Foote Partners, LLC
Foote Research Group

FOR IMMEDIATE RELEASE

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NOTE: This news release is a summary extract of content from the 3rd Quarter 2023 editions 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 4,203 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' research group.

The biggest surprise in this quarter's tech compensation findings is the volatility in pay for IT skills and certifications measured in our *IT Skills and Certifications Pay Volatility Index™*, defined as incidence of gains/declines over a period of time in cash pay premiums earned by IT professionals for specific IT skills. **This quarter registered the highest volatility in three years, nearly 30 percent higher than the prior Q1 2023 findings,** with non-certified IT skills leading IT certifications in this trend.

In the second quarter of 2023, average market value for **682 non-certified IT skills** declined a slight 0.2 percent overall, with a whopping 220 skills changing in value compared to just 164 in the prior quarter. 110 lost value while 110 gained value compared to just 93 and 71, respectively, in the first quarter. Those groups losing the most market values included SAP/Enterprise Business Apps, Systems/Networking, Data/Database, and Management/Methodology/Process skills.

For **614 IT certifications**, average market value also declined overall in the second quarter(by 1 percent), led by losses in Networking & Communications and Data/Database certification categories. 144 certifications changed value compared to only 119 in the prior quarter, with 95 declining and only 49 gaining market value.

August 17, 2023 – Vero Beach, FL. Extra pay awarded by employers to talented tech professionals for **682 non-certified IT skills**---also known as cash pay premiums---declined slightly the second quarter of 2023 for only the second time in the past six calendar quarters. Despite this lackluster performance this past quarter, the current average cash pay premium bonus for a single skill is the equivalent of **9.5 percent of base salary** which is considerably higher than the average pay premium for IT certifications which average **6.5 percent** of base salary.

Average market value for **614 IT certifications** fell more than non-certified skills, down 1 percent overall, for the first loss in the past three calendar quarter second in the past five quarters.

This according to the latest quarterly update of Foote Partners' *IT Skills and Certifications Pay Index™* (ITSCPI) based on compensation data provided by 4,023 private and public-sector employers in 83 U.S. and Canadian cities who partner with our firm to report pay for their 411,894 technology professionals in the U.S. and Canada.

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Since its launch in 1999, the *IT Skills and Certifications Pay Index*TM 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 1,296 certifications and non-certified skills.

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

(93,446 IT professionals, data through 7/1/2023)
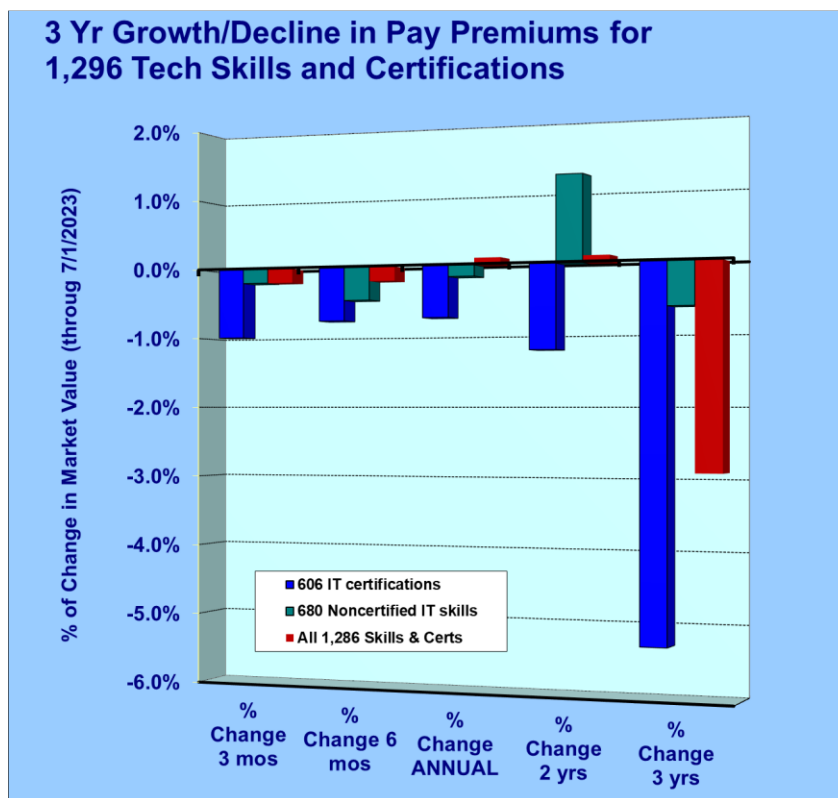

Figure 1

Source: Foote Partners, *IT Skills and Certifications Pay Index*TM (2Q2020 – 2Q2023 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 = 93,446 IT Professionals**
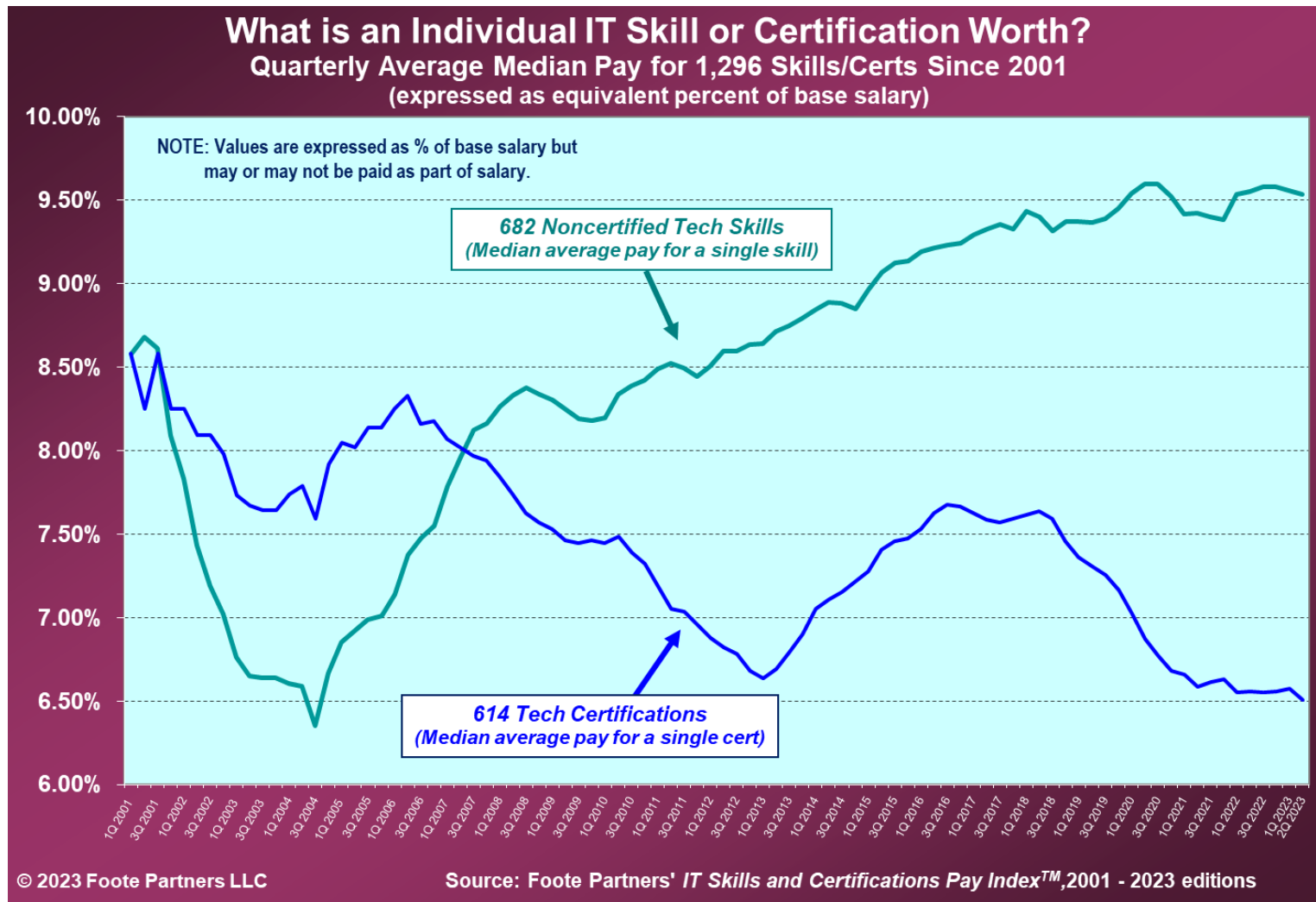

What is an Individual IT Skill or Certification Worth?
Quarterly Average Median Pay for 1,296 Skills/Certs Since 2001
(expressed as equivalent percent of base salary)

NOTE: Values are expressed as % of base salary but may or may not be paid as part of salary.

