XACML
 XHTML MP
 XML (all variants)

SAP & Enterprise Business

Applications

ABAP (all modules)
 Accelerated SAP (SLM)
 Baan (Infor LN ERP)
 Enterprise Application Integration
 IBM Sterling
 J.D. Edwards /Oracle
 Lawson
 Microsoft Dynamics/Dynamics 365
 NetWeaver
 NetWeaver Portal (SAP EP)
 Oracle BPM
 Oracle CRM
 Oracle E-Business suite
 Oracle Eloqua
 Oracle ERP
 Oracle Financials
 Oracle HFM (Hyperion Fin. Mgt)
 Oracle HRMS
 Oracle NetSuite
 Oracle Payables
 Oracle Payroll
 Oracle Retail
 Oracle SCM
 Oracle SOA Suite
 Pega
 PeopleSoft (CRM/Financials/HCM)
 Remedy ITSM
 Salesforce
 Salesforce Sales Cloud
 Salesforce Service Cloud
 SAP AFS
 SAP ALE
 SAP APO
 SAP Ariba
 SAP Auto-ID infrastructure (SAP RF)
 SAP Basis Components
 SAP BI / SAP BW
 SAP BO Data Services
 SAP BODI
 SAP BOXI
 SAP BO Dashboard Design
 SAP BPC
 SAP BSP
 SAP Business One
 SAP Business Workflow/Webflow

SAP CA
 SAP CAF
 SAP CAR
 SAP CCM
 SAP CE
 SAP CFM
 SAP CO
 SAP CO-PA
 SAP CRM
 SAP Crystal Reports
 SAP CS
 SAP CX
 SAP Digital Banking
 SAP EBP
 SAP EDI
 SAP EHS
 SAP EPM
 SAP ERP
 SAP ESA
 SAP Exchange Infrastructure (XI)
 SAP FI (Financial Accounting)
 SAP FI – CA
 SAP FI - CO
 SAP FI – FSCM
 SAP FI - Travel Management
 SAP Fiori
 SAP F&R (Forecasting/Replenish)
 SAP FS (Insurance)
 SAP GRC
 SAP GTS
 SAP HANA
 SAP HCM (SAP HR)
 SAP HCM ESS/MSS
 SAP HR-PA
 SAP HR-PY (Payroll)
 SAP Hybris
 SAP IBP (Integrated Business
 Planning)
 SAP IS-U (Utilities)
 SAP ITS
 SAP Leonardo
 SAP LES
 SAP LO
 SAP Lumira
 SAP Manufacturing
 SAP MDG
 SAP MDM

SAP MDX
 SAP MI
 SAP MII
 SAP MM
 SAP MRO
 SAP MRS
 SAP Netweaver Applications Server
 SAP Netweaver BW (BIW)
 SAP NetWeaver Visual Composer
 SAP NWDI
 SAP NWDS
 SAP Oil & Gas
 SAP PI (NetWeaver Process
 Integration)
 SAP PLM
 SAP PM
 SAP POSDM
 SAP PP
 SAP PS
 SAP PSCD
 SAP Public Sector Management
 SAP QM
 SAP for Retail
 SAP SAM (Service & Asset Mgt)
 SAP S/4HANA
 SAP SCM
 SAP SD
 SAP SD - GTS
 SAP Security
 SAP SEM
 SAP SM
 SAP Smart Forms
 SAP Solution Manager
 SAP SRM
 SAP TM
 SAP UI5 (UI development toolkit for
 HTML5)
 SAP Web Application Server
 SAP WEBI
 SAP WM
 SAP WM – EWM
 Siebel/Siebel Analytics
 Software AG webMethods
 SuccessFactors
 Web Dynpro
 Workday HCM

Data/Database

Alteryx Designer
 Amazon Athena
 Amazon DynamoDB
 Amazon RedShift
 Apache Cassandra
 Apache CouchDB
 Apache Hive
 Apache Spark SQL
 Azure Cosmos DB
 Azure Data Factory
 Azure SQL Data Warehouse
 Azure SQL Database
 Azure Synapse Analytics
 Base SAS
 Big Data
 Blockchain
 Cloudera Impala
 Couchbase Server
 Data mining
 Data security
 Database management
 DB2
 dBASE/xBASE
 ETL (Extract, transform, load)
 GIS
 Google Big Query
 Google Data Studio
 Hbase
 Informatica
 Java Database Connectivity
 Kibana
 Looker
 Master data management
 Microsoft Access
 Microsoft Exchange Server
 2007/2010/2013
 Microsoft SQL Server
 2019/2016/2014/2012
 Microsoft SQL Server Integration
 Services
 MongoDB
 MySQL
 NewSQL
 NoSQL
 OpenEdge ABL
 Oracle Application Server

Oracle Business
 Intelligence Enterprise
 Edition Plus
 Oracle Coherence
 Oracle DB 9i/10g/11i/12c
 Oracle Enterprise Manager
 Oracle Exadata
 Oracle Forms
 Oracle Reports
 PostgreSQL
 Power Query
 Redis
 Riak
 Riak
 Smart Contracts
 Snowflake/Snowflake
 Schema
 Sqoop
 Sybase Adaptive Server
 Teradata
 TIBCO Spotfire
 Visual SQL

Messaging & Communications

ActiveMQ
 Apache Camel
 Apache Kafka
 HCL Domino
 Java Messaging Service
 Message-oriented
 Middleware (Wave,
 XMPP/Jabber, etc.)
 Microsoft Exchange
 Novell Groupwise
 Oracle Comm Messaging
 Server
 RabbitMQ
 TIBCO Enterprise Message
 Service
 TIBCO Rendezvous
 Unified
 Communications/Messaging

Systems/Networking

Active Directory
 Amazon AWS CloudTrail
 Amazon Elastic Kubernetes Service
 Ansible
 Apache Flume
 Arista
 ATM
 AWS Fargate
 Azure Active Directory
 Azure Logic Apps
 Azure Sentinel
 Azure Storage
 Business continuity and disaster recovery planning
 CA Endevor
 Chef/Opscode
 Cisco ASA
 Cisco CUCM
 Cisco ICM
 Cisco IPCC
 Cisco ISE/Identity Services Engine
 CiscoNexus
 Cisco Prime
 Cisco UCCX
 Cisco UCCX
 Citrix Hypervisor (XenServer)
 Citrix Virtual Apps (XenApp)
 Cloud architecture
 Cloud security
 DHCP
 EIGRP
 Ethernet
 Fast Ethernet
 Gigabit Ethernet
 Grafana
 HP ConvergedSystem
 HP Quality Center
 HTTPS
 IaaS (Infrastructure as a Service)
 Infrastructure architecture
 Intrusion prevention/detection sys
 IPX/SPX
 Juniper
 Kubernetes

LAN
 Microsoft Application Virtualization
 Microsoft Azure Sentinel
 Microsoft Hyper-V
 Microsoft SCCM
 Microsoft SCVMM
 Microsoft Virtual Server
 Mobile device management
 Mobile security
 Multiprotocol Label Switching
 NAS/Network Attached Storage
 Network access control/Identity mgt systems
 Network security management
 Novell Netware
 PaaS
 Performance Analysis/Tuning
 Performance
 Management/Metrics
 Performance Testing
 Prometheus
 Puppet
 Rackspace Cloud
 RedHat OpenShift
 Routing (e.g. OSPF)
 Salt
 SAN/Storage Area Networks
 Security skills (project-based)
 Security Information and Event Management
 SMTP
 SNA
 Software-Defined Networking
 SolarWinds
 Storage
 virtualization/administration
 TCP/IP
 Terraform
 Tivoli
 Vagrant
 vCenter Server
 vCloud
 Virtualization (various)
 Virtual security
 VMware ESXi Server
 VMware NSX
 VoIP/IP telephony
 VPN/OpenVPN

WAN/3G/4G services
 Web Infrastructure
 Web services security
 Wireless Network Mgmt
 Wireless security
 Wireless sensors/RFID
 Wireline Networking/Telecomm.
 WML

Operating Systems

AIX
 CoreOS
 HP-UX
 Linux
 Mac OS X
 Mobile operating systems (iOS, Android)
 OpenStack
 Red Hat Enterprise Linux
 Solaris
 SUSE
 Unix (all)
 VMware vSphere
 Windows 10/11
 Windows NT
 Windows Server 2019/2016/2012

Management, Methodologies and Process

Artificial Intelligence
 Artificial Intelligence for IT Operations (AIOps)
 Azure Key Vault
 Azure Machine Learning
 Azure Monitor
 Azure Service Fabric
 Big Data Analytics
 Bioinformatics
 Business Analysis
 Business Analytics
 Business Intelligence
 Business performance mgt
 Business process management/modeling/improvement SW
 Caffe
 Capacity Planning/Management
 Change management

COBIT
 Collaboration software
 Complex Event Processing/Event Correlation
 Configuration Management
 Continuous Improvement
 Continuous Integration
 CRM
 Cryptography (encryption, VPN)
 Customer Experience
 Cyber Threat Intelligence
 Cybersecurity
 Data Acquisition and Control Systems
 Data Analytics
 Data Architecture
 Data Cleansing
 Data Engineering
 Data Governance
 Data Integration
 Data Management
 Data Migration
 Data Modelling
 Data Privacy
 Data Protection
 Data Quality
 Data Science
 Data Security
 Data Strategy
 Data Transformation
 Data Visualization
 DataOps
 DataRobot Enterprise AI Platform
 Deep Learning
 Deployment Automation
 DevOps
 DevSecOps
 Digital Analytics
 Digital Forensics
 Digital Marketing
 E-Discovery
 E-Procurement
 ERP
 Flink
 Functional Programming
 Functional Testing
 Game Development

General Data Protection Regulation (GDPR)
 Google TensorFlow
 Governance, Risk management and Compliance
 H2O.ai
 HL7
 Identity and access management
 Incident Management
 Information management
 IT Audit
 IT Governance
 ITIL V3
 IT Service Management/ITSM
 Kanban
 Keras
 Machine Learning
 Marketo
 Metadata design and development
 Microservices
 Microsoft SQL Server Analysis Services
 Microsoft Visio
 MLOps
 Natural language processing
 Network Architecture
 Neural Networks
 NIST/NIST 800
 Penetration testing
 Power BI
 Predictive Analytics and Modeling
 Prescriptive Analytics
 Program Management
 Project
 management/governance
 PyTorch
 QlikSense
 Quality Assurance/QA Automation
 Quality management/TQM
 Quantitative
 Analysis/Regression
 Razor
 Requirements Engineering/Analysis

Management, Methodologies and Process – cont'd.

Risk analytics/assessment
Robotic Process Automation
Scaled Agile Framework (SAFe)
Security architecture and models
Security auditing
Security management
Security testing
SEO
Site Reliability Engineering
Six Sigma/Lean Six Sigma
Social media analysis/analytics
Software development lifecycle management
Splunk
Test Driven Development/ Scripting
Threat Detection/Modelling/Mgt
TIBCO BusinessWorks
TOGAF
Unit Testing
Usability Research/Human Factors Research
User Acceptance Testing
User-Centered Design
User Experience/User Interface
Vulnerability Scanning/ Assessment/Management
Waterfall
Web Analytics
Webtrends analytics
Zachman Framework

IT NONCERTIFIED SKILLS PAY SUMMARY – Through January 1, 2023

A. NONCERTIFIED TECH SKILLS PAY PERFORMANCE: By Category

NON-CERTIFIED TECH SKILLS. 204 of 663 non-certified tech skills changed cash market value from October 1, 2022 to January 1, 2023 compared to 173 and 201 skills in the prior two calendar quarters. The average cash pay premium remained unchanged last quarter for a total 2.2 percent growth for the 2022 year.

