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**Foote Research Group**

**Foote Partners News Release – October 30, 2023**

**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 4,258 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.

**Volatility in cash pay premiums for 1,313 IT skills and certifications reported in Foote Partners' *IT Skills and Certification Pay Index* returned to normal from July to October after registering a 3-year high in the prior quarter. The average pay premium fell an additional 0.3 percent overall contributing to a 1 percent decline in the last twelve months.**

**Average market value for 694 non-certified IT skills declined a slight 0.2 percent overall, with 183 skills changing in value compared to a whopping 220 in the prior quarter. 107 lost value while only 76 gained value compared to 110 and 110, respectively, in the second quarter on 2023. Only two groups recording gains: Management/Methodology/Process and Operating Systems skills.**

**For 619 IT certifications, average market value recorded a larger decline, down 0.7 percent, led by losses in Applications Development & Programming Languages, Data/Database, and Architecture/Project Management/Process certification categories. Only 97 certifications changed value compared to a whopping 144 in the prior quarter, with 65 declining and only 32 gaining market value.**

**As new technology such as generative AI begins to dramatically alter the tech labor landscape, workers are struggling to understand how their roles will change—if not go away altogether--now and in the future.**

*October 30, 2023 – Vero Beach, FL.* Extra pay awarded by employers to talented tech professionals for **694 non-certified IT skills**---also known as cash pay premiums---declined slightly the third quarter of 2023 for only the third time in the past seven 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 **619 IT certifications** fell more than non-certified skills for the second time in the past four calendar quarter and third time in the past six quarters.

This according to the latest quarterly update of Foote Partners' ***IT Skills and Certifications Pay Index™*** (ITSCPI) based on compensation data provided by 4,258 private and public-sector employers in 83 U.S. and Canadian cities who partner with our firm to report pay for their 417,297 technology professionals in the U.S. and Canada.

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Since its launch in 1999, the ***IT Skills and Certifications Pay Index™*** has continuously tracked cash pay premiums paid to tech professionals by their employers for an ever-increasing number of popular tech skills and certifications. Rigorously validated data and detailed market analyses are updated and published by Foote Partners every 90 days. Currently, premiums are reported for 1,313 certifications and non-certified skills.

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

(94,672 IT professionals, data through 10/1/2023)

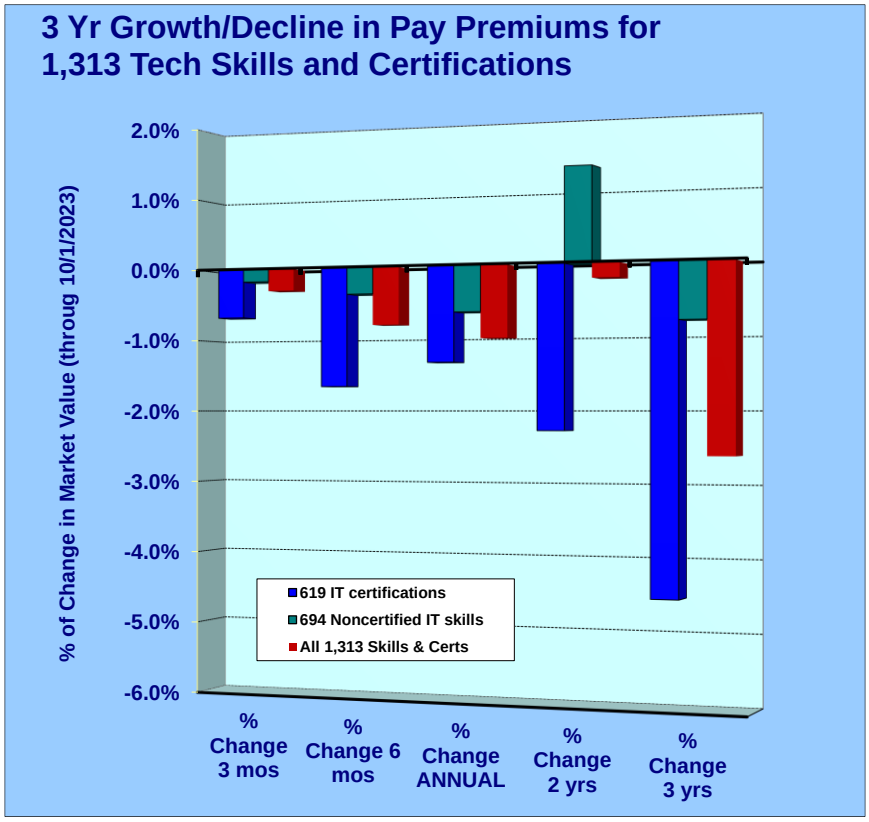


**Figure 1**

Source: Foote Partners, *IT Skills and Certifications Pay Index™* (3Q2020 – 3Q2023 datasets)

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

Average median cash pay premiums for a single certified or noncertified IT skill. **N = 94,672 IT Professionals**

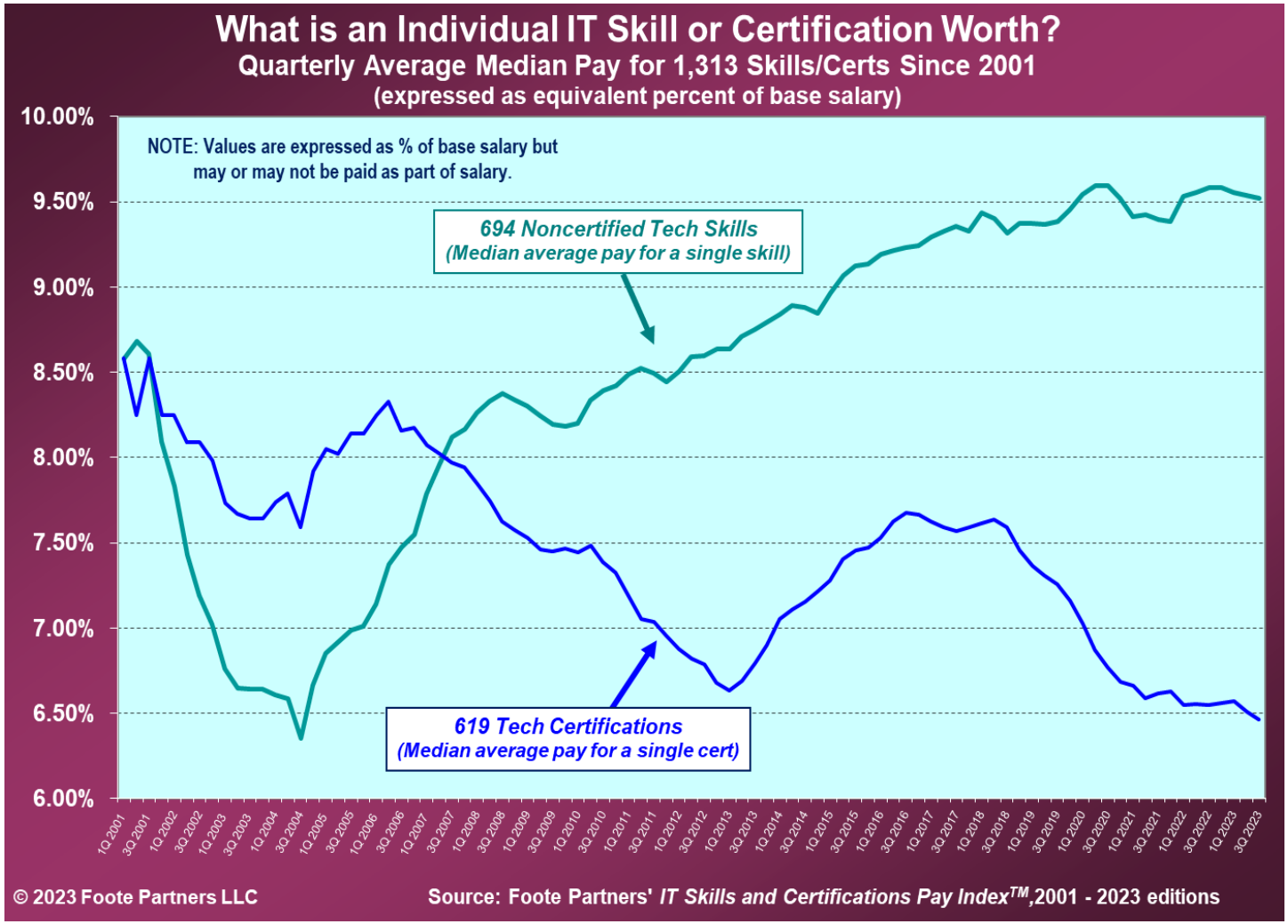


**Figure 2**

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# IT Skills & Certifications Pay Data Trend Charts & Analysis

## IT Skills and Certifications Pay Index™ – 3rd Quarter 2023 data edition*


- Noncertified IT Skills (Page 6)
- IT Certifications (Page 193)


## IT Skills and Certifications Pay Volatility Index™ – 3rd Quarter 2023 data edition*


- Summary (Page 31)
- IT certifications (page 34)
- Non-certified IT skills (page 35)


*All data collected through October 1, 2023

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

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

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

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

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# Noncertified IT Skills Data Trend Charts & Analysis

(Data collected through October 1, 2023)

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**Apps Dev. Tools/Platforms**

