DIGITAL ON MORLD

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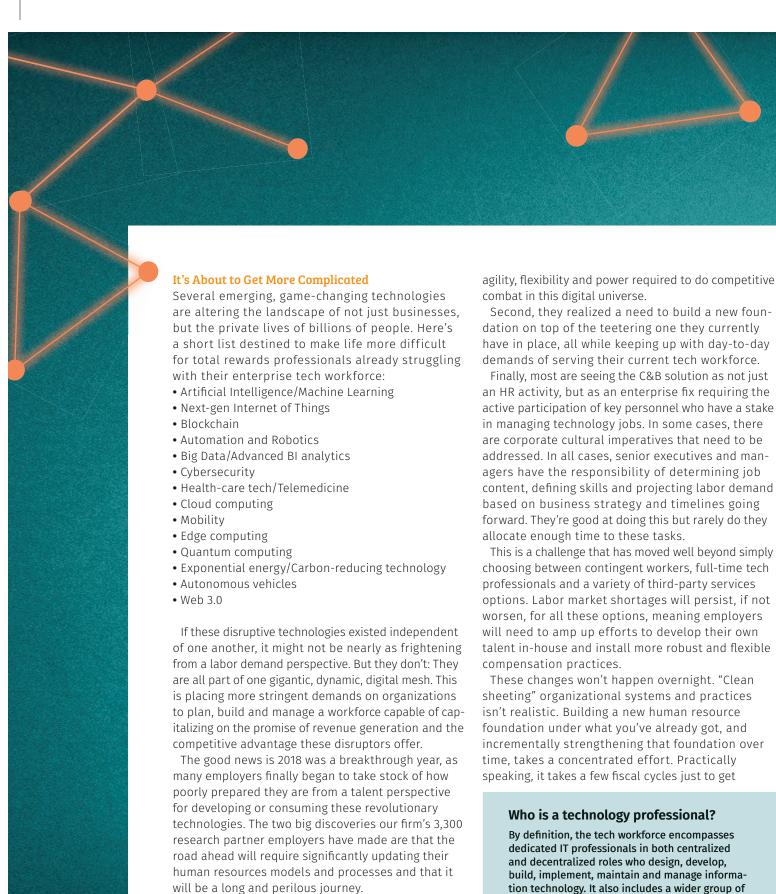
t's difficult to find an employer that isn't struggling to come up with its own unique tech staffing model that balances four things: the urgencies of new digital innovation, combating deepening cybersecurity threats, ever-changing customer sophistication and keeping increasingly complex systems and networks running smoothly and efficiently.

Getting compensation right for technology professionals has been an especially nagging problem. Compensation and benefits (C&B) teams have experienced decades of constant market price volatility for tech jobs, driven by the swinging pendulum of hot skills and tech labor supply and demand. No less of a challenge has been the multidimensionality of hard-to-fill technology positions with their countless combinations of skills, knowledge and experience in jobs that no salary survey can possibly capture.

And it's not just the technology skills that make it difficult: Try calculating pay and balancing internal equity when there's also hybridism in how these jobs fit along a tech-business continuum. Layered throughout the enterprise, tech jobs often require knowledge and experience in specific company products or services, business processes and solutions and even industries and customer niches.



38-44_MAY19_WAW_TechPro_P3.indd 39 4/5/19 11:09 AM



By definition, the tech workforce encompasses dedicated IT professionals in both centralized and decentralized roles who design, develop, build, implement, maintain and manage information technology. It also includes a wider group of analysts, architects, product developers, project managers and developers. Today, you can find tech pros reporting to finance and accounting departments, operations, logistics/distribution, marketing, sales, HR, lines of business and product development groups. Some tech jobs are customer-facing, while others are strictly internal. The complexity of properly compensating tech workers across so many domains should be obvious, especially when it comes to defining

The Challenge

In a process reminiscent of a 12-step program, the past few years has witnessed employers first facing up to the reality that they have been trying to squeeze performance out of underperforming HR management systems, outdated compensation practices and ad hoc work-around solutions that no longer work for their tech professionals. Too often absent is the kind of

internal equity.

38-44_MAY19_WAW_TechPro_P4.indd 40

May 2019

WORKSPAN

Tech skills pay programs will buy you valuable time to work on more permanent fixes to structural problems that for years have encouraged managers to game a broken system to get what they need.

budgets in line as a cascade of carefully orchestrated pay programs and recruiting and training efforts are launched for optimally restructuring the workforce for the disruptive digitalization.

Ironically, C&B groups will be able to count on digital technology for help. Eventually, artificial intelligence (AI) will be ubiquitous in tasks such as matching internal jobs to external compensation benchmarks, recommending optimized pay raises and breaking with predetermined process cycles to tailor pay and benefits reviews to individual employee circumstances. It's still early stage: For example, only 9% of organizations said they are currently using AI in their compensation processes, while 32% are just thinking about it, according to the WorldatWork/Salary.com survey, "The Compensation Function of the Future: Looking Ahead to 2020."