Noncertified IT Skills - % Growth/Decline
 3 months & 12 months

(675 skills, data through 1/1/2023)

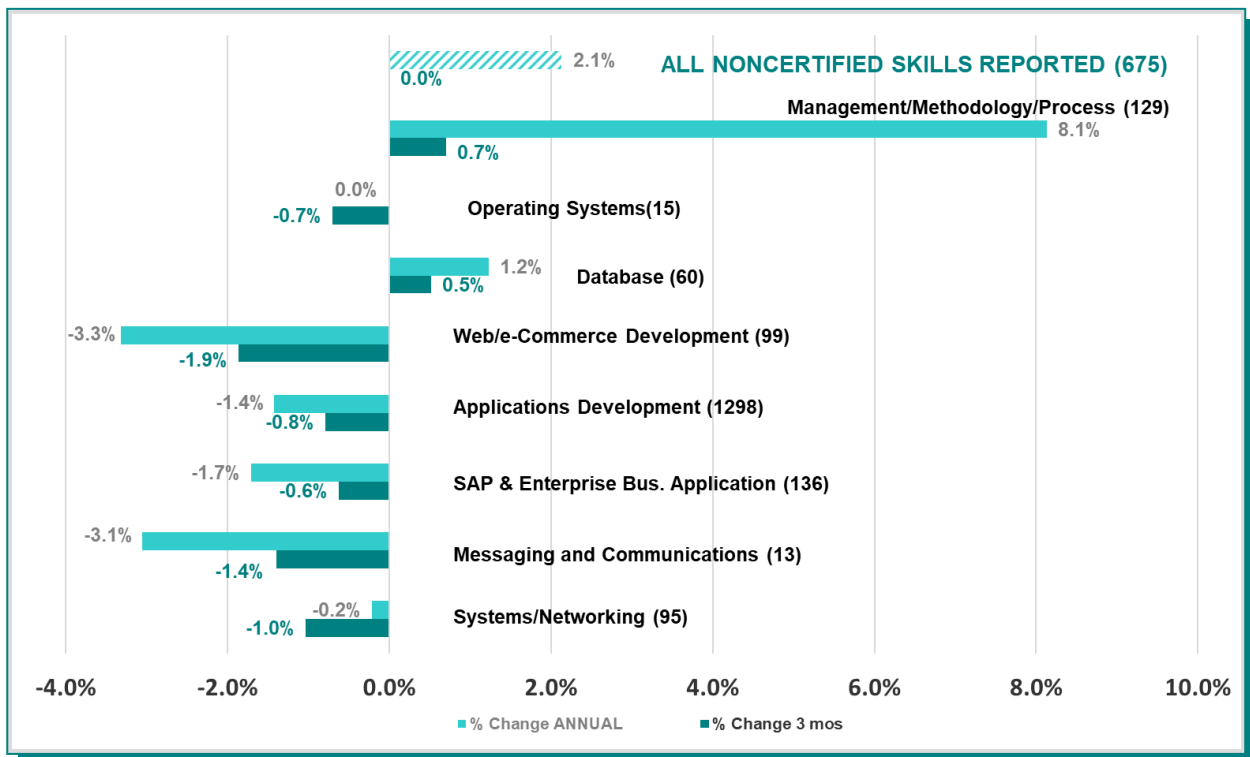


Figure 3

Source: Foote Partners [IT Skills & Certifications Pay Index™](#), 4th Quarter 2022 data

4-YEAR NON-CERTIFIED IT SKILLS PAY TRENDS

(Through 1/1/2023 – 91,348 IT Professionals)

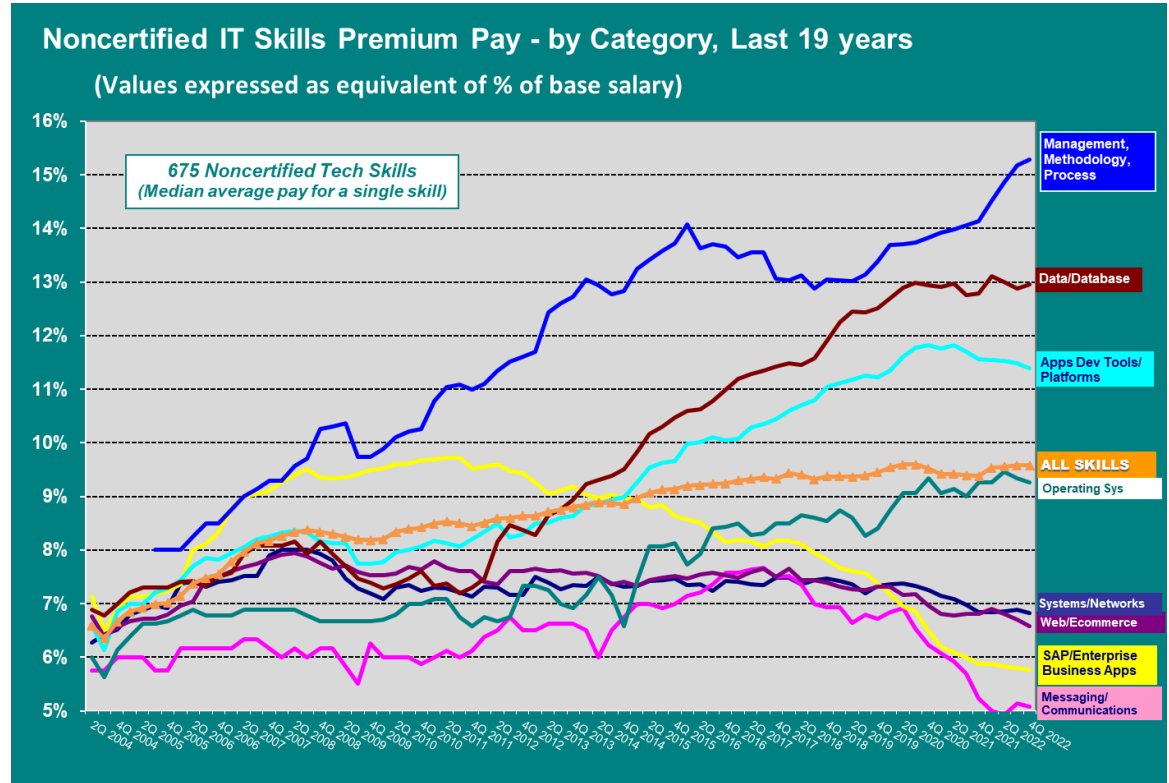
NONCERTIFIED IT SKILLS CATEGORIES	# of skills surveyed	Change in Average Premium Pay by Category					
		% Change 3 mos	% Change 6 mos	% Change ANNUAL	% Change 2 yrs	% Change 3 yrs	% Change 4 yrs
Systems/Networking	95	-1.0%	-0.6%	-0.2%	-6.0%	-7.1%	-8.7%
Messaging and Communications	13	-1.4%	2.9%	-3.1%	-18.6%	-24.5%	-26.8%
SAP & Enterprise Business Applications	136	-0.6%	-1.0%	-1.7%	-11.0%	-21.9%	-26.2%
Apps Development Tools & Platforms	128	-0.8%	-1.2%	-1.4%	-3.7%	1.5%	3.2%
Web/e-Commerce Development	99	-1.9%	-3.4%	-3.3%	-5.6%	-10.0%	-11.1%
Data/Database	60	0.5%	-0.4%	1.2%	0.1%	3.5%	8.9%
Operating Systems	15	-0.7%	-2.1%	0.0%	-0.7%	10.3%	8.6%
Management/Methodology/Process	129	0.7%	3.0%	8.1%	10.5%	14.3%	17.2%
ALL NONCERTIFIED SKILLS REPORTED	675	0.0%	0.3%	2.1%	0.6%	1.4%	2.2%

17-YEAR NON-CERTIFIED IT SKILLS PAY TRENDS BY CATEGORY

% Change in Average Median Pay for a Single Non-certified IT Skill)

(Through 1/1/2023 – 91,348 IT Professionals)

SOURCE: Foote Partners 2023 [IT Skills & Certifications Pay Index™](#)



Pay data supporting these charts available in the [IT Skills and Certifications Pay Index™](#) - 4Q 2022 data edition

HIGHEST PAYING Noncertified IT Skills (cash pay premiums, all 675 skills surveyed, ranked)

These **non-certified IT skills** are earning the highest pay premiums (data collected October 1, 2022 to January 1, 2023). **Grouped by cash pay premium market value in descending order and alphabetically within groups.** **Green/Red** = increased/decreased in market value this quarter. **Purple** = Made the list this quarter for first time.

1.[Tie] Big Data analytics Security auditing	4.[Tie] Artificial Intelligence Azure Service Fabric Blockchain	5.[Tie] Amazon Athena Apache Cassandra Apache Hive Apache Pig Apache Spark SQL Azure Key Vault Azure Machine Learning Big Data Bioinformatics Cloud Foundry PaaS Complex Event Processing/Event Correlation Configuration Management Cyber Threat Intelligence Cybersecurity Data Governance Data Management Data Modelling Data Transformation Digital Forensics E-Discovery H2O.ai HBase Informatica Kanban Metadata design and development Network Architecture Oracle Application Server Predictive Analytics and Modeling	5.[Tie] cont'd Program Management Rust Six Sigma/Lean Six Sigma Sqoop Teradata
2.[Tie] Artificial Intelligence for IT Operations Continuous Delivery Data Architecture Data Engineering Deep Learning DevSecOps MLOps Risk analytics/assessment Security architecture and models Site Reliability Engineering Zachman Framework	Continous Integration Cryptography (encryption, VPN, SSL/TLS, Hybrids) Data Analytics Data Integration Data Science DataOps DataRobot Enterprise AI Platform DevOps Ethereum GitOps Google TensorFlow Governance, Risk management and Compliance Keras Machine Learning NIST/NIST 800 Penetration testing PyTorch Redis Security testing Threat Detection/Modelling/Management Vulnerability Scanning/ Assessment/Management		
3.[Tie] Business analytics Data Strategy Deployment Automation Flink Functional Programming Identity and access management Microservices Natural language processing Neural Networks Scaled Agile Framework (SAFe) Smart Contracts Splunk			

NONCERTIFIED IT SKILLS TREND HIGHLIGHTS: Market Value Gainers & Highest Paying – 4th Quarter 2022 data

These non-certified tech skills *gained 10% or more in market value in the three months ending January 1, 2023* vs. prior quarter (seen below grouped by segment). *Listed in descending order of amount of % gain in cash pay premium* (including ties). Highest paying skills listed on right *in alphabetical order*.

IT SKILLS (noncertified)			Highest Paying – Cash Premiums (A-Z)
<p><u>Applications Development skills</u> Apache Cordova Grunt MapReduce Tcl Apache Lucene Flutter</p> <p><u>SAP & Enterprise Business Applications skills</u> SAP MDG (Master Data Governance) Remedy ITSM SAP BPC (BusinessObjects Planning and Consolidation) SAP for Retail (IS-Retail) IBM Sterling Oracle BPM Oracle E-Business suite SAP APO (Advanced Planner & Optimizer) SAP HCM (SAP HR) Web Dynpro SAP ALE (Application Link Enabling) SAP LES (Logistics Execution System) SAP Solution Manager SAP WM (Warehouse Management) SAP Hybris/Commerce Cloud SAP PM (Plant Maintenance) SAP PP (Production Planning)</p>	<p><u>Database Skills</u> Couchbase Server Oracle Application Server Apache CouchDB Apache Spark SQL HBase Teradata Oracle Enterprise Manager</p> <p><u>Messaging & Communications Skills</u> TIBCO Enterprise Message Service TIBCO Rendezvous</p> <p><u>Systems/Networking skills</u> HTTPS Apache Flume Cisco Prime Cisco ASA EIGRP Cisco Nexus VPN/OpenVPN Wireless network management (LANs, GSM) Ansible Software-Defined Networking</p>	<p><u>Web/SOA/E-Commerce skills</u> Adobe Experience Manager Microsoft Forefront Threat Management Gateway GatsbyJS Magento/Adobe Commerce Ember.js Mule/MuleESB Perl WebSphere Datapower Mobile applications development</p> <p><u>Management, Process & Methodology skills</u> DataRobot Enterprise AI Platform TIBCO BusinessWorks Robotic Process Automation Collaboration software Digital Forensics E-Discovery Program Management Business analytics Deployment Automation Flink</p>	<ul style="list-style-type: none"> - Artificial Intelligence for IT Operations (AIOps) - Big Data analytics - Business analytics - Continuous Delivery - Data Architecture - Data Engineering - Data Strategy - Deep Learning - Deployment Automation - DevSecOps - Flink - Functional Programming - Identity and access management - Microservices - MLOps - Natural language processing - Neural Networks - Risk analytics/assessment - Scaled Agile Framework (SAFe) - Security architecture and models - Security auditing - Site Reliability Engineering - Smart Contracts - Splunk - Zachman Framework
<p>SOURCE: Foote Partners IT Skills & Certifications Pay Index™, 4th Quarter 2022 data edition</p>			

NONCERTIFIED IT SKILLS TREND HIGHLIGHTS: Market Value Losers – 4th Quarter 2022 data

These non-certified IT skills **declined 10% or more in market value in the three months ending January 1, 2023** vs. prior quarter (seen below grouped by segment). **Listed in descending order of amount of % decline in cash pay premium**, including ties.

IT SKILLS (Non-certified)

Applications Development skills

Boost C++
COBOL
Apache Camel
Drupal
Erlang
Bamboo/BambooHR
Ethereum
Apache Ant
Gosu/Guidewire
JBehave
Cloudera software
Delphi
SAS Enterprise Guide

Management, Process & Methodology skills

Marketo
Azure Key Vault
Bioinformatics
Quantitative Analysis/Regression Analysis
Metadata design and development

SAP & Enterprise Business Applications skills

SAP Exchange Infrastructure (XI)
Oracle HRMS
SAP Smart Forms
Oracle Eloqua
SAP Business One
SAP Crystal Reports
PeopleSoft (CRM/Financials/HCM)
SAP BOXI (Business Objects XI)
SAP CAR (Customer Activity Repository)
SAP CRM (Customer Relationship Management)
SAP Data Services (SAP BODS)
SAP Forecasting and Replenishment (SAP F&R)
SAP MDM (Master Data Management)
SAP SRM (Supplier Relationship Management)
NetWeaver Portal (SAP EP)
SAP Ariba
SAP CO (Controlling)
SAP CX (Customer Experience)
SAP FI (Financial Accounting)
SAP FI - CO (Financials and Controlling)
SAP SD (Sales & Distribution)
SAP WM - EWM (Extended Warehouse Management)
SAP GRC (Governance, Risk, and Compliance)
Pega
SAP PS (Project Systems)

Systems/Networking skills

Cloud security
IPX/SPX
vCloud
Cisco CUCM
Azure Active Directory
CA Endevor
VoIP/IP telephony
Azure Sentinel
Juniper
PaaS
Performance management/metrics
Amazon AWS CloudTrail
AWS Fargate
Network access control/Identity mgt sys.
Prometheus

Data/Database

NewSQL
Google Data Studio
Amazon DynamoDB
Blockchain

Messaging & Communication skills

HCL Domino
Unified communications/messaging
Apache Pulsar

Web/E-commerce Development skills

Spring Security
Documentum
Microsoft Identity Integration Server (MIIS)
Oracle Workflow
ColdFusion/ColdFusion MX
Julia
KnockoutJS
Microsoft Blazor
Microsoft Sharepoint/Sharepoint Server
PHP (all)
Figma
JavaBeans/EJB 3.0
WSDL (Web Services Description Language)
Apache Velocity
Node.js
Spring MVC
XAML/XACML
Secure coding/software development

SOURCE: Foote Partners [IT Skills & Certifications Pay Index™](#), 4th Quarter 2022 data edition

NON-CERTIFIED IT SKILLS ANALYSIS – Winners

A. NON-CERTIFIED TECH SKILLS EARNING HIGH PAY---AND STILL GROWING IN VALUE

The following non-certified tech skills meet two prerequisites:

- They **earned workers cash pay premiums well above the average** of all 675 skills reported in our *IT Skills and Certifications Pay Index™* in quarter ending January 1, 2023.
- They **recorded gains in cash market value** in the six months ending January 1, 2023.