Adobe Analytics
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 CodeDeploy
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
ChatGPT
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/SOAP UI
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

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**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 Ignite
- Apache Impala
- 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 BigQuery
- Google Data Studio
- Hbase
- Informatica
- Java Database Connectivity
- Kibana
- Looker
- Master data management
- Microsoft Access
- Microsoft Exchange Server 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

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**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 NetScaler
- 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
- NGFW(next-generation firewall)
- 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 Orion
- 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 OpenAI
- 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
- ForgeRock/Ping Identity
- Functional Programming
- Functional Testing
- Game Development
- General Data Protection Regulation
- Google TensorFlow
- Governance, Risk management and Compliance
- H2O.ai
- HL7
- Hyperautomation
- Identity access management
- Incident Management
- Information management
- IT Audit
- IT Governance
- ITIL V3
- IT Service Management/ITSM
- Kanban
- Keras
- Large Language Model/LLM Tuning
- 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
- Object Detection/YOLO

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**Management, Methodologies and Process – cont'd.**

Penetration testing
Power BI
Predictive Analytics and Modeling
Prescriptive Analytics
Program Management
Project management/governance
Prompt Engineering
PyTorch
QlikSense Quality Assurance/QA Automation
Quality management/TQM
Quantitative Analysis/Regression
Razor
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/ Assessment/Management
Waterfall
Web Analytics
Webtrends analytics
Zachman Framework

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## IT NONCERTIFIED SKILLS PAY SUMMARY – Through October 1, 2023

### A. NONCERTIFIED TECH SKILLS PAY PERFORMANCE: By Category

**NON-CERTIFIED TECH SKILLS.** 183 of 682 **non-certified tech skills** changed cash market value from July 1, 2023 to October 1, 2023 compared to 220 of 680 skills in the prior calendar quarter. The average **c**ash pay premium declined slightly last quarter and in the prior two quarters following quarterly increases in three of the four 2022 quarterly results.

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

(694 skills, data through 10/1/2023)

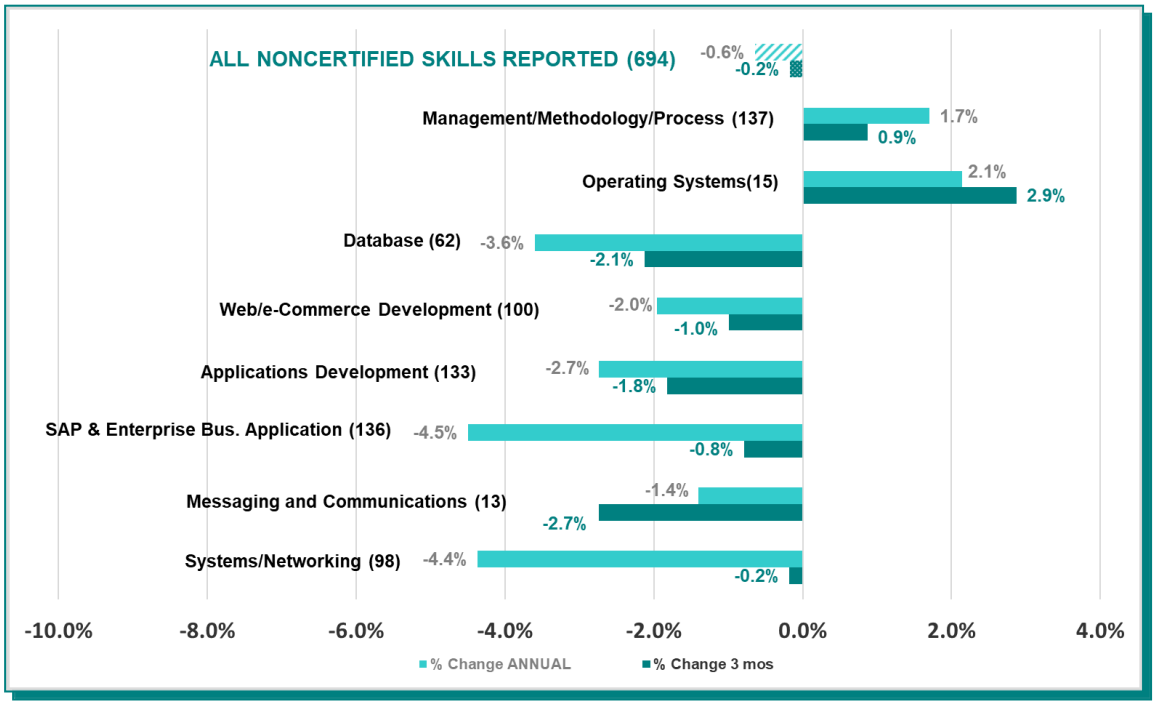


**Figure 3**

Source: Foote Partners *IT Skills & Certifications Pay Index™*, 3rd Quarter data edition

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## 4-YEAR NON-CERTIFIED IT SKILLS PAY TRENDS

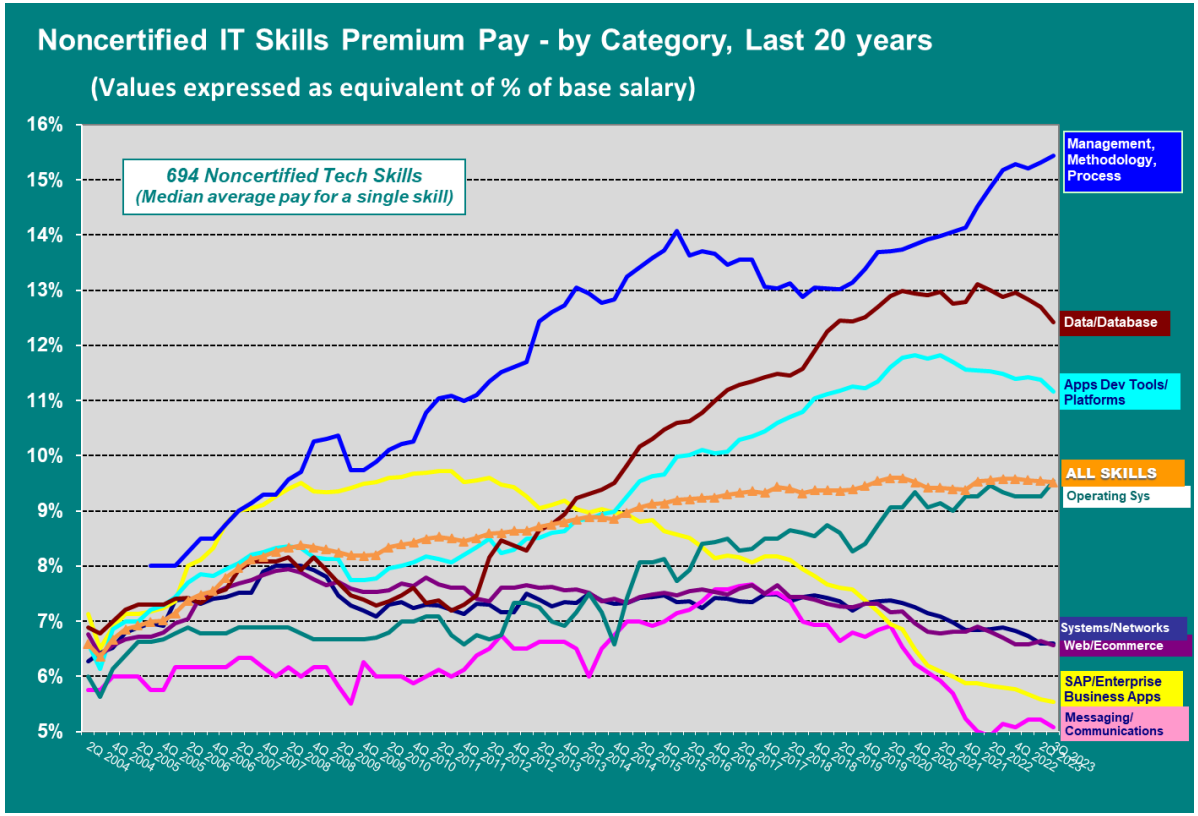
(Through 10/1/2023 – 94,672 IT Professionals)

| 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 | 98 | -0.2% | -2.1% | -4.4% | -5.6% | -10.2% | -8.4% |
| Messaging and Communications | 13 | -2.7% | -2.7% | -1.4% | -10.9% | -22.4% | -25.3% |
| SAP & Enterprise Business Applications | 136 | -0.8% | -2.3% | -4.5% | -7.6% | -19.1% | -26.8% |
| Apps Development Tools & Platforms | 133 | -1.8% | -2.3% | -2.7% | -4.5% | -5.1% | -0.8% |
| Web/e-Commerce Development | 100 | -1.0% | -0.2% | -2.0% | -3.6% | -8.4% | -9.3% |
| Data/Database | 62 | -2.1% | -3.2% | -3.6% | -2.7% | -4.3% | -0.1% |
| Operating Systems | 15 | 2.9% | 2.9% | 2.1% | 5.9% | 5.1% | 15.3% |
| Management/Methodology/Process | 137 | 0.9% | 1.5% | 1.7% | 9.9% | 12.4% | 17.5% |
| ALL NONCERTIFIED SKILLS REPORTED | 694 | -0.2% | -0.4% | -0.6% | 1.3% | -0.8% | 1.4% |