682 Noncertified Tech Skills (Median average pay for a single skill)

614 Tech Certifications (Median average pay for a single cert)

© 2023 Foote Partners LLC   Source: Foote Partners' *IT Skills and Certifications Pay Index*™,2001 - 2023 editions

Figure 2

IT Skills & Certifications Pay Data Trend Charts & Analysis

IT Skills and Certifications Pay Index™ – 2nd Quarter 2023 data edition*

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

IT Skills and Certifications Pay Volatility Index™ – 2nd Quarter 2023 data edition*

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

*All data collected through July 1, 2023

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

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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 July 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
JBehave
Jenkins
JIRA
JUnit
Kotlin
MapReduce
MATLAB
Microsoft Azure
Microsoft Azure Stack
Microsoft Azure Logic Apps
Microsoft PowerApps
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
Microsoft SQL Server Reporting 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 UCCE
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
Infrastructure as code(IaC)
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 Mgmnt
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)
AWS Codebuild
Azure DevOps
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
Google TensorFlow
Governance, Risk management and Compliance
H2O.ai
HL7
Identity 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

Management, Methodologies and Process – cont'd.

Requirements Engineering/
  Analysis
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/ Assess-
  ment/Management
Waterfall
Web Analytics
Webtrends analytics
Zachman Framework

IT NONCERTIFIED SKILLS PAY SUMMARY – Through July 1, 2023

A.   NONCERTIFIED TECH SKILLS PAY PERFORMANCE: By Category

NON-CERTIFIED TECH SKILLS. 220 of 680 **non-certified tech skills** changed cash market value from April 1, 2023 to July 1, 2023 compared to 164 of 675 skills in the prior calendar quarter. The average **c**ash pay premium declined slightly last quarter and the prior quarter following quarterly increases in the first three quarters of 2022.

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

(682 skills, data through 7/1/2023)

-0.2%
-0.2%   **ALL NONCERTIFIED SKILLS REPORTED (682)**

3.1%
0.7%   Management/Methodology/Process (131)

-2.1%
0.0%   Operating Systems(15)

-2.4%
-1.1%   Database (61)

-2.5%
0.8%   Web/e-Commerce Development (99)

-1.3%
-0.5%   Applications Development (131)

-4.1%
-1.5%   SAP & Enterprise Bus. Application (136)

5.8%
0.0%   Messaging and Communications (13)

-3.8%
-1.9%   Systems/Networking (96)

-6.0%   -4.0%   -2.0%   0.0%   2.0%   4.0%   6.0%   8.0%

■ % Change ANNUAL   ■ % Change 3 mos
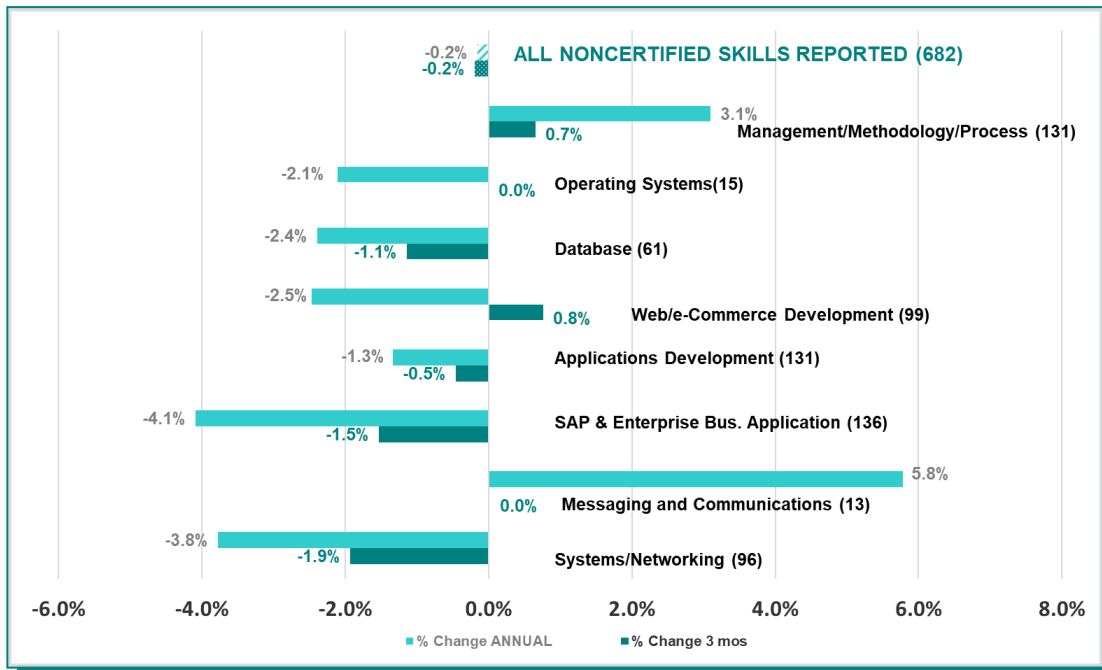
Figure 3

Source: Foote Partners *IT Skills & Certifications Pay Index*[TM], 2nd Quarter data edition

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4-YEAR NON-CERTIFIED IT SKILLS PAY TRENDS

(Through 7/1/2023 – 93,446 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	96	-1.9%	-3.2%	-3.8%	-6.9%	-10.5%	-10.3%
Messaging and Communications	13	0.0%	2.8%	5.8%	-12.0%	-24.7%	-21.5%
SAP & Enterprise Business Applications	136	-1.5%	-3.1%	-4.1%	-8.1%	-19.6%	-26.6%
Apps Development Tools & Platforms	131	-0.5%	-0.1%	-1.3%	-3.8%	-2.1%	1.8%
Web/e-Commerce Development	99	0.8%	0.9%	-2.5%	-2.1%	-7.4%	-8.7%
Data/Database	61	-1.1%	-2.0%	-2.4%	-2.1%	-1.6%	2.0%
Operating Systems	15	0.0%	0.0%	-2.1%	1.5%	2.2%	7.8%
Management/Methodology/Process	131	0.7%	0.1%	3.1%	9.5%	11.7%	17.7%
ALL NONCERTIFIED SKILLS REPORTED	682	-0.2%	-0.5%	-0.2%	1.2%	-0.6%	1.8%

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

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

(Through 7/1/2023 – 93,446 IT Professionals)

SOURCE: Foote Partners 2023 *IT Skills & Certifications Pay Index*™

Noncertified IT Skills Premium Pay - by Category, Last 19 years
(Values expressed as equivalent of % of base salary)

682 Noncertified Tech Skills
(Median average pay for a single skill)
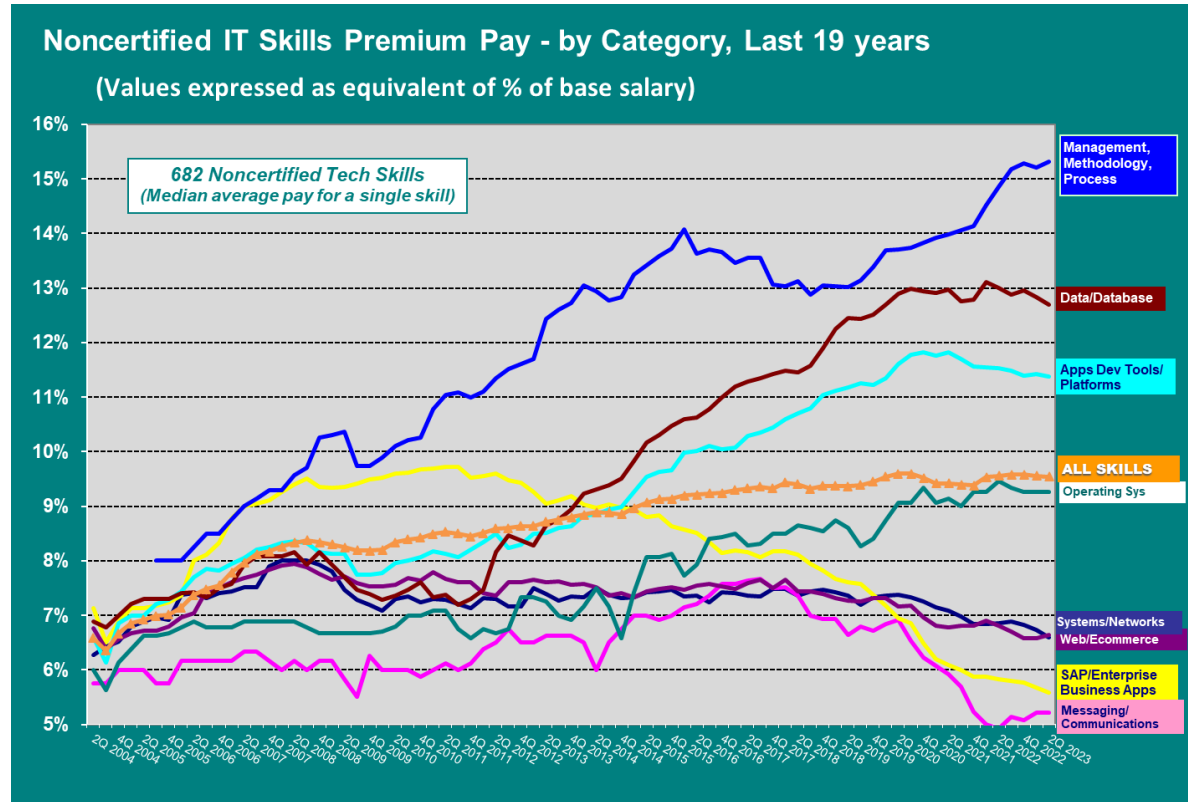
Pay data supporting these charts available in the *IT Skills and Certifications Pay Index*™ - 1Q 2023 data edition