No skill below is earning less than the equivalent of 17 percent of base salary—significant considering the average for all skills reported is 9.6 percent of base—and are listed in descending ranked order of cash premium and market value increases (including ties). Not surprising, the list contains a number of security, coding, database, analytics and artificial intelligence related skills.

Here is the list of noncertified IT skills pay premiums meeting the above criteria (in alphabetical order):

- | | | |
|------------------------------------|--|--|
| - Azure Service Fabric | - GitOps | - Security auditing |
| - Business analytics | - Governance, Risk management and Compliance | - Security testing |
| - Continuous Delivery | - Identity and access management | - Site Reliability Engineering |
| - Continuous Integration | - Keras | - Splunk |
| - Data Architecture | - Neural Networks | - Teradata |
| - Data Engineering | - NIST/NIST 800 | - Threat Detection/Modelling/Management |
| - DataRobot Enterprise AI Platform | - Oracle Application Server | - Vulnerability Scanning/Assessment/Management |
| - Deployment Automation | - Penetration testing | - Zachman Framework |
| - Digital Forensics | - Risk analytics/assessment | |
| - Flink | | |

Below is the same list, but **in descending ranked order of cash premium first and market value increase second** (including ties).

* * * *

1. Security Auditing

Average Pay Premium: 20 percent of base salary equivalent
 Market Value Increase: 25 percent (in the six months through January 1, 2023)

2. [Tie] Continuous Delivery

Risk analytics/assessment

Average Pay Premium: 19 percent of base salary equivalent
 Market Value Increase: 11.8 percent (in the six months through January 1, 2023)

4. [Tie] Data Architecture

Data Engineering
 Site Reliability Engineering
 Zachman Framework

Average Pay Premium: 19 percent of base salary equivalent
 Market Value Increase: 5.6 percent (in the six months through January 1, 2023)

8. [Tie] Business analytics

Deployment Automation

Average Pay Premium: 18 percent of base salary equivalent
 Market Value Increase: 20 percent (in the six months through January 1, 2023)

NON-CERTIFIED IT SKILLS ANALYSIS – Winners, cont'd.

10. Flink

Average Pay Premium: 18 percent of base salary equivalent
 Market Value Increase: 12.5 percent (in the six months through January 1, 2023)

11. [Tie] Identity and access management

Neural Networks

Splunk

Average Pay Premium: 18 percent of base salary equivalent
 Market Value Increase: 12.5 percent (in the six months through January 1, 2023)

14. DataRobot Enterprise AI Platform

Average Pay Premium: 17 percent of base salary equivalent
 Market Value Increase: 70 percent (in the six months through January 1, 2023)

15. Azure Service Fabric

Average Pay Premium: 17 percent of base salary equivalent
 Market Value Increase: 21.4 percent (in the six months through January 1, 2023)

16. [Tie] Keras

Penetration testing

Vulnerability Scanning/Assessment/Management

Average Pay Premium: 17 percent of base salary equivalent
 Market Value Increase: 13.3 percent (in the six months through January 1, 2023)

19. [Tie] Continuous Integration

GitOps

Governance, Risk management and Compliance

NIST/NIST 800

Security testing

Threat Detection/Modelling/Management

Average Pay Premium: 17 percent of base salary equivalent
 Market Value Increase: 6.3 percent (in the six months through January 1, 2023)

25. Oracle Application Server

Average Pay Premium: 16 percent of base salary equivalent
 Market Value Increase: 33.3 percent (in the six months through January 1, 2023)

26. [Tie] Digital Forensics

Teradata

Average Pay Premium: 17 percent of base salary equivalent
 Market Value Increase: 23.1 percent (in the six months through January 1, 2023)

IT Certification Data Trend Charts & Analysis

(Data collected through January 1, 2023)

Avaya Certified Design Specialist
 Avaya Certified Implementation Specialist
 Avaya Certified Integration Specialist
 Avaya Certified Solution Specialist
 Avaya Professional Design Specialist
 AWS Certified Advanced Network – Specialty
 AWS Certified Data Analytics – Specialty
 AWS Certified Developer - Associate
 AWS Certified DevOps Engineer - Professional
 AWS Certified Security - Specialty
 AWS Certified Solutions Architect - Associate (Cloud)
 AWS Certified Solutions Architect - Professional (Cloud)
 AWS Certified SysOps Administrator-Associate (Cloud)
 AXELOS ITIL 4 certifications
 BICSI ITS Technician
 BICSI Technician and Registered Communications
 Distribution Designer
 Brocade Certified Network Engineer
 Brocade Certified Network Professional
 Brocade Certified Fabric Designer
 Brocade Certified Fabric Professional (BCFP)
 Certificate in Information Security Management Principles
 (CISMP)
 Certificate of Cloud Security Knowledge (CCSK)
 Certificate of Cloud Auditing Knowledge (CCAK)
 Certification Authorization Professional (CAP)
 Certification of Capability in Business Analysis (CCBA)
 Certified Analytics Professional (CAP)
 Certified Business Analysis Professional (CBAP)
 Certified Business Continuity Professional (CBCP)
 Certified Cisco Systems Instructor (CCSI)
 Certified Cloud Architect
 Certified Cloud Security Professional (CCSP)
 Certified Cloud Technology Professional
 Certified Compliance Professional
 Certified Computer Examiner (CCE)
 Certified Computing Professional (CCP-ISC2)
 Certified Data Centre Management Professional (CDCMP)
 Certified Data Professional (CDP)
 Certified Disaster Recovery Engineer (C/DRE)
 Certified Enterprise Coach (Scrum/Agile)
 Certified Forensic Computer Examiner (CFCE)
 Certified Fraud Examiner
 Certified Healthcare Information Security and Privacy
 Practitioner (HCISPP)
 Certified in Convergent Network Technologies (CCNT)
 Certified in Governance, Risk and Compliance
 Certified in Risk and Information Systems Control (CRISC)
 Certified in the Governance of Enterprise IT (CGEIT)
 Certified Information Privacy Manager- all countries
 Certified Information Privacy Professional - all countries
 Certified Information Privacy Technologist- all countries
 Certified Information Security Manager (CISM)
 Certified Information Systems Auditor (CISA)
 Certified Information Systems Risk Manager/Mile2
 Certified Information Systems Security Professional
 (CISSP)
 Certified IP Telecom Network Specialist (CIPTS)
 Certified IT Architect (IASA CITA)
 Certified Manager of Software Quality (CMSQ)
 Certified Penetration Testing Engineer (CPTe)
 Certified Professional Scrum Product Owner
 Certified Professional ScrumMaster
 Certified Project Management Practitioner
 Certified Protection Professional
 Certified Scrum Developer
 Certified Scrum Product Owner
 Certified Scrum Team Coach
 Certified Scrum Trainer
 Certified ScrumMaster
 Certified ScrumMaster - Advanced
 Certified Secure Software Lifecycle Professional (CSSLP)
 Certified Software Quality Analyst (CSQA)
 Certified Telecommunications Network Specialist (CTNS)
 Check Point Certified Security Administrator (CCSA)
 Check Point Certified Security Expert (CCSE)
 Check Point Certified Security Master (CCSM)
 Cisco Certified CyberOps Associate
 Cisco Certified CyberOps Professional
 Cisco Certified Design Expert (CCDE)
 Cisco Certified DevNet Associate
 Cisco Certified DevNet Professional
 Cisco Certified DevNet Expert
 Cisco Certified Entry Network Technician (CCENT)
 Cisco Certified Internetwork Expert (CCIE, all variations)
 Cisco Certified Network Associate - Data Center
 Cisco Certified Network Associate (CCNA Routing and
 Switching)
 Cisco Certified Network Associate (Network Security)
 Cisco Certified Network Associate (Networking automation
 and programmability)
 Cisco Certified Network Associate (was CCNA Cloud)
 Cisco Certified Network Associate (was CCNA
 Collaboration)
 Cisco Certified Network Associate (was CCNA Wireless)
 Cisco Certified Network Associate (was Design Associate)
 Cisco Certified Network Professional - Collaboration
 Cisco Certified Network Professional - Data Center
 Cisco Certified Network Professional - Service Provider
 Cisco Certified Network Professional - Enterprise/Design
 Cisco Certified Network Professional -
 Enterprise/Routing and Services
 Cisco Certified Network Professional -
 Enterprise/Wireless Networks
 Cisco Certified Network Professional (CCNP-all)
 Cisco Certified Network Professional - Security
 Cisco Certified Systems Instructor (CCSI)
 Cisco Data Center Unified Computing Design Specialist
 Cisco Data Center Unified Fabric Support Specialist
 Citrix Certified Associate - Networking
 Citrix Certified Associate - Virtualization
 Citrix Certified Expert – Networking
 Citrix Certified Expert - Virtualization
 Citrix Certified Instructor (CCI - Virtualization,
 Networking, or Mobility)
 Citrix Certified Professional - Networking
 Citrix Certified Professional - Virtualization (CCP-V)
 Citrix XenServer Certified (CC-XenServer)
 CIW Advanced HTML5 and CSS3 Specialist
 CIW Certified Database Design Specialist
 CIW Web Design Professional
 CIW Web Development Professional
 CIW Web Foundations Associate
 CIW Web Security Professional
 Cloud U (Rackspace)
 Cloudera Certified Associate Administrator
 Cloudera Certified Associate Data Analyst
 Cloudera Certified Associate Spark and Hadoop
 Developer
 Cloudera Certified Professional: Data Engineer
 CompTIA A+
 CompTIA Advanced Security Practitioner
 CompTIA Certified Technical Trainer
 CompTIA Cloud Essentials
 CompTIA Cloud+
 CompTIA Cybersecurity Analyst+
 CompTIA Linux+
 CompTIA Mobile App Security+
 CompTIA Mobility+
 CompTIA Network+
 CompTIA Penetration Tester
 CompTIA Project+
 CompTIA Security+
 CompTIA Server+
 CompTIA Storage+
 Convergence Technologies Professional (CTP)
 CSX CyberSecurity Practitioner (CSXP)
 CWNP Certified Wireless Security Professional (CWSP)
 CWNP/Certified Wireless Analysis Professional (CWAP)
 CWNP/Certified Wireless Design Professional (CWDP)
 CWNP/Certified Wireless Network Administrator (CWNA)
 CWNP/Certified Wireless Network Trainer (CWNT)
 CWNP/Certified Wireless Network Expert (CWNE)
 CWNP/Certified Wireless Technology Specialist (CWTS)
 Cyber Security Forensic Analyst
 Dell Cloud Infrastructure - Specialist
 Dell Cloud Services Architect - Expert
 Dell Data Science Associate
 Dell Data Science Specialist - Advanced Analytics
 Dell EMC Technology Architect - Expert
 Dell EMC Technology Architect - Specialist
 Dell Implementation Engineer - Expert
 Dell Implementation Engineer - Specialist
 Dell Information Storage and Management Associate
 Dell Information Storage and Management Expert
 Dell Information Storage and Management Specialist
 Dell Platform Engineer/PowerScale - Specialist
 EC-Council Certified Application Security Engineer
 EC-Council Certified Encryption Specialist (ECES)
 EC-Council Certified Ethical Hacker (CEH)
 EC-Council Certified Incident Handler V2 (ECIH)
 EC-Council Certified Network Defender
 EC-Council Certified Network Defense Architect (CNDA)
 EC-Council Certified Security Analyst (ECSA)
 EC-Council Computer Hacking Forensic Investigator
 (CHFI)
 EC-Council Disaster Recovery Professional (EDRP)
 EC-Council Licensed Penetration Tester (LPT)
 Fortinet Network Security Expert (NSE) Level 1
 Fortinet Network Security Expert (NSE) Level 2
 Fortinet Network Security Expert (NSE) Level 3
 GIAC Assessing and Auditing Wireless Networks
 GIAC Certified Defending Advanced Threats (GDAT)
 GIAC Certified Detection Analyst (GCDA)
 GIAC Certified Enterprise Defender (GCED)
 GIAC Certified Forensics Analyst (GCFA)
 GIAC Certified Forensics Examiner
 GIAC Certified Incident Handler (GCIH)
 GIAC Certified Intrusion Analyst (GCIA)
 GIAC Certified Project Manager (GCPM)
 GIAC Certified Web Application Defender
 GIAC Certified Windows Security Administrator (GCWN)
 GIAC Cloud Penetration Tester (GCPN)
 GIAC Cloud Security Automation (GCSA)
 GIAC Cloud Security Essentials (GCLD)
 GIAC Critical Controls Certifications (GCCC)
 GIAC Cyber Threat Intelligence (GCTI)
 GIAC Defensible Security Architecture (GDSA)
 GIAC Enterprise Vulnerability Assessor (GEVA)