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

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

(Through 10/1/2023 – 94,672 IT Professionals)




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

Pay data supporting these charts available in the *IT Skills and Certifications Pay Index™* - 3Q 2023 data edition

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## HIGHEST PAYING Non-certified IT Skills (cash pay premiums, all 694 skills surveyed, ranked)

These **non-certified IT skills** are among those earning the highest pay premiums (data collected July 1, 2023 to October 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] Artificial Intelligence for IT Operations
Big Data analytics
DevSecOps
Risk analytics/assessment
Security architecture and models
Site Reliability Engineering
Zachman Framework

2.[Tie] Apache Zookeeper
Data Architecture
DataOps
MLOps
Neural Networks

3.[Tie] Artificial Intelligence
Azure Service Fabric
Blockchain
Cryptography
Data Engineering
Data Strategy
Deep Learning
Deployment Automation
Functional Programming
HBase
Hyperautomation
Identity access management
Large Language Model/LLM tuning
Machine Learning
Microservices
Natural language processing
Prescriptive Analytics
Security testing

3.[Tie] Smart Contracts
Splunk

4.[Tie] Apache Airflow
COBIT
Continuous Integration
Data Integration
Data Science
Data Transformation
DevOps
Digital Forensics
Ethereum
Flink
Google TensorFlow
Governance, Risk management and Compliance
H2O.ai
Keras
Kibana
NIST/NIST 800
PyTorch
Scaled Agile Framework (SAFe)
Test Driven Development/Scripting
Threat Detection/Modelling/ Management

5.[Tie] Amazon Athena
Apache Cassandra
Apache Ignite
Apache Impala
AWS Codebuild
Azure Key Vault

5.[Tie] – cont'd.
Business analytics
Clojure
Cloud Foundry PaaS
Complex Event Processing/Event Correlation
Configuration Management
Cybersecurity
Data Analytics
Data Governance
Data Management
Data Migration
Data Modelling
Data Quality
Google BigQuery
Informatica
IT Audit
Kanban
Looker
Marketo
Master data management
Network Architecture
Object Detection/YOLO
Security management
User Experience/User Interface
Web Analytics

6.[Tie] Amazon DynamoDB
Amazon RedShift
Apache Hive
Apache Spark
Azure DevOps

6.[Tie] cont'd
Azure Machine Learning
Azure OpenAI
Big Data
Business analysis
Caffe
Capacity Planning/Management
Continuous Improvement
Cyber Threat Intelligence
Data Privacy
Data Protection
Data Visualization
DataRobot Enterprise AI Platform
E-Discovery
ForgeRock/Ping Identity
Generative AI
GoCD
gRPC
Java Database Connectivity (JDBC)
Kotlin
Metadata design and development
NoSQL
Penetration testing
Program Management
Quality Assurance/QA automation
Quality management/TQM
Six Sigma/Lean Six Sigma
Software development lifecycle management
Test automation
User-Centered Design
Vulnerability Scanning/Assessment/Mgt
Waterfall

SOURCE: Foote Partners *IT Skills & Certifications Pay Index™*, 3Q 2023 data edition

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## NON-CERTIFIED TECH SKILLS TREND HIGHLIGHTS: Market Value Gainers & Highest Pay – 3rd Quarter 2023 data

These non-certified tech skills ***gained 10% or more in market value in the three months ending October 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)**

**Applications Development skills**
Semaphore CI/CD
Cerner Millennium
PowerBuilder
Epic Systems applications
Cloud Foundry PaaS
BusinessObjects
Drupal
Microsoft Power Platform
Hibernate/Nhibernate 8

**SAP & Enterprise Business Applications skills**
Oracle HFM (Hyperion Financial Management)
SAP SEM (Strategic Enterprise Management)
SAP IS-U (Utilities)
Oracle NetSuite
SAP PI (NetWeaver Process Integration)
SAP CX (Customer Experience)
SAP FI - FSCM (Financial Supply Chain Management)
SAP IBP ( Integrated Business Planning)
Remedy ITSM

**Web/SOA/E-Commerce skills**
SailPoint
Microsoft Identity Integration Server (MIIS)
XHTML MP
WSDL (Web Services Description Language)
Redux

**Database Skills**
Oracle DB 10g/11i/12c
Apache CouchDB
Java Database Connectivity (JDBC)

**Systems/Networking skills**
Performance management/metrics
Cisco Prime
Azure Active Directory
Microsoft SCCM
Cisco UCCX
HP Quality Center
Storage virtualization/administration
vCloud
WAN 4G/5G services
VPN/OpenVPN
Cisco ISE (Identity Services Engine)

**Management, Process & Methodology skills**
Data Privacy
Cryptography (encryption, VPN, SSL/TLS, Hybrids)
Quality management/TQM
Marketo
Neural Networks
Zachman Framework

**Messaging & Communications Skills skills**
Unified communications/messaging

SOURCE: Foote Partners *IT Skills & Certifications Pay Index™*, 3Q 2023 data edition

**Highest Paying – Cash Premiums (A-Z)**

- Apache Zookeeper
- Artificial Intelligence
- Artificial Intelligence for IT Operations (AIOps)
- Azure Service Fabric
- Big Data analytics
- Blockchain
- Cryptography (encryption, VPN, SSL/TLS, Hybrids)
- Data Architecture
- Data Engineering
- Data Strategy
- DataOps
- Deep Learning
- Deployment Automation
- DevSecOps
- Functional Programming
- HBase
- Hyperautomation
- Identity access management
- Large Language Model/LLM tuning
- Machine Learning
- Microservices
- MLOps
- Natural language processing
- Neural Networks
- Prescriptive Analytics
- Risk analytics/assessment
- Security architecture and models
- Security testing
- Site Reliability Engineering
- Smart Contracts
- Splunk
- Zachman Framework

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## NON-CERTIFIED IT SKILLS TREND HIGHLIGHTS: Market Value Losers – 3rd Quarter 2023 data

These non-certified IT skills ***declined 10% or more in market value in the three months ending October 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)

**Applications Development skills**
JBehave
Xcode
Apache Pig
TestNG
Appium
Ruby on Rails
Apache Cordova
Cloudera software
Travis CI
Apache Spark
Apache Cloudstack
SAS
Ethereum
Microsoft SQL Server Management Studio (SSMS)

**Web/E-commerce Development skills**
Google Analytics
Google App Engine
Backbone.js
Julia
Magento/Adobe Commerce
Mobile applications development
REST
WebSphere Datapower
Apache Solr
Microsoft BizTalk Server
Microsoft Forefront Threat Management Gateway (formerly ISA)
Pandas
TIBCO

**SAP & Enterprise Business App skills**
SAP SRM (Supplier Relationship Management)
Oracle SCM (Supply Chain Management)
SAP WM (Warehouse Management)
Oracle SOA Suite
Salesforce Service Cloud
Salesforce Commerce Cloud
SAP Ariba
SAP Hybris
SAP PP (Production Planning)
Oracle ERP
SAP BPC (BusinessObjects Planning and Consolidation)
SAP NetWeaver BW (Business Information Warehouse)
SAP Data Services (SAP BODS)

**Data/Database**
Oracle Application Server
Apache Spark SQL
Base SAS
Power Query
DB2
Azure SQL Data Warehouse
Oracle Business Intelligence Enterprise Edition Plus
Oracle Coherence
GIS
TIBCO Spotfire

**Systems/Networking skills**
Software-Defined Networking
SMTP
Multiprotocol Label Switching (MPLS)
Wireless sensors/RFID
Web services security
Cisco UCCE
Salt
SolarWinds Orion
Citrix Hypervisor (XenServer)
Performance Analysis/Tuning
Rackspace Cloud
Azure AKS
WiMAX/LTE
Amazon Elastic Kubernetes Service (Amazon EKS)
Google Kubernetes
Puppet

**Management, Process & Methodology skills**
TIBCO BusinessWorks
Customer Experience
Security auditing
Data Visualization
Webtrends analytics

**Messaging & Communications Skills skills**
TIBCO Enterprise Message Service
Java Messaging Service

SOURCE: Foote Partners *IT Skills & Certifications Pay Index™*, 3Q 2023 data edition

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## 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 694 skills reported in our *IT Skills and Certifications Pay Index*™ in quarter ending October 1, 2023.
- They ***recorded gains in cash market value*** in the six months ending October 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):

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

| | | |
|---|---|---|
| Amazon Athena | Data Migration | Machine Learning |
| Apache Airflow | Data Quality | Marketo |
| Apache Impala | Data Transformation | Master data management |
| Apache Zookeeper | DataOps | Neural Networks |
| Artificial Intelligence | Deep Learning | Prescriptive Analytics |
| Artificial Intelligence for IT Operations(AIOps) | Digital Forensics | Risk analytics/assessment |
| | Google BigQuery | Security management |
| Azure Service Fabric | H2O.ai | Security testing |
| Blockchain | HBase | Test Driven Development/Scripting |
| Clojure | Identity access management | User Experience/User Interface |
| COBIT | IT Audit | Web Analytics |
| Cryptography | Kibana | |

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

* * * *

1. **Artificial Intelligence for IT Operations (AIOps)**
   **Risk analytics/assessment**
   *Average Pay Premium:* 20 percent of base salary equivalent
   *Market Value Increase:* 5.3 percent (in the six months through October 1, 2023)