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HIGHEST PAYING Non-certified IT Skills (cash pay premiums, all 682 skills surveyed, ranked)

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

1.[Tie] Data Architecture
Big Data analytics
DevSecOps
Security architecture and models
Site Reliability Engineering

2.[Tie] Artificial Intelligence for IT Operations
DataOps
Deployment Automation
Ethereum
MLOps
Risk analytics/assessment
Smart Contracts

3.[Tie] Apache Zookeeper
Artificial Intelligence
Blockchain
Data Engineering
Data Strategy
Functional Programming
Microservices
Natural language processing
Prescriptive Analytics
Security testing
Splunk
Threat Detection/Modelling/Management
Zachman Framework

4.[Tie] Apache Airflow
Apache Spark
Apache Spark SQL

4.[Tie] – cont'd.
Azure Service Fabric
COBIT
Continuous Integration
Data Integration
Data Science
Data Transformation
Data Visualization
Deep Learning
DevOps
Digital Forensics
Flink
Google TensorFlow
Governance, Risk management and Compliance
HBase
Identity access management
Keras
Looker
Machine Learning
Neural Networks
NIST/NIST 800
Oracle Application Server
PyTorch
Scaled Agile Framework (SAFe)
Test Driven Development/Scripting

5.[Tie] Apache Cassandra
AWS Codebuild
Azure Key Vault

5.[Tie] – cont'd.
Business analytics
Clojure
Complex Event Processing/Event Correlation
Configuration Management
Cyber Threat Intelligence
Cybersecurity
Data Analytics
Data Governance
Data Management
Data Migration
Data Modelling
Data Quality
Google Big Query
H2O.ai
Informatica
Kanban
Kibana
Network Architecture
Penetration testing
Program Management
Security management
Travis CI
User Experience/User Interface

6.[Tie] Amazon Athena
Amazon DynamoDB
Amazon RedShift
Apache Hive
Azure DevOps
Azure Machine Learning
Big Data

6.[Tie] cont'd
Business analysis
Capacity Planning/Management
Cloudera Impala
Continuous Delivery
Continuous Improvement
Cryptography (encryption, VPN, SSL/TLS, Hybrids)
Customer Experience
DataRobot Enterprise AI Platform
Game Development
Generative AI
GitOps
Go language (Golang)
gRPC
IT Audit
Kotlin
Master data management
Metadata design and development
NoSQL
Quality Assurance/QA automation
Rust
Security auditing
Six Sigma/Lean Six Sigma
Software development lifecycle management
Test automation
User-Centered Design
Vulnerability Scanning/Assessment/Management
Waterfall
Web Analytics

SOURCE: Foote Partners *IT Skills & Certifications Pay Index*™, 2Q 2023 data edition

NON-CERTIFIED TECH SKILLS TREND HIGHLIGHTS: Market Value Gainers & Highest Pay – 2nd Quarter 2023 data

These non-certified tech skills *gained 10% or more in market value in the three months ending July 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 (non-certified)			Highest Paying – Cash Premiums (A-Z)

Applications Development skills
Apache Cordova
HP Unified Functional Testing
Sonatype Nexus
Bamboo/BambooHR
Clojure
Apache Airflow
Apache Spark
Apache Zookeeper
Ethereum
Apache Tomcat
COBOL
Cognos

SAP & Enterprise Business Applications skills
SAP Data Services (SAP BODS)
Oracle Eloqua
PeopleSoft (CRM/Financials/HCM)
SAP CRM (Customer Relationship
    Management)
SAP Oil & Gas
SAP CAR (Customer Activity Repository)
SAP PLM (Product Lifecycle Management)
SAP ALE (Application Link Enabling)
Oracle ERP

Database Skills
Sybase Adaptive Server Enterprise
Google Data Studio
Power Query
Google Big Query
Kibana
GIS
Base SAS

Systems/Networking skills
CA Endevor
Cisco UCCX
Cisco CUCM
Mobile device management
SolarWinds
Wireless sensors/RFID
Amazon Elastic Kubernetes Service
Cloud architecture

Operating System skills
Windows 10/11
AIX
HPUX
SUSE

Web/SOA/E-Commerce skills
Julia
JBoss /WildFly
Apache Wicket
JavaFX
KnockoutJS
Microsoft Blazor
GatsbyJS
JavaBeans/EJB 3.0
Magento/Adobe Commerce
Web Design
GraphQL
Node.js
Oracle Workflow
Spring MVC
Microsoft BizTalk Server
TIBCO

Management, Process & Methodology skills
TIBCO BusinessWorks
Marketo
Prescriptive Analytics
Data Visualization
Web Analytics

- Apache Zookeeper
- Artificial Intelligence
- Artificial Intelligence for IT Operations (AIOps)
- Big Data analytics
- Blockchain
- Data Architecture
- Data Engineering
- Data Strategy
- DataOps
- Deployment Automation
- DevSecOps
- Ethereum
- Functional Programming
- Microservices
- MLOps
- Natural language processing
- Prescriptive Analytics
- Risk analytics/assessment
- Security architecture and models
- Security testing
- Site Reliability Engineering
- Smart Contracts
- Splunk
- Threat Detection/Modelling/Management
- Zachman Framework

SOURCE: Foote Partners *IT Skills & Certifications Pay Index*TM, 2Q 2023 data edition

NON-CERTIFIED IT SKILLS TREND HIGHLIGHTS: Market Value Losers – 1st Quarter 2023 data

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

TECH SKILLS (Non-certified) Losers

Applications Development skills
Apache Cloudstack
JBehave
WebSphere MQ (MQSeries)
RStudio
Apache Ant
Xcode
Erlang
Red Hat Fuse
Mokito
Apache Flex
Cloud Foundry PaaS
Continuous Delivery
Rust
Delphi
SAS
Microsoft Power Platform

Web/E-commerce Development skills
Jetty
Microsoft Silverlight
Laravel PHP
SailPoint
XAML/XACML
Magnolia
Mobile applications development
Adobe Experience Manager
Amazon Cloudwatch
Django
Spring Cloud
Apache Solr

SAP & Enterprise Business App skills
Lawson
SAP MDG (Master Data Governance)
Salesforce Sales Cloud
SAP PP (Production Planning)
Oracle Retail
SAP Smart Forms
SAP Business Workflow/Webflow
SAP PS (Project Systems)
Oracle Financials
Oracle Payables
Oracle Payroll/Receivables
Salesforce Service Cloud
SuccessFactors
SAP Hybris
SAP PM (Plant Maintenance)
Salesforce
Salesforce Commerce Cloud
SAP QM (Quality Management)
SAP S/4HANA
SAP TM (Transportation Management)
Pega
SAP BPC (BusinessObjects Planning and
   Consolidation)

Operating System skills
Mac OS X
VMware vSphere
CoreOS

Systems/Networking skills
Microsoft SCVMM
Tivoli
Cisco IPCC
Amazon AWS CloudTrail
Wireless network management (LANs, GSM)
Microsoft Application Virtualization (App-V)
Infrastructure architecture
WAN 4G/5G services
vCloud
Cisco ISE (Identity Services Engine)
Security Information and Event Management
Software-Defined Networking

Data/Database
Oracle Exadata
Riak
TIBCO Spotfire
Oracle Coherence
Oracle Enterprise Manager
Redis
Apache CouchDB
Teradata
Oracle DB 10g/11i/12c

Management, Process & Methodology skills
Security auditing
HL7
Caffe
Data Privacy
Predictive Analytics and Modeling
Quantitative Analysis/Regression
   Analysis
DataRobot Enterprise AI Platform
Business analytics

SOURCE: Foote Partners *IT Skills & Certifications Pay Index^TM*, 2Q 2023 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 686 skills reported in our *IT Skills and Certifications Pay Index™* in quarter ending July 1, 2023.

- They ***recorded gains in cash market value*** in the six months ending July 1, 2023.

No skill below is earning less than the equivalent of 16 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):

Apache Airflow	Data Quality	Kibana
Apache Spark	Data Transformation	Prescriptive Analytics
Apache Spark SQL	Data Visualization	Security management
Apache Zookeeper	DataOps	Security testing
Artificial Intelligence	Looker	Smart Contracts
Blockchain	Digital Forensics	Test Driven Development/Scripting
Clojure	Ethereum	Threat Detection/Modelling/Management
COBIT	Google Big Query	Travis CI
Data Migration	HBase	User Experience/User Interface

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

*   *   *   *

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

3. **Smart Contracts**
   Average Pay Premium: 19 percent of base salary equivalent
   Market Value Increase: 5.6 percent (in the six months through July 1, 2023)

4. **Prescriptive Analytics**
   Average Pay Premium: 18 percent of base salary equivalent
   Market Value Increase: 28.6 percent (in the six months through July 1, 2023)

5. **Apache Zookeeper**
   Average Pay Premium: 18 percent of base salary equivalent
   Market Value Increase: 20 percent (in the six months through July 1, 2023)

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

6. **Artificial Intelligence**
   Blockchain
   Security testing
   Threat Detection/Modelling/Management
   Average Pay Premium: 18 percent of base salary equivalent
   Market Value Increase: 5.9 percent (in the six months through July 1, 2023)

10. **Data Visualization**
    Average Pay Premium: 17 percent of base salary equivalent
    Market Value Increase: 21.4 percent (in the six months through July 1, 2023)