GIAC Exploit Researcher and Advanced Penetration Tester (GWAPT)
 GIAC Information Security Fundamentals (GISF)
 GIAC Information Security Professional (GISP)
 GIAC Mobile Device Security Analyst (GMOB)
 GIAC Network Forensic Analyst (GNFA)
 GIAC Penetration Tester (GPEN)
 GIAC Public Cloud Security (GPCS)
 GIAC Python Coder (GPYC)
 GIAC Reverse Engineering Malware (GREM)
 GIAC Security Essentials (GSEC)
 GIAC Security Expert (GSE)
 GIAC Security Leadership (GSLC)
 GIAC Security Operations Certified (GSOC)
 GIAC Security Operations Manager (GSOM)
 GIAC Systems and Network Auditor (GSNA)
 GIAC Web Application Penetration Tester (GWAPT)
 Global Industrial Cyber Security Professional (GICSP)
 Google Associate Cloud Engineer
 Google Certified Professional Cloud Architect
 Google Cloud Certified - Professional Data Engineer
 Google Cloud DevOps Engineer
 Google Professional Cloud Developer
 Google Professional Cloud Network Engineer
 Google Professional Cloud Security Engineer
 HDI Customer Service Representative
 HDI Desktop Support Manager
 HDI Desktop Support Technician
 HDI Support Center Analyst
 HDI Support Center Director
 HDI Support Center Manager
 HDI Support Center Team Lead
 HDI Technical Support Professional
 Help Desk Analyst: Tier 1 Support Specialist/Ed2Go
 Help Desk Team Lead/RCCSP
 Hitachi Qualified Professional - Storage Administration
 HP Accredited Solutions Expert (ASE - all)
 HP Accredited Technical Professional (ATP - all)
 HP ASE - Storage Solutions V4
 HP ATP - Hybrid IT Solutions V2
 HP ATP - Storage Solutions V1 /V2
 HP Master Accredited Solutions Expert (MASE - all)
 HP Master ASE – Hybrid IT Solutions Architect V1
 HP Master ASE - Storage Solutions Architect V3
 Huawei Certified Network Associate (all)
 Huawei Certified Network Professional (all)
 Huawei Certified Network Expert (all)
 IAPP Certified Information Privacy Professional
 IBM Advanced Systems Administrator (all)
 IBM Certified Administrator - Cognos Analytics
 IBM Certified Application Developer - Cloud Solutions v3
 IBM Certified Application Developer - DB2 9.7 for Linux, Unix and Windows
 IBM Certified Application Developer (all)
 IBM Certified Data Architect - Big Data
 IBM Certified Data Engineer - Big Data
 IBM Certified Database Administrator - DB2 11.1 for Linux, UNIX and Windows
 IBM Certified Developer - Cognos Analytics
 IBM Certified Professional Developer - Cloud v4
 IBM Certified Professional SRE - Cloud v1
 IBM Certified Solution Advisor - Blockchain Platform V2
 IBM Certified Solution Advisor - DevOps V2
 IBM Certified Solution Architect – Cloud v4
 IBM Certified Solution Architect - Data Warehouse V1
 IBM Certified Solution Designer (all)
 IBM Certified Specialist - AI Enterprise Workflow V1
 IBM Certified Systems Administrator: WebSphere Application Server Network Deployment
 IBM Certified Systems Administrator (all)
 Information Systems Security Architecture Professional (ISSAP/CISSP)
 Information Systems Security Engineering Professional (ISSEP/CISSP)
 InfoSys Security Management Professional (ISSMP/CISSP)
 ITIL Expert Certification
 ITIL Foundation Certification
 ITIL Intermediate Certification
 ITIL Master Certification
 JBoss Certified Developer (Seam, Persistence, ESB)
 Juniper Networks Certified Internet Associate
 Juniper Networks Certified Internet Expert
 Juniper Networks Certified Internet Professional
 Juniper Networks Certified Internet Specialist
 Linux Foundation Certified Engineer
 Linux Foundation Certified System Administrator
 Linux Professional Institute certification (LPIC- 2)
 Linux Professional Institute certification (LPIC- 3)
 Magento 2 Certified Professional Developer
 Magento 2 Certified Associate Developer
 MCSE: Core Infrastructure
 Microsoft Certified Azure Administrator
 Microsoft Certified Azure Administrator Associate
 Microsoft Certified Azure AI Engineer Associate
 Microsoft Certified Azure Data Engineer Associate
 Microsoft Certified Azure Data Scientist Associate
 Microsoft Certified Azure Developer Associate
 Microsoft Certified Azure Fundamentals
 Microsoft Certified Azure Security Engineer Associate
 Microsoft Certified Azure Solutions Architect
 Microsoft Certified Azure Solutions Architect Expert
 Microsoft Certified DevOps Engineer Expert
 Microsoft Certified Professional
 Microsoft Certified Solutions Associate(all)
 Microsoft Certified Solutions Associate: BI Reporting
 Microsoft Certified Solutions Associate: SQL 2016 DBA
 Microsoft Certified Solutions Associate: SQL Server 2012/2014/2016
 Microsoft Certified Solutions Associate: Web Applications
 Microsoft Certified Solutions Associate: Windows Server 2012/2016
 Microsoft Certified Solutions Developer (MCSRD)
 Microsoft Certified Solutions Developer: Applications Builder
 Microsoft Certified Solutions Expert: Business Applications
 Microsoft Certified Solutions Expert: Data Platform
 Microsoft Certified Solutions Expert: Desktop Infrastructure
 Microsoft Certified Solutions Expert: Server Infrastructure
 Microsoft Certified Trainer (MCT)
 Microsoft MTA: Windows OS
 Microsoft Office Specialist
 MongoDB Certified DBA
 MongoDB Certified Developer
 MongoDB Certified Developer Associate
 NetApp Certified Data Administrator, ONTAP (NCDA)
 NetApp Certified Implementation Engineer (NCIE)
 NetApp Certified Storage Associates – Hybrid Cloud
 NetScout/nGenius Certified Analyst (nCA)
 NetScout/nGenius Certified Associate (nCA)
 NetScout/nGenius Certified Expert (nCE)
 NetScout/nGenius Certified Specialist (nCS)
 Novell Certified Administrator (CNA)
 Novell Certified Novell Engineer (CNE)
 Novell Certified Instructor
 Novell Certified Linux Engineer (Novell CLE)
 Novell Certified Linux Professional (Novell CLP)
 Novell Identity Manager Administrator
 Offensive Security Defense Analyst (OSDA)
 Offensive Security Experienced Penetration Tester (OSEP)
 Offensive Security Exploit Developer (OSD)
 Offensive Security Exploitation Expert (OSEE)
 Offensive Security Professional (OSCP)
 Offensive Security Web Assessor (OSWA)
 Offensive Security Web Expert (OSWE)
 Offensive Security Wireless Professional (OSWP)
 Okta Certified Administrator
 Okta Certified Consultant
 Okta Certified Developer
 Okta Certified Professional
 Open Group Certified Architect (Open CA)
 Open Group Certified IT Specialist (Open CITS)
 Oracle Business Intelligence Foundation Suite 11g Certified Implementation Specialist
 Oracle Certified Associate - DBA (OCA)
 Oracle Certified Associate - Java SE Programmer
 Oracle Certified Associate - MySQL 5
 Oracle Certified Associate - WebLogic Server Administrator
 Oracle Certified Expert - Java Platform EE Developer
 Oracle Certified Expert - MySQL 5.1 Cluster Database Administrator
 Oracle Certified Expert - Siebel CRM Business Analyst
 Oracle Certified Expert - Solaris 10 Network Administrator for Solaris
 Oracle Certified Master - DBA (OCM)
 Oracle Certified Master - Java EE Enterprise Architect
 Oracle Certified Master - Java SE Developer
 Oracle Certified Professional - Advanced PL/SQL Developer
 Oracle Certified Professional - Application Server Administrator
 Oracle Certified Professional - Database Cloud Administrator
 Oracle Certified Professional - DBA (OCP)
 Oracle Certified Professional - E-Business Suite 12
 Oracle Certified Professional - Fusion Middleware 11g Forms Developer
 Oracle Certified Professional - Java EE Web Component Developer
 Oracle Certified Professional - Java EE Web Services Developer
 Oracle Certified Professional - Java SE Programmer
 Oracle Certified Professional - MySQL 5.x Database Administrator
 Oracle Certified Professional - MySQL 5.x Developer
 Oracle Certified Professional - PL/SQL Developer
 Oracle Certified Professional - Solaris 10 Systems Administrator
 Oracle Certified WebLogic Server System Administrator Certified Expert
 Oracle Cloud Infrastructure 2021 Certified Architect Professional
 Oracle Linux Certified Administrator (OCA)
 Oracle SOA 12c Certified Implementation Specialist
 Oracle VM 3.0 for x86 Certified Implementation Specialist
 Pegasystems Certified Data Scientist
 Pegasystems Certified Decisioning Consultant

Pegasystems Certified Lead System Architect
Pegasystems Certified Senior Systems Architect
Pegasystems Certified System Architect
Pegasystems Certified Pega Business Architect
Pegasystems Certified Robotics System Architect
PHP Certification
Pivotal Application Architect
Pivotal Cloud Foundry Operator certification
Pivotal Developer
PMI Agile Certified Practitioner (PMI-ACP)
PMI Certified Associate in Project Management (CAPM)
PMI Portfolio Management Professional (PfMP)
PMI Professional in Business Analysis (PMI-PBA)
PMI Program Management Professional (PgMP)
PMI Project Management Professional (PMP)
PMI Risk Management Professional (PMI-RMP)
Prince2 Foundation
Prince2 Practitioner
Professional Certified Investigator
Professional in Project Management (GAQM)
Qlik Sense Business Analyst
Qlik Sense Data Architect
Qualified Information Security Professional Q/ISP
Rackspace Certified Technician
Red Hat Certified Architect (RHCA)
Red Hat Certified Architect: Cloud
Red Hat Certified Architect: Enterprise Applications
Red Hat Certified Architect: Infrastructure
Red Hat Certified Engineer (RHCE)
Red Hat Certified Enterprise Application Developer
Red Hat Certified Specialist in Business Process Design
Red Hat Certified Specialist in Cloud Infrastructure
Red Hat Certified Specialist in Linux Performance Tuning
Red Hat Certified Specialist in Messaging Administration
Red Hat Certified Systems Administrator (RHCSA)
RSA Certified Administrator (RSA/CA)
RSA Certified Instructor (RSA/CI)
SAFe Certification
Salesforce B2C Commerce Developer
Salesforce Certified Application Architect
Salesforce Certified Data Architecture and Management Designer
Salesforce Certified Integration Architecture Designer
Salesforce Certified Platform Developer
Salesforce Certified Systems Architect
Salesforce Certified Technical Architect
Salesforce Certified User Experience Designer
Salesforce Development Lifecycle and Deployment Architect

Salesforce Identity and Access Management Architect
Salesforce Platform App Builder
Salesforce.com Certified Administrator
Salesforce.com Certified Advanced Administrator
SAS Certified Big Data Professional Using SAS 9
SAS Certified Data Integration Developer for SAS 9
SAS Certified Data Scientist Using SAS 9
SAS Certified Predictive Modeler - SAS Enterprise Miner
SAS Certified Professional: Advanced Programming/SAS 9.4
SAS Certified Specialist Base Programming/SAS 9.4
SAS Certified Statistical Business Analyst - SAS 9
SAS Certified Advanced Analytics Professional Using SAS 9
SAS Certified Data Quality Steward for SAS®
SAS Certified Professional: AI and Machine Learning
SAS Certified Professional: Data Curation for SAS Data Scientists
SAS Certified Specialist: Visual Business Analytics
ServiceNow Certified Application Developer (CAD)
ServiceNow Certified Implementation Specialist (CIS)
ServiceNow Certified Systems Administrator (CSA)
Siebel 8 Consultant Certified Expert
Six Sigma Black Belt
Six Sigma Green Belt
Six Sigma Master Black Belt
Six Sigma Yellow Belt
SNIA Certified Storage Architect
SNIA Certified Storage Networking Expert (SCSN-E)
SNIA Certified Storage Professional
SNIA Certified Systems Engineer Sniffer Certified Expert
SolarWinds Certified Professional (SCP)
SonicWall Network Security Administrator
Splunk Core Certified User
SUSE Certified Administrator
SUSE Enterprise Engineer (SCE)
SUSE Enterprise Architect or (SEA)
Systems Security Certified Practitioner (SSCP)
Tableau Desktop Certified Professional
Tableau Server Certified Professional
Teradata 14 Certified Associate
Teradata 14 Certified Database Administrator
Teradata 14 Certified Database Developer
Teradata 14 Certified Enterprise Architect
Teradata 14 Certified Master
Teradata 14 Certified Professional
Teradata 14 Certified Solutions Developer
Teradata 14 Certified Technical Specialist