3. **Apache Zookeeper**
   *Average Pay Premium:* 19 percent of base salary equivalent
   *Market Value Increase:* 18.8 percent (in the six months through October 1, 2023)

4. **Neural Networks**
   *Average Pay Premium:* 19 percent of base salary equivalent
   *Market Value Increase:* 11.8 percent (in the six months through October 1, 2023)

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

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

6. **Cryptography (encryption, VPN, SSL/TLS, Hybrids)**
   **Prescriptive Analytics**
   *Average Pay Premium:* 18 percent of base salary equivalent
   *Market Value Increase:* 28.6 percent (in the six months through October 1, 2023)

8. **Apache HBase**
   *Average Pay Premium:* 18 percent of base salary equivalent
   *Market Value Increase:* 12.5 percent (in the six months through October 1, 2023)

9. **Artificial Intelligence**
   **Azure Service Fabric**
   **Blockchain**
   **Deep Learning**
   **Identity access management**
   **Machine Learning**
   **Security testing**
   *Average Pay Premium:* 18 percent of base salary equivalent
   *Market Value Increase:* 5.9 percent (in the six months through October 1, 2023)

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

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

18. **COBIT**
   **Data Transformation**
   **Digital Forensics**
   **H2O.ai**
   **Test Driven Development/Scripting**
   *Average Pay Premium:* 17 percent of base salary equivalent
   *Market Value Increase:* 6.3 percent (in the six months through October 1, 2023)

23. **Marketo**
   *Average Pay Premium:* 16 percent of base salary equivalent
   *Market Value Increase:* 60 percent (in the six months through October 1, 2023)

24. **Web Analytics**
   *Average Pay Premium:* 16 percent of base salary equivalent
   *Market Value Increase:* 23.1 percent (in the six months through October 1, 2023)

25. **Amazon Athena**
   **Clojure**
   **Google BigQuery**
   **IT Audit**
   *Average Pay Premium:* 16 percent of base salary equivalent
   *Market Value Increase:* 14.3 percent (in the six months through October 1, 2023)

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

29. **Apache Impala**
    **Data Migration**
    **Data Quality**
    **Master data management**
    **Security management**
    **User Experience/User Interface**
    *Average Pay Premium:* 16 percent of base salary equivalent
    *Market Value Increase:* 6.7 percent (in the six months through October 1, 2023)

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# IT Certification Data Trend Charts & Analysis

(Data collected through October 1, 2023)

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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)

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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)

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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 October 1, 2023

### A. CERTIFIED IT SKILLS PAY PERFORMANCE: By Category

**TECH CERTIFICATIONS**. 97 of 614 IT certifications changed cash market value in 3Q 2023 compared to 144 of 606 certification in the prior quarter. The average **c**ash pay premium declined in the last two calendar quarters following two consecutive quarters of increases.

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

(619 certifications, data through 10/1/2023)

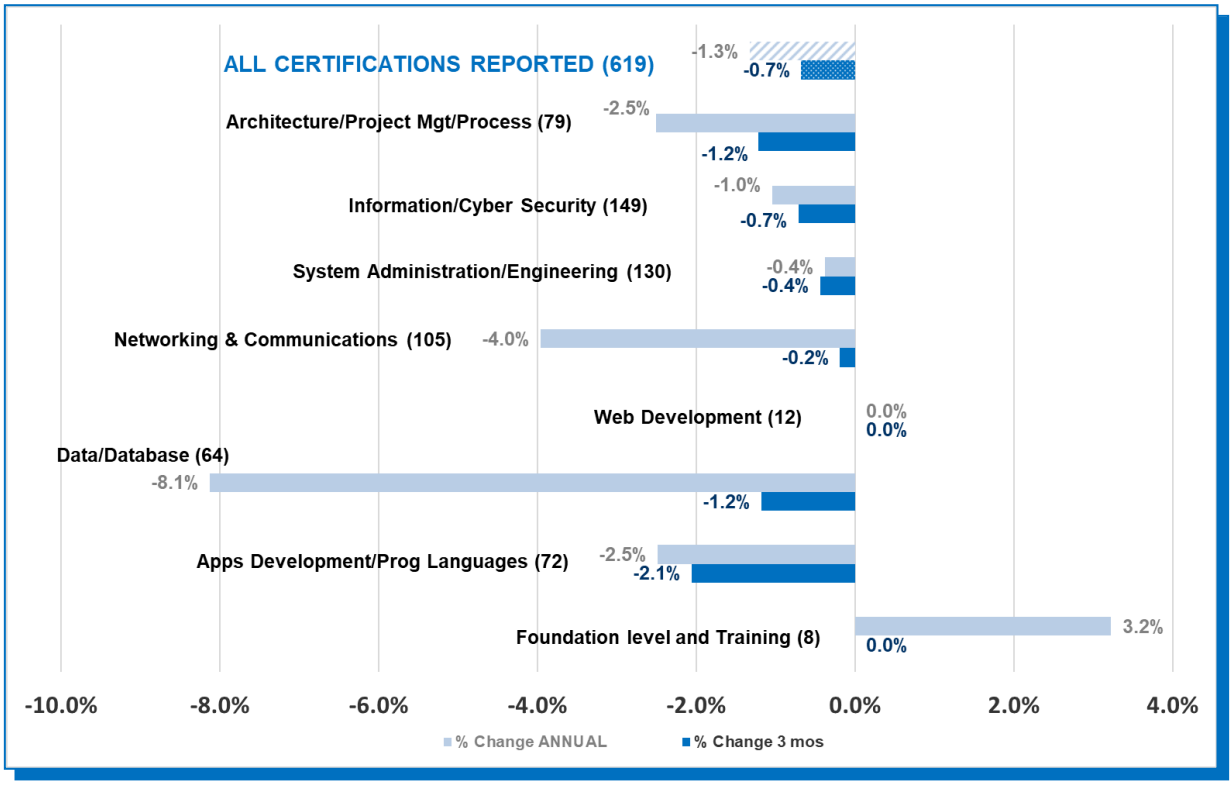


**Figure 5**

Source: Foote Partners *IT Skills & Certifications Pay Index™*, 3rd Quarter 2023 data

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## 4-YEAR IT CERTIFICATIONS PAY TRENDS

(Through 10/1/2023 – 94,672 IT Professionals)

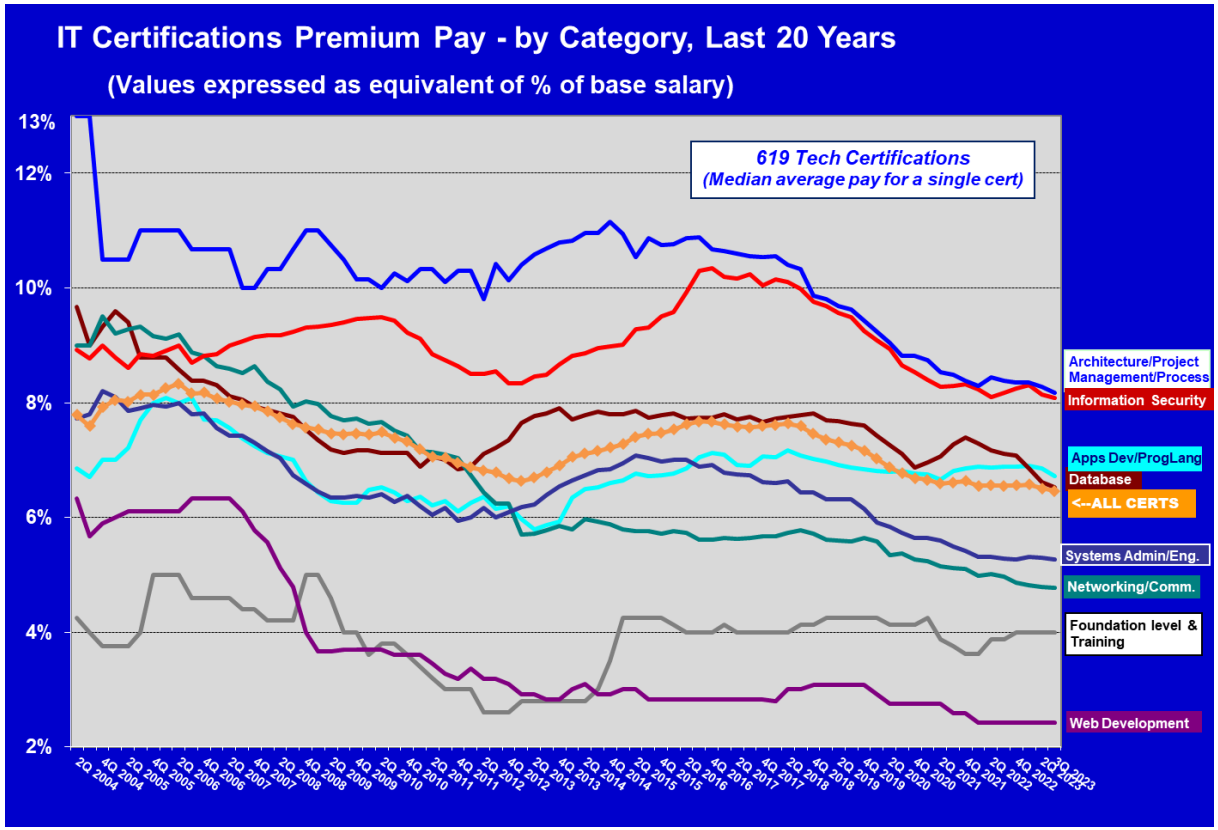
| IT CERTIFICATIONS CATEGORIES | # of certs surveyed | Change in Average Premium Pay by Category | | | | | |
|---|---|---|---|---|---|---|---|
| | | % Change 3 mos | % Change 6 mos | % Change ANNUAL | % Change 2 yrs | % Change 3 yrs | % Change 4 yrs |
| Training and Beginner/Foundation level | 8 | 0.0% | 0.0% | 3.2% | 6.7% | -3.0% | -5.9% |
| Apps Development/Prog. Languages | 72 | -2.1% | -2.7% | -2.5% | -1.4% | -1.2% | -2.3% |
| Data/Database | 64 | -1.2% | -4.8% | -8.1% | -10.1% | -8.2% | -14.5% |
| Web Development | 12 | 0.0% | 0.0% | 0.0% | -6.4% | -12.1% | -21.6% |
| Networking & Communications | 105 | -0.2% | -0.8% | -4.0% | -6.8% | -11.0% | -14.4% |
| System Administration/Engineering | 130 | -0.4% | -0.7% | -0.4% | -4.1% | -8.0% | -16.5% |
| Information/Cyber Security | 149 | -0.7% | -2.6% | -1.0% | -2.4% | -6.6% | -14.8% |
| Architecture/Project Management/Process | 79 | -1.2% | -2.2% | -2.5% | -3.6% | -7.2% | -15.0% |
| ALL CERTIFICATIONS REPORTED | 619 | -0.7% | -1.7% | -1.3% | -2.3% | -4.5% | -10.9% |