11. **Apache Airflow**
    Apache Spark
    COBIT
    Looker
    Average Pay Premium: 17 percent of base salary equivalent
    Market Value Increase: 13.3 percent (in the six months through July 1, 2023)

15. **Apache Spark SQL**
    Data Transformation
    Digital Forensics
    HBase
    Test Driven Development/Scripting
    Average Pay Premium: 17 percent of base salary equivalent
    Market Value Increase: 6.3 percent (in the six months through July 1, 2023)

20. **Clojure**
    Google BigQuery
    Average Pay Premium: 16 percent of base salary equivalent
    Market Value Increase: 14.3 percent (in the six months through July 1, 2023)

22. **Data Migration**
    Data Quality
    Kibana
    Security management
    Travis CI
    User Experience/User Interface
    Average Pay Premium: 16 percent of base salary equivalent
    Market Value Increase: 6.7 percent (in the six months through July 1, 2023)

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IT Certification Data Trend Charts & Analysis

(Data collected through July 1, 2023)

AccessData Certified Examiner
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 SysOpsAdministrator-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 Manager/ISO 22301(CBCM)
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 Privacy Solutions Engineer/ISACA(CDPSE)
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(CGRC)

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 Kubernetes Administrator (CKA)
Certified Kubernetes Security Specialist (CKS)
Certified Manager of Software Quality (CMSQ)
Certified Penetration Testing Engineer (CPTE)
Certified Protection Professional
Certified Scrum Developer
Certified Scrum Product Owner
Certified Scrum Product Owner - Advanced
Certified Scrum Professional - ScrumMaster
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
    (CASE)
EC-Council Certified Cloud Security Engineer (CCSE)
EC-Council Certified DevSecOps Engineer (ECDE)
EC-Council Certified Encryption Specialist v2(ECES)
EC-Council Certified Ethical Hacker (CEH)
EC-Council Certified Incident Handler V2 (ECIH)
EC-Council Certified Network Defender
EC-Council Certified Penetration Testing Professional
EC-Council Certified SOC Analyst (ECSA)
EC-Council Computer Hacking Forensic Investigator
EC-Council Disaster Recovery Professional (EDRP)
EC-Council Web Appication Hacking and Security
    Testing
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 Cloud Security Engineer Specialty
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 Administraton: 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 (MCSD)
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
Mongo DB Certified DBA
Mongo DB Certified Developer
MongoDB Certified Developer Associate
NetApp Certified Data Administrator, ONTAP (NCDA)
NetApp Certified Hybrid Cloud Architect
NetApp Certified Implementation Engineer (NCIE)
NetApp Certified Storage Associate – 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
Offensive Security Exploit Developer (OSED)
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 2022/2023 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

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IT CERTIFICATIONS PAY SUMMARY – Through July 1, 2023

A. CERTIFIED IT SKILLS PAY PERFORMANCE: By Category

TECH CERTIFICATIONS. The average cash premium for 614 tech certifications decreased one percent in average market value following two consecutive quarters of modest increases, driven by pay premiums losses in Data/Database, Info/Cybersecurity, and Architecture/ Project Management/Process certifications.

IT Certifications - % Growth/Decline
3 months & 12 months
(614 certifications, data through 7/1/2023)

ALL CERTIFICATIONS REPORTED (614)
-0.7%
-1.0%

Architecture/Project Mgt/Process (79)
-1.9%
-1.0%

Information/Cyber Security (144)
0.6%
-1.9%

System Administration/Engineering (130)
-0.2%
-0.3%

Networking & Communications (105)
-4.5%
-0.6%

Web Development (12)
0.0%
0.0%

Data/Database (64)
-7.8%
-3.6%

Apps Development/Prog Languages (72)
-0.2%
-0.6%

Foundation level and Training (8)
3.2%
0.0%

■ % Change ANNUAL   ■ % Change 3 mos
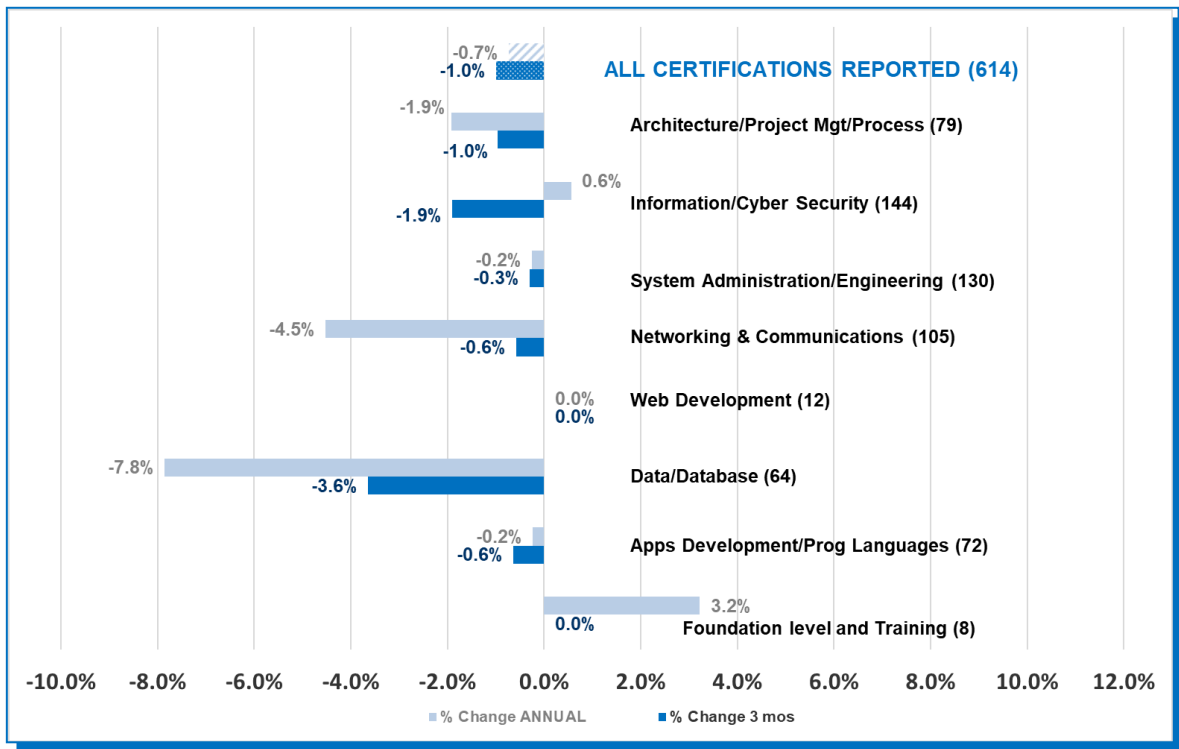
Figure 5

Source: Foote Partners *IT Skills & Certifications Pay Index*™, 2nd Quarter 2023 data

4-YEAR IT CERTIFICATIONS PAY TRENDS
(Through 7/1/2023 – 93,446 IT Professionals)

IT CERTIFICATIONS CATEGORIES	# of certs surveyed	% Change 3 mos	% Change 6 mos	% Change ANNUAL	% Change 2 yrs	% Change 3 yrs	% Change 4 yrs
Training and Beginner/Foundation level	8	0.0%	0.0%	3.2%	3.2%	-3.0%	-5.9%
Apps Development/Prog. Languages	72	-0.6%	-0.4%	-0.2%	3.0%	1.1%	-0.8%
Data/Database	64	-3.6%	-6.6%	-7.8%	-6.5%	-8.9%	-14.0%
Web Development	12	0.0%	0.0%	0.0%	-12.1%	-12.1%	-21.6%
Networking & Communications	105	-0.6%	-1.5%	-4.5%	-7.0%	-10.4%	-14.5%
System Administration/Engineering	130	-0.3%	0.5%	-0.2%	-5.6%	-9.2%	-16.1%
Information/Cyber Security	144	-1.9%	-1.3%	0.6%	-1.5%	-8.9%	-14.9%
Architecture/Project Management/Process	79	-1.0%	-0.9%	-1.9%	-2.9%	-8.5%	-14.6%
ALL CERTIFICATIONS REPORTED	614	-1.0%	-0.8%	-0.7%	-1.2%	-5.3%	-10.9%

17-YEAR IT CERTIFICATIONS PAY TRENDS BY CATEGORY

% Change in Average Median Pay for a Single IT Certification)

(Through 7/1/2023 – 93,446 IT Professionals)