TIBCO Certified Professional
TIBCO Certified SOA Architect
TOGAF 9 Certified
Virtualization Council Master Infrastructure Architect
VMware Certified Advanced Professional - Digital Workspace
VMware Certified Advanced Professional 6.5 - Data Center Virtualization Design
VMware Certified Advanced Professional – Network Virtualization
VMware Certified Advanced Professional (all)
VMware Certified Advanced Professional 6 - Data Center Virtualization Deployment
VMware Certified Advanced Professional 6/7 - Cloud Mgt and Automation Deployment
VMware Certified Advanced Professional 6/7 - Cloud Mgt and Automation Design
VMware Certified Design Expert – Network Virtualization
VMware Certified Design Expert - Cloud Mgt and Automation
VMware Certified Design Expert (all)
VMware Certified Design Expert 6 - Data Center Virtualization
VMware Certified Professional - Digital Workspace
VMware Certified Professional – Desktop Management 2021
VMware Certified Professional - Network Virtualization
VMware Certified Professional - Security 2021
VMware Certified Professional 6 - Data Center Virtualization (VCP6-DCV)
VMware Certified Professional 6.5 - Data Center Virtualization (VCP6.5-DCV)
VMware Certified Professional 6/6.5
VMware Certified Professional 6/7 - Cloud Mgt and Automation
VMware Certified Technical Associate - Data Center Virtualization
Zachman Certified - Enterprise Architect

IT CERTIFICATIONS PAY SUMMARY – Through January 1, 2023

A. CERTIFIED IT SKILLS PAY PERFORMANCE: By Category

TECH CERTIFICATIONS. Unlike non-certified skill pay, the average cash premium for 585 tech certifications increased both in the most recent quarter (up 0.1 percent) but has lost an average 1.1 percent market value for the 2022 year. Only security certifications and beginner/training certifications gained value in the fourth quarter, and applications development certifications is the only category to gain over the entire year.

**IT Certifications - % Growth/Decline
3 months & 12 months**

(595 certifications, data through 1/1/2023)

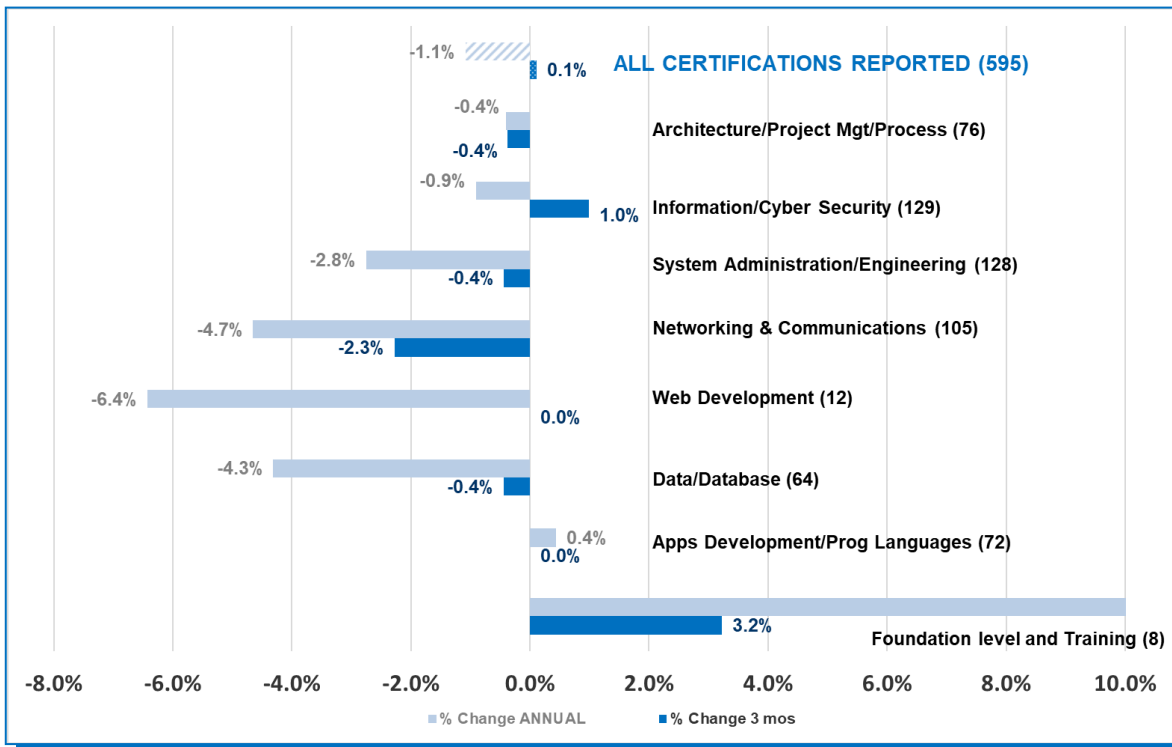


Figure 5

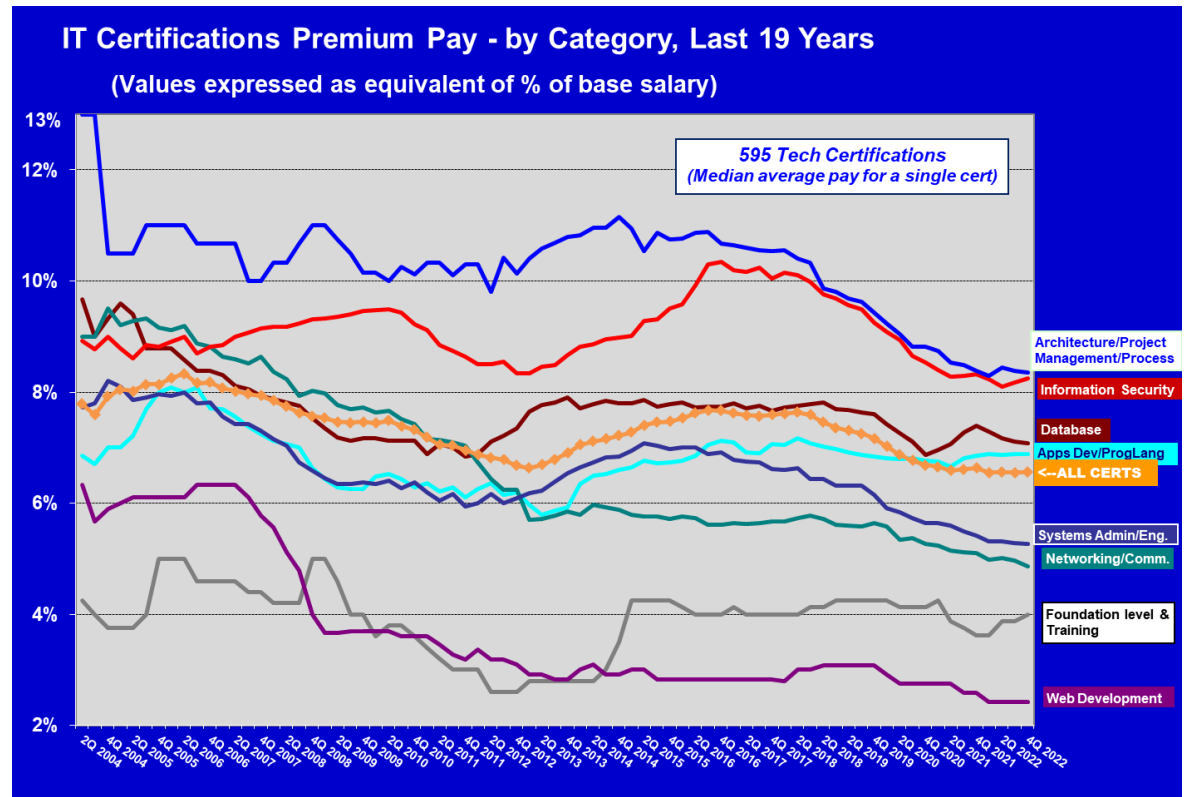
Source: Foote Partners [IT Skills & Certifications Pay Index™](#), 4th Quarter 2022 data

4-YEAR IT CERTIFICATIONS PAY TRENDS
(Through 1/1/2023 – 91,348 IT Professionals)

IT CERTIFICATIONS CATEGORIES	# of certs surveyed	Change in Average Premium Pay by Category					
		% Change 3 mos	% Change 6 mos	% Change ANNUAL	% Change 2 yrs	% Change 3 yrs	% Change 4 yrs
Training and Beginner/Foundation level	8	3.2%	3.2%	10.3%	-3.0%	-5.9%	-3.0%
Apps Development/Prog. Languages	72	0.0%	0.2%	0.4%	1.9%	0.7%	-1.9%
Data/Database	64	-0.4%	-1.3%	-4.3%	3.1%	-6.8%	-9.4%
Web Development	12	0.0%	0.0%	-6.4%	-12.1%	-21.6%	-21.6%
Networking & Communications	105	-2.3%	-3.0%	-4.7%	-7.8%	-13.8%	-15.1%
System Administration/Engineering	128	-0.4%	-0.7%	-2.8%	-6.6%	-14.3%	-18.2%
Information/Cyber Security	129	1.0%	1.9%	-0.9%	-3.3%	-10.8%	-15.4%
Architecture/Project Management/Process	76	-0.4%	-1.0%	-0.4%	-5.2%	-11.4%	-15.3%
ALL CERTIFICATIONS REPORTED	594	0.1%	0.0%	-1.1%	-1.9%	-8.4%	-12.0%

17-YEAR IT CERTIFICATIONS PAY TRENDS BY CATEGORY

% Change in Average Median Pay for a Single IT Certification)
(Through 1/1/2023 – 91,348 IT Professionals)



SOURCE: Foote Partners 2023 [IT Skills & Certifications Pay Index™](#)

Pay data supporting these charts available in the [IT Skills and Certifications Pay Index™](#) – 4Q 2022 data edition

HIGHEST PAYING IT Certifications (cash pay premiums, all 595 certifications surveyed, ranked)

These IT certifications are among those earning the highest pay premiums (data collected October 1, 2022 to January 1, 2023). **Shown in alphabetical order by overall rank in descending order including ties.** **Green/Red** = increased/decreased in market value this quarter. **Purple** = Made the list this quarter for first time.

- | | |
|---|--|
| <p>1.[Tie] Certified Professional Scrum Product Owner</p> <p>2.[Tie] Certified Professional ScrumMaster
Certified ScrumMaster - Advanced
Certified Secure Software Lifecycle Professional (CSSLP)
EC-Council Certified Encryption Specialist (ECES)
GIAC Security Expert (GSE)
GIAC Security Leadership (GSLC)
InfoSys Security Engineering Professional (ISSEP/CISSP)
Okta Certified Developer
Zachman Certified - Enterprise Architect</p> <p>3.[Tie] AWS Certified Security - Specialty
Certificate of Cloud Security Knowledge
Certified Cloud Security Professional (ISC2-CCSP)
Certified in the Governance of Enterprise IT (CGEIT)
Certified Information Security Manager (CISM)
Certified Information Systems Auditor (CISA)
Certified Manager of Software Quality (CMSQ)
CyberSecurity Forensic Analyst (CSFA)
EC-Council Certified Ethical Hacker (CEH)
GIAC Penetration Tester (GPEN)
GIAC Web Application Penetration Tester (GWAPT)
InfoSys Security Management Professional (ISSMP/CISSP)
Offensive Security Defense Analyst (OSDA)
Offensive Security Exploitation Expert (OSEE)
Offensive Security Web Assessor (OSWA)
Okta Certified Professional
PMI Program Management Professional (PgMP)</p> | <p>3.[Tie] – cont'd
SAFe Certification
Six Sigma Master Black Belt
Teradata 14 Certified Master
TOGAF 9 Certified</p> <p>4.[Tie] Certified in Governance, Risk and Compliance
Certified in Risk and Information Systems Control (CRISC)
Certified Information Systems Security Professional (CISSP)
CompTIA Advanced Security Practitioner (CASP)
GIAC Certified Forensics Examiner (GCFE)
GIAC Exploit Researcher and Advanced Penetration Tester (GXPN)
Google Certified Professional Cloud Architect
InfoSys Security Architecture Professional (ISSAP/CISSP)
Okta Certified Administrator
Pegasystems Certified Lead System Architect
Salesforce Certified Systems Architect
Salesforce Certified Technical Architect
SAS Certified Advanced Analytics Professional Using SAS 9
SAS Certified Professional: AI and Machine Learning
Six Sigma Black Belt
Teradata 14 Certified Enterprise Architect</p> |
|---|--|

Source: Foote Partners [IT Skills & Certifications Pay Index™](#), 4th Quarter data edition

IT CERTIFICATION PAY TREND HIGHLIGHTS: Market Value Gainers & Highest Paying – 4th Quarter 2022 dataset

These tech certifications *gained 10% or more in market value in the three months ending October 1, 2022* vs. prior quarter (seen below grouped by segment).
Listed in descending order of amount of % gain in cash pay premium (including ties). Highest paying skills listed on right *in alphabetical order*.