## 17-YEAR IT CERTIFICATIONS PAY TRENDS BY CATEGORY

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

(Through 10/1/2023 – 94,672 IT Professionals)

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




Pay data supporting these charts available in the *IT Skills and Certifications Pay Index™* – 3Q 2023data edition

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## HIGHEST PAYING IT Certifications (cash pay premiums for all 619 certs surveyed, ranked)

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

1.[Tie] GIAC Security Leadership

2.[Tie] GIAC Strategic Planning, Policy, and Leadership

3.[Tie] Certificate of Cloud Security Knowledge

4.[Tie] Certified Professional Scrum Product Owner
Okta Certified Developer
Zachman Certified - Enterprise Architect
Certified in the Governance of Enterprise IT
Offensive Security Exploitation Expert
TOGAF 9 Certified

5.[Tie] AWS Certified Security - Specialty
Certified Scrum Professional - ScrumMaster
Certified ScrumMaster - Advanced
Certified Secure Software Lifecycle Professional
Certified Software Quality Manager
CyberSecurity Forensic Analyst
GIAC Security Operations Manager
GIAC Web Application Penetration Tester
PMI Program Management Professional
Salesforce Certified Technical Architect
Six Sigma Master Black Belt

6.[Tie] AWS Certified DevOps Engineer - Professional
Certified Forensic Computer Examiner
Certified in Governance, Risk and Compliance (ISC(2))
Certified in Risk and Information Systems Control
Certified Information Security Manager
Certified Information Systems Auditor
CompTIA Advanced Security Practitioner
EC-Council Certified Encryption Specialist v2
GIAC Certified Forensics Examiner
GIAC Exploit Researcher and Advanced Penetration Tester

6.[Tie] GIAC Penetration Tester
Google Certified Professional Cloud Architect
InfoSys Security Engineering Professional (ISSEP/CISSP)
InfoSys Security Management Professional (ISSMP/CISSP)
Mile2 Certified Cloud Security Officer(C)CSO)
Offensive Security Certified Expert
Offensive Security Web Assessor
Okta Certified Professional
SAFe Certification

7.[Tie] AWS Certified Data Analytics – Specialty.
Certificate in Information Security Management Principles
Certificate of Cloud Auditing Knowledge
Certified Business Continuity Manager/ISO 22301
Certified Business Continuity Professional
Certified Cloud Security Professional (ISC2-CCSP)
Certified Computer Examiner
Certified Data Privacy Solutions Engineer(CDPSE-ISACA)
Certified Enterprise Coach (Scrum/Agile)
Certified Fraud Examiner
Certified Information Privacy Technologist- all countries
Certified Information Systems Risk Manager/Mile2
Certified Information Systems Security Professional
Certified Kubernetes Security Specialist
Certified Penetration Testing Engineer
Certified Scrum Product Owner - Advanced
Certified Scrum Team Coach
Certified ScrumMaster
Check Point Certified Security Expert
Check Point Certified Security Master
CompTIA Cybersecurity Analyst+
EC-Council Certified DevSecOps Engineer
EC-Council Certified Ethical Hacker
EC-Council Certified Penetration Testing Professional

7.[Tie] EC-Council Certified Secure Programmer
Fortinet Network Security Expert Level 3
GIAC Certified Enterprise Defender
GIAC Cloud Forensic Responder
GIAC Experienced Cyber Security
GIAC Experienced Incident Handler
GIAC Experienced Intrusion Analyst
HDI Support Center Director
IBM Certified Data Engineer - Big Data
Magento 2 Certified Professional Developer
Microsoft Certified: DevOps Engineer Expert
MongoDB Certified Developer
Offensive Security Defense Analyst
Offensive Security Web Expert
Open Group Certified Architect
Pegasystems Certified Lead System Architect
Pegasystems Certified Senior Systems Architect
Pivotal Application Architect
PMI Risk Management Professional
Red Hat Certified Specialist in Business Process Design
Salesforce Certified Systems Architect
Salesforce Identity and Access Management Architect
Six Sigma Black Belt
Teradata 14 Certified Master
TIBCO Certified Architect

Source: Foote Partners *IT Skills & Certifications Pay Index™*, 3Q 2023 data edition

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## IT CERTIFICATION PAY TREND HIGHLIGHTS: Market Value Gainers & Highest Paying – 3rd Quarter 2023 datasets

These tech certifications ***gained 10% or more in market value in the three months ending October 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

**Info/Cyber Security certifications**
Fortinet Network Security Expert (NSE) Level 1
GIAC iOS and MacOS Examiner
GIAC Security Operations Certified (GSOC)
Microsoft Certified: Azure Security Engineer Associate
Certificate in Information Security Management Principles (CISMP)
Check Point Certified Security Expert (CCSE)
GIAC Security Operations Manager (GSOM)

**Systems Administration certifications**
Linux Professional Institute certification (LPIC-Level 2)
VMware Certified Advanced Professional 6.5 - Data Center Virtualization Design
ServiceNow Certified Systems Administrator (CSA)
Linux Professional Institute certification (LPIC-Level 3)

**Architecture, Project Management, and Process Certifications**
Six Sigma Green Belt
Microsoft Certified: Azure AI Engineer Associate
Google Certified Professional Cloud Architect
Salesforce Certified Technical Architect

**Application Development/Programming Languages certifications**
Microsoft Certified: Azure Developer Associate
Pivotal Developer
Pegasystems Certified Pega Business Architect
Adobe/Magento 2 Commerce Developer-Professional

**Data/Database certifications**
Microsoft Certified Solutions Associate: BI Reporting
Dell Data Science Associate (DCA-DS)
Dell Data Science Specialist - Advanced Analytics (DCS-DA)
IBM Certified Data Engineer - Big Data

**Networking & Communications certifications**
Dell Information Storage and Management Expert (DCE-ISM)
CWNP/Certified Wireless Network Administrator (CWNA)
Dell EMC Technology Architect - Specialist (DCS-TA)
Dell EMC Technology Architect - Expert (DCE-TA)
Dell Cloud Infrastructure - Specialist (DCS - CA)
Dell Implementation Engineer - Expert (DCE - IE)
AWS Certified Solutions Architect - Professional (Cloud)

Source: Foote Partners *IT Skills & Certifications Pay Index™*, 3rd Quarter 2023 data edition

### Highest Paying – Cash Premiums (A-Z)

- AWS Certified Security - Specialty
- Certificate of Cloud Security Knowledge (CCSK)
- Certified in the Governance of Enterprise IT (CGEIT)
- 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 Security Operations Manager (GSOM)
- GIAC Strategic Planning, Policy, and Leadership (GSTRT)
- GIAC Web Application Penetration Tester (GWAPT)
- Offensive Security Exploitation Expert (OSEE)
- Okta Certified Developer
- PMI Program Management Professional (PgMP)
- Salesforce Certified Technical Architect
- Six Sigma Master Black Belt
- TOGAF 9 Certified
  Zachman Certified - Enterprise Architect

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## IT CERTIFICATION PAY TREND HIGHLIGHTS: Market Value Losers – 3rd Quarter 2023 datasets

These IT certifications ***declined 10% or more in market value in the three months ending October 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 CERTIFICATIONS Losers

**Application Development/Programming Languages**
Oracle Certified Professional - Fusion Middleware 11g/12c Forms Developer
Oracle Database PL/SQL Developer Certified Professional
Oracle SOA Suite 12c Implementation Specialist
Oracle Certified Associate - Java SE 8 Programmer
Oracle Certified Associate - WebLogic Server 12c Administrator
Oracle PL/SQL Developer Associate
Oracle Certified Professional WebLogic Server 12c Administrator
Cloudera Certified Associate Spark and Hadoop Developer
Oracle Certified Expert - Java SE Developer (all)
Oracle E-Business Suite 12 Certified Implementation Specialist
TIBCO Certified Professional
TIBCO Certified Architect