SOURCE: Foote Partners 2023 *IT Skills & Certifications Pay Index*™

IT Certifications Premium Pay - by Category, Last 19 Years
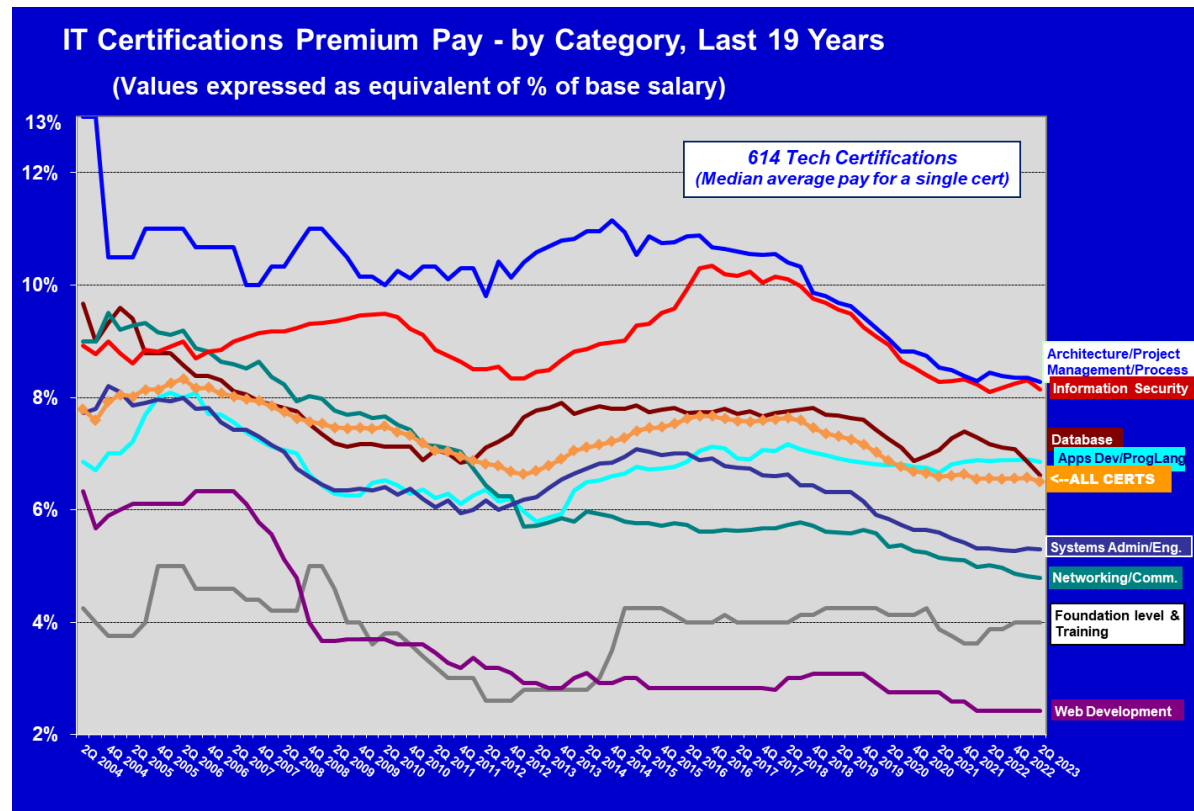
Pay data supporting these charts available in the *IT Skills and Certifications Pay Index*™ – 2Q 2023 data edition

HIGHEST PAYING IT Certifications (cash pay premiums for all 614 certs surveyed, ranked)

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

1.[Tie] GIAC Security Leadership (GSLC)
Certified in the Governance of Enterprise IT (CGEIT)
GIAC Strategic Planning, Policy, and Leadership (GSTRT)

2.[Tie] Certificate of Cloud Security Knowledge (CCSK)
Offensive Security Exploitation Expert (OSEE)
Okta Certified Developer

3.[Tie] Certified Professional Scrum Product Owner
Offensive Security Defense Analyst (OSDA)
TOGAF 9 Certified
Zachman Certified - Enterprise Architect

4.[Tie] AWS Certified Security - Specialty
Certified Information Security Manager (CISM)
Certified Information Systems Auditor (CISA)
Certified Scrum Professional - ScrumMaster
Certified ScrumMaster - Advanced
Certified Secure Software Lifecycle Professional (CSSLP)
Certified Software Quality Manager (CSQM)
CyberSecurity Forensic Analyst (CSFA)
GIAC Web Application Penetration Tester (GWAPT)
InfoSys Security Engineering Professional (ISSEP/CISSP)
Offensive Security Web Assessor (OSWA)
Okta Certified Professional
PMI Program Management Professional (PgMP)
Six Sigma Master Black Belt

4.[Tie] AWS Certified DevOps Engineer - Professional
Certified Forensic Computer Examiner (CFCE)
Certified in Governance, Risk and Compliance (ISC(2))
Certified in Risk and Information Systems Control (CRISC)
CompTIA Advanced Security Practitioner (CASP)
EC-Council Certified Encryption Specialist v2(ECES)
GIAC Certified Forensics Examiner (GCFE)
GIAC Exploit Researcher and Advanced Penetration Tester (GXPN)
GIAC Penetration Tester (GPEN)
GIAC Security Operations Manager (GSOM)
InfoSys Security Management Professional (ISSMP/CISSP)
Offensive Security Web Expert (OSWE)
Okta Certified Administrator
PMI Portfolio Management Professional (PfMP)
PMI Risk Management Professional (PMI-RMP)
SAFe Certification
Salesforce Certified Technical Architect
Six Sigma Black Belt
TIBCO Certified Architect

Source: Foote Partners *IT Skills & Certifications Pay Index*™, 2Q 2023 data edition

IT CERTIFICATION PAY TREND HIGHLIGHTS: Market Value Gainers & Highest Paying – 2nd Quarter 2023 datasets

These tech certifications *gained 10% or more in market value in the three months ending July 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 CERTIFICATION Gainers		Highest Paying – Cash Premiums (A-Z)
Info/Cyber Security certifications GIAC Security Essentials (GSEC) GIAC Security Operations Manager (GSOM) Certificate of Cloud Security Knowledge (CCSK) Cisco Certified Network Associate (Network Security) GIAC Security Leadership (GSLC) Systems Security Certified Practitioner (SSCP) Certified Data Privacy Solutions Engineer(CDPSE-ISACA) EC-Council Certified DevSecOps Engineer (ECDE) **Systems Administration certifications** Microsoft Certified Solutions Associate: Windows Server 2012/2016 NetApp Certified Implementation Engineer (NCIE) IBM Certified Solution Architect – Cloud v4 Red Hat Certified Systems Administrator (RHCSA) VMware Certified Professional 6/6.5 Red Hat Certified Engineer(RHCE) VMware Certified Design Expert - Cloud Mgt and Automation VMware Certified Design Expert (all) **Architecture, Project Management, and Process Certifications** CompTIA Project+ Certified in the Governance of Enterprise IT (CGEIT) CompTIA Cloud Essentials ITIL Intermediate Certification CompTIA Cloud+ Prince2 Foundation Microsoft Certified: DevOps Engineer Expert Prince2 Practitioner	**Application Development/Programming Languages certifications** IBM Certified Solution Advisor - DevOps V2 TIBCO Certified Professional IBM Certified Solution Designer (all) Microsoft Certified Solutions Developer: Applications Builder IBM Certified Application Developer - Cloud Solutions v3 IBM Certified Developer - Cognos Analytics Microsoft Certified Solutions Developer (MCSD) Microsoft Certified Solutions Expert: Business Applications Microsoft Certified Azure Developer Associate Magento 2 Certified Professional Developer AWS Certified DevOps Engineer - Professional **Data/Database certifications** MongoDB Certified Developer Associate IBM Certified Specialist - AI Enterprise Workflow V1 IBM Certified Data Engineer - Big Data IBM Certified Solution Advisor - Blockchain Platform V2 MongoDB Certified Developer **Networking & Communications certifications** Brocade Certified Fabric Professional (BCFP) Brocade Certified Network Professional AWS Certified Advanced Network - Specialty Brocade Certified Network Engineer	- AWS Certified Security - Specialty - Certificate of Cloud Security Knowledge (CCSK) - Certified in the Governance of Enterprise IT (CGEIT) - Certified Information Security Manager (CISM) - Certified Information Systems Auditor (CISA) - Certified Professional Scrum Product Owner - Certified Scrum Professional - ScrumMaster - Certified ScrumMaster - Advanced - Certified Secure Software Lifecycle Professional (CSSLP) - Certified Software Quality Manager (CSQM) - CyberSecurity Forensic Analyst (CSFA) - GIAC Security Leadership (GSLC) - GIAC Strategic Planning, Policy, and Leadership (GSTRT) - GIAC Web Application Penetration Tester (GWAPT) - InfoSys Security Engineering Professional (ISSEP/CISSP) - Offensive Security Defense Analyst (OSDA) - Offensive Security Exploitation Expert (OSEE) - Offensive Security Web Assessor (OSWA) - Okta Certified Developer - Okta Certified Professional - PMI Program Management Professional (PgMP) - Six Sigma Master Black Belt - TOGAF 9 Certified - Zachman Certified - Enterprise Architect

Source: Foote Partners *IT Skills & Certifications Pay Index™*, 2nd Quarter 2023 data edition

IT CERTIFICATION PAY TREND HIGHLIGHTS: Market Value Losers – 2nd Quarter 2023 datasets

These IT certifications *declined 10% or more in market value in the three months ending July 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
Oracle PL/SQL Developer Associate
Pegasystems Certified Data Scientist
Pegasystems Certified Decisioning Consultant
Red Hat Certified Enterprise Application Developer
Pegasystems Certified Pega Business Architect
Red Hat Certified Architect: Enterprise Applications
Red Hat Certified Architect: Infrastructure
Salesforce Certified User Experience Designer
Pegasystems Certified Robotics System Architect
Pegasystems Certified System Architect
Pegasystems Certified Lead System Architect
Pegasystems Certified Senior Systems Architect
Salesforce Certified Systems Architect