IT CERTIFICATION Gainers	Highest Paying – Cash Premiums (A-Z)	
<p><u>Info/Cyber Security certifications</u> GIAC Certified Forensics Examiner (GCFE) GIAC Exploit Researcher and Advanced Penetration Tester (GXPN) GIAC Penetration Tester (GPEN) GIAC Web Application Penetration Tester (GWAPT) Offensive Security Exploitation Expert (OSEE) Check Point Certified Security Expert (CCSE) Certified Information Security Manager (CISM) Certified Information Systems Auditor (CISA)</p> <p><u>Systems Administration certifications</u> ServiceNow Certified Application Developer (CAD) SUSE Enterprise Engineer (SCE) Oracle Linux Certified Administrator (OCA) VMware Certified Professional 6/7 - Cloud Mgt and Automation Oracle VM 3.0 for x86 Certified Implementation Specialist Microsoft Certified Azure Solutions Architect Expert</p> <p><u>Architecture, Project Management, and Process Certifications</u> Six Sigma Black Belt SAS® Certified Specialist: Visual Business Analytics Microsoft Certified: Azure AI Engineer Associate Salesforce Certified Technical Architect Six Sigma Master Black Belt</p> <p>Source: Foote Partners IT Skills & Certifications Pay Index™, 4th Quarter 2022 data edition</p>	<p><u>Application Development/Programming Languages certifications</u> Magento 2 Certified Associate Developer Oracle Certified Professional - Java EE Web Services Developer Magento 2 Certified Professional Developer Microsoft Certified: Azure Developer Associate Oracle Certified Professional - Application Server Administrator Oracle Certified WebLogic Server System Administrator Certified Expert Pivotal Developer AWS Certified Developer - Associate Pegasystems Certified System</p> <p><u>Data/Database certifications</u> Oracle Certified Associate - MySQL 5 Oracle Business Intelligence Foundation Suite 11G Certified Implementation Specialist Tableau Server Certified Professional Oracle Certified Professional - Database Cloud Administrator Teradata 14 Certified Professional Teradata 14 Certified Solutions Developer Microsoft Certified Azure Data Engineer Associate Teradata 14 Certified Enterprise Architect Teradata 14 Certified Master</p> <p><u>Beginner & Training certifications</u> Microsoft Certified Professional</p>	<ul style="list-style-type: none"> - AWS Certified Security - Specialty - Certificate of Cloud Security Knowledge - Certified Cloud Security Professional (ISC2-CCSP) - Certified in the Governance of Enterprise IT (CGEIT) - Certified Information Security Manager (CISM) - Certified Information Systems Auditor (CISA) - Certified Manager of Software Quality (CMSQ) - Certified Professional Scrum Product Owner - Certified Professional ScrumMaster - Certified ScrumMaster - Advanced - Certified Secure Software Lifecycle Professional - CyberSecurity Forensic Analyst (CSFA) - EC-Council Certified Encryption Specialist (ECES) - EC-Council Certified Ethical Hacker (CEH) - GIAC Penetration Tester (GPEN) - GIAC Security Expert (GSE) - GIAC Security Leadership (GSLC) - GIAC Web Application Penetration Tester (GWAPT) - InfoSys Security Engineering Professional (ISSEP/CISSP) - InfoSys Security Management Professional (ISSMP/CISSP) - Offensive Security Defense Analyst (OSDA) 2499 - Offensive Security Exploitation Expert (OSEE) - Offensive Security Web Assessor (OSWA) 2499 - Okta Certified Developer - Okta Certified Professional - PMI Program Management Professional (PgMP) - SAFe Certification - Six Sigma Master Black Belt - Teradata 14 Certified Master - TOGAF 9 Certified - Zachman Certified - Enterprise Architect

IT CERTIFICATION PAY TREND HIGHLIGHTS: Market Value Losers – 4th Quarter 2022 dataset

These IT certifications **declined 10% or more in market value in the three months ending January 1, 2023** vs. prior quarter (seen below grouped by segment).
 Listed in descending order of amount of % decline in cash pay premium, including ties.

IT CERTIFICATIONS Losers

Application Development/Programming Languages

IBM Certified Application Developer (all)
 Microsoft Office Specialist
 IBM Certified Solution Designer (all)
 IBM Certified Application Developer - Cloud Solutions v3
 IBM Certified Solution Advisor - DevOps V2
 Microsoft Certified Solutions Developer: Applications Builder
 IBM Certified Professional SRE - Cloud v1
 AWS Certified DevOps Engineer - Professional

Info/Cyber Security certifications

GIAC Certified Forensics Analyst (GCFA)
 GIAC Reverse Engineering Malware (GREM)
 GIAC Certified Incident Handler (GCIH)
 CompTIA Security+
 GIAC Certified Intrusion Analyst (GCIA)
 Okta Certified Consultant

Architecture, Project Management, and Process Certifications

PMI Certified Associate in Project Management (CAPM)
 Certified Business Analysis Professional (CBAP)
 Certified Scrum Developer
 PMI Professional in Business Analysis (PMI-PBA)
 Certified Scrum Product Owner
 Google Cloud DevOps Engineer

Systems Administration certifications

Microsoft Certified Solutions Expert : Server Infrastructure
 HP ASE - Storage Solutions V4
 HP ATP - Storage Solutions V1 /V2
 MCSE: Core Infrastructure
 HP Accredited Technical Professional (ATP - all)
 HP Master Accredited Solutions Expert (MASE - all)
 HP Master ASE - Storage Solutions Architect V3
 IBM Certified Solution Architect – Cloud v4
 Microsoft Certified Azure Solutions Architect

Networking and Communications

Huawei Certified Network Associate (all)
 NetScout/nGenius Certified Analyst (nCA)
 NetScout/nGenius Certified Specialist (nCS)
 Brocade Certified Network Professional
 Cisco Certified Network Associate (CCNA Routing and Switching)
 Cisco Certified Network Associate (Networking automation and programmability)
 Cisco Certified Network Associate (was CCNA Cloud)
 Dell EMC Technology Architect - Specialist (DCS-TA)
 Dell Information Storage and Management Expert (DCE-ISM)
 Huawei Certified Network Professional (all)
 NetScout/nGenius Certified Expert (nCE)
 Dell EMC Technology Architect - Expert (DCE-TA)
 Dell Implementation Engineer - Expert (DCE - IE)
 Huawei Certified Network Expert (all)
 VMware Certified Design Expert – Network Virtualization

Data/Database certifications

IBM Certified Database Administrator - DB2 11.1 for Linux, UNIX and Windows
 Dell Data Science Associate (DCA-DS)
 SAS Certified Statistical Business Analyst - SAS 9
 IBM Certified Application Developer - DB2 9.7 for Linux, Unix and Windows
 IBM Certified Professional Developer - Cloud v4
 SAS Certified Professional: Data Curation for SAS Data Scientists
 Cloudera Certified Associate Data Analyst
 IBM Certified Solution Advisor - Blockchain Platform V2
 SAS Certified Data Scientist Using SAS 9
 Cloudera Certified Professional: Data Engineer

Source: Foote Partners [IT Skills & Certifications Pay Index™](#), 4th Quarter 2022 data edition

IT CERTIFICATIONS ANALYSIS – Winners

A. **IT CERTIFICATIONS: Paying well above average + gaining the most in market value**

As a group, the 595 IT certifications tracked in our *IT Skills and Certifications Pay Index™* had declined in market value every calendar quarter since 3rd quarter 2018 until the second half of 2021 when they posted two consecutive quarters of gains. But in 2022 all those gains were lost. Still, some IT certifications bucked this trend.

The following IT certifications meet two prerequisites:

- First, they **recorded substantial gains in cash market value in the six months** ending January 1, 2023.
- Second, they **earned workers cash pay premiums well above the average** of all 595 certifications in our *IT Skills and Certifications Pay Index™*

No IT certification the follows is earning less than the equivalent of 10 percent of base salary—significant considering the average for all skills reported is 6.6 percent of base—and every certification listed below grew somewhere in the 9 percent to 37 percent range in cash market value in the six months ending October 1st. **They are listed in descending ranked order of market value gain** (including ties).

Here is the list of IT certifications the meet the above criteria (in alphabetical order):

- | | |
|---|---|
| - AWS Certified Security - Specialty | - Offensive Security Exploitation Expert |
| - Certified in the Governance of Enterprise IT | - Okta Certified Developer |
| - Certified Information Security Manager | - Okta Certified Professional |
| - Certified Information Systems Auditor | - Pegasystems Certified Lead System Architect |
| - Certified Secure Software Lifecycle Professional | - PMI Program Management Professional |
| - CompTIA Advanced Security Practitioner | - SAFe Certification |
| - GIAC Certified Forensics Examiner | - Salesforce Certified Systems Architect |
| - GIAC Exploit Researcher and Advanced Penetration Tester | - Salesforce Certified Technical Architect |
| - GIAC Penetration Tester | - Six Sigma Black Belt |
| - GIAC Web Application Penetration Tester | - Six Sigma Master Black Belt |
| - Google Certified Professional Cloud Architect | - Teradata 14 Certified Enterprise Architect |
| | - Teradata 14 Certified Master |

Below is the same list, but **in descending ranked order of cash premium first and market value increase second** (including ties).

* * * *

1. **Certified Secure Software Lifecycle Professional (CSSLP)**
 Okta Certified Developer
 Average Pay Premium: 12 percent of base salary equivalent
 Market Value Increase: 9.1 percent (in the six months through January 1, 2023)
3. **[Tie]GIAC Certified Penetration Tester (GPEN)**
 GIAC Web Application Penetration Tester (GWAPT)
 Offensive Security Exploitation Expert (OSEE)

IT CERTIFICATIONS ANALYSIS – Winners, cont'd.

6. **[Tie]AWS Certified Security - Specialty**
Certified in the Governance of Enterprise IT (CGEIT)
Certified Information Security Manager (CISM)
Certified Information Systems Auditor (CISA)
Okta Certified Professional
PMI Program Management Professional (PgMP)
SAFe Certification
Six Sigma Master Black Belt
Teradata 14 Certified Master
Average Pay Premium: 11 percent of base salary equivalent
Market Value Increase: 10 percent (in the six months through January 1, 2023)

15. **GIAC Certified Forensics Examiner (GCFE)**
Average Pay Premium: 10 percent of base salary equivalent
Market Value Increase: 37 percent (in the six months through January 1, 2023)

16. **[Tie] Salesforce Certified Systems Architect**
Teradata 14 Certified Enterprise Architect
Average Pay Premium: 10 percent of base salary equivalent
Market Value Increase: 25 percent (in the six months through January 1, 2023)

18. **[Tie] GIAC Exploit Researcher and Advanced Penetration Tester (GXPN)**
Six Sigma Black Belt
CompTIA Advanced Security Practitioner (CASP)
Google Certified Professional Cloud Architect
Pegasystems Certified Lead System Architect
Salesforce Certified Technical Architect
Average Pay Premium: 10 percent of base salary equivalent
Market Value Increase: 11.1 percent (in the six months through January 1, 2023)

IT CERTIFICATIONS ANALYSIS – Losers

B. IT CERTIFICATIONS THAT HAVE LOST THE MOST MARKET VALUE: Last 2 years

The average market value for 585 tech certifications may have increased in each of the last two calendar quarters, the first increases in several years. But this doesn't obviate the fact that they have been on a steady decline for much of the past several years.

The following tech certifications [lost the most in cash market value in the 24 months ending January 1, 2023](#).

Why have more certifications been losing value than gaining value?

Certifications decline in market value for a number of obvious and not so obvious reasons. Pay premiums may diminish as a certification expires, is retired, or is replaced with other certifications as technology evolves. Also, there remains a lingering bias that taking a proctored exam does not confer expertise in a subject on the test taker, especially when the pass rate is 70 percent (or less) correct answers. The certification industry has fought back against this bias by adding laboratory requirements and even peer review panels that decide if the candidate has qualified to receive designation.

But just as often it is their popularity that drives down pay premiums for a certification: as interest in a certification escalates and more people attain the certification, the gap between supply and demand for the certification narrows, driving down its market value as the laws of scarcity would dictate. This has been frequently documented in the case of dozens of certifications over the 20+ years Foote Partners has been tracking and reporting their cash pay premiums in the *IT Skills and Certifications Pay Index*.

LOSING GROUND: Listed below are certifications in alphabetical order that have **lost 30% to 50% percent of their cash pay premium market value** in the 24-month period ending December 31, 2022. Some on this list are now retired or scheduled to be.