**Data/Database certifications**
Cloudera Certified Associate Data Analyst
Oracle Certified Associate - MySQL 5.x
SAS Certified Data Scientist Using SAS 9
SAS Certified Advanced Analytics Professional Using SAS 9
Cloudera Certified Professional: Data Engineer
Microsoft Certified Azure Data Scientist Associate
Oracle Certified Professional - DBA (OCP)
Teradata 14 Certified Solutions Developer
Oracle Certified Master - DBA (OCM)

**Systems Administration certifications**
CompTIA Linux+
Microsoft Certified Solutions Associate: Windows Server 2012/2016
Microsoft Certified Azure Administrator Associate
Red Hat Certified Specialist in Messaging Administration
Oracle VM 3.0 for x86 Certified Implementation Specialist
Microsoft Certified Azure Solutions Architect
SUSE Enterprise Architect (SEA)
SUSE Enterprise Engineer (SCE)
Microsoft Certified Azure Solutions Architect Expert

**Architecture, Project Management, and Process Certifications**
HDI Desktop Support Technician
PMI Portfolio Management Professional (PfMP)
Six Sigma Yellow Belt
HDI Support Center Analyst
Certified in the Governance of Enterprise IT (CGEIT)
Certified Scrum Trainer
PMI Professional in Business Analysis (PMI-PBA)
Prince2 Practitioner
PMI Risk Management Professional (PMI-RMP)
Six Sigma Black Belt

**Info/Cyber Security certifications**
Offensive Security Defense Analyst (OSDA)
Okta Certified Administrator
GIAC Certified Intrusion Analyst (GCIA)
IBM Cloud Security Engineer Specialty
Offensive Security Wireless Professional (OSWP)
CompTIA Security+
Systems Security Certified Practitioner (SSCP)
InfoSys Security Architecture Professional (ISSAP/CISSP)
Offensive Security Experienced Penetration Tester (OSEP)
Okta Certified Consultant
Offensive Security Web Expert (OSWE)

**Networking and Communications**
CWNP/Certified Wireless Network Expert (CWNE)
Cisco Data Center Unified Computing Design Specialist
NetScout/nGenius Certified Analyst (nCA)
Juniper Networks Certified Associate (JNCIA - all specializations)
CompTIA Mobility+
Juniper Networks Certified Specialist (JNCIS - all specializations)
Brocade Certified Network Engineer

Source: Foote Partners *IT Skills & Certifications Pay Index™*, 3rd Quarter 2023 data edition

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## IT CERTIFICATIONS ANALYSIS – Winners

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

As a group, the 619 IT certifications tracked in our *IT Skills and Certifications Pay Index™* have decreased in market value in the last two calendar quarters. Let's examine those certifications that have helped drive up average cash pay premiums.

The following IT certifications meet two prerequisites:

- They ***earned workers cash pay premiums well above the average of all certifications*** in our IT Skills and Certifications Pay IndexTM in quarter ending October 1, 2023.
- They recorded substantial gains in cash market value in the six months ending October 1, 2023.

No IT certification the follows is earning less than the equivalent of 9 percent of base salary—significant considering the average for all skills reported is 6.5 percent of base—and every certification listed below grew somewhere in the 9 percent to 38 percent range in cash market value in the six months ending October 1st. ***They are listed in descending ranked order of market value gain*** (including ties).

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

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

AWS Certified DevOps Engineer - Professional
Certificate in Information Security Management Principles(CISMP)
Certificate of Cloud Security Knowledge
Certified Data Privacy Solutions Engineer
**Certified in the Governance of Enterprise IT**
Check Point Certified Security Expert (CCSE)
EC-Council Certified DevSecOps Engineer
GIAC Security Leadership (GSLC)
GIAC Security Operations Manager
Google Certified Professional Cloud Architect
IBM Certified Data Engineer - Big Data
Magento 2 Certified Professional Developer
Microsoft Certified: DevOps Engineer Expert
MongoDB Certified Developer
Salesforce Certified Technical Architect

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

* * * *

1. **GIAC Security Leadership (GSLC)**
   *Average Pay Premium:* 14 percent of base salary equivalent
   *Market Value Increase:* 25 percent (in the six months through October 1, 2023)

2. **Certificate of Cloud Security Knowledge (CCSK)**
   *Average Pay Premium:* 13 percent of base salary equivalent
   *Market Value Increase:* 18.2 percent (in the six months through October 1, 2023)

3. **Certificate in Governance of Enterprise IT (CGEIT)**
   *Average Pay Premium:* 12 percent of base salary equivalent
   *Market Value Increase:* 9.1 percent (in the six months through October 1, 2023)

4. **GIAC Security Operations Manager (GSOM)**
   *Average Pay Premium:* 11 percent of base salary equivalent
   *Market Value Increase:* 37.5 percent (in the six months through October 1, 2023)

5. **Salesforce Certified Technical Architect**
   *Average Pay Premium:* 11 percent of base salary equivalent
   *Market Value Increase:* 10 percent (in the six months through October 1, 2023)

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## IT CERTIFICATIONS ANALYSIS – Winners, cont'd.

6. **AWS Certified DevOps Engineer - Professional**
   **Google Certified Professional Cloud Architect**
   *Average Pay Premium:* 10 percent of base salary equivalent
   *Market Value Increase:* 11.1 percent (in the six months through October 1, 2023)

8. **Adobe/Magento 2 Certified Developer-Professional**
   **IBM Certified Data Engineer - Big Data**
   *Average Pay Premium:* 9 percent of base salary equivalent
   *Market Value Increase:* 28.6 percent (in the six months through October 1, 2023)

10. **Certified Data Privacy Solutions Engineer(CDPSE-ISACA)**
    **EC-Council Certified DevSecOps Engineer (ECDE)**
    **Certificate in Information Security Management Principles (CISMP)**
    **Check Point Certified Security Expert (CCSE)**
    **Microsoft Certified: DevOps Engineer Expert**
    **MongoDB Certified Developer**
    *Average Pay Premium:* 9 percent of base salary equivalent
    *Market Value Increase:* 12.5 percent (in the six months through October 1, 2023)

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## IT CERTIFICATIONS ANALYSIS – Losers

### IT CERTIFICATIONS THAT HAVE LOST THE MOST MARKET VALUE OVER TIME

**LOSING GROUND:** Listed to the right are certifications in alphabetical order that have lost **30% to 50%** percent of their cash pay premium market value in the 24-month period ending October 1, 2023. Some on this list are now retired or scheduled to be.

***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***.

Certified Scrum Developer
Cisco Certified Entry Network Technician (CCENT)
Cisco Certified Network Professional - Enterprise/Routing and Services
Cisco Certified Network Professional - Security
Cisco Data Center Unified Computing Design Specialist
Cisco Data Center Unified Fabric Support Specialist
Citrix XenServer Certified (CC-XenServer)
CIW Certified Database Design Specialist
Cloudera Certified Associate Data Analyst
Cloudera Certified Professional: Data Engineer
CompTIA A+
CompTIA Linux+
CompTIA Server+
CSX CyberSecurity Practitioner (CSXP)
Dell Platform Engineer/PowerScale - Specialist (DCS-PE)
Dell Implementation Engineer - Specialist (DCS - IE)
Dell Information Storage and Management Associate (DCA-ISM)
Dell Information Storage and Management Expert (DCE-ISM)
Dell Information Storage and Management Specialist (DCS-ISM)
GIAC Certified Forensics Analyst (GCFA)
GIAC Certified Incident Handler (GCIH)
HP Accredited Solutions Expert (ASE - all)
HP Accredited Technical Professional (ATP - all)
HP ASE - Storage Solutions V4
HP ATP - Storage Solutions V1 /V2
HP Master Accredited Solutions Expert (MASE - all)
HP Master ASE - Storage Solutions Architect V3
IBM Certified Application Developer - DB2 9.7 for Linux, Unix and Windows
IBM Certified Database Administrator - DB2 11.1 for Linux, UNIX and Windows
MCSE: Core Infrastructure **retired**
Microsoft Certified Solutions Expert : Server Infrastructure
NetScout/nGenius Certified Specialist (nCS)
Novell Certified Administrator (CNA)
Oracle Certified Professional - DBA (OCP)
Oracle PL/SQL Developer Associate
Red Hat Certified Architect (RHCA)
Salesforce Platform App Builder
SAS Certified Big Data Professional Using SAS 9
SAS Certified Data Scientist Using SAS 9
SAS Certified Advanced Analytics Professional Using SAS 9
Six Sigma Yellow Belt
Systems Security Certified Practitioner (SSCP)
Teradata 14 Certified Database Administrator

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# 2023 IT Skills & Certifications Pay Volatility Index™

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

(Data collected through October 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).

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## 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 October 1, 2023 according to the latest update of Foote Partners' long-running *IT Skills and Certifications Pay Index™* of market values for tech skills. Market value is measured by tracking additional cash compensation paid to workers by their employers for specific certified and non-certified skills they possess.