Data/Database certifications
Teradata 14 Certified Database Administrator
Microsoft Certified Solutions Associate: BI Reporting
Oracle Certified Associate - DBA (OCA)
Oracle Certified Associate - MySQL 5.x
Oracle Certified Professional - MySQL 5.x/8.x Database Admin
SAS Certified Data Integration Developer for SAS 9
SAS Certified Predictive Modeler - SAS Enterprise Miner
SAS Certified Professional: Data Curation for SAS Data Scientists
Tableau Desktop Certified Professional
Tableau Server Certified Professional
Oracle Certified Expert - MySQL 5.1 Cluster Database Administrator
SAS Certified Data Scientist Using SAS 9
SAS Certified Advanced Analytics Professional Using SAS 9
Teradata 14 Certified Professional
Cloudera Certified Professional: Data Engineer
Microsoft Certified Azure Data Engineer Associate
Splunk Core Certified User
Teradata 14 Certified Enterprise

Systems Administration certifications
CompTIA Linux+
Oracle Linux Certified Administrator
Rackspace Certified Technician
Red Hat Certified Architect
Red Hat Certified Architect: Cloud
Red Hat Certified Specialist in Cloud Infrastructure
VMware Certified Advanced Professional 6 - Data Center Virtualization Deployment
Oracle VM 3.0 for x86 Certified Implementation Specialist
VMware Certified Advanced Professional 6/7 - Cloud Mgt and Automation Deployment
VMware Certified Advanced Professional 6/7 - Cloud Mgt and Automation Design

Architecture, Project Management, and Process Certifications
Google Certified Professional Cloud Architect
Six Sigma Yellow Belt
Certified Scrum Developer
SAS® Certified Specialist: Visual Business Analytics
Six Sigma Green Belt
Certified Scrum Trainer
Microsoft Certified: Azure AI Engineer Associate
Certified Scrum Product Owner
Google Cloud DevOps Engineer
PMI Project Management Professional
Salesforce Certified Integration Architecture Designer
Certified Scrum Product Owner - Advanced

Info/Cyber Security certifications
GIAC Certified Incident Handler
GIAC Certified Forensics Analyst
Check Point Certified Security Administrator
CompTIA Mobile App Security+
Offensive Security Wireless Professional
EC-Council Web Appication Hacking and Security Testing
Offensive Security Professional
EC-Council Certified Encryption Specialist v2
Fortinet Network Security Expert (NSE) Level 1
GIAC Penetration Tester
Certified Secure Software Lifecycle Professional
GIAC Reverse Engineering Malware
SonicWall Network Security Administrator
EC-Council Certified SOC Analyst
GIAC Certified Intrusion Analyst
CompTIA PenTest
EC-Council Certified Network Defender
Offensive Security Exploit Developer
EC-Council Certified Cloud Security Engineer
Certified Cloud Security Professional
EC-Council Certified Ethical Hacker
Certified Information Systems Security Professional
InfoSys Security Architecture Professional (ISSAP/CISSP)
EC-Council Certified Penetration Testing Professional

Networking and Communications
CWNP/Certified Wireless Design Professional
CWNP/Certified Wireless Network Administrator
Cisco Certified Network Associate (was CCNA Cloud)
Cisco Certified Network Associate (was CCNA Collaboration)
Cisco Certified Network Professional - Data Center
Cisco Certified Network Professional - Enterprise/Routing and Services
SolarWinds Certified Professional (SCP)
VMware Certified Design Expert – Network Virtualization
AWS Certified Solutions Architect - Professional (Cloud)

Source: Foote Partners *IT Skills & Certifications Pay Index™*, 2nd Quarter 2023 data edition

IT CERTIFICATIONS ANALYSIS – Winners

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

As a group, the 614 IT certifications tracked in our *IT Skills and Certifications Pay Index™* have increased in market value two of the last three calendar quarters. Let's examine those certifications that have helped drive up average cash pay premiums.

The following IT certifications meet two prerequisites:

- First, they ***recorded substantial gains in cash market value in the six(and in some cases twelve) months*** ending July 1, 2023.
- Second, they **earned workers *cash pay premiums well above the average*** of all 614 certifications in our *IT Skills and Certifications Pay Index™*

No IT certification the follows is earning less than the equivalent of 109 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 8 percent to 45 percent range in cash market value in the six months ending April 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 DevOps Engineer - Professional	Offensive Security Defense Analyst
Certified Forensic Computer Examiner (CFCE)	Offensive Security Web Expert
Certified in the Governance of Enterprise IT	Offensive Security Exploitation Expert
Certificate of Cloud Security Knowledge	Okta Certified Developer
Check Point Certified Security Master	Prince2 Practitioner
EC-Council Certified Penetration Testing Professional	PMI Portfolio Management Professional
GIAC Security Leadership (GSLC)	PMI Risk Management Professional
GIAC Security Operations Manager	Salesforce Identity and Access Management Architect
Microsoft Certified: DevOps Engineer Expert	TIBCO Certified Architect
MongoDB Certified Developer	TOGAF 9 Certified
Offensive Security Experienced Penetration Tester	

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

* * * *

1. **Certified in the Governance of Enterprise IT (CGEIT)**
   Average Pay Premium: 14 percent of base salary equivalent
   Market Value Increase: 27.3 percent (in the six months through July 1, 2023)

2. **GIAC Security Leadership (GSLC)**
   Average Pay Premium: 14 percent of base salary equivalent
   Market Value Increase: 16.7 percent (in the six months through July 1, 2023)

3. **Certificate of Cloud Security Knowledge (CCSK)**
   Offensive Security Exploitation Expert (OSEE)
   Average Pay Premium: 13 percent of base salary equivalent
   Market Value Increase: 18.2 percent (in the six months through July 1, 2023)

5. **Okta Certified Developer**
   Average Pay Premium: 13 percent of base salary equivalent
   Market Value Increase: 8.3 percent (in the six months through July 1, 2023)

IT CERTIFICATIONS ANALYSIS – Winners, cont'd.

6. **Offensive Security Defense Analyst (OSDA)**
    TOGAF 9 Certified
    Average Pay Premium: 12 percent of base salary equivalent
    Market Value Increase: 9.1 percent (in the six months through July 1, 2023)

8. **GIAC Security Operations Manager (GSOM)**
    TIBCO Certified Architect
    Average Pay Premium: 10 percent of base salary equivalent
    Market Value Increase: 25 percent (in the six months through July 1, 2023)

10. **AWS Certified DevOps Engineer - Professional**
    Certified Forensic Computer Examiner (CFCE)
    Offensive Security Web Expert (OSWE)
    PMI Portfolio Management Professional (PfMP)
    PMI Risk Management Professional (PMI-RMP
    Average Pay Premium: 10 percent of base salary equivalent
    Market Value Increase: 11.1 percent (in the six months through July 1, 2023)

15. **Check Point Certified Security Master (CCSM)**
    EC-Council Certified Penetration Testing Professional (CPENT)
    Microsoft Certified: DevOps Engineer Expert
    MongoDB Certified Developer
    Offensive Security Experienced Penetration Tester (OSEP)
    Prince2 Practitioner
    Salesforce Identity and Access Management Architect
    Average Pay Premium: 9 percent of base salary equivalent
    Market Value Increase: 12.1 percent (in the six months through July 1, 2023)

IT CERTIFICATIONS ANALYSIS – Losers

IT CERTIFICATIONS THAT HAVE LOST THE MOST MARKET VALUE OVER TIME

The average market value for 614 tech certifications may have increased in two of the last three calendar quarters, but this doesn't change the fact that many reported in the ITSCPI have been on a steady decline for much of the past five years.

> ### *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 **28% to 50%** percent of their cash pay premium market value in the 24-month period ending July 1, 2023. Some on this list may now be retired or scheduled to be.

- Certified Data Center Management Professional (CDCMP)
- Certified Information Privacy Technologist- all countries
- Certified Software Quality Analyst (CSQA)
- Cisco Certified Network Professional - Data Center
- Cisco Certified Network Professional - Enterprise/Wireless Networks
- Cisco Certified Network Professional - Security
- Cloudera Certified Associate Data Analyst
- CWNP/Certified Wireless Technology Specialist (CWTS)
- CyberSecurity Forensic Analyst (CSFA)
- Dell EMC Technology Architect - Expert (DCE-TA)
- Dell Implementation Engineer - Specialist (DCS - IE)
- EC-Council Certified Encryption Specialist v2(ECES)
- EC-Council Certified Ethical Hacker (CEH)
- GIAC Certified Forensics Analyst (GCFA)
- GIAC Information Security Professional (GISP)
- Google Professional Cloud Security Engineer
- HDI Desktop Support Manager
- HDI Support Center Analyst
- IBM Certified Data Architect - Big Data
- IBM Certified Systems Administrator (all)
- ITIL Foundation Certification
- Oracle Linux Certified Administrator (OCA)
- SAS Certified Predictive Modeler - SAS Enterprise Miner
- VMware Certified Design Expert – Network Virtualization

2023 IT Skills & Certifications Pay Volatility Index™

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

(Data collected through July 1, 2023)

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---displayed an unusually high increase from April 1, 2023 to July 1, 2023 according to the latest update of Foote Partners' long-running *IT Skills and Certifications Pay Index*TM 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 July 1, 2023)

TOTAL: All Skills and Certifications

- **28.3%** of skills and certifications(364 of 1,286) changed in market value in 2nd Quarter 2023, **dramatically higher** than the **22.3%**(283 of 1,270) in the prior quarter. This also exceeded both the **24.6%** pay volatility in the last 12 months and **24.9%** volatility average over the past 24 months.