Ground Rules for Paying Tech Professionals

Rule #1: It's nearly impossible to rely on salary and bonus alone.

There are too many moving parts in constructing tech jobs, especially in the digital mesh. Attracting, retaining and incentivizing tech talent often requires paying extra cash over and above salary for specific certified and uncertified tech and business skills critical to job performance.

Skills cash pay premiums solve a myriad of problems including:

- **Salary compression:** Bringing total cash compensation to true market levels when annual salary increases for hot jobs fail to match external market pay growth;
- Market volatility: Making pay adjustments for short-term ups and downs in hot tech skills demand that attract the attention of recruiters searching for skills gaps to exploit;
- **Retention:** Leveling the playing field for tech labor market competitors who attempt to use

high salary/low bonus compensation philosophies to convince people to jump ship;

- **Hiring:** Justifying sign-on bonuses by tying them to specific hot tech skills and certifications;
- **Incentives:** Communicating to workers which skills will boost their visibility, accelerate their promotability and earn them more total cash compensation if they qualify; and
- **Job equalization:** Maintaining true job alignment by using cash premiums to keep similar jobs appropriately leveled and graded across the enterprise, thereby avoiding artificial promotions and title inflation.

Tech skills pay programs will buy you valuable time to work on more permanent fixes to structural problems that for years have encouraged managers to exploit a broken system to get what they need. Employers can use skills pay to differentiate tech workers who perform essentially the same core job and are graded similarly — software engineers, for instance — but work in areas with significantly different skills requirements, such as e-commerce groups versus the data center. This can also reduce the number of job titles in the organization by focusing more on roles than titles for salary comparisons and further fine-tuning pay through cash premiums.

The trick is to tie this extra cash directly to current surveyed market values for skills/certifications and guarantee the premium for a relatively short period of time, usually one year. After the premium's time period expires, the employer can check whether cash market values have changed and then decide if it makes sense to continue paying the premium or reprice, if necessary. Or, switch out last year's hot skills group for new ones that better match the latest skills demand and acquisition plans.

WORKSPAN | May 2019

38-44 MAY19 WAW TechPro P3.indd 41 4/5/19 11:10 AM



What is an individual tech skill or certification worth?

Quarterly average median pay premiums since 2001 (expressed as equivalent percent of base salary) NOTE: Values are expressed as '% of base salary' but may or may not be paid as part of salary



Source: Foote Partners' IT Skills and Certifications Pay Index - 1st Quarter 2019 data edition.

Architecture-Driven Pay Practices for the Digital Age

With their digital futures in mind, senior executives have been asking not just HR leaders, but also business line and technology leaders to be more accountable in solving tech labor issues. Scrutiny of their performance has intensified, starting with greater security (against dreaded cyber attacks), advanced analytics (for making more informed decisions) and capitalizing on fast-moving opportunities such as blockchain, Internet of Things, AI, cloud, mobile and a variety of other digital innovations.

With new pressures to execute more predictably in unfamiliar areas, applying architecture principles and practices to managing the tech workforce is widely observed as providing, by far, the most consistent, viable solutions to systemic tech compensation problems.

So-called tech people architecture (TPA) is very similar in principle to traditional architecture initiatives, but it is applied to tech workforce management practices. There are capability road maps, phase-gate blueprints and performance metrics. Governance issues need attention and business strategy drives it all. But with TPA, it's about how key human capital management elements such as job definition and design, skills demand and acquisition, compensation, incentives and recognition, professional development and work-life balance plug into an overall optimized operational model that is different going forward than it has been in the past. The model is tuned to new

technologies, constantly changing business environment, and culture and performance philosophies. And, like any disciplined architecture approach, it promotes scalability and flexibility.

Across our research partner network of thousands of employers in the United States and Canada, we've observed results from TPA efforts that include:

- Reducing by 50% to 70% the number of tech-related job titles necessary to plan and administer pay;
- Reducing tech staff churn in key roles, especially the most experienced tech workers;
- Less uncertainty about how much to pay tech professionals, especially new jobs and the "Swiss Army knife" hybrid positions;
- Narrowing or altogether eliminating persistent internal technology skills gaps;
- Reducing job definition/design chaos around tech jobs that don't fit in very well with established tech roles;
- Mapping out how workers can move more effectively through promotions and career paths; and
- Increasing consistent availability and quality of skills and workers and achieving higher utilization rates.

Why does TPA work when other solutions have not? Because business architecture practices have been successful for over a century; they are familiar to both business and technology executives. When technology architecture became popular 30 years ago, companies were able to achieve an understanding of what they had systems-wise and could erect guardrails to avoid unwise future technology

38-44_MAY19_WAW_TechPro_P3.indd 42 4/5/19 11:13 AM

Figure 2 | Highest Paying Certified and Non-Certified Technology Skills

Shown by category, in descending order including ties. Data through January 1, 2019.