### Current Quarterly Recap (data collected through October 1, 2023)

**TOTAL: All Skills and Certifications**

- **21.6%** of skills and certifications(280 of 1,296) recorded a change in cash pay premium in 3nrd Quarter 2023, considerably lower than 28.3% the prior quarter(364 of 1,286) and lower than the 24.3% average quarterly volatility over the last two years.
- **108** gained value while **172** declined in value in 3nrd Quarter 2023, significantly lower than the 159 and 205, respectively, in the prior quarter which had ranked as the highest quarterly pay volatility in three years.

**CERTIFIED SKILLS**

- **15.8%** of reported certifications(97 of 614) changed market value in 3rd Quarter 2023, eight points lower than the **23.8%** (144 of 606) pay volatility in the prior quarter and also lower than the 18.3% average quarterly volatility in the last 24 months.
- **32** certifications gained market value while **65** declined in value in Q3 compared to 49 and 95, respectively, in the prior quarter.

**NON-CERTIFIED SKILLS**

- **26.8%** of reported skills (220 of 675) changed value in 3rd Quarter 2023, significantly lower than the **32.4%** (220 of 679) volatility in the prior quarter. This is 2 points lower than the twelve month average volatility and nearly 3 points lower than the two year average.
- **76** noncertified skills gained in market value while **107** declined in value in 3rd Quarter 2023 compared to 110 and 110, respectively, in the prior quarter.

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 1,313 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.

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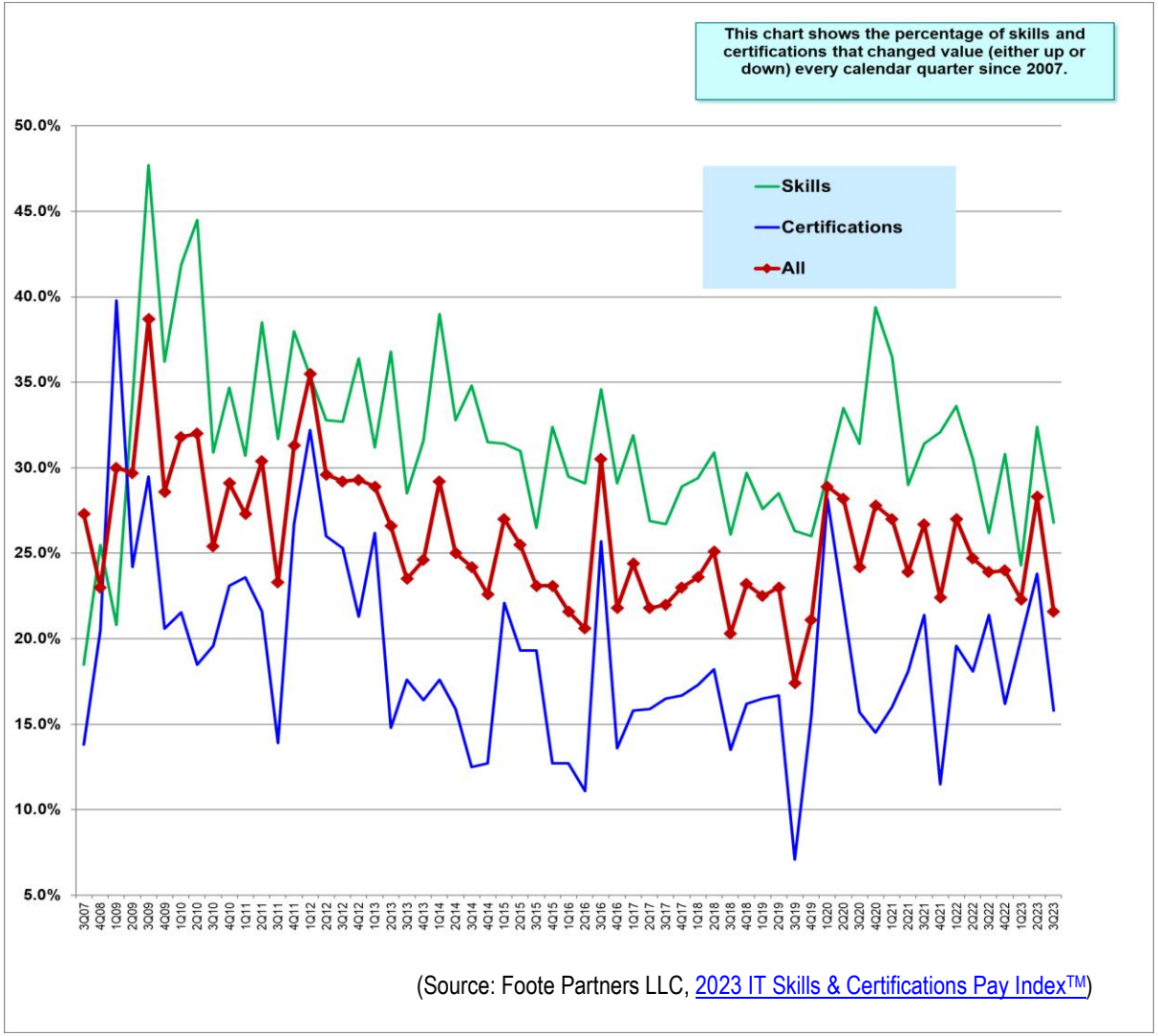
## VOLATILITY HIGHLIGHTS - 17 Year Trending

### IT Skills and Certifications Volatility Index™ – 1,313 Skills and Certifications




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

**Recent IT skills and certifications volatility trends**

**QUARTERLY SUMMARY**

In the **3rd Quarter 2023**, 21.6% of skills and certifications(280 of 1,296) recorded a change in cash pay premium, considerably lower than 28.3% the prior quarter which---the highest quarterly pay volatility recorded in the last three years---and lower than the 24.3% average quarterly volatility over the last two years.

***IT CERTIFICATIONS PAY VOLATILITY*** in 3Q 2023 was 15.8%, or 8 points lower than the prior quarter (23.8%) and nearly 4 points fewer than the first quarter of 2023.

***NONCERTIFED IT SKILLS PAY VOLATILITY*** in 3Q 2023 was 26.8% or nearly 6 points lower than the prior quarter (32.4%). It's also 2 points lower than the twelve month average volatility and nearly 3 points lower than the two year average.

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

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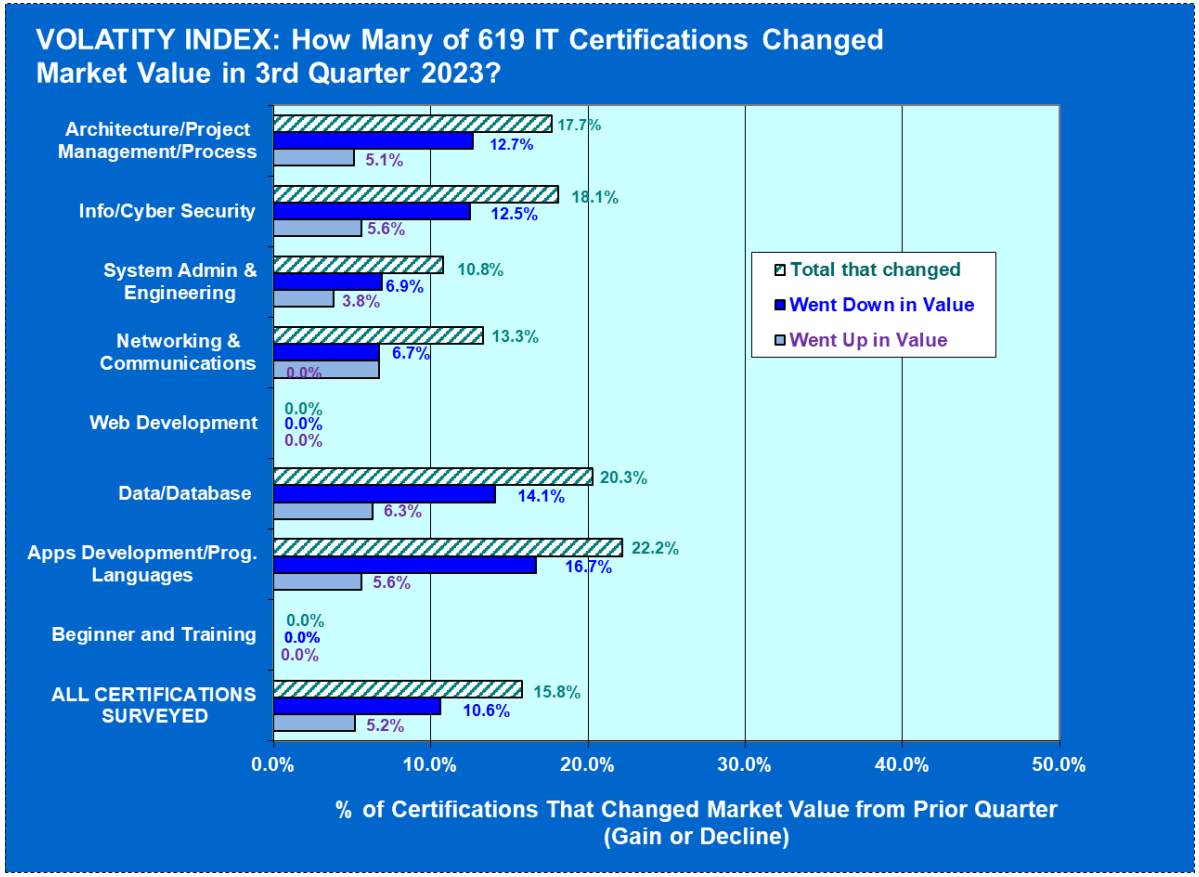
## VOLATILITY HIGHLIGHTS IT Certifications – 3rd Quarter 2023 datasets