- **159** gained value while **205** declined in value in 2nd Quarter 2023, significantly higher than the 124 and 159, respectively, in the prior quarter.

CERTIFIED SKILLS

- **23.8%** of reported certifications(144 of 606) changed market value in 2nd Quarter 2023, nearly four points higher than the **20%** (119 of 594) pay volatility in the prior quarter and also significantly higher than the 19% average volatility in the last 24 months.

- **49** certifications gained market value while **95** declined in value in Q2 compared to 53 and 66, respectively, in the prior quarter.

NON-CERTIFIED SKILLS

- **32.4%** of reported skills (220 of 675) changed value in 2nd Quarter 2023, dramatically higher than the **24.3%**(164 of 675) volatility in the prior quarter. This is significantly higher than **average pay volatility of 28.4% over the last twelve months.**

- **110** noncertified skills gained in market value while **110** declined in value in 2nd Quarter 2023 compared to 71 and 93, respectively, in the prior quarter---a significant differential in skill market pay gains in April/May/June 2023.

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 1,296 certified and non-certified skills in the last four 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 - 17 Year Trending

IT Skills and Certifications Volatility Index™ – 1,296 Skills and Certifications

This chart shows the percentage of skills and certifications that changed value (either up or down) every calendar quarter since 2007.

Legend: Skills, Certifications, All
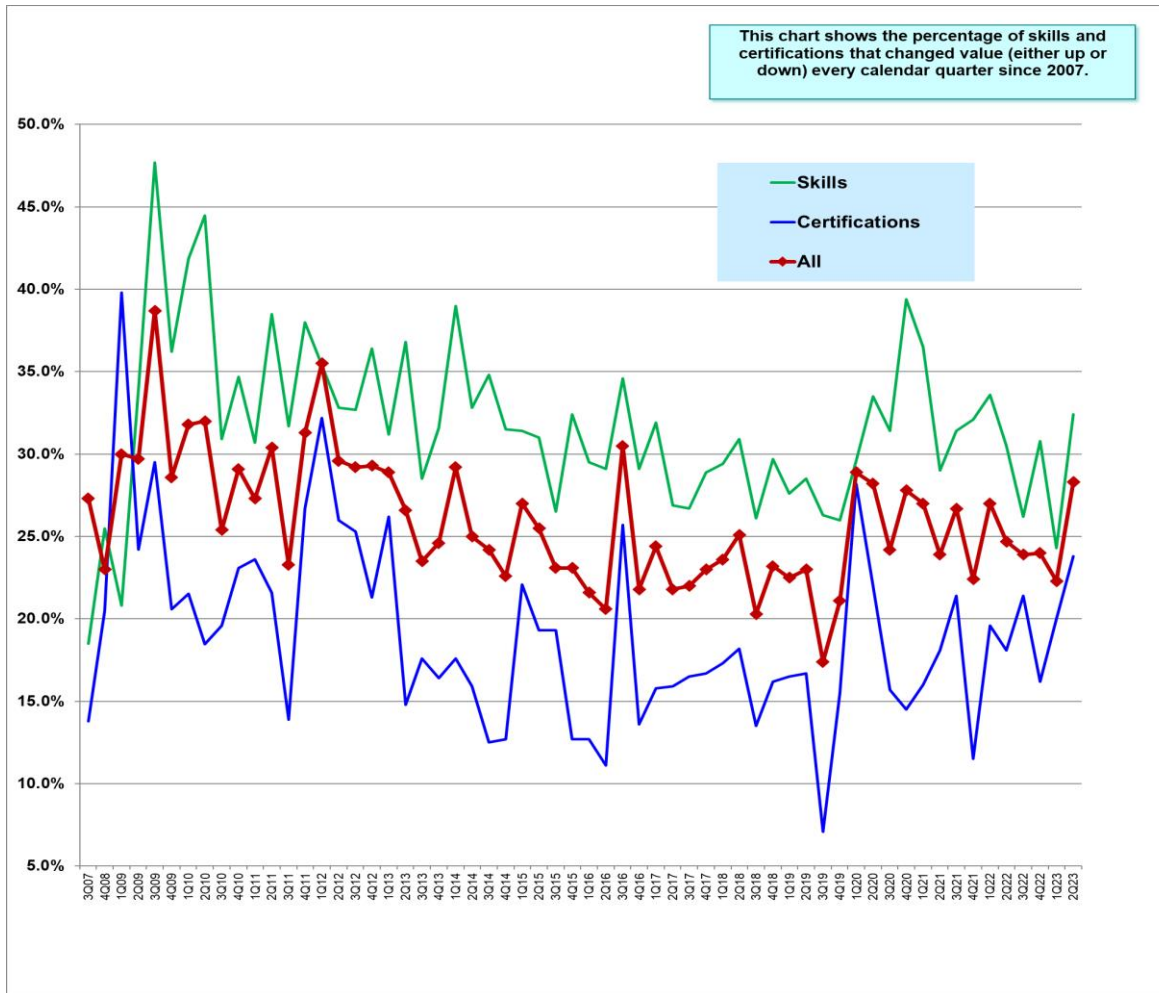
Recent IT skills and certifications volatility trends

QUARTERLY SUMMARY

In the 2nd Quarter 2023, 28.3% of skills and certifications recorded a change in their cash pay premiums, dramatically higher than 22.3% the prior quarter---the highest quarterly pay volatility in three years.

IT CERTIFICATIONS PAY VOLATILITY in 2Q 2023 was 23.8% or nearly 4 points higher than the prior quarter (20%) and also higher than the 19% average volatility in the last two years..

NONCERTIFED IT SKILLS PAY VOLATILITY in 2Q 2023 was 32.4% or 8 points higher than the prior quarter (24.3%) and also higher than the 28.4% average quarterly volatility in in the last twelve months and 30.2% over the last 24 months.

(Pay data supporting these charts available in the *IT Skills and Certifications Pay Index™* – 2007 to 2023 quarterly data edition)

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

VOLATILITY HIGHLIGHTS IT Certifications – 2nd Quarter 2023 datasets

VOLATITY INDEX: How Many of 614 IT Certifications Changed Market Value in 2nd Quarter 2023?

Category	Total that changed	Went Down in Value	Went Up in Value
Architecture/Project Management/Process	30.8%	20.5%	10.3%
Info/Cyber Security	27.0%	20.4%	6.6%
System Admin & Engineering	13.8%	7.7%	6.2%
Networking & Communications	15.2%	8.6%	0.0%
Web Development	0.0%	0.0%	0.0%
Data/Database	37.5%	29.7%	7.8%
Apps Development/Prog. Languages	34.7%	18.1%	16.7%
Beginner and Training	0.0%	0.0%	0.0%
ALL CERTIFICATIONS SURVEYED	23.8%	15.7%	8.1%

% of Certifications That Changed Market Value from Prior Quarter (Gain or Decline)

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

IT Skills and Certifications Volatility Index™
2Q 2023 data edition findings: Tech Certifications

IT Certifications Volatility Highlights

Among all 614 certifications surveyed, highest quarterly volatility (>15%) occurred in these segments (ranked highest to lowest):

- Data/Database
- Applications Development
- Architecture/Project Mgt/Methodology
- Info/Cybersecurity
- Networking & Communication

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

- Applications Development

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

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

(Pay data supporting these charts available in the *IT Skills and Certifications Pay Index™* – 2023 quarterly data edition)

VOLATILITY HIGHLIGHTS Non-certified IT Skills – 2nd Quarter 2023 datasets

VOLATILITY INDEX: How Many of 682 Noncertified IT Skills Changed Market Value in 2nd Quarter 2023?