Brocade Certified Network Professional
Check Point Certified Security Master (CCSM)
Cisco Certified Design Expert (CCDE)
Cisco Certified Network Associate (was CCNA Cloud)
Cisco Data Center Unified Computing Design Specialist
Cisco Data Center Unified Fabric Support Specialist
Citrix Certified Professional - Networking
Citrix Certified Professional-Virtualization (CCP-V)
Citrix XenServer Certified (CC-XenServer)
CIW Certified Database Design Specialist
Dell Platform Engineer/PowerScale - Specialist (DCS-PE)
Dell Data Science Associate (DCA-DS)
Dell Information Storage and Management Expert (DCE-ISM)
GIAC Information Security Professional (GISP)
GIAC Reverse Engineering Malware (GREM)
Huawei Certified Network Professional (all)
IBM Certified Application Developer - DB2 9.7 for Linux, Unix and Windows

IBM Certified Database Administrator - DB2 11.1 for Linux, UNIX and Windows
MCSE: Core Infrastructure
Microsoft Certified Solutions Associate: BI Reporting
Microsoft Certified Solutions Associate: SQL 2016 DBA
Microsoft Certified Solutions Associate: SQL Server 2012/2014/2016
Microsoft Certified Solutions Associate: Windows Server 2012/2016
Microsoft Certified Solutions Expert : Server Infrastructure
Microsoft Office Specialist
NetScout/nGenius Certified Specialist (nCS)
PMI Agile Certified Practitioner (PMI-ACP)
PMI Certified Associate in Project Management (CAPM)
PMI Professional in Business Analysis (PMI-PBA)
PMI Risk Management Professional (PMI-RMP)
Red Hat Certified Systems Administrator (RHCSA)
Salesforce.com Certified Administrator
SolarWinds Certified Professional (SCP)
VMware Certified Professional - Digital Workspace

2023 IT Skills & Certifications Pay Volatility Index™

(Data collected through January 1, 2023)

Demand dynamics in benchmarked certified and non-certified IT skills pay

What is skills and certifications pay volatility?

Skills volatility is defined as the incidence of gains or declines in premium pay earned by tech professionals for specific certified and noncertified technical and business skills. Tracking volatility is useful for both analyzing and forecasting demand for skills, for monitoring IT workforce transition, and for understanding IT management decision making. Volatility offers valuable insights that salary movements and hiring behavior do not. Important in this distinction is that skills can be segmented and benchmarked more meaningfully than jobs. Similar to IT positions, there are the broad categories (e.g., security, networking, systems, database, applications development). But also, more narrow areas, for example---web/e-commerce development, storage area networking, virtualization, architecture, business process, project management, methodology. But unlike most jobs, within categories or niche are very specific vendor-specific or vendor independent niches and skill specializations that provide more granular analysis (e.g., SAP, AJAX, Ruby on Rails, Microsoft Sharepoint, collaboration appliances, Oracle database).

TRENDS Cash Pay Premium Volatility for IT Skills and Certifications

Volatility in market value for individual IT skills and certifications—defined as incidence of gains or declines over a period of time in premium pay earned by IT professionals for specific technical and business skills—increased from October 1, 2022 to January 1, 2023 according to the latest update of Foote Partners' long-running *IT Skills and Certifications Pay Index™* of market values for tech skills. Market value is measured by tracking additional cash compensation paid to workers by their employers for specific certified and non-certified skills they possess.

Current Quarterly Recap (data collected through January 1, 2023)

TOTAL: All Skills and Certifications

- **24%** of skills and certifications (299 of 1,248) changed in market value in 4th Quarter 2022, no change from the **23.9%** (298 of 1,245) in the prior quarter. Average volatility in the 2022 calendar year averaged **24.9%**, slightly higher than the most recent calendar quarter volatility.
- **132 gained value** and **167 declined** in value in 4th Quarter 2022, a wider margin than the 118 and 180, respectively, in the prior quarter.

CERTIFIED SKILLS

- **16.2%** of reported certifications (95 of 585) changed market value in 4th Quarter 2022, more than five points lower than the **21.4%** (125 of 584) volatility in the prior quarter in which 30 more certifications changed in value.
- **56** certifications **gained** market value while only **39 declined** in value in Q4 compared to 58 and 67, respectively, in the prior quarter—a significant differential marking a return flat or gains in market value overall for IT certifications.

NON-CERTIFIED SKILLS

- **24%** of reported skills (204 of 663) changed value in 4th Quarter 2022, two points lower than the **26.2%** (173 of 661) volatility in the prior quarter even though 31 fewer noncertified skills changed in value. This is considerably lower than **average volatility of 30.3% for the 2022 calendar year**.
- **93** noncertified skills **gained** in market value; **111 declined** in value in 4th Quarter 2022 compared to 60 and 113, respectively, in the prior quarter—a significant differential in skill market pay gains in the final quarter of 2022.

Tracking skills volatility is useful in many ways: analyzing and forecasting demand for skills; monitoring IT workforce transition; and understanding IT management decision making. In fact, we believe statistical volatility in IT skills pay offers a more complete story of true labor market conditions than salary movements and hiring behavior, among other common indicators. Important in this distinction is that skills can be segmented and benchmarked more meaningfully than jobs allowing to microanalyses.

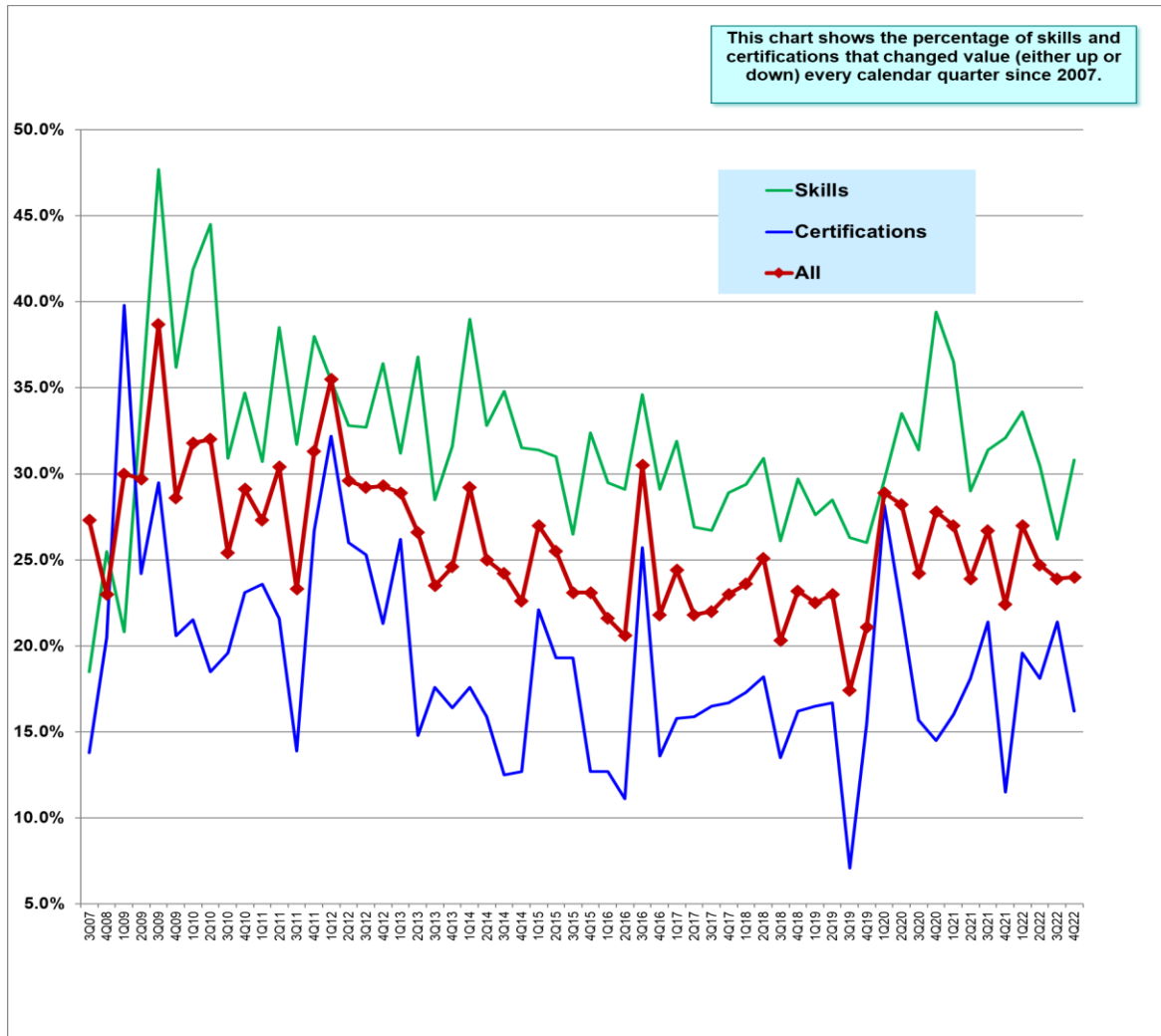
Similar to jobs, IT skills have broad skills categories that can be tracked (e.g., security, networking, systems, database, applications development). But unlike jobs, skills pay can be pinpointed to hundreds of niches and specialization. Also, unlike most job trends analyses, within skills categories and niches are *vendor-specific* and *vendor independent* skill specializations for more granular tracking, analysis, and forecasting.

Quarterly volatility for all 1,270 certified and non-certified skills in the last two years has been widely variable, in the 17% to 28% range. This is an important shift trend that we believe signals a move that employers are taking a more long-term view to building their tech workforces for evolving technologies such as AI/Machine Learning and a variety of digital solutions. Tech leaders right now are demanding more agility, faster reaction times, and more predictable execution; this is keeping volatility high as skills markets constantly adjust to meet surges in demand for specific certified and non-certified skills.

They will be able to achieve those capabilities through applying architecture principles and practices to people management.

VOLATILITY HIGHLIGHTS - 16 Year Trending

IT Skills and Certifications Volatility Index™ – 1,275 Skills and Certifications



(Source: Foote Partners LLC, [2023 IT Skills & Certifications Pay Index™](#))

Recent IT skills and certifications volatility trends

QUARTERLY SUMMARY

In the 4th Quarter 2022, 24% of skills and certifications recorded a change in their cash pay premiums, about the same as the 23.9% the prior quarter.

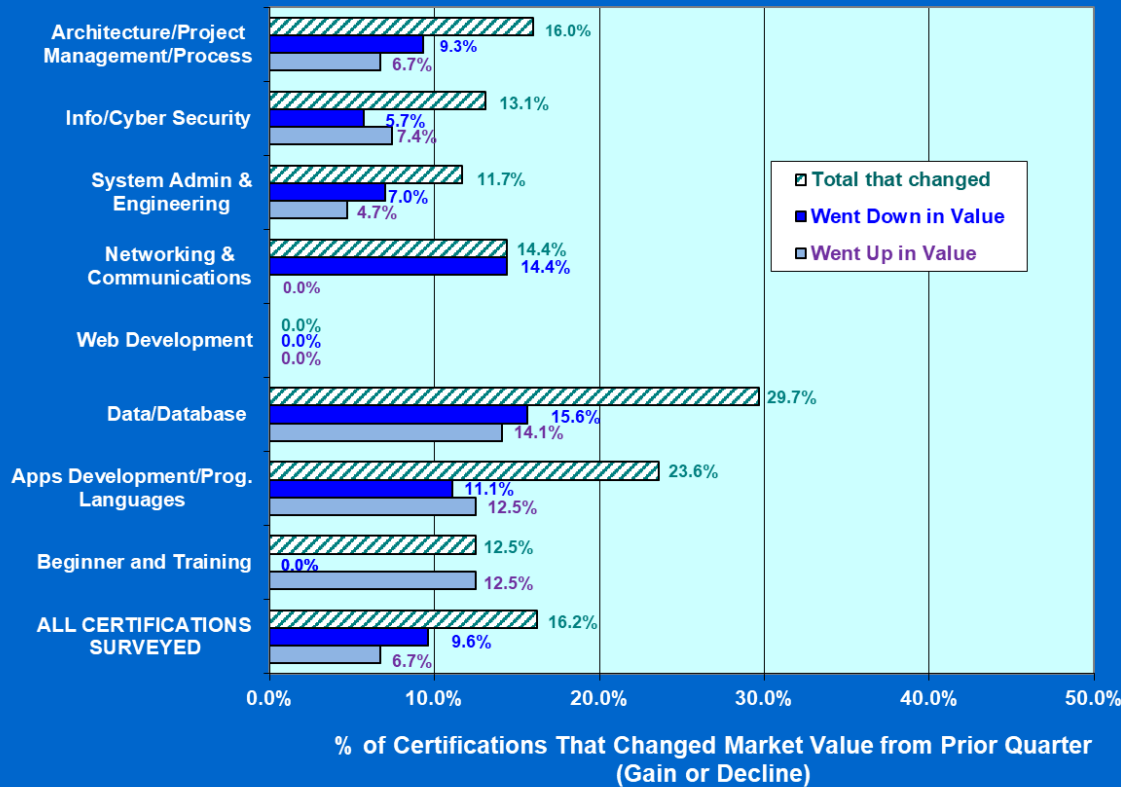
IT CERTIFICATIONS VOLATILITY in 4Q 2022 (16.2%) was more than 5 points lower than the prior quarter (21.4%) and also lower than the 18.8% average volatility in calendar year 2022.

NONCERTIFIED IT SKILLS VOLATILITY in 4Q 2022 (24%) was lower than the prior quarter (26.2%) and lower than the 30.3% average quarterly volatility in calendar 2022 and 31.3 over the 24 months 2020 and 2021.

(Pay data supporting these charts available in the [IT Skills and Certifications Pay Index™](#) – 2007 to 2022 quarterly data edition)

VOLATILITY HIGHLIGHTS IT Certifications – 4th Quarter 2022 datasets

VOLATILITY INDEX: How Many of 595 IT Certifications Changed Market Value in 4th Quarter 2022?