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

### IT Skills and Certifications Volatility Index™
### 3Q 2023 data edition findings: Tech Certifications

**IT Certifications Volatility Highlights**

Among all 619 certifications surveyed, highest quarterly volatility (>15%) occurred in these segments (ranked highest to lowest):

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

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

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

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

- No gains larger than 6.3%

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

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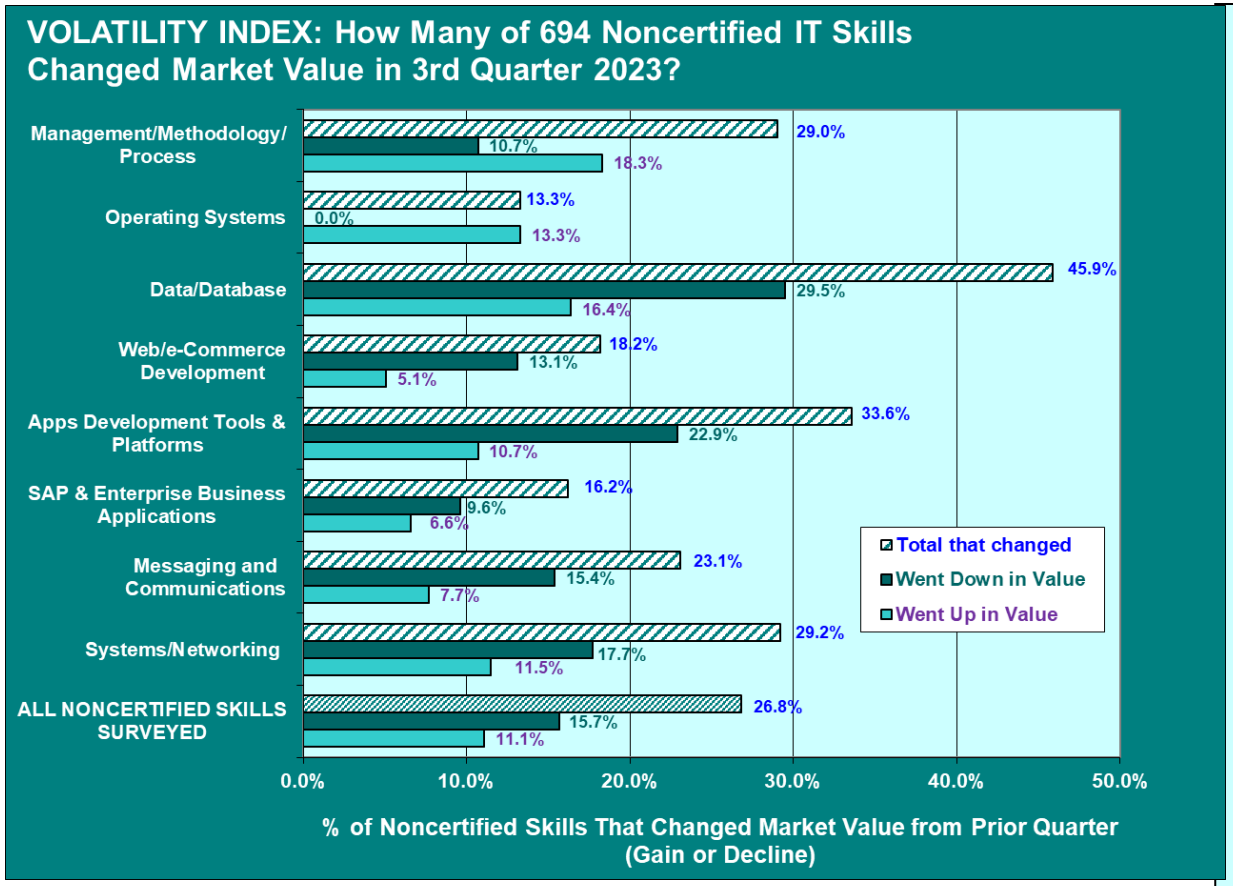
## VOLATILITY HIGHLIGHTS Non-certified IT Skills – 3rd Quarter 2023 datasets




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

### IT Skills and Certifications Volatility Index™
### 3Q 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
- Applications Development Tools & Platforms
- [TIE] Systems/Networking; Management/ Methodology/Process
- Messaging and Communications

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

- Data/Database
- Applications Development Tools & Platforms

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

- Management/Methodology/Process
- Data/Database

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

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

- Pay premiums for **1,313 certified and noncertified IT skills**
  - Three data points for each position: 10th, 50th, 90th percentile
- Verified and validated IT skills pay data from **94,672 IT professionals at 4,258 employers** in US and Canada
- Current data collected through October 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™*** **(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 4,258 employers in 83 U.S. and Canada cities are reported for IT salaries and skills pay earned for 270 positions and 1,313 certified and noncertified technical and business skills. Verified and validated pay data for 94,672 tech workers has been included in the 2nd Quarter 2023 data edition of the ITSCPI, compiled from data collected through October 1, 2023.

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

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

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

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

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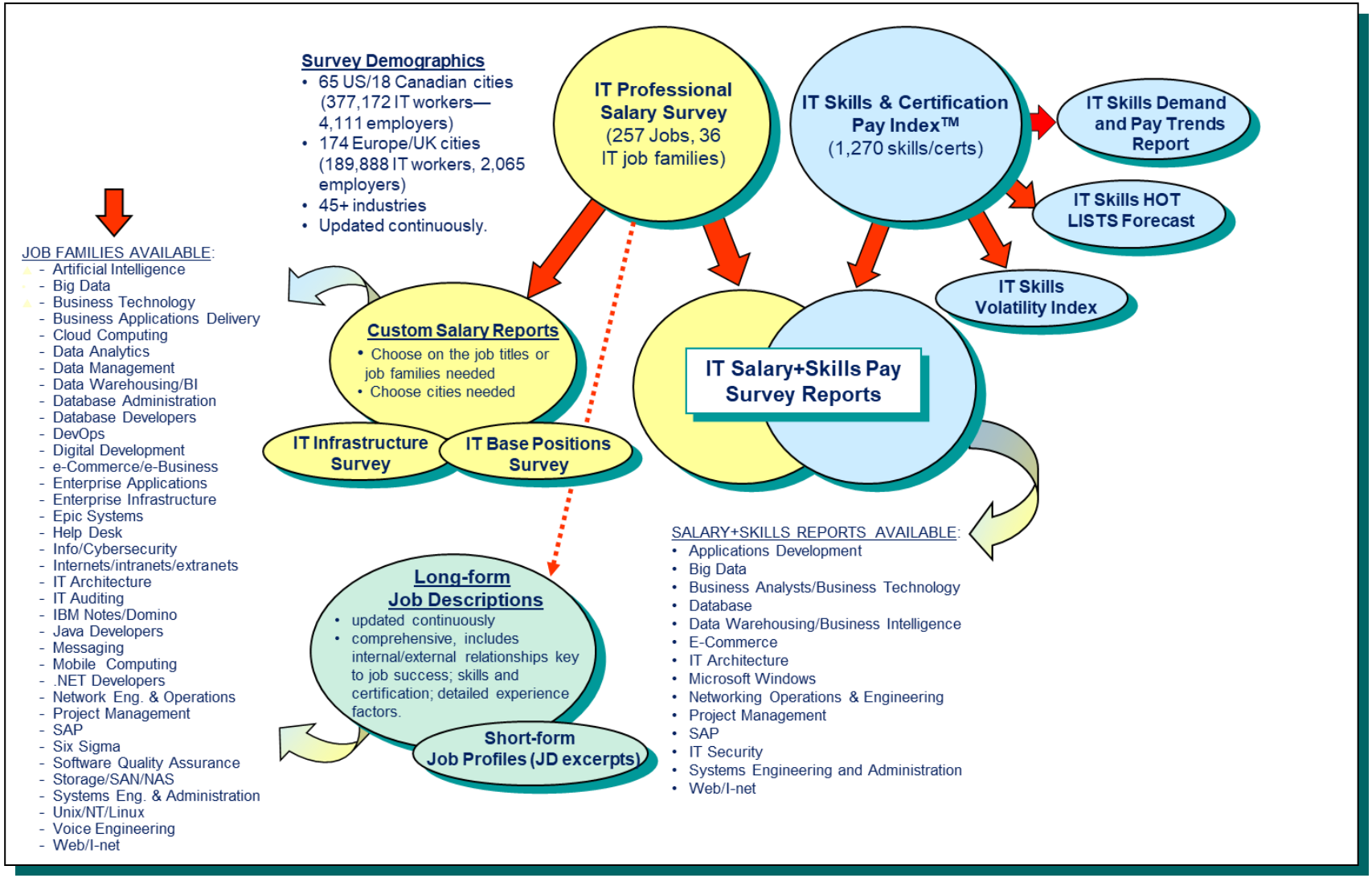
## Foote Partners 2023 IT Compensation Survey Product Map

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## 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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