Management/Methodology/Process — Total that changed: 37.4%, Went Down in Value: 13.0%, Went Up in Value: 24.4%

Operating Systems — Total that changed: 53.3%, Went Down in Value: 26.7%, Went Up in Value: 26.7%

Data/Database — Total that changed: 55.7%, Went Down in Value: 24.6%, Went Up in Value: 31.1%

Web/e-Commerce Development — Total that changed: 28.3%, Went Down in Value: 12.1%, Went Up in Value: 16.2%

Apps Development Tools & Platforms — Total that changed: 38.8%, Went Down in Value: 21.7%, Went Up in Value: 17.1%

SAP & Enterprise Business Applications — Total that changed: 22.8%, Went Down in Value: 16.2%, Went Up in Value: 6.6%

Messaging and Communications — Total that changed: 0.0%, Went Down in Value: 0.0%, Went Up in Value: 0.0%

Systems/Networking — Total that changed: 20.8%, Went Down in Value: 12.5%, Went Up in Value: 8.3%

ALL NONCERTIFIED SKILLS SURVEYED — Total that changed: 32.4%, Went Down in Value: 16.2%, Went Up in Value: 16.2%

Legend:
- Total that changed
- Went Down in Value
- Went Up in Value

% of Noncertified Skills That Changed Market Value from Prior Quarter (Gain or Decline)

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

IT Skills and Certifications Volatility Index™
2Q 2023 data edition findings: Non-certified IT Skills

Non-certified IT Skill Pay Volatility Highlights

Among all 682 noncertified IT skills surveyed, high volatility (>20%) occurred in all but one segments (ranked highest to lowest):

- Data/Database
- Operating Systems
- Applications Development Tools & Platforms
- Management/Methodology/Process
- Web/eCommerce Development
- SAP & Enterprise Business Apps
- Systems/Networking

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

- Data/Database
- Operating Systems
- Management/Methodology/Process
- Applications Development Tools & Platforms
- Web/eCommerce Development

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

- Operating Systems
- Data/Database
- Applications Development Tools & Platforms;
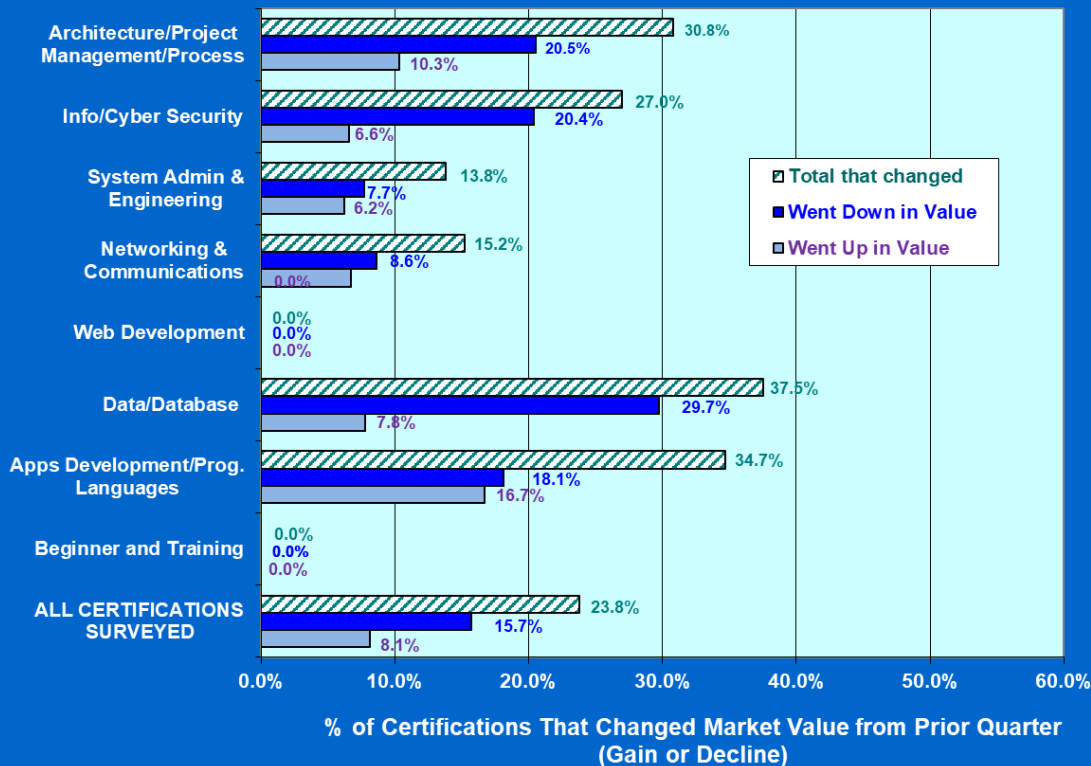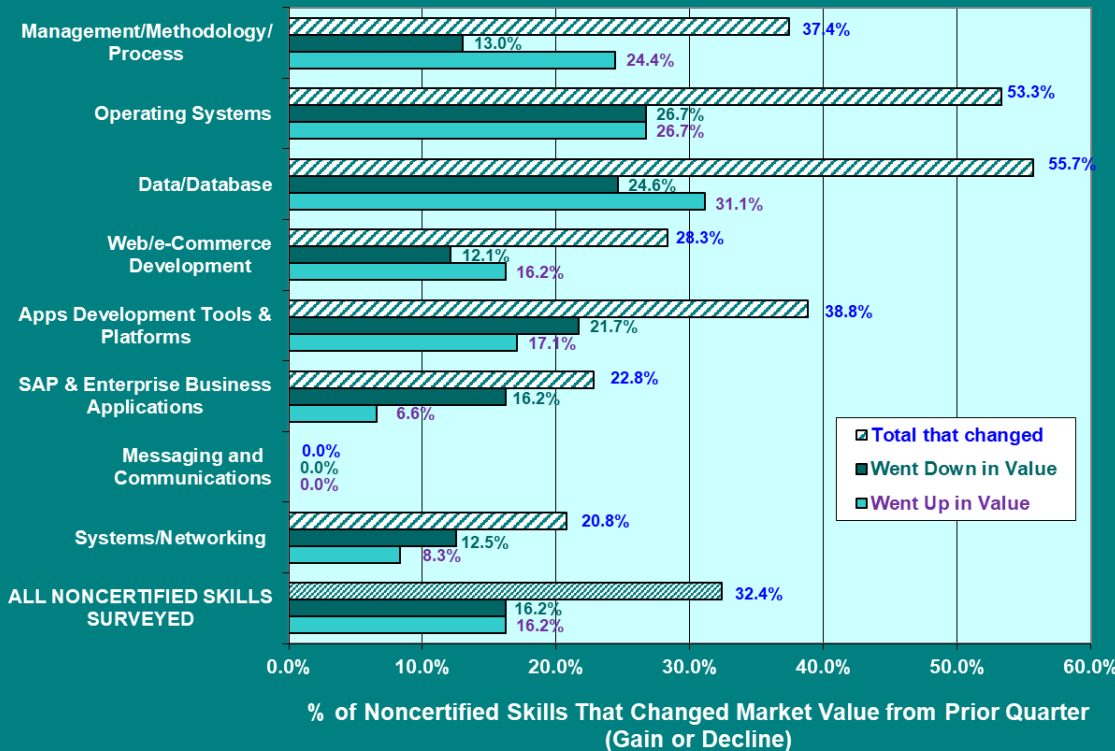
(Pay data supporting these charts available in the *IT Skills and Certifications Pay Index™ – 2023 quarterly data edition*)

2023 IT Skills and Certifications Pay Index™ (2nd Quarter data edition)

- Pay premiums for **1,296 certified and noncertified IT skills**
  - Three data points for each position: 10th, 50th, 90th percentile

- Verified and validated IT skills pay data from **93,446 IT professionals at 4,203 employers** in US and Canada

- Current data collected through July 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

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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*^{TM} **(ITSCPI),** launched in 1999, and the *IT Skills and Certifications Volatility Index,* both updated every three months since that time. Data covering 411,894 tech professionals at 4,203 employers in 83 U.S. and Canada cities are reported for IT salaries and skills pay earned for 270 positions and 1,296 certified and noncertified technical and business skills. Verified and validated pay data for 93,446 tech workers has been included in the 2nd Quarter 2023 data edition of the ITSCPI, compiled from data collected through July 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*^{TM}

Please visit the Foote Partners web site: IT Skills and Certifications Pay Index

Foote Partners, LLC
Foote Research Group

Foote Partners 2023 IT Compensation Survey Product Map

Survey Demographics
- 65 US/18 Canadian cities (377,172 IT workers—4,111 employers)
- 174 Europe/UK cities (189,888 IT workers, 2,065 employers)
- 45+ industries
- Updated continuously.

IT Professional Salary Survey (257 Jobs, 36 IT job families)

IT Skills & Certification Pay Index™ (1,270 skills/certs)

IT Skills Demand and Pay Trends Report

IT Skills HOT LISTS Forecast

IT Skills Volatility Index

JOB FAMILIES AVAILABLE:
- Artificial Intelligence
- Big Data
- Business Technology
- Business Applications Delivery
- Cloud Computing
- Data Analytics
- Data Management
- Data Warehousing/BI
- Database Administration
- Database Developers
- DevOps
- Digital Development
- e-Commerce/e-Business
- Enterprise Applications
- Enterprise Infrastructure
- Epic Systems
- Help Desk
- Info/Cybersecurity
- Internets/intranets/extranets
- IT Architecture
- IT Auditing
- IBM Notes/Domino
- Java Developers
- Messaging
- Mobile Computing
- .NET Developers
- Network Eng. & Operations
- Project Management
- SAP
- Six Sigma
- Software Quality Assurance
- Storage/SAN/NAS
- Systems Eng. & Administration
- Unix/NT/Linux
- Voice Engineering
- Web/I-net

Custom Salary Reports
- Choose on the job titles or job families needed
- Choose cities needed

IT Infrastructure Survey

IT Base Positions Survey

IT Salary+Skills Pay Survey Reports

Long-form Job Descriptions
- updated continuously
- comprehensive, includes internal/external relationships key to job success; skills and certification; detailed experience factors.

Short-form Job Profiles (JD excerpts)

SALARY+SKILLS REPORTS AVAILABLE:
- Applications Development
- Big Data
- Business Analysts/Business Technology
- Database
- Data Warehousing/Business Intelligence
- E-Commerce
- IT Architecture
- Microsoft Windows
- Networking Operations & Engineering
- Project Management
- SAP
- IT Security
- Systems Engineering and Administration
- Web/I-net

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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