(Source: Foote Partners LLC, [2022 IT Skills & Certifications Pay Index™](#))

IT Skills and Certifications Volatility Index™
4Q 2022 data edition findings: Tech Certifications

Certifications Volatility Highlights

Among all 585 certifications surveyed, highest quarterly volatility (15%) occurred in these segments (ranked highest to lowest):

- Data/Database
- Applications Development
- Architecture/Project Mgt/Methodology

Within segments, notable upward volatility (value gains) occurred most in these:

- Data/Database
- Applications Development
- Beginner/Foundation & Training

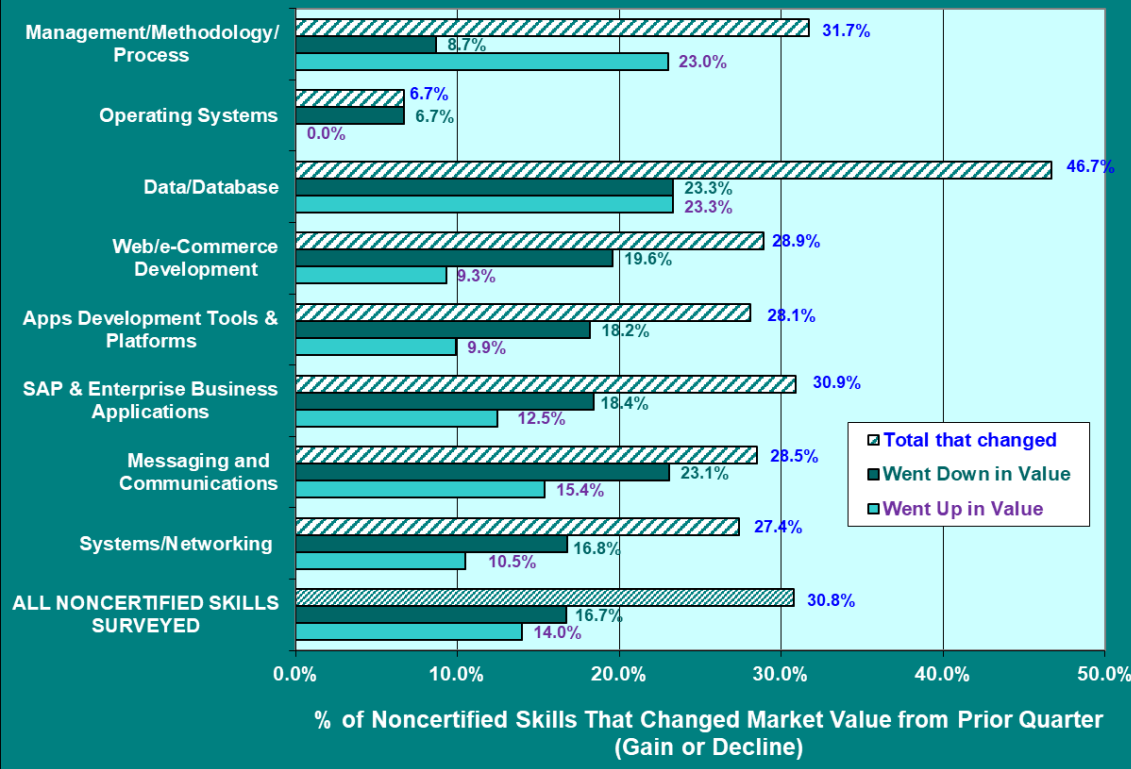
Within segments, notable downward volatility (value declines) occurred most in these (ranked):

- Data/Database
- Networking & Communication
- Applications Development

(Pay data supporting these charts available in the [IT Skills and Certifications Pay Index™](#) – 2007 to 2022 quarterly data edition)

VOLATILITY HIGHLIGHTS Non-certified IT Skills – 4th Quarter 2022 datasets

VOLATILITY INDEX: How Many of 675 Noncertified IT Skills Changed Market Value in 4th Quarter 2022?



(Source: Foote Partners LLC, [2022 IT Skills & Certifications Pay Index™](#))

IT Skills and Certifications Volatility Index™
4Q 2022 data edition findings: Non-certified IT Skills

Non-certified IT Skill Pay Volatility Highlights

Among all 663 noncertified IT skills surveyed, high volatility (>20%) occurred in all but one segments (ranked highest to lowest):

- Data/Database
- Management/Methodology/Process
- SAP & Enterprise Business Apps
- Web/Ecommerce Development
- Messaging and Communications
- Applications Development Tools & Platforms
- Systems/Networking

Within segments, notable upward volatility (value **gains**) occurred most in these (ranked):

- Data/Database
- Management/Methodology/Process
- Messaging and Communications

Within segments, notable downward volatility (value **declines**) occurred most in these (ranked):

- Data/Database
- Messaging and Communications
- Web/Ecommerce Development
- SAP & Enterprise Business Apps
- Applications Development Tools & Platforms

(Pay data supporting these charts available in the [IT Skills and Certifications Pay Index™](#) – 2007 to 2022 quarterly data edition)

2023 IT Skills and Certifications Pay Index™ (3rd Quarter data edition)

- Pay premiums for **1,270 certified and noncertified IT skills**
 - Three data points for each position: 10th, 50th, 90th percentile
- Verified and validated IT skills pay data from **91,348 IT professionals at 4,111 employers** in US and Canada
- Current data collected through January 1, 2023 (updated quarterly)
- Excel format data tables allowing for data loading into third-party data analytics tools from PayScale, MarketPay, PayFactors, CompAnalyst, WillisTowersWatson, Mercer, et. al.
- Certifications Guide containing basic information about surveyed IT certifications (pre-requisites; costs; test content; lab requirements, etc.)

Pricing: \$6,300 single edition. \$21,500 annual subscription

Definition of IT skills premium pay

- Pay that IT workers receive for possessing high-value IT and business skills used on the job
- Given in the form of a bonus, or embedded in base salary to adjust for the presence of a dominant vendor or technology central to job performance (examples: Cisco Network Engineer, Python Software Engineer, Redhat Linux Systems Administrator, or SAP Developer.)
- Often used to adjust either base pay or total pay in situations where job title does not match actual on-the-job duties and responsibilities, and changing the job title is not an attractive option
- May be used as a reward, recruiting inducement, retention tool, or as a guide for creating consulting rate cards

ABOUT THIS RESEARCH

Foote Partners' primary research survey for tracking IT skills and certifications pay and supply/demand volatility is the industry-leading ***IT Skills and Certifications Pay Index™ (ITSCPI)***, launched in 1999, and the ***IT Skills and Certifications Volatility Index***, both updated every three months since that time. Data covering 377,172 tech professionals at 4,111 employers in 83 U.S. and Canada cities are reported for IT salaries and skills pay earned for 260 positions and 1,270 certified and noncertified technical and business skills. Verified and validated pay data for 90,126 tech workers has been included in the 4th Quarter 2022 data edition of the ITSCPI, compiled from data collected through January 1, 2023.

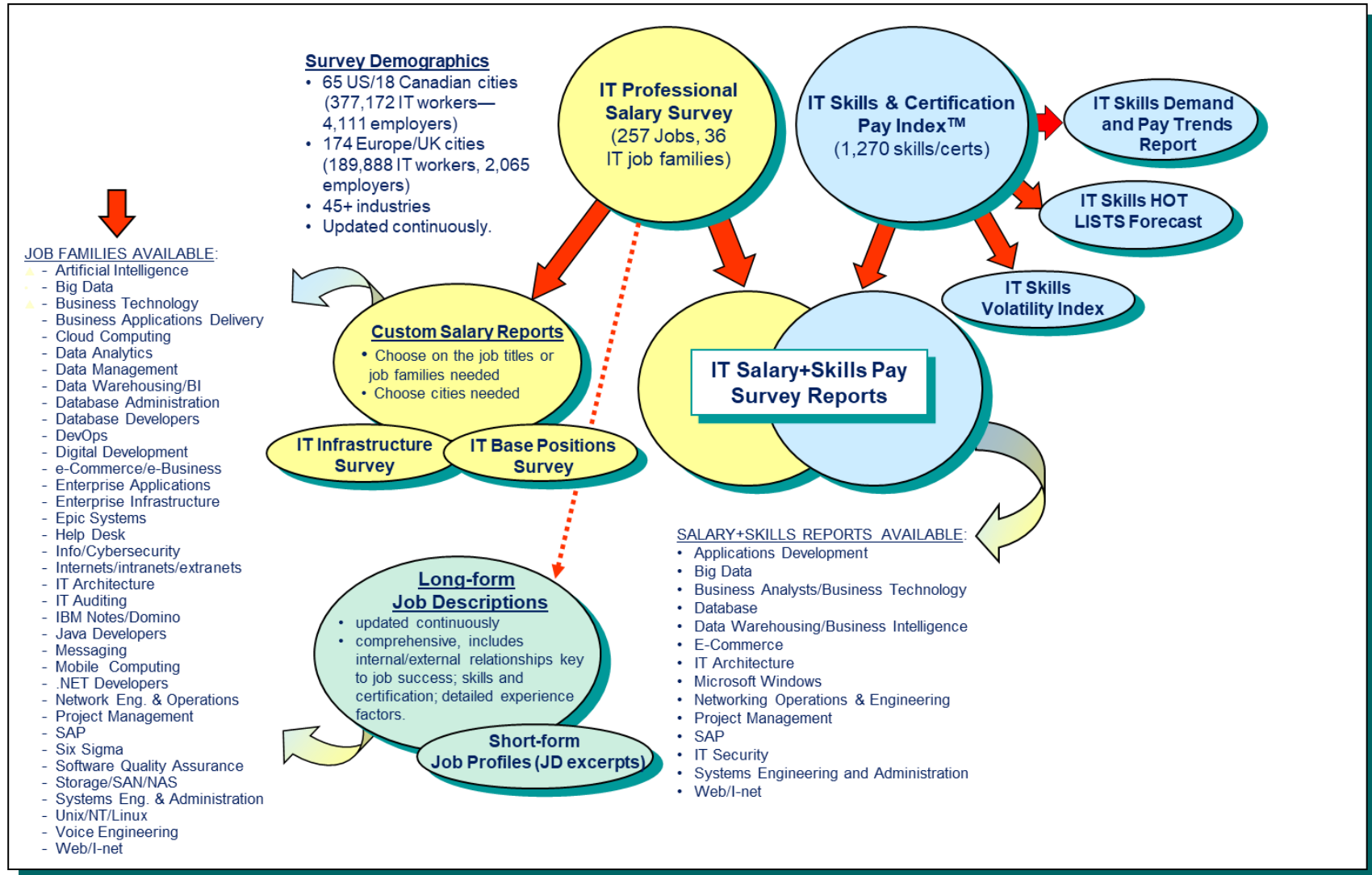
Demographics of the participating organizations for our latest update are as follows, measured most appropriately for the type of business, by revenues, assets, total premiums and operating budgets:

- 18% of participating organizations have \$5 billion+ in sales/\$15+ billion in total assets
- 28% of participating organizations earn more than \$1 billion in annual revenues or more than \$5 billion in total assets
- 46% of participating organizations have \$500+ million in sales/\$1+ billion in total assets/\$500+ million in premiums/\$500+ million operating budget (government, educational, not-for-profit)
- 54% of participating organizations fall in the SMB (small-to-medium sized business) segment, generally defined as organization under \$500 million in sales.
- [Public sector] 5% have operating budgets of \$500 million or more, [nonprofit/educational sectors] 4% with operating budgets \$100 million to less than \$500 million

TO OBTAIN A COPY OF THE LATEST ***IT SKILLS AND CERTIFICATIONS PAY INDEX™***

Please visit the Foote Partners web site: [IT Skills and Certifications Pay Index](#)

Foote Partners 2023 IT Compensation Survey Product Map



ABOUT FOOTE PARTNERS

Foote Partners, LLC is a technology analyst firm and independent benchmark research organization focusing on the people (versus vendor) side of managing technology and technology value creation. A thought leader and trusted advisor to thousands of employers on five continents who purchase our products and services, our company provides pragmatic benchmark research and forward-thinking advice and market intelligence targeting the tech workforce in the modern highly integrated business/IT hybrid environment in which all private and public organizations now operate.

Our products are deeply grounded in specialized proprietary data-driven statistical and empirical research, benchmark surveys, and business intelligence collected from thousands of North American employers with whom we have deep longstanding research partnerships. These partnerships have been created and supported specifically to enable unique market intelligence views and difficult-to-find decision support research on the multiple facets of IT human capital management. As a group, these U.S., Canadian, and European partners were selected to meet strict criteria for what we believe is the most meaningful demographic representation for tech professionals in each local labor markets.

Founded in 1997 and comprised of former Gartner industry analysts, McKinsey & Company, Mercer and WillisTowersWatson senior consultants, and former corporate HR, IT, and business executives, the firm's research division publishes 70+ quarterly-updated benchmarking, analytical research and forecasting products that help employers benchmark their IT compensation, solve difficult information technology management and workforce problems, and strengthen their ability to execute complex business solutions.

Foote Partners tech compensation survey findings and labor market trend analyses are featured regularly in countless business, HR, and IT media sources and periodicals around the globe, including *Bloomberg BusinessWeek*, *Forbes*, *Fortune*, *Wall Street Journal*, *New York Times*, *CIO Magazine*, *ComputerWorld*, and *WorldatWork's Journal* and *Workspan Magazine*; and in appearances on network and cable television, National Public Radio, and countless podcasts and webcasts.

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