Non-Certified Tech Skills 1. (tie) Big Data analytics Data Architecture Data Visualization Ethereum Metadata design and development Quantitative Analysis/Regression Analysis 7. (tie) Cloudera Impala Cryptography (encryption, VPN, SSL/TLS, Hybrids) Hbase Machine Learning Microservices Objective Caml Quality management/TQM

Security architecture and models

17. (tie) Amazon Kinesis

Smart Contract

Zachman Framework

Amazon RedShift

Apache Hive

Apache Pig

Apache Spark Artificial Intelligence

Blockchain

Cloud Foundry PaaS

Cybersecurity Data Science

DevOps

IT Governance

MapReduce

Master data management

Predictive Analytics and Modeling

Risk analytics/assessment

Security skills (special project assignments)

Splunk Sqoop

37. (tie) Apache Cassandra

Apache CouchDB

Apache Hadoop

Apache Zookeeper

Configuration Management

Continuous Integration

Data Analytics

Data Governance Data Integration

Data Modelling

Data Security

Go language (Golang)

Informatica

Infrastructure architecture

JBehave

Kanban

Oracle Coherence

Oracle Exadata

Penetration testing Program Management

Risk management

Social media analytics

User Experience/Interface Design

Tech Certifications

1. Certified Cyber Forensics Professional

2. Cybersecurity Forensic Analyst

3. (tie) Certified Forensic Computer Examiner Certified in the Governance of Enterprise IT **GIAC Security Expert** PMI Professional in Business Analysis

7. (tie) Certified in Risk and Information Systems Control Certified Scrum Master

> Cisco Certified Architect GIAC Web Application Penetration Tester PMI Portfolio Management Professional

PMI Program Management Professional Six Sigma Master Black Belt

14. (tie) Certified Information Systems Auditor Check Point Certified Security Master ITII Master PMI Risk Management Professional

18. (tie) Certified Cloud Security Professional

Certified Computer Examiner

Certified Fraud Examiner

Certified Information Security Manager

Certified Information Systems Security Professional

Certified IT Architect

Certified Scrum Professional

Certified Secure Software Lifecycle Professional Cisco Certified Network Professional - Security

Cloudera Certified Professional: Data Scientist

Certified Cloud Security Professional

EC-Council Certified Ethical Hacker

EC-Council Certified Incident Handler EC-Council Licensed Penetration Tester

EMC Cloud Architect Expert

GIAC Certified Penetration Tester

GIAC Cyber Threat Intelligence

GIAC Reverse Engineering Malware

GIAC Security Leadership

Information Systems Security Architecture Professional Information Systems Security Engineering Professional

Information Systems Security Management Professional PMI Project Management Professional

SAS Certified Data Scientist

43

May 2019

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Source: Foote Partners' IT Skills and Certifications Pay Index - 1st Quarter 2019 data edition.

38-44_MAY19_WAW_TechPro_P3.indd 43 4/5/19 11:11 AM



Figure 3 | Technology People Architecture Begins by Focusing on Tech Roles, Not Job Titles

High-Level Role	Architect	Analyst		Software Engineer	IT Specialist				Project/ Program Management	Tech- Business Roles
Role Sub-Group	(same)	General Analyst	Business Analyst	Software Engineer	Programmer/ Developer	Infrastructure Engineer	Technician	Administrator	(same)	TBD
Manager										
Sr. Consultant										
Consultant										
Lead										
Senior										
Intermediate										
Associate										
Entry										

Source: Foote Partners LLC

investments. They could instead focus on more vital things like scalability, systems integration and providing tech solutions to further company strategy, all within a process inclusive of all the various stakeholders who share risk in the outcome.

TPA is generally a five-step process and doesn't have to be a big initiative with lots of fanfare. In fact, it's common to see TPA initiatives improve the ability of companies to transform to new tech workforce models in targeted employee segments such as info/ cybersecurity, digital product development, mobile platforms, cloud computing and big data analytics.

The one constant between small and large initiatives is committed participation of managers in all five steps:

- Defining standard tech roles;
- Aligning current and future jobs to each role;
- Documenting jobs and building a role architecture framework;
- Melding an agile compensation structure within
- Making sure tech rank-and-file professionals understand their job expectations, career paths and professional development opportunities in the new

By this time next year, it can be expected that a number of new TPA success stories will be available in the compensation and benefits space, serving as solid examples for how to tame the digital monster at your doorstep. ws

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Research Methodology

Foote Partners continuously gathers confidential information on tech salaries and skills pay premiums in 83 U.S. and Canadian cities through research partnerships with 3,305 employers. More than 50 discrete compensation survey segment reports and market trends analyses are published and regularly updated, with coverage constantly expanding as new jobs and skills evolve in the dynamic marketplace for technology talent. Multiple validation and reliability mechanisms are used to ensure accuracy and consistency in processing compensation data covering more than 300,000 tech professionals. Interviews are conducted quarterly with between several hundred executives and decision makers for insights into tech workforce management strategies, technology investments and related skills acquisition, and labor market trends. Included in our research demographics are private, public, educational and not-for-profit organizations of all sizes representing more than 40 industries.



38-44_MAY19_WAW_TechPro_P3.indd 44 4/5/19 11:13